ANEJO Nº 6. ESTRUCTURAS

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ÍNDICE

1. CUADRO RESUMEN
2. DESCRIPCIÓN (Tipología, aparatos de apoyo, juntas, impermeabilización, etc.)
   - 2.1. VIADUCTO DE CORNELLÁ
   - 2.2. LOSA PILOTADA
   - 2.3. PASARELA PEATONAL
   - 2.4. MUROS
3. DEFINICIÓN GEOMÉTRICA
4. CÁLCULOS

ACCIONES CONSIDERADAS

1. VIADUCTO DE CORNELLÁ
2. LOSA PILOTADA
3. PASARELA
4. PROGRAMAS UTILIZADOS

4.1. VIADUCTO DE CORNELLÁ. CÁLCULO DEL TABLERO

1. TABLERO
2. CÁLCULO ESTRUCTURAL DEL TABLERO EN CONSTRUCCIÓN
   1. CÁLCULO ESTRUCTURAL CON MODELO DE VIGA CONTINUA
   2. CÁLCULO DE ESFUERZOS LONGITUDINALES
   3. CÁLCULO DINÁMICO
   4. CÁLCULO DEL COEFICIENTE DE IMPACTO
4. PRETENSADO
5. VERIFICACIÓN DE LOS ESTADOS LÍMITES DE SERVICIO
6. VERIFICACIÓN DEL E.L.U. DE ROTURA POR TENSIONES NORMALES
7. ESTUDIO DEL EFECTO DE LA AUTOCIMBRA SOBRE EL TABLERO

CÁLCULO DEL PRETESANDO DEL TABLERO DEL VTO. DE CORNELLÁ

1. ANTECEDENTES
2. ACCIONES, MATERIALES, COEFICIENTE DE SEGURIDAD Y NORMATIVA
3. CÁLCULO ESTRUCTURAL

ESTUDIO DE LOS ESFUERZOS INDUCIDOS EN PILOTES POR CARGA DEL TERRAPLEN EN LOS ESTRIBOS

1. OBJETO DEL INFORME
2. CARACTERIZACIÓN DE LOS MATERIALES DEL CIMIENTO DEL VIADUCTO
3. ESFUERZOS INDUCIDOS EN LOS PILOTES POR LAS CARGAS DEL TERRAPLÉN
4. CÁLCULO MEDIANTE ELEMENTOS FINITOS
5. CONCLUSIONES

APÉNDICE 1. CÁLCULOS PREVIOS

APÉNDICE 2. SALIDAS DE ORDENADOR DE LA SOLUCIÓN A EJECUTAR

NOTA TÉCNICA SOBRE LA VERIFICACIÓN DE LAS PILAS 9 Y 10 DEL VIADUCTO DE CORNELLÁ

4.2. CÁLCULO DE LOSA PILOTADA

MEMORIA DECÁLCULO DE LA LOSA PILOTADA ENTRE EL PK 702+980 AL 703+380. MÓDULO 1 a 6 y 13 TIPO I

1. GEOMETRÍA
2. ACCIONES, MATERIALES, COEFICIENTES DE SEGURIDAD Y NORMATIVAS
3. CÁLCULO ESTRUCTURAL
4. VERIFICACIÓN DE LOS ESTADOS LÍMITES DE SERVICIO
5. VERIFICACIÓN DEL E.L.U. DE ROTURA POR TENSIONES NORMALES
6. VERIFICACIÓN DEL E.L.U. DE ROTURA POR TENSIONES TANGENCIALES
7. JUNTAS TRANSVERSALES
8. VERIFICACIÓN DEL E.L.U. DE FATIGA
9. CÁLCULO DE LA CIMENTACIÓN

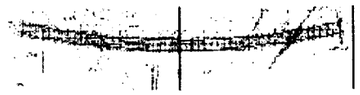
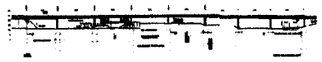
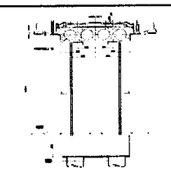
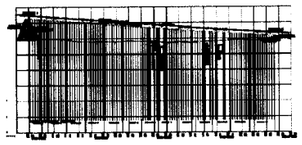
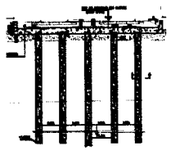
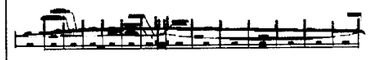
10. ANÁLSIS DE LA INTERACCIÓN VÍA-ESTRUCTURA
MEMORIA DE CÁLCULO DE LA LOSA PILOTADA ENTRE EL PK 702+980 AL 703+380. MOD.7.= MODULO TIPO II
1. GEOMETRÍA
2. ACCIONES, MATERIALES, COEFICIENTES DE SEGURIDAD Y NORMATIVAS
3. CÁLCULO ESTRUCTURAL
4. VERIFICACIÓN DE LOS ESTADOS LÍMITES DE SERVICIO
5. VERIFICACIÓN DE LA E.L.U. DE ROTURA POR TENSIONES NORMALES
6. VERIFICACIÓN DE LA E.L.U. DE ROTURA POR TENSIONES TANGENCIALES
7. JUNTAS TRANSVERSALES
8. VERIFICACIÓN DEL E.L.U. DE FATIGA
9. CÁLCULO DE LA CIMENTACIÓN
10. ANÁLISIS DE LA INTERACCIÓN VÍA-ESTRUCTURA
MEMORIA DE CÁLCULO DE LA LOSA PILOTADA ENTRE EL PK 702+980 AL 703+380. MOD.8 =MÓDULO TIPO III
1. GEOMETRÍA
2. ACCIONES, MATERIALES, COEFICIENTES DE SEGURIDAD Y NORMATIVAS
3. CÁLCULO ESTRUCTURAL
4. VERIFICACIÓN DE LOS ESTADOS LÍMITES DE SERVICIO
5. VERIFICACIÓN DE LA E.L.U. DE ROTURA POR TENSIONES NORMALES
6. VERIFICACIÓN DE LA E.L.U. DE ROTURA POR TENSIONES TANGENCIALES
7. JUNTAS TRANSVERSALES
8. VERIFICACIÓN DEL E.L.U. DE FATIGA
9. CÁLCULO DE LA CIMENTACIÓN
10. ANÁLISIS DE LA INTERACCIÓN VÍA-ESTRUCTURA
MEMORIA DE CÁLCULO DE LA LOSA PILOTADA ENTRE EL PK 702+980 AL 703+380. MOD.10= MÓDULO TIPO IV
1. GEOMETRÍA
2. ACCIONES, MATERIALES, COEFICIENTES DE SEGURIDAD Y NORMATIVAS
3. CÁLCULO ESTRUCTURAL
4. VERIFICACIÓN DE LOS ESTADOS LÍMITES DE SERVICIO
5. VERIFICACIÓN DE LA E.L.U. DE ROTURA POR TENSIONES NORMALES
6. VERIFICACIÓN DE LA E.L.U. DE ROTURA POR TENSIONES TANGENCIALES
7. JUNTAS TRANSVERSALES
8. VERIFICACIÓN DEL E.L.U. DE FATIGA
9. CÁLCULO DE LA CIMENTACIÓN
10. ANÁLISIS DE LA INTERACCIÓN VÍA-ESTRUCTURA
MEMORIA DE CÁLCULO DE LA LOSA PILOTADA ENTRE EL PK 702+980 AL 703+380. MOD.11=MÓDULO TIPO V
1. GEOMETRÍA
2. ACCIONES, MATERIALES, COEFICIENTES DE SEGURIDAD Y NORMATIVAS
3. CÁLCULO ESTRUCTURAL
4. VERIFICACIÓN DE LOS ESTADOS LÍMITES DE SERVICIO
5. VERIFICACIÓN DE LA E.L.U. DE ROTURA POR TENSIONES NORMALES
6. VERIFICACIÓN DE LA E.L.U. DE ROTURA POR TENSIONES TANGENCIALES
7. JUNTAS TRANSVERSALES
8. VERIFICACIÓN DEL E.L.U. DE FATIGA
9. CÁLCULO DE LA CIMENTACIÓN
10. ANÁLISIS DE LA INTERACCIÓN VÍA-ESTRUCTURA
ESTUDIO DE JUNTAS DE DILATACIÓN MEDIANTE CONECTORES TIPO CRET
ANEXOS:
ANEXO 1
ANEXO 2
ANEXO 3
ANEXO 4
PROPUESTA DE NUEVA UNIÓN LOSA-PILOTE PARA LA LOSA
CÁLCULO DE LA LONGITUD DE ANCLAJE DE LAS ARMADURAS ACTIVAS EN LOS PILOTES PREFABRICADOS
CÁLCULO DE LA RESISTENCIA A CORTANTE EN FUNCIÓN DEL AXIL DEBIDO A CARGAS EXTERIORES
LISTADO DE ESFUERZOS MÁXIMOS Y MÍNIMOS EN PILOTES (ELU) PARA LOS MÓDULOS 1 A 6 y 13
AXILES EN CORONACIÓN DE PILOTES PARA COMBINACIONES EN ESTADOS LÍMITE ÚLTIMO
NOTA TÉCNICA SOBRE EL ARMADO DE LAS ZONAS DONDE SE HAN HINCADO PILOTES DE SUSTITUCIÓN
APÉNDICE 1. PLANOS DE SITUACIÓN DE LOS PILOTES DAÑADOS Y LOS PILOTES DE SUSTITUCIÓN
APÉNDICE 2. LISTADOS DE ESFUERZOS EN PILOTES DEL MÓDULO 2
APÉNDICE 3. CAPACIDAD PORTANTE Y RESISTENTE DE LOS PILOTES

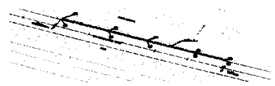
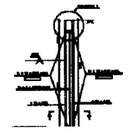
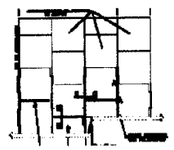
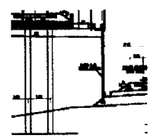
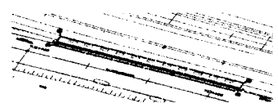
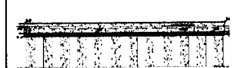
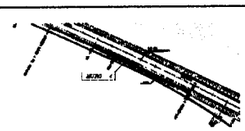
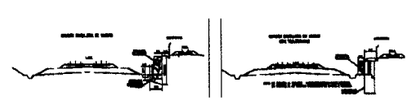
APÉNDICE 4. MAPAS DE ESFUERZOS EN LAS ZONAS ESPECIALES DEL MÓDULO 2 DE LA LOSA
APÉNDICE 5. DIMENSIONAMIENTO DE ARMADURAS Y VERIFICACIÓN EN ELU DE LA LOSA
APÉNDICE 6. PLANO DE ARMADURAS EN LAS ZONAS AFECTADAS POR LOS PILOTES DE SUSTITUCIÓN
4.3. CÁLCULO DE LA PASARELA PEATONAL DE CORNELLÁ
1. DESCRIPCIÓN DE LA ESTRUCTURA
2. BASES DECÁLCULO
3. TABLERO
4. APOYOS
5. PILAS
6. PLATAFORMA
7. RAMPAS DE ACCESO
8. CIMENTACIONES
APÉNDICE. LISTADOS CÁLCULOS MECANIZADOS
4.4. MUROS
4.4.1. CÁLCULO DEL MURO 1 (PK703+450)
1. INTRODUCCIÓN
2. DESCRIPCIÓN DE LA ESTRUCTURA
3. NORMATIVA APLICABLE
4. CARGAS APLICABLES
5. MATERIALES
6. COEFICIENTE DE SEGURIDAD
7. CARACTERÍSTICAS GEOTÉCNICAS DEL TERRENO
8. CÁLCULOS
ANEJO 1: RESULTADO DE LOS ESFUERZOS EN LA PANTALLA
INTERSECCIÓN CON TUBO FECSA. CÁLCULOS
4.4.2. CÁLCULO DEL MURO 2 (PK705+500 A 705+580)
1. INTRODUCCIÓN
2. DESCRIPCIÓN DE LA ESTRUCTURA
3. NORMATIVA APLICABLE
4. CARGAS APLICABLES
5. MATERIALES
6. COEFICIENTE DE SEGURIDAD
7. CARACTERÍSTICAS GEOTÉCNICAS DEL TERRENO
8. CÁLCULOS
9. PROGRAMAS INFORMÁTICOS
ADENDA A LA NOTA DE CÁLCULO
4.4.3. CÁLCULO DEL MURO 1B
4.4.4. CÁLCULO DEL MURO 4
1. INTRODUCCIÓN
2. DESCRIPCIÓN DE LA ESTRUCTURA
3. NORMATIVA APLICABLE
4. CARGAS APLICABLES
5. PROGRAMAS INFORMÁTICOS UTILIZADOS
6. RESULTADOS
7. CONCLUSIONES
ANEJO 1: CÁLCULOS SECCIÓN 1 PARA T=0
ANEJO 2: CÁLCULOS SECCIÓN 1 PARA T=100
ANEJO 3: CÁLCULOS SECCIÓN 2 PARA T=0
ANEJO 4: CÁLCULOS SECCIÓN 2 PARA T=100
ANEJO 5: SECCIONES TABLESTACAS PARA T=100
4.4.5. CÁLCULOS DE PROTECCIONES
5. PROCESO CONSTRUCTIVO
6. CONTROL DE CALIDAD
6.1. CONTROL CALIDAD EMPRESA CONSTRUCTORA
6.1.1. ESTRUCTURAS “IN SITU” Y PEQUEÑAS OBRAS DE FÁBRICA
6.1.1.1. VIADUCTO
6.1.1.1.a. CONTROL DEL HORMIGÓN
6.1.1.1.b CONTROL ACERO
6.1.1.1.c OTROS ENSAYOS
6.1.1.1.d CONTROL GEOMÉTRICO
6.1.1.2. LOSA
6.1.1.2.a. CONTROL DEL HORMIGÓN
6.1.1.2.b CONTROL ACERO
6.1.1.2.c OTROS ENSAYOS
6.1.1.2.d CONTROL GEOMÉTRICO

6.1.1.3. PASARELA
6.1.1.3.a. CONTROL DEL HORMIGÓN
6.1.1.3.b CONTROL ACERO
6.1.1.3.c OTROS ENSAYOS
6.1.1.3.d CONTROL GEOMÉTRICO
6.1.1.4. MUROS
6.1.1.4.a. CONTROL DEL HORMIGÓN
6.1.1.4.b CONTROL ACERO
6.1.1.4.c OTROS ENSAYOS
6.1.1.4.d CONTROL GEOMÉTRICO
6.1.2. ESTRUCTURAS PREFABRICADAS
6.1.2.a. MURO B
6.2. CONTROL CALIDAD ASISTENCIA TÉCNICA
6.2.1. ESTRUCTURAS “IN SITU” Y PEQUEÑAS OBRAS DE FÁBRICA
6.2.1.1. VIADUCTO
6.2.1.1.a CONTROL DEL HORMIGÓN
6.2.1.1.b. CONTROL DEL ACERO
6.2.1.1.c. OTROS ENSAYOS
6.2.1.1.d. CONTROL GEOMÉTRICO
6.2.1.2. LOSA
6.2.1.2.a CONTROL DEL HORMIGÓN
6.2.1.2.b. CONTROL DEL ACERO
6.2.1.2.c. OTROS ENSAYOS
6.2.1.2.d. CONTROL GEOMÉTRICO
6.2.1.3. PASARELA
6.2.1.3.a CONTROL DEL HORMIGÓN
6.2.1.3.b. CONTROL DEL ACERO
6.2.1.3.c. OTROS ENSAYOS
6.2.1.3.d. CONTROL GEOMÉTRICO
6.2.1.4. PASARELA
6.2.1.4.a CONTROL DEL HORMIGÓN
6.2.1.4.b. CONTROL DEL ACERO
6.2.1.4.c. OTROS ENSAYOS
6.2.1.4.d. CONTROL GEOMÉTRICO
6.2.2. ESTRUCTURAS PREFABRICADAS (EXPEDIENTE DE FABRICACIÓN)
7. ACCESOS Y ELEMENTOS PARA MANTENIMIENTO
8. RECOMENDACIONES PARA LA CONSERVACIÓN Y MANTENIMIENTO
9. MOVIMIENTOS PREVISTOS EN LAS ESTRUCTURAS

1. Cuadro resumen

CUADRO RESUMEN DE ESTRUCTURAS

ESTRUCTURA	P.K.	DENOMINACIÓN	TIPOLOGÍA	ISOSTÁTICA-HIPERESTÁTIC	ESVIAJE	LUCES	CANTO	ANCHO	PROCEDIM. CONSTRUCTIVO	PLANTA	PERFIL	SECCIÓN
2.9.1.	702+174	VIADUCTO DE CORNELLÁ	LOSA DE H.P.. ALIGERADA	HIPERESTÁTICA	100g	33-4x40-40-39-28	2.00	14.00	VANO A VANO CON CIMBRA AUTOPORTANT			
2.9.2.	702+980	LOSA PILOTADA	LOSA DE H.A.	HIPERESTÁTICA	100g	CUADRÍCULA 10x8.75	0.76 A 0.85	9.30	APOYADO			
2.9.3.	703+680	PASARELA DE CORNELLÁ	VIGA APORTICADA DE H.P.	HIPERESTÁTICA	100g	5x27.5-26.6 36.39-5x40-36.42	1.80	4.75	VANO A VANO CON CIMBRA AUTOPORTANTE			

ESTRUCTURA	P.K.	DENOMINACIÓN	TIPOLOGÍA	ESVIAJE	LONGITUD	ANCHURA	ALTURA	PLANTA	PERFIL	SECCIÓN
2.9.4.1.	703+400	MURO 1-A	PANTALLAS	100g	99.8	0.60	7.00			
2.9.4.2.	702+990	MURO 1-B	TIERRA ARMADA	100g	469.5	0.14	VARIAS			
2.9.4.3.	702+140	MURO 1-C	ESCOLLERA	100g	528	1.50	2.8		—	
4.4.	705+500	MURO 3	GRAVEDAD PILOTADA	100g	61	0.7	3			
4.5.	705+640	MURO 4	ESCOLLERA / TABLAESTACA	100g	175	VAR	VAR			

2. Descripción (Tipología, aparatos de apoyo, juntas, impermeabilización, etc.)

2. DESCRIPCIÓN

El tramo Sant Joan Despí - L´Hospitalet de Llobregat tiene una longitud de 3.820 m y comienza en el final del tramo anterior Sta. Coloma de Cervelló – Sant Joan Despí, en la margen izquierda del río Llobregat, al final del meandro de Sant Joan Despí antes de cruzar el nudo viario de Cornellá, en el terraplén de acceso al viaducto, con una orientación sureste.

2.1. Viaducto de Cornellà

En el corredor viario y ferroviario que une las dos márgenes del río Llobregat, entre Cornellá y Sant Boi, la traza atraviesa en viaducto, entre el PK 702+174 y el PK 702+579, la pata sudoeste del nudo de Cornellá, por la que discurren:

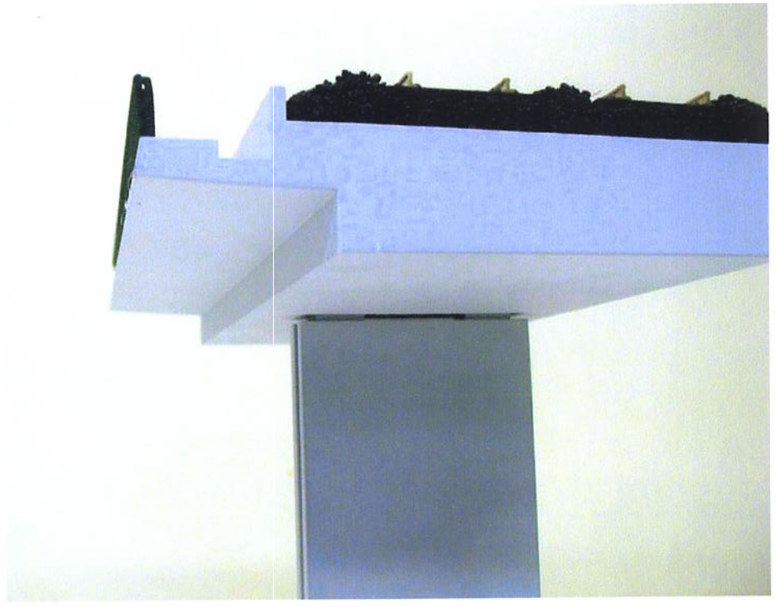
- El camino lateral sudoeste del nudo de Cornellà.
- La estructura de cruce de la carretera de Pous y el ramal Ronda Litoral (A-2) - C-245.
- La carretera C-245 de 4 carriles.
- El FF.CC. Barcelona – Manresa de vía doble electrificada.
- El ramal C-245 - Ronda Litoral (A-2) y el camino lateral sudeste del nudo de Cornellà.
- El camino de reposición del camino de cruce de FGC.

Para asegurar la permeabilidad transversal de todas las infraestructuras mencionadas, se ha construido un viaducto.

El viaducto de Cornellà es una estructura de 11 vanos y 405 m de longitud para la vía doble de mercancías de ancho mixto a Can Tunis y el puerto, que salva sucesivamente: El camino lateral sudoeste del nudo de Cornellà, la estructura de la carretera de Pous y el ramal Ronda Litoral – C-245, la carretera C-245 de 4 carriles, el FF.CC., Barcelona – Manresa de vía doble, el ramal C-245 – Ronda Litoral y el camino lateral sueste del nudo de Cornellà. Las luces varían, para adaptarse a la presencia de los obstáculos que hay que salvar, resultando en las siguientes luces: 33 + 4 x 40 + 2 x 35 + 36 + 40 + 39 + 27 m.

Se trata de una losa con canto total de 2,0 metros con aligeramientos tubulares de porexpan de 1,35 metros de diámetro.

El viaducto cruza por encima de un conjunto de vías con circulación de vehículos y tendrá una notable presencia visual.



Se logra, manteniendo prácticamente todas las cualidades estructurales y constructivas de la solución, una atractiva apariencia visual, aligerando el peso visual del tablero, situando los voladizos para las vías de servicio a un nivel inferior al del plano superior de la losa. Los voladizos contribuyen poco a la flexión longitudinal del tablero. Y en cuanto a la flexión transversal, es prácticamente indiferente la posición que ocupa. De esta manera, se logra un aspecto muy estilizado y atractivo para la estructura, con un coste adicional insignificante.

El tablero apoya en pilas-tabique de 1,30x6,00 metros, por intermedio de una pareja de apoyos confinados de neopreno-teflón. Tres pilas centrales están empotradas en el tablero, para poder soportar las cargas longitudinales de frenado y viento longitudinal. Los apoyos de la pila 8 son fijos en el sentido longitudinal, de manera que ayudan a absorber estas cargas.

De los dos aparatos de apoyos por pila, uno se fija transversalmente, para soportar las cargas horizontales transversales, como el viento o la fuerza centrífuga.

La cimentación de las pilas se resuelve mediante 4 pilotes ϕ 2.000 mm, construidos con camisa recuperable que con una profundidad de unos 25 metros. El encepado es de unas dimensiones de 8,00x8,00x3,00 metros. Los pilotes son capaces de transmitir las cargas verticales y también las horizontales al terreno.

Los estribos se han construido como sillas pilotadas en el terraplén. Una vez realizado el bloque técnico y antes de ejecutar los pilotes se dejó asentar el terreno durante un mes. Posteriormente se construyeron los cuatro pilotes de ϕ 1.250 mm se ejecutaron, reduciendo así los efectos del rozamiento negativo.

El proceso constructivo del tablero realizado ha sido con un avance de vano en vano con una cimbra autoportante superior, que se apoya sobre las pilas pilotadas ya ejecutadas y desde la cual se ha colgado el encofrado. De esta manera, se han podido salvar los obstáculos, manteniendo un gálibo aceptable. Por otra parte, se ha aprovechado la cimentación definitiva de la pasarela para la cimbra, teniendo en cuenta que el terreno no es adecuado para una cimentación directa.

El núcleo del tablero se ha impermeabilizado con membrana termosoldable de betún elastomérico de 4 mm de espesor, protegida superficialmente con una capa de granulos minerales y posteriormente aglomerada con 4 cm de MBC tipo D-8. Los dos pasillos laterales se han impermeabilizado con una imprimación asfáltica.

El núcleo desaguará a través de agujeros en el muro guarda-balasto hacia los pasillos que, a su vez, tienen tubos verticales de P.V.C. ϕ 110 mm, para el paso del agua.

Al borde de los pasillos, se ha construido una barandilla, galvanizada y pintada, compuesta por tubos horizontales, que están fijados a postes en forma de tubos rectangulares cada 2,00 m.

2.2. Losa pilotada

En la campaña adicional de sondeos y catas realizada durante las obras se detectó una zona con rellenos antrópicos de profundidades entre 10 y 15m y con una alta proporción de materia orgánica.

Esta zona de rellenos obligó a pasar sobre ellos en estructura. La solución construida a lo largo de 394 metros ha sido una losa armada de 9,3 m de ancho y 0,46 m de canto mínimo sobre un relleno de tierras, cimentada mediante un conjunto de pilotes prefabricados pretensados con una separación transversal de 1,5 m entre ejes y distribución longitudinal usual de 3,75 m aunque variable.

Además de un módulo tipo (que se repite sucesivamente), ha sido necesario generar módulos especiales que salven cruces de drenajes y colectores (tal y como se detalla en los correspondientes planos)

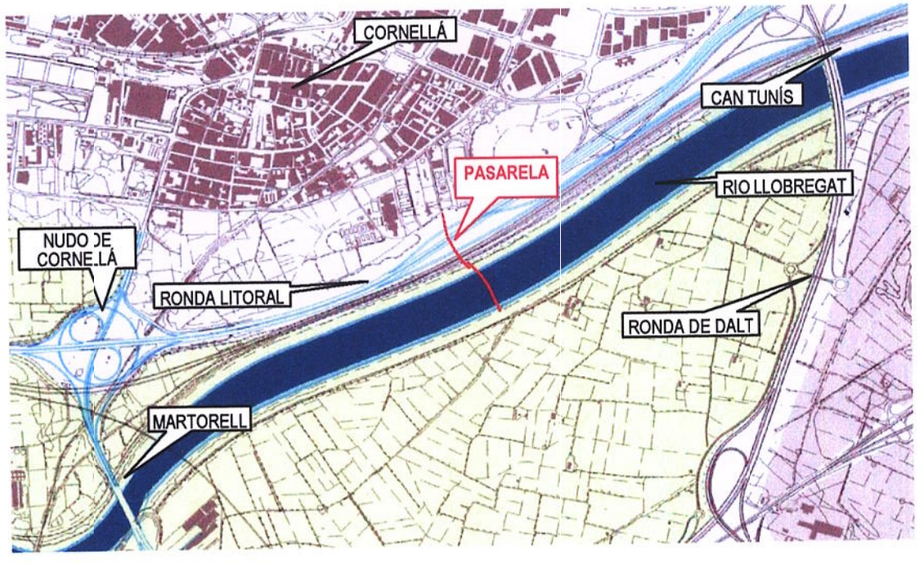
2.3. Pasarela peatonal

Se trata de una pasarela peatonal con un ancho útil de 3,46 metros y 542 m de longitud, formada por 13 vanos con luces medias de 38 m. La pasarela conecta los dos caminos de servicio del encauzamiento del río Llobregat, situados en sendos márgenes del cauce, con la nueva zona deportiva proyectada en Cornellà, asegurando así una adecuada permeabilidad del territorio que queda dividido por diversas vías principales de comunicación y por el propio cauce.

Para ello cruza por encima de los siguientes elementos:

- Los nuevos viales proyectados en Cornellà para la zona deportiva.
- La Autovía A-2 (Ronda del Litoral).
- La vía doble del ferrocarril de mercancías de ancho mixto, recogida en este proyecto.
- El ramal de mercancías del puerto de FGC.
- El camino de servicio del encauzamiento del río en su margen izquierda y el cauce del mismo.

Además, conecta dos caminos de servicio del encauzamiento situados en ambos márgenes del río Llobregat



Se trata de una estructura aporticada, que con una ejecución fundamentalmente "in-situ" se adapta bien a geometrías curvas y permite ajustar un trazado, tanto en planta como en alzado, que con suavidad se aleja de la monotonía de planta recta de una pasarela de gran longitud. El alzado, por su parte, busca una coordinación

con la geometría en planta que evite perfiles pronunciados, contribuyendo así a la sensación de armonía en el paso. En ello tiene que ver la sección escogida, que permite bajar la rasante de la superficie de rodadura suavizando las pendientes necesarias en el paso superior. Su asimetría evita la sensación de encajonamiento en el paseante, que siempre cuenta con una visión transparente del río y su entorno.

La altura libre desde el terreno hasta el tablero es variable y viene definida por el gálibo de los diferentes elementos sobre los que discurre (5.50 m sobre la Autovía A-2, 6.50 m sobre la plataforma del ferrocarril, 5.0 m sobre los caminos de servicio, etc.) La solución aporticada permite pilas de hormigón armado integradas geométricamente con el tablero y concebidas de tal modo que permita la reutilización de encofrados. La altura de las pilas es de 9 o 13.5 metros, con espesores de 0.6 y 0.8 metros respectivamente.

En planta, la pasarela se divide en dos tramos diferenciados. El primero cruza por encima de toda una serie de calzadas y vías de ferrocarril, salvando los gálibos correspondientes, para conectar Cornellà con su margen del río Llobregat. El segundo vuela sobre el cauce del río para unir ambos márgenes.

Los dos tramos quedan unidos a través de una plataforma elevada a modo de plaza, que queda situada a la altura del camino de servicio del encauzamiento del margen izquierdo. Esta materializada por una losa de hormigón de 55 cm de espesor. Su forma es trapezoidal con dimensiones aproximadas de 20x12 metros. En el centro se ha realizado ranuras en el suelo de 0,30 m de ancho que permiten el paso de la luz dando cierta transparencia vertical a la plataforma.

Desde esta plataforma, que actúa como elemento diferenciado de unión y distribución sin alterar la continuidad del conjunto, arrancan, a su vez, las rampas que conectan la pasarela con el camino. Estas rampas están formadas por una losa de hormigón armado de 55 cm de espesor y tienen una longitud aproximada de 75 metros, 50 de los cuales apoyan sobre pilas circulares centradas, y el resto sobre un terraplén que eleva la mota del encauzamiento del río. Las rampas salvan un desnivel total de 5m.

La longitud total de la doble pasarela es de aproximadamente 542 m distribuidos en vanos con luces de 32 + 3 x 40 + 35 + 27 en el tramo norte y de 35,15 + 5 x 40 + 34,60 m en el tramo sur. El ancho del núcleo es de 0,60 m y su altura de 1,80 m.

En alzado, la rasante arranca desde la margen izquierda con una moderada pendiente (del 8%) condicionada por el primer gálibo a salvar, el de los nuevos viales del enlace de Cornellà en proyecto. Seguidamente la pendiente se suaviza hasta alcanzar la plaza elevada, para luego volver a descender hasta alcanzar la otra orilla.

Las cimentaciones de las pilas centrales estan formadas por 4 pilotes de 650 mm de diámetro y el correspondiente encepado de dimensiones 4,25 x,4,25 x 1,50 m. Para las pilas extremas se proyecta una única fila de dos pilotes de ϕ 1.050 mm, para reducir los esfuerzos debidos a los movimientos impuestos por efectos térmicos, de retracción, de fluencia y de acortamiento elástico.

En los estribos y en la plataforma, el tablero descansa sobre aparatos de apoyo de teflón, uno siempre fijo en el sentido transversal, para absorber cargas horizontales. La junta de calzada consiste en una chapa que puede deslizar sobre el estribo.

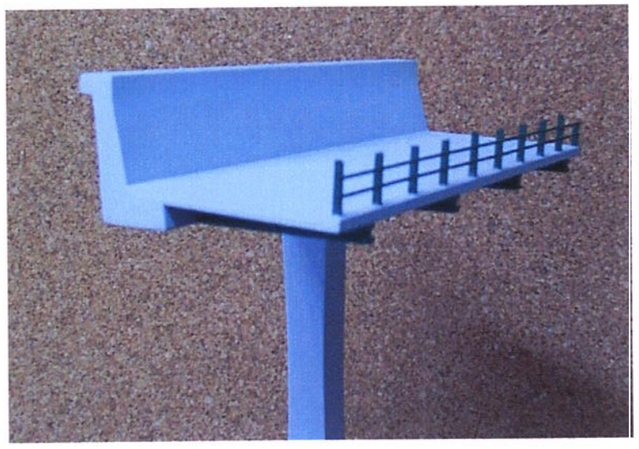
El pavimento se ha realizadocon un microaglomerado de 0,04 m que tiene una pendiente de 1,0 % hacia el lado contrario al nervio, para poder desaguar.

En los bordes opuestos al nervio de hormigón, que sobresale 1,20 m, se ha situado una barandillas con perfiles verticales, fijados a postes de chapa cada 1,25 m.



El tablero se ha ejecutado vano a vano, avanzando siempre en sentido Norte-Sur. Mediante la utilización de una cimbra autoportante superior que apoya sobre las

pilas pilotadas ya ejecutadas y que soporta el encofrado que cuelga desde ella. Las cimentaciones sobre el cauce y en la mediana de la A-2 se han ejecutado en recinto estanco materializado mediante tablestacas.



Como proceso constructivo del tablero se prevé el avance de vano en vano con una cimbra autoportante, que se apoya sobre las pilas pilotadas ya ejecutadas y desde la cual se cuelga el encofrado. De esta manera, se salvan los obstáculos, manteniendo un gálibo aceptable. Por otra parte, se aprovecha la cimentación definitiva para la cimbra, teniendo en cuenta que el terreno no es adecuado para una cimentación directa.

La sección transversal disimétrica de destacado efecto visual esta formada por una viga de hormigón postesado en forma de "S" que, con un canto de 1,80 m, soportará toda la flexión longitudinal, a la vez que actúa como barandilla a uno de los lados de la pasarela. El resto de los 3.46 metros de ancho útil de la pasarela se resuelve con una losa de estructura mixta, formada por perfiles metálicos de canto variable y una losa de hormigón de 12 cm de espesor. Esta estructura funciona como un voladizo empotrado en la viga de hormigón postesado antes descrita, que recoge las cargas llevándolas a las pilas a las que queda empotrada.

El resultado es un tablero con forma disimétrica y con amplias luces entre pilas. Desde el lado transparente, el de la barandilla, se genera una sensación de elevada esbeltez al situar el elemento resistente principal en el lado opuesto del tablero, y esconder su elevado canto en un elemento de protección lateral. Desde el lado contrario, asimismo, el conjunto de pilas y viga postesada produce un claro efecto de estructura aporticada de gran nitidez visual.

2.4. Muros

- **Muro 1A**: Separa la Ronda Litoral de la Plataforma de la LAV. Se trata de un muro ejecutado mediante pantallas recubiertas de unos 100 m de longitud y profundidad media de pantalla de 7 m.

- **Muro 1B**: Separa la Plataforma de la LAV de la línea ferroviaria del los FGC. Se trata de un muro de tierra armada de unos 470 m de longitud y altura media de 4 m.

- **Muro 1C**: Separa la Plataforma de la línea ferroviaria del los FGC de la motal de protección del Rio Llobregat. Se trata de un muro de escollera de 528 m de longitud y altura vista de 1,84 m.

- **Muro 2**: Separa la Ronda Litoral de la Plataforma de la LAV. Se trata de un muro de tierra armada. Su necesidad dependía de la solución del enlace Cornellà previsto inicialmente en las obras de ampliación de la Ronda Litoral realizadas por la Demarcación de Carreteras del Estado en Cataluña. El modificarse en las citadas obras la tipología del enlace, el muro, a pesar de estar casi terminado, no es necesario por lo que se desmontó.

- **Muro 3** Separa la plataforma de la LAV de la futura autovía de camiones de acceso al puerto de Barcelona. Se trata de un muro de hormigón de 3 m de altura y 61 m de longitud cimentado sobre 12 parejas de pantallas de 2,60 m de largo, 0,80 m de ancho y 9,60 m de profundidad.

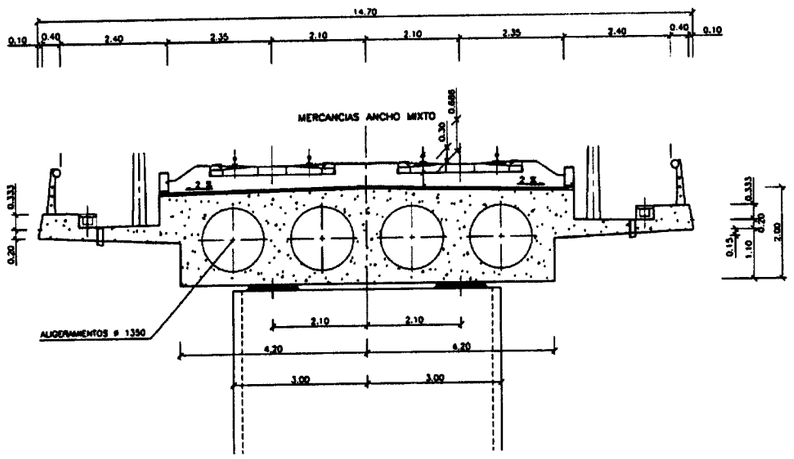
- **Muro 4**: Separa la Plataforma de la LAV de la línea ferroviaria del los FGC en el tramo final de la obra. Se trata de un muro de escollera de unos 290 m de longitud y altura variable realizado en los primeros 79 m íntegramente con escollera concertada de unos 1.000 kg de peso y en el resto, debido a la presencia de arenas que imposibilitaban cualquier excavación, con tablaestacas recubiertas con escollera de las mismas características para adecuarlo al entorno.

3. Definición geométrica

3. DEFINICIÓN GEOMÉTRICA

3.1. Viaducto de Cornellà

TRAMO SANT JOAN DESPÍ – HOSPITALET VIADUCTOS				
PK	Estructura	Características	Largo	Ancho
702+174 a 702+579	Viaducto de Cornellà	11 vanos 33+4X40+2X35+ 36+40+39+27	405,00	14,70



a) Trazado

En planta, el eje del viaducto se encuentra entre el PK 702+374 del estribo nº 1 y el PK 702+779 del estribo nº 2, sobre una traza curva de radio 1.300 m. En alzado la rasante te sitúa en un acuerdo vertical convexo de parámetro Kv= 12.000 y longitud de 360 m, con un punto alto en el PK 702+588 en el vano nº 6. Las rampas laterales de acceso al viaducto tienen una pendiente de 15 milésimas.

La longitud del viaducto es de 405 m y la altura de pilas varía entre 7 y 11 metros en coherencia con los gálibos exigibles en las carreteras (5,30 m) y en las vías ferroviarias (7 m) atravesadas.

b) Sección tipo

La sección es apta para una doble vía de mercancías de ancho mixto, sobre balasto, y dos andenes laterales de servicio. El ancho total, sin barreras laterales, es de 14,0 m.

c) Características geotécnicas del terreno

Todo el viaducto discurre sobre un estrato de limos arenosos poco densos, de espesor variable entre 14 y 22 m, con un zócalo de apoyo de arena con gravillas medio densas. La cimentación es, por tanto, pilotada.

d) Constructivos

La importancia del enlace de Cornellà, sobre el que pasa el viaducto, y la poca altura del viaducto a condicionado todo el proceso constructivo ya que no se han podido cortar ramales ni se ha podido disminuir su capacidad durante la construcción del viaducto y debido al poco gálibo existente se ha tenido que diseñar una autocimbra superior que ha complicado todo el proceso constructivo del tablero.

Los espacios entre ramales son de gran amplitud, por lo que se ha dispuesto de suficientes plataformas de trabajo.

La posición de las pilas, está suficientemente alejada de los bordes de la calzada, por lo que la ejecución de los pilotes, zapatas y sus excavaciones consiguientes, se han podido realizar sin producir perturbaciones significativas en la circulación de vehículos por las calzadas actuales, con el empleo de entibaciones y tablaestacas.

e) Estéticos y ambientales

El viaducto discurre por un área cuajada de infraestructuras. Está muy a la vista y en las proximidades de una Ciudad acreditada en el mundo por la calidad de sus construcciones.

Es por eso que se ha cuidado la integración ambiental y se ha tenido muy en cuenta que la apariencia de la obra exteriorice la calidad del trabajo ejecutado.

Entre otros parámetros y dada la poca altura sobre los viales inferiores del viaducto, se han situado las alas a medio canto con lo que se le ha dado una gran sensación de ligereza al ocultar al ojo humano gran parte del canto.

f) Durabilidad

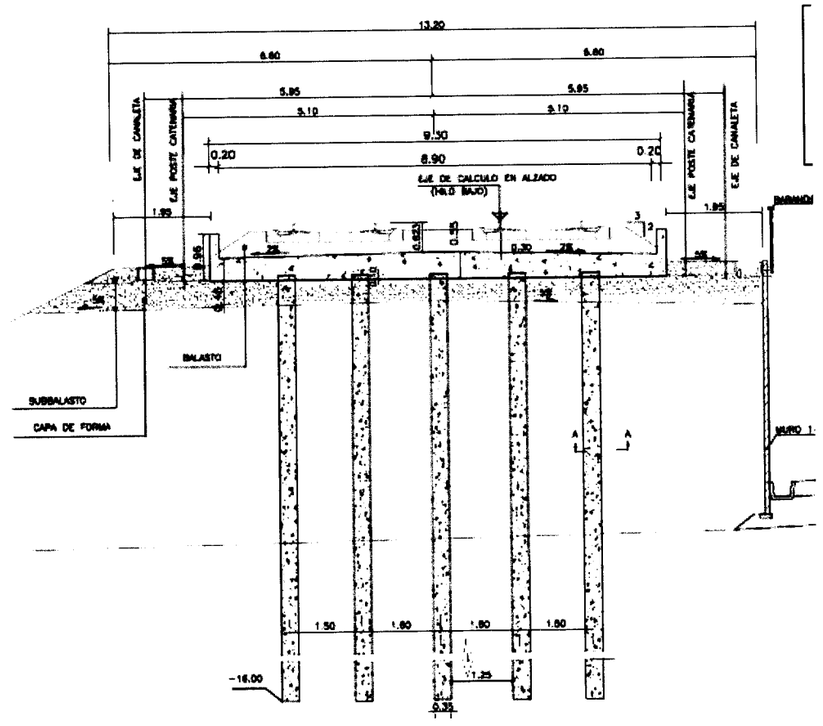
La obra se encuentra en un entorno industrial y marino, con una atmósfera húmeda y agresiva, que favorece la corrosión y degradación de las estructuras. Lo que se ha tenido muy en cuenta a nivel de proyecto y durante la construcción. En fase de proyecto se ha reducido el número de juntas de dilatación, de apoyos, y se ha simplificado la geometría de pilas y tableros evitando geometrías torturadas y rincones en los que se puedan acumular suciedades y humedad. En la fase de ejecución se ha tenido especial atención en el drenaje de las obras y en el recubrimiento de las armaduras. La robustez general de la estructura es otro factor que contribuye a que la estructura tenga, previsiblemente, un prolongado y sosegado futuro con bajos y controlados costes de mantenimiento.

3.2. Losa pilotada

En la campaña adicional de sondeos y catas realizada durante las obras se detectó una zona con rellenos antrópicos de profundidades entre 10 y 15m y con una alta proporción de materia orgánica.

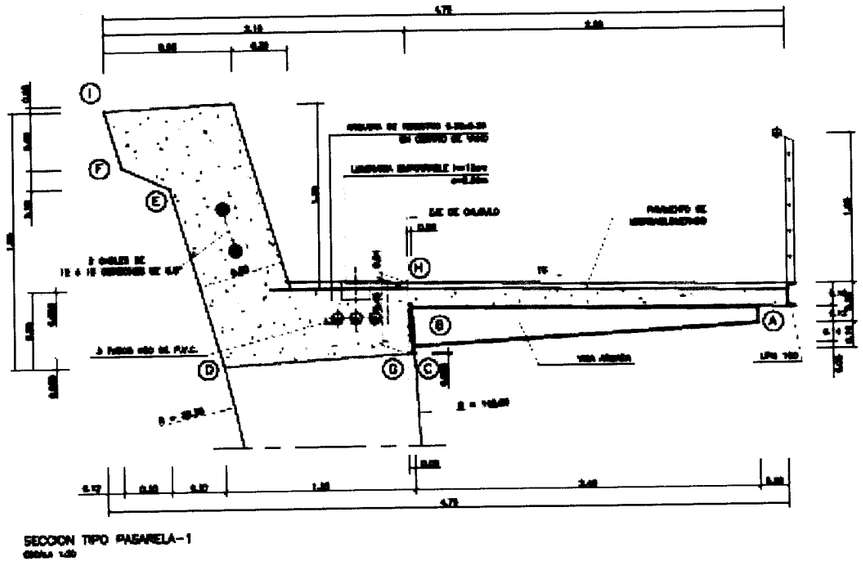
Esta zona de rellenos obligó a pasar sobre ellos en estructura. La solución construida ha sido una losa armada sobre un relleno de tierras, cimentada mediante un conjunto de pilotes prefabricados pretensados.

TRAMO SANT JOAN DESPÍ – HOSPITALET LOSAS			
PK	Estructura	Características	Largo
702+980 a 703+374	Losa	Losa pilotada	394



3.3. Pasarela de Cornellà

TRAMO SANT JOAN DESPÍ – HOSPITALET PASARELAS			
PK	Estructura	Características	Largo
--	Pasarela de Cornellà	Viga aporticada	542



SECCION TIPO PASARELA-1

Son varios los aspectos que han condicionado el proyecto y la construcción de la pasarela. Desde un punto de vista funcional, por su situación y por su gran longitud, es de prever que los usuarios de la pasarela utilicen frecuentemente la bicicleta. Por ello, las pendientes no superan el 8% facilitando así el acceso a personas de movilidad reducida. El ancho útil necesario para permitir el cruce cómodo de dos bicicletas, se ha fijado en 3,46 metros. Además, la solución para la pasarela, incluyendo las rampas de acceso, evita en la medida de lo posible cambios bruscos de geometría, tanto en planta como en alzado, para permitir así una circulación fluida y segura de los ciclistas.

Por otro lado, un claro condicionante de la geometría de la estructura viene fijado por la posición del las vías a salvar, y por los gálibos mínimos que sobre ellas deben mantenerse (6,50 m sobre las vías de ferrocarril, 5,50 metros sobre la autovía, etc.). Además de los condicionantes geométricos, las exigencias visuales influyen en la determinación del número y la posición de las pilas de la pasarela.

La pasarela de Cornellà permite el acceso a los dos caminos de servicio del encauzamiento situados en ambos márgenes del río Llobregat. Dado que, por condicionantes de gálibo, la pasarela pasa sobre el margen norte del río a una altura superior a los 5 metros, ha sido necesario un sistema de rampas que salve esa diferencia de alturas conectando camino y pasarela en este punto. Debe tenerse en cuenta que ninguna modificación en el camino o acondicionamiento del terreno de la mota en la que se sitúa sobrepasa la línea de encauzamiento.

Desde el punto de vista del proceso constructivo, la presencia de varias vías de comunicación y del propio cauce bajo la pasarela, han obligado a emplear métodos de ejecución con una interferencia mínima con el tráfico por un lado y que sean compatibles con las eventuales avenidas del río durante la fase de construcción. Estos métodos previamente habían sido aprobados por las administraciones competentes de las infraestructuras mencionadas.

En lo que se refiere a los condicionantes geotécnicos, el terreno de asiento de las pilas de la pasarela en la parte más cercana a Cornellà, antes de alcanzar el río Llobregat, está formado por diversas formas de rellenos antrópicos, que provienen de antiguas graveras, de viales y explanaciones o bien han sido originados por el desvío del río. Llegados al cauce del río, el terreno es muy heterogéneo, estando formado por gravas y arenas limosas, además de barras aluviales. En ambos casos ha sido necesaria una cimentación profunda para las pilas formada por pilotes excavados.

Por último, un condicionante que dada la proporción y el emplazamiento de la pasarela cobra especial relevancia es su integración paisajística, y su papel como marco visual del río Llobregat y su entorno, tanto para los paseantes como para los usuarios de la Ronda Litoral y demás vías sobre las que cruza.

3.4. Muros

-. Muro 1A

El muro 1 del proyecto original separaba la Ronda Litoral de la Plataforma del LAV. Sin embargo, la cronología de las obras ha supuesto el inicio de la ejecución del muro en cuestión con la ampliación de la Ronda Litoral ya terminada.

El riesgo de agrietamiento de la calzada de la Ronda Litoral durante la excavación de la zapata necesaria para la ejecución del muro planteó la necesidad de una solución alternativa. Se ha optado por una tipología de muro pantalla revestido.

-. Muro 1B

Este muro no contemplado originalmente en el proyecto adjudicado nace de la necesidad de no reducir el cauce del Llobregat y simplificar la afección sobre FGC del proyecto original. Para conseguirlo, es necesario construir un muro entre el FGC y la plataforma del LAV tal y como se detalla en los planos.

La tipología del muro es de tierra armada, dados los enormes asientos esperados provocados por los rellenos antrópicos y la necesidad de minimizar las afecciones en la plataforma de FGC.

- Muro 1c

En realidad, se trata de un recubrimiento del talud de la mota de escollera para evitar desprendimientos locales. Este muro aparece también como consecuencia del ajuste de trazado en planta y de la solución final de FGC.

- Muro 2

Este muro no es necesario por lo finalmente no se ha construido.

- Muro 3

En un futuro próximo se prevé la construcción de una autovía de camiones paralela a la línea construida objeto de este proyecto, dadas la estrechez del paso bajo el vano de la Pata Sur y las diferentes rasantes existentes entre ambas infraestructuras se ha optado por la construcción parcial de un muro de contención de las futuras tierras de la mencionada autovía. De esta manera se evitarán las afecciones a la LAV y a su explotación que sin duda generaría su construcción en el futuro.

- Muro 4

La necesidad de no descalzar el ramal al puerto de FGC ha hecho necesaria la aparición de este muro. En esta zona, la abundancia de arenas imposibilitaba la excavación para la ejecución de cualquier tipología de muro. En la zona de poca altura se ha dispuesto un muro de escollera. En la zona de mayor altura y presencia de arenas se ha optado por unas tablestacas definitivas con un recubrimiento de escollera para dar una apariencia de continuidad a la solución.

4. Cálculos

4 CÁLCULOS

4.1 Viaductos

4.1.1 *Bases de cálculo*

— Normativas utilizadas

Los cálculos de los viaductos se realizan teniendo en cuenta las exigencias de las Normas actualmente vigentes:

EHE-98	"Instrucción de Hormigón Estructural", correspondiente al R.D. 2662/1998 de 11 de diciembre.
IAP	"Instrucción sobre las acciones a considerar en el Proyecto de puentes de carretera", de febrero de 1998.
Código Modelo	del CEB-FIP 1990, para hormigón estructural
IPF-75	"Instrucción relativa a las acciones a considerar en el Proyecto de puentes de ferrocarriles", correspondiente a la O.M. de 25 de junio de 1975.
NSC- 94	"Norma de construcción sismorresistente: Parte general y edificación". De 29 de diciembre de 1994.
EC1.3	"Eurocódigo 1: Bases de proyecto y acciones en estructuras. Parte 3: Acciones del tráfico en Puentes". UNE-ENV 1991-3. Mayo 1998.
EC1.1	"Eurocódigo 1: Bases de proyecto y acciones en estructuras. Parte 1: Bases de proyecto". UNE-ENV 1991-1. Octubre 1997.
EC2.2	"Eurocódigo 2: Proyecto de estructuras de hormigón. Parte 2: Puentes de hormigón". UNE-ENV 1992.2: diciembre 1997.
U.I.C. 776.1	"Norma U.I.C. Ficha 776.1R". 4ª edición. 1 julio de 1994.
U.I.C. 774.3	"Norma U.I.C. Ficha 774.3 R" 1ª edición. Febrero de 1999.

— Materiales y sus características

- *Hormigones*

Tableros pretensados HP-40/P/20/IIb
Pilas HA-35/P/20/IIb
Estribos, muros, cimentación HA-25/P/20/IIb
Pilotes HA-25/F/20/IIa
Hormigón de limpieza y rellenos ..... HM-15 (no estructural)

		EHE Apartado y Formulación	HA-25	HA-35	HP-40
Resistencia a Compresión	Fck_{28} [N/mm²]	39,4	25	35	40
Módulo de Elasticidad	Ej [N/mm²]	$\frac{39,6}{8500\sqrt[3]{f_{cm}}}$	27.300	29.800	30.900

- *Aceros*

Pasivos: B-500 S
f_{yk} = 500 N/mm²
f_s = 550 N/mm²
E_s = 200.000 N/mm²

Acero activo: Y 1860 S7 15,2 según UNE 36094-97 (cordones de 0,6")
f_{pk} = 1860 N/mm²
f_{ps} = 1635 N/mm²
E_s = 195.000 N/mm²

Relajación del 2,0% para una tensión de 70% de $f_{max,k}$ aplicada durante 1.000 horas.

Tensiones máximas en acero activo:

Tendones reemplazables:
Al tesar: 0,80 $f_{max,k}$ = 1.490 N/mm²
Al bloquear: 0,75 $f_{max,k}$ = 1.395 N/mm²

Tendones no reemplazables:
Al tesar: 0,75 $f_{max,k}$ = 1.395 N/mm²
Al bloquear: 0,75 $f_{max,k}$ = 1.395 N/mm²

Acero en chapas y perfiles: S 275JR

— Recubrimiento

- *Armadura activa*

Según EHE, 37.2.4: 40 mm ó 1,0 · ϕ_{vaina}
Distancia eje cable-borde: 1,5 · ϕ_{vaina}

- *Armadura pasiva*

Tablero: según EHE, 37.2.4 r_{min} = 25 mm
Tolerancia = 5 mm

Recubrimiento elegido r_{nom} = 30 mm

Hormigón en contacto con el terreno: 50 mm

Resto: 35 mm

— **Niveles de control de calidad adoptados**

MATERIALES (EHE)	γ	Nivel de control
Hormigones	1,5	Estadístico
Acero pasivo	1,15	Normal
Acero activo	1,15	Normal
EJECUCIÓN (EHE)	γ	Nivel de control
		Intenso

— **Coeficientes de ponderación de las acciones**

ACCIONES ELU (excepto fatiga)		γ
Según EHE (Control de ejecución intenso)		
	Acciones permanentes	1,35/1,00
	Acciones variables	1,50/0
	Acciones de tráfico	1,50/0
	Pretensado	1,00
Según EC1		
	Acciones permanentes	1,35/1,00
	Acciones variables	1,50/0
	Acciones de tráfico	1,45/0
	Pretensado	1,00

ACCIONES ELS		γ
Según EHE (Control de ejecución intenso)		
	Acciones permanentes	1,00
	Acciones variables	1,00/0
	Acciones de tráfico	1,00/0
	Pretensado (postesado)	1,10/0,90
	Pretensado (pretesado)	1,05/0,95
Según EC1		
	Acciones permanentes	1,00
	Acciones variables	1,00/0
	Acciones de tráfico	1,00/0
	Pretensado	1,00

(Ver detalles y notas en tabla G1 de EC1)

— **Combinaciones de acciones**

Según EHE, 13.2:

- *Estado Límite Último*

Situaciones persistentes y transitorias

$$\sum_{j\geq 1}\gamma_{G,j}\cdot G_{k,j} + \sum_{j\geq 1}\gamma_{G^*,j}\cdot G^*_{k,j} + \gamma_P\cdot P_k + \gamma_{Q,1}\cdot Q_{k,1} + \sum_{i\geq 1}\gamma_{Q,i}\cdot\Psi_{0,i}\cdot Q_{k,i}$$

Situaciones accidentales

$$\sum_{j\geq 1}\gamma_{G,j}\cdot G_{k,j} + \sum_{j\geq 1}\gamma_{G^*,j}\cdot G^*_{k,j} + \gamma_P\cdot P_k + \gamma_A\cdot A_k + \gamma_{Q,1}\cdot\Psi_{1,1}\cdot Q_{k,1} + \sum_{i\geq 1}\gamma_{Q,i}\cdot\Psi_{2,i}\cdot Q_{k,i}$$

Situaciones sísmicas

$$\sum_{j\geq 1}\gamma_{G,j}\cdot G_{k,j} + \sum_{j\geq 1}\gamma_{G^*,j}\cdot G^*_{k,j} + \gamma_P\cdot P_k + \gamma_A\cdot A_{E,k} + \sum_{i\geq 1}\gamma_{Q,i}\cdot\Psi_{2,i}\cdot Q_{k,i}$$

- *Estado Límite de Servicio*

Combinación poco probable

$$\sum_{j\geq 1}\gamma_{G,j}\cdot G_{k,j} + \sum_{j\geq 1}\gamma_{G^*,j}\cdot G^*_{k,j} + \gamma_P\cdot P_k + \gamma_{Q,1}\cdot Q_{k,1} + \sum_{i\geq 1}\gamma_{Q,i}\cdot\Psi_{0,i}\cdot Q_{k,i}$$

Combinación frecuente

$$\sum_{j\geq 1}\gamma_{G,j}\cdot G_{k,j} + \sum_{j\geq 1}\gamma_{G^*,j}\cdot G^*_{k,j} + \gamma_P\cdot P_k + \gamma_{Q,1}\cdot\Psi_{1,1}\cdot Q_{k,1} + \sum_{i\geq 1}\gamma_{Q,i}\cdot\Psi_{2,i}\cdot Q_{k,i}$$

Combinación cuasipermanente

$$\sum_{j\geq 1}\gamma_{G,j}\cdot G_{k,j} + \sum_{j\geq 1}\gamma_{G^*,j}\cdot G^*_{k,j} + \gamma_P\cdot P_k + \sum_{i\geq 1}\gamma_{Q,i}\cdot\Psi_{2,i}\cdot Q_{k,i}$$

4.1.2 *Acciones consideradas en viaductos*

4.1.2.1 Generalidades

Para el establecimiento de acciones y las combinaciones necesarias para la obtención de las solicitaciones de cálculo que se emplearán en la comprobación de los diferentes Estados Límites se seguirá una doble vía paralela:

- Cálculo 1: Se utilizan las instrucciones españolas IPF-75, IAP-96 y NSC-94.

  Para establecer las hipótesis y combinaciones de cálculo y sus correspondientes coeficientes de ponderación se usará la Instrucción EHE. Como valores Ψ para determinar las diferentes combinaciones se usarán los valores de la siguiente tabla:

Acciones	Ψ_0	Ψ_1	Ψ_2
Cargas de tráfico	0,8	0,8 1 vía cargada 0,6 2 vías cargadas 0,4 3 ó más vías cargadas	0,0
Viento	0,6	0,5	0,0
Temperatura	0,6	0,6	0,5

- Cálculo 2: Se utilizará la norma europea EC1.3

  Para establecer las hipótesis y combinaciones de cálculo y sus correspondientes coeficientes de ponderación se usará la Instrucción EC1.1.

  Para tablero continuo, las cargas a considerar en función del número de vías son:

Número de vías en el puente	Vías cargadas	Cargas normales		Cargas pesadas
		a)	b)	
1	Una vía	1,0 (LM71 ó SW/0)	-	1,0 (SW/2)
2	Una vía	1,0 (LM71 ó SW/0)	-	1,0 (SW/2)
	la otra	1,0 (LM71 ó SW/0)	-	1,0 (LM71 ó SW/0)
Igual o mayor que 3	Una vía	1,0 (LM71 ó SW/0)	0,75 (LM71 ó SW/0)	1,0 (SW/2)
	Otra	1,0 (LM71 ó SW/0)	0,75 (LM71 ó SW/0)	1,0 (LM71 ó SW/0)
	Las restantes	-	0,75 (LM71 ó SW/0)	-

Los diferentes modelos de carga se definen posteriormente.

Como valores Ψ para determinar las diferentes combinaciones se usarán los valores de la siguiente tabla:

Acciones		Ψ_0	Ψ_1	Ψ_1'	Ψ_2
Acciones individuales de tráfico	MC 71	0,80	1,00	1)	0
	SW/0	0,80	1,00	0,80	0
	SW/2	0	1,00	0,80	0
	Tren descargado	1.00	-	-	-
	Arranque y frenado	2)	2)	2)	2)
	Fuerzas centrífugas	2)	2)	2)	2)
	Fuerzas de lazo	1,00	1,00	0.80	0
	Cargas en caminos	0,50	0,50	0.50	0
	Cargas en terraplenes	0,80	1,00	1)	0
Grupos de cargas	Gr11	0,80	1,00	1)	0
	Gr12	1,00	-	-	-
	Gr13	0,80	1,00	1)	0
	Gr14	0,80	1,00	1)	0
	Gr15	0,80	1,00	1)	0
Viento	Fw	0,60	0,60	0,50	0
Temperatura	T	0,60	0,80	0,60	0,50

1) 0.80 con una vía cargada.
   0.60 con dos vías cargadas.
   0,40 con tres o más vías cargadas.

2) Los mismos valores adoptados para las cargas verticales asociadas

De estas dos vías de cálculo, se adoptarán como solicitaciones las envolventes de las obtenidas.

En ambos casos y salvo indicación expresa en contra, para dimensionamiento de secciones en Estados Límite se actuará conforme lo indicado en la normativa española EHE.

La comprobación de flechas y deformaciones se ajustará a lo indicado en el EC-2.2 y el EC-1.3. La comprobación de vibraciones deberá mostrar frecuencias propias de las estructuras comprendidas en los límites expuestos en la Norma UIC-776-1R. En ambos casos, se considerará una única vía cargada. Para deformaciones, sólo se aplicará el modelo de carga 71.

4.1.2 2 ***Acciones para las estructuras de ferrocarril. Cálculo según IPF 75***

— *Peso propio*

Hormigón armado o pretensado $\gamma = 25\ kN/m^3$

— *Cargas muertas*

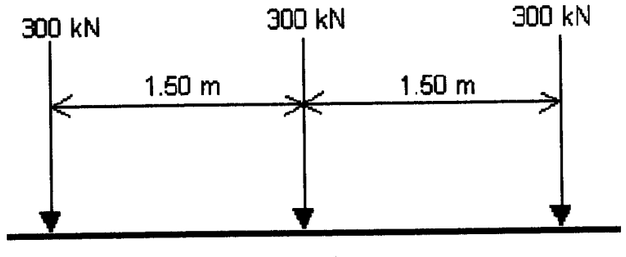
Balasto	q_o	$= 20\ kN/m^3$
Se calculará con:	Max q_s	$= 1{,}30 \cdot q_o$
	Min q_i	$= 0{,}70 \cdot q_o$
Desbalasto una vía	q_{des}	$= 50\% \cdot q_o$ en toda su longitud ó
	q_{des}	$= 100\%\ q_o$ en 15,00m
Vías y traviesas	$q = 2x(1{,}2+5{,}2) = 12{,}8\ kN/m$ (doble vía)	
Hormigón de forma	$q = 25\ kN/m^3$	
Conductos de cableado y cables	$q_{c+c} = 3{,}0\ kN/m$ (6,0 kN/m doble vía)	
Barreras	2x0,5	= 1,0 kN/m
Murete	2x0,20x0,50x25	= 5,0 kN/m
Catenarias (carga local)	Q_h	= 34,0 kN
	M	= 95,0 kNm

— ***Sobrecargas***

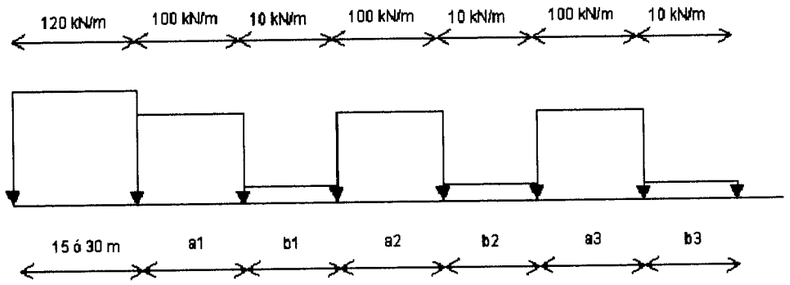
De acuerdo con la IPF:

Tren de cargas vía RENFE

Se tomará el más desfavorable entre el tipo A y el tipo B, para cada vía:



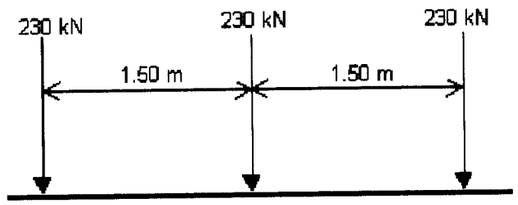
TREN TIPO A



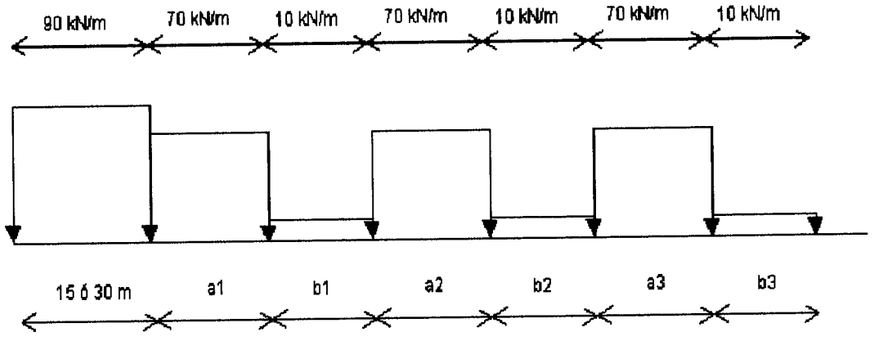
TREN TIPO B

Tren de cargas vía métrica

La IPF-75 establece el tipo C y el tipo D:



TREN TIPO C



TREN TIPO D

Como se puede observar, estos dos tipos son menos desfavorables que los tipos A y B, por lo que no se tienen en cuenta en la comparación de cargas.

Se puede decir, en general, que el tren tipo A es más desfavorable en vanos cortos y el tipo B en vanos largos, ya que la sobrecarga total aumenta con la longitud del vano.

Además de estas sobrecargas, se considera una sobrecarga uniforme de 5,00 kN/m^2 sobre los paseos. Sólo la mitad de esta sobrecarga es compatible con los trenes de carga mencionados previamente.

Para el tramo de Proyecto considerado, los trenes pueden alcanzar una velocidad máxima de 160 km/h.

Para el cálculo de efectos locales se supone reparto a 45 º hasta el plano medio del elemento analizado.

Para la evaluación de coeficientes de impacto se emplearán las fórmulas simplificadas de la IPF. El factor de impacto se utilizará para evaluar únicamente los efectos dinámicos sobre el tablero y se define para L ≥ 6,00 m y v ≤ 200 km/h en tramos continuos con las fórmulas siguientes:

$$\phi = 1 + 65\frac{\mu}{1-\mu+\mu^2}$$

$$\mu = \frac{v \cdot T_1}{2 \cdot L}$$

Viga apoyada - empotrada (vanos laterales): $T_1 = 0{,}130 \cdot \pi \cdot \sqrt{\frac{Q \cdot L^3}{E \cdot I \cdot g}}$

Viga biempotrada (vanos centrales): $T_1 = 0{,}0893 \cdot \pi \cdot \sqrt{\frac{Q \cdot L^3}{E \cdot I \cdot g}}$

— *Frenado y arranque*

$F_{fr} = \frac{1}{8}$ del peso del tren tipo

A estos efectos se limita la longitud del tren a 300 m.

Para estructuras con dos vías puede actuar el frenado en el mismo sentido.

Además, caso de combinarse con la fuerza centrífuga, se reducirá a la mitad el frenado.

— *Fuerza centrífuga*

$F_c = Q \cdot \frac{v^2}{127 \cdot r}$ por vía, a una altura de 1,80 m sobre los carriles

con velocidad máxima igual a 200 km/h.

— *Fuerza de lazo*

F_L = 50 kN en la altura superior del carril.

— *Ripado*

Se considera una posible excentricidad de 0,30 cm (igual que en el EC 1-3).

4.1.2 3 ***Acciones para las estructuras de ferrocarril. Cálculo según EC1***

— *Peso propio*

Hormigón armado o pretensado	γ =	25 kN/m^3

— *Cargas muertas*

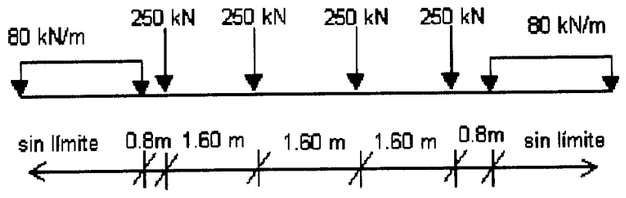
Balasto	q_o =	20 kN/m^3
Se calculará	max q_s =	1,30 · q_o
	min q_i =	0,70 · q_o
Desbalasto una vía	q_{des} =	50% · q_o en toda su longitud ó
	q_{des} =	100% q_o en 15,00m
Vías y traviesas	q = 2x(1,2+5,2) = 12,8 kN/m (doble vía)	
Hormigón de forma	q = 25 kN/m^3	
Conductos de cableado y cables	q_{c+c} = 3,0 kN/m (6,0 kN/m doble vía)	
Barreras	2x0,5	= 1,0 kN/m
Murete	2x0,20x0,50x25	= 5,0 kN/m
Catenarias (carga local)	Q_h	= 34,0 kN
	M	= 95,0 kNm

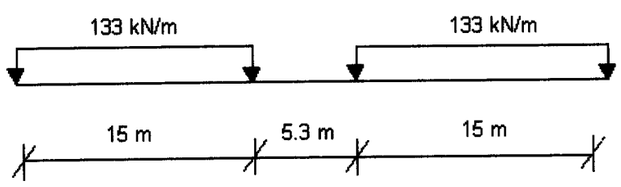
— *Sobrecargas*

— Se comparan dos modelos de cargas, que se definen en el EC1:

Modelo de carga 71:

Consiste en cuatro ejes de Q_{vk} = 250 kN separados entre sí 1,60 m seguidos en ambas direcciones de una sobrecarga de q_{vk} = 80 kN/m sin limitación de longitud, empezando a 0,80 m del último eje.





Consiste en dos cargas uniformes de q_{vk} =133 kN/m de 15,00 de longitud separados entre sí 5,30 m (por vía).

Estas cargas verticales se aplican por vía y son multiplicadas por el factor de impacto ϕ , aplicándose sólo para esfuerzos en el tablero. No se tienen en cuenta para el cálculo de la subestructura ni tampoco a esfuerzos de frenado y fuerza centrífuga.

Modelo "tren sin cargas": consiste en una carga uniformemente distribuida con un valor nominal de 12,5 kN/m.

Para el cálculo de efectos locales se supone un reparto a 45 ° hasta el plano medio del elemento analizado.

— *Sobrecarga uniformes sobre paseos de servicio*

q_{fk} = 5,0 kN/m²

En combinación con la sobrecarga ferroviaria se tomará el 50%.

— *Efectos dinámicos* (Impacto)

Para la determinación de los efectos de impacto hasta v = 200 km/h se usarán las fórmulas simplificadas del EC-1

Según el capítulo 6.4.3.2., para vías con mantenimiento normal:

$$\phi = \phi_3 = \frac{2{,}16}{\sqrt{L_\phi} - 0{,}2} + 0{,}73$$

$L_\phi = k \cdot \frac{1}{n} \sum_i^n L_i$ para vigas continuas con n vanos.

El factor ϕ se aplica a las cargas verticales del modelo de carga 71 y SW/0 para el cálculo de los momentos flectores y los cortantes del tablero.

Según el estudio realizado por INTEMAC y D.G.F.T.C. (ver: "Hormigón y acero nº 207" p. 83, 1er Trimestre 1988), estos coeficientes de impacto quedan claramente por encima de los resultados obtenidos en los ensayos.

Para velocidades superiores a 200 km/h, se usarán los criterios Anexo E del EC-1, con trenes tipo 3 y 4 del Anexo F del EC-1.

— *Frenado y arranque*

Para el modelo de carga 71 y SW/0

Frenado	Q_{lbk} = 20 kN/m · L	≤ 6.000 kN
Arranque	Q_{lak} = 33 kN/m · L	≤ 1.000 kN

En estructuras con dos vías pueden actuar estos dos efectos o también dos veces el frenado en el mismo sentido.

La longitud máxima de actuación de estas acciones es de 300 m.

Los efectos de frenado y arranque deberán reducirse en un 50% si se consideran concomitantes con la fuerza centrífuga.

— *Fuerza centrífugas*

$$Q_{tk} = \frac{v^2}{127 \cdot r} \cdot f \cdot Q_{vk}$$ por vía, a una altura de 1,80 m sobre los carriles,

con,

max v= 350 km/h

— *Fuerza de lazo*

Q_{sk} = 100 kN

De estas acciones individuales, el Eurocódigo 1 considera la combinación en diferentes grupos:

Tipo de carga		Cargas verticales		Cargas horizontales			Comentarios
Sistema de carga		71 y SW/0 (si se especifica)	Tren sin carga	Arranque y frenado	Fuerza centrífuga	Fuerza de lazo	
Combinaciones de cargas	Gr11	1.0	-	0.5	1.0	1.0	Máximo vertical y lateral
	Gr12	-	1.0	0	1.0	0.5	Estabilidad lateral
	Gr13	1.0	-	1.0	0.5	0.5	Máximo longitudinal
	Gr14	1.0	-	0.5	1.0	0.5	Máximo lateral
	Gr15	0.5	-	0.5	0.5	1.0	Efectos locales laterales

(Ver comentarios en EC1-6.8.2 tabla 6.6)

De forma general, para las dos vías de cálculo, se consideran las siguientes acciones:

— *Ripado*

Se considera una posible excentricidad de 0,30 cm.

— *Fatiga*

Para el estudio de la fatiga se empleará el EC-2 en su Parte 2 (Puentes de hormigón).

— *Acciones reológicas*

Será de aplicación lo indicado en la Instrucción EHE, tanto en lo que se refiere a fluencia como a retracción.

— *Choque de vehículos de carretera contra el puente*

No se consideran porque se dispone de protecciones adecuadas.

— *Acciones sísmicas*

Siendo la aceleración sísmica de cálculo menor que 0,06 g no es necesario tener en cuenta en las estructuras acciones sísmicas.

— *Descarrilamiento de vehículos ferroviarios:*

Se realizarán las comprobaciones indicadas en las Normas EC1.3 y en la ficha UIC 776.1. Se tomarán como coeficientes de seguridad los siguientes:

Coeficiente de mayoración de acciones: γ_f = 1,00

Coeficiente de minoración de resistencia de los materiales:

Hormigón γ_c = 1,30

Acero pasivo y activo γ_s = 1,00

— *Acciones térmicas*

Se realizarán los cálculos según la "Instrucción sobre las acciones a considerar en el proyecto de puentes de carretera", tanto para variación uniforme de temperatura como para gradiente térmico. En este último caso, se considera el balasto como 12 cm de pavimento.

— *Viento*

La determinación de la carga de viento se realiza conforme lo dispuesto en la IAP. Se supondrá que la sobrecarga de ferrocarril supera el carril en 4,00 m.

— *Interacción vía-estructura*

Se tendrá en cuenta la ficha 774.3 R

— *Asientos*

Debido al terreno existente y las cimentaciones empleadas no se consideran asientos diferenciales.

— *Acciones debidas al terreno*

$\gamma = 20\ kN/m^3$

$\varphi = 35°$

$K_a = \tan^2\left(45 - \frac{\varphi}{2}\right) = 0,27$

$K_p = 0,6 \cdot \tan^2\left(45 + \frac{\varphi}{2}\right) = 2,21$

$K_r = 1 - sen = 0,43$

Sobrecarga uniforme sobre terreno: $q = 30\ kN/m^2$

	Seguridad al vuelco	Seguridad al deslizamiento
Servicio	$\gamma_v = 1,50$	$\gamma_d = 1,50$
Construcción	$\gamma_v = 1,35$	$\gamma_d = 1,35$
Frenado	$\gamma_v = 1,35$	$\gamma_d = 1,35$
Accidentales	$\gamma_v = 1,00$	$\gamma_d = 1,00$

Los pilotes se dimensionan para el tope estructural de $\sigma_{max} = 5,0\ N/mm^2$

Con leyes trapeciales de tensiones en el terreno se admite un porcentaje de incremento sobre la tensión mencionada:

Acciones dinámicas de corta duración : 30%
Acciones dinámicas de larga duración : 25%
Hipótesis excepcionales : 50%

4.1.2 4 ***Acciones sobre los muros***

$\gamma = 20\ kN/m^2$
$\varphi = 35°$
$\delta = 0°$

Seguridad al vuelco: ..... $\gamma_v = 1,5$

Seguridad al deslizamiento: ..... $\gamma_d = 1,5$

Los pilotes se dimensionan para el tope estructural de $\sigma_{max} = 5,0\ N/mm^2$.

4.2 Losa pilotada

Se aplican los mismos parámetros que en el apartado anterior. Más adelante en este mismo anejo en los listados de los cálculos se detallan para cada módulo de losa construído.

4.3 Pasarela

4.3.1 *Bases de cálculo*

— **Normativas utilizadas**

Los cálculos de los viaductos se realizan teniendo en cuenta las exigencias de las Normas actualmente vigentes:

EHE-98	"Instrucción de Hormigón Estructural", correspondiente al R.D. 2662/1998 de 11 de diciembre.
IAP	"Instrucción sobre las acciones a considerar en el Proyecto de puentes de carretera", de febrero de 1998.
Código Modelo	del CEB-FIP 1990, para hormigón estructural
IPF-75	"Instrucción relativa a las acciones a considerar en el Proyecto de puentes de ferrocarriles", correspondiente a la O.M. de 25 de junio de 1975.
NSC- 94	"Norma de construcción sismorresistente: Parte general y edificación". De 29 de diciembre de 1994.

— **Materiales y sus características**

- *Hormigones*

Tableros pretensados	HP-40/P/20/IIa
Pilas	HA-35/P/20/IIa
Estribos, muros, cimentación	HA-25/P/20/IIa
Pilotes	HA-25/F/20/IIa
Hormigón de limpieza y rellenos	HM-15 (no estructural)

		EHE Apartado y Formulación	HA-25	HA-35	HP-40
Resistencia a Compresión	Fck_{28} [N/mm²]	39,4	25	35	40
Módulo de Elasticidad	Ej [N/mm²]	39,6 $8500\sqrt[3]{f_{cm}}$	27.300	29.800	30.900

- *Aceros*

Pasivos: B-500 S f_{yk} = 500 N/mm²
f_s = 550 N/mm²
E_s = 200.000 N/mm²

Acero activo: Y 1860 S7 15,2 según UNE 36094-97 (cordones de 0,6")
f_{pk} = 1860 N/mm²
f_{ps} = 1635 N/mm²
E_s = 195.000 N/mm²

Relajación del 2,0% para una tensión de 70% de $f_{max,k}$ aplicada durante 1.000 horas.

Tensiones máximas en acero activo:

Tendones reemplazables: Al tesar: 0,80 $f_{max,k}$ = 1.490 N/mm²
Al bloquear: 0,75 $f_{max,k}$ = 1.395 N/mm²

Tendones no reemplazables: Al tesar: 0,75 $f_{max,k}$ = 1.395 N/mm²
Al bloquear: 0,75 $f_{max,k}$ = 1.395 N/mm²

Acero en chapas y perfiles: S 275JR

— **Recubrimiento**

- *Armadura activa*

Según EHE, 37.2.4: 40 mm ó 1,0 · ϕ_{vaina}

Distancia eje cable-borde: 1,5 · ϕ_{vaina}

- *Armadura pasiva*

Tablero: según EHE, 37.2.4 r_{min} = 25 mm
Tolerancia = 5 mm

Recubrimiento elegido r_{nom} = 30 mm
Hormigón en contacto con el terreno: 50 mm
Resto: 40 mm

— **Niveles de control de calidad adoptados**

MATERIALES (EHE)	γ	Nivel de control
Hormigones	1,5	Estadístico
Acero pasivo	1,15	Normal
Acero activo	1,15	Normal
EJECUCIÓN (EHE)	γ	Nivel de control
		Intenso

— **Coeficientes de ponderación de las acciones**

ACCIONES ELU (excepto fatiga)		γ
Según EHE (Control de ejecución intenso)		
	Acciones permanentes	1,35/1,00
	Acciones variables	1,50/0
	Acciones de tráfico	1,50/0
	Pretensado	1,00

ACCIONES ELS		γ
Según EHE (Control de ejecución intenso)		
	Acciones permanentes	1,00
	Acciones variables	1,00/0
	Acciones de tráfico	1,00/0
	Pretensado (postesado)	1,10/0,90
	Pretensado (pretesado)	1,05/0,95

— **Combinaciones de acciones**

Según EHE, 13.2:

- *Estado Límite Último*

Situaciones persistentes y transitorias

$$\sum_{j\geq 1} \gamma_{G,j} \cdot G_{k,j} + \sum_{j\geq 1} \gamma_{G^*,j} \cdot G^*_{k,j} + \gamma_P \cdot P_k + \gamma_{Q,1} \cdot Q_{k,1} + \sum_{i\geq 1} \gamma_{Q,i} \cdot \Psi_{0,i} \cdot Q_{k,i}$$

Situaciones accidentales

$$\sum_{j\geq 1} \gamma_{G,j} \cdot G_{k,j} + \sum_{j\geq 1} \gamma_{G^*,j} \cdot G^*_{k,j} + \gamma_P \cdot P_k + \gamma_A \cdot A_k + \gamma_{Q,1} \cdot \Psi_{1,1} \cdot Q_{k,1} + \sum_{i\geq 1} \gamma_{Q,i} \cdot \Psi_{2,i} \cdot Q_{k,i}$$

Situaciones sísmicas

$$\sum_{j\geq 1} \gamma_{G,j} \cdot G_{k,j} + \sum_{j\geq 1} \gamma_{G^*,j} \cdot G^*_{k,j} + \gamma_P \cdot P_k + \gamma_A \cdot A_{E,k} + \sum_{i\geq 1} \gamma_{Q,i} \cdot \Psi_{2,i} \cdot Q_{k,i}$$

- *Estado Límite de Servicio*

Combinación poco probable

$$\sum_{j\geq 1} \gamma_{G,j} \cdot G_{k,j} + \sum_{j\geq 1} \gamma_{G^*,j} \cdot G^*_{k,j} + \gamma_P \cdot P_k + \gamma_{Q,1} \cdot Q_{k,1} + \sum_{i\geq 1} \gamma_{Q,i} \cdot \Psi_{0,i} \cdot Q_{k,i}$$

Combinación frecuente

$$\sum_{j\geq 1} \gamma_{G,j} \cdot G_{k,j} + \sum_{j\geq 1} \gamma_{G^*,j} \cdot G^*_{k,j} + \gamma_P \cdot P_k + \gamma_{Q,1} \cdot \Psi_{1,1} \cdot Q_{k,1} + \sum_{i\geq 1} \gamma_{Q,i} \cdot \Psi_{2,i} \cdot Q_{k,i}$$

Combinación cuasipermanente

$$\sum_{j\geq 1} \gamma_{G,j} \cdot G_{k,j} + \sum_{j\geq 1} \gamma_{G^*,j} \cdot G^*_{k,j} + \gamma_P \cdot P_k + \sum_{i\geq 1} \gamma_{Q,i} \cdot \Psi_{2,i} \cdot Q_{k,i}$$

4.3.2 *Acciones consideradas en la pasarela*

Cargas permanentes:

Peso propio:	γ hormigón	=	25 kN/m^2
Carga muerta:	γ pavimento	=	23 kN/m^2
	Barandilla:		0.5 KN/m

Sobrecarga: 4 kN/m^2
Acciones debidas al viento y la variación de temperatura: según IAP-96
Deformaciones reológicas: según EHE

4.4 Programas utilizados

11.3.4.1 *Programa STAAD-PRO*

El programa de cálculo de estructuras STAAD-PRO, desarrollado por Research Engineers, permite el diseño, análisis y comprobación de todo tipo de estructuras, de tipo industrial, puentes, edificación, etc.

Las características generales de este programa son:

- Introducción de datos en modo gráfico o por fichero
- Soporta sistema de coordenadas cartesianas y cilíndricas
- Generación clara y sencilla de sistemas de redes y mallas
- Chequeo automático del equilibrio global de la estructura y de cada uno de sus elementos constituyentes
- Librerías de elementos y estructuras tipo
- Especificación personalizada de unidades

– Análisis y diseño

- Análisis en dos y tres dimensiones basados en métodos matriciales
- Capacidad de definición de losas, vigas, pilares, de sus características mecánicas y reológicas, secciones tipo, etc.

- Posibilidad de elección de los sistemas de apoyo de la estructura, desplazamientos de los mismos
- Posibilidad de liberalización de esfuerzos y tensiones
- Análisis lineal de tensiones
- Análisis P-Delta (efectos de segundo orden)
- Definición de diversos tipos de cargas (peso propio, sobrecargas variables, fuerzas de pretensado, etc.)
- Elaboración de envolventes de esfuerzos y deformaciones para todas aquellas hipótesis definidas por el usuario.

– Análisis dinámico y sísmico

- Definición de parámetros sísmicos y modos de frecuencia de vibración
- Generador de cargas armónicas
- Combinaciones de cargas estáticas y dinámicas
- Análisis espectral de respuesta.

— **Diseño de secciones de acero, hormigón y mixtas**

El programa STAAD-Pro permite, además de considerar secciones definidas específicamente por el usuario, emplear tablas de perfiles tipo definidas según diferentes países (British BS5950, tablas españolas, alemanas, francesas, americanas, etc.), que permiten una rápida asignación de características mecánicas y geométricas a los elementos definidos en la modelización de la estructura.

Pueden a su vez diseñarse pilares, vigas y losas según las normas establecidas en diversos países, entre ellas, las españolas.

— **Verificación del modelo**

El STAAD-Pro facilita una rápida verificación, tanto de la geometría de la estructura como de los resultados obtenidos (tensiones, esfuerzos, deformaciones), que permiten una rápida identificación de los puntos críticos de la estructura, errores en la definición de la geometría, condiciones de contorno, secciones tipos, mallados de elementos finitos, respuesta estructural ante diferentes tipos e hipótesis de carga.

4.4.2 *Programa STATIK*

Es un programa de barras y nudos tridimensional que determina esfuerzos, y deformaciones de una estructura, permite la introducción de pretensado y el cálculo de estructuras construidas fase a fase. Ha sido desarrollado por CUBUS, Suiza.

4.4.3 *Programa MOSTI*

— **Generalidades**

El programa MOSTI tiene como objetivo facilitar la realización de los anejos de cálculo de algunas tipologías de puentes.

El programa se ha estructurado en dos grandes grupos de puentes:

- Puentes de hormigón pretensado
- Puentes de estructura mixta

En ambos casos el tablero puede estar rígidamente unido a las pilas.

La sección transversal de los puentes de hormigón pretensado puede ser cualquiera, dado que existe la posibilidad de considerar una sección general poligonal definida por sus vértices.

La sección transversal de los puentes mixtos, siempre que se dimensionen con arreglo a la norma RPX, debe ser una de las siguientes:

a) *Secciones mixtas formadas por un cajón abierto*

-Sección formada por un cajón abierto de una célula sin rigidizadores en la platabanda superior.

-Sección formada por un cajón abierto de una célula con rigidizadores en la platabanda superior.

-Sección formada por un cajón abierto de dos o tres células sin rigidizadores en la platabanda superior.

b) *Secciones mixtas formadas por una viga en doble T*

-Sección formada por una viga metálica en doble T con rigidizadores longitudinales en el alma.

- Sección formada por una viga metálica en doble T sin rigidizadores longitudinales.

c) *Secciones mixtas formadas por un cajón cerrado*

-Sección formada por un cajón metálico cerrado de una célula con rigidizadores en cualquiera de las chapas.

-Sección formada por un cajón metálico cerrado de dos células con rigidizadores en cualquiera de las chapas.

En caso de que el dimensionamiento de la sección mixta no se ajuste a la Norma RPX, la sección transversal puede ser cualquiera, dado que existe la posibilidad de considerar una sección general poligonal definida por sus vértices.

La documentación que constituye el soporte escrito del programa MOSTI, comprende los siguientes apartados:

1. INTRODUCCION. Se hace una breve descripción del programa.

2. DESCRIPCION DEL PROGRAMA.	Se pasa revista a las características generales del programa en lo relativo a objetivos y ámbitos de aplicación.
3. MANUAL DEL USUARIO.	Se hace una completa descripción del modelo desde el punto de vista del usuario.
4. TEORIA.	Se incluye un completo análisis teórico que sirve de apoyo y ayuda para la correcta aplicación y comprensión del modelo.
5. SALIDA DE RESULTADOS.	Se incluye un conjunto de ejemplos que permiten barrer el amplio abanico de posibilidades que ofrece el modelo a los posibles usuarios. Además se hace una descripción del conjunto de ficheros generados por el programa.
6. VERIFICACION.	Se ofrece un estudio comparativo de los resultados que proporciona el modelo MOSTI.
7. INSTALACION.	Se indica al usuario el conjunto de operaciones a realizar para el correcto funcionamiento del modelo.

— **Descripción del programa**

El programa MOSTI se articula en torno al programa ANSYS que actúa como módulo de CALCULO. Para las fases de ENTRADA de datos y gestión de la SALIDA de resultados se han realizado dos programas específicos, de los que, a continuación, se incluye una breve reseña:

- *Programa GEBESIS*

Programa que gestiona y genera los archivos de entrada de datos al programa ANSYS. El programa parte de los datos geométricos de definición del puente:

- Sección transversal de acero laminado
- Sección transversal de la losa de hormigón
- Definición de rigidizadores
- Distribución de chapas a lo largo del puente
- Distribución de la armadura longitudinal
- Definición de los apoyos
- Definición de los materiales
- Definición de cargas
- Definición del proceso constructivo

- *Programa GESASIS*

Conjunto de programas que analizan los ficheros de salida de resultados generados por el programa ANSYS y generan nuevos ficheros de salida adaptados a las necesidades de cada caso concreto:

SUMAT → Busca los esfuerzos máximos y mínimos en las secciones críticas del puente para las diferentes hipótesis y los combina de acuerdo con los criterios de mayoración establecidos.

DESPLA → Busca las contraflechas a establecer en la estructura debido a la acción del peso propio y carga muerta. Además se buscan las máximas flechas debidas a la sobrecarga y el carro.

TENSE → Busca las tensiones máximas y mínimas en la fibras extremas de las secciones críticas del puente para las diferentes hipótesis y las combina de acuerdo con los criterios de mayoración establecidos.

4.4.4 *Programa SESLIU*

— **Generalidades**

El modelo SESLIU constituye una herramienta de cálculo potente y versátil, encaminada al estudio de secciones estructurales constituida por los siguientes materiales:

- Hormigón
- Acero de armar
- Acero de pretensar
- Acero estructural

El programa se estructura en dos grandes grupos de secciones:

- *Secciones metálicas y mixtas* calculadas con las recomendaciones RPM y RPX. Según estas normas, los elementos de acero y hormigón se reducen por dos conceptos:

. Pandeo local de elementos comprimidos
. Arrastre por cortante

- *Secciones generales.* Los esfuerzos se obtienen por integración directa de las leyes de tensiones sin reducción alguna de las dimensiones geométricas de la sección.

Dentro del primer grupo de secciones metálicas y mixtas se han tenido que distinguir necesariamente un conjunto de secciones típicas, pues el método de cálculo difiere de forma importante de una a otra sección, haciendo casi imposible la generalización del método desde un punto de vista de programación numérica. Así se han distinguido:

a) *Secciones metálicas y mixtas formadas por un cajón abierto:*

- Sección metálica formada por un cajón abierto de una célula sin rigidizadores en la platabanda superior.

- Sección metálica formada por un cajón abierto de una célula con rigidizadores en la platabanda superior.

- Sección mixta formada por un cajón abierto de una célula sin rigidizadores en la platabanda superior.

- Sección mixta formada por un cajón abierto de una célula con rigidizadores en la platabanda superior.

- Sección mixta formada por un cajón abierto de dos o tres células con rigidizadores en la platabanda superior.

b) *Secciones metálicas y mixtas formadas por una viga en doble* T:

- Sección metálica formada por una viga en doble T con rigidizadores longitudinales en el alma.
- Sección metálica formada por una viga en doble T sin rigidizadores longitudinales.

- Sección mixta formada por una viga metálica en doble T sin rigidizadores longitudinales.

c) *Secciones metálicas y mixtas formadas por un cajón cerrado:*

- Sección metálica formada por un cajón cerrado de una célula con rigidizadores en cualquiera de las chapas.

- Sección metálica formada por un cajón cerrado de dos células con rigidizadores en cualquiera de las chapas.

- Sección mixta formada por un cajón metálico cerrado de una célula con rigidizadores en cualquiera de las chapas.

- Sección mixta formada por un cajón metálico cerrado de dos células con rigidizadores en cualquiera de las chapas.

Para el segundo grupo de secciones, dada su generalidad, está abierto a cualquier tipo de secciones. Con objeto de automatizar la tediosa labor de introducción de datos de los vértices de la sección y ayudar al programa en la gestión de los mismos, se han distinguido:

- Sección de hormigón pretensado
- Sección mixta sin considerar reducción
- Sección metálica tubular
- Sección metálica definida por sus vértices
- Sección circular de hormigón armado con la armadura distribuida uniformemente.

La documentación que constituye el soporte escrito del programa SESLIU, comprende los siguientes apartados:

1. INTRODUCCION.	Se hace una breve descripción del programa.
2. DESCRIPCION DEL PROGRAMA.	Se pasa revista a las características generales de los diferentes programas que constituyen el modelo.
3. MANUAL DEL USUARIO.	Se hace una completa descripción del modelo desde el punto de vista del usuario.
4. TEORIA.	Se incluye un completo análisis teórico que sirve de apoyo y ayuda para la correcta aplicación y comprensión del modelo.
5. SALIDA DE RESULTADOS.	Se incluye un conjunto de ejemplos que permiten barrer el amplio abanico de posibilidades que ofrece el modelo a los posibles usuarios. Además,

se hace un repaso del conjunto de ficheros generados por el programa.

6. VERIFICACION. Se ofrece un estudio comparativo de los resultados que proporciona el modelo SESLIU con relación a otros, presentados en comunicaciones o artículos recientes.

7. INSTALACION. Se indica al usuario el conjunto de operaciones a realizar para el correcto funcionamiento del modelo.

8. FUENTES DEL PROGRAMA. Se ofrece una descripción detallada de la organización interna de los diferentes programas que constituyen el modelo SESLIU, así como un listado de los ficheros fuentes junto a diagramas de flujo y descripción de variables de cara a una eventual modificación del modelo.

— **Descripción del programa**

Se refiere a un conjunto de programas de análisis de secciones en los que se evalúan los siguientes parámetros:

- Características mecánicas (Area, inercia a flexión, inercia a torsión) de las siguientes secciones:
  . Sección Bruta
  . Eficaz elástica
  . Fisurada
- Esfuerzos últimos
  . Momento último a flexión
  . Cortante último
  . Torsor último

En función del tipo de sección se consideran diferentes programas de cálculo:

FLEXIT → Secciones metálicas y mixtas en doble T
FLEXIA → Secciones metálicas y mixtas formadas por cajones abiertos
FLEXIC → Secciones metálicas y mixtas formadas por cajones cerrados
HORMIG → Secciones de hormigón armado y pretensazo

4.4.5 *Programa ANSYS*

Programa de análisis de Elementos finitos que determina desplazamientos, fuerzas, o tensiones en una estructura, resultantes de las condiciones de contorno impuestas.

El programa realiza un análisis estático, dinámico, térmico, lineal o no lineal, en dos o tres dimensiones. Resuelve problemas no lineales, tanto en geometría (grandes deformaciones, grandes rotaciones, problemas de rozamiento y despegue), como en materiales (materiales con tensiones de rotura, fluencia, dependencia del material de la temperatura, cambio de fase).

4.4.6 *Programa SAP 2000*

Programa de análisis de Elementos finitos que determina desplazamientos, esfuerzos y tensiones en una estructura, resultantes de las condiciones de contorno impuestas y de las fuerzas aplicadas.

El programa realiza un análisis estático o dinámico, lineal o no lineal, en dos o tres dimensiones. Resuelve problemas no lineales, tanto en geometría (efecto P-delta, problemas de rozamiento y despegue), como en materiales (plasticidad).

4.4.7 *Prontuario informático del hormigón estructural*

El prontuario informático del hormigón estructural, elaborado por la Cátedra de Hormigón Armado y Pretensado de la E.T.S. de Ingenieros de Caminos, Canales y Puertos de la Universidad Politécnica de Madrid, es un compendio de utilidades basadas en la Instrucción EHE, cuyo principal objetivo es el dimensionamiento y comprobación de elementos estructurales de hormigón armado (vigas, pilares, losas, etc.), control de calidad de muestras, comprobación de los Estados Límite de Servicio, etc.

4.4.8 *Programas de Julián Díaz del Valle*

Se utilizan varios programas elaborados por Julián Díaz del Valle, Catedrático de Mecánica de los Medios Continuos y Teoría de Estructuras de la E.T.S. de Ingenieros de Caminos, Canales y Puertos de Santander.

— **Programa PUENTE**

Los programas PUENTE y PRETENSA realizan el análisis longitudinal a todo ancho de puentes continuos de hormigón pretensado, cuya sección transversal puede variar a lo largo del tablero.

El programa PUENTE obtiene las características mecánicas de las secciones, a partir de los parámetros geométricos suministrados. Como método fundamental de cálculo, utiliza el de la matriz de flexibilidad, a partir de la cual, calcula las líneas de influencia de los movimientos en los apoyos. Finalmente obtiene los esfuerzos debidos al peso propio, carga permanente de la superestructura, sobrecarga de uso uniformemente repartida y carro de la Instrucción de Puentes de Carretera o cualquier otro tren que el usuario desee definir. También se pueden considerar acciones indirectas debidas a gradientes térmicos y descensos de apoyos.

El tablero se considera como una viga cuya sección transversal es indeformable.

El programa PUENTE permite la representación gráfica de geometrías y esfuerzos, tanto en pantalla como en impresora y/o plotter.

El trazado de los cables longitudinales de pretensado, juntamente con el análisis de los efectos del mismo, se obtendrán utilizando el programa PRETENSA.

- **Programa ESTRUCTURAS ENTERRADAS "GALERÍA"**

  Este programa realiza el diseño y el cálculo de estructuras enterradas de geometría arbitraria como marcos, pórticos o falsos túneles.

4.4.9 *Programa DURCHLAUFTRÄGER*

Este programa de vigas continuas calculas los esfuerzos y las deformaciones de una viga continua con secciones variables. Ha sido desarrollado por FRIEDRICH & LOCHNER, Stuttgart, Alemania.

4.4.10 *Programa EXCEL*

Las tablas de cálculo de Excel son bien conocidas y no necesitan una explicación aparte.

Se utiliza para recopilar y ordenar datos, hacer cálculos sencillos y dibujar gráficos como leyes de esfuerzos.

4.4.11 *Programa MATHCAD*

Este programa permite hacer fórmulas de una manera sencilla y fácil de comprobar. También es bien conocido, por lo que no hace falta una descripción más detallada.

4.4.12 *Prontuario informático del hormigón armado*

El prontuario informático del hormigón armado versión 3.0, edición del 2001, elaborado por la Cátedra de Hormigón Armado y Pretensado de la E.T.S. de Ingenieros de Caminos, Canales y Puertos de la Universidad Politécnica de Madrid, es un compendio de utilidades basadas en la Instrucción EHE, cuyo principal objetivo es el dimensionamiento y comprobación de elementos estructurales de hormigón armado (vigas, pilares, losas, etc.), control de calidad de muestras, comprobación de los Estados Límite de Servicio, etc.

4.1. Viaducto de Cornellá

4.1.1. Tablero

ENVOLVENTE MINIMOS CORTANTES TREN IPF-B, l=30 m, via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.0193	-11.5744	57.1291	28.1632	26.4054	-14.4632
2	-6.4401	-13.0730	52.3724	26.7449	28.3627	-8.4405
3	13.7578	-15.9421	44.2489	14.6046	31.1158	-0.8183
4	41.7278	-19.5985	34.5865	-22.3920	35.5699	10.8540
5	91.6546	-24.9571	20.9221	-69.8339	41.3769	25.4984
6	149.2066	-31.6405	4.3197	-102.4365	47.3757	40.2923
7	189.1745	-38.5209	-12.4074	-150.0936	55.5936	60.2478
8	241.5703	-47.5876	-34.2852	-190.2472	65.0848	83.0749
9	283.9590	-57.9018	-59.0338	-196.4661	74.1602	104.7868
10	290.0636	-67.7983	-82.6772	-204.5866	85.9102	132.8763
11	295.8527	-80.3218	-112.7162	-170.3087	96.8873	159.1694
12	257.2112	-92.0387	-140.9880	-127.7227	110.7372	192.6251
13	208.4351	-106.6331	-176.4588	-52.9502	125.6824	229.0807
14	125.8633	-122.2447	-214.9728	72.5391	139.2515	262.6663
15	-8.8066	-136.4753	-250.6677	221.4946	156.0226	304.8136
16	-168.0718	-153.8468	-294.9744	412.9794	173.7065	350.1619
17	-370.7113	-172.1019	-342.5435	657.3669	189.4864	391.6120
18	-626.8256	-188.4051	-386.2805	938.9173	208.6653	443.1121
19	-920.3675	-208.0418	-440.1133	1268.4448	228.4535	497.6165
20	-1261.8647	-228.2505	-497.0183	1646.4348	215.4415	479.1723
21	22.6848	-32.6137	-7.8759	-186.4558	26.5810	-9.3316
22	197.2359	-9.5652	56.2671	-160.1162	27.5618	-4.6711
23	189.4429	-11.2849	48.9872	-148.8852	29.2816	2.6091
24	195.8772	-13.8174	39.1496	-150.2550	31.8141	12.4468
25	213.5140	-17.2233	26.8176	-161.0813	35.2199	24.7789
26	238.8697	-21.5604	12.0366	-177.7628	39.5571	39.5602
27	267.9348	-26.8799	-5.1508	-226.1012	46.4259	81.0790
28	326.1660	-34.7718	-49.0455	-279.2719	55.2457	106.9952
29	386.4763	-44.6365	-77.3232	-320.7943	65.4564	135.9916
30	432.1683	-55.9047	-108.6815	-343.7458	77.0721	168.0725
31	456.2484	-68.5986	-143.1366	-341.0938	90.0936	203.2614
32	451.6452	-82.6723	-180.7332	-305.9759	104.4742	241.6089
33	411.5739	-98.1036	-221.5355	-231.7510	120.1960	283.1842
34	329.5345	-114.8485	-265.6287	-112.1929	137.1957	328.0789
35	199.5500	-132.8348	-313.1182	58.3504	155.4097	376.4000
36	16.2811	-151.9905	-364.1229	284.8820	174.7623	428.0563
37	-224.8852	-172.2308	-418.5634	571.5147	195.1490	482.8620
38	-527.5762	-193.4374	-476.2623	921.4308	216.4749	540.9616
39	-894.4058	-215.5029	-537.3687	1336.7517	238.6088	602.5036
40	-1326.8966	-238.2889	-602.0333	1819.0309	230.1774	587.5664
41	150.3090	-37.1237	-21.5035	-381.5782	32.7643	-8.0695
42	392.5953	-15.7512	55.2848	-343.0800	33.7545	-3.7451
43	372.9153	-17.4926	48.3495	-319.9168	35.4956	3.1956
44	367.5906	-20.0542	38.8517	-309.4695	38.0573	12.6985
45	373.5144	-23.4990	26.8514	-308.5003	41.5028	24.7042
46	387.1047	-27.8829	12.3902	-313.3271	45.8859	39.1704
47	404.2970	-33.2431	-4.4926	-319.7922	51.2459	56.0588
48	420.5934	-39.6224	-23.7780	-362.3341	59.8102	106.4386
49	470.1793	-49.2322	-76.5360	-395.9412	70.1112	135.1515
50	507.8671	-60.5977	-107.6346	-410.4827	81.8099	166.9777
51	523.4439	-73.3729	-141.8610	-399.0208	94.9113	201.9445
52	509.9219	-87.5276	-179.2642	-354.6780	109.3744	240.1072
53	460.5288	-103.0521	-219.9095	-270.8521	125.1766	281.5371
54	368.7960	-119.8707	-263.8835	-141.3492	142.2453	326.3245
55	228.7837	-137.9129	-311.2951	39.4242	160.5137	374.5819
56	35.1935	-157.1248	-362.2649	276.3893	179.9133	426.2174
57	-216.4745	-177.4000	-416.7104	573.6405	200.3403	481.0383
58	-529.8303	-198.6431	-474.4434	934.2850	221.6847	539.1798
59	-907.4140	-220.7255	-535.6189	1360.3970	243.8373	600.7957
60	-1350.7040	-243.5251	-600.3616	1852.9470	235.3324	585.7627
61	195.9733	-38.5452	-21.9530	-433.2099	34.3900	-7.4455
62	444.4228	-17.3920	54.6871	-391.6542	35.3886	-3.1781
63	421.6767	-19.1410	47.7905	-365.4102	37.1370	3.7247
64	413.2530	-21.7153	38.3221	-351.8395	39.7123	13.1994
65	416.0298	-25.1739	26.3405	-347.6976	43.1702	25.1864
66	426.4135	-29.5638	11.8903	-349.3089	47.5602	39.6431
67	440.3488	-34.9402	-4.9894	-352.4886	52.9362	56.5294
68	453.3225	-41.3351	-24.2692	-388.0026	61.2790	106.8092
69	495.8444	-50.7271	-76.9350	-418.6880	71.6100	135.5632
70	530.5577	-62.1243	-108.0699	-430.1736	83.3390	167.4245
71	543.0059	-74.8995	-142.3364	-415.5408	96.4422	202.4294
72	526.2724	-89.0831	-179.7725	-367.9566	110.9194	240.6208
73	473.5973	-104.5951	-220.4398	-280.8604	126.7198	282.0673
74	378.5666	-121.4121	-264.4338	-148.0926	143.7824	326.8719
75	235.2841	-139.4904	-311.8555	36.0147	162.0961	375.1334
76	38.3734	-158.7144	-362.8313	276.3028	181.4920	426.7689
77	-216.5788	-178.9959	-417.2709	576.8265	201.9221	481.5797
78	-533.1713	-200.2234	-475.0000	940.6484	223.2565	539.7124
79	-913.8727	-222.3023	-536.1547	1369.8319	245.4084	601.3040
80	-1360.1383	-245.1029	-600.8892	1865.5232	236.7990	587.0329
81	145.8852	-31.6556	-47.5850	-398.5178	27.5927	16.8707
82	409.7729	-10.5927	30.4663	-370.5751	28.5966	21.0633
83	400.6882	-12.3595	23.7824	-357.9562	30.3631	27.7529
84	405.9033	-14.9560	14.6622	-357.9748	32.9596	36.8801
85	422.2394	-18.4462	3.1677	-367.3312	36.4503	48.3806
86	446.0635	-22.8876	-10.6529	-382.2687	40.8919	62.2070
87	473.2290	-28.3152	-26.7683	-398.5740	46.3187	78.3297
88	499.1877	-34.7739	-45.1725	-447.0606	54.6675	128.0752
89	554.5118	-44.1702	-97.1955	-490.1369	65.0893	155.4458
90	601.4517	-55.6675	-126.8682	-513.5779	76.9181	185.8287
91	625.6970	-68.5656	-159.6065	-510.4313	90.1412	219.3019
92	620.3151	-82.8282	-195.4912	-473.9685	104.7062	255.9534
93	578.6760	-98.4417	-234.6422	-397.6712	120.5914	295.9120
94	494.4349	-115.3442	-277.1992	-275.5023	137.7576	339.3201
95	361.8212	-133.4882	-323.3291	-102.0240	156.1036	386.3541
96	175.7667	-152.7507	-373.2272	127.3992	175.5509	436.9898
97	-67.9384	-173.0558	-426.8784	416.5462	195.9926	491.1057
98	-372.5480	-194.2985	-484.1720	768.1883	217.3371	548.9225
99	-740.2059	-216.3434	-545.3402	1183.8950	239.4357	610.6659
100	-1171.8617	-239.0464	-610.6119	1675.4801	229.6929	600.4105
101	150.8519	-38.5698	-56.2313	-414.6864	33.5465	16.2984
102	420.8944	-18.5657	26.4481	-374.6173	34.3174	18.6302
103	396.0519	-20.0157	22.1865	-347.2356	35.7680	22.8973
104	382.9690	-22.2038	15.9849	-330.3251	37.9539	29.1054
105	379.0793	-25.1734	7.8388	-321.2381	40.9233	37.2568
106	381.5084	-28.9770	-2.2771	-317.0065	44.7282	47.3781
107	387.0099	-33.6473	-14.3838	-314.3387	49.3995	59.4903
108	392.0639	-39.2165	-28.5211	-309.6409	54.9690	73.6336
109	392.8977	-45.6994	-44.7340	-325.5504	62.8696	123.4785
110	412.0346	-54.5366	-96.6995	-342.0849	73.7042	148.4307
111	429.4463	-66.2950	-123.8432	-318.2423	83.8949	172.5703
112	404.1319	-77.3976	-150.2512	-289.1483	97.1286	203.3863
113	371.2957	-91.5334	-183.4190	-229.0617	111.6064	237.5836
114	305.3121	-106.9065	-220.0650	-132.9129	127.3038	275.3279

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	201.3177	-123.4575	-260.3637	16.7221	141.6314	310.9425
116	42.1277	-138.5750	-298.6501	195.8932	159.3612	355.7174
117	-147.9914	-157.0734	-346.2167	422.6263	178.0632	404.5866
118	-386.6946	-176.4765	-398.0058	699.3128	197.6153	457.4955
119	-675.9430	-196.6652	-453.9606	1031.3685	215.1494	506.6212
120	-1020.7006	-214.7562	-506.2636	1421.4866	208.4299	501.9933
121	247.4724	-37.8605	-47.3292	-443.9081	35.3450	18.6301
122	448.6234	-20.3008	24.2115	-399.3066	36.0519	20.8637
123	418.8144	-21.6628	20.1039	-367.1096	37.4142	24.9779
124	400.6738	-23.7396	14.1021	-345.3373	39.4915	30.9851
125	391.8377	-26.5835	6.1965	-331.5283	42.3351	38.8962
126	389.6005	-30.2437	-3.6414	-322.8832	45.9950	48.7411
127	390.8714	-34.7644	-15.4406	-316.2355	50.5176	60.5461
128	392.2061	-40.1884	-29.2435	-308.0856	55.9413	74.3554
129	389.8962	-46.5142	-45.1027	-332.1263	64.5839	123.2582
130	417.5296	-56.0847	-96.1128	-343.7017	75.1019	147.6923
131	430.3516	-67.5385	-122.7291	-316.5704	85.0738	171.3686
132	402.1221	-78.4192	-148.6641	-284.9122	98.0218	201.6295
133	367.0651	-92.2907	-181.2834	-223.3822	112.2620	235.2709
134	299.9584	-107.4258	-217.3851	-126.7714	127.7266	272.4753
135	195.7560	-123.7623	-257.1696	22.6663	141.9045	307.6613
136	36.9678	-138.7627	-295.0516	200.9880	159.4937	351.9620
137	-152.1749	-157.1160	-342.1844	426.4809	178.0734	400.4233
138	-389.5970	-176.4234	-393.6076	701.7733	197.5493	453.0034
139	-677.4954	-196.5477	-449.3016	1032.5840	215.0313	501.9308
140	-1021.1354	-214.6005	-501.4736	1423.1836	208.2063	497.8658
141	229.2651	-40.9366	-13.1372	-400.9622	37.8208	-11.5201
142	405.1707	-22.3233	55.4471	-350.4124	38.5218	-9.0686
143	370.1461	-23.6916	50.9527	-312.9237	39.8900	-4.5694
144	347.4610	-25.7921	44.3864	-286.4629	41.9902	1.9997
145	334.6769	-28.6770	35.7204	-268.4824	44.8764	10.6717
146	328.9622	-32.4018	24.9243	-256.0651	48.6003	21.4705
147	327.0761	-37.0090	11.9657	-245.8894	53.2068	34.4342
148	325.4087	-42.5320	-3.1860	-207.2724	60.4174	39.4774
149	293.0591	-50.6880	-10.4653	-186.3443	67.8843	59.7801
150	275.9925	-59.1080	-33.0353	-263.4249	78.4304	125.3288
151	354.4351	-70.6255	-100.9044	-249.7716	90.3421	154.9277
152	339.6145	-83.4912	-132.8782	-210.3356	103.5856	187.8557
153	296.5395	-97.6965	-168.2308	-139.2361	118.1395	224.2063
154	219.4205	-113.1842	-207.0743	-15.5170	131.6325	258.5863
155	87.4647	-127.5782	-244.0123	133.0271	148.4878	301.5969
156	-71.2939	-145.2889	-289.6537	328.0215	166.4607	348.3838
157	-278.1670	-164.0865	-339.1390	573.3034	185.4705	399.0249
158	-536.6285	-183.8555	-392.5552	871.7746	205.4009	453.1657
159	-849.1552	-204.4791	-449.5332	1229.2588	223.3945	503.3419
160	-1221.1056	-223.0928	-502.6292	1637.2106	217.0462	494.1748
161	197.6907	-32.8308	-10.1718	-380.0248	30.2727	-8.7086
162	390.2234	-13.2387	55.8629	-345.7417	31.2407	-4.3209
163	374.2393	-14.9411	48.8312	-326.3527	32.9431	2.7159
164	372.3434	-17.4518	39.2068	-319.4304	35.4541	12.3455
165	381.5859	-20.8373	27.0511	-321.9070	38.8386	24.5058
166	398.5352	-25.1538	12.4110	-330.2184	43.1551	39.1526
167	419.2163	-30.4450	-4.6746	-352.9872	49.0159	80.5189
168	451.8850	-37.3274	-48.4498	-398.9966	57.7728	106.4564
169	505.0530	-47.1439	-76.7735	-433.5664	67.9378	135.5084
170	543.8296	-58.3710	-108.2159	-449.7528	79.5112	167.6853
171	561.1759	-71.0110	-142.7973	-440.5660	92.4843	203.0101
172	550.0899	-85.0569	-180.5401	-399.1100	106.8484	241.5047
173	503.7121	-100.4873	-221.5048	-318.6302	122.5766	283.2466
174	415.4457	-117.2405	-265.7714	-192.8555	139.5911	328.3132

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	279.2515	-135.2399	-313.4345	-16.0956	157.8305	376.8037
176	89.7767	-154.4432	-364.5990	216.7116	177.2224	428.6181
177	-157.6277	-174.7030	-419.1827	509.6044	197.6376	483.5550
178	-466.5247	-195.9441	-476.9816	865.7986	218.9977	541.7417
179	-839.5285	-218.0533	-538.1450	1287.3483	241.1775	603.3232
180	-1278.0824	-240.8793	-602.8047	1773.9849	232.2923	587.5919
181	46.0844	-25.9428	-27.7093	-302.6231	21.0075	-3.1841
182	313.9399	-4.4626	49.0277	-288.1135	22.0173	1.2366
183	317.3896	-6.2252	42.0715	-288.1268	23.7803	8.1974
184	334.3421	-8.8048	32.6369	-300.0478	26.3600	17.6368
185	361.7148	-12.2683	20.7839	-320.6648	29.8235	29.4936
186	395.9770	-16.6585	6.5648	-346.3669	34.2139	43.7176
187	433.1564	-22.0262	-9.9895	-373.0691	39.5815	60.2782
188	468.8639	-28.4012	-28.8419	-438.0922	48.4074	110.7007
189	540.1766	-38.2650	-81.5507	-490.6966	58.8528	139.1477
190	596.2258	-49.7522	-112.2815	-523.8184	70.6863	170.6133
191	629.8924	-62.6356	-145.9493	-530.7579	83.8981	205.0421
192	634.3879	-76.8692	-182.8720	-504.9175	98.4386	242.7802
193	603.3270	-92.4221	-223.0394	-440.1360	114.2748	283.7280
194	530.8005	-109.2785	-266.2862	-315.1049	129.0828	321.9698
195	395.6006	-125.0128	-307.0203	-158.0413	147.2335	368.9483
196	226.2056	-144.0740	-356.6563	53.3317	166.4846	419.4498
197	1.0544	-164.1506	-409.8355	322.4107	186.7182	473.0767
198	-282.8809	-185.1483	-466.2580	651.7679	207.8191	529.8880
199	-627.6748	-206.9402	-525.9081	1042.9456	229.6757	589.9838
200	-1034.0029	-229.3888	-589.2341	1496.9836	220.5955	575.7964
201	6.3512	-19.3709	-48.0309	-301.5095	11.2569	3.4522
202	307.9573	0.8545	29.6563	-300.2190	11.8359	6.6498
203	316.6959	-0.1492	24.5931	-307.5376	12.8383	11.7379
204	333.6755	-1.6062	17.7430	-322.4642	14.2941	18.5830
205	357.7254	-3.5603	9.3128	-343.7595	16.2507	27.0233
206	387.4507	-6.0635	-1.0273	-369.9522	18.7545	37.3816
207	421.2287	-9.1154	-13.0621	-399.4301	21.8062	49.3863
208	457.3162	-12.7622	-26.2165	-430.3717	25.4539	62.5420
209	493.5550	-17.0418	-41.4812	-460.5787	29.7340	77.8353
210	527.7671	-21.9818	-58.4405	-487.8313	34.6722	94.7899
211	557.5885	-27.5641	-76.8264	-544.5503	43.0241	156.4773
212	615.2307	-36.6187	-140.1815	-574.4493	51.0655	181.2733
213	644.2481	-45.3787	-166.8707	-609.3439	61.9243	213.5771
214	676.4671	-56.9327	-200.9017	-605.0552	71.7195	242.7937
215	667.7462	-67.4624	-231.4327	-579.3238	82.3733	273.5918
216	635.2957	-78.9006	-264.3265	-542.0135	96.3598	313.2644
217	589.3571	-93.6358	-305.7352	-459.2407	108.8835	348.7656
218	495.9693	-106.9387	-342.8097	-351.6264	125.0574	393.4558
219	375.3994	-123.8712	-389.4529	-195.9141	139.4327	433.4147
220	204.4388	-139.0326	-433.3042	0.5098	151.7221	433.2935

ENVOLVENTE MINIMOS TORSORES TREN IPF-B, l=30 m, via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.0152	21.2089	38.7875	-25.4405	-6.3779	3.8784
2	47.1852	19.7116	34.0983	-80.4842	-4.4219	9.8336
3	121.0050	16.8403	26.1097	-146.2457	-1.6666	17.3209
4	202.5934	13.1756	16.6497	-236.8475	2.7958	28.7908
5	306.1295	7.8215	3.2554	-337.9056	8.5983	43.1651
6	417.2911	1.1219	-13.0110	-424.0917	14.6133	57.6230
7	510.8512	-5.7530	-29.3328	-525.3438	22.8257	77.1733
8	616.8401	-14.7965	-50.7380	-619.1351	32.2937	99.5276
9	710.3577	-25.3029	-74.9494	-676.1696	41.5613	120.7025
10	769.7548	-35.1858	-97.9882	-737.6034	53.2977	148.1873
11	828.8542	-47.7328	-127.3552	-756.5920	64.2983	173.8085
12	831.3022	-60.1500	-154.8936	-753.9605	78.8485	206.5310
13	791.4725	-76.9563	-189.5929	-684.5105	96.0056	242.2151
14	678.9132	-96.2673	-227.3936	-522.9826	113.2741	275.0871
15	539.9503	-112.5221	-262.3861	-366.4231	132.0694	316.5320
16	419.3827	-129.9137	-305.9566	-213.6048	149.7735	361.1443
17	255.8230	-148.1939	-352.7400	-8.2494	165.5784	401.8087
18	38.6885	-164.4924	-395.6349	234.3041	184.7526	452.4665
19	-215.7647	-184.1281	-448.5838	524.7439	204.5398	506.0870
20	-518.1705	-204.3382	-504.5563	863.6471	191.5292	486.7104
21	-602.7191	10.8838	-22.8964	531.9796	-23.0260	7.4643
22	-767.2597	48.6339	38.4659	675.0265	-30.1635	14.9484
23	-645.6769	46.4422	28.3191	551.0757	-27.6721	25.9023
24	-504.0558	43.1360	14.9742	410.0009	-24.0463	40.0292
25	-346.7136	38.6377	-1.4950	256.4260	-19.2155	57.2576
26	-178.6127	32.8766	-21.0068	95.5702	-13.1095	77.5096
27	-5.3685	25.7841	-43.5050	-66.7230	-5.6648	100.7350
28	166.8210	17.3121	-68.9462	-224.0742	3.1618	126.8962
29	329.1073	7.1516	-97.3113	-366.9782	13.6683	155.9798
30	474.5360	-4.5346	-128.6014	-488.8349	25.7020	187.9924
31	537.2877	-22.9280	-162.8563	-513.4563	44.4230	222.9812
32	619.5533	-37.3379	-200.1895	-564.5315	59.1398	261.0653
33	641.2976	-54.6654	-240.6367	-548.3384	76.7578	302.2853
34	646.0919	-71.4114	-284.2437	-515.6094	93.7586	346.6943
35	602.8792	-89.3954	-331.1139	-431.8391	111.9703	394.3952
36	506.4268	-108.5585	-381.3626	-292.1125	131.3303	445.2958
37	352.1101	-128.7956	-434.9165	-92.3349	151.7138	499.2150
38	136.2778	-150.0056	-491.5958	170.7292	173.0431	556.2953
39	-143.6859	-172.0719	-551.5477	499.1838	195.1778	616.6825
40	-701.9337	-202.1312	-614.9766	1121.7665	194.0197	600.5096
41	-903.3791	19.7603	-38.7179	810.3533	-32.6795	11.2643
42	-799.3127	49.6932	34.5064	701.7890	-31.1015	18.9192
43	-671.9258	47.3625	24.4109	572.7961	-28.4781	29.8000
44	-525.0905	43.9248	11.1558	427.2086	-24.7343	43.8196
45	-363.1324	39.2891	-5.1930	269.6865	-19.7729	60.9145
46	-191.0436	33.3961	-24.5658	105.4662	-13.5454	81.0189
47	-14.4621	26.1884	-46.9134	-59.6143	-5.9941	104.0896
48	86.7609	21.8424	-72.2547	-153.9803	-1.3036	130.1497
49	252.7474	12.4671	-100.5768	-301.9319	8.4119	159.1922
50	408.2748	1.0120	-131.8235	-434.1359	20.2002	191.1670
51	542.6995	-12.1454	-166.0176	-540.7455	33.6838	226.1014
52	576.1259	-31.9436	-203.2550	-532.0756	53.7904	264.0980
53	611.5560	-48.9842	-243.6497	-530.0328	71.1087	305.2775
54	627.8317	-65.8095	-287.2263	-508.5267	88.1841	349.6672
55	595.9299	-83.8549	-334.0727	-435.8570	106.4557	397.3597
56	510.4078	-103.0741	-384.3111	-306.9497	125.8625	448.2634
57	366.8528	-123.3507	-437.8589	-117.8036	146.2910	502.1869
58	161.6237	-144.5977	-494.5303	134.7192	167.6393	559.2671
59	-107.8367	-166.6833	-554.4709	452.7171	189.7951	619.6480
60	-442.9961	-189.4824	-617.8198	837.1361	181.2897	603.2211
61	-844.2194	16.5477	-38.7817	756.8388	-29.5507	11.1476
62	-745.6011	46.5527	34.6607	654.2579	-27.9611	18.7637
63	-624.2104	44.2066	24.5882	531.2987	-25.3235	29.6271
64	-483.4199	40.7434	11.3308	391.8144	-21.5511	43.6534
65	-327.5939	36.0977	-5.0384	240.4597	-16.5818	60.7706
66	-161.7153	30.1789	-24.4457	82.5083	-10.3256	80.9119
67	8.5689	22.9469	-46.8406	-76.2169	-2.7523	104.0315
68	173.9462	14.5351	-72.1863	-226.5863	6.0041	130.0952
69	269.8550	8.7465	-100.5006	-311.6188	12.1364	159.1288
70	380.3860	0.5729	-131.8445	-405.3708	20.6418	191.1988
71	514.6560	-11.8865	-166.1487	-513.1880	33.4292	226.2421
72	623.9628	-26.0740	-203.4358	-591.6421	47.9103	264.2845
73	697.3094	-41.5879	-243.7581	-630.5628	63.7126	305.3848
74	726.8771	-58.2171	-287.2130	-622.7689	80.5874	349.6506
75	589.2030	-82.5132	-333.9655	-431.8370	105.1189	397.2430
76	505.8862	-101.7581	-384.2210	-305.0959	124.5357	448.1590
77	364.8577	-122.0393	-437.7663	-118.4996	144.9655	502.0749
78	162.1783	-143.2689	-494.4238	131.4138	166.3020	559.1365
79	-105.6503	-165.5570	-554.3365	448.1395	188.6631	619.4860
80	-438.4433	-188.3574	-617.6517	830.3615	180.0534	603.7960
81	-640.0061	-6.2844	-57.3022	598.2633	-6.8084	30.3982
82	-653.2222	26.0960	15.7691	602.7387	-7.4921	37.5727
83	-751.7960	30.3798	5.9009	686.4896	-11.4796	48.1834
84	-643.7515	27.0940	-7.0840	579.4149	-7.8781	61.8880
85	-515.1167	22.3836	-23.0559	455.4159	-2.8410	78.5611
86	-376.6604	16.4191	-41.9502	325.0284	3.4625	98.1434
87	-234.0486	9.1092	-63.7161	194.2129	11.1194	120.5921
88	-93.5673	0.4199	-88.3316	69.3631	20.1538	145.8907
89	38.1135	-9.6604	-115.8067	-42.7727	30.5795	174.0571
90	154.1181	-21.1629	-146.1716	-135.2689	42.4135	205.1318
91	246.6437	-33.9857	-179.4871	-200.5551	55.5613	239.1823
92	310.4802	-48.2633	-215.8471	-233.2777	70.1413	276.3092
93	338.0192	-63.8854	-255.3660	-226.1425	86.0351	316.6354
94	322.9489	-80.7888	-298.1853	-173.1443	103.2022	360.3063
95	259.4989	-98.9285	-344.4740	-68.8368	121.5439	407.4988
96	142.6116	-118.1950	-394.4235	91.4312	140.9952	458.1864
97	-31.9334	-138.5013	-448.0199	311.4166	161.4381	512.2471
98	-267.3832	-159.7412	-505.1520	593.8969	182.7798	569.9028
99	-565.8832	-181.7836	-566.0528	940.4400	204.8759	631.3785
100	-928.3744	-204.4873	-630.9490	1362.8583	195.1338	620.7475
101	-1031.8302	4.5998	-89.7682	982.9859	-20.9525	59.2299
102	-976.7278	35.9284	-17.9731	911.3230	-19.4994	64.2981
103	-889.8416	33.8073	-24.8702	833.9334	-17.5869	70.9993
104	-798.1500	31.1454	-33.3994	732.2284	-14.1749	80.7830
105	-683.4227	26.9476	-45.0288	619.4681	-9.5944	93.1450
106	-559.1408	21.5379	-59.2428	500.1752	-3.7850	108.1107
107	-430.1023	14.8693	-76.1023	399.4756	2.0327	123.4229
108	-321.6898	8.1664	-93.3334	283.6498	10.1955	143.3540
109	-200.3289	-0.9253	-115.2309	176.7615	19.6949	166.0847
110	-90.2040	-11.3439	-139.9839	84.5565	30.5115	191.7148
111	2.8634	-23.0909	-167.7003	32.7283	40.6908	216.4275
112	53.2301	-34.2128	-194.5763	-13.8207	53.9438	247.7118
113	96.0283	-48.3567	-228.1154	-29.3616	68.4297	282.2800
114	105.6719	-63.7229	-265.0298	-8.8480	84.1202	320.2925

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	77.3147	-80.2613	-305.4961	65.1239	98.4352	356.0747
116	-6.2159	-95.3963	-343.8483	168.6659	116.1825	400.9161
117	-120.7018	-113.8993	-391.3784	319.7748	134.8891	449.7488
118	-283.7824	-133.3032	-443.0291	520.8369	154.4420	502.5186
119	-497.4061	-153.4876	-498.7440	777.2659	171.9718	551.4049
120	-766.5388	-171.5773	-550.7045	1091.7542	165.2510	546.4343
121	-706.0039	-3.1638	-80.6249	683.8035	-8.4847	61.2461
122	-679.0417	23.5264	-19.6025	639.6905	-7.2810	65.9216
123	-620.1309	21.6717	-26.0757	587.5319	-5.5459	72.1651
124	-553.9149	19.2265	-34.1210	512.6846	-2.4512	81.4696
125	-466.1356	15.3574	-45.2492	425.9277	1.8009	93.3074
126	-367.8079	10.2763	-58.9234	331.5836	7.2854	107.7100
127	-263.5509	3.9541	-75.2025	253.3354	12.8562	122.4599
128	-177.3105	-2.4989	-91.8679	160.0602	20.6842	141.7775
129	-78.1801	-11.2618	-113.1515	74.3415	29.8658	163.8704
130	11.1141	-21.3595	-137.2746	1.9409	40.3767	188.8553
131	84.7638	-32.8030	-164.3555	-31.7763	50.3383	212.9946
132	117.3783	-43.7103	-190.6763	-60.9177	63.3129	243.6414
133	143.1232	-57.5783	-223.6000	-60.1880	77.5496	277.5873
134	136.8193	-72.7206	-259.9211	-24.3728	93.0214	315.0102
135	93.4190	-89.0513	-299.8407	64.2557	107.1935	350.3325
136	-4.5628	-104.0507	-337.7784	181.7675	124.7817	394.6890
137	-132.8924	-122.4032	-384.8853	346.4477	143.3606	443.1239
138	-309.5049	-141.7020	-436.2012	560.9130	162.8279	495.5970
139	-536.5782	-161.8209	-491.7050	830.8914	180.3045	544.3339
140	-819.3853	-179.8716	-543.6052	1160.6539	173.4774	539.9974
141	-861.0754	17.8181	-44.1867	802.6749	-29.1181	26.8051
142	-798.4244	44.6157	15.7601	721.3075	-27.9619	31.8991
143	-701.5284	42.8006	8.7710	620.7666	-25.8167	39.6167
144	-586.1800	39.9106	-0.8747	517.5913	-23.1874	48.6355
145	-469.3285	36.5027	-11.8330	391.8014	-18.9745	61.3142
146	-331.2731	31.4532	-26.4988	257.9473	-13.5381	76.7445
147	-186.8887	25.1319	-43.9376	121.0049	-6.8170	94.9733
148	-41.4282	17.4860	-64.2128	-13.5490	1.2345	116.0647
149	99.3910	8.5004	-87.3864	-119.2317	9.1126	136.8056
150	208.9333	-0.3367	-110.2518	-231.1486	19.6631	163.3684
151	322.2133	-11.8595	-138.9879	-323.3170	31.5761	193.0117
152	413.2177	-24.7239	-170.8605	-389.7080	44.8183	225.8384
153	405.6373	-44.0490	-205.9783	-344.8863	64.4920	261.9549
154	323.4722	-66.0796	-244.6221	-204.3502	84.5279	296.1344
155	214.5336	-84.0378	-281.3491	-72.4061	104.9474	338.9343
156	90.2847	-104.0415	-326.7489	92.2079	125.2133	385.4788
157	-95.7403	-125.3889	-375.9493	321.2273	146.7729	435.8350
158	-333.1233	-147.2970	-429.0243	602.4731	168.8424	489.6349
159	-579.8052	-167.9205	-485.6316	894.1114	186.8359	539.4404
160	-937.1629	-188.4781	-538.2759	1290.9697	182.4315	529.8215
161	-399.8129	4.9477	-27.6586	345.8179	-14.4613	10.1633
162	-538.5990	38.4264	36.0332	466.8500	-19.9508	17.3683
163	-438.3538	36.2517	26.1629	364.5901	-17.4895	28.0544
164	-318.5695	32.9800	13.0301	245.5310	-13.9082	41.9796
165	-183.3402	28.5255	-3.2872	114.1204	-9.1275	59.0689
166	-37.4612	22.8138	-22.7168	-24.5558	-3.0737	79.2516
167	113.5836	15.7828	-45.2013	-164.7798	4.3048	102.4765
168	263.7114	7.3799	-70.6964	-300.2507	13.0655	128.7032
169	406.3324	-2.4332	-99.1729	-424.2750	23.2271	157.9075
170	534.5657	-13.6598	-130.6306	-529.9247	34.8000	190.1000
171	640.4140	-26.3822	-165.0906	-609.0662	47.8555	225.3031
172	718.6220	-40.4292	-202.5716	-656.9075	62.2207	263.5364
173	761.5489	-55.8623	-243.1400	-665.7283	77.9516	304.8814
174	760.1989	-72.7569	-286.8745	-626.5865	95.1075	349.4162

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	700.8458	-91.3965	-333.8720	-525.3831	113.9871	397.2414
176	543.6897	-113.2303	-384.3050	-319.6337	136.0095	448.3244
177	378.3096	-133.5031	-438.0633	-108.7374	156.4377	502.4353
178	151.8454	-154.7437	-494.9126	165.0211	177.7973	559.6726
179	-138.7312	-176.8559	-554.9984	504.1491	199.9801	620.1768
180	-494.8670	-199.6850	-618.4514	908.3759	191.0980	603.2389
181	-442.2803	-0.1528	-38.7740	386.8479	-13.6888	9.3188
182	-751.2090	43.5488	35.6640	666.9976	-25.3668	16.5586
183	-637.7418	41.1599	25.6424	551.8738	-22.6731	27.4017
184	-505.6399	37.6467	12.4409	420.9709	-18.8347	41.4006
185	-359.2822	32.9357	-3.8589	278.9812	-13.7810	58.4746
186	-203.6665	26.9489	-23.1848	131.1516	-7.4399	78.5586
187	-44.3395	19.6349	-45.4746	-16.7559	0.2337	101.5956
188	112.5439	10.9452	-70.6958	-158.4346	9.2851	127.5547
189	260.4938	0.8631	-98.8233	-287.3338	19.7247	156.4220
190	392.4598	-10.5877	-129.8590	-396.4454	31.5218	188.1906
191	482.0440	-21.5413	-163.7490	-463.0681	42.8038	222.8424
192	564.8434	-35.7431	-200.7641	-515.5909	57.3125	260.6718
193	613.9722	-51.2883	-240.9187	-531.0151	73.1410	301.6073
194	605.7369	-64.8070	-284.0323	-476.7844	84.6113	339.7159
195	556.0903	-80.1131	-324.4950	-406.1104	102.3338	386.4230
196	473.9373	-98.7619	-373.8197	-282.7845	121.1725	436.6134
197	336.7550	-119.2492	-426.5359	-100.8753	141.8168	489.7768
198	139.1314	-140.6772	-482.3251	143.0105	163.3480	545.9553
199	-134.3132	-165.5711	-541.2717	468.8918	188.3066	605.3475
200	-461.5916	-188.2620	-603.6268	844.3518	179.4687	590.1890
201	-805.7507	9.7350	-58.6204	747.5507	-28.2227	18.2506
202	-741.1028	40.3399	13.7255	685.5138	-27.3515	23.7801
203	-669.0854	39.0366	6.7788	613.7182	-25.9536	30.9242
204	-587.5953	37.1640	-1.9932	520.5884	-23.4221	41.7059
205	-490.3828	34.3686	-14.5961	436.8188	-21.0173	53.1044
206	-436.6645	33.2767	-27.4544	366.5616	-18.9564	68.7669
207	-315.9231	28.6264	-44.8346	266.7032	-14.9628	84.1514
208	-344.9959	31.4253	-62.2846	291.3939	-17.6603	101.8464
209	-234.6537	26.4775	-81.2554	167.7552	-11.3015	124.7125
210	-100.5632	19.0779	-105.7620	62.7100	-4.9765	146.0780
211	7.0512	12.0786	-128.7672	-55.2707	3.7781	173.8188
212	118.9138	2.4832	-158.0795	-133.2660	11.9636	199.1711
213	203.0728	-6.2504	-185.0803	-223.3408	22.7960	231.7867
214	290.4765	-17.8400	-219.3643	-274.1895	32.6268	261.2561
215	336.8950	-28.3701	-250.3543	-303.5970	43.2810	292.5134
216	359.5792	-39.8043	-283.4306	-321.4225	57.2635	332.3687
217	368.7718	-54.5358	-325.0026	-293.7862	69.7835	368.0337
218	330.5389	-67.8356	-362.2937	-241.3359	85.9543	412.9394
219	265.1290	-84.7741	-409.0516	-140.7704	100.3356	453.0123
220	140.9118	-100.3365	-452.9719	0.5337	100.3357	452.9618

ENVOLVENTE MAXIMOS FLECTORES TREN IPF-B, l=15 m, via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.0026	-0.0007	-0.2073	-49.7436	-29.8668	-90.2739
2	259.0887	150.9198	460.6385	-489.3752	-131.5131	-405.8467
3	488.9551	131.5067	406.3424	-689.4580	-115.0785	-360.1338
4	689.0759	115.0657	360.8346	-859.2028	-95.6232	-305.9995
5	858.8802	95.6309	306.8739	-999.3841	-76.1728	-252.0024
6	999.1209	76.1433	253.0143	-1109.3185	-59.6743	-206.6993
7	1109.1194	59.6783	207.8293	-1189.0889	-40.1994	-152.8609
8	1188.9329	40.2448	154.0723	-1239.2671	-20.7627	-99.0391
9	1239.1534	20.7737	100.2972	-1258.9242	-3.0606	-49.8050
10	1258.8429	3.0663	51.0902	-1248.6887	16.4310	4.0155
11	1248.6593	-16.4693	-2.7374	-1208.6737	32.9688	49.3318
12	1208.7098	-32.9825	-48.0923	-1137.9373	52.4835	103.3866
13	1138.0210	-52.5200	-102.2222	-1037.5342	72.0221	157.6251
14	1037.6962	-72.0246	-156.5580	-907.4220	87.2830	199.9075
15	907.6169	-87.2628	-198.9615	-747.1896	106.7317	254.6922
16	747.4322	-106.7308	-253.9145	-557.6992	126.2059	309.7783
17	558.1523	-124.3949	-303.2519	-341.5496	140.8443	350.6561
18	384.4934	-88.6536	-226.3108	-230.1306	75.1524	201.7441
19	265.4886	-31.4425	-94.4060	-202.0481	46.1578	136.5949
20	231.3831	-6.8834	-34.5579	-208.0996	21.5981	76.6454
21	229.6460	-26.2612	11.5598	-177.1338	26.2606	-11.6616
22	197.2389	-9.5652	56.2671	-160.1180	27.5618	-4.6711
23	210.5862	18.7678	129.3276	-243.2702	-24.8102	-133.7826
24	288.7002	73.4287	264.5214	-415.1781	-54.9103	-211.3423
25	453.4485	96.4542	333.8430	-623.8474	-75.8650	-275.2320
26	679.2602	118.0894	298.7830	-893.1690	-97.3208	-239.9849
27	892.8634	97.3010	241.1445	-1064.7977	-76.3720	-182.1499
28	1064.5653	76.3624	183.5279	-1193.7224	-53.8455	-119.6996
29	1193.5986	53.8383	121.2348	-1279.8196	-32.7046	-61.9355
30	1279.7238	32.7095	63.5719	-1321.9565	-11.4719	-4.0325
31	1321.9460	11.4308	5.7259	-1320.5203	11.2196	58.3668
32	1320.5868	-11.2085	-56.6859	-1274.6898	33.8881	120.8492
33	1274.8446	-33.8912	-119.2224	-1184.9320	55.2760	179.3199
34	1185.1428	-55.2601	-177.8149	-1050.8131	77.9627	242.2363
35	1051.1188	-77.9460	-240.9034	-872.4459	99.3857	301.5055
36	872.8277	-99.3906	-300.3947	-650.0683	122.1044	365.1331
37	664.1445	-94.0316	-338.7659	-453.3471	115.4587	399.9418
38	495.0310	-74.1130	-277.3018	-334.2589	62.7328	257.8479
39	384.6378	-14.2420	-126.9092	-338.1700	32.2383	178.4653
40	381.3267	14.0893	-53.5597	-391.5037	6.8851	104.2731
41	423.2193	-29.0225	9.6005	-359.2037	32.0001	-10.4888
42	379.4272	-15.3036	55.3876	-330.8071	33.3068	-3.8284
43	383.3843	12.9559	128.9669	-391.2933	5.0474	-77.4034
44	440.7449	43.4075	208.7435	-539.3469	-50.1551	-211.6251
45	582.1445	91.4886	334.6197	-742.8565	-70.8808	-276.0012
46	803.0523	112.1796	299.2579	-1005.3303	-91.3993	-240.4458
47	1005.0137	91.4097	241.7805	-1165.2843	-70.4725	-182.7647
48	1165.0438	70.4900	184.2876	-1282.5297	-47.9729	-120.4372
49	1282.3707	47.9740	122.1110	-1356.8813	-26.8333	-62.7814
50	1356.8151	26.8536	64.5392	-1387.2986	-5.6094	-4.9660
51	1387.3232	5.5742	6.7588	-1374.1743	17.0835	57.3613
52	1374.2516	-17.0968	-55.5969	-1316.5367	39.7782	119.7877
53	1316.7063	-39.8237	-118.0995	-1214.8352	61.2235	178.2352
54	1215.0638	-61.2268	-176.6787	-1068.7167	83.9394	241.1273
55	1069.0391	-83.9454	-239.7609	-878.2471	105.3868	300.4015
56	878.6233	-105.3953	-299.2847	-643.7530	128.1190	364.0513
57	664.5682	-89.1054	-342.4058	-463.5471	110.5310	403.6147
58	506.3589	-68.8987	-281.4579	-358.0406	57.1494	262.3588
59	409.5460	-8.4899	-131.4802	-374.5605	26.4931	183.0525
60	418.5270	19.9162	-58.0443	-440.3619	1.2702	108.5228
61	472.6155	-30.2673	8.7907	-405.7303	33.4506	-9.9329
62	426.3160	-16.7755	54.8485	-374.7798	34.7721	-3.3126
63	427.9971	11.4405	128.3302	-432.8806	6.5553	-76.7899
64	483.1741	41.8210	207.9200	-577.0181	-48.6329	-210.8215
65	620.6274	89.8526	333.6172	-778.0290	-69.2488	-275.0108
66	835.7099	108.3226	297.8412	-1030.2288	-87.5446	-239.0457
67	1029.9260	87.5385	240.4141	-1182.3983	-66.6051	-181.4165
68	1182.1505	66.6491	182.9729	-1291.9061	-44.1357	-119.1422
69	1291.7588	44.1222	120.8248	-1358.5439	-22.9843	-61.5188
70	1358.4543	22.9369	63.2798	-1381.0784	-1.6912	-3.7300
71	1381.0698	1.6953	5.5009	-1360.1614	20.9547	58.5970
72	1360.2573	-20.9733	-56.8581	-1294.8259	43.6401	121.0261
73	1295.0050	-43.6208	-119.3604	-1185.5967	64.9999	179.4686
74	1185.8252	-64.9796	-177.9588	-1032.0314	87.6891	242.3843
75	1032.3430	-87.7356	-241.0787	-834.0781	109.1718	301.6912
76	834.4538	-109.1816	-300.6424	-592.1253	131.8931	365.3851
77	616.1574	-89.7015	-342.9030	-414.0796	111.1184	404.0839
78	458.0896	-69.4092	-281.7189	-309.6353	57.6042	262.4115
79	362.1639	-8.9117	-131.5319	-326.3542	26.9081	183.0844
80	370.8601	19.5090	-58.1635	-391.8789	1.6908	108.5494
81	424.2119	-23.4361	-15.7689	-370.9185	26.6398	14.5534
82	391.4983	-9.9618	30.4888	-353.5632	27.9657	21.0679
83	407.0923	18.1920	105.0647	-425.4746	-0.1878	-53.5042
84	476.3937	48.3627	187.7135	-583.1956	-55.1331	-191.3056
85	627.3087	95.9725	319.7605	-797.0045	-75.3386	-261.4081
86	844.1605	107.1249	315.3947	-1036.2849	-86.3230	-256.8331
87	1035.9489	86.3355	258.2175	-1185.9933	-65.3817	-199.4242
88	1185.7303	65.3861	200.9797	-1292.9377	-42.8534	-137.2259
89	1292.7554	42.8645	138.9178	-1356.9570	-21.7193	-79.7469
90	1356.8500	21.7272	81.5144	-1377.0048	-0.4741	-22.0375
91	1376.9449	0.4692	23.8011	-1353.5581	22.1961	40.2996
92	1353.5807	-22.1703	-38.5633	-1285.7603	44.8388	102.7590
93	1285.8890	-44.8136	-101.1236	-1174.1908	66.1981	161.3282
94	1174.3838	-66.1925	-159.8340	-1018.2461	88.8941	224.3587
95	1018.5206	-88.9052	-223.0651	-818.3264	110.3177	283.9335
96	818.6894	-110.3061	-282.9035	-574.3699	133.0153	347.8307
97	616.5429	-84.8470	-320.6808	-425.1090	106.2312	382.3097
98	469.0966	-57.9272	-250.5773	-347.2699	46.0039	233.5792
99	384.5468	-7.7685	-134.0703	-351.0056	25.7721	185.6389
100	396.5919	20.6973	-61.6967	-419.6337	0.6913	110.8536
101	448.9272	-29.2578	-18.3302	-391.4412	32.6426	15.8690
102	401.6224	-17.8143	25.8514	-356.6598	33.5659	19.2519
103	394.1929	7.0775	96.4670	-392.7949	8.6733	-51.3598
104	431.8495	33.8118	177.2361	-477.2389	-18.0609	-132.1246
105	513.5324	57.5166	266.5459	-638.0316	-64.1482	-271.4584
106	688.0278	97.6985	324.7199	-842.3679	-77.3985	-267.2538
107	842.0362	77.3972	268.2536	-963.6776	-61.4200	-223.8663
108	963.4139	61.4079	224.9871	-1051.1278	-40.9840	-167.2495
109	1050.9292	40.9709	168.4587	-1104.9866	-21.7819	-114.8225
110	1104.8337	21.7577	116.0883	-1125.3828	-1.2421	-58.0330
111	1125.3090	1.2268	59.3044	-1111.6447	16.3075	-9.7312
112	1111.6208	-16.2786	10.9751	-1063.2972	36.8240	47.3261
113	1063.3534	-36.8063	-46.1306	-980.9068	57.3715	104.5697
114	981.0103	-57.3863	-103.4743	-864.3734	76.7898	158.6445

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	864.5359	-76.8082	-157.6825	-713.8879	94.3891	207.9717
116	714.1130	-94.3562	-207.1790	-528.8808	114.9260	266.2432
117	557.0921	-67.1844	-296.4027	-421.4642	87.7514	355.6523
118	453.8069	-48.5087	-255.9455	-363.1701	34.4024	239.8654
119	395.8844	7.9598	-133.8161	-396.0406	7.7916	178.9316
120	422.1266	32.5439	-72.6360	-464.5831	-12.7155	113.6329
121	481.5109	-30.3612	-22.5334	-420.5137	34.4385	18.3674
122	428.4176	-19.5153	23.4444	-380.4759	35.2666	21.6571
123	411.0095	5.7036	94.6169	-407.2028	10.0480	-49.5106
124	435.6614	23.6165	148.1437	-472.6406	-32.6336	-161.3152
125	513.2334	75.3423	299.8652	-627.3241	-56.6767	-247.6071
126	679.4523	101.1362	337.0923	-839.6839	-80.8535	-279.6968
127	839.3844	80.8454	280.6733	-966.9646	-64.8874	-236.4050
128	966.7069	64.8372	237.5176	-1060.4364	-44.4165	-179.8358
129	1060.2109	44.4240	181.0422	-1120.4451	-25.2446	-127.4927
130	1120.3113	25.2308	128.7671	-1147.0427	-4.7213	-70.7487
131	1146.9594	4.7096	72.0381	-1139.4834	12.8222	-22.4973
132	1139.4661	-12.7671	23.7864	-1097.3934	33.3142	34.4895
133	1097.4352	-33.3180	-33.2544	-1021.1830	53.8897	91.6790
134	1021.2858	-53.8840	-90.5324	-910.9196	73.2995	145.7033
135	911.0583	-73.3072	-144.6971	-766.5981	90.8992	194.9961
136	766.8078	-90.9068	-194.1359	-587.6183	111.4942	253.2199
137	607.2477	-74.7121	-288.2496	-458.4150	95.2917	347.5311
138	488.0088	-63.0840	-262.9969	-364.4971	50.0003	247.9927
139	405.7110	-11.7610	-153.0229	-371.3525	27.5117	198.1504
140	414.8524	10.2541	-100.7205	-418.3285	8.5090	142.4456
141	452.1323	-34.1929	8.7304	-384.4815	37.2047	-12.1692
142	391.5406	-21.8142	55.0182	-337.6993	38.0127	-8.6217
143	367.0459	4.2286	127.1710	-360.0764	11.9699	-80.7707
144	386.9435	22.7729	179.9462	-429.2250	-31.4840	-191.8615
145	467.4298	70.5429	310.9043	-575.0139	-51.5286	-257.2002
146	640.7214	105.6404	318.8058	-812.1625	-86.4254	-264.7240
147	811.8704	86.4045	265.6878	-949.1438	-65.6276	-206.7799
148	948.8827	65.6606	207.9026	-1051.2085	-46.1821	-153.2777
149	1051.0270	46.1388	154.4929	-1117.7347	-28.2497	-103.9394
150	1117.6324	28.2624	105.2486	-1148.2130	-7.3430	-46.0131
151	1148.1622	7.3331	47.3371	-1142.8596	12.3913	8.0397
152	1142.8633	-12.3584	-6.7369	-1101.7512	33.3501	66.2650
153	1101.8220	-33.3693	-64.9947	-1024.4302	54.3779	124.6262
154	1024.5657	-54.3915	-123.4492	-910.5743	72.4139	174.5976
155	910.7653	-72.4245	-173.5526	-760.1500	93.4526	233.4274
156	760.4027	-93.4315	-232.5597	-573.7111	113.2949	289.1894
157	582.5657	-80.7142	-313.9227	-418.6240	101.7398	374.1659
158	450.0554	-60.6011	-261.6335	-330.2198	47.3550	242.9962
159	361.7444	-4.3186	-131.0916	-339.4027	20.5164	177.5000
160	369.0169	20.8931	-67.3108	-392.0602	-1.7517	111.3399
161	416.8498	-26.5678	8.7911	-357.8361	29.5109	-11.2093
162	377.1547	-12.7925	56.0257	-333.5656	30.7944	-4.4642
163	380.9037	15.6149	129.2014	-394.1349	2.3866	-77.6362
164	434.3792	35.6829	179.3949	-529.6360	-41.8642	-182.1892
165	583.5354	89.6664	318.3365	-740.1452	-69.0724	-259.6703
166	788.2499	108.4603	294.5681	-982.7611	-87.6830	-235.7122
167	982.4670	87.7215	237.0003	-1135.1561	-66.7894	-177.9509
168	1134.9148	66.8064	179.4197	-1244.9188	-44.2833	-115.5596
169	1244.7723	44.2629	117.1795	-1311.7528	-23.1130	-57.8309
170	1311.6545	23.1107	59.5103	-1334.6035	-1.8568	0.0799
171	1334.6014	1.8845	1.6065	-1314.0596	20.7664	62.5156
172	1314.1740	-20.7565	-60.8308	-1249.1389	43.4343	125.0197
173	1249.3213	-43.4512	-123.4397	-1140.1746	64.8666	183.5650
174	1140.4133	-64.8844	-182.1241	-986.7509	87.6060	246.5605

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	987.0702	-87.6054	-245.3165	-789.0026	109.0594	305.9277
176	789.3995	-109.0737	-304.9482	-547.1954	131.8006	369.6968
177	569.4865	-92.7911	-328.3554	-361.1705	114.2254	389.5151
178	398.6732	-77.3013	-280.3618	-234.1658	66.0668	260.2873
179	288.9770	-17.5390	-128.5603	-235.8944	35.5405	180.1364
180	282.2670	10.8669	-54.8291	-286.0124	9.7099	105.6187
181	319.5654	-17.6328	4.8111	-280.1637	20.2073	-5.6366
182	300.8611	-3.9988	49.1714	-275.9386	21.5537	1.1118
183	329.0330	23.3097	120.4686	-357.3783	-5.7548	-70.1821
184	408.6908	52.4459	197.7394	-522.1575	-59.0852	-200.9447
185	566.6594	101.5181	332.3118	-743.8802	-81.2337	-274.7971
186	771.1118	99.5487	290.6089	-944.6093	-79.0912	-232.9019
187	944.3133	79.0736	234.1153	-1077.6769	-57.0067	-171.5343
188	1077.4669	57.0116	172.9174	-1169.9897	-36.3327	-114.9173
189	1169.8468	36.3273	116.3963	-1220.7639	-14.1589	-53.6913
190	1220.6947	14.1404	55.2184	-1230.2101	6.7098	3.1127
191	1230.2158	-6.7181	-1.3914	-1197.5479	28.9540	64.2733
192	1197.6113	-28.9359	-62.9716	-1122.9401	49.8968	121.7803
193	1123.0631	-49.8708	-120.6467	-1006.4038	72.1491	183.7759
194	1006.6380	-72.1703	-182.4587	-847.4875	91.4554	237.0471
195	847.8103	-91.4581	-235.8994	-646.7196	112.4815	295.3326
196	647.0185	-112.4852	-294.6870	-403.6559	134.7700	358.2445
197	448.5942	-82.5354	-304.0001	-265.8000	103.5251	364.0160
198	306.2168	-61.2572	-246.2571	-189.5945	49.1230	227.0992
199	232.0031	-11.5382	-127.5710	-192.3822	29.0928	177.8509
200	243.7206	16.5102	-56.0575	-258.7974	4.5802	105.4196
201	291.3867	-6.7975	-2.4537	-276.8069	10.3331	1.4842
202	288.2205	13.2773	60.7557	-297.9981	-0.5875	-24.4265
203	313.9612	32.7332	107.2087	-351.1668	-20.0442	-70.8614
204	373.8982	54.9310	156.8759	-442.4028	-42.2409	-120.5330
205	475.5365	80.4357	214.0093	-595.6709	-91.8016	-221.6463
206	595.5692	91.7848	221.9351	-714.0466	-75.8466	-175.9901
207	713.9454	75.8537	176.3883	-810.6094	-61.4336	-135.1965
208	810.3964	61.4381	136.5610	-885.4776	-46.9450	-95.2945
209	885.4087	46.9181	95.8419	-937.4030	-29.3590	-45.8340
210	937.3623	29.3156	46.4206	-967.3440	-13.6226	-1.5849
211	967.3429	13.6357	2.5532	-974.5485	3.9929	47.4637
212	974.6112	-4.0057	-46.5476	-958.5983	18.6931	88.0992
213	958.6577	-18.7135	-87.5412	-920.1555	37.4050	141.0099
214	920.2274	-37.3826	-140.5140	-858.0811	52.1350	182.1515
215	858.2988	-52.1106	-181.1865	-773.3727	67.7967	226.0146
216	773.4992	-67.8101	-225.5943	-665.1920	85.6267	276.0041
217	665.3585	-85.6251	-275.6097	-533.7389	101.3180	320.4799
218	534.0570	-101.3223	-319.9243	-378.8529	120.0126	373.4022
219	379.1466	-120.0010	-373.0846	-199.6006	135.6875	418.0230
220	199.7354	-135.6823	-417.9567	0.3786	122.6406	322.5995

ENVOLVENTE MAXIMOS CORTANTES TREN IPF-B, l=15 m, via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.1639	167.3014	506.5570	-259.5573	-150.9157	-460.3752
2	247.8272	151.3838	462.7297	-477.0912	-133.2641	-412.3779
3	445.1514	134.6399	417.0615	-648.7035	-118.2007	-370.7822
4	599.5179	120.4848	377.6996	-772.5561	-102.2688	-327.0173
5	709.0811	105.4788	336.0818	-855.5579	-87.2282	-285.1384
6	780.6731	91.3043	296.2731	-909.4203	-74.8064	-249.7254
7	825.9402	79.7950	262.8788	-924.5735	-61.5256	-211.5158
8	835.1884	67.4150	226.6336	-911.8524	-49.1405	-174.9586
9	819.1563	55.8568	192.0022	-886.3845	-39.3761	-145.0767
10	792.8449	46.9160	164.0262	-831.1244	-28.6902	-111.8440
11	739.0855	37.0087	132.6810	-773.3447	-20.5499	-85.4785
12	684.9780	29.6698	108.1957	-533.8531	-13.1657	-47.7885
13	451.1243	23.0264	72.3849	-476.7487	-8.3110	-30.1955
14	401.4466	18.9118	56.6860	-420.3419	-4.1965	-14.4971
15	354.0054	15.4894	42.9004	-367.2992	-0.7740	-0.7113
16	311.2533	12.7086	31.0413	-320.0041	2.0067	11.1476
17	275.3087	10.5252	21.1417	-280.4849	4.1903	21.0475
18	247.9249	8.9208	13.2329	-250.4837	5.7946	28.9562
19	230.5563	7.8328	7.3411	-231.3330	6.8825	34.8479
20	224.2209	7.2134	3.5015	-53.1623	-1.8613	9.2160
21	-1611.6022	215.6066	534.9894	1158.8633	-226.1650	-549.9761
22	-1168.8956	226.4844	550.6798	753.8854	-206.0885	-492.0925
23	-781.3355	207.0670	495.9236	403.4005	-186.4786	-437.1660
24	-447.8493	188.2061	444.0135	106.6824	-167.4412	-385.0832
25	-167.0932	169.9642	394.8211	-137.8315	-149.0349	-335.7112
26	62.9696	152.4368	348.2369	-332.4285	-131.3700	-288.9375
27	244.9869	135.6980	304.1504	-479.9769	-114.5094	-244.6484
28	382.1929	119.8243	262.4588	-584.0171	-98.5331	-202.7382
29	478.4570	104.8788	223.0660	-648.6632	-83.5181	-163.1068
30	538.1151	90.8980	185.8893	-678.4821	-69.4832	-125.6726
31	565.9548	77.9269	150.8660	-678.4236	-56.4940	-90.3697
32	566.9936	66.0088	117.9364	-438.4788	-45.2404	-47.1718
33	331.2068	55.8142	77.1015	-424.8080	-37.8178	-25.3613
34	324.6560	49.4538	57.6482	-405.5547	-31.4568	-6.0199
35	315.3308	44.1079	40.6820	-385.5383	-26.1107	10.9315
36	307.7873	39.7491	26.1354	-369.2799	-21.7524	25.4640
37	306.2151	36.3322	14.0464	-360.8753	-18.3353	37.5382
38	314.2922	33.7992	4.4677	-363.8868	-15.8029	47.1029
39	335.0739	32.0862	-2.5423	-381.2449	-14.0899	54.0985
40	370.9042	31.1142	-6.9226	-205.4351	-18.0375	33.2270
41	-1770.4037	220.8689	527.9645	1308.0837	-231.1543	-548.7948
42	-1317.9934	231.4719	549.2579	892.5230	-211.0560	-490.6691
43	-920.2030	212.0436	494.2453	531.9482	-191.4364	-435.4791
44	-576.8746	193.1837	442.0660	225.4640	-172.4033	-383.1208
45	-286.5183	174.9586	392.5983	-28.5908	-154.0220	-333.4677
46	-46.9851	157.4621	345.7370	-232.6342	-136.3837	-286.4117
47	144.4503	140.7723	301.3774	-389.6742	-119.5814	-241.8444
48	291.1648	124.9429	259.4212	-503.2841	-103.6541	-199.6654
49	397.0641	110.0336	219.7808	-577.5723	-88.6713	-159.7847
50	466.4799	96.1102	182.3778	-617.2362	-74.6990	-122.1237
51	504.2531	83.1757	147.1510	-627.1791	-61.7274	-86.6182
52	515.3783	71.2895	114.0473	-394.9103	-50.8826	-42.8144
53	287.3526	61.4990	72.6335	-392.3711	-43.4969	-20.9687
54	292.0455	55.1622	53.1783	-384.3893	-37.1593	-1.5291
55	294.0875	49.8507	36.1440	-375.8039	-31.8484	15.4899
56	298.0654	45.5196	21.5581	-371.1196	-27.5170	30.0605
57	308.1431	42.1290	9.4614	-374.4110	-24.1258	42.1413
58	327.9727	39.6169	-0.0998	-389.2162	-21.6138	51.6871
59	360.5832	37.9208	-7.0646	-418.4360	-19.9176	58.6369
60	408.2897	36.9591	-11.3817	-251.9613	-23.5450	37.2507
61	-1796.3141	220.1324	527.8712	1335.0858	-230.4051	-548.7914
62	-1345.1586	230.7275	549.2167	921.2929	-210.3141	-490.6364
63	-949.1423	211.3161	494.1942	562.4546	-190.7153	-435.4398
64	-607.5367	192.4661	442.0120	257.6798	-171.6883	-383.0822
65	-318.8664	174.2652	392.5506	5.2574	-153.3308	-333.4386
66	-80.9485	156.7801	345.7027	-197.2282	-135.7092	-286.4009
67	108.9785	140.0966	301.3622	-352.7556	-118.9081	-241.8533
68	254.2097	124.3013	259.4227	-464.9521	-103.0191	-199.6929
69	358.7340	109.4105	219.7969	-537.9355	-88.0490	-159.8293
70	426.8801	95.4780	182.4072	-576.2957	-74.0709	-122.1801
71	463.4133	82.5748	147.1825	-585.1082	-61.1419	-86.6768
72	473.4786	70.7034	114.0767	-352.1675	-50.3675	-43.0601
73	244.8178	61.0134	72.8441	-348.8358	-43.0156	-21.1992
74	248.7357	54.6892	53.3633	-340.0967	-36.6920	-1.7345
75	250.0349	49.3873	36.2915	-330.8113	-31.3930	15.3222
76	253.3122	45.0743	21.6643	-325.4567	-27.0792	29.9345
77	262.7129	41.6946	9.5173	-328.0994	-23.6988	42.0663
78	281.8630	39.1955	-0.1002	-342.2488	-21.1987	51.6677
79	313.7694	37.5045	-7.1314	-370.7736	-19.5081	58.6839
80	360.7108	36.5486	-11.5163	-203.4033	-23.1181	37.2972
81	-1810.2062	220.5716	536.7995	1348.0035	-230.8063	-558.2070
82	-1358.0387	231.1304	558.5895	933.0905	-210.6880	-500.2699
83	-960.9594	211.6904	503.6698	573.2989	-191.0589	-445.1701
84	-618.4253	192.8229	451.4828	267.6832	-172.0194	-392.7895
85	-328.9034	174.6180	401.8863	14.4654	-153.6598	-342.9797
86	-90.1455	157.1498	354.7499	-188.8407	-136.0584	-295.6095
87	100.6608	140.5010	309.9597	-345.3060	-119.2978	-250.5556
88	246.9692	124.7282	267.4056	-458.6286	-103.4380	-207.7125
89	352.7630	109.8960	227.0025	-533.0638	-88.5394	-166.9873
90	422.5416	96.0534	188.6696	-573.3304	-74.6434	-128.2987
91	461.1406	83.2272	152.3467	-584.5309	-61.8144	-91.5846
92	473.7482	71.4553	118.0059	-356.9049	-51.3059	-44.0568
93	250.5612	62.0181	72.8577	-356.6121	-44.0136	-21.1950
94	257.6024	55.7603	52.4211	-351.1461	-37.7580	-0.7728
95	262.1782	50.5143	34.4756	-345.2265	-32.5095	17.1565
96	268.7201	46.2410	19.0961	-343.2154	-28.2366	32.5205
97	281.2121	42.8917	6.3748	-349.0105	-24.8881	45.2256
98	303.0837	40.4031	-3.5902	-365.9025	-22.3997	55.1759
99	337.0861	38.7017	-10.6833	-396.5021	-20.6981	62.2518
100	385.1951	37.7030	-14.7831	-233.5244	-24.2801	40.8145
101	-1741.7782	208.5810	485.6135	1368.2982	-220.2113	-515.3211
102	-1372.8353	220.3636	514.6661	1016.5676	-201.7650	-462.3049
103	-1035.6957	202.5338	463.8980	702.8579	-185.2828	-414.9727
104	-735.9549	186.7311	418.7858	439.0337	-167.8384	-365.8846
105	-485.0819	170.0273	371.8753	216.9447	-150.9722	-318.5696
106	-274.5872	153.9400	326.7222	34.7743	-134.7500	-272.9952
107	-102.4259	138.5584	283.2908	-117.3488	-121.0434	-233.7535
108	41.5366	125.7172	246.1902	-227.7149	-106.3825	-191.7967
109	145.8166	111.9402	206.3785	-306.7943	-92.5513	-151.4966
110	221.0236	99.0361	168.2351	-358.2843	-79.6251	-112.8409
111	270.9631	87.0387	131.7562	-397.1780	-69.4663	-81.3752
112	310.6653	77.8050	102.5055	-227.5646	-60.1049	-28.0950
113	144.1982	69.3575	51.4872	-251.8026	-53.6031	-6.2815
114	173.8196	63.7687	31.9854	-271.6511	-48.0199	13.2061

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	201.1589	59.0738	14.8750	-290.7738	-43.3234	30.3016
116	229.6724	55.2156	0.2333	-312.5333	-39.4622	44.9277
117	262.4644	52.1661	-11.8588	-339.9867	-36.4143	57.0049
118	302.2497	49.8793	-21.3121	-375.7736	-34.1284	66.4428
119	351.2906	48.2940	-28.0377	-422.0368	-32.5426	73.1533
120	411.2843	47.3424	-31.9390	-290.4668	-35.9232	44.1774
121	-1547.0504	205.2151	501.2762	1185.3386	-215.1199	-527.8921
122	-1189.1056	215.2389	527.4683	842.5505	-196.6829	-475.2671
123	-860.3027	197.3871	477.0119	536.7227	-180.1520	-428.1683
124	-568.0625	181.5237	432.0642	280.5580	-162.6606	-379.2939
125	-324.6548	164.7358	385.3085	65.8830	-145.7000	-332.1141
126	-121.4954	148.5381	340.2384	-108.9289	-129.3564	-286.5969
127	43.2274	133.0183	296.8105	-253.3833	-115.5033	-247.3165
128	179.3272	120.0153	259.6252	-355.7485	-100.6732	-205.2797
129	275.3226	106.0871	219.6902	-426.3167	-86.6883	-164.8315
130	341.7028	93.0099	181.3629	-468.6797	-73.5829	-125.9552
131	382.1557	80.8374	144.6341	-497.6321	-63.2580	-94.2417
132	411.5490	71.4489	115.1133	-320.8426	-52.7054	-39.6186
133	237.5416	61.8147	62.7281	-331.9392	-46.0613	-17.5325
134	253.6910	56.0800	42.9465	-338.0679	-40.3282	2.2368
135	267.0142	51.2491	25.5467	-342.9368	-35.4982	19.6259
136	281.0373	47.2782	10.6198	-350.0073	-31.5267	34.5418
137	298.9600	44.1296	-1.7490	-362.4199	-28.3791	46.8993
138	323.6089	41.7576	-11.4644	-382.9183	-26.0072	56.6035
139	357.3464	40.1028	-18.4169	-413.7573	-24.3521	63.5442
140	401.9866	39.0963	-22.5061	-270.8691	-29.1064	35.3597
141	-1581.3391	206.7315	499.0673	1207.8695	-216.9827	-523.6743
142	-1211.3093	217.0855	523.2364	852.4455	-198.1813	-469.5675
143	-870.5072	198.8856	471.4587	542.3697	-179.7682	-417.4231
144	-574.7005	181.1378	421.6315	271.1576	-163.4068	-371.2689
145	-316.9125	165.5054	377.7913	50.2260	-146.1095	-323.2450
146	-108.1805	148.9915	332.0665	-128.7376	-129.4439	-277.1636
147	60.0928	133.1609	288.2800	-267.9057	-113.4877	-233.0249
148	190.3706	118.1050	246.4315	-370.0476	-98.3391	-190.8232
149	285.7183	103.8519	206.5190	-447.5666	-85.8398	-155.4661
150	358.7331	92.3097	173.4615	-486.6829	-72.4602	-117.3245
151	395.7731	79.8799	137.6171	-499.9426	-60.0186	-81.1207
152	409.4700	68.4158	103.7217	-316.1962	-49.8301	-32.2261
153	228.6713	59.1838	57.1653	-320.6172	-42.9872	-10.6857
154	238.5155	53.2894	37.9781	-319.8608	-37.0920	8.4907
155	245.5217	48.3283	21.1842	-317.9341	-32.1306	25.2726
156	253.5165	44.2777	6.8157	-318.6361	-28.0799	39.6291
157	266.0383	41.0857	-5.0910	-325.4126	-24.8866	51.5235
158	286.2258	38.7074	-14.4997	-341.3193	-22.5083	60.9202
159	316.7446	37.0906	-21.3780	-368.9298	-20.8928	67.7864
160	359.7223	36.1697	-25.6868	-218.0210	-25.3841	40.0706
161	-1613.8959	214.0003	530.5093	1167.3951	-223.2817	-547.5552
162	-1177.2134	223.5965	548.2354	768.2012	-203.1966	-489.6001
163	-795.1086	204.1623	493.4162	423.1209	-183.5668	-434.6065
164	-466.7771	185.2668	441.4493	131.5593	-164.4877	-382.4663
165	-191.0171	166.9917	392.2180	-107.9355	-146.0547	-333.0554
166	34.1441	149.4457	345.6103	-297.6249	-128.3688	-286.2613
167	211.2972	132.7007	301.5211	-440.3312	-111.5044	-241.9739
168	343.6593	116.8074	259.8477	-539.4845	-95.5005	-200.0888
169	435.0308	101.8095	220.5052	-599.1559	-80.4368	-160.5181
170	489.7133	87.8037	183.3981	-623.9404	-66.3778	-123.1620
171	512.4984	74.8213	148.4604	-618.8492	-53.3697	-87.9578
172	508.4794	62.8719	115.6522	-378.2003	-41.9422	-45.4387
173	271.9529	52.5180	75.4891	-359.0071	-34.5173	-23.8395
174	259.8599	46.1520	56.2513	-334.1681	-28.1507	-4.6126

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	244.9460	40.8124	39.3949	-308.5730	-22.8112	12.2307
176	231.8251	36.4682	24.9356	-286.7669	-18.4661	26.6771
177	224.6970	33.0707	12.9155	-272.8401	-15.0680	38.6854
178	227.2234	30.5589	3.3699	-270.3466	-12.5573	48.2185
179	242.4441	28.8675	-3.6466	-282.1844	-10.8660	55.2224
180	272.6521	27.9187	-8.0856	-104.6542	-15.1977	34.7609
181	-1698.0916	209.5963	516.6314	1266.4692	-220.3412	-538.1937
182	-1276.5156	220.6807	538.7642	881.8289	-200.5913	-481.2824
183	-908.8989	201.6001	484.8778	549.8513	-181.3186	-427.2219
184	-593.3383	183.0785	433.7348	269.6209	-162.6215	-375.9034
185	-328.3841	165.2034	385.2204	39.4359	-144.5910	-327.2037
186	-111.8706	148.0455	339.2182	-143.0869	-127.3008	-280.9999
187	58.9022	131.6892	295.6217	-280.9343	-110.8338	-237.1909
188	187.2445	116.1992	254.3326	-377.6848	-95.2680	-195.6695
189	277.0387	101.6459	215.2586	-437.4735	-80.6530	-156.3446
190	332.6105	88.0518	178.3211	-464.8630	-67.0302	-119.1523
191	358.6503	75.4855	143.5110	-464.8106	-54.4664	-84.0270
192	360.2341	63.9634	110.6110	-247.6869	-45.6681	-43.8590
193	147.5927	56.2061	72.7541	-240.1072	-38.6504	-22.3804
194	147.2315	50.2070	53.6807	-228.0452	-32.6533	-3.3162
195	144.9894	45.1896	36.9344	-216.0225	-27.6353	13.4105
196	145.0923	41.1294	22.4738	-208.1999	-23.5736	27.8557
197	151.2991	37.9611	10.4596	-208.2276	-20.4053	39.8536
198	166.8425	35.6277	0.9217	-219.2201	-18.0729	49.3778
199	194.2956	34.0644	-6.1273	-243.6243	-16.5098	56.4073
200	235.5073	33.1841	-10.5534	-85.9677	-19.6791	40.0118
201	-1421.9244	181.4455	368.2791	1149.5272	-195.1987	-396.2941
202	-1154.9303	195.3859	396.6353	895.0739	-181.1832	-355.4866
203	-909.9111	181.7602	358.3174	669.6151	-167.4842	-317.1442
204	-693.8127	168.4809	321.9726	478.8271	-152.4101	-275.8129
205	-512.1028	153.8775	282.2861	311.0688	-139.3895	-240.8937
206	-352.5933	141.3592	249.4937	177.1851	-124.8668	-202.8222
207	-226.4048	127.3632	213.1798	64.1552	-112.6710	-171.6124
208	-120.3313	115.7263	183.4690	-23.7705	-100.9652	-141.8150
209	-37.9157	104.6148	155.6091	-87.4391	-86.7970	-105.2170
210	21.3008	91.0576	120.7431	-138.3288	-75.3628	-75.8924
211	69.0835	80.2810	93.1026	60.6695	-61.7913	-37.8021
212	-131.4525	67.3789	56.7012	45.3845	-54.6904	-20.2549
213	-116.0483	60.9838	40.8474	38.9981	-48.2931	-4.4242
214	-107.8085	55.2612	26.7221	38.8304	-42.5691	9.7132
215	-103.9458	50.2879	14.2472	41.9813	-37.5974	22.1831
216	-101.4457	46.0521	3.4854	45.4565	-33.3634	32.9235
217	-97.2557	42.5693	-5.5381	46.1771	-29.8784	41.9499
218	-88.2207	39.8512	-12.8635	40.9686	-27.1609	49.2704
219	-71.1572	37.8967	-18.4297	26.6667	-25.2054	54.8221
220	-42.8453	36.7164	-22.1706	0.0268	-24.0253	22.1727

ENVOLVENTE MAXIMOS TORSORES TREN IPF-B, l=15 m, via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.1680	134.5167	524.8986	-205.9509	-118.1310	-478.7167
2	194.1993	118.5977	481.0037	-369.8569	-100.4781	-430.6519
3	337.8991	101.8561	435.2006	-487.8451	-85.4169	-388.9213
4	438.6441	87.7093	395.6364	-558.0895	-69.4933	-344.9541
5	494.5949	72.6988	353.7484	-587.4721	-54.4482	-302.8052
6	512.5747	58.5405	313.6040	-587.7484	-42.0426	-267.0562
7	504.2499	47.0260	279.8044	-549.3076	-28.7566	-228.4415
8	459.9029	34.6228	243.0866	-482.9469	-16.3483	-191.4115
9	392.7503	23.2576	207.9179	-406.6723	-6.7769	-160.9924
10	313.1729	14.3051	179.3373	-298.1289	3.9207	-127.1550
11	206.1493	4.4241	147.3200	-187.1336	12.0347	-100.1175
12	104.0885	-2.5963	122.1014	-57.7390	20.7333	-69.7561
13	23.0974	-8.4115	93.5809	157.5515	21.4940	-43.3298
14	-156.2154	-7.2817	69.1068	180.1463	21.9970	-26.9179
15	-194.4839	-8.4516	54.6188	220.3319	23.1670	-12.4296
16	-276.1203	-11.2207	42.0235	306.4944	25.9360	0.1652
17	-351.1643	-13.3801	31.3382	385.0659	28.0956	10.8508
18	-417.6165	-14.9925	22.5872	454.1581	29.7079	19.6018
19	-474.0872	-16.0819	15.8116	512.4105	30.7972	26.3774
20	-519.5332	-16.7005	11.0396	729.6893	22.0526	1.6779
21	-986.2513	172.1150	550.0099	620.4781	-182.6734	-564.9966
22	-384.4344	174.3983	566.7054	73.5755	-154.0024	-508.1180
23	-101.0411	154.9776	512.9977	-172.7353	-134.3892	-454.2401
24	128.2622	136.1156	461.9700	-365.2704	-115.3507	-403.0398
25	304.8308	117.8738	413.5078	-505.5938	-96.9445	-354.3980
26	430.7063	100.3442	367.4883	-596.0000	-79.2774	-308.1888
27	508.5331	83.6094	323.8065	-639.3666	-62.4208	-264.3047
28	541.5697	67.7464	282.3596	-639.2585	-46.4552	-222.6393
29	535.8629	53.0957	243.0543	-602.5262	-31.7350	-183.0953
30	495.5634	39.5080	205.8094	-533.1696	-18.0932	-145.5924
31	484.7339	32.2401	170.5859	-505.8470	-10.8072	-110.0894
32	412.5519	21.6913	137.3927	-410.7671	-0.2544	-76.5959
33	316.6753	11.6976	106.1703	-133.4111	10.3087	-46.5384
34	33.5661	1.3443	78.3393	-18.2597	16.6522	-26.7432
35	-71.9651	-4.0080	60.7856	97.9712	22.0046	-9.1889
36	-175.7335	-8.3614	45.5003	210.4478	26.3581	6.0962
37	-273.5316	-11.7823	32.5279	315.0865	29.7789	19.0683
38	-361.6807	-14.3119	21.9181	408.2935	32.3085	29.6781
39	-437.1246	-16.0244	13.7278	487.1627	34.0211	37.8686
40	-284.8691	-9.7225	8.0716	491.8670	18.1215	20.2838
41	-716.7757	163.9914	545.1788	368.2317	-174.2768	-566.0094
42	-378.1412	174.5903	567.9170	66.4538	-154.1744	-509.3284
43	-94.1558	155.1617	514.1790	-180.3130	-134.5545	-455.4128
44	135.3546	136.2965	463.0912	-372.9744	-115.5161	-404.1459
45	311.8891	118.0749	414.5466	-513.2066	-97.1384	-355.4156
46	437.5920	100.5751	368.4306	-603.4240	-79.4968	-309.1052
47	515.2057	83.8852	324.6430	-646.6361	-62.6943	-265.1098
48	621.7879	63.8322	283.1325	-711.6630	-42.5434	-223.3766
49	614.5475	48.3409	243.8216	-671.6470	-26.9786	-183.8254
50	566.1284	34.5061	206.5670	-593.6514	-13.0949	-146.3128
51	485.0152	21.9494	171.3076	-485.4748	-0.5011	-110.7751
52	448.9715	15.6901	138.0380	-435.1262	5.7527	-77.2083
53	353.8737	6.3756	106.7770	-166.7785	16.8540	-47.5011
54	67.0385	-5.1568	79.3131	-38.7181	23.1602	-27.7066
55	-51.5760	-10.4667	61.7563	90.5209	28.4697	-10.1460
56	-168.2720	-14.7948	46.4624	215.8779	32.7985	5.1525
57	-278.8635	-18.1860	33.4719	333.2509	36.1894	18.1462
58	-379.7160	-20.6950	22.8335	439.1225	38.6983	28.7880
59	-467.7812	-22.3886	14.5992	530.5723	40.3917	37.0267
60	-540.7462	-23.3507	8.8345	763.8828	30.4988	19.7923
61	-756.1487	165.0427	544.7001	405.0781	-175.3154	-565.6205
62	-415.1684	175.6326	567.4791	101.4699	-155.2192	-508.8987
63	-129.3455	156.2236	513.7171	-147.1804	-135.6228	-454.9631
64	102.0634	137.3751	462.6243	-341.7641	-116.5973	-403.6945
65	280.5471	119.1660	414.0877	-483.9797	-98.2316	-354.9756
66	408.2601	101.6902	367.9914	-576.2770	-80.6193	-308.6895
67	488.2218	84.9934	324.2328	-621.8138	-63.8049	-264.7243
68	530.5200	68.7784	282.7087	-630.2380	-47.4962	-222.9789
69	584.7554	49.9413	243.3627	-645.0451	-28.5798	-183.3949
70	577.0965	32.7857	206.1819	-601.1530	-11.3786	-145.9543
71	491.8177	19.5667	170.9948	-487.5249	1.8662	-110.4895
72	375.8440	7.6986	137.7400	-346.0523	13.7302	-76.9384
73	238.6468	-3.0843	106.3768	-33.4215	26.3528	-47.1035
74	-65.5755	-14.8836	78.7292	113.3343	32.8800	-27.1429
75	-82.6844	-13.9692	61.0312	128.6062	31.9657	-9.4405
76	-205.3859	-18.2459	45.7072	259.8602	36.2427	5.8876
77	-322.5704	-21.6245	32.6695	383.8022	39.6210	18.9299
78	-430.0582	-24.1220	21.9648	496.2833	42.1182	29.6380
79	-523.8231	-25.6059	13.6559	592.8855	43.5822	37.9513
80	-602.9756	-26.5428	7.7969	831.7329	33.6266	20.5345
81	-1024.3154	195.2004	546.5168	612.8664	-205.4351	-567.9241
82	-556.8438	203.4770	569.4763	187.2130	-183.0346	-511.1571
83	-35.7662	177.3810	515.9291	-283.2625	-156.7495	-457.4290
84	243.3451	158.3062	465.0574	-525.0378	-137.5027	-406.3640
85	463.7839	140.1092	416.6766	-709.1882	-119.1510	-357.7699
86	633.4847	122.6256	370.6569	-843.4048	-101.5342	-311.5163
87	755.2056	105.9818	326.8777	-930.8005	-84.7786	-267.4739
88	832.4321	90.2145	285.2207	-975.0521	-68.9243	-225.5280
89	869.1609	75.3862	245.6137	-980.4279	-54.0296	-185.5986
90	869.8753	61.5488	207.9730	-951.6394	-40.1388	-147.6018
91	839.4103	48.7187	172.2274	-893.7662	-27.3059	-111.4650
92	783.5831	36.8904	138.3618	-812.7002	-15.4973	-77.1730
93	706.3226	26.2181	106.3419	-560.3848	-2.9585	-45.9578
94	461.3324	14.7061	77.4466	-472.7383	3.2980	-25.8381
95	383.7349	9.4540	59.6996	-384.6401	8.5500	-8.0871
96	308.1016	5.1855	44.3913	-300.4675	12.8177	7.2253
97	238.4272	1.8386	31.6148	-224.0957	16.1650	20.0064
98	178.1336	-0.6528	21.4676	-158.8191	18.6568	30.1579
99	129.9714	-2.3573	14.0671	-107.2481	20.3609	37.5620
100	95.9088	-3.3553	9.5313	79.0975	10.2790	20.4773
101	-559.0966	165.4114	519.1504	261.1739	-177.0417	-548.8574
102	-265.7608	177.1989	549.6921	-14.9575	-158.6003	-497.3301
103	-4.2171	159.3629	500.3120	-253.0665	-142.1119	-451.3867
104	219.9197	143.5659	456.4821	-441.2957	-124.6732	-403.5808
105	395.1957	126.8699	410.7615	-587.8036	-107.8148	-357.4561
106	530.1042	110.7854	366.6863	-694.3885	-91.5954	-312.9590
107	626.6676	95.4004	324.2405	-770.9043	-77.8854	-274.7031
108	695.0315	82.5431	288.0195	-805.6544	-63.2084	-233.6261
109	723.6921	68.7655	248.9844	-809.1062	-49.3766	-194.1028
110	723.2625	55.8434	211.5195	-784.9260	-36.4324	-156.1250
111	697.5461	43.8346	175.6133	-748.1485	-26.2622	-125.2324
112	661.5671	34.6202	146.8306	-681.5811	-15.2590	-90.6814
113	598.1544	24.5197	114.4446	-488.8874	-2.3428	-59.3718
114	410.8447	12.5015	85.3441	-418.9391	3.2504	-40.1932

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	348.3850	7.7909	68.4421	-348.2330	7.9599	-23.2872
116	287.0735	3.9498	53.8882	-280.2015	11.8012	-8.7301
117	230.0703	0.9073	41.7620	-217.8725	14.8437	3.3997
118	180.0747	-1.3779	32.1542	-163.8747	17.1292	13.0122
119	139.3309	-2.9679	25.1533	-120.3520	18.7192	20.0167
120	109.5405	-3.9207	20.8548	39.2656	7.2557	-0.2636
121	-593.5744	170.5184	534.5719	292.5898	-180.4232	-561.1873
122	-296.4029	180.5447	561.9614	10.5675	-161.9887	-509.7599
123	-28.3717	162.6913	512.6264	-234.4840	-145.4562	-463.7826
124	203.0914	146.8219	468.7145	-429.8614	-127.9588	-415.9438
125	385.7161	130.0358	422.9197	-583.7573	-111.0000	-369.7255
126	528.0974	113.8523	378.7206	-697.8167	-94.6706	-325.0786
127	632.0709	98.3236	336.0852	-781.5034	-80.8086	-286.5911
128	707.3931	85.2925	299.6104	-823.0469	-65.9504	-245.2655
129	742.5514	71.3690	260.3027	-832.7847	-51.9702	-205.4437
130	748.1182	58.2847	222.5247	-814.3224	-38.8577	-167.1182
131	727.7434	46.1019	186.2605	-782.4260	-28.5225	-135.8677
132	696.2929	36.7400	157.1255	-720.1675	-17.3446	-100.9117
133	636.8139	26.4504	124.3259	-642.1115	-7.1218	-68.3257
134	563.8082	17.1477	93.9593	-459.7299	0.9079	-48.3149
135	388.6147	10.0072	76.2346	-392.3461	5.7443	-31.0800
136	330.3878	6.0347	61.3814	-327.1645	9.7165	-16.2228
137	276.0551	2.8856	48.9895	-267.3212	12.8660	-3.8264
138	228.4513	0.5039	39.1543	-215.5461	15.2482	6.0130
139	189.9175	-1.1580	31.9834	-174.1060	16.9096	13.1875
140	162.2777	-2.1675	27.5791	-8.3395	5.6225	-6.7719
141	-490.9988	147.9768	530.1167	223.2782	-158.2281	-554.7235
142	-226.7600	158.3307	555.6474	-26.3565	-139.4265	-501.9786
143	8.2495	140.1224	505.0838	-230.6238	-121.0050	-451.0476
144	198.2437	122.3785	456.3310	-396.0323	-104.6475	-405.9682
145	350.2286	106.7440	413.4083	-511.1534	-87.3481	-358.8619
146	453.1503	90.2260	368.4641	-584.2993	-70.6784	-313.5606
147	515.6070	74.3929	325.3062	-617.6488	-54.7197	-270.0505
148	540.0563	59.3428	283.9448	-613.9727	-39.5769	-228.3363
149	529.5879	45.0842	244.3660	-585.6656	-27.0721	-193.3146
150	496.7786	33.5424	211.5011	-518.9593	-13.6929	-155.3641
151	427.9943	21.1139	175.7005	-426.3968	-1.2526	-119.2046
152	335.8665	9.6485	141.7039	-312.4081	10.1972	-84.9180
153	312.4380	5.5343	109.6220	-165.1685	15.3754	-55.0408
154	177.0196	0.9780	82.1325	-164.1999	15.2204	-35.6992
155	138.3478	-1.1862	65.1629	-121.6334	17.3846	-18.7269
156	101.0704	-2.9445	50.5731	-81.1943	19.1425	-4.1335
157	81.9834	-3.5869	38.3870	-60.9467	19.7850	8.0554
158	70.3307	-3.8251	28.6273	-48.8696	20.0233	17.8176
159	24.2464	-5.4411	21.3538	0.1242	21.6392	25.0940
160	41.8729	-4.4184	16.5537	128.2195	9.2306	4.4240
161	-1016.4078	176.2224	547.9960	645.4705	-185.5038	-565.0420
162	-452.3217	178.8878	566.6800	132.7338	-158.4879	-508.0447
163	-159.6701	159.4535	512.8400	-122.8911	-138.8580	-454.0306
164	79.2100	140.5586	461.7116	-325.0012	-119.7795	-402.7283
165	265.5081	122.2830	413.1842	-475.0340	-101.3460	-354.0221
166	401.2116	104.7355	367.1417	-575.2592	-83.6586	-307.7913
167	488.9069	87.9912	323.4788	-628.5120	-66.7949	-263.9315
168	531.8180	72.1010	282.0943	-638.2175	-50.7941	-222.3356
169	533.7261	57.1005	242.9046	-608.4252	-35.7278	-182.9172
170	498.9809	43.0923	205.8129	-543.7716	-21.6664	-145.5767
171	433.2772	30.1911	170.7537	-450.3632	-8.7395	-110.2508
172	340.0115	18.2374	137.6837	-331.4241	3.2114	-76.9031
173	225.1372	7.3671	106.5570	-31.6239	13.8179	-47.5143
174	-65.1899	-2.0397	79.3944	87.2797	20.0416	-27.7806

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	-164.3650	-6.7398	61.8974	195.8512	24.7414	-10.2856
176	-217.2246	-8.4539	46.7203	252.1381	26.4558	4.8906
177	-313.8000	-11.8382	33.8763	355.4817	29.8400	17.7347
178	-401.1265	-14.3495	23.3714	447.8305	32.3515	28.2380
179	-475.7580	-16.0394	15.2562	525.8430	34.0410	36.3519
180	-535.3984	-16.9862	9.5780	761.0144	26.0034	19.1139
181	-1209.7471	183.8070	527.6961	828.4265	-194.5519	-549.2585
182	-462.8159	181.5771	550.6899	144.4004	-161.4877	-493.2085
183	-171.4803	162.4965	497.9109	-111.2939	-142.2150	-440.2545
184	67.7882	143.9768	447.7591	-315.2345	-123.5198	-389.9280
185	256.4635	126.0918	400.1241	-469.1223	-105.4794	-342.1072
186	396.6765	108.9314	354.8902	-575.3383	-88.1867	-296.6724
187	491.1695	92.5657	311.9383	-636.8893	-71.7103	-253.5080
188	543.3087	77.0709	271.1862	-657.4280	-56.1397	-212.5235
189	556.7541	62.5155	232.5312	-640.8648	-41.5226	-173.6189
190	536.0953	48.9098	195.8987	-591.9982	-27.8882	-136.7296
191	507.9128	34.4047	161.3108	-533.9409	-13.3856	-101.8273
192	429.5843	22.8597	128.5031	-431.8062	-1.8759	-68.6743
193	331.8789	12.3856	97.5571	-175.4284	7.9452	-42.4639
194	98.5145	0.2696	73.6310	-81.9189	17.2853	-23.3010
195	0.0569	-5.1786	56.6478	26.4275	23.5629	-6.3212
196	-97.0203	-10.4812	41.8942	134.5862	28.0364	8.4362
197	-191.0714	-13.2382	29.4160	231.5154	29.9643	20.9160
198	-271.6226	-14.3102	19.2263	316.6536	31.8645	31.1042
199	-325.0135	-12.5358	11.4427	366.5852	30.0908	38.8882
200	-374.5169	-13.3847	5.9946	566.4657	21.4253	25.6192
201	-609.8607	152.3410	378.8686	378.5042	-166.0942	-406.8828
202	-383.8617	166.2739	408.3565	165.0478	-152.0712	-367.2079
203	-179.6969	152.6445	370.7227	-19.5432	-138.3685	-329.5497
204	-4.2060	139.3689	334.9280	-169.7286	-123.2981	-288.7684
205	148.2275	124.2555	296.0276	-307.4914	-109.7675	-254.6351
206	302.6059	109.9908	263.5811	-433.7831	-93.4984	-216.9106
207	385.3066	95.9584	227.6554	-503.2669	-81.2662	-186.0850
208	583.2881	76.9019	199.2446	-672.6450	-62.1408	-157.5907
209	617.3738	65.3867	171.8546	-687.4167	-47.5689	-121.4613
210	621.2646	51.8060	137.4317	-682.9478	-36.1112	-92.5816
211	613.6826	41.0365	110.4445	-523.3464	-15.0834	-58.6289
212	459.6072	20.8146	78.0845	-480.0101	-8.1240	-41.7207
213	409.3334	14.3913	62.6250	-420.6819	-1.7009	-26.2557
214	351.8590	8.7046	48.8066	-355.1854	3.9852	-12.4394
215	290.0524	3.7344	36.8590	-286.3702	8.9557	-0.4896
216	226.8955	-0.5050	26.3406	-217.2365	13.1960	10.0343
217	165.4316	-3.9937	17.5142	-150.8533	16.6847	18.8609
218	108.7842	-6.7148	10.4414	-90.3696	19.4045	25.9344
219	60.1609	-8.6627	5.0214	-39.0004	21.3526	31.3594
220	22.8152	-9.8355	1.3145	-0.0021	22.5257	-1.3152

ENVOLVENTE MINIMOS FLECTORES TREN IPF-B, l=15 m, via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.1680	141.4764	523.8099	-167.5823	-95.2232	-387.1468
2	-42.2519	-25.8270	16.9922	84.4799	25.8270	-16.9922
3	-84.4977	-25.8250	16.8860	126.7254	25.8250	-16.8860
4	-126.7416	-25.8179	16.7265	168.9565	25.8179	-16.7265
5	-168.9764	-25.8218	16.5138	211.1981	25.8218	-16.5138
6	-211.2146	-25.8096	16.2490	253.4159	25.8096	-16.2489
7	-253.4363	-25.8148	15.9300	295.6416	25.8148	-15.9301
8	-295.6598	-25.8336	15.5573	337.9015	25.8336	-15.5572
9	-337.9186	-25.8305	15.1339	380.1574	25.8305	-15.1340
10	-380.1569	-25.8424	14.6545	422.4141	25.8424	-14.6545
11	-422.4131	-25.8247	14.1221	464.6355	25.8247	-14.1221
12	-464.6476	-25.8059	13.5365	519.4736	36.1165	-7.3684
13	-519.4824	-36.1088	6.7332	580.0220	38.1087	-0.9719
14	-580.0436	-38.1001	0.2834	643.2101	39.1002	2.6359
15	-643.2206	-39.1180	-3.3842	709.2060	41.1185	9.1988
16	-709.2116	-41.1176	-9.9925	777.7308	43.1169	15.8378
17	-777.8855	-44.9402	-22.6227	852.1144	45.9395	25.6365
18	-894.7032	-98.1346	-150.5178	1056.9779	100.1353	156.4370
19	-1091.9231	-143.8395	-264.6076	1328.1910	145.8399	270.5676
20	-1357.0654	-185.1104	-373.7687	1659.9048	156.3748	307.5791
21	-1674.6483	212.6681	530.3056	1211.5012	-221.2171	-539.7110
22	-1232.3262	204.5205	493.7667	852.3774	-176.2230	-407.4043
23	-903.4795	129.8927	281.8775	643.7397	-129.8926	-281.6878
24	-689.7257	81.2804	150.4976	527.1986	-81.2799	-150.3216
25	-565.9450	39.7267	27.7257	486.5010	-39.7287	-27.5639
26	-542.3162	-2.4965	4.2210	547.3066	2.4947	-4.0740
27	-547.3196	-2.4861	3.3722	552.2886	2.4844	-3.2400
28	-552.2855	-2.4834	2.5145	557.2472	2.4818	-2.3964
29	-557.2583	-2.4737	1.6503	562.2039	2.4752	-1.5466
30	-562.1932	-2.4823	0.7799	567.1509	2.4822	-0.6905
31	-567.1449	-2.4509	-0.1015	572.0385	2.4496	0.1763
32	-572.0262	-2.4556	-0.9857	576.9312	2.4554	1.0466
33	-576.9259	-2.4565	-1.8826	581.8356	2.4563	1.9292
34	-581.8165	-2.4641	-2.7840	596.8060	18.0154	21.9785
35	-596.8036	-18.0294	-22.8551	635.2186	20.0290	28.6482
36	-635.2099	-20.0224	-29.5502	677.6011	22.0225	35.3831
37	-691.2091	-50.0940	-61.8458	793.7240	52.0944	67.7246
38	-834.8611	-93.4421	-190.8191	1024.0450	95.4422	196.7504
39	-1073.7972	-143.9329	-328.5566	1363.9349	145.9330	334.5464
40	-1406.3844	-192.2580	-460.7896	1793.6794	164.7780	391.5760
41	-1831.9238	217.8781	523.2408	1359.6943	-226.1641	-538.5247
42	-1380.6331	209.4683	492.2817	1000.9432	-181.5639	-405.5945
43	-1054.1511	135.2996	279.5798	783.5018	-135.2994	-279.3768
44	-833.5114	86.8496	147.5796	659.7775	-86.8510	-147.3923
45	-703.0568	45.5109	24.2988	612.0087	-45.5122	-24.1268
46	-672.6014	4.2082	1.0771	664.1808	-4.2100	-0.9202
47	-664.1824	4.2079	0.0447	655.7621	-4.2068	0.0967
48	-655.7612	4.1911	-0.9677	647.3817	-4.1893	1.0937
49	-647.3799	4.1896	-1.9727	638.9956	-4.1869	2.0832
50	-638.9943	4.1714	-2.9627	630.6512	-4.1701	3.0587
51	-630.6529	4.1867	-3.9424	622.2720	-4.1900	4.0224
52	-622.2620	4.2085	-4.9064	613.8404	-4.2107	4.9712
53	-613.8519	4.2433	-5.8597	605.3595	-4.2442	5.9095
54	-605.3491	4.2349	-6.8002	606.0756	11.6075	25.5938
55	-606.0681	-11.5995	-26.4882	631.6346	13.5992	32.2809
56	-631.6082	-13.5952	-33.1743	661.1559	15.5948	39.0074
57	-681.4927	-54.6047	-60.7324	793.0673	56.6052	66.6115
58	-835.3251	-98.2372	-189.2046	1034.1737	100.2371	195.1360
59	-1085.0472	-148.8974	-326.8688	1385.2184	150.8972	332.8586
60	-1428.4751	-197.3052	-459.1825	1825.5115	169.8614	389.9170
61	-1857.5381	217.1434	523.1429	1386.5233	-225.3981	-538.5031
62	-1407.8219	208.7223	492.2650	1030.8016	-180.8840	-405.8120
63	-1084.6519	134.6770	279.9382	815.3545	-134.6763	-279.7345
64	-866.2048	86.2984	148.1591	693.6401	-86.2974	-147.9709
65	-737.7251	45.0788	25.0815	647.5820	-45.0786	-24.9092
66	-705.6624	6.0004	2.2852	693.6595	-6.0012	-2.1284
67	-693.6648	6.0034	1.2104	681.6503	-6.0010	-1.0686
68	-681.6382	5.9726	0.1528	669.6953	-5.9710	-0.0271
69	-669.6938	5.9805	-0.8836	657.7206	-5.9824	0.9946
70	-657.7055	6.0118	-1.9020	645.6780	-6.0123	1.9973
71	-645.6698	6.0205	-2.8982	633.6239	-6.0213	2.9783
72	-633.6345	6.0301	-3.8765	621.5735	-6.0324	3.9416
73	-621.5984	6.0250	-4.8474	609.5459	-6.0236	4.8967
74	-609.5505	6.0074	-5.7948	605.9498	9.8161	24.7283
75	-605.9502	-9.7935	-25.6197	627.8959	11.7927	31.4108
76	-627.8823	-11.7813	-32.2996	653.7918	13.7813	38.1319
77	-677.3416	-55.9780	-60.7595	791.6196	57.9785	66.6375
78	-835.0759	-99.6789	-189.5155	1036.7302	101.6791	195.4451
79	-1088.6310	-150.3739	-327.2532	1391.6450	152.3736	333.2411
80	-1435.4370	-198.7938	-459.5680	1835.5112	171.4315	389.3370
81	-1870.3843	217.5420	532.8351	1398.6869	-225.6990	-549.2676
82	-1419.9528	209.0235	502.8350	1043.3698	-181.4270	-413.1388
83	-1097.5068	135.2673	286.0932	826.9108	-135.2663	-285.8891
84	-878.3592	87.0890	151.2045	704.1340	-87.0872	-151.0169
85	-748.6937	46.2483	22.4637	656.1681	-46.2502	-22.2907
86	-703.6926	14.4635	-31.4722	674.7474	-14.4657	31.6300
87	-674.7086	14.4588	-32.5226	645.7866	-14.4576	32.6642
88	-645.7367	14.4538	-33.5205	616.8276	-14.4533	33.6463
89	-616.7860	14.4478	-34.4783	587.8766	-14.4458	34.5881
90	-587.8278	14.4363	-35.3954	558.9444	-14.4353	35.4897
91	-558.8804	14.4405	-36.2571	529.9792	-14.4425	36.3356
92	-529.9156	14.4264	-37.0791	501.0516	-14.4235	37.1411
93	-501.0021	14.4105	-37.8536	472.1749	-14.4097	37.8997
94	-472.1140	14.4076	-38.5861	443.2782	-14.4091	38.6173
95	-443.2248	14.4129	-39.2774	432.0851	2.2641	67.3203
96	-432.0336	-2.2701	-67.9506	438.9262	4.2701	73.7396
97	-480.6041	-52.4334	-100.7742	587.8340	54.4334	106.6040
98	-631.2507	-102.7440	-238.5643	839.1121	104.7439	244.4430
99	-875.7309	-142.9826	-344.5762	1164.0702	144.9827	350.5099
100	-1208.9227	-191.4494	-475.5291	1605.8772	165.3792	403.4951
101	-1780.5162	205.3945	480.5076	1409.2950	-189.5611	-413.3723
102	-1420.0166	174.7317	370.4458	1114.2043	-174.7318	-370.2322
103	-1152.2172	134.0887	253.6458	917.5337	-134.0882	-253.4469
104	-956.9999	91.6013	127.0090	796.6807	-91.6022	-126.8248
105	-833.3270	52.1497	-7.8962	742.0467	-52.1496	8.0655
106	-792.3385	18.5941	-61.3989	759.7906	-18.5938	61.5518
107	-759.7007	18.5983	-62.4326	727.1335	-18.6004	62.5714
108	-727.0513	18.6152	-63.4194	694.4728	-18.6153	63.5427
109	-694.3884	18.6208	-64.3610	661.7855	-18.6211	64.4692
110	-661.6883	18.6400	-65.2615	629.0491	-18.6428	65.3542
111	-628.9703	18.6591	-66.1134	596.3074	-18.6616	66.1911
112	-596.2156	18.6333	-66.9175	563.6038	-18.6296	66.9801
113	-563.5240	18.6168	-67.6863	530.9323	-18.6136	67.7334
114	-530.8499	18.6258	-68.4078	503.0052	-3.2006	86.5947

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	-502.9208	3.2179	-87.2408	498.1966	-2.2179	90.1498
116	-498.1166	2.1900	-90.7692	496.6415	-0.1890	96.5710
117	-524.4799	-47.5535	-66.4171	609.5566	49.5542	72.2469
118	-641.4658	-88.7961	-172.1754	798.2136	90.7961	178.0379
119	-830.4320	-133.1598	-284.5629	1064.3657	134.1593	287.5948
120	-1089.8945	-174.4939	-394.6565	1410.9575	149.9778	325.2194
121	-1589.0089	201.9719	496.1367	1218.7067	-210.0060	-518.9457
122	-1227.1613	195.0810	476.1893	916.4675	-168.5796	-382.2298
123	-947.4882	127.6059	265.3311	724.1479	-127.6060	-265.1814
124	-753.0305	93.9502	166.2134	588.5910	-93.9516	-166.0755
125	-629.5635	51.2433	27.4386	539.8743	-51.2425	-27.3115
126	-592.3003	6.7778	-62.0423	580.4349	-6.7760	62.1570
127	-580.3694	6.7833	-62.8282	568.4878	-6.7844	62.9322
128	-568.4095	6.8174	-63.5988	556.4652	-6.8208	63.6923
129	-556.3718	6.8146	-64.3517	544.4323	-6.8154	64.4323
130	-544.3590	6.8255	-65.0928	532.4038	-6.8262	65.1638
131	-532.3251	6.8385	-65.8138	520.3482	-6.8392	65.8721
132	-520.2734	6.8009	-66.5241	508.3663	-6.7998	66.5721
133	-508.2905	6.8076	-67.2194	496.3741	-6.8057	67.2548
134	-496.2983	6.7973	-67.8933	493.3919	8.0916	86.6209
135	-493.2995	-8.0871	-87.2469	508.3700	9.0878	90.1572
136	-508.2825	-9.0870	-90.7869	526.5447	11.0864	96.5923
137	-545.8156	-47.8654	-61.5286	631.4410	49.8639	67.3648
138	-660.6169	-82.0772	-152.0940	805.6085	84.0764	157.9649
139	-846.3455	-122.3197	-253.4007	1061.3086	123.3188	256.4443
140	-1104.2686	-161.0849	-354.6432	1403.8525	135.5395	285.8187
141	-1627.9847	203.6263	493.3684	1244.8950	-211.5585	-512.7570
142	-1252.5559	196.1653	468.8828	923.3156	-169.3240	-378.1242
143	-953.2002	127.0857	258.8866	724.4622	-127.0867	-258.7280
144	-751.8068	92.3437	159.1596	585.6058	-92.3448	-159.0136
145	-624.2208	53.2857	39.8354	528.3082	-53.2861	-39.7015
146	-594.3625	-0.8281	-21.8223	595.8452	0.8283	21.9439
147	-595.8316	-0.8144	-22.6495	597.2875	0.8155	22.7601
148	-597.2475	-0.8405	-23.4866	598.7541	0.8391	23.5857
149	-598.7254	-0.8060	-24.3133	600.1662	0.8042	24.4006
150	-600.1474	-0.8125	-25.1582	601.6102	0.8131	25.2345
151	-601.5795	-0.8101	-25.9950	603.0253	0.8115	26.0560
152	-602.9937	-0.8328	-26.8272	604.4866	0.8333	26.8784
153	-604.4555	-0.8159	-27.6722	607.7974	15.1613	36.9473
154	-607.7612	-15.1557	-37.7553	635.9198	16.1553	40.6711
155	-635.8779	-16.1480	-41.4924	667.3113	18.1486	47.3030
156	-667.2724	-18.1595	-48.1352	701.9227	20.1595	53.9786
157	-710.4238	-52.7413	-29.4334	806.9028	54.7419	35.3122
158	-837.9115	-95.8832	-148.3008	1011.6305	97.8839	154.2195
159	-1042.6675	-140.9198	-266.8837	1297.1326	141.9190	269.9814
160	-1326.1904	-183.3270	-381.2834	1658.1648	156.6958	315.6769
161	-1678.1271	210.8712	525.3493	1220.7174	-218.2997	-536.9966
162	-1240.7493	201.5802	491.0364	858.4355	-173.1149	-405.2002
163	-906.4067	126.7038	279.7755	652.9680	-126.7048	-279.6129
164	-693.7618	88.6333	177.5683	516.4731	-88.6340	-177.4193
165	-570.8417	40.8257	41.3313	489.1819	-40.8247	-41.1937
166	-537.6694	1.4415	6.6443	534.7856	-1.4380	-6.5199
167	-534.7980	1.4192	5.8141	531.9621	-1.4181	-5.7010
168	-531.9632	1.4114	4.9926	529.1342	-1.4128	-4.8925
169	-529.1429	1.4201	4.1664	526.2968	-1.4199	-4.0784
170	-526.2883	1.4222	3.3536	523.4362	-1.4220	-3.2786
171	-523.4432	1.4095	2.5528	520.6291	-1.4086	-2.4891
172	-520.6513	1.3940	1.7392	517.8600	-1.3937	-1.6879
173	-517.8744	1.4029	0.9374	515.0614	-1.4041	-0.8988
174	-515.0621	1.4205	0.1363	518.4675	13.6828	18.8432

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	-518.4765	-13.6786	-19.6159	548.2047	15.6784	25.3991
176	-548.2148	-15.6752	-26.1711	581.9180	17.6755	31.9945
177	-603.7379	-56.6750	-73.4457	719.4405	58.6757	79.3165
178	-756.4001	-95.5979	-188.9493	949.9504	97.5975	194.8732
179	-1004.1344	-146.1312	-327.5118	1298.7512	148.1307	333.4959
180	-1344.4093	-194.5372	-460.2015	1734.7654	167.3984	391.9957
181	-1752.7747	206.3505	511.5124	1312.5928	-214.6391	-526.9133
182	-1333.9614	198.4345	482.0250	991.1444	-171.9353	-397.6514
183	-1044.8368	127.0691	275.1644	796.9786	-127.0695	-274.9606
184	-848.8076	80.3771	146.8980	692.0228	-80.3785	-146.7101
185	-736.9706	37.9429	15.1874	662.9579	-37.9441	-15.0141
186	-690.5654	19.6257	-0.6550	652.2788	-19.6265	0.8131
187	-652.2799	19.6406	-1.6373	613.9626	-19.6409	1.7782
188	-613.9715	19.6375	-2.5719	575.6666	-19.6369	2.6985
189	-575.6682	19.6398	-3.4447	537.3509	-19.6406	3.5550
190	-537.3549	19.6487	-4.2573	499.0194	-19.6502	4.3565
191	-499.0131	19.6559	-5.1005	460.6685	-19.6564	5.1813
192	-460.6561	19.6423	-5.7267	422.3350	-19.6408	5.7798
193	-422.3320	19.6317	-6.2571	384.0374	-19.6310	6.3003
194	-384.0294	19.6410	-6.8772	345.7129	-19.6422	6.9114
195	-345.7020	19.6458	-7.4707	321.1238	-3.6156	31.2991
196	-321.1126	3.6143	-31.6817	316.8221	-1.6143	37.4565
197	-361.3513	-50.6158	-91.6645	462.7308	52.6160	97.4794
198	-502.6217	-94.8820	-215.5100	690.2362	96.8820	221.3663
199	-732.0801	-134.4675	-321.4915	996.7950	136.4673	327.4107
200	-1047.3638	-182.0715	-450.4002	1405.5950	156.4524	389.0458
201	-1447.3754	178.9849	361.4856	1194.0321	-165.1146	-310.9544
202	-1205.9012	141.5036	247.5305	1006.3787	-141.5054	-247.3478
203	-1022.5973	109.3615	163.9983	868.3899	-109.3582	-163.8733
204	-891.3119	74.4718	77.5219	786.3040	-74.4664	-77.3876
205	-819.6813	36.2772	-16.3915	768.5230	-36.2792	16.5035
206	-768.5146	36.2954	-16.8483	717.3327	-36.3011	16.9192
207	-717.3224	36.2990	-17.3003	666.1306	-36.2968	17.4351
208	-666.1043	36.2931	-18.5205	614.9303	-36.2901	18.6590
209	-614.9112	36.3090	-19.0326	563.7095	-36.3137	19.1003
210	-563.6871	36.3306	-19.4511	512.4503	-36.3311	19.5348
211	-512.4319	36.3265	-20.0512	461.2087	-36.3272	20.1410
212	-461.1996	36.3326	-20.5787	409.9627	-36.3342	20.6423
213	-409.9518	36.3550	-20.8864	358.6870	-36.3546	20.9280
214	-358.6753	36.3241	-21.1254	307.4523	-36.3224	21.1784
215	-307.4328	36.3226	-21.5374	256.2127	-36.3225	21.5847
216	-256.2032	36.3266	-21.7276	204.9795	-36.3280	21.7536
217	-204.9737	36.3306	-21.8813	153.7451	-36.3301	21.9096
218	-153.7213	36.3315	-22.0776	102.4848	-36.3313	22.1018
219	-102.4659	36.3270	-22.1920	51.2416	-36.3261	22.2012
220	-51.2356	36.3214	-22.2183	0.1349	-3.1281	113.7012

ENVOLVENTE MINIMOS CORTANTES TREN IPF-B, l=15 m, via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.0193	-11.5744	57.1291	28.1632	26.4054	-14.4632
2	-6.4401	-13.0730	52.3724	26.7449	28.3627	-8.4405
3	13.7578	-15.9421	44.2489	14.6046	31.1158	-0.8183
4	41.7278	-19.5985	34.5865	-22.3920	35.5699	10.8540
5	91.6546	-24.9571	20.9221	-69.8339	41.3769	25.4984
6	149.2066	-31.6405	4.3197	-102.4365	47.3757	40.2923
7	189.1745	-38.5209	-12.4074	-150.0936	55.5936	60.2478
8	241.5703	-47.5876	-34.2852	-190.2472	65.0848	83.0749
9	283.9590	-57.9018	-59.0338	-196.4661	74.1602	104.7868
10	290.0636	-67.7983	-82.6772	-203.8519	85.8331	132.4349
11	295.1180	-80.2447	-112.2748	-168.4664	96.6549	158.2624
12	255.3689	-91.8063	-140.0810	-122.7527	109.9664	190.2993
13	203.4651	-105.8623	-174.1330	-45.0359	124.0776	224.6899
14	117.9490	-120.6399	-210.5820	79.6759	137.1150	257.0063
15	-15.9434	-134.3388	-245.0077	227.6612	152.6072	296.1180
16	-174.2384	-150.4314	-286.2788	414.3958	168.7052	337.7754
17	-372.1277	-167.1006	-330.1570	649.7971	183.6050	377.1277
18	-619.2558	-182.5237	-371.7962	917.0231	200.7835	423.9257
19	-898.4733	-200.1600	-420.9269	1225.7410	218.3830	473.4780
20	-1219.1609	-218.1800	-472.8798	1582.1821	210.8890	465.8779
21	86.9375	-28.0612	5.4185	-186.4558	26.5810	-9.3316
22	197.2359	-9.5652	56.2671	-160.1162	27.5618	-4.6711
23	189.4429	-11.2849	48.9872	-148.8852	29.2816	2.6091
24	195.8772	-13.8174	39.1496	-150.2550	31.8141	12.4468
25	213.5140	-17.2233	26.8176	-169.8678	35.6058	37.8217
26	247.6562	-21.9463	-1.0062	-218.3200	41.5723	57.3135
27	308.4920	-28.8951	-22.9041	-266.7145	48.7547	79.9492
28	366.7793	-37.1006	-47.9157	-309.2401	57.1837	105.6588
29	416.4445	-46.5745	-75.9868	-339.8352	66.8728	134.0299
30	451.2092	-57.3211	-106.7198	-352.3081	77.8170	164.9785
31	464.8107	-69.3435	-140.0426	-340.4239	90.0258	198.5300
32	450.9753	-82.6045	-176.0018	-298.1341	103.4515	234.7344
33	403.7321	-97.0809	-214.6610	-219.5677	118.0812	273.6574
34	317.3512	-112.7337	-256.1019	-99.2375	133.8637	315.3829
35	186.5946	-129.5028	-300.4222	67.9060	150.7373	360.0101
36	6.7255	-147.3181	-347.7330	286.3142	168.6427	407.6503
37	-226.3174	-166.1112	-398.1574	559.7183	187.4983	458.4258
38	-515.7798	-185.7867	-451.8261	891.0342	207.2165	512.4670
39	-864.0091	-206.2445	-508.8741	1282.2444	227.6841	569.9069
40	-1272.3893	-227.3642	-569.4366	1734.7654	225.2037	569.1426
41	234.5745	-32.1500	-3.0797	-368.4099	32.3167	-8.1723
42	379.4270	-15.3036	55.3876	-330.8070	33.3068	-3.8284
43	360.6423	-17.0449	48.4328	-308.5397	35.0482	3.1306
44	356.2135	-19.6068	38.9167	-298.9868	37.6103	12.6503
45	363.0317	-23.0520	26.8996	-298.9139	41.0559	24.6714
46	377.5183	-27.4360	12.4230	-320.0171	46.1587	57.1142
47	410.9870	-33.5159	-22.4364	-360.2616	53.4012	79.4569
48	461.0628	-41.7777	-47.1761	-394.3709	61.8806	104.9046
49	502.2161	-51.3026	-75.0020	-416.2701	71.6181	133.0400
50	528.1960	-62.1046	-105.5231	-419.7781	82.6225	163.7845
51	532.7393	-74.1855	-138.6678	-398.6949	94.8798	197.1669
52	509.5960	-87.4961	-174.4866	-346.9279	108.3635	233.2378
53	452.7787	-102.0412	-213.0401	-258.6424	123.0490	272.0620
54	356.5863	-117.7431	-254.4084	-128.3291	138.8830	313.7203
55	215.7636	-134.5506	-298.6909	48.9851	155.7990	358.3136
56	25.6326	-152.4101	-345.9966	277.7293	173.7436	405.9521
57	-217.8145	-171.2303	-396.4451	561.5992	192.6216	456.7531
58	-517.7890	-190.9244	-450.1582	903.4689	212.3538	510.8383
59	-876.5979	-211.3946	-507.2774	1305.2841	232.8371	568.3469
60	-1295.5911	-232.5249	-567.9128	1768.0159	230.3317	567.4552
61	280.9045	-33.5445	-3.6455	-415.1026	33.7735	-7.6069
62	426.3155	-16.7755	54.8485	-374.7795	34.7721	-3.3126
63	404.8020	-18.5245	47.9250	-349.7680	36.5203	3.6153
64	397.6108	-21.0986	38.4315	-337.4305	39.0954	13.1131
65	401.6208	-24.5570	26.4268	-334.5220	42.5543	25.1212
66	413.2379	-28.9479	11.9555	-351.3458	47.5915	57.5054
67	442.3857	-34.9715	-22.8517	-388.8010	54.8551	79.8757
68	489.6349	-43.2540	-47.6155	-420.0335	63.3562	105.3434
69	527.8753	-52.8043	-75.4692	-438.9807	73.1203	133.5015
70	550.8504	-63.6346	-106.0082	-439.4060	84.1475	164.2618
71	552.2383	-75.7080	-139.1737	-415.1550	96.3986	197.6616
72	525.8866	-89.0395	-175.0047	-360.1740	109.8988	233.7385
73	465.8147	-103.5745	-213.5575	-268.6430	124.5731	272.5602
74	366.3492	-119.2654	-254.9267	-135.1149	140.4048	314.2164
75	222.3064	-136.1128	-299.2000	45.4692	157.3560	358.7988
76	28.9189	-153.9743	-346.4967	277.4616	175.3006	406.4254
77	-217.7376	-172.8045	-396.9274	564.5321	194.1884	457.2081
78	-520.8769	-192.4897	-450.6284	909.5144	213.9088	511.2807
79	-882.7387	-212.9546	-507.7230	1314.3298	234.3863	568.7654
80	-1304.6362	-234.0808	-568.3506	1780.0901	231.8144	568.3725
81	231.3183	-26.6710	-28.9246	-380.2432	26.9618	16.8482
82	391.4983	-9.9618	30.4888	-353.5632	27.9657	21.0679
83	383.6763	-11.7286	23.7778	-342.2059	29.7328	27.7827
84	390.1530	-14.3257	14.6324	-343.4864	32.3293	36.9330
85	407.7510	-17.8159	3.1148	-354.1045	35.8193	48.4550
86	432.8368	-22.2566	-10.7273	-384.2166	40.8709	80.4637
87	475.1769	-28.2942	-45.0250	-434.8089	48.2034	101.8035
88	535.4226	-36.6586	-68.6463	-478.8287	56.7904	126.1195
89	586.2799	-46.2931	-95.2398	-510.1673	66.6337	153.0117
90	621.4821	-57.2119	-124.4341	-522.5987	77.7476	182.4294
91	634.7178	-69.3951	-156.2072	-509.9438	90.1135	214.4500
92	619.8276	-82.8005	-190.6393	-466.2525	103.6808	249.1569
93	570.9600	-97.4163	-227.8457	-385.7683	118.4403	286.6684
94	482.5320	-113.1931	-267.9556	-263.1365	134.3479	327.1144
95	349.4554	-130.0785	-311.1234	-93.5225	151.3291	370.6534
96	167.2652	-147.9762	-357.5265	127.2085	169.3072	417.4610
97	-67.7477	-166.8121	-407.3496	402.4700	188.1920	467.7246
98	-358.4718	-186.4979	-460.7909	734.8007	207.9120	521.6408
99	-706.8183	-206.9183	-518.0585	1125.6732	228.3304	579.4145
100	-1113.6399	-227.9411	-579.3605	1584.4999	224.9866	581.4646
101	241.8321	-33.8635	-37.2854	-395.4144	32.7951	16.8951
102	401.6224	-17.8143	25.8514	-356.6598	33.5659	19.2519
103	378.0944	-19.2642	21.5648	-330.5947	35.0150	23.5424
104	366.3281	-21.4508	15.3398	-315.0012	37.2017	29.7720
105	363.7554	-24.4212	7.1722	-307.2294	40.1728	37.9430
106	367.4997	-28.2265	-2.9633	-304.3132	43.9777	48.0822
107	374.3166	-32.8968	-15.0879	-309.1497	48.8282	78.9855
108	386.8749	-38.6452	-48.0163	-338.0948	56.6429	98.3245
109	421.3516	-47.3733	-69.4249	-357.6270	65.6273	120.6864
110	444.1112	-57.2943	-93.9074	-362.5964	75.7853	145.6776
111	449.9578	-68.3761	-121.0901	-331.7979	85.5797	169.6369
112	417.6875	-79.0824	-147.3178	-293.6415	97.8772	199.7203
113	375.7889	-92.2820	-179.7530	-226.7869	111.2575	232.6182
114	303.0373	-106.5576	-215.0996	-126.9558	125.6877	268.4562

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	195.3606	-121.8414	-253.4920	21.1292	139.3296	302.8787
116	37.7206	-136.2732	-290.5863	196.7495	155.5658	344.7447
117	-148.8477	-153.2780	-335.2440	415.1410	172.6406	389.9675
118	-379.2093	-171.0539	-383.3867	678.2978	190.4554	438.7018
119	-654.9280	-189.5053	-435.1669	994.5246	207.0867	485.6584
120	-983.8566	-206.6935	-485.3008	1359.2817	204.6352	488.1910
121	309.6773	-34.0658	-33.5269	-423.7023	34.5595	19.3972
122	428.4176	-19.5153	23.4444	-380.4759	35.2666	21.6571
123	399.9837	-20.8775	19.3105	-349.6550	36.6291	25.7957
124	383.2192	-22.9545	13.2843	-329.2583	38.7060	31.8255
125	375.7587	-25.7980	5.3561	-316.8254	41.5495	39.7572
126	374.8976	-29.4581	-4.5024	-309.5544	45.2098	49.6210
127	377.5426	-33.9792	-16.3205	-321.9731	50.6524	79.6442
128	397.9437	-40.3232	-48.3416	-345.5441	58.2556	98.4877
129	427.3547	-48.8285	-69.2350	-360.6762	67.0269	120.3363
130	446.0795	-58.5277	-93.1909	-362.2139	76.9718	144.8130
131	448.8638	-69.4084	-119.8498	-328.8681	86.5842	168.3233
132	414.4198	-79.9296	-145.6188	-288.9462	98.6955	197.8950
133	371.0991	-92.9644	-177.5489	-221.0572	111.9176	230.3049
134	297.6334	-107.0814	-212.4191	-120.8261	126.1908	265.6887
135	189.8107	-122.2265	-250.3830	27.2373	139.7112	299.7309
136	32.3968	-136.5694	-287.1212	202.3885	155.8622	341.2250
137	-153.5754	-153.4845	-331.4474	420.1025	172.8620	386.1457
138	-383.2186	-171.2120	-379.3300	682.5408	190.6299	434.6505
139	-658.2629	-189.6283	-430.9487	998.1008	207.2195	481.4555
140	-986.6522	-206.7887	-480.9983	1363.7775	204.4583	484.5785
141	288.6713	-37.1886	0.1501	-387.3321	37.3117	-11.0912
142	391.5406	-21.8142	55.0182	-337.6993	38.0127	-8.6217
143	357.4330	-23.1825	50.5058	-301.1282	39.3810	-4.1055
144	335.6655	-25.2831	43.9225	-275.5846	41.4806	2.4795
145	323.7986	-28.1674	35.2406	-258.5224	44.3662	11.1658
146	319.0022	-31.8916	24.4302	-250.5856	48.2127	37.3757
147	321.5966	-36.6214	-3.9395	-273.6736	54.7698	55.0760
148	353.1929	-44.0950	-23.8278	-293.0618	62.5142	75.9350
149	378.8485	-52.7848	-46.9229	-285.8359	70.1921	96.4655
150	375.4841	-61.4158	-69.7207	-282.1265	80.2062	122.7911
151	373.1367	-72.4013	-98.3667	-259.0876	91.4125	151.8537
152	348.9305	-84.5616	-129.8042	-211.5142	103.7764	183.7169
153	297.7181	-97.8873	-164.0920	-134.3858	117.2859	218.4313
154	214.5702	-112.3306	-201.2993	-9.9979	130.1863	251.7681
155	81.9456	-126.1320	-237.1941	138.7194	145.7443	292.1958
156	-76.9862	-142.5454	-280.2526	329.7089	162.2695	335.7025
157	-279.8544	-159.8953	-326.4577	566.2256	179.6953	382.3576
158	-529.5507	-178.0803	-375.8879	850.7495	197.9293	432.2394
159	-828.1301	-197.0075	-428.6069	1191.7343	215.0399	480.2004
160	-1183.5811	-214.7382	-479.4877	1575.9834	212.9341	480.3767
161	258.9178	-28.7187	3.6263	-366.9544	29.8265	-8.8714
162	377.1530	-12.7925	56.0257	-333.5639	30.7944	-4.4642
163	362.0615	-14.4948	48.9745	-315.0669	32.4963	2.5907
164	361.0576	-17.0050	39.3320	-309.0378	35.0071	12.2371
165	371.1933	-20.3903	27.1595	-312.4074	38.3925	24.4127
166	389.0356	-24.7077	12.5041	-349.3205	44.0763	56.8080
167	438.3184	-31.3662	-22.3300	-391.1028	51.2173	79.4219
168	490.0006	-39.5288	-47.3528	-427.1790	59.6096	105.1494
169	533.2354	-48.9807	-75.4665	-451.4545	69.2779	133.5688
170	561.7177	-59.7111	-106.2763	-457.7026	80.2077	164.6003
171	569.1257	-71.7075	-139.7123	-439.7228	92.3891	198.2687
172	549.2467	-84.9617	-175.7987	-391.4179	105.8218	234.5965
173	496.0200	-99.4607	-214.5966	-306.8342	120.4792	273.6580
174	403.6497	-115.1431	-256.1828	-180.4453	136.2853	315.5231

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	266.8413	-131.9341	-300.6444	-7.2104	153.1889	360.2857
176	80.8915	-149.8016	-348.0810	217.3754	171.1465	408.0453
177	-158.2915	-168.6271	-398.6099	496.9542	190.0261	458.9142
178	-453.8745	-188.3326	-452.3408	834.4545	209.7783	513.0051
179	-808.1844	-208.8339	-509.4084	1231.7869	230.2880	570.4500
180	-1222.5210	-229.9898	-569.9315	1688.9354	227.3955	569.1275
181	131.1338	-21.0460	-9.2449	-289.5422	20.5437	-3.3278
182	300.8590	-3.9988	49.1714	-275.9367	21.5537	1.1118
183	305.2128	-5.7616	42.1963	-276.8544	23.3165	8.0901
184	323.0697	-8.3410	32.7442	-289.6802	25.8960	17.5457
185	351.3472	-11.8043	20.8750	-311.2014	29.3601	29.4174
186	386.5136	-16.1951	6.6410	-355.6458	34.6280	61.9164
187	442.4353	-22.4403	-28.1883	-416.0767	41.9826	84.1230
188	511.8715	-30.8023	-52.6867	-469.6910	50.5741	109.3343
189	571.7754	-40.4317	-80.1843	-510.5528	60.4248	137.1389
190	616.0820	-51.3242	-110.2727	-532.6852	71.5112	167.4351
191	638.7592	-63.4605	-142.7711	-530.1719	83.8346	200.1767
192	633.8019	-76.8057	-178.0066	-497.2159	97.3352	235.7022
193	595.6254	-91.3187	-215.9614	-428.4120	111.9992	273.9125
194	519.0765	-107.0029	-256.4707	-305.5872	126.1684	310.5961
195	386.0829	-122.0984	-295.6466	-151.7730	142.9518	354.0381
196	219.9373	-139.7923	-341.7461	51.5766	160.7270	400.4931
197	2.8095	-158.3930	-390.8788	307.4598	179.3786	449.9715
198	-267.9300	-177.8087	-443.1528	618.2000	198.8300	502.6110
199	-594.1069	-197.9511	-498.6311	985.2222	218.9689	558.4915
200	-976.2795	-218.6820	-557.7418	1409.3827	215.9182	557.6272
201	93.9522	-14.6936	-29.8617	-281.7420	10.5189	3.3566
202	288.1898	1.5925	29.7519	-281.4916	11.0973	6.5773
203	297.9685	0.5894	24.6656	-289.8513	12.0996	11.6814
204	315.9892	-0.8675	17.7995	-305.8179	13.5576	18.5437
205	341.0791	-2.8238	9.3521	-328.1512	15.5148	26.9981
206	371.8424	-5.3276	-1.0021	-355.3848	18.0180	37.3652
207	406.6613	-8.3789	-13.0457	-385.9007	21.0684	49.3878
208	443.7868	-12.0244	-26.2180	-417.8847	24.7149	62.5610
209	481.0680	-16.3028	-41.5002	-481.8836	31.1258	106.4803
210	549.0720	-23.3736	-87.0855	-524.2682	37.2774	127.3137
211	594.0254	-30.1693	-109.3502	-576.1842	45.5126	154.2312
212	646.8646	-39.1072	-137.9354	-599.0084	53.2391	178.7299
213	668.8072	-47.5523	-164.3273	-623.3597	63.3435	209.9306
214	690.4829	-58.3519	-197.2552	-613.3233	72.6982	238.3163
215	676.0143	-68.4411	-226.9553	-582.7892	82.8599	268.1075
216	638.7611	-79.3872	-258.8422	-538.5655	95.7438	305.2278
217	585.9091	-93.0198	-297.6986	-454.0417	107.6455	339.1809
218	490.7703	-105.7007	-333.2250	-344.3139	122.4526	380.2161
219	368.0869	-121.2664	-376.2132	-191.2106	136.0824	418.0672
220	199.7353	-135.6823	-417.9567	0.4917	148.3711	417.9476

ENVOLVENTE MINIMOS TORSORES TREN IPF-B, l=15 m, via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.0152	21.2089	38.7875	-25.4405	-6.3779	3.8784
2	47.1852	19.7116	34.0983	-80.4842	-4.4219	9.8336
3	121.0050	16.8403	26.1097	-146.2457	-1.6666	17.3209
4	202.5934	13.1756	16.6497	-236.8475	2.7958	28.7908
5	306.1295	7.8215	3.2554	-337.9056	8.5983	43.1651
6	417.2911	1.1219	-13.0110	-424.0917	14.6133	57.6230
7	510.8512	-5.7530	-29.3328	-525.3438	22.8257	77.1733
8	616.8401	-14.7965	-50.7380	-619.1351	32.2937	99.5276
9	710.3577	-25.3029	-74.9494	-676.1696	41.5613	120.7025
10	769.7548	-35.1858	-97.9882	-736.8687	53.2206	147.7459
11	828.1196	-47.6557	-126.9138	-754.7497	64.0659	172.9015
12	829.4599	-59.9176	-153.9866	-748.9905	78.0777	204.2052
13	786.5025	-76.1855	-187.2671	-676.5962	94.4008	237.8243
14	670.9989	-94.6625	-223.0028	-515.8458	111.1376	269.4271
15	532.8135	-110.3856	-256.7261	-360.2565	128.6540	307.8364
16	413.2161	-126.4983	-297.2610	-212.1884	144.7722	348.7578
17	254.4066	-143.1926	-340.3535	-15.8192	159.6970	387.3244
18	46.2583	-158.6110	-381.1506	212.4099	176.8708	433.2801
19	-193.8705	-176.2463	-429.3974	482.0400	194.4693	481.9485
20	-475.4666	-194.2677	-480.4178	799.3944	186.9767	473.4160
21	-538.4664	15.4363	-9.6020	463.4229	-20.6976	7.4359
22	-698.7030	46.3055	38.4943	604.9802	-27.6112	14.7673
23	-575.6306	43.8899	28.5002	482.3520	-24.9710	25.5444
24	-435.3321	40.4349	15.3321	345.2088	-21.2830	39.4789
25	-281.9215	35.8744	-0.9447	197.8929	-16.4859	56.5086
26	-120.0796	30.1470	-20.2578	45.2489	-10.5210	76.5647
27	44.9528	23.1956	-42.5601	-107.3363	-3.3360	99.6052
28	207.4343	14.9833	-67.8164	-254.0424	5.0998	125.5598
29	359.0755	5.2136	-95.9749	-386.0191	15.0847	154.0181
30	493.5769	-5.9510	-126.6397	-497.3972	26.4469	184.8984
31	545.8500	-23.6729	-159.7623	-512.7864	44.3552	218.2498
32	618.8834	-37.2701	-195.4581	-556.6897	58.1171	254.1908
33	633.4558	-53.6427	-233.7622	-536.1551	74.6430	292.7585
34	633.9086	-69.2966	-274.7169	-502.6540	90.4266	333.9983
35	589.9238	-86.0634	-318.4179	-422.2835	107.2979	378.0053
36	496.8712	-103.8861	-364.9727	-290.6803	125.2107	424.8898
37	350.6779	-122.6760	-414.5105	-104.1313	144.0631	474.7788
38	148.0742	-142.3549	-467.1596	140.3325	163.7847	527.8007
39	-113.2892	-162.8135	-523.0531	444.6765	184.2531	584.0858
40	-647.4264	-191.2065	-582.3799	1037.5010	189.0460	582.0858
41	-819.1136	24.7340	-20.2941	725.3805	-29.7925	11.0063
42	-714.3399	46.8062	34.7644	618.6074	-28.0690	18.4750
43	-588.7442	44.3300	24.8551	493.7373	-25.3712	29.1593
44	-446.0317	40.8179	11.7965	354.4476	-21.6293	42.9798
45	-290.3714	36.1841	-4.3532	205.1566	-16.7621	59.8817
46	-126.5137	30.3853	-23.5330	50.7654	-10.7301	79.8076
47	40.2387	23.3731	-45.7021	-103.3111	-3.4878	102.7222
48	130.4577	19.3361	-70.8873	-186.0171	0.7668	128.6157
49	284.7842	10.3967	-99.0428	-322.2608	9.9188	157.0807
50	428.6037	-0.4949	-129.7120	-443.4313	21.0128	187.9738
51	551.9949	-12.9580	-162.8244	-540.4196	33.6523	221.3238
52	575.8000	-31.9121	-198.4774	-524.3255	52.7795	257.2286
53	603.8059	-47.9733	-236.7803	-517.8231	68.9811	295.8024
54	615.6220	-63.6819	-277.7512	-495.5066	84.8218	337.0630
55	582.9098	-80.4926	-321.4685	-426.2961	101.7410	381.0914
56	500.8469	-98.3594	-368.0428	-305.6097	119.6928	427.9981
57	365.5128	-117.1810	-417.5936	-129.8449	138.5723	477.9017
58	173.6650	-136.8790	-470.2451	103.9031	158.3084	530.9256
59	-77.0206	-157.3524	-526.1294	397.6041	178.7949	587.1992
60	-387.8831	-178.4822	-585.3710	752.2050	176.2890	584.9136
61	-759.2882	21.5484	-20.4742	671.3774	-26.6411	10.9896
62	-660.1397	43.6431	34.8187	570.6582	-24.9075	18.4233
63	-540.6107	41.1530	24.9286	451.9001	-22.1959	29.0916
64	-404.0213	37.6158	11.8663	318.7948	-18.4285	42.9176
65	-254.5743	32.9751	-4.3026	175.7478	-13.5557	59.8379
66	-97.0034	27.1528	-23.5130	27.6962	-7.5004	79.7938
67	63.3810	20.1217	-45.7225	-119.9613	-0.2381	102.7467
68	217.6906	12.0209	-70.9015	-258.6172	8.0813	128.6294
69	301.8859	6.6693	-99.0348	-331.9115	13.6467	157.0671
70	400.6787	-0.9374	-129.7828	-414.6032	21.4503	188.0361
71	523.8884	-12.6950	-162.9860	-512.8022	33.3856	221.4743
72	623.5770	-26.0304	-198.6680	-583.8595	46.8897	257.4022
73	689.5268	-40.5673	-236.8758	-618.3454	61.5659	295.8777
74	714.6597	-56.0704	-277.7059	-609.7912	77.2098	336.9951
75	576.2253	-79.1356	-321.3100	-422.3825	100.3788	380.9084
76	496.4317	-97.0180	-367.8864	-303.9371	118.3443	427.8155
77	363.6989	-115.8479	-417.4228	-130.7940	137.2318	477.7033
78	174.4727	-135.5352	-470.0522	100.2798	156.9543	530.7048
79	-74.5163	-156.2093	-525.9048	392.6374	177.6410	586.9474
80	-382.9412	-177.3353	-585.1131	744.9284	175.0688	585.1356
81	-554.5730	-1.2998	-38.6418	512.3354	-3.8420	29.5751
82	-567.2943	23.1296	16.5922	518.7807	-4.3776	36.5330
83	-667.8380	27.2653	6.9406	606.8558	-8.2883	46.9298
84	-564.1177	23.9027	-5.8304	506.2869	-4.6932	60.4340
85	-441.9887	19.1987	-21.6019	390.7210	0.2450	76.9307
86	-311.9655	13.3331	-40.3198	270.3475	6.3467	96.3705
87	-179.3677	6.2250	-61.9432	150.6857	13.6842	118.7219
88	-50.0401	-2.1449	-86.4614	37.5950	22.2767	143.9350
89	69.8816	-11.7833	-113.8510	-62.8031	32.1239	171.6230
90	174.1485	-22.7073	-143.7375	-144.2897	43.2430	201.7325
91	255.6645	-34.8152	-176.0878	-200.0676	55.5336	234.3304
92	309.9927	-48.2356	-210.9952	-225.5617	69.1159	269.5127
93	330.3032	-62.8600	-248.5695	-214.2396	83.8840	307.3918
94	311.0460	-78.6377	-288.9417	-160.7785	99.7925	348.1006
95	247.1331	-95.5188	-332.2683	-60.3353	116.7694	391.7981
96	134.1101	-113.4205	-378.7228	91.2405	134.7515	438.6576
97	-31.7427	-132.2576	-428.4911	297.3404	153.6375	488.8660
98	-253.3070	-151.9406	-481.7709	560.5093	173.3547	542.6211
99	-532.4956	-172.3585	-538.7711	882.2181	193.7706	600.1271
100	-870.1525	-193.3820	-599.6976	1271.8781	190.4275	601.8016
101	-940.8500	9.3061	-70.8223	918.9971	-18.4563	56.8498
102	-912.7390	33.4322	-15.5930	819.1408	-15.6424	61.1059
103	-797.6594	29.9503	-21.6780	747.0986	-13.6646	67.6333
104	-711.3152	27.2231	-30.0334	651.0879	-10.1973	77.2537
105	-602.2822	22.9700	-41.4995	546.1660	-5.6632	89.5540
106	-485.8387	17.6067	-55.6518	436.5333	-0.0193	104.5796
107	-366.4604	11.1036	-72.5712	344.4058	5.6702	119.9351
108	-266.6200	4.5289	-89.8456	239.8448	13.4688	140.1539
109	-156.5239	-4.1986	-112.0308	144.6849	22.4526	163.2926
110	-58.1274	-14.1016	-137.1918	64.0450	32.5926	188.9617
111	23.3749	-25.1720	-164.9472	19.1727	42.3756	213.4941
112	66.7857	-35.8976	-191.6429	-18.3139	54.6924	244.0458
113	100.5215	-49.1053	-224.4494	-27.0868	68.0808	277.3146
114	103.3971	-63.3740	-260.0644	-2.8909	82.5041	313.4208

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	71.3576	-78.6452	-298.6244	69.5310	96.1334	348.0109
116	-10.6230	-93.0945	-335.7845	169.5222	112.3871	389.9434
117	-121.5581	-110.1039	-380.4057	312.2895	129.4665	435.1297
118	-276.2971	-127.8806	-428.4100	499.8219	147.2821	483.7249
119	-476.3911	-146.3277	-479.9503	740.4219	163.9091	530.4421
120	-729.6948	-163.5146	-529.7417	1029.5493	161.4563	532.6320
121	-643.7990	0.6309	-66.8226	637.0354	-6.6663	59.0705
122	-632.2737	21.7080	-17.4269	569.5946	-4.3586	62.9681
123	-550.0350	18.7493	-23.1222	520.1958	-2.5165	69.0100
124	-486.5788	16.1971	-30.9659	447.5767	0.7283	78.0666
125	-401.0277	12.1779	-41.8462	365.3742	5.0354	89.7607
126	-307.2544	7.0418	-55.3767	277.6751	10.4613	104.1508
127	-209.6424	0.7782	-71.6433	206.1472	15.9577	118.9188
128	-130.1223	-5.6004	-88.3268	121.7543	23.5328	138.4735
129	-39.8742	-14.1104	-109.8475	45.7916	32.3088	160.9485
130	39.6640	-23.8025	-134.3527	-16.5713	42.2466	185.9760
131	103.2760	-34.6729	-161.4762	-44.0740	51.8487	209.9493
132	129.6760	-45.2207	-187.6310	-64.9517	63.9866	239.9069
133	147.1572	-58.2520	-219.8655	-57.8630	77.2052	272.6213
134	134.4943	-72.3762	-254.9551	-18.4275	91.4856	308.2236
135	87.4737	-87.5155	-293.0541	68.8267	105.0002	342.4021
136	-9.1338	-101.8574	-329.8480	183.1680	121.1502	383.9520
137	-134.2929	-118.7717	-374.1483	340.0693	138.1492	428.8463
138	-303.1265	-136.4906	-421.9236	541.6805	155.9085	477.2441
139	-517.3457	-154.9015	-473.3521	796.4082	172.4927	523.8586
140	-784.9021	-172.0598	-523.1299	1101.2478	169.7294	526.7101
141	-801.6692	21.5661	-30.8994	756.9901	-27.4111	24.9843
142	-752.7395	42.9087	17.5809	653.4019	-25.2418	29.5109
143	-633.6228	40.0805	11.1592	553.4312	-22.9087	36.9673
144	-518.8446	37.0026	1.7747	454.1289	-20.2145	45.8364
145	-405.8661	33.5298	-9.0339	332.5495	-15.9430	58.3746
146	-272.0212	28.4217	-23.5592	204.9761	-10.5528	73.7727
147	-133.9175	22.1466	-40.9658	76.0694	-3.9982	92.1016
148	3.5073	14.6672	-61.3411	-49.1369	3.7520	113.4481
149	134.9789	5.9829	-84.7698	-147.7370	11.4244	134.3140
150	237.4386	-2.6485	-107.7602	-249.8502	21.4389	160.8307
151	340.9149	-13.6353	-136.4502	-332.6330	32.6465	189.9377
152	422.5337	-25.7943	-167.7865	-390.8866	45.0091	221.6996
153	406.8159	-44.2398	-201.8395	-340.0360	63.6384	256.1799
154	318.6219	-65.2260	-238.8471	-198.8311	83.0817	289.3162
155	209.0145	-82.5916	-274.5309	-66.7138	102.2039	329.5332
156	84.5924	-101.2980	-317.3478	93.8953	121.0221	372.7975
157	-97.4277	-121.1977	-363.2680	314.1495	140.9977	419.1677
158	-326.0455	-141.5218	-412.3570	581.4480	161.3708	468.7086
159	-558.7801	-160.4489	-464.7053	856.5869	178.4813	516.2989
160	-899.6384	-180.1235	-515.1344	1229.7426	178.3194	516.0234
161	-338.5858	9.0598	-13.8605	281.4278	-12.2636	10.1240
162	-474.2089	36.2287	36.0725	401.5021	-17.5574	17.1850
163	-373.0059	33.8583	26.3462	300.6092	-14.9603	27.7046
164	-254.5886	30.4508	13.3799	185.1771	-11.3183	41.4476
165	-122.9863	25.9356	-2.7552	59.4862	-6.5624	58.3461
166	17.1730	20.2487	-21.9940	-71.6514	-0.6358	78.3380
167	160.6792	13.3449	-44.2877	-202.8954	6.5062	101.3795
168	301.8270	5.1785	-69.5994	-328.4331	14.9023	127.3962
169	434.5148	-4.2700	-97.8659	-442.1631	24.5672	155.9679
170	552.4538	-14.9999	-128.6910	-537.8745	35.4965	187.0150
171	648.3638	-27.0787	-162.0056	-608.2230	47.7603	220.5617
172	717.7788	-40.3340	-197.8302	-649.2154	61.1941	256.6282
173	753.8568	-54.8357	-236.2318	-653.9323	75.8542	295.2928
174	748.4030	-70.6595	-277.2859	-614.1763	91.8017	336.6261

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	688.4356	-88.0907	-321.0819	-516.4979	109.3455	380.7234
176	534.8045	-108.5887	-367.7870	-318.9699	129.9336	427.7516
177	377.6458	-127.4272	-417.4905	-121.3876	148.8262	477.7945
178	164.4956	-147.1322	-470.2718	133.6770	168.5779	530.9360
179	-107.3871	-167.6365	-526.2618	448.5877	189.0906	587.3036
180	-439.3056	-188.7955	-585.5782	823.3265	186.2012	584.7745
181	-357.2309	4.7440	-20.3096	301.5127	-10.6640	9.3056
182	-665.8738	40.5240	35.6772	583.5140	-22.1900	16.3750
183	-554.2582	37.9831	25.8260	472.6052	-19.4142	27.0295
184	-426.3713	34.3878	12.8131	348.1227	-15.5779	40.8298
185	-286.4340	29.6789	-3.2881	214.5050	-10.6228	57.7019
186	-139.1903	23.7907	-22.4121	76.6496	-4.4884	77.5889
187	10.1625	16.6834	-44.5049	-60.1167	2.8589	100.4401
188	155.9047	8.3200	-69.5403	-190.0334	11.4518	126.1883
189	292.0926	-1.3036	-97.4569	-307.1900	21.2967	154.4132
190	412.3160	-12.1597	-127.8502	-405.3122	32.3467	185.0124
191	490.9108	-22.3662	-160.5708	-462.4821	42.7403	217.9770
192	564.2574	-35.6796	-195.8987	-507.8893	56.2091	253.5938
193	606.2706	-50.1849	-233.8407	-519.2911	70.8654	291.7918
194	594.0129	-62.5314	-274.2168	-467.2667	81.6969	328.3422
195	546.5726	-77.1987	-313.1213	-399.8421	98.0521	371.5128
196	467.6690	-94.4802	-358.9095	-284.5396	115.4149	417.6567
197	338.5101	-113.4916	-407.5792	-115.8262	134.4772	466.6716
198	154.0823	-133.3376	-459.2199	109.4426	154.3589	518.6783
199	-100.7453	-156.5820	-513.9947	411.1684	177.5998	573.8552
200	-403.8682	-177.5552	-572.1345	756.7509	174.7914	572.0198
201	-718.1497	14.4123	-40.4512	657.1950	-24.8508	17.4590
202	-650.7472	36.9680	14.5171	597.2487	-23.8716	22.8305
203	-580.8203	35.5567	7.7284	528.2939	-22.3895	29.8452
204	-502.1710	33.5999	-0.9142	437.7417	-19.7551	40.4305
205	-407.5361	30.7016	-13.3207	358.7470	-17.3276	51.6984
206	-358.5927	29.5870	-26.0484	294.5072	-15.3104	67.2003
207	-243.8687	24.9804	-43.2680	200.9643	-11.3831	82.4412
208	-279.2570	27.8456	-60.5744	232.3109	-14.1727	99.9973
209	-175.5707	22.9899	-79.4063	118.0885	-8.1020	122.7246
210	-50.8965	15.8784	-103.7741	20.3553	-1.9746	144.0029
211	49.4059	9.0767	-126.6921	-86.9046	6.2666	171.5727
212	150.5477	-0.0053	-155.8334	-157.8251	14.1372	196.6277
213	227.6319	-8.4240	-182.5369	-237.3566	24.2152	228.1402
214	304.4923	-19.2592	-215.7178	-282.4576	33.6055	256.7787
215	345.1631	-29.3488	-245.8769	-307.0624	43.7676	287.0291
216	363.0446	-40.2909	-277.9463	-317.9745	56.6475	324.3321
217	365.3238	-53.9198	-316.9660	-288.5872	68.5455	358.4490
218	325.3399	-66.5976	-352.7090	-234.0234	83.3495	399.6997
219	257.8165	-82.1693	-395.8119	-136.0669	96.9853	437.6648
220	136.2083	-96.9862	-437.6244	0.5156	96.9847	437.6159

ENVOLVENTE MAXIMOS FLECTORES TREN IPF-B, l=30 m, via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0834	155.3045	-271.1179	-240.3401	-137.7288	247.9589
2	275.8354	159.3020	-247.5974	-519.7205	-138.5860	219.8649
3	519.9216	138.5782	-219.3682	-731.8249	-120.8611	195.5667
4	731.9901	120.8466	-194.8638	-911.3764	-100.1324	167.0048
5	911.5283	100.1373	-166.1276	-1059.2352	-79.4194	138.2217
6	1059.3495	79.3960	-137.2064	-1174.7236	-61.6790	113.2618
7	1174.8368	61.6834	-112.1290	-1258.0197	-40.9756	84.1575
8	1258.0957	41.0160	-82.9421	-1309.8062	-20.4624	55.3973
9	1309.8575	20.4607	-54.1348	-1329.1521	-2.7471	30.1379
10	1329.1484	2.7752	-28.8478	-1316.5551	17.9358	0.8536
11	1316.5251	-17.9760	0.4274	-1272.1208	35.7005	-24.4100
12	1272.0828	-35.7290	25.6541	-1194.8982	56.4553	-53.6122
13	1194.8292	-56.4748	54.7804	-1085.8933	77.0061	-82.3011
14	1085.8254	-77.0130	83.3713	-945.1713	94.7295	-107.2554
15	945.0496	-94.7113	108.2054	-771.9790	115.4220	-136.0360
16	771.8328	-115.4227	136.8167	-567.0761	136.1420	-164.5836
17	567.1188	-134.3277	162.2488	-333.0351	151.8266	-185.5382
18	376.5763	-99.5850	124.3322	-232.2568	75.1220	-98.5237
19	267.8648	-31.3812	46.8822	-204.5256	46.0965	-66.4979
20	233.8479	-6.8078	18.4005	-210.6854	21.5224	-37.9691
21	231.9266	-26.5553	-3.2944	-178.8239	26.5546	3.3413
22	198.3017	-9.8347	-24.1156	-160.6431	27.8312	0.1262
23	210.0420	18.5377	-59.6814	-229.1174	-0.5410	35.6919
24	273.1188	49.1874	-99.7196	-426.6734	-66.9059	120.2333
25	463.5818	104.0837	-173.7441	-647.4756	-80.7186	142.7260
26	711.8511	127.6124	-164.4127	-943.1474	-104.7467	134.3094
27	943.2970	104.7294	-133.1567	-1127.6755	-81.2481	101.8471
28	1127.7864	81.2249	-100.4745	-1265.0469	-57.2198	68.0968
29	1265.1588	57.2119	-66.5658	-1355.3383	-33.7089	35.1185
30	1355.3630	33.7321	-33.4854	-1398.2764	-10.2028	1.9773
31	1398.2488	10.1529	-0.2871	-1393.6323	13.4038	-31.2611
32	1393.5649	-13.3928	32.9374	-1341.5743	37.3857	-65.3782
33	1341.4890	-37.3927	67.0026	-1242.2594	60.9581	-98.5431
34	1242.1282	-60.9423	100.0453	-1095.4069	84.5049	-131.5674
35	1095.2646	-84.4931	132.8975	-901.0900	108.0608	-164.3820
36	900.8902	-108.0551	165.4886	-659.5675	132.0477	-197.7132
37	673.6146	-103.7833	183.6131	-441.3941	127.3501	-214.9129
38	484.6294	-86.0442	154.4168	-341.8380	60.7576	-125.7451
39	393.7512	-12.2417	61.9481	-351.2778	30.2385	-85.9923
40	395.6302	16.1212	26.7118	-409.8776	5.9486	-50.1132
41	442.4787	-28.7780	-3.7164	-376.7687	32.8510	4.2978
42	397.2628	-16.1594	-24.7948	-346.9310	34.1628	0.7203
43	399.5366	12.1006	-59.8471	-405.7363	5.9026	35.7781
44	454.8472	42.5515	-99.2565	-558.1741	-61.8323	119.3079
45	600.3601	103.1235	-179.5416	-782.4734	-80.3435	149.6010
46	843.2939	121.9008	-164.4289	-1062.1074	-98.4424	133.2251
47	1062.2479	98.4521	-131.8913	-1234.1304	-74.9718	100.5756
48	1234.2297	74.9944	-99.0521	-1359.0569	-50.9903	66.6616
49	1359.1240	50.9898	-64.9880	-1436.8464	-27.4746	33.5345
50	1436.8920	27.4815	-31.7752	-1467.3191	-3.9462	0.2637
51	1467.3391	3.9185	1.5283	-1450.2422	19.6297	-33.0776
52	1450.2057	-19.6511	34.8425	-1385.6642	43.6681	-67.2948
53	1385.6125	-43.7082	68.9811	-1273.6946	67.2754	-100.5214
54	1273.5757	-67.2790	102.0750	-1114.1008	90.8481	-133.5970
55	1113.9659	-90.8602	134.9590	-906.9560	114.4285	-166.4411
56	906.7529	-114.4308	167.5530	-652.5701	138.4364	-199.7859
57	673.2492	-99.2243	183.3817	-450.0651	122.7959	-214.6791
58	494.1246	-81.1563	153.5941	-365.7977	54.8319	-124.3436
59	418.4122	-6.1442	60.3949	-388.1154	24.1477	-84.4559
60	432.7975	22.2887	25.1932	-459.3758	0.3542	-48.7146
61	491.9120	-29.3587	-4.1304	-423.9299	33.9983	4.5988
62	444.3514	-17.3114	-25.0575	-391.7432	35.3078	0.9813
63	444.4637	10.9228	-60.1625	-448.3093	7.0734	36.0925
64	497.7512	41.3199	-99.7116	-592.6822	-60.8303	119.7976
65	635.2277	102.0271	-180.1654	-815.1133	-79.2409	150.2360
66	873.2703	118.5127	-165.4647	-1085.2627	-95.0666	134.2703
67	1085.4209	95.0724	-132.9033	-1250.4950	-71.5913	101.5943
68	1250.5826	71.6304	-100.0373	-1368.6681	-47.6464	67.6567
69	1368.7346	47.6358	-65.9727	-1439.7383	-24.1266	34.5282
70	1439.7516	24.0751	-32.7637	-1463.3126	-0.5345	1.2596
71	1463.2933	0.5319	0.5154	-1439.4155	23.0216	-32.0589
72	1439.4041	-23.0418	33.8033	-1368.1355	47.0378	-66.2445
73	1368.0894	-47.0133	67.9154	-1249.6293	70.5661	-99.4522
74	1249.5056	-70.5477	100.9692	-1083.5948	94.1051	-132.4852
75	1083.4412	-94.1469	133.7970	-869.9390	117.7241	-165.2750
76	869.7401	-117.7414	166.3312	-609.0619	141.7324	-198.5549
77	633.0364	-99.2640	182.9803	-409.8910	122.8235	-214.2738
78	455.2153	-81.1274	153.4855	-328.5676	54.6991	-124.5745
79	382.3190	-5.9844	60.7198	-352.3575	23.9806	-84.7726
80	397.7147	22.4623	25.5123	-424.6379	0.2353	-49.1285
81	457.4125	-23.9295	-14.8203	-400.1401	28.6310	15.1854
82	420.8667	-11.9723	-35.3417	-378.9104	29.9764	11.2548
83	432.5790	16.1005	-68.5981	-446.7795	1.9033	44.5173
84	497.6739	46.0459	-103.1370	-602.4448	-65.0863	118.2530
85	646.0680	105.3147	-168.0452	-832.5372	-82.4678	137.5632
86	881.0632	115.1340	-129.1689	-1086.2861	-91.6597	97.7260
87	1086.4104	91.6764	-96.3484	-1244.6305	-68.1644	64.8183
88	1244.6899	68.1789	-63.2746	-1355.8813	-44.1777	30.8897
89	1355.9126	44.1805	-29.2114	-1419.8457	-20.6516	-2.4241
90	1419.8320	20.6565	4.1736	-1436.3942	2.8874	-35.8313
91	1436.3118	-2.8848	37.5717	-1405.3741	26.4571	-69.2335
92	1405.2589	-26.4349	70.9441	-1327.1328	50.4408	-103.3820
93	1327.0096	-50.4147	104.9853	-1201.4998	73.9846	-136.5958
94	1201.3162	-73.9855	138.0533	-1028.2957	97.5663	-169.6046
95	1028.0822	-97.5758	170.8563	-807.6193	121.5770	-203.1497
96	807.3833	-121.5603	204.1338	-539.7609	145.1268	-235.5184
97	586.2551	-91.0939	192.3484	-379.3526	114.6641	-223.5826
98	424.0734	-71.3884	156.1423	-338.3968	44.1976	-118.8614
99	385.6735	9.1718	43.5802	-386.0135	8.8317	-67.6481
100	414.2623	23.2731	24.5603	-442.6186	-0.3143	-49.9373
101	484.3472	-30.1365	-18.2475	-422.7390	35.0916	16.8677
102	443.3429	-6.5394	-51.7897	-418.1116	22.2910	30.7117
103	442.8361	15.4202	-74.4056	-456.0359	0.3310	53.3339
104	486.0360	37.7622	-94.4905	-545.8812	-57.3475	109.2354
105	577.0023	90.6875	-143.9127	-716.4282	-69.2438	115.1696
106	764.0268	100.8138	-82.6980	-922.5112	-79.0666	53.5275
107	922.5397	79.0646	-52.4881	-1044.4778	-60.5821	27.6632
108	1044.4858	60.5688	-26.5101	-1129.5286	-38.8137	-2.7543
109	1129.4979	38.8067	3.9857	-1177.9731	-17.3115	-32.8320
110	1177.9016	17.2849	34.1148	-1190.1469	4.4708	-63.4231
111	1190.0729	-4.4888	64.7035	-1165.5553	23.2419	-90.0144
112	1165.4424	-23.2101	91.2594	-1103.9950	44.7216	-120.0714
113	1103.8732	-44.7094	121.2611	-1006.1068	66.4575	-150.5424
114	1005.9497	-66.4706	151.6211	-871.5967	88.2235	-180.8698

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	871.4034	-88.2426	181.8079	-700.5152	106.7619	-206.4660
116	700.2977	-106.7254	207.2272	-492.4602	128.4725	-236.3745
117	522.8480	-74.6819	165.9147	-372.5833	96.4331	-194.9925
118	406.4693	-53.5184	120.5624	-362.2913	25.7196	-73.3674
119	392.5053	8.0003	22.9172	-392.7346	7.7511	-43.9726
120	432.9514	33.2047	-12.9493	-476.3041	-11.9002	-13.7153
121	505.4760	-31.7587	-27.3780	-439.1877	37.3121	21.7038
122	457.7617	-22.8183	-39.0424	-404.0383	38.5700	17.9668
123	447.6544	1.7496	-64.9821	-436.9293	14.0025	43.9118
124	477.5452	28.1977	-88.4425	-531.2176	-47.3309	101.4496
125	565.8182	83.1801	-135.7718	-691.9834	-61.7445	106.9842
126	742.2660	103.7931	-71.3182	-905.9703	-82.0412	42.1360
127	906.0291	82.0260	-41.1319	-1033.1362	-63.5434	16.2800
128	1033.1482	63.4988	-15.1504	-1123.2999	-41.7441	-14.1223
129	1123.2589	41.7524	15.3362	-1176.9045	-20.2496	-44.2017
130	1176.8595	20.2394	45.4740	-1194.2798	1.5129	-74.7876
131	1194.1952	-1.5309	76.0664	-1174.8660	20.2730	-101.3856
132	1174.7584	-20.2205	102.6544	-1118.5660	41.7343	-131.4696
133	1118.4324	-41.7391	132.6744	-1025.8536	63.4956	-161.9620
134	1025.6816	-63.4858	163.0656	-896.5485	85.2362	-192.3193
135	896.3313	-85.2443	193.2777	-730.6699	103.7728	-217.9224
136	730.4327	-103.7744	218.7191	-527.7528	125.5276	-247.8699
137	549.1826	-80.7065	179.3541	-388.3632	102.4627	-208.4327
138	418.2400	-69.6478	147.4656	-335.6857	43.8207	-99.3203
139	379.7246	-1.0319	32.2537	-364.1462	16.7821	-53.2928
140	402.7693	24.0300	-4.3394	-430.1256	-4.2679	-21.2309
141	457.1764	-33.5683	-9.3467	-388.6216	37.5788	4.7678
142	407.9467	-22.6426	-22.9042	-352.6147	38.8411	1.2539
143	396.6517	2.8156	-51.2936	-387.1409	13.3832	29.6466
144	426.4377	30.4821	-80.4038	-498.4669	-50.2722	99.9478
145	531.4901	88.0194	-146.5137	-668.3380	-66.2247	117.4657
146	721.8940	111.4653	-118.8003	-901.9725	-89.2657	89.0107
147	902.0708	89.2458	-87.9960	-1043.9471	-67.4134	58.8301
148	1043.9908	67.4464	-57.6606	-1147.4077	-45.5767	28.4617
149	1147.4357	45.5371	-27.2068	-1212.1071	-26.3336	1.2826
150	1212.1116	26.3439	0.0625	-1237.9760	-4.4583	-29.3081
151	1237.9329	4.4561	30.6620	-1225.3477	17.7419	-60.6071
152	1225.2754	-17.7183	61.9366	-1174.0710	39.6253	-91.1705
153	1173.9709	-39.6463	92.4592	-1084.4012	61.8504	-122.3792
154	1084.2599	-61.8513	123.5694	-955.6022	81.0524	-149.4534
155	955.4332	-81.0720	150.5090	-788.0699	102.9947	-179.6366
156	787.8737	-102.9805	180.5095	-581.8924	125.1811	-210.2846
157	589.9840	-91.7739	166.9098	-405.5449	113.7036	-195.8670
158	436.1741	-73.6244	125.8526	-325.9586	48.3000	-85.7996
159	359.2857	-4.9100	24.2692	-335.8810	21.1078	-45.9018
160	366.4532	20.4460	-8.7693	-388.6962	-0.4622	-15.9246
161	413.5907	-25.6382	-6.4978	-354.7542	29.4240	3.3872
162	373.4971	-12.6788	-23.9888	-330.1326	30.6806	-0.0713
163	376.4055	15.7773	-59.4741	-389.9615	2.2247	35.4185
164	429.1751	35.8937	-85.2488	-527.3097	-54.7281	105.9677
165	579.4468	102.6036	-174.8862	-760.3207	-79.2355	143.8858
166	808.3715	118.7418	-168.8391	-1021.9028	-95.8861	138.7790
167	1022.0760	95.9248	-137.5070	-1188.8711	-72.4430	106.2081
168	1188.9879	72.4421	-104.7532	-1308.7078	-48.4384	72.3648
169	1308.8145	48.4312	-70.7554	-1381.4163	-24.9154	39.3181
170	1381.4471	24.9115	-37.6488	-1406.7197	-1.3757	6.1501
171	1406.7280	1.4063	-4.4737	-1384.6418	22.1508	-27.0716
172	1384.6398	-22.1295	28.7516	-1315.1798	46.1281	-61.1996
173	1315.1206	-46.1504	62.7776	-1198.3783	69.7200	-94.3168
174	1198.2632	-69.7350	95.7586	-1033.9235	93.3132	-127.2897

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	1033.7789	-93.3136	128.5379	-821.9438	116.8972	-160.0335
176	821.7648	-116.9158	161.0140	-562.6326	140.9182	-193.2420
177	584.7795	-101.6862	173.5918	-356.7666	125.2533	-204.9084
178	394.2605	-88.4018	152.3210	-249.0120	63.3037	-124.7512
179	303.6429	-14.8124	61.6875	-256.0113	32.8140	-85.7355
180	301.8269	13.5651	26.8004	-310.9434	8.2238	-49.9772
181	343.4047	-17.3643	-4.2049	-302.1343	21.1514	5.0192
182	321.7001	-4.9002	-25.1733	-295.0211	22.4553	1.7031
183	346.4818	22.4665	-59.7124	-373.1834	-4.9122	36.2479
184	422.5693	51.6484	-98.5925	-537.4235	-70.0236	118.0681
185	579.8789	109.3869	-176.6603	-771.2592	-86.3720	146.1604
186	804.6410	107.8654	-159.8070	-993.4005	-84.8118	129.1778
187	993.5435	84.7935	-127.9709	-1137.4960	-61.7105	97.2294
188	1137.6184	61.7207	-95.8494	-1236.6267	-38.6138	65.0178
189	1236.6951	38.6115	-63.5415	-1290.5856	-15.4805	32.6349
190	1290.6228	15.4531	-31.1103	-1299.4525	8.1061	-0.7338
191	1299.4447	-8.1028	2.4482	-1263.2037	31.2459	-33.4192
192	1263.1566	-31.2325	34.7135	-1181.6826	54.3824	-65.6430
193	1181.6261	-54.3612	66.7748	-1055.1438	77.9126	-98.5338
194	1055.0173	-77.9340	99.8462	-883.3977	98.0959	-126.8306
195	883.2299	-98.1009	127.9724	-666.2246	121.2565	-158.8866
196	666.0655	-121.2564	159.5243	-403.9643	144.8112	-191.0961
197	449.9195	-92.2143	163.4223	-245.5334	115.3580	-194.1527
198	287.6077	-73.1043	136.4159	-199.2780	46.4817	-109.1403
199	242.9679	-8.8769	60.8924	-208.5312	26.4316	-84.3662
200	261.3020	19.2122	26.5275	-281.6627	3.4803	-49.1689
201	315.3552	-6.0455	-0.2851	-299.5943	11.1831	1.0422
202	311.6491	12.4126	-29.7217	-320.2054	0.2771	12.7281
203	336.5757	31.8688	-51.4966	-372.5632	-19.1795	34.5275
204	395.5691	54.0769	-75.3182	-462.8717	-41.3888	58.3449
205	496.3005	79.6060	-102.8355	-613.2296	-98.6297	114.5945
206	613.2742	98.6128	-114.3040	-739.4220	-79.9215	89.3397
207	739.4572	79.9248	-88.9392	-841.5088	-64.2327	67.8623
208	841.6025	64.2285	-66.4902	-920.3052	-48.5315	45.3871
209	920.3199	48.5120	-44.8395	-974.4343	-29.8151	19.8010
210	974.4352	29.7821	-19.2117	-1005.0858	-14.0912	-1.8866
211	1005.0837	14.1028	2.8599	-1011.7549	4.5871	-28.0001
212	1011.7562	-4.6063	28.9203	-994.4507	20.2955	-50.0176
213	994.4303	-20.3216	50.5780	-953.6418	39.0099	-75.6301
214	953.6116	-38.9740	76.1291	-888.3724	54.6592	-97.2365
215	888.2892	-54.6495	98.2059	-799.7096	70.3420	-119.3061
216	799.6602	-70.3484	119.7254	-686.9415	89.0427	-144.7499
217	686.8786	-89.0435	145.1479	-550.3314	104.7334	-166.1933
218	550.1721	-104.7338	166.7516	-390.0092	123.4231	-191.7859
219	389.8566	-123.4132	192.1057	-205.3924	139.1021	-213.0725
220	205.3238	-139.0934	213.1387	-0.2560	151.7826	-213.1491

ENVOLVENTE MAXIMOS CORTANTES TREN IPF-B, l=30 m, via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0815	177.0123	-271.5181	-273.8666	-159.4608	248.2984
2	262.8219	159.9289	-248.9023	-499.0504	-139.6161	221.9083
3	467.6570	140.9906	-223.1261	-676.7297	-123.5266	199.7586
4	627.9734	125.8117	-201.6844	-797.4647	-105.7069	174.8900
5	734.3160	108.9181	-177.6106	-872.7383	-88.9805	151.0688
6	798.0736	93.0631	-154.6618	-922.3154	-75.8032	131.5589
7	838.9889	80.7982	-136.0770	-923.6653	-61.1624	109.9735
8	834.3657	67.0574	-115.4688	-895.3159	-47.6252	89.6946
9	802.6610	54.3322	-96.2072	-860.0500	-37.3515	73.5308
10	766.5134	44.9179	-81.0800	-787.4956	-25.8323	55.8533
11	695.4246	34.1615	-64.4595	-591.1456	-18.7864	32.7382
12	502.7257	27.8991	-42.4057	-536.3179	-13.1837	22.7903
13	453.5233	23.0687	-33.5220	-479.2084	-8.3532	13.9064
14	403.8263	18.9601	-25.6879	-422.7982	-4.2448	6.0724
15	356.3749	15.5454	-18.8824	-369.7632	-0.8300	-0.7333
16	313.6273	12.7702	-13.0934	-322.4771	1.9452	-6.5221
17	277.6907	10.5940	-8.2890	-282.9788	4.1215	-11.3265
18	250.3226	8.9934	-4.4356	-252.9974	5.7220	-15.1800
19	232.9655	7.9073	-1.5084	-233.8639	6.8080	-18.1073
20	226.6285	7.2889	0.5283	77.1230	-9.7210	8.6139
21	-1761.6716	223.7401	-266.7330	1263.5330	-243.5345	284.5367
22	-1272.2087	243.8437	-287.1438	819.0601	-220.9158	257.4125
23	-845.2893	221.8835	-260.5197	437.5325	-198.8415	230.4854
24	-480.8983	200.5476	-234.2054	118.0742	-177.4388	203.8937
25	-177.5363	179.9551	-208.3524	-141.2583	-156.8072	177.7914
26	67.2127	160.2001	-183.0930	-343.2924	-137.0703	152.4672
27	256.5336	141.3874	-158.7118	-491.6752	-118.3177	128.2777
28	394.4592	123.6161	-135.5547	-590.8708	-100.6350	105.3444
29	485.7895	106.9643	-113.7336	-646.0507	-84.1136	83.7764
30	535.8963	91.5077	-93.3423	-662.8874	-68.8062	63.6646
31	550.6662	77.2366	-74.4495	-422.2107	-55.6928	34.6766
32	311.0285	65.2100	-46.7211	-423.4368	-47.2138	22.8149
33	316.3708	57.7974	-36.1260	-413.9544	-39.8022	12.2003
34	313.9931	51.4349	-26.7851	-398.8451	-33.4368	2.8391
35	308.8132	46.0922	-18.6803	-382.9905	-28.0947	-5.2852
36	305.4319	41.7446	-11.7816	-370.9121	-23.7480	-12.2039
37	308.0539	38.3400	-6.0510	-366.7265	-20.3438	-17.9541
38	320.3695	35.8189	-1.4351	-374.0006	-17.8225	-22.5894
39	345.4370	34.1194	2.1229	-395.6680	-16.1226	-26.1672
40	385.5963	33.1576	4.6872	-79.9279	-26.0190	-1.8771
41	-1907.6409	228.5477	-262.5701	1399.4714	-248.0433	282.8202
42	-1408.4880	248.3628	-285.6563	946.1111	-225.4270	255.9189
43	-972.9745	226.4179	-259.2748	556.0749	-203.3715	229.2419
44	-600.2767	205.1161	-233.2192	228.3394	-182.0040	202.9132
45	-288.7558	184.5594	-207.6326	-39.1757	-161.4232	177.0796
46	-35.8645	164.8680	-182.6403	-249.4296	-141.7495	152.0221
47	161.6877	146.1359	-158.5196	-406.1905	-123.0738	128.0920
48	308.0410	128.4361	-135.6116	-513.9711	-105.4694	105.4057
49	408.0271	111.8549	-114.0187	-577.9361	-89.0161	84.0623
50	467.0562	96.4431	-93.8306	-603.8133	-73.7534	64.1523
51	490.9905	82.2444	-75.1205	-363.2351	-61.6365	35.8214
52	251.5493	71.1981	-48.0180	-375.9672	-53.1993	24.1144
53	268.5024	63.8235	-37.5568	-378.1652	-45.8233	13.6310
54	277.9111	57.4907	-28.3139	-374.9059	-39.4871	4.3652
55	284.6685	52.1863	-20.2775	-371.0605	-34.1863	-3.6938
56	293.3837	47.8651	-13.4175	-371.1244	-29.8638	-10.5761
57	308.2162	44.4855	-7.6948	-379.1926	-26.4826	-16.3213
58	332.8256	41.9831	-3.0616	-398.7958	-23.9792	-20.9768
59	370.2386	40.2915	0.5415	-432.8294	-22.2880	-24.6025
60	422.7568	39.3376	3.1659	-122.2390	-31.3100	-0.7452
61	-1943.4181	228.4105	-261.8964	1436.0371	-247.8784	282.3199
62	-1444.9943	248.1931	-285.2097	983.1016	-225.2621	255.4787
63	-1009.9398	226.2615	-258.8625	593.4956	-203.2231	228.8311
64	-637.6807	204.9674	-232.8308	266.1765	-181.8602	202.5244
65	-326.5826	184.4317	-207.2559	-0.9677	-161.2995	176.7017
66	-74.0601	164.7432	-182.2669	-210.9083	-141.6408	151.6455
67	123.2045	146.0316	-158.1423	-367.4105	-122.9832	127.7123
68	269.3103	128.3641	-135.2300	-475.0486	-105.4074	105.0196
69	369.1809	111.7922	-113.6340	-538.9476	-88.9562	83.6759
70	428.1796	96.3800	-93.4442	-564.8555	-73.7081	63.7630
71	452.1993	82.2110	-74.7371	-324.3318	-61.6990	35.1670
72	212.8731	71.2706	-47.3751	-337.3968	-53.2746	23.4811
73	230.1821	63.9192	-36.9341	-340.0048	-45.9219	13.0173
74	240.0176	57.5998	-27.7190	-337.1970	-39.6039	3.7794
75	247.2386	52.3095	-19.7180	-333.8433	-34.3124	-4.2446
76	256.4447	47.9992	-12.8958	-334.4379	-30.0055	-11.0889
77	271.7972	44.6294	-7.2159	-343.0528	-26.6345	-16.7913
78	296.9319	42.1396	-2.6286	-363.2002	-24.1430	-21.4014
79	334.8466	40.4583	0.9220	-397.7507	-22.4621	-24.9748
80	387.8183	39.5095	3.4963	-91.4463	-31.2365	-3.5797
81	-1935.2910	226.9316	-236.3679	1430.8418	-246.0059	253.5934
82	-1439.9326	246.3367	-256.5653	981.3432	-223.3515	226.3658
83	-1008.3712	224.3622	-230.0203	595.4540	-201.2782	199.6348
84	-639.8364	203.0649	-204.0815	271.9577	-179.9304	173.5574
85	-332.5065	182.5564	-178.9243	8.5850	-159.4038	148.3129
86	-83.6147	162.9200	-154.7079	-197.8313	-139.8100	124.2136
87	110.3198	144.2954	-131.7313	-351.3040	-121.2616	101.6029
88	253.6519	126.7557	-110.3267	-456.5585	-103.8360	80.5658
89	351.4627	110.3527	-90.5494	-519.0403	-87.5952	61.1585
90	409.4077	95.1756	-72.4496	-544.6842	-72.5715	43.4269
91	433.5612	81.2329	-56.0525	-311.2242	-61.2911	22.9339
92	201.7243	71.0269	-36.8854	-325.7898	-53.0212	12.9781
93	220.9864	63.8268	-28.2454	-330.6520	-45.8234	4.3154
94	233.4903	57.6757	-20.8541	-330.8525	-39.6709	-3.0992
95	244.0755	52.5456	-14.6571	-331.1788	-34.5400	-9.3191
96	257.2494	48.3972	-9.5793	-336.0546	-30.3925	-14.4200
97	277.0482	45.1790	-5.5232	-349.4140	-27.1749	-18.4982
98	306.9443	42.8300	-2.3923	-374.6161	-24.8267	-21.6532
99	349.7393	41.2763	-0.0646	-414.3010	-23.2728	-24.0033
100	407.4414	40.4330	1.5819	-154.3018	-30.1043	-7.3533
101	-1714.4937	208.7849	-215.0077	1299.1531	-226.3670	229.1851
102	-1307.7751	226.7138	-231.5046	935.9658	-205.4540	203.5650
103	-958.7264	206.4213	-206.9531	618.6210	-187.8988	182.5340
104	-654.8985	189.5299	-187.0139	355.7850	-168.2434	159.3316
105	-404.5532	170.6281	-164.9473	140.8659	-149.3948	137.7869
106	-200.7792	152.5579	-144.5484	-28.8583	-131.4271	117.8780
107	-40.5974	135.4270	-125.8010	-168.8344	-117.0376	102.0593
108	91.6740	121.9098	-111.1483	-259.9210	-101.0160	85.1497
109	177.1357	106.7710	-95.3936	-317.5062	-86.0832	69.8163
110	231.3449	92.7655	-81.2018	-143.6847	-74.6846	56.0293
111	56.4762	82.2898	-68.5333	-186.7230	-66.5366	47.6430
112	100.8379	75.0782	-61.2242	-218.4581	-59.3237	40.3127
113	136.2335	68.7832	-54.9266	-242.8402	-53.0336	33.9940
114	166.5334	63.3991	-49.5824	-263.7232	-47.6508	28.6301

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	195.4506	58.9112	-45.1258	-284.7825	-43.1584	24.1529
116	226.4519	55.2570	-41.4781	-309.3840	-39.5024	20.4851
117	262.6421	52.4138	-38.5549	-340.6009	-36.6622	17.5411
118	306.7505	50.3346	-36.2671	-381.0740	-34.5841	15.2323
119	361.0395	48.9553	-34.5180	-432.9455	-33.2039	13.4626
120	427.1976	48.2094	-33.2122	-193.6075	-39.4737	25.0364
121	-1530.8362	204.1941	-207.6447	1125.1387	-220.7967	216.8980
122	-1133.5454	221.1337	-219.0430	771.3580	-199.8665	191.0857
123	-793.2367	200.7855	-194.3729	462.8261	-182.2537	169.9582
124	-497.7864	183.8339	-174.4062	208.1963	-162.5181	146.7865
125	-255.3904	164.8212	-152.4222	1.3615	-143.5476	125.3736
126	-59.5691	146.6014	-132.2058	-160.1608	-125.4158	105.6839
127	92.3971	129.2930	-113.7276	-291.3356	-110.8675	90.0696
128	215.7500	115.6026	-99.3194	-373.2817	-94.6342	73.5185
129	291.8760	100.2705	-83.9611	-421.0528	-79.5085	58.6062
130	336.0212	86.0565	-70.2212	-253.5802	-66.3011	45.1393
131	167.2197	73.7799	-57.8968	-282.5763	-58.0287	36.9788
132	197.2443	66.4539	-50.8315	-299.7725	-50.6991	29.8969
133	217.8260	60.0422	-44.7955	-309.1309	-44.2877	23.8468
134	232.8570	54.5481	-39.7233	-314.5507	-38.7955	18.7596
135	246.1070	49.9522	-35.5440	-319.7652	-34.2025	14.5645
136	261.1222	46.2254	-32.1628	-328.2524	-30.4744	11.1688
137	281.1193	43.3198	-29.4913	-343.1620	-27.5685	8.4821
138	308.9292	41.1909	-27.4313	-367.2478	-25.4408	6.4070
139	346.9238	39.7812	-25.8699	-402.7744	-24.0310	4.8308
140	396.9171	39.0212	-24.7038	-144.3464	-32.8235	22.2704
141	-1574.9026	207.9181	-245.6613	1148.0139	-225.9025	258.5498
142	-1156.8781	226.2401	-260.7062	776.5734	-204.6780	232.6336
143	-799.4139	205.5997	-235.8051	457.5898	-183.9612	207.6174
144	-494.1093	185.5441	-211.8152	183.5126	-166.6149	186.8937
145	-232.9198	168.9055	-192.1170	-34.6870	-147.2488	164.0894
146	-26.4186	150.3121	-170.3479	-205.1196	-128.7118	142.6253
147	133.7812	132.5992	-149.9222	-330.8108	-111.1001	122.5010
148	251.0062	115.8762	-130.8363	-415.5258	-94.5147	103.7206
149	329.3131	100.1780	-113.0966	-478.4043	-81.4564	88.7534
150	388.0353	88.0580	-99.1557	-495.3547	-66.9743	72.5080
151	403.2223	74.5307	-83.9378	-311.7248	-56.5786	56.2883
152	220.3143	65.0824	-68.7293	-322.8899	-48.8862	47.2033
153	234.6824	58.3404	-60.6283	-325.1229	-42.1430	39.0862
154	242.5533	52.5465	-53.4790	-322.5596	-36.3485	31.9225
155	247.9386	47.6682	-47.2508	-319.1642	-31.4699	25.6790
156	254.6122	43.6817	-41.9115	-318.6676	-27.4840	20.3245
157	266.0520	40.5511	-37.4235	-324.4713	-24.3536	15.8219
158	285.3358	38.2244	-33.7521	-339.5633	-22.0255	12.1345
159	315.0679	36.6433	-30.8628	-366.4493	-20.4455	9.2304
160	357.3020	35.7453	-28.7177	-65.3799	-30.8491	29.3545
161	-1787.1599	222.2950	-268.1160	1293.0286	-241.4795	286.3140
162	-1301.5240	241.7795	-288.9698	852.4091	-218.8409	259.2710
163	-878.1111	219.7959	-262.4196	474.3388	-196.7426	232.4047
164	-516.9253	198.4272	-236.1530	158.0873	-175.3010	205.8423
165	-216.6125	177.7913	-210.3102	-98.1560	-154.6446	179.7310
166	25.1573	158.0118	-185.0226	-297.2342	-134.8829	154.3529
167	211.5647	139.1987	-160.5676	-442.7294	-116.1286	130.0659
168	346.5808	121.4059	-137.2969	-539.0113	-98.4268	106.9985
169	434.9628	104.7248	-115.3157	-591.2122	-81.8731	85.2541
170	482.0662	89.2253	-94.7362	-605.0446	-66.5389	64.9448
171	493.7915	74.9713	-75.6416	-363.8331	-53.2133	35.1465
172	253.5519	62.7103	-47.0756	-360.9804	-44.7085	23.1550
173	254.7303	55.2709	-36.3578	-347.2793	-37.2711	12.4198
174	248.0638	48.8949	-26.8919	-327.8579	-30.8942	2.9350

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	238.5061	43.5453	-18.6683	-307.5956	-25.5443	-5.3065
176	230.6617	39.1920	-11.6735	-291.0531	-21.1903	-12.3193
177	228.7497	35.7870	-5.8664	-282.3234	-17.7844	-18.1448
178	236.4271	33.2665	-1.2110	-284.9622	-15.2644	-22.8189
179	256.7295	31.5668	2.3473	-301.8654	-13.5652	-26.3956
180	291.9443	30.6059	4.8578	4.7784	-23.3655	-2.6166
181	-1835.1671	217.3087	-252.9642	1362.4456	-236.4023	273.5090
182	-1370.9366	236.7178	-276.2122	941.4459	-214.0843	246.8804
183	-967.1125	215.0698	-250.0941	581.5457	-192.3482	220.4655
184	-623.7951	194.0937	-224.2983	281.5350	-171.3371	194.4022
185	-339.2159	173.8967	-198.9651	39.1812	-151.1476	168.8595
186	-110.6788	154.5823	-174.2615	-148.6670	-131.8876	144.2647
187	65.2694	136.2600	-150.6006	-285.9067	-113.6699	120.8138
188	192.8772	119.0303	-128.1680	-377.2751	-96.5828	98.6199
189	277.1661	102.9472	-107.0614	-428.0680	-80.6670	77.7751
190	323.6529	88.0635	-87.3708	-444.1370	-65.9897	58.3557
191	338.3221	74.4419	-69.1081	-220.0046	-56.3687	31.3212
192	115.7158	65.8638	-43.3844	-227.0633	-48.3072	20.0596
193	127.2272	58.8414	-33.3482	-224.8795	-41.2874	10.0095
194	132.2761	52.8459	-24.4363	-218.2324	-35.2934	1.0852
195	135.4475	47.8466	-16.7319	-211.6454	-30.2910	-6.6443
196	140.9752	43.7900	-10.2714	-209.2692	-26.2349	-13.1311
197	152.6526	40.6358	-4.8957	-214.7927	-23.0805	-18.5287
198	173.7171	38.3169	-0.5746	-231.3298	-20.7618	-22.8700
199	206.7467	36.7663	2.7022	-261.3394	-19.2116	-26.1760
200	253.5879	35.9009	5.0742	-26.6078	-21.9154	-14.9474
201	-1486.2667	183.5355	-172.7483	1184.7612	-203.7093	192.1442
202	-1189.7269	203.9071	-194.5135	912.6677	-188.2178	173.7416
203	-927.3495	188.8016	-176.1378	672.8294	-173.1118	155.2722
204	-696.9478	174.1097	-158.1885	465.3986	-155.4222	133.2713
205	-498.4760	156.8887	-137.0623	288.4298	-141.2031	116.1174
206	-329.9945	143.1714	-120.3000	141.0180	-124.4801	95.3360
207	-190.2693	126.9799	-100.2792	21.8691	-111.2878	79.2031
208	-77.8296	114.3257	-85.1643	-71.5070	-98.6287	64.0613
209	9.7527	102.2797	-70.6084	-139.6822	-83.5828	45.5694
210	73.4448	87.8511	-52.9018	124.6411	-72.3178	30.6314
211	-193.9562	77.2347	-38.7986	93.9981	-64.5488	22.0151
212	-164.8909	70.1300	-31.0110	74.9544	-57.4434	14.1886
213	-145.7786	63.7246	-24.0085	64.8676	-51.0321	7.1514
214	-133.8525	58.0104	-17.7864	61.0045	-45.3177	0.9464
215	-126.2879	53.0226	-12.4364	60.4680	-40.3318	-4.4115
216	-120.0994	48.7830	-7.8897	60.2660	-36.0936	-8.9880
217	-112.2312	45.3012	-4.1156	57.3056	-32.6122	-12.7600
218	-99.5173	42.5880	-1.1622	48.4148	-29.8990	-15.7180
219	-78.7369	40.6288	1.0333	30.4000	-27.9356	-17.9360
220	-46.6634	39.4475	2.5427	-0.0020	-26.7550	-2.5400

ENVOLVENTE MAXIMOS TORSORES TREN IPF-B, l=30 m, via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0015	-16.7871	0.8180	24.6327	16.9025	-1.0115
2	-10.1799	-15.4247	1.8458	22.2672	15.9992	-2.5443
3	9.3285	-17.3799	4.1983	9.3298	17.8387	-4.7280
4	41.8084	-19.6827	7.2666	-34.4279	20.9400	-8.6580
5	110.3271	-22.2235	12.1483	-105.0805	23.9283	-14.0280
6	221.8911	-22.8897	18.5288	-201.4828	23.9113	-19.7119
7	338.1127	-23.4817	25.3155	-335.7177	25.8411	-27.9762
8	425.1013	-31.6965	34.6595	-411.8537	34.4805	-37.8396
9	504.5652	-41.1890	45.5835	-456.4276	42.7344	-47.4606
10	549.9760	-50.2721	56.2645	-505.2247	53.6756	-60.2371
11	597.3434	-62.0396	70.0846	-513.7013	63.8915	-72.3624
12	602.0839	-73.0315	83.2309	-515.6992	77.0046	-87.9664
13	598.5035	-86.9042	99.8196	-487.2524	91.2486	-105.0384
14	579.2062	-101.0798	117.8400	-427.3449	103.3739	-120.7114
15	668.1845	-107.0366	134.5665	-515.5772	111.8758	-140.4633
16	584.0183	-123.3095	155.2800	-400.9670	128.4496	-161.6016
17	445.6124	-141.0267	177.2339	-221.6121	143.7072	-180.5651
18	254.0898	-156.8172	196.9499	-5.5360	162.3577	-203.8296
19	25.3824	-175.9811	220.8988	258.4083	181.6759	-227.9250
20	-249.3123	-195.7001	245.6210	569.5299	168.1190	-217.8228
21	-791.8945	-6.5692	43.9206	738.8282	-23.6300	-12.6919
22	-729.8199	23.3194	12.8048	670.2650	-22.8480	-13.1059
23	-643.7452	21.8793	14.3256	580.3041	-21.1074	-15.0114
24	-536.6904	19.3984	17.4055	472.1236	-18.3071	-18.5014
25	-412.4560	15.7896	22.1189	349.8704	-14.3644	-23.6473
26	-275.6587	10.9785	28.5524	218.4136	-9.2074	-30.5322
27	-131.5179	4.8772	36.7648	83.2486	-2.7532	-39.2091
28	14.1022	-2.5539	46.8039	-49.6132	5.0325	-49.7203
29	154.7973	-11.3688	58.7008	-173.6044	14.1975	-62.0905
30	283.8041	-21.5679	72.4642	-281.9907	24.7416	-76.3233
31	394.2231	-33.1852	88.0838	-367.7964	36.6883	-92.4005
32	503.8169	-44.3259	105.5281	-452.7072	48.1398	-110.2855
33	658.9517	-52.2127	124.8721	-588.7359	56.3120	-130.0474
34	697.4479	-67.4243	145.9944	-592.7290	71.7830	-151.5609
35	682.6648	-84.4296	168.7358	-539.3031	89.0123	-174.6615
36	616.6687	-102.6572	192.9799	-431.8634	107.4355	-199.1307
37	496.0436	-121.9453	218.4905	-267.6322	126.8785	-224.6791
38	313.7044	-142.3670	244.9806	-39.6082	147.4118	-251.1709
39	67.8503	-163.7084	272.2971	253.3178	168.8258	-278.4555
40	-243.5767	-185.8641	300.2893	612.4593	159.7533	-269.0546
41	-994.8836	-0.6482	50.8922	923.9303	-30.2805	-13.4411
42	-914.5737	29.9560	13.3192	838.4565	-29.3653	-13.5841
43	-810.0406	28.3290	14.6137	730.9141	-27.4475	-15.2883
44	-686.4681	25.7053	17.5361	606.9595	-24.5146	-18.6413
45	-546.3326	21.9566	22.1497	469.4983	-20.4411	-23.7041
46	-380.8810	16.3745	28.5360	311.2981	-14.5234	-30.5537
47	-134.0461	5.5422	36.8387	83.2245	-3.3483	-39.3285
48	15.0241	-2.0126	47.0319	-52.5575	4.5497	-49.9985
49	158.5899	-10.9365	59.0871	-178.9565	13.8160	-62.5286
50	289.8882	-21.2535	73.0083	-289.2032	24.4680	-76.9181
51	402.0702	-32.9587	88.7774	-376.4344	36.4967	-93.1396
52	488.3586	-46.0457	106.3518	-434.0116	49.8892	-111.1497
53	625.8862	-57.2502	125.7032	-545.6983	61.3797	-130.9116
54	739.0200	-76.5560	146.9454	-616.0531	80.9335	-152.5350
55	718.8241	-96.0298	169.8012	-552.2189	100.6263	-175.7389
56	629.7068	-114.3060	194.1017	-421.5353	119.0970	-200.2522
57	484.2072	-133.7151	219.6131	-232.1760	138.6505	-225.7919
58	281.7112	-153.4214	246.0493	14.5714	158.4653	-252.2208
59	34.8079	-170.1767	273.2828	299.3620	175.2830	-279.4175
60	-253.0056	-186.7692	301.2230	623.9733	160.5282	-269.9694
61	-1049.5647	1.0198	52.5018	975.2260	-32.0647	-15.0423
62	-965.9513	31.7472	14.8312	886.1777	-31.1521	-15.0760
63	-859.0589	30.1594	16.0121	776.1996	-29.2704	-16.6620
64	-731.7685	27.5187	18.8032	648.5665	-26.3221	-19.8794
65	-586.3201	23.6957	23.2810	505.9480	-22.1734	-24.8031
66	-430.7624	18.7228	29.5204	356.4291	-16.8652	-31.5040
67	-264.6083	12.2741	37.5783	200.2824	-10.0727	-40.0335
68	11.3891	-1.8381	47.5584	-49.3063	4.3818	-50.4907
69	177.3785	-12.2136	59.5445	-195.2120	15.1033	-62.9530
70	306.0182	-22.5471	73.4007	-302.7352	25.7725	-77.2777
71	415.3968	-34.2712	89.1020	-387.1181	37.8160	-93.4348
72	498.5568	-47.4042	106.6123	-441.4715	51.2533	-111.3853
73	548.6170	-61.8722	125.8803	-459.1681	66.0011	-131.0681
74	559.0740	-77.6770	146.8196	-433.8650	82.0593	-152.3933
75	652.9567	-88.1200	169.3913	-502.1543	92.7289	-175.3179
76	580.2078	-106.3890	193.5775	-387.8869	111.1760	-199.7241
77	450.3691	-125.7983	219.0133	-214.1975	130.7335	-225.1924
78	260.0559	-146.2296	245.4047	21.7863	151.2750	-251.5811
79	6.2681	-167.5894	272.6050	322.6220	172.6997	-278.7481
80	-313.0454	-189.7533	300.4676	689.7347	163.4411	-268.4857
81	-1116.3148	8.4062	49.8035	1026.8711	-39.5168	-11.6853
82	-756.7336	30.1905	11.7165	679.9786	-29.5824	-12.1050
83	-652.6431	28.5640	13.6142	572.8882	-27.6588	-14.4766
84	-528.2918	25.8744	17.3717	448.3255	-24.6528	-18.7329
85	-131.2036	10.8676	23.1594	76.5004	-9.3144	-25.0364
86	142.7768	-1.0825	31.3414	-177.3984	2.9786	-33.7474
87	301.5109	-9.3741	41.6696	-322.3294	11.6189	-44.6106
88	449.8690	-18.8558	54.0749	-453.3953	21.4494	-57.5492
89	559.8919	-28.0550	68.5497	-545.5419	30.9953	-72.5486
90	674.8439	-40.0897	85.0431	-635.8167	43.3662	-89.5481
91	746.8630	-52.0206	103.5078	-682.2577	55.6256	-108.4928
92	791.6472	-65.3492	123.8559	-697.6947	69.2530	-129.2894
93	802.3727	-80.0382	145.9681	-675.4815	84.2267	-151.8088
94	772.4638	-96.0799	169.7201	-609.2154	100.5242	-175.9225
95	695.7795	-113.4089	194.9514	-493.1178	118.0637	-201.4612
96	566.8083	-131.9045	221.4714	-322.1675	136.7448	-228.1331
97	380.8773	-151.5257	248.9803	-92.0219	156.5054	-255.5819
98	134.1578	-172.1686	277.1026	200.6496	177.2469	-283.5889
99	-176.1321	-193.7065	305.6142	558.1028	198.8410	-311.9270
100	-551.6443	-215.9978	334.2757	974.6339	188.7476	-294.7097
101	-47.7027	-25.7885	53.6803	-254.4246	4.4607	-16.4688
102	263.2623	-4.8050	17.5102	-254.8489	4.8054	-17.5916
103	277.7945	-5.7699	20.0965	-267.6942	5.7698	-20.1720
104	304.1377	-7.4090	24.1349	-291.1683	7.4085	-24.2047
105	340.0832	-9.7859	29.6180	-322.9548	9.7858	-29.6824
106	382.9752	-12.9503	36.5261	-286.8161	8.5216	-37.5742
107	356.3430	-12.5220	45.8303	-352.9338	13.6991	-47.7595
108	430.1324	-18.5725	57.3886	-435.2729	21.2343	-61.7595
109	518.0578	-26.9991	72.7168	-509.6639	30.0678	-77.6813
110	595.7965	-36.7648	89.9215	-570.4103	40.2268	-95.4338
111	657.5806	-47.8462	108.8848	-592.1597	49.7182	-111.8983
112	677.9733	-58.2354	126.4863	-609.6245	62.2560	-132.7271
113	691.7596	-71.7061	148.3798	-597.1188	76.0748	-155.0158
114	673.3031	-86.4554	171.6272	-549.4081	91.1394	-178.5848

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	617.5249	-102.4088	196.0547	-449.4135	104.8513	-199.6951
116	507.5585	-116.9221	217.9095	-319.8218	121.9897	-225.1913
117	366.3516	-134.8984	244.0245	-142.7487	140.1653	-251.4211
118	176.3576	-153.8337	270.7506	84.5538	159.2542	-278.0661
119	-64.7939	-173.6335	297.7570	367.1469	176.3818	-301.2390
120	-361.6973	-191.3898	321.1554	690.6656	168.8390	-285.5504
121	-6.8423	-22.0231	55.1667	-235.5492	2.6593	-21.0583
122	244.1532	-2.9951	22.1249	-238.9085	2.9953	-22.2038
123	260.9571	-3.9189	24.7980	-254.0960	3.9194	-24.8713
124	289.1946	-5.4970	28.9760	-279.5698	5.4971	-29.0440
125	326.8715	-7.7881	34.6505	-313.2352	7.7866	-34.7127
126	371.5347	-10.8472	41.7949	-302.8988	7.8470	-43.3506
127	370.7383	-11.7332	51.8816	-367.5028	12.8269	-53.8775
128	443.1254	-17.5928	63.8163	-447.9691	20.0946	-68.3064
129	529.3632	-25.7238	79.6006	-521.6274	28.6414	-84.6996
130	606.6376	-35.1984	97.2991	-582.8255	38.5258	-102.9596
131	669.1286	-46.0178	116.7863	-606.5004	47.8264	-119.8822
132	691.7455	-56.2097	134.8684	-626.4402	60.1201	-141.2702
133	708.2763	-69.4675	157.3153	-617.3289	73.7425	-164.1125
134	693.4544	-83.9932	181.1120	-573.8456	88.5939	-188.2239
135	642.0962	-99.7572	206.0621	-478.6724	102.1761	-209.7752
136	537.1023	-114.2004	228.3428	-354.3029	119.2256	-235.7503
137	401.1873	-132.0780	254.9111	-182.6798	137.3239	-262.4026
138	216.6442	-150.9676	282.0140	39.1722	156.3791	-289.3818
139	-19.1453	-170.7342	309.3057	316.4426	173.4859	-312.7951
140	-310.9145	-188.4846	332.8827	633.6833	165.8961	-296.6923
141	-64.3048	-20.9820	44.4500	-163.5632	0.5511	-7.7487
142	172.6930	-0.8920	8.7082	-171.0857	0.8924	-8.7665
143	194.1662	-1.8184	11.1635	-190.8910	1.8189	-11.2178
144	227.6131	-3.3923	15.0165	-221.5034	3.3918	-15.0663
145	271.0793	-5.6877	20.2290	-260.8402	5.6873	-20.2751
146	322.0876	-8.7614	26.7767	-266.0426	6.4074	-28.9381
147	337.5006	-10.3094	36.7356	-354.8338	12.4665	-40.2881
148	434.7152	-17.2190	49.3482	-442.2645	19.7735	-53.4431
149	528.5374	-25.4644	63.7103	-501.9471	26.8918	-66.0037
150	592.3503	-33.4882	77.4529	-569.6631	36.6341	-82.3218
151	661.7851	-44.1904	94.8844	-619.3292	47.7204	-100.2017
152	710.6992	-56.2068	113.8245	-645.0453	60.1034	-119.5439
153	733.1844	-69.5754	134.1821	-640.9537	73.8131	-140.2601
154	723.4147	-84.2156	155.8393	-586.0751	86.4553	-159.0835
155	660.5601	-97.7914	175.5367	-508.0889	102.4788	-182.0358
156	572.4754	-114.6808	199.2843	-385.2497	119.6252	-205.9944
157	437.6756	-132.7006	223.9691	-213.5010	137.8481	-230.8093
158	252.4096	-151.6975	249.4255	10.3132	157.0035	-256.1500
159	13.9344	-171.6222	275.3394	292.5683	174.3159	-278.5825
160	-283.7054	-189.6145	298.2655	625.3262	166.7834	-268.6923
161	-710.6503	-15.5275	50.8396	678.8616	-12.5191	-14.8041
162	-657.5251	10.4094	14.9917	623.5631	-9.9288	-15.2919
163	-596.4247	8.7407	16.5386	559.4686	-7.9724	-17.2177
164	-516.6315	6.2881	19.5816	478.7822	-5.2109	-20.6621
165	-420.0437	2.7249	24.1893	384.2596	-1.3224	-25.6918
166	-311.0758	-2.0565	30.4470	280.6565	3.8006	-32.3904
167	-194.8321	-8.1091	38.4041	173.2988	10.2016	-40.8018
168	-75.8469	-15.2516	48.1200	66.4642	17.6992	-50.9794
169	50.4712	-22.1853	59.6259	-46.9790	24.9841	-62.9514
170	176.6278	-30.0900	72.9570	-157.1689	33.2329	-76.7422
171	314.7295	-37.4713	88.1339	-279.2289	40.9438	-92.3717
172	487.7959	-42.9196	105.2594	-439.0813	46.7141	-109.9371
173	545.2508	-57.2803	124.1889	-464.5413	61.3672	-129.2790
174	563.6262	-72.9975	144.8092	-447.4390	77.3577	-150.2991
175	536.6332	-90.0128	167.0414	-381.8230	94.5988	-172.8929
176	458.5664	-108.2580	190.7601	-262.3201	113.0327	-196.8409
177	396.9566	-124.4695	215.7937	-163.2900	129.4058	-221.9288
178	217.0946	-144.5580	241.9222	61.5680	149.6057	-248.0718
179	-31.2102	-165.8198	268.9214	356.7506	170.9451	-275.0551
180	-347.1855	-187.9917	296.6543	721.1991	161.4515	-266.1899
181	-1070.2524	3.7516	53.6983	992.1847	-35.1018	-16.9920
182	-983.4066	34.7830	16.7717	899.2605	-34.1616	-17.0033
183	-873.3262	33.1726	17.8754	785.9860	-32.2418	-18.5106
184	-743.5053	30.5003	20.5424	655.7021	-29.2445	-21.6054
185	-596.5378	26.6357	24.8562	511.4324	-25.0370	-26.3681
186	-439.7618	21.5945	30.8935	360.5882	-19.6409	-32.8727
187	-277.0217	15.2712	38.7227	207.3311	-12.9546	-41.1813
188	-114.0843	7.5908	48.3786	57.6289	-4.9134	-51.3226
189	44.9939	-1.6200	59.8982	-84.0738	4.6562	-63.3293
190	195.9507	-12.6476	73.2878	-212.9809	16.0328	-77.2102
191	389.9660	-31.0302	88.6494	-369.5048	34.7427	-93.0353
192	474.0624	-44.2762	105.7719	-425.1799	48.2997	-110.5676
193	525.1557	-58.8628	124.5378	-444.3877	63.1736	-129.7756
194	536.8823	-74.7418	145.0966	-405.4650	76.9921	-147.9989
195	488.0749	-89.5458	164.5256	-336.5530	94.2215	-170.3575
196	407.0591	-107.7232	187.8472	-215.2622	112.5901	-193.9800
197	271.6678	-126.9879	212.4940	-37.4678	132.0085	-218.7340
198	78.2813	-147.2376	238.1701	199.9172	152.3634	-244.4329
199	-175.5943	-168.3647	264.6733	498.9365	173.5553	-270.9047
200	-491.3356	-190.2128	291.7508	859.8792	163.8679	-261.4210
201	-1096.6885	7.3351	49.8148	1031.6146	-38.5128	-13.3165
202	-1026.3812	38.3239	12.9557	964.6398	-38.0214	-13.0765
203	-949.6475	37.4294	13.9712	887.5386	-37.0411	-14.3110
204	-857.1933	35.7491	16.1465	783.1330	-34.6932	-17.3869
205	-568.7624	25.1929	19.8925	519.1449	-24.5285	-20.6781
206	-432.0303	20.4242	24.4697	370.9926	-18.7951	-26.6118
207	-320.5495	16.2530	31.2161	279.8222	-15.2837	-32.4375
208	-223.5649	12.2070	37.6647	188.0947	-11.1273	-39.0649
209	-126.2893	7.4788	45.4332	77.1300	-4.9945	-48.7612
210	-10.8721	0.7395	55.9990	-10.0791	0.6724	-57.8948
211	79.3859	-5.5831	66.0299	-111.7106	8.7490	-70.2653
212	186.5203	-13.9487	79.3324	-186.6513	15.7041	-81.7009
213	257.4596	-21.9863	91.6103	-264.5496	25.8451	-96.6906
214	333.5101	-32.8165	107.4396	-305.0078	34.9140	-110.2595
215	370.1857	-42.6220	122.0306	-325.6930	44.8410	-124.9981
216	385.2768	-53.2971	137.4463	-337.0527	58.0674	-143.6255
217	397.4868	-68.7802	156.8828	-311.2686	71.3338	-160.2270
218	378.5725	-87.2681	174.4181	-270.7930	92.6974	-181.3886
219	306.8509	-105.5243	196.2534	-162.0816	108.3966	-199.9166
220	178.2728	-119.9042	215.3514	-0.2586	132.5934	-215.3616

ENVOLVENTE MINIMOS FLECTORES TREN IPF-B, l=30 m, via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0012	-4.4066	-0.7334	7.2042	4.4066	0.7334
2	-42.4646	-25.9774	-0.8839	84.9385	25.9774	0.8839
3	-84.9329	-25.9751	-0.9899	127.4057	25.9751	0.9899
4	-127.3969	-25.9669	-1.1503	169.8600	25.9669	1.1502
5	-169.8569	-25.9706	-1.3643	212.3226	25.9706	1.3642
6	-212.3161	-25.9583	-1.6309	254.7627	25.9583	1.6309
7	-254.7632	-25.9595	-1.9515	297.2106	25.9595	1.9515
8	-297.2137	-25.9765	-2.3259	339.6888	25.9765	2.3260
9	-339.6861	-25.9834	-2.7520	391.0733	33.7340	6.3012
10	-391.0524	-33.7422	-6.7825	447.9209	35.7412	4.1368
11	-447.8984	-35.7274	-4.6723	507.2944	36.7275	3.3791
12	-507.2770	-36.7099	-3.9675	569.5440	38.7109	1.3644
13	-569.5311	-38.6976	-2.0032	634.3075	40.6952	-0.5735
14	-634.3056	-40.6931	-0.1188	701.7375	41.6905	-1.0945
15	-701.7197	-41.6995	0.3425	771.9601	43.6999	-2.8557
16	-771.9411	-43.7040	2.0578	844.7347	45.7037	-4.5351
17	-844.9238	-47.5253	6.6088	923.4287	48.5244	-7.7124
18	-967.1353	-100.7756	68.3800	1133.7847	102.7772	-70.7734
19	-1169.5721	-146.5126	121.5778	1410.2756	148.5131	-123.9258
20	-1439.8123	-187.7935	170.8528	1747.8816	148.9163	-127.7565
21	-1772.2819	220.7228	-263.4535	1275.3534	-236.0074	275.9057
22	-1294.4977	219.2875	-256.4928	913.8107	-178.2692	192.0701
23	-962.9119	131.9017	-133.4053	699.1627	-131.9033	133.6652
24	-742.9070	83.2545	-70.1071	576.4323	-83.2559	70.3478
25	-613.1201	46.0791	-16.9501	520.9833	-46.0787	17.1712
26	-585.1798	-0.8144	4.7083	586.8114	0.8138	-4.5075
27	-586.8176	-0.8076	3.7963	588.4338	0.8066	-3.6150
28	-588.4280	-0.7999	2.8799	590.0260	0.7972	-2.7178
29	-590.0296	-0.7940	1.9618	591.6208	0.7915	-1.8199
30	-591.6022	-0.7943	1.0440	593.2003	0.7962	-0.9932
31	-593.1888	-0.7688	0.1920	594.7188	0.7679	-0.0180
32	-594.6969	-0.7748	-0.8014	596.2525	0.7767	0.8132
33	-596.2451	-0.7707	-1.6590	612.9465	18.5271	-4.2460
34	-612.9248	-18.5407	3.3812	652.4096	20.5416	-5.9517
35	-652.4043	-20.5527	5.0639	695.9187	22.5525	-7.5914
36	-695.9066	-22.5504	6.6789	743.4162	24.5508	-9.1592
37	-757.7003	-52.8077	23.1479	865.7193	54.8072	-25.5743
38	-909.2220	-96.1239	85.6008	1103.8629	98.1230	-87.9670
39	-1156.0693	-146.6382	150.8783	1451.7239	148.6385	-153.1784
40	-1496.4092	-194.9989	211.1037	1888.4380	157.4076	-166.8739
41	-1918.0115	225.5228	-259.3230	1418.0664	-200.5643	209.8120
42	-1438.2266	183.8719	-190.6636	1070.4233	-183.8725	190.9822
43	-1122.7253	137.6086	-132.7366	847.4644	-137.6088	133.0326
44	-896.3167	89.1567	-70.0149	717.9754	-89.1572	70.2887
45	-759.9366	47.8594	-10.1566	664.1992	-47.8619	10.4079
46	-724.8366	6.3087	4.6226	712.2229	-6.3101	-4.3935
47	-712.2231	6.3090	3.5137	699.6082	-6.3038	-3.3075
48	-699.6064	6.2836	2.4298	687.0419	-6.2819	-2.2464
49	-687.0381	6.2844	1.3604	674.4659	-6.2851	-1.1993
50	-674.4665	6.2725	0.3112	661.9202	-6.2705	-0.1729
51	-661.9275	6.2855	-0.7191	649.3558	-6.2852	0.8361
52	-649.3458	6.3018	-1.7284	636.7369	-6.3062	1.8228
53	-636.7443	6.3378	-2.7200	634.0606	12.2637	-3.7952
54	-634.0451	-12.2713	2.8949	661.0071	14.2713	-5.4655
55	-661.0007	-14.2631	4.5605	691.9460	16.2615	-7.0898
56	-691.9170	-16.2599	6.1850	726.8622	18.2593	-8.6662
57	-747.7584	-57.4632	24.9727	865.1285	59.4632	-27.4004
58	-909.4443	-101.1090	88.0301	1114.1301	103.1086	-90.3967
59	-1167.0383	-151.7926	153.4692	1473.1121	153.7924	-155.7696
60	-1518.1290	-200.2250	213.6904	1921.0623	162.6698	-169.2971
61	-1953.7084	225.3848	-258.6472	1456.5574	-200.5057	208.9279
62	-1476.6437	183.8163	-189.8176	1109.0891	-183.8174	190.1382
63	-1161.5107	137.5932	-131.8338	886.3857	-137.5904	132.1313
64	-935.5681	89.1963	-68.9760	757.2172	-89.1954	69.2521
65	-799.5427	48.0027	-8.9922	703.5532	-48.0049	9.2453
66	-761.5326	8.7279	6.1774	744.0859	-8.7275	-5.9466
67	-744.0981	8.7270	5.0218	726.6475	-8.7247	-4.8139
68	-726.6380	8.6967	3.8915	709.2536	-8.6956	-3.7068
69	-709.2544	8.7018	2.7909	691.8554	-8.7057	-2.6286
70	-691.8384	8.7341	1.7166	674.3679	-8.7344	-1.5771
71	-674.3556	8.7438	0.6743	656.8754	-8.7445	-0.5571
72	-656.8941	8.7528	-0.3449	639.3873	-8.7532	0.4394
73	-639.4118	8.7428	-1.3465	629.0191	9.7529	-5.0258
74	-629.0214	-9.7692	4.1296	650.9711	11.7686	-6.7048
75	-650.9683	-11.7387	5.8142	676.8567	13.7366	-8.3482
76	-676.8475	-13.7296	7.4624	706.7201	15.7287	-9.9483
77	-730.9110	-58.1938	25.3854	849.7017	60.1943	-27.8190
78	-895.2921	-101.8848	88.1058	1101.4468	103.8850	-90.4796
79	-1155.5050	-152.5987	153.4186	1463.0719	154.5976	-155.7268
80	-1508.7661	-201.0464	213.5927	1913.0709	163.8883	-172.3302
81	-1944.6787	223.8714	-232.6089	1456.1169	-199.3184	187.7613
82	-1476.5312	182.6620	-168.9836	1111.1333	-182.6623	169.3061
83	-1164.5148	136.5800	-112.8674	891.3019	-136.5799	113.1663
84	-941.9503	88.6333	-55.0208	764.6448	-88.6353	55.2958
85	-808.0630	48.4076	-5.6091	711.2233	-48.4091	5.8625
86	-759.5703	15.7321	-14.0453	728.0996	-15.7306	14.2754
87	-728.0767	15.7206	-15.1801	696.6275	-15.7211	15.3873
88	-696.5994	15.7208	-16.2611	665.1455	-15.7224	16.4448
89	-665.1260	15.7171	-17.2973	633.6902	-15.7146	17.4584
90	-633.6582	15.7036	-18.2876	602.2499	-15.7031	18.4259
91	-602.1975	15.7099	-19.2200	570.7713	-15.7102	19.3349
92	-570.7224	15.6955	-20.1077	539.3370	-15.6935	20.1995
93	-539.3102	15.6837	-20.9447	507.9389	-15.6840	21.0132
94	-507.9052	15.6820	-21.7360	496.4676	3.4552	12.5611
95	-496.4397	-3.4545	-13.2617	505.7580	5.4545	10.6801
96	-505.7358	-5.4590	-11.3551	519.0768	7.4594	8.8169
97	-565.8312	-61.4936	34.3689	691.2668	63.4934	-36.8585
98	-736.2776	-106.7737	103.9634	952.2958	108.7729	-106.3992
99	-999.8897	-162.1477	180.9381	1326.6777	164.1478	-183.3115
100	-1355.2817	-196.2490	225.1951	1744.3513	161.1794	-187.7061
101	-1716.6729	207.0463	-212.7472	1364.9423	-186.6356	181.9104
102	-1385.2853	158.0848	-148.0395	1108.6051	-158.0850	148.3307
103	-1133.1005	120.3794	-105.3653	922.4076	-120.3793	105.6358
104	-952.2003	82.2753	-64.9147	808.1969	-82.2721	65.1656
105	-839.1298	48.9364	-30.6799	753.4800	-48.9365	30.9092
106	-800.9261	17.3660	-63.3591	770.5159	-17.3692	63.5684
107	-770.4238	17.3708	-64.4092	740.0090	-17.3716	64.5973
108	-739.9292	17.3869	-65.4168	709.4872	-17.3896	65.5841
109	-709.4067	17.3972	-66.3799	678.9475	-17.4002	66.5278
110	-678.8542	17.4232	-67.3075	648.3555	-17.4242	67.4341
111	-648.2764	17.4306	-68.1880	617.7584	-17.4287	68.2943
112	-617.6646	17.4078	-69.0230	587.1959	-17.4045	69.1086
113	-587.1207	17.3918	-69.8275	564.2830	1.4239	60.1955
114	-564.1978	-1.4205	-60.8888	568.0856	3.4192	58.3008

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	-567.9922	-3.3994	-58.9753	574.8941	4.3998	57.7472
116	-574.8116	-4.4250	-58.4028	584.9611	6.4269	55.8744
117	-615.5090	-60.2225	14.4956	722.8187	62.2234	-16.9879
118	-756.8948	-105.1349	91.0907	942.3108	107.1340	-93.5432
119	-972.7420	-140.8564	143.3997	1220.2260	141.8558	-144.4753
120	-1260.6881	-182.8095	200.4934	1576.8628	148.7168	-167.9291
121	-1533.1611	202.4552	-205.3712	1141.7997	-179.0678	171.0294
122	-1160.1184	164.5759	-154.4957	872.0781	-164.5758	154.7092
123	-915.4650	124.2511	-108.1932	697.9940	-124.2505	108.3924
124	-738.4125	82.0541	-64.0942	594.7919	-82.0529	64.2780
125	-629.2291	46.2173	-29.9560	548.3292	-46.2148	30.1242
126	-598.4715	4.1552	-65.5926	591.1917	-4.1584	65.7458
127	-591.1251	4.1678	-66.3952	583.8212	-4.1735	66.5338
128	-583.7405	4.2057	-67.1896	576.3728	-4.2051	67.3122
129	-576.2789	4.2026	-67.9699	568.9144	-4.2028	68.0787
130	-568.8380	4.2053	-68.7458	561.4697	-4.2085	68.8395
131	-561.3813	4.2202	-69.5071	553.9817	-4.2205	69.5859
132	-553.9029	4.1835	-70.2666	546.5788	-4.1802	70.3295
133	-546.5001	4.1867	-71.0142	563.1127	13.8056	63.5151
134	-563.0316	-13.8137	-64.2012	588.6052	15.8136	61.6216
135	-588.5101	-15.8088	-62.3048	617.1345	16.8087	61.0899
136	-617.0410	-16.8047	-61.7868	648.8545	18.8026	59.2751
137	-670.4582	-63.6289	9.1268	783.7301	65.6274	-11.5992
138	-813.8057	-98.4420	72.2029	987.5106	100.4409	-74.6324
139	-1031.7764	-143.2330	141.0457	1283.4219	144.2319	-142.0938
140	-1322.3014	-185.0422	198.7485	1640.6300	149.1799	-162.3191
141	-1578.7407	206.2391	-243.7549	1153.3339	-220.8258	252.5605
142	-1172.3754	205.8877	-235.3096	867.1874	-166.9410	185.8334
143	-910.9671	125.2839	-136.3494	685.4694	-125.2843	136.5533
144	-724.5443	81.4264	-86.0680	577.9952	-81.4270	86.2562
145	-610.8305	43.6751	-39.7141	532.2145	-43.6753	39.8865
146	-585.6119	-1.5685	-38.3668	588.4279	1.5675	38.5236
147	-588.3934	-1.5577	-39.1864	591.1822	1.5564	39.3292
148	-591.1235	-1.5775	-40.0167	593.9590	1.5773	40.1446
149	-593.9081	-1.5465	-40.8379	596.6867	1.5446	40.9506
150	-596.6465	-1.5547	-41.6807	599.4370	1.5581	41.7771
151	-599.3884	-1.5508	-42.5149	602.1700	1.5529	42.5959
152	-602.1173	-1.5764	-43.3482	610.7594	18.6232	35.0188
153	-610.7121	-18.6040	-35.8006	645.3988	20.6035	33.2154
154	-645.3448	-20.6038	-34.0160	683.3301	21.6033	32.7956
155	-683.2692	-21.5908	-33.6160	724.5304	23.5910	31.0971
156	-724.4721	-23.6083	-31.9326	768.9691	25.6081	29.4559
157	-777.2284	-59.0120	13.7203	885.0460	61.0120	-16.1527
158	-915.8756	-101.0889	85.6895	1099.0359	103.0904	-88.0729
159	-1132.5886	-146.4779	148.8115	1397.1396	147.4779	-149.8076
160	-1427.9700	-189.0316	203.3201	1770.8062	151.7297	-161.2065
161	-1797.9404	219.2442	-264.9539	1304.7040	-233.9385	277.7797
162	-1323.1084	217.1901	-258.3895	938.1003	-176.0178	192.9717
163	-984.0699	129.5611	-134.1765	724.9277	-129.5606	134.4145
164	-763.8757	91.4406	-84.9264	580.9749	-91.4418	85.1473
165	-632.8841	43.5638	-16.2201	545.7505	-43.5627	16.4227
166	-593.6023	4.0546	8.8358	585.5020	-4.0515	-8.6513
167	-585.5128	4.0301	7.9235	577.4537	-4.0313	-7.7576
168	-577.4535	4.0307	7.0297	569.3942	-4.0321	-6.8817
169	-569.4067	4.0373	6.1386	561.3400	-4.0358	-6.0081
170	-561.3265	4.0351	5.2685	553.2550	-4.0325	-5.1580
171	-553.2564	4.0189	4.4186	545.2268	-4.0164	-4.3257
172	-545.2416	4.0010	3.5661	537.2384	-4.0009	-3.4907
173	-537.2502	4.0204	2.7302	535.9111	13.0585	-9.0440
174	-535.9163	-13.0474	8.2757	564.4229	15.0467	-10.8645

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	-564.4282	-15.0496	10.0888	596.9518	17.0489	-12.6351
176	-596.9552	-17.0409	11.8603	633.4549	19.0422	-14.3602
177	-655.8298	-58.2639	33.9047	774.7910	60.2648	-36.3509
178	-812.5477	-97.1164	88.4649	1009.2268	99.1159	-90.8526
179	-1064.1583	-147.6064	153.0127	1361.8334	149.6058	-155.3328
180	-1407.9838	-195.9873	212.8834	1803.1185	158.5053	-168.0682
181	-1842.7771	214.9471	-250.4185	1392.5416	-190.9248	200.9514
182	-1411.7927	174.6748	-182.1688	1071.0878	-174.6753	182.4877
183	-1122.2622	129.7496	-125.4001	869.1858	-129.7501	125.6970
184	-918.3178	83.0184	-63.8722	756.3953	-83.0170	64.1458
185	-798.6345	43.6506	-5.7206	713.4927	-43.6505	5.9734
186	-746.6923	22.1477	7.8062	703.4865	-22.1513	-7.5774
187	-703.4882	22.1646	6.7439	660.2567	-22.1663	-6.5393
188	-660.2713	22.1633	5.7352	617.0386	-22.1624	-5.5531
189	-617.0418	22.1645	4.7986	573.8124	-22.1653	-4.6400
190	-573.8227	22.1787	3.9258	530.5549	-22.1800	-3.7815
191	-530.5590	22.1829	3.0285	487.2893	-22.1833	-2.9121
192	-487.2839	22.1719	2.3591	444.0376	-22.1701	-2.2817
193	-444.0385	22.1532	1.7988	400.8229	-22.1542	-1.7374
194	-400.8196	22.1696	1.1502	357.5770	-22.1721	-1.1008
195	-357.5754	22.1763	0.5335	344.1779	-2.8796	-10.6952
196	-344.1727	2.8771	10.3066	341.3755	-0.8775	-12.9070
197	-387.5302	-51.7169	40.6054	491.1296	53.7168	-43.1598
198	-533.4560	-95.9660	100.6100	723.2709	97.9664	-103.1206
199	-767.2324	-135.5726	150.7541	1035.7084	139.5728	-155.8626
200	-1088.8436	-185.2184	212.4822	1483.5327	184.3226	-224.7576
201	-1512.9475	151.5664	-124.1292	1266.9620	-167.8621	140.9148
202	-1278.8033	144.2699	-113.4198	1075.3866	-144.2714	113.6848
203	-1091.6393	112.1288	-75.4833	933.5350	-112.1244	75.6646
204	-956.4561	77.2249	-35.2092	847.5759	-77.2198	35.4047
205	-880.8838	39.0058	8.7856	825.8873	-39.0056	-8.6234
206	-825.8867	39.0212	8.2774	770.8616	-39.0179	-8.1780
207	-770.8605	39.0239	7.7968	715.8389	-39.0241	-7.5945
208	-715.8506	39.0128	6.5078	660.8361	-39.0154	-6.3066
209	-660.8246	39.0274	5.9319	605.7881	-39.0300	-5.8337
210	-605.7780	39.0540	5.4809	550.6954	-39.0569	-5.3631
211	-550.6983	39.0537	4.8445	495.6261	-39.0581	-4.7124
212	-495.6395	39.0618	4.2726	440.5626	-39.0654	-4.1791
213	-440.5603	39.0782	3.9348	385.4578	-39.0760	-3.8750
214	-385.4566	39.0609	3.6749	330.3815	-39.0586	-3.5990
215	-330.3925	39.0522	3.2401	275.3292	-39.0518	-3.1710
216	-275.3283	39.0526	3.0284	220.2672	-39.0533	-2.9906
217	-220.2703	39.0581	2.8619	165.2016	-39.0596	-2.8208
218	-165.2041	39.0673	2.6518	110.1181	-39.0684	-2.6161
219	-110.1215	39.0589	2.5259	55.0516	-39.0560	-2.5124
220	-55.0537	39.0525	2.4950	-0.0019	-39.0503	-2.4923

ENVOLVENTE MINIMOS CORTANTES TREN IPF-B, l=30 m, via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0083	-11.7228	-19.5912	28.3748	26.5535	-0.2179
2	-6.5458	-13.2228	-17.7756	27.0629	28.5127	-2.5385
3	13.5950	-16.0929	-14.6126	14.9895	31.2671	-5.5327
4	41.5337	-19.7513	-10.7166	-22.0083	35.7240	-10.2905
5	91.4818	-25.1171	-5.0087	-69.4719	41.5374	-16.4868
6	149.0558	-31.8026	2.1725	-102.0415	47.5396	-22.9713
7	188.9824	-38.6879	9.6673	-149.6920	55.7626	-31.9435
8	241.3494	-47.7700	19.6600	-189.7897	65.2694	-42.4556
9	283.6588	-58.0990	31.1929	-195.8403	74.3598	-52.6855
10	289.5386	-67.9965	42.4353	-203.7753	86.1154	-66.0235
11	295.0909	-80.5395	56.7648	-169.1733	97.1069	-78.6584
12	256.0728	-92.2699	70.3647	-126.1989	110.9584	-94.7158
13	206.8380	-106.8539	87.3488	-50.9394	125.9138	-112.1833
14	123.7178	-122.4961	105.7008	75.1916	139.5055	-128.1878
15	-11.6713	-136.7284	122.5384	224.8545	156.2830	-148.0508
16	-171.7115	-154.1199	143.1839	417.1683	173.9754	-169.1208
17	-375.2551	-172.3710	164.9754	662.5262	189.7670	-187.9223
18	-632.4052	-188.6922	184.4320	945.1075	208.9481	-210.9275
19	-927.0349	-208.3247	208.0457	1275.7371	228.7348	-234.6874
20	-1269.6891	-228.5258	232.3467	1655.6050	215.6601	-224.1644
21	22.8407	-32.8700	8.0468	-187.8238	26.8629	2.3856
22	198.2988	-9.8347	-24.1156	-160.6413	27.8312	0.1262
23	189.6880	-11.5407	-20.8458	-148.6185	29.5374	-3.1437
24	195.3562	-14.0610	-16.5025	-149.2472	32.0577	-7.4873
25	212.2758	-17.4522	-11.0234	-159.3868	35.4488	-12.9660
26	236.9621	-21.7779	-4.3609	-175.4198	39.7746	-19.6286
27	265.3880	-27.0879	3.5253	-221.6027	46.5438	-38.7436
28	321.4630	-34.8842	23.8958	-274.3321	55.3594	-50.8015
29	381.3156	-44.7437	37.2228	-315.3894	65.5690	-64.6018
30	426.5062	-56.0095	52.2941	-337.8258	77.1798	-80.1426
31	450.0112	-68.7087	69.0908	-334.5577	90.2084	-97.3971
32	444.7299	-82.7922	87.5683	-298.7128	104.6027	-116.3154
33	403.8509	-98.2399	107.6638	-223.6026	120.3358	-136.8288
34	320.8383	-114.9950	129.2900	-103.0035	137.3503	-158.8461
35	189.7058	-132.9987	152.3423	68.7728	155.5780	-182.2573
36	5.0679	-152.1657	176.6994	296.7286	174.9407	-206.8397
37	-237.6644	-172.4150	202.1277	584.9900	195.3448	-232.3057
38	-542.1074	-193.6533	228.3318	936.7530	216.6947	-258.5117
39	-910.9063	-215.7353	255.1599	1354.1029	238.8493	-285.3079
40	-1345.5548	-238.5427	282.4626	1837.7665	230.4285	-275.2173
41	153.3069	-37.4825	13.5831	-386.1139	33.1710	3.3259
42	397.2626	-16.1594	-24.7948	-346.9310	34.1628	0.7203
43	376.8723	-17.9011	-21.1683	-323.0585	35.9043	-2.9009
44	370.8224	-20.4638	-16.4706	-311.8820	38.4675	-7.5928
45	375.9984	-23.9067	-10.6432	-310.1731	41.9106	-13.4151
46	388.8246	-28.2865	-3.6448	-314.2391	46.2893	-20.4081
47	405.2317	-33.6485	4.5641	-319.9192	51.6510	-28.6116
48	420.7111	-40.0263	14.0030	-361.1717	60.1755	-52.1531
49	468.9707	-49.6036	38.7968	-393.9810	70.4863	-66.2366
50	505.8074	-60.9741	54.1281	-407.6572	82.1918	-82.0359
51	520.4495	-73.7649	71.1591	-395.1843	95.3060	-99.5198
52	505.8526	-87.9331	89.8383	-349.7085	109.7798	-118.6341
53	455.2363	-103.4575	110.1025	-264.6113	125.5901	-139.3087
54	362.1243	-120.2881	131.8626	-133.6736	142.6688	-161.4514
55	220.5700	-138.3537	155.0127	48.7047	160.9533	-184.9483
56	25.2614	-157.5676	179.4283	287.4533	180.3618	-209.5771
57	-228.3121	-177.8525	204.8783	586.6358	200.7910	-235.0553
58	-543.7125	-199.1086	231.0756	949.3929	222.1557	-261.2452
59	-923.5186	-221.1961	257.8623	1377.7511	244.3056	-287.9955
60	-1369.1575	-243.9968	285.1151	1872.6082	235.7589	-277.8598
61	193.3443	-38.4340	13.6514	-433.2177	34.3170	3.6354
62	444.3508	-17.3114	-25.0575	-391.7429	35.3078	0.9813
63	421.6858	-19.0564	-21.4008	-365.5866	37.0526	-2.6691
64	413.3574	-21.6229	-16.6836	-352.1290	39.6199	-7.3807
65	416.2461	-25.0741	-10.8471	-348.1150	43.0708	-13.2109
66	426.7580	-29.4598	-3.8482	-349.8604	47.4553	-20.2036
67	440.8229	-34.8309	4.3540	-353.1829	52.8262	-28.3998
68	453.9184	-41.2175	13.7882	-387.8061	61.0896	-52.0277
69	495.5150	-50.5308	38.6633	-418.7359	71.4168	-66.0605
70	530.4246	-61.9355	53.9463	-430.3927	83.1573	-81.8128
71	542.9864	-74.7264	70.9263	-415.8281	96.2676	-99.2488
72	526.2654	-88.9181	89.5622	-368.1697	110.7636	-118.3240
73	473.4387	-104.4394	109.7931	-280.8791	126.5647	-138.9700
74	378.1048	-121.2648	131.5254	-147.7487	143.6434	-161.0883
75	234.3557	-139.3501	154.6545	36.8811	161.9555	-184.5699
76	36.8118	-158.5936	179.0568	277.8901	181.3770	-209.1922
77	-218.9842	-178.8801	204.5015	579.2940	201.8118	-234.6697
78	-536.5832	-200.1256	230.6939	944.1854	223.1674	-260.8594
79	-918.4692	-222.2179	257.4925	1374.5862	245.3246	-287.6244
80	-1366.0602	-245.0273	284.7440	1871.2657	236.7115	-276.7516
81	157.1925	-32.9726	1.8421	-409.5220	28.9591	14.1301
82	420.8667	-11.9723	-35.3417	-378.9104	29.9764	11.2548
83	409.1094	-13.7576	-31.2607	-363.5809	31.7614	7.1799
84	411.5837	-16.3805	-25.9189	-360.8054	34.3837	1.8448
85	425.0640	-19.9050	-19.2557	-367.2383	37.9085	-4.8128
86	445.8668	-24.3888	-11.2213	-379.0708	42.3929	-12.8407
87	469.7916	-29.8701	-1.7869	-392.0343	47.8734	-22.2685
88	492.2297	-36.3863	9.0547	-435.3311	56.3195	-47.7836
89	542.1525	-45.8974	35.9868	-474.1112	66.8414	-63.9848
90	584.5348	-57.4964	53.5788	-492.6823	78.7766	-82.0826
91	603.6020	-70.5040	73.0112	-484.0162	92.1129	-101.9945
92	592.3467	-84.9088	94.2053	-441.2601	106.8163	-123.6377
93	544.0219	-100.6512	117.0338	-357.8891	122.8434	-146.8733
94	452.2525	-117.7147	141.3573	-227.7154	140.1628	-171.5585
95	311.1623	-136.0237	167.0045	-45.2616	158.6823	-197.5137
96	115.6174	-155.4545	193.7783	194.1394	178.2984	-224.4383
97	-138.6266	-175.9498	221.3652	494.3457	198.9333	-251.9659
98	-454.8674	-197.3853	249.3924	858.1265	220.4674	-279.8780
99	-835.2657	-219.6293	277.6253	1287.1025	242.7673	-307.9372
100	-1280.8127	-242.5381	305.8265	1774.8987	233.2918	-290.2599
101	169.9005	-41.0145	0.1192	-431.5988	35.4379	16.0958
102	442.4934	-20.6481	-34.3856	-392.5701	36.3997	13.3076
103	418.1542	-22.2906	-30.2279	-365.3574	38.0418	9.1559
104	404.7026	-24.6691	-24.7134	-347.7435	40.4199	3.6472
105	399.5746	-27.8352	-17.8488	-337.0745	43.5863	-3.2118
106	399.8765	-31.8286	-9.6622	-330.3875	47.5802	-11.3925
107	402.3729	-36.7011	-0.1775	-324.3581	52.4526	-20.8726
108	403.5142	-42.4664	10.5637	-315.4109	58.2173	-31.6071
109	399.5249	-49.1381	22.5113	-335.7312	67.3678	-55.6613
110	422.4868	-59.2326	47.7272	-343.9893	78.4458	-74.2355
111	431.0387	-71.2421	67.3879	-310.8870	88.8654	-91.3968
112	395.8598	-82.5643	85.5572	-271.1434	102.3361	-112.7938
113	351.7572	-96.9549	107.8770	-199.1467	117.0748	-135.5096
114	273.2518	-112.5812	131.4117	-89.8470	133.0164	-159.3656

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	155.4703	-129.3760	155.9793	73.6202	147.5698	-180.6160
116	-18.1969	-144.7140	177.8245	268.3551	165.5330	-206.1022
117	-224.5276	-163.4574	203.7797	511.8949	184.4754	-232.1722
118	-480.6832	-183.0943	230.1874	806.5852	204.2660	-258.4997
119	-788.5794	-203.5211	256.7267	1157.0247	222.0206	-281.2044
120	-1152.3571	-221.8306	279.5064	1548.3799	215.0310	-264.8975
121	252.8801	-41.2608	-7.7714	-447.8186	37.6486	20.8828
122	457.7617	-22.8183	-39.0424	-404.0383	38.5700	17.9668
123	428.1779	-24.3973	-34.7061	-371.6908	40.1494	13.6359
124	409.2904	-26.6900	-28.9750	-348.7916	42.4416	7.9098
125	398.7265	-29.7481	-21.8580	-332.8756	45.4980	0.7990
126	393.7762	-33.6304	-13.3904	-321.1332	49.3817	-7.6633
127	391.3362	-38.3733	-3.6000	-310.3808	54.1267	-17.4468
128	387.9403	-44.0186	7.4633	-308.9919	60.3639	-36.3941
129	391.7510	-51.1571	27.6358	-325.7183	69.8261	-53.7314
130	411.4104	-61.5603	46.1402	-327.6768	80.6393	-72.7971
131	413.9428	-73.3082	66.2919	-289.7679	90.8683	-90.3842
132	374.2479	-84.4535	84.8856	-245.7242	104.1154	-112.2841
133	326.1105	-98.6231	107.6902	-170.3520	118.6497	-135.4849
134	244.4395	-114.0531	131.6889	-58.4392	134.4053	-159.7974
135	124.2129	-130.6791	156.6825	107.1131	148.8494	-181.3920
136	-51.4271	-145.9419	178.8296	303.5611	166.7186	-207.2339
137	-259.4478	-164.5940	205.0921	548.6494	185.5915	-233.5799
138	-517.2102	-184.1800	231.7218	844.9379	205.3431	-260.0865
139	-826.8569	-204.5858	258.3596	1197.1875	223.0889	-282.8456
140	-1192.6869	-222.9016	281.1135	1589.4778	216.0646	-265.9195
141	222.5710	-42.1528	11.1227	-397.7614	37.9199	3.9863
142	407.9467	-22.6426	-22.9042	-352.6147	38.8411	1.2539
143	377.6219	-24.2185	-18.8805	-319.4540	40.4173	-2.7665
144	358.6073	-26.5121	-13.5960	-296.3118	42.7096	-8.0461
145	348.5307	-29.5805	-7.0865	-280.7110	45.7786	-14.5517
146	344.6258	-33.4760	0.6200	-269.7992	49.6746	-22.2553
147	343.7195	-38.2438	9.4863	-242.2692	54.7528	-19.2422
148	324.2030	-44.2221	7.6041	-287.3819	62.4663	-50.7988
149	375.1248	-52.8750	40.2417	-284.6239	70.5006	-64.1272
150	375.7952	-61.8510	54.6166	-287.4887	81.1952	-81.0785
151	379.6227	-73.5032	72.5602	-269.8347	93.2311	-99.4692
152	360.4559	-86.4866	91.8885	-225.7269	106.5815	-119.2003
153	312.3736	-100.7842	112.5018	-149.3957	121.2199	-140.1719
154	229.7219	-116.3460	134.2904	-19.9774	134.7839	-159.1267
155	91.8182	-130.8054	153.9955	134.6477	151.6909	-182.0873
156	-73.2360	-148.5602	177.6331	336.0111	169.7027	-205.9346
157	-286.6618	-167.3740	202.0859	587.8138	188.7197	-230.5184
158	-551.7897	-187.1365	227.2003	892.8762	208.6407	-255.5169
159	-870.9980	-207.7393	252.6672	1257.0829	226.6311	-277.5022
160	-1249.7219	-226.3403	275.0367	1672.0259	219.7073	-267.0552
161	176.1101	-32.6745	13.4538	-363.5829	29.7277	2.4368
162	373.4952	-12.6788	-23.9888	-330.1309	30.6806	-0.0713
163	358.3585	-14.3656	-20.4914	-311.6216	32.3676	-3.5641
164	357.3671	-16.8601	-15.9537	-305.6374	34.8620	-8.0976
165	367.5734	-20.2260	-10.3119	-309.1149	38.2276	-13.7341
166	385.5525	-24.5264	-3.5211	-318.4925	42.5281	-20.5212
167	407.3254	-29.8064	4.4609	-340.8938	48.2757	-39.9419
168	439.6533	-36.5749	25.1069	-388.3783	57.0243	-51.9629
169	494.3015	-46.3723	38.3775	-424.4221	67.1728	-65.6985
170	534.5420	-57.5969	53.3549	-442.0621	78.7415	-81.1365
171	553.3283	-70.2302	70.0212	-434.2984	91.7048	-98.2552
172	543.6326	-84.2618	88.3593	-394.2230	106.0580	-117.0330
173	498.5944	-99.6788	108.3005	-315.0757	121.7677	-137.3886
174	411.6048	-116.4255	129.7685	-190.5469	138.7875	-159.2551
175	276.6133	-134.4338	152.6768	-14.9498	157.0215	-182.5244
176	88.2521	-153.6268	176.9007	216.7439	176.4035	-206.9782
177	-158.1180	-173.8737	202.2221	508.6043	196.8117	-232.3536
178	-466.0360	-195.1114	228.3710	863.8171	218.1610	-258.5175
179	-838.1193	-217.1999	255.1920	1284.4326	240.3270	-285.3226
180	-1275.7878	-240.0180	282.5568	1771.8678	231.4798	-276.0897
181	52.0422	-26.1806	13.5349	-310.9326	21.4663	4.0806
182	321.6980	-4.9002	-25.1733	-295.0192	22.4553	1.7031
183	323.8024	-6.6412	-21.7928	-293.7265	24.1955	-1.6718
184	339.5054	-9.2013	-17.3545	-304.4347	26.7564	-6.1055
185	365.7146	-12.6447	-11.7972	-323.9261	30.2001	-11.6583
186	398.8913	-17.0227	-5.0680	-348.5692	34.5782	-18.3829
187	435.0393	-22.3822	2.8621	-374.2637	39.9377	-26.3081
188	469.7520	-28.7455	12.0354	-435.6048	48.5723	-50.2307
189	537.3778	-38.4166	37.2100	-487.5649	59.0076	-64.0399
190	592.7543	-49.9133	52.2740	-519.9789	70.8535	-79.5974
191	625.6300	-62.7923	69.1640	-526.0934	84.0596	-96.9508
192	629.3121	-77.0359	87.5623	-499.4098	98.6142	-115.7584
193	597.3678	-92.6091	107.4846	-433.6522	114.4749	-136.1230
194	523.6583	-109.4781	129.0849	-307.3661	129.2834	-155.3895
195	387.0684	-125.2330	149.3991	-148.8134	147.4636	-178.6309
196	216.2367	-144.3097	173.5192	64.0454	166.7316	-203.0527
197	-10.5707	-164.4139	198.8060	334.8931	186.9894	-228.4463
198	-296.4695	-185.4321	224.9374	666.2894	208.1127	-254.6015
199	-643.3813	-207.2479	251.7911	1059.6866	229.9934	-281.4234
200	-1052.2491	-229.7220	278.9142	1514.9784	220.9320	-271.9851
201	7.4725	-19.4498	22.8082	-304.7653	11.3759	0.2086
202	311.4418	0.7307	-15.1700	-303.5269	11.9590	-1.8236
203	320.2097	-0.2754	-12.4867	-310.8731	12.9647	-4.4824
204	337.1968	-1.7347	-9.0704	-325.8043	14.4228	-7.9030
205	361.2348	-3.6898	-4.7149	-347.0856	16.3798	-12.2491
206	390.9459	-6.1893	0.2471	-373.2686	18.8816	-17.1926
207	424.7009	-9.2422	6.0355	-402.7199	21.9334	-23.0101
208	460.6761	-12.8886	13.2250	-433.5560	25.5793	-30.1994
209	496.8836	-17.1683	20.8195	-463.7290	29.8594	-37.7654
210	531.0435	-22.0925	29.2384	-490.9413	34.7823	-46.1888
211	560.7417	-27.6729	38.7518	-547.6869	43.1013	-75.3657
212	618.3842	-36.7004	68.7779	-577.4927	51.1460	-88.0622
213	647.3560	-45.4597	82.0998	-612.4006	62.0088	-104.0955
214	679.5758	-57.0000	98.9231	-608.0271	71.7879	-118.6582
215	670.5300	-67.5389	114.6932	-581.9569	82.4483	-134.5771
216	637.8978	-78.9682	131.0305	-544.5328	96.4286	-154.1263
217	591.7853	-93.7064	151.3670	-461.4767	108.9505	-171.6278
218	497.8274	-106.9995	169.8128	-353.2802	125.1189	-193.6990
219	376.6769	-123.9344	192.4492	-197.0024	139.4970	-213.0283
220	205.3237	-139.0934	213.1387	-0.2560	151.7826	-213.1491

ENVOLVENTE MINIMOS TORSORES TREN IPF-B, l=30 m, via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0765	153.5710	-254.4052	-247.5650	-150.7348	250.8011
2	222.7976	135.4630	-232.6159	-431.0540	-129.8656	225.2375
3	390.6071	117.4410	-207.7412	-573.2043	-114.6924	203.9893
4	514.6476	102.7229	-187.2678	-658.4145	-97.3335	180.0889
5	576.5023	84.8016	-164.2330	-687.5213	-79.5795	157.3068
6	566.0333	64.7013	-142.4031	-655.9315	-62.1568	138.9159
7	515.9131	47.8869	-125.0730	-558.8074	-42.9664	118.5850
8	467.2163	34.9814	-105.8075	-487.7496	-30.2646	99.6490
9	393.9376	23.0789	-87.9446	-412.2524	-20.8136	84.8837
10	318.5843	14.4618	-74.2706	-301.8034	-10.0916	68.6595
11	210.5017	4.5024	-59.1511	-197.2283	-2.4057	56.4047
12	110.2794	-2.4283	-48.0006	-64.8538	6.4249	42.9801
13	-15.9914	-10.5317	-35.6758	107.9770	5.0980	31.3371
14	-188.4015	-8.8746	-25.1189	202.9119	8.8746	25.1190
15	-450.8505	-19.6994	-20.1187	483.0589	19.6994	20.1188
16	-548.5680	-22.3705	-16.2763	585.1432	22.3705	16.2765
17	-627.2856	-23.9545	-13.4744	666.4447	23.9545	13.4743
18	-696.7725	-25.0553	-11.6832	737.7402	25.0553	11.6830
19	-757.9693	-25.7411	-10.8566	800.0558	25.7411	10.8566
20	-806.3198	-25.9396	-10.9734	1152.3678	8.7921	39.7309
21	-930.2283	162.0673	-256.5392	537.4171	-199.8583	298.3325
22	-547.5533	182.8309	-276.8311	198.4137	-177.8996	271.0892
23	-227.1446	161.6108	-250.2629	-78.0836	-156.5655	244.2181
24	31.6165	141.0857	-224.1854	-293.5323	-135.9735	217.8629
25	230.7404	121.3712	-198.7370	-450.3803	-116.2200	192.1657
26	372.9967	102.5435	-174.0568	-551.7767	-97.4104	167.4208
27	461.9623	84.7160	-150.4224	-601.7806	-79.6428	143.9776
28	502.0432	67.9635	-128.1726	-605.1641	-62.9790	121.9518
29	498.2814	52.3593	-107.4144	-567.3450	-47.5052	101.4469
30	456.2593	37.9617	-88.2326	-494.1644	-33.2568	82.5447
31	381.7127	24.7341	-70.6905	-391.5104	-20.2118	65.3061
32	253.1088	10.6752	-54.8466	-233.9276	-6.3559	49.7855
33	33.4528	-6.2576	-40.8522	116.4902	7.3632	36.4789
34	-222.5622	-13.2121	-29.0274	248.9785	13.2121	29.0273
35	-335.9407	-17.5755	-22.9726	371.0842	17.5755	22.9728
36	-445.1508	-20.9792	-18.2782	487.1036	20.9792	18.2784
37	-547.9626	-23.5721	-14.8942	595.0970	23.5721	14.8943
38	-638.2351	-25.2721	-12.7716	688.7720	25.2721	12.7715
39	-714.8906	-26.2306	-11.8507	767.3432	26.2306	11.8506
40	-776.1975	-26.5342	-12.0694	1128.4011	9.2763	38.0173
41	-743.4602	156.3525	-253.8266	361.7018	-193.8513	298.0752
42	-372.5038	176.8403	-276.3455	35.1866	-171.9077	270.6061
43	-66.0670	155.6892	-249.5943	-227.3583	-150.6460	243.5593
44	179.8675	135.2073	-223.3797	-429.9695	-130.0984	217.0718
45	366.0919	115.5270	-197.8282	-573.9419	-110.3941	191.2739
46	482.0792	97.4001	-173.0801	-650.4247	-92.2848	166.4603
47	470.2018	84.2560	-149.4958	-608.9300	-79.1971	143.0664
48	508.2515	67.5777	-127.3500	-610.4494	-62.6141	121.1423
49	502.7249	52.0503	-106.6864	-571.0079	-47.2147	100.7285
50	459.2025	37.6997	-87.5890	-496.4626	-33.0132	81.9087
51	383.6372	24.5593	-70.1230	-392.9727	-20.0475	64.7430
52	281.8428	12.6399	-54.3319	-266.4891	-8.3325	49.2731
53	87.1035	-2.7892	-40.2744	56.5510	3.8502	36.0508
54	-254.7251	-4.1326	-28.6490	262.9892	4.1326	28.6486
55	-362.6858	-6.0587	-22.6498	374.8028	6.0587	22.6493
56	-449.0074	-9.4485	-17.9668	467.9048	9.4485	17.9667
57	-528.8399	-12.0132	-14.5533	552.8673	12.0132	14.5531
58	-597.7721	-14.3707	-12.3584	626.5207	14.3707	12.3584
59	-673.8182	-19.9242	-11.3544	713.6729	19.9242	11.3542
60	-759.2201	-25.7889	-11.5266	1109.4910	8.5269	37.4341
61	-684.3987	153.6041	-254.6950	308.6096	-191.0684	299.1076
62	-319.3829	174.0594	-277.2814	-12.2642	-169.1248	271.5398
63	-17.3609	152.8796	-250.4262	-270.3411	-147.8376	244.3841
64	221.0682	132.4836	-224.1005	-465.6283	-127.3729	217.7831
65	401.7455	112.8204	-198.4414	-604.0962	-107.6847	191.8762
66	525.6498	94.0699	-173.5810	-687.2935	-88.9639	166.9486
67	592.5060	76.5504	-149.7921	-715.7765	-71.4984	143.3508
68	501.7967	66.4347	-127.4773	-601.6917	-61.4744	121.2564
69	471.8078	52.3633	-106.7952	-540.7337	-47.5237	100.8264
70	429.0714	38.0165	-87.6866	-467.0368	-33.3410	81.9945
71	354.4288	24.9200	-70.2138	-364.5972	-20.4195	64.8227
72	254.1119	13.0622	-54.4207	-239.7972	-8.7749	49.3489
73	134.4275	2.4513	-40.3324	1.2674	-1.8482	36.1368
74	-98.8943	-3.4627	-28.5004	105.8181	3.4625	28.5035
75	-322.0057	-14.4320	-22.2867	350.8644	14.4319	22.2884
76	-425.1736	-17.8216	-17.5537	460.8093	17.8214	17.5548
77	-519.9177	-20.3103	-14.1235	560.5300	20.3103	14.1220
78	-603.5071	-21.9942	-11.9414	647.4830	21.9943	11.9388
79	-673.5878	-22.9453	-10.9478	719.4704	22.9452	10.9439
80	-728.3394	-23.2490	-11.0933	1073.0081	6.6472	34.2055
81	-645.8458	150.2016	-238.4421	276.8816	-187.2796	279.6665
82	-548.7094	179.2950	-258.2714	206.2212	-174.3135	252.0709
83	-236.0971	158.0895	-231.7289	-62.2566	-153.0092	225.3423
84	14.5318	137.6312	-206.0001	-269.5203	-132.5004	199.4752
85	-50.9021	129.1823	-181.3349	-184.2549	-124.0335	174.7224
86	-38.2636	117.3729	-158.1752	-170.0774	-112.2666	151.6796
87	43.0501	101.6673	-136.5107	-216.7708	-96.6372	130.3809
88	86.8629	86.9213	-116.5678	-228.0931	-82.0053	110.8058
89	119.9725	71.6671	-98.3743	-228.1706	-66.9133	92.9825
90	98.1136	59.0701	-81.9393	-179.1733	-54.4697	76.9150
91	68.2704	46.2089	-67.2851	-122.4707	-41.8178	62.6245
92	14.1177	34.6165	-54.3713	137.2768	-36.6335	50.1256
93	-240.1061	30.4806	-43.2169	179.1336	-30.4795	43.2817
94	-273.6172	25.3459	-37.6689	222.9113	-25.3464	37.7121
95	-306.5160	21.1997	-33.3287	264.0992	-21.2011	33.3501
96	-334.6430	17.9813	-30.1082	298.6726	-17.9802	30.1081
97	-354.4086	15.6234	-27.9074	323.1558	-15.6238	27.8861
98	-362.8797	14.0747	-26.6136	334.7246	-14.0751	26.5698
99	-357.8605	13.2362	-26.1092	331.3884	-13.2353	26.0436
100	-337.9872	13.0100	-26.2686	624.1349	-21.1164	44.3747
101	-1488.2557	162.7491	-228.1198	1139.6985	-196.0824	263.2935
102	-1150.2872	181.2928	-245.8278	844.1863	-175.7842	238.8844
103	-869.4965	161.6836	-222.5381	593.9044	-158.9124	219.1153
104	-633.0010	145.5263	-203.9119	397.1125	-139.9912	197.2261
105	-448.7136	127.4078	-183.2054	246.8846	-121.9257	177.0413
106	-309.4891	110.1684	-164.2061	140.2557	-104.7887	158.5321
107	-212.0706	93.9093	-146.8980	61.5146	-91.2712	144.1525
108	-140.5329	81.2902	-133.7165	29.5942	-76.1476	128.7145
109	-113.6086	67.0794	-119.4609	28.9258	-62.1428	114.8801
110	-115.6099	54.0151	-106.7945	257.3098	-51.6854	102.6182
111	-344.3099	44.4727	-95.6646	266.4668	-44.4708	95.7709
112	-351.4062	38.1671	-89.9055	284.6039	-38.1638	89.9906
113	-365.2215	32.7722	-85.1710	307.8567	-32.7738	85.2348
114	-381.9830	28.2759	-81.3891	332.4811	-28.2788	81.4337

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	-398.1485	24.6488	-78.4944	354.9929	-24.6473	78.5178
116	-410.5011	21.7863	-76.4043	372.3607	-21.7830	76.4080
117	-416.2967	19.6947	-75.0285	381.8168	-19.6943	75.0113
118	-413.1675	18.3155	-74.2848	381.0958	-18.3163	74.2463
119	-399.2615	17.5744	-74.0660	368.4942	-17.5743	74.0076
120	-373.3541	17.3911	-74.2840	647.0929	-24.4066	87.1047
121	-1261.9851	154.1262	-230.2310	930.1310	-186.4804	260.4812
122	-939.7606	171.6527	-242.8529	650.3903	-166.1370	235.8921
123	-674.2413	151.9587	-219.4584	415.5044	-149.1785	216.0406
124	-452.8468	135.7241	-200.8232	233.6708	-130.1598	194.1999
125	-283.3867	117.4814	-180.2229	98.4228	-111.9592	174.1705
126	-159.1345	100.0764	-161.4339	7.0478	-94.6424	155.9088
127	-77.0761	83.6314	-144.4234	-55.7294	-80.9574	141.7624
128	-21.6816	70.8553	-131.5203	-71.3161	-65.6385	126.7166
129	-11.3258	56.4362	-117.6975	-54.9172	-51.4256	113.3390
130	-30.6910	43.1534	-105.5219	-11.4342	-38.3752	101.5713
131	-74.7669	31.0447	-94.9129	204.9345	-31.8194	94.8576
132	-289.3847	25.3937	-89.3163	244.9377	-25.3904	89.3788
133	-325.3228	19.9058	-84.8912	290.4795	-19.9029	84.9390
134	-364.6000	15.3000	-81.4308	337.8116	-15.2989	81.4635
135	-403.6362	11.5727	-78.8520	383.3670	-11.5744	78.8693
136	-439.1275	8.6731	-77.0765	423.9350	-8.6736	77.0790
137	-468.1481	6.5456	-76.0033	456.6842	-6.5459	75.9914
138	-488.2526	5.1563	-75.5224	479.2157	-5.1578	75.4951
139	-497.4530	4.4086	-75.5358	489.7297	-4.4098	75.4933
140	-494.4137	4.2345	-75.9308	794.0856	-13.7883	94.4944
141	-1278.3816	155.0334	-237.3676	932.0954	-189.2158	271.8478
142	-941.9788	173.9381	-253.5040	641.2321	-168.5741	247.0238
143	-665.9647	153.9550	-229.7341	402.5136	-148.5148	223.1384
144	-441.4260	134.6149	-206.9207	207.9121	-131.8837	203.5905
145	-259.9241	118.7505	-188.4449	68.0100	-113.2923	182.0102
146	-131.7490	100.9941	-167.9513	-25.6030	-95.5919	161.8202
147	-48.1711	84.1555	-148.8480	-76.2472	-78.8545	143.0199
148	-5.5590	68.3240	-131.1426	-87.9563	-63.1605	125.6191
149	0.3104	53.5792	-114.8300	-80.1100	-51.0558	112.0793
150	-11.0064	42.4014	-102.3855	-28.7164	-37.5160	97.3302
151	-63.3965	29.8341	-88.7125	47.0980	-25.1675	83.9741
152	-137.7180	18.4058	-76.4208	272.9954	-21.3203	75.1670
153	-359.6794	15.5372	-68.6679	331.7034	-15.5378	68.7171
154	-412.0952	10.6605	-63.2428	392.8955	-10.6607	63.2786
155	-464.8166	6.6844	-58.8019	452.7738	-6.6842	58.8218
156	-514.2954	3.5375	-55.3088	507.9120	-3.5379	55.3150
157	-557.4076	1.2241	-52.7392	555.1882	-1.2248	52.7295
158	-591.3861	-0.3752	-51.0526	592.0580	0.3759	51.0275
159	-614.1394	-1.2714	-50.2225	616.4221	1.2711	50.1822
160	-624.0145	-1.5628	-50.2296	968.5148	-9.7392	72.4591
161	-883.2834	169.7520	-259.4092	476.2423	-206.9385	301.6035
162	-498.3309	191.6932	-280.0061	131.3953	-186.7563	274.3034
163	-160.4788	170.6779	-253.3392	-163.0508	-165.6264	247.3208
164	117.5865	150.1154	-227.1030	-397.7927	-144.9911	220.7879
165	336.0994	130.3458	-201.4203	-573.9713	-125.2008	194.8367
166	497.7464	111.5077	-176.4346	-694.8108	-106.3807	169.7605
167	606.1531	93.6860	-152.4108	-764.2861	-88.6178	145.9060
168	664.4689	76.6860	-129.7042	-785.4488	-71.7087	123.4026
169	666.8145	59.2416	-108.4139	-750.0969	-54.3916	102.3484
170	619.5887	42.5582	-88.6689	-667.2317	-37.8735	82.8735
171	509.6855	25.2010	-70.5791	-521.0366	-20.7009	65.0740
172	313.4331	5.7431	-54.2959	-285.1047	-1.4434	49.1067
173	180.6716	-4.9376	-39.7881	-38.3140	7.2313	35.3440
174	-58.3368	-12.5727	-27.4350	83.4903	12.5730	27.4252

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	-169.7030	-16.9280	-20.9109	203.5650	16.9282	20.9064
176	-277.0402	-20.3340	-15.7585	317.7095	20.3342	15.7581
177	-449.1236	-26.0019	-11.9805	501.1289	26.0021	11.9841
178	-552.1348	-28.0338	-9.5859	608.2042	28.0337	9.5937
179	-636.6338	-29.0826	-8.4534	694.8031	29.0825	8.4654
180	-703.7686	-29.3914	-8.5300	1038.6936	11.2882	33.4933
181	-697.4807	152.8976	-248.2038	333.2724	-189.5459	292.1491
182	-343.7106	172.9861	-270.8759	21.4089	-167.9075	264.9441
183	-49.9227	152.0903	-244.3562	-229.9233	-146.9236	238.1281
184	184.4210	131.9344	-218.3404	-422.5573	-126.7328	211.8453
185	360.2403	112.6635	-192.9644	-557.9615	-107.4694	186.2591
186	483.1790	94.2814	-168.3902	-642.0300	-89.1416	161.7936
187	555.7111	76.9308	-145.0401	-677.7493	-71.8957	138.6535
188	582.3760	60.7142	-123.0721	-670.1470	-55.8216	116.9244
189	565.9549	45.8369	-102.5942	-622.5828	-41.1115	96.7087
190	509.5491	32.6188	-83.6848	-539.0065	-28.1000	78.0707
191	364.2267	26.5486	-66.4013	-381.2990	-22.2652	61.1119
192	275.7831	15.3285	-50.9142	-271.3922	-11.2933	45.9642
193	173.3671	5.2978	-37.0742	-64.3887	-5.7000	34.3345
194	-25.7299	0.6957	-26.7402	24.3711	-0.6958	26.7419
195	-104.2312	-3.3555	-20.4825	110.7784	3.3555	20.4840
196	-178.3455	-6.5115	-15.4481	191.0445	6.5116	15.4478
197	-244.7072	-8.8274	-11.6391	261.9233	8.8274	11.6378
198	-300.5894	-10.3832	-9.0349	320.8416	10.3832	9.0324
199	-344.0065	-11.2488	-7.5234	365.9445	11.2487	7.5193
200	-373.7462	-11.5244	-7.1926	610.6428	0.5567	19.3867
201	-375.1688	131.7574	-167.5895	137.7295	-164.6216	203.9030
202	-144.1865	152.5108	-188.5805	-69.3567	-149.5117	184.7245
203	52.7789	137.8357	-170.0467	-244.3790	-134.8362	166.0965
204	212.0185	123.8952	-152.1335	-381.7095	-117.8979	144.1318
205	166.1542	115.1643	-130.8290	-326.3126	-112.1690	126.8003
206	235.8656	104.1649	-114.5183	-378.7885	-98.1639	106.4704
207	326.3306	88.5806	-94.9358	-449.5376	-85.5788	90.7745
208	391.4822	76.5402	-79.6846	-496.4919	-73.5334	75.4975
209	433.1385	65.1065	-65.5930	-519.5994	-59.1000	57.4711
210	452.2646	51.3032	-48.3765	-322.6096	-40.5898	44.2623
211	252.7912	33.4922	-35.8838	-300.0141	-33.4922	35.8927
212	225.3754	26.6788	-28.4153	-262.9897	-26.6792	28.4215
213	193.1013	20.9677	-21.9164	-222.6688	-20.9677	21.9202
214	155.4640	15.9932	-16.2640	-178.0152	-15.9927	16.2690
215	115.4258	11.7538	-11.3641	-132.0021	-11.7537	11.3679
216	76.0119	8.2673	-7.4149	-87.6690	-8.2673	7.4176
217	40.3533	5.5444	-4.2733	-48.1721	-5.5443	4.2756
218	-19.9986	11.0806	-1.9509	4.3750	-11.0807	1.9531
219	-33.8195	11.9941	-0.4242	16.9074	-11.9942	0.4248
220	-16.9080	11.9917	-0.4314	0.0004	-11.9917	0.4317

ENVOLVENTE MAXIMOS FLECTORES TREN IPF-B, l=15 m, via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0780	144.3471	-249.6600	-224.5579	-129.3103	230.6615
2	260.0532	150.8835	-230.3000	-490.4248	-131.4744	204.8375
3	490.6259	131.4666	-204.3408	-691.2076	-115.0391	182.7722
4	691.3729	115.0246	-182.0693	-861.5402	-95.5803	156.4048
5	861.6921	95.5852	-155.5276	-1002.2211	-76.1203	129.7769
6	1002.3354	76.0969	-128.7616	-1112.5448	-59.6322	106.9319
7	1112.6580	59.6366	-105.7991	-1192.6230	-40.1560	79.9017
8	1192.6991	40.1964	-78.6863	-1242.9951	-20.7130	52.7306
9	1243.0464	20.7113	-51.4681	-1262.7598	-2.9975	27.5549
10	1262.7561	3.0256	-26.2648	-1252.5356	16.4695	0.2591
11	1252.5057	-16.5097	1.0219	-1212.4412	33.0107	-23.0613
12	1212.4031	-33.0392	24.3054	-1141.5239	52.5434	-50.3665
13	1141.4551	-52.5629	51.5347	-1040.8625	70.8368	-75.8590
14	1040.7947	-70.8437	76.9292	-910.3973	87.3249	-99.0481
15	910.2756	-87.3067	99.9981	-749.7187	106.7856	-126.1128
16	749.5725	-106.7863	126.8935	-559.6888	126.2519	-152.9960
17	559.7315	-124.4376	150.6612	-342.9743	140.8884	-172.7464
18	386.5155	-88.6468	111.5404	-232.2568	75.1220	-98.5237
19	267.8648	-31.3812	46.8822	-204.5256	46.0965	-66.4979
20	233.8479	-6.8078	18.4005	-210.6854	21.5224	-37.9691
21	231.9266	-26.5553	-3.2944	-178.8239	26.5546	3.3413
22	198.3017	-9.8347	-24.1156	-160.6431	27.8312	0.1262
23	210.0420	18.5377	-59.6814	-240.6700	-24.6364	62.8165
24	284.6714	73.2828	-126.8442	-410.8659	-54.7627	102.4746
25	447.7743	91.9405	-155.9854	-609.2042	-71.3465	128.7976
26	673.5797	118.2403	-150.4843	-887.8303	-97.4685	123.0800
27	887.9799	97.4512	-121.9273	-1060.2487	-76.5215	94.3152
28	1060.3596	76.4983	-92.9426	-1189.8328	-53.9750	62.9241
29	1189.9448	53.9671	-61.3931	-1276.4338	-32.8352	33.4811
30	1276.4585	32.8584	-31.8480	-1318.9561	-11.6128	3.7722
31	1318.9285	11.5629	-2.0820	-1317.7456	11.0904	-28.1769
32	1317.6782	-11.0794	29.8532	-1272.0006	33.7540	-60.1414
33	1271.9153	-33.7610	61.7658	-1182.1582	55.1561	-90.0903
34	1182.0269	-55.1403	91.5925	-1047.8313	77.8466	-121.9267
35	1047.6891	-77.8348	123.2568	-869.1080	99.2780	-151.6822
36	868.9082	-99.2723	152.7888	-646.2433	121.9888	-183.1084
37	660.2903	-93.7244	169.0083	-449.9575	115.1544	-197.4655
38	493.1928	-73.8485	136.9694	-334.2473	62.4220	-125.4827
39	386.1605	-13.9061	61.6857	-340.3613	31.9022	-85.7156
40	384.7137	14.4575	26.4351	-395.6335	6.5537	-50.0162
41	428.2346	-29.3831	-3.8134	-363.4303	32.3977	4.2167
42	383.9244	-15.7061	-24.7137	-334.4999	33.7095	0.6592
43	387.1055	12.5539	-59.7860	-394.2120	5.4495	35.7353
44	443.3229	43.0046	-99.2137	-540.5467	-49.7737	101.6413
45	582.7327	91.0649	-161.8750	-742.6432	-70.4570	134.6664
46	803.4637	112.0143	-149.4943	-1005.4495	-91.2313	122.0759
47	1005.5900	91.2410	-120.7421	-1165.5507	-70.3003	93.1237
48	1165.6500	70.3229	-91.6002	-1282.8363	-47.8042	61.5752
49	1282.9034	47.8037	-59.9016	-1357.0658	-26.6649	31.9901
50	1357.1113	26.6718	-30.2308	-1387.2289	-5.4232	2.1603
51	1387.2489	5.3955	-0.3683	-1373.7234	17.2641	-29.8920
52	1373.6869	-17.2855	31.6569	-1315.5513	39.9692	-61.9455
53	1315.4996	-40.0093	63.6318	-1213.1757	61.4070	-91.9472
54	1213.0568	-61.4106	93.5008	-1066.2483	84.1295	-123.8358
55	1066.1134	-84.1416	125.1978	-874.8381	105.5848	-153.6141
56	874.6350	-105.5871	154.7260	-639.2572	128.3096	-185.0453
57	659.9363	-89.0975	168.6411	-458.8142	110.5245	-197.0941
58	502.8737	-68.8849	136.0091	-355.4349	57.0956	-124.1996
59	408.0494	-8.4079	60.2509	-373.2252	26.4109	-84.2923
60	417.9073	20.0255	25.0296	-439.9576	1.1762	-48.7015
61	472.4938	-30.1807	-4.1435	-405.7497	33.3793	4.4641
62	426.1712	-16.6924	-24.9228	-374.8001	34.6888	0.8736
63	427.5206	11.5418	-60.0548	-432.6048	6.4543	36.0098
64	482.0467	41.9390	-99.6289	-574.9582	-48.7941	102.0614
65	617.5037	89.9909	-162.4292	-775.2329	-69.3876	135.2378
66	833.3899	108.6594	-150.4665	-1028.6201	-87.8798	123.0618
67	1028.7783	87.8856	-121.6948	-1181.9739	-66.9530	94.0857
68	1182.0615	66.9921	-92.5287	-1292.5470	-44.4742	62.5121
69	1292.6135	44.4636	-60.8281	-1360.0752	-23.3249	32.9239
70	1360.0885	23.2734	-31.1594	-1383.3771	-2.0238	3.0934
71	1383.3578	2.0212	-1.3184	-1363.0837	20.6312	-28.9353
72	1363.0723	-20.6514	30.6797	-1298.2362	43.3234	-60.9622
73	1298.1902	-43.2989	62.6331	-1189.3490	64.6791	-90.9477
74	1189.2253	-64.6607	92.4647	-1035.9927	87.3734	-122.7940
75	1035.8390	-87.4152	124.1058	-838.0940	108.8545	-152.5211
76	837.8951	-108.8718	153.5773	-596.0635	131.5899	-183.8931
77	620.0380	-89.1215	168.3185	-419.0033	110.5359	-196.7702
78	464.3276	-68.8398	135.9819	-318.0125	56.9898	-124.3546
79	371.7639	-8.2751	60.4999	-337.2218	26.2714	-84.5330
80	382.5790	20.1715	25.2727	-404.9223	1.0624	-49.0074
81	437.6969	-24.7566	-14.9414	-381.6971	27.9944	15.1905
82	402.4237	-11.3357	-35.3468	-361.7411	29.3392	11.2873
83	415.4097	16.7377	-68.6306	-430.8845	1.2663	44.5753
84	481.7789	46.6829	-103.1950	-584.3766	-53.3624	103.8473
85	627.9998	93.5908	-153.6395	-792.9419	-72.9376	125.9747
86	841.4679	105.6038	-117.5804	-1030.5038	-84.7745	89.7134
87	1030.6279	84.7912	-88.3358	-1177.4893	-63.8063	60.2888
88	1177.5486	63.8208	-58.7451	-1281.5629	-41.2821	28.5210
89	1281.5942	41.2849	-26.8427	-1342.3889	-20.1115	-1.4387
90	1342.3752	20.1164	3.1882	-1359.1184	2.5182	-33.5352
91	1359.0360	-2.5156	35.2756	-1332.0465	23.8453	-63.7007
92	1331.9313	-23.8231	65.4113	-1260.5287	46.5119	-95.8081
93	1260.4055	-46.4858	97.4114	-1144.8234	67.8996	-125.8830
94	1144.6398	-67.9005	127.3405	-984.7413	90.6089	-157.7102
95	984.5279	-90.6184	158.9619	-780.1672	112.0663	-187.3802
96	779.9312	-112.0496	188.3643	-531.6536	134.7730	-218.6334
97	578.1478	-80.7401	175.4634	-394.0371	102.1567	-203.7291
98	438.7579	-58.8810	136.2888	-326.7419	46.5241	-119.1341
99	374.0186	6.8453	43.8529	-369.7042	11.1584	-67.8992
100	397.9530	20.9464	24.8114	-421.7146	0.4687	-49.7610
101	463.4432	-30.9195	-18.4238	-403.2264	34.3307	17.4719
102	423.8303	-5.7785	-52.3939	-399.9318	21.5300	31.3412
103	424.6563	16.1812	-75.0351	-439.1883	-0.4297	53.9871
104	469.1884	38.5229	-95.1437	-532.4888	-47.3028	98.8638
105	563.6099	80.6428	-133.5411	-687.2276	-61.9137	108.1022
106	734.8262	93.4837	-75.6306	-881.6961	-73.1706	48.3143
107	881.7246	73.1686	-47.2749	-995.6158	-57.1603	25.7086
108	995.6238	57.1470	-24.5555	-1075.7085	-36.7078	-2.8430
109	1075.6779	36.7008	4.0744	-1121.9872	-16.2320	-31.4957
110	1121.9156	16.2054	32.7785	-1134.4402	3.0742	-58.4102
111	1134.3662	-3.0922	59.6906	-1112.8071	20.6361	-83.1192
112	1112.6941	-20.6043	84.3642	-1056.4142	41.1700	-111.7813
113	1056.2924	-41.1578	112.9710	-965.8021	61.7378	-140.3642
114	965.6450	-61.7509	141.4429	-840.8939	82.3423	-168.7999

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	840.7007	-82.3614	169.7380	-681.4931	99.9562	-193.0486
116	681.2756	-99.9197	193.8098	-487.7092	119.3462	-219.1633
117	518.0970	-65.5556	148.7035	-384.7059	86.1338	-175.8641
118	418.5919	-43.2191	101.4340	-351.0297	28.4441	-76.2003
119	381.2437	5.2758	25.7501	-376.7019	10.4755	-46.7872
120	416.9187	30.4803	-10.1347	-455.8077	-10.9053	-14.7646
121	484.9796	-32.7536	-26.3287	-420.2840	36.5776	22.4214
122	438.8580	-22.0838	-39.7600	-386.4210	37.8352	18.7090
123	430.0371	2.4844	-65.7243	-420.5995	13.2669	44.6769
124	461.2154	28.9333	-89.2076	-521.2642	-37.0738	91.8642
125	555.8648	72.9230	-126.1864	-665.5085	-54.2232	100.6195
126	715.7911	96.2718	-64.9535	-867.3994	-75.9718	37.5733
127	867.4581	75.9566	-36.5692	-986.1081	-59.9637	14.9077
128	986.1201	59.9191	-13.7781	-1071.0254	-39.4785	-13.6683
129	1070.9844	39.4868	14.8822	-1122.1932	-19.0228	-42.3430
130	1122.1482	19.0126	43.6153	-1139.6669	0.2618	-69.2963
131	1139.5823	-0.2798	70.5751	-1122.9984	17.8253	-94.0244
132	1122.8909	-17.7728	95.2932	-1071.6174	38.3447	-122.7225
133	1071.4838	-38.3495	123.9273	-985.9450	58.9406	-151.3244
134	985.7730	-58.9308	152.4280	-865.9601	79.5293	-179.7788
135	865.7429	-79.5374	180.7372	-711.4666	97.1414	-204.0321
136	711.2292	-97.1430	204.8288	-522.3738	116.6036	-230.1203
137	543.8036	-71.7825	161.6045	-399.3798	92.3817	-188.7200
138	429.2566	-59.5668	127.7529	-328.1599	45.6756	-101.5905
139	372.1988	-2.8868	34.5239	-353.3695	18.6377	-55.5508
140	391.9926	22.1744	-2.0814	-416.3680	-3.5765	-22.1617
141	443.4188	-34.2597	-8.4159	-375.9817	37.1068	5.1657
142	395.3068	-22.1706	-23.3021	-340.8248	38.3689	1.6686
143	384.8618	3.2878	-51.7083	-376.2017	12.9105	30.0771
144	415.4985	30.9548	-80.8343	-488.1347	-38.9345	85.4182
145	521.1579	76.6817	-131.9841	-639.6553	-57.6759	106.5055
146	693.2113	102.9165	-107.8401	-859.6042	-83.7074	82.2878
147	859.7025	83.6875	-81.2731	-992.0426	-62.9207	53.5724
148	992.0863	62.9537	-52.4029	-1089.3712	-43.4911	26.7206
149	1089.3990	43.4515	-25.4657	-1151.1893	-25.5667	1.6743
150	1151.1938	25.5770	-0.3292	-1176.8796	-4.6627	-27.4928
151	1176.8365	4.6605	28.8467	-1166.5645	15.0432	-54.6803
152	1166.4922	-15.0196	56.0098	-1120.4956	36.0024	-83.8765
153	1120.3955	-36.0234	85.1652	-1038.1354	57.0282	-113.0407
154	1037.9940	-57.0291	114.2309	-919.1485	75.0422	-138.1003
155	918.9795	-75.0618	139.1559	-763.5292	96.0807	-167.0108
156	763.3328	-96.0665	167.8837	-571.8303	115.9090	-193.8193
157	579.9219	-82.5018	150.4445	-412.6890	103.5166	-178.2686
158	443.3182	-63.4374	108.2542	-319.3735	49.9988	-87.6865
159	352.7006	-6.6088	26.1561	-326.2359	22.8069	-47.7775
160	356.8081	18.7469	-6.8936	-375.9866	0.1843	-16.9379
161	400.8811	-26.2847	-5.4845	-342.8524	29.0176	3.2389
162	361.5953	-12.2724	-23.8405	-319.0436	30.2743	-0.2017
163	365.3165	16.1836	-59.3437	-379.6851	1.8184	35.3044
164	418.8987	36.3000	-85.1347	-513.5012	-40.7955	85.2882
165	565.6383	88.6710	-154.2067	-723.8513	-69.8530	129.6016
166	771.9021	109.3593	-154.5549	-968.2782	-88.5848	127.1892
167	968.4514	88.6235	-125.9172	-1122.9878	-67.6890	98.3424
168	1123.1046	67.6881	-96.8875	-1234.9447	-45.1657	66.8820
169	1235.0515	45.1585	-65.2726	-1303.8575	-24.0117	37.3916
170	1303.8884	24.0078	-35.7223	-1328.6433	-2.7560	7.6764
171	1328.6516	2.7866	-6.0000	-1309.9177	19.8740	-24.2540
172	1309.9155	-19.8527	25.9340	-1246.6777	42.5352	-56.2190
173	1246.6185	-42.5575	57.7970	-1139.2620	63.9649	-86.1124
174	1139.1469	-63.9799	87.5542	-987.2318	86.7040	-117.8950
175	987.0873	-86.7044	119.1432	-790.7838	108.1557	-147.5828
176	790.6047	-108.1743	148.5633	-550.1139	130.9019	-178.8978
177	572.2608	-91.6699	159.2476	-366.1541	113.1023	-187.7470
178	403.6480	-76.2508	135.1596	-241.0859	64.9965	-124.3694
179	295.7168	-16.5052	61.3057	-244.6995	34.5066	-85.3389
180	290.5151	11.8725	26.4038	-296.2508	8.8266	-49.8418
181	328.7121	-17.9671	-4.3403	-288.3959	20.6644	4.8949
182	307.9617	-4.4132	-25.0490	-282.2319	21.9680	1.5987
183	333.6926	22.9538	-59.6080	-361.3446	-5.3991	36.1618
184	410.7305	52.1353	-98.5064	-520.9525	-58.8761	101.0488
185	563.4079	98.2394	-159.6410	-734.2847	-77.9525	132.9609
186	767.6665	99.4459	-146.6075	-941.0107	-78.9838	119.7045
187	941.1536	78.9655	-118.4976	-1074.3617	-56.8954	89.1539
188	1074.4843	56.9056	-87.7739	-1166.8263	-36.2235	60.5438
189	1166.8947	36.2212	-59.0675	-1217.6130	-14.0480	29.5389
190	1217.6501	14.0206	-28.0143	-1226.9037	6.8372	0.4919
191	1226.8959	-6.8339	1.2225	-1193.9575	29.0735	-30.8881
192	1193.9103	-29.0601	32.1824	-1118.9318	50.0245	-59.8470
193	1118.8752	-50.0033	60.9788	-1001.8695	72.2830	-90.7016
194	1001.7430	-72.3044	92.0140	-842.2111	91.5976	-117.7871
195	842.0432	-91.6026	118.9289	-640.5421	112.6299	-146.7929
196	640.3830	-112.6298	147.4306	-396.6192	134.9186	-177.1407
197	442.5744	-82.3217	149.4669	-260.0299	103.3135	-177.3695
198	302.1042	-61.0598	119.6327	-187.4670	48.8692	-108.7455
199	231.1569	-11.2644	60.4976	-192.0639	28.8193	-83.9490
200	244.8347	16.8245	26.1103	-260.5374	4.2993	-48.9895
201	294.2299	-6.8645	-0.4645	-279.5229	10.4336	0.9844
202	291.5777	13.1621	-29.6639	-301.1904	-0.4720	12.6941
203	317.5607	32.6179	-51.4626	-354.6049	-19.9284	34.5094
204	377.6108	54.8258	-75.3001	-445.9692	-42.1364	58.3443
205	479.3980	80.3536	-102.8349	-599.5084	-91.7401	107.0214
206	599.5530	91.7232	-106.7309	-717.9377	-75.7888	85.4095
207	717.9729	75.7921	-85.0090	-814.5849	-61.3734	65.7066
208	814.6786	61.3692	-64.3345	-889.7178	-46.8788	44.9637
209	889.7325	46.8593	-44.4161	-941.6519	-29.3044	21.0508
210	941.6527	29.2714	-20.4615	-971.5582	-13.5777	-0.6029
211	971.5561	13.5893	1.5762	-978.6847	4.0351	-25.0761
212	978.6860	-4.0543	25.9963	-962.5630	18.7531	-45.5033
213	962.5426	-18.7792	46.0637	-923.9377	37.4665	-71.0944
214	923.9076	-37.4306	71.5934	-861.6292	52.1748	-91.1522
215	861.5459	-52.1651	92.1216	-776.4724	67.8543	-113.1949
216	776.4230	-67.8607	113.6142	-667.9774	85.6840	-137.1421
217	667.9145	-85.6848	137.5401	-536.1104	101.3756	-158.5697
218	535.9511	-101.3760	159.1280	-380.5287	120.0665	-184.1480
219	380.3761	-120.0566	184.4678	-200.6505	135.7451	-205.4290
220	200.5819	-135.7364	205.4952	-0.2477	148.4257	-205.5048

ENVOLVENTE MAXIMOS CORTANTES TREN IPF-B, l=15 m, via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0762	167.2655	-251.9148	-259.8203	-150.8786	230.5648
2	248.7756	151.3467	-231.1687	-478.1187	-133.2271	207.8941
3	446.7253	134.6016	-209.1119	-650.3471	-118.1567	187.4919
4	601.5908	120.4418	-189.4177	-774.6639	-102.2257	165.7389
5	711.5153	105.4369	-168.4595	-858.0007	-87.1804	144.5526
6	783.3360	91.2630	-148.1456	-912.1111	-74.7730	126.1818
7	828.7846	79.7680	-130.6999	-927.4069	-61.4924	106.4790
8	838.1073	67.3874	-111.9743	-914.7625	-49.1175	87.5759
9	822.1075	55.8245	-94.0885	-889.3300	-39.3398	71.8912
10	795.7933	46.9062	-79.4404	-834.0663	-28.6830	54.8149
11	741.9953	37.0122	-63.4211	-776.2744	-20.5562	41.1339
12	687.8545	29.6689	-50.8014	-536.3179	-13.1837	22.7903
13	453.5233	23.0687	-33.5220	-479.2084	-8.3532	13.9064
14	403.8263	18.9601	-25.6879	-422.7982	-4.2448	6.0724
15	356.3749	15.5454	-18.8824	-369.7632	-0.8300	-0.7333
16	313.6273	12.7702	-13.0934	-322.4771	1.9452	-6.5221
17	277.6907	10.5940	-8.2890	-282.9788	4.1215	-11.3265
18	250.3226	8.9934	-4.4356	-252.9974	5.7220	-15.1800
19	232.9655	7.9073	-1.5084	-233.8639	6.8080	-18.1073
20	226.6285	7.2889	0.5283	-54.1639	-1.9516	-6.0310
21	-1630.3848	215.9707	-252.0881	1177.6409	-226.5698	259.6441
22	-1186.3167	226.8790	-262.2512	770.4278	-206.4820	235.4452
23	-796.6570	207.4497	-238.5524	417.8690	-186.8580	211.5128
24	-461.2348	188.5641	-215.2328	119.2492	-167.7935	187.9618
25	-178.7113	170.3098	-192.4205	-127.0053	-149.3794	164.9239
26	52.9597	152.7723	-170.2255	-323.1501	-131.6982	142.5151
27	236.3913	136.0153	-148.7597	-472.0797	-114.8189	120.8477
28	374.8637	120.1173	-128.1247	-577.3371	-98.8322	100.0287
29	472.2558	105.1615	-108.4179	-643.0503	-83.7977	80.1561
30	532.8959	91.1918	-89.7220	-673.8268	-69.7676	61.3145
31	561.6056	78.1980	-72.0994	-674.6197	-56.7557	43.5672
32	563.4375	66.2729	-55.6117	-435.8058	-45.5497	23.0995
33	328.7398	56.1333	-36.4106	-422.9947	-38.1369	12.4683
34	323.0334	49.7696	-27.0531	-404.5592	-31.7722	3.0958
35	314.5273	44.4276	-18.9370	-385.3795	-26.4313	-5.0348
36	307.8209	40.0812	-12.0320	-369.9738	-22.0841	-11.9546
37	307.1156	36.6761	-6.3003	-362.4635	-18.6790	-17.7008
38	316.1065	34.1541	-1.6884	-366.4099	-16.1581	-22.3270
39	337.8463	32.4550	1.8605	-384.7515	-14.4589	-25.8905
40	374.6798	31.4939	4.4105	-208.1381	-18.3523	-16.5605
41	-1779.4308	220.8810	-247.8867	1316.3528	-231.1785	258.0245
42	-1325.3694	231.4980	-260.8606	899.7722	-211.0812	234.0253
43	-926.6357	212.0721	-237.3812	538.2410	-191.4653	210.3206
44	-582.4428	193.2099	-214.2979	230.9096	-172.4276	187.0128
45	-291.3260	174.9830	-191.7322	-23.9013	-154.0414	164.2283
46	-51.1389	157.4862	-169.7890	-228.5969	-136.4069	142.0767
47	140.8550	140.7933	-148.5742	-386.1679	-119.5971	120.6660
48	288.0184	124.9594	-128.1856	-500.1984	-103.6725	100.0962
49	394.2544	110.0580	-108.7092	-574.8421	-88.6908	80.4545
50	463.9622	96.1178	-90.2228	-614.7426	-74.7059	61.8244
51	501.9198	83.1969	-72.7926	-624.8895	-61.7495	44.2686
52	513.2037	71.3111	-56.4652	-392.7673	-50.9423	24.2886
53	285.3025	61.5665	-37.7310	-390.4363	-43.5634	13.7826
54	290.1822	55.2308	-28.4655	-382.6520	-37.2279	4.5016
55	292.4146	49.9271	-20.4139	-374.2817	-31.9248	-3.5661
56	296.6049	45.6036	-13.5452	-369.8175	-27.5993	-10.4500
57	306.9093	42.2210	-7.8209	-373.3574	-24.2176	-16.1897
58	326.9904	39.7181	-3.1932	-388.4330	-21.7155	-20.8328
59	359.8758	38.0278	0.3975	-417.9392	-20.0248	-24.4389
60	407.8666	37.0744	3.0023	-249.8713	-23.6381	-15.4457
61	-1815.7858	220.7386	-247.1959	1353.3132	-231.0483	257.4383
62	-1362.2704	231.3630	-260.3281	937.0512	-210.9483	233.5145
63	-963.8895	211.9477	-236.8983	575.8550	-191.3443	209.8541
64	-620.0401	193.0886	-213.8538	268.8536	-172.3115	186.5824
65	-329.2597	174.8830	-191.3139	14.3381	-153.9471	163.8208
66	-89.3659	157.3908	-169.3860	-190.0929	-136.3116	141.6806
67	102.3891	140.7024	-148.1774	-347.4257	-119.5176	120.2732
68	249.3255	124.8985	-127.7909	-461.3000	-103.6089	99.7038
69	355.4323	109.9937	-108.3182	-535.8268	-88.6300	80.0667
70	425.0588	96.0538	-89.8350	-575.6427	-74.6388	61.4376
71	462.9865	83.1417	-72.4117	-585.8204	-61.7081	43.8891
72	474.3617	71.2797	-56.0972	-354.3123	-50.9841	23.7307
73	247.0976	61.6287	-37.1837	-352.3448	-43.6319	13.2440
74	252.3576	55.3098	-27.9457	-344.9583	-37.3137	3.9908
75	254.9999	50.0193	-19.9294	-337.0264	-32.0241	-4.0415
76	259.6278	45.7109	-13.0989	-333.0440	-27.7159	-10.8873
77	270.4033	42.3398	-7.4175	-337.0763	-24.3437	-16.5842
78	290.9554	39.8488	-2.8357	-352.6451	-21.8523	-21.1815
79	324.2915	38.1676	0.7021	-382.6150	-20.1713	-24.7352
80	372.6826	37.2187	3.2567	-215.5478	-23.7073	-16.1154
81	-1811.1895	219.4024	-223.8322	1350.9869	-229.5835	233.0418
82	-1360.0778	229.9143	-236.0137	937.3824	-209.4488	208.7254
83	-964.4104	210.4595	-212.3799	579.0736	-189.8045	184.8614
84	-623.4560	191.5912	-189.3081	275.0864	-170.7640	161.5729
85	-335.6352	173.3900	-166.9398	23.6125	-152.4057	139.0077
86	-98.6422	155.9219	-145.4027	-177.8589	-134.7988	117.2932
87	90.3474	139.2842	-124.8109	-332.4798	-118.0542	96.5546
88	234.8277	123.5483	-105.2784	-443.9666	-102.2280	76.9030
89	338.8708	108.7447	-86.8866	-516.6311	-87.3610	58.4240
90	406.9985	94.9414	-69.7151	-555.2484	-73.5045	41.2007
91	444.1254	82.1659	-53.8263	-564.9845	-60.7128	25.2933
92	455.4846	70.4486	-39.2448	-342.0636	-50.6927	12.7267
93	237.2602	61.4983	-27.9940	-342.2682	-43.4938	4.0426
94	245.1065	55.3461	-20.5813	-337.8142	-37.3430	-3.3864
95	251.0372	50.2177	-14.3699	-333.4862	-32.2130	-9.6133
96	259.5568	46.0702	-9.2851	-333.7063	-28.0656	-14.7141
97	274.6999	42.8521	-5.2291	-342.4138	-24.8489	-18.7852
98	299.9441	40.5040	-2.1053	-362.9612	-22.5002	-21.9259
99	338.0844	38.9498	0.2081	-397.9917	-20.9461	-24.2544
100	391.1321	38.1063	1.8330	-241.2633	-24.0131	-16.8123
101	-1627.5321	202.6937	-205.5487	1247.1512	-214.1503	216.2978
102	-1255.7733	214.4971	-218.6173	909.7788	-195.8711	193.3671
103	-932.5394	196.8384	-196.7552	609.6250	-179.5723	173.6101
104	-645.9025	181.2034	-178.0900	358.7931	-162.2841	152.6707
105	-407.5613	164.6688	-158.2864	149.0289	-145.5868	132.7979
106	-208.9422	148.7499	-139.5594	-21.4745	-129.5298	114.0204
107	-47.9812	133.5297	-121.9434	-162.8347	-116.0003	98.5861
108	85.6743	120.8725	-107.6751	-262.9189	-101.5079	82.0932
109	180.1336	107.2629	-92.3371	-332.3750	-87.8474	66.7728
110	246.2137	94.5297	-78.1583	-374.9397	-75.0901	52.6364
111	287.7312	82.6953	-65.1404	-405.9964	-65.1064	41.8093
112	320.1113	73.6480	-55.3905	-235.8249	-56.6007	37.5044
113	153.6003	66.0602	-52.1183	-255.4388	-50.3091	31.1656
114	179.1320	60.6746	-46.7540	-271.5482	-44.9253	25.7880

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	203.2756	56.1857	-42.2837	-287.8344	-40.4338	21.3032
116	229.5038	52.5324	-38.6284	-307.6636	-36.7789	17.6346
117	260.9217	49.6903	-35.7044	-334.1104	-33.9386	14.6965
118	300.2600	47.6110	-33.4225	-369.8124	-31.8596	12.3994
119	349.7779	46.2308	-31.6851	-416.9128	-30.4795	10.6480
120	411.1649	45.4850	-30.3976	-287.0734	-33.5424	15.3493
121	-1437.3704	198.2628	-197.9576	1067.9452	-208.3376	204.9301
122	-1076.3521	208.6746	-207.0751	741.2822	-190.0863	181.6829
123	-763.1609	191.0053	-184.9701	450.7034	-173.7529	161.7516
124	-485.6637	175.3331	-166.1996	209.1362	-156.4342	140.6680
125	-256.3303	158.7373	-146.3037	8.3037	-139.6639	120.7244
126	-66.5113	142.7177	-127.5566	-153.3890	-123.5019	101.9505
127	85.6253	127.3791	-109.9942	-285.7544	-109.8451	86.6080
128	210.1688	114.5802	-95.8578	-376.5559	-95.2063	70.2494
129	295.1502	100.8426	-80.6920	-436.3359	-81.4042	55.1306
130	351.3043	87.9522	-66.7456	-468.6973	-68.4925	41.2605
131	382.3368	75.9713	-54.0180	-488.9001	-58.3714	30.7143
132	403.5681	66.7966	-44.5670	-311.7370	-48.8404	27.6439
133	229.7905	58.1835	-42.5425	-317.8472	-42.4320	21.5805
134	241.5733	52.6924	-37.4570	-320.0205	-36.9409	16.4836
135	251.5768	48.0976	-33.2680	-321.9836	-32.3474	12.2836
136	263.3406	44.3703	-29.8819	-327.2250	-28.6200	8.8869
137	280.0919	41.4654	-27.2094	-338.8844	-25.7142	6.2040
138	304.6516	39.3366	-25.1532	-359.7220	-23.5859	4.1368
139	339.3980	37.9263	-23.5997	-391.9977	-22.1754	2.5728
140	386.1404	37.1656	-22.4458	-249.8302	-26.5006	9.0081
141	-1469.4188	201.5952	-232.3990	1082.1947	-212.1158	240.6699
142	-1091.0588	212.4534	-242.8263	740.6864	-193.5573	217.5345
143	-763.5269	194.4790	-220.7060	443.4891	-175.3726	195.3292
144	-480.0086	176.9555	-199.5270	184.0069	-159.2281	175.9893
145	-233.4141	161.5187	-181.2126	-25.9248	-142.1336	155.6695
146	-35.1808	145.1969	-161.9280	-194.7224	-125.6623	136.2913
147	123.3840	129.5497	-143.5882	-324.4992	-109.8935	117.8521
148	244.6946	114.6696	-126.1874	-417.9834	-94.9177	100.3548
149	331.7707	100.5810	-109.7308	-487.6627	-82.5798	85.8712
150	397.2937	89.1814	-96.2735	-519.4381	-69.3507	70.2888
151	427.3057	76.9071	-81.7186	-525.9396	-57.0651	55.6444
152	434.5291	65.5689	-68.0854	-334.6722	-47.1871	45.3380
153	246.4647	56.6413	-58.7630	-333.8436	-40.4432	37.2068
154	251.2740	50.8467	-51.5996	-328.2184	-34.6493	30.0332
155	253.5974	45.9690	-45.3615	-321.7627	-29.7712	23.7838
156	257.2107	41.9830	-40.0163	-318.2046	-25.7853	18.4278
157	265.5890	38.8524	-35.5268	-320.9469	-22.6545	13.9280
158	281.8114	36.5253	-31.8582	-332.9782	-20.3267	10.2476
159	308.4828	34.9445	-28.9759	-356.8042	-18.7464	7.3547
160	347.6569	34.0462	-26.8420	-199.7237	-23.4507	13.8065
161	-1652.8160	214.8966	-252.5680	1204.4847	-224.4964	260.9430
162	-1212.9802	224.7964	-263.5988	801.4947	-204.3978	236.8241
163	-827.1967	205.3528	-239.9727	452.7500	-184.7588	212.9668
164	-495.3365	186.4434	-216.7151	157.6805	-165.6637	189.4804
165	-216.2057	168.1540	-193.9483	-85.1547	-147.2147	166.4877
166	12.1560	150.5819	-171.7793	-278.0079	-129.5076	144.1021
167	192.3384	133.8234	-150.3168	-423.6979	-112.6232	122.4309
168	327.5493	117.9005	-129.6619	-525.6579	-96.6000	101.5850
169	421.6094	102.8980	-109.9022	-587.9663	-81.5197	81.6504
170	478.8203	88.8719	-91.1325	-615.2324	-67.4493	62.7257
171	503.9793	75.8817	-73.4225	-612.4908	-54.4322	44.8735
172	502.2096	63.9292	-56.8026	-373.3649	-43.0171	23.5575
173	267.1148	53.5795	-36.7603	-356.2793	-35.5790	12.8062
174	257.0638	47.2028	-27.2783	-333.4731	-29.2015	3.3097
175	244.1213	41.8526	-19.0430	-309.8253	-23.8512	-4.9377
176	232.8914	37.4989	-12.0423	-289.8979	-19.4968	-11.9517
177	227.5945	34.0935	-6.2340	-277.7818	-16.0910	-17.7726
178	231.8855	31.5731	-1.5832	-277.0361	-13.5716	-22.4371
179	248.8034	29.8740	1.9655	-290.5536	-11.8726	-25.9990
180	280.6325	28.9133	4.4612	-112.4747	-16.1087	-16.6516
181	-1717.9141	210.0519	-238.9292	1287.2700	-220.7416	249.5747
182	-1295.7611	221.0571	-252.2779	900.2415	-200.9651	225.9780
183	-925.9082	201.9506	-229.1917	566.0752	-181.6652	202.6515
184	-608.3246	183.4107	-206.4843	283.8672	-162.9469	179.7074
185	-341.5481	165.5065	-184.2703	51.9246	-144.8879	157.2663
186	-123.4222	148.3226	-162.6683	-132.1554	-127.5749	135.4480
187	48.7578	131.9473	-141.7839	-271.3469	-111.0852	114.3646
188	178.3174	116.4456	-121.7188	-369.2775	-95.5071	94.1172
189	269.1685	101.8715	-102.5587	-430.0644	-80.8758	74.7945
190	325.6493	88.2723	-84.3902	-458.3211	-67.2408	56.4671
191	352.5062	75.6930	-67.2195	-459.0538	-54.6719	39.1963
192	354.7650	64.1670	-51.2595	-243.1864	-45.9209	20.4746
193	143.3503	56.4551	-33.7632	-236.3460	-38.8996	10.4053
194	143.7426	50.4581	-24.8321	-225.0434	-32.9052	1.4664
195	142.2585	45.4584	-17.1131	-213.8019	-27.9041	-6.2703
196	143.1317	41.4031	-10.6454	-206.7693	-23.8477	-12.7567
197	150.1527	38.2486	-5.2701	-207.6357	-20.6933	-18.1473
198	166.5601	35.9297	-0.9560	-219.5188	-18.3743	-22.4752
199	194.9357	34.3788	2.3074	-244.8721	-16.8239	-25.7588
200	237.1206	33.5132	4.6570	-86.7146	-19.9417	-18.2046
201	-1426.1599	181.5618	-169.4911	1152.4264	-195.3342	182.7244
202	-1157.3921	195.5320	-185.0937	897.2342	-181.3305	166.1714
203	-911.9160	181.9143	-168.5676	671.3397	-167.6416	149.5294
204	-695.4581	168.6395	-152.4457	480.2260	-152.5667	131.0562
205	-513.3034	154.0332	-134.8472	312.0097	-139.5430	115.6057
206	-353.5744	141.5113	-119.7883	177.9488	-125.0205	98.0676
207	-227.2001	127.5203	-103.0108	64.6749	-112.8307	83.5252
208	-120.6354	115.8686	-89.4864	-23.7308	-101.1139	69.9416
209	-38.0235	104.7649	-76.4887	-87.5456	-86.9438	52.9415
210	21.3082	91.2121	-60.2739	-138.5711	-75.5240	39.2239
211	69.2560	80.4409	-47.3911	61.0046	-61.9488	22.3487
212	-131.8974	67.5300	-31.3446	45.6301	-54.8421	14.4928
213	-116.4543	61.1233	-24.3127	39.2085	-48.4319	7.4369
214	-108.1934	55.4102	-18.0719	39.0161	-42.7192	1.2083
215	-104.2995	50.4241	-12.6983	42.1390	-37.7340	-4.1707
216	-101.7704	46.1852	-8.1305	45.6049	-33.4923	-8.7588
217	-97.5701	42.6999	-4.3448	46.3083	-30.0105	-12.5438
218	-88.5200	39.9863	-1.3784	41.0844	-27.2962	-15.5134
219	-71.4065	38.0260	0.8287	26.7364	-25.3347	-17.7354
220	-42.9998	36.8466	2.3421	-0.0025	-24.1565	-2.3400

ENVOLVENTE MAXIMOS TORSORES TREN IPF-B, l=15 m, via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0015	-16.7871	0.8180	24.6327	16.9025	-1.0115
2	-10.1799	-15.4247	1.8458	22.2672	15.9992	-2.5443
3	9.3285	-17.3799	4.1983	9.3298	17.8387	-4.7280
4	41.8084	-19.6827	7.2666	-34.4279	20.9400	-8.6580
5	110.3271	-22.2235	12.1483	-105.0805	23.9283	-14.0280
6	221.8911	-22.8897	18.5288	-201.4828	23.9113	-19.7119
7	338.1127	-23.4817	25.3155	-335.7177	25.8411	-27.9762
8	425.1013	-31.6965	34.6595	-411.8537	34.4805	-37.8396
9	504.5652	-41.1890	45.5835	-456.4276	42.7344	-47.4606
10	549.9760	-50.2721	56.2645	-504.4910	53.5957	-60.0293
11	596.6097	-61.9597	69.8768	-511.8518	63.6569	-71.9287
12	600.2344	-72.7969	82.7972	-510.7297	76.2415	-86.8344
13	593.5340	-86.1411	98.6876	-479.3492	89.6483	-102.8756
14	571.3030	-99.4795	115.6772	-420.2281	101.2356	-117.9032
15	661.0677	-104.8983	131.7583	-509.4567	108.4541	-136.1271
16	577.8978	-119.8878	150.9438	-399.6447	123.4515	-155.4148
17	444.2901	-136.0286	171.0471	-229.3269	137.8118	-173.3380
18	261.8046	-150.9218	189.7228	-27.6561	154.4674	-194.2954
19	47.5025	-168.0908	211.3646	215.3710	171.5973	-216.0046
20	-206.2750	-185.6215	233.7006	504.7164	163.5725	-210.8553
21	-727.0811	-2.0227	36.9531	669.4966	-21.2749	-11.7785
22	-660.4882	20.9643	11.8914	599.4185	-20.2663	-12.1999
23	-572.8986	19.2976	13.4196	510.7778	-18.3747	-14.1374
24	-467.1641	16.6657	16.5315	406.5557	-15.5096	-17.6748
25	-346.8881	12.9921	21.2923	290.6071	-11.6003	-22.8748
26	-216.3954	8.2144	27.7799	167.4298	-6.5844	-29.8107
27	-80.5341	2.2542	36.0433	42.0544	-0.3917	-38.5275
28	55.2964	-4.9154	46.1223	-80.0664	7.0056	-49.0415
29	185.2505	-13.3419	58.0220	-193.0447	15.6383	-61.1826
30	303.2444	-23.0087	71.5563	-290.8786	25.5147	-74.9057
31	403.1110	-33.9583	86.6662	-367.4040	36.6460	-90.1898
32	503.4245	-44.2836	103.3174	-445.1089	47.1397	-106.9995
33	651.3534	-51.2126	121.5861	-576.7913	54.2166	-125.4079
34	685.5033	-65.3289	141.3549	-580.0269	68.4639	-145.2959
35	669.9627	-81.1105	162.4708	-530.0438	84.3566	-166.5089
36	607.4094	-98.0015	184.8273	-430.7980	101.3329	-188.9398
37	494.9782	-115.8427	208.2996	-279.8807	119.2407	-212.4640
38	325.9529	-134.7292	232.7655	-70.5648	138.1652	-236.9604
39	98.8069	-154.4618	258.0866	198.1247	157.9093	-262.2932
40	-188.3836	-174.9476	284.1270	527.5504	154.7906	-259.5254
41	-909.9747	4.3145	41.3630	838.4516	-27.3750	-12.4870
42	-829.0950	27.0505	12.3651	754.7774	-26.3134	-12.6963
43	-726.3615	25.2771	13.7259	651.3823	-24.3196	-14.4776
44	-606.9363	22.5774	16.7254	533.7704	-21.3892	-17.9100
45	-473.1435	18.8312	21.4184	404.5947	-17.4117	-23.0463
46	-315.9774	13.3451	27.8782	256.2911	-11.6924	-29.9546
47	-79.0391	2.7112	36.2396	39.2995	-0.8298	-38.7656
48	58.9491	-4.5311	46.4690	-84.7422	6.6318	-49.4228
49	190.7746	-13.0186	58.5114	-199.3803	15.3313	-61.6983
50	310.3120	-22.7688	72.1780	-298.5476	25.2813	-75.5445
51	411.4146	-33.7720	87.4038	-376.1484	36.4676	-90.9356
52	488.0726	-46.0166	104.1478	-426.3246	48.8804	-107.8310
53	618.1992	-56.2414	122.3845	-533.5746	59.2542	-126.2012
54	726.8962	-74.4305	142.2350	-603.1773	77.5694	-146.1649
55	705.9484	-92.6657	163.4311	-542.8715	95.9104	-167.4531
56	620.3594	-109.5901	185.8159	-420.5056	112.9232	-189.9095
57	483.1775	-127.5413	209.2704	-244.6313	130.9325	-213.4148
58	294.1665	-145.7034	233.6722	-16.7731	149.1317	-237.8465
59	66.1524	-160.8431	258.9085	243.5935	164.2815	-263.0969
60	-197.2371	-175.7677	284.9024	538.2580	155.5401	-260.3173
61	-963.8494	6.0079	42.8497	888.9534	-29.1277	-13.9844
62	-879.6787	28.8102	13.7733	801.7882	-28.0685	-14.0816
63	-774.6694	27.0758	15.0177	696.0520	-26.1131	-15.7434
64	-651.6209	24.3614	17.8846	574.8533	-23.1695	-19.0417
65	-512.6069	20.5431	22.4433	440.6170	-19.1187	-24.0432
66	-365.4314	15.6681	28.7605	301.0841	-14.0108	-30.8101
67	-209.2633	9.4197	36.8844	156.1033	-7.5325	-39.3870
68	55.5682	-4.3783	46.9119	-81.6748	6.4813	-49.8461
69	209.7470	-14.3131	58.8999	-215.7619	16.6369	-62.0722
70	326.5681	-24.0807	72.5199	-312.1572	26.5952	-75.8736
71	424.8188	-35.0939	87.6979	-386.8899	37.7920	-91.2227
72	498.3286	-47.3802	104.4002	-433.8368	50.2496	-108.0805
73	540.9823	-60.8685	122.5755	-447.1140	63.8670	-126.3914
74	547.0199	-75.5429	142.1429	-421.0839	78.6908	-146.0759
75	640.1756	-84.7515	163.0739	-492.9422	88.0036	-167.1007
76	570.9957	-101.6637	185.3603	-387.0523	104.9911	-189.4609
77	449.5345	-119.6134	208.7501	-226.9071	123.0056	-212.9028
78	272.7655	-138.5017	233.1151	-9.8734	141.9293	-237.2979
79	37.9278	-158.2437	258.3218	266.4736	161.6826	-262.5188
80	-256.8970	-178.7362	284.2383	603.5978	158.4664	-259.1806
81	-1030.1780	13.3809	40.4984	940.2795	-36.5287	-11.2769
82	-670.1420	27.2024	11.3081	595.3687	-26.4461	-11.7921
83	-568.0332	25.4277	13.3013	492.6308	-24.4464	-14.2564
84	-448.0344	22.6620	17.1515	374.6202	-21.4454	-18.5911
85	-57.4983	7.6602	23.0176	11.2870	-6.2065	-24.9492
86	207.9902	-4.1904	31.2542	-232.5264	5.8813	-33.6804
87	356.6389	-12.2768	41.6026	-366.2234	14.1998	-44.5187
88	493.7630	-21.4367	53.9830	-485.4511	23.5839	-57.3594
89	591.9477	-30.1895	68.3599	-565.8106	32.5459	-71.9896
90	695.1126	-41.6403	84.4841	-645.0805	44.1986	-88.3001
91	756.1269	-52.8530	102.2598	-682.0822	55.5915	-106.2373
92	791.4717	-65.3151	121.6004	-690.4278	68.2187	-125.7134
93	795.1058	-79.0039	142.3921	-664.2348	82.0497	-146.6089
94	761.2171	-93.9029	164.5202	-597.8156	97.0751	-168.8089
95	684.3798	-109.9598	187.8378	-485.9909	113.2411	-192.1636
96	559.6814	-127.0819	212.1738	-324.2290	130.4372	-216.5020
97	382.9388	-145.2181	237.3492	-108.5315	148.6276	-241.6433
98	150.6674	-164.2908	263.1640	164.1899	167.7313	-267.3921
99	-139.6724	-184.1909	289.4174	496.1132	187.6310	-293.5431
100	-489.6547	-204.7878	315.8918	883.2791	183.9129	-285.7055
101	43.6521	-20.9538	44.6761	-234.9120	3.6998	-15.8646
102	243.7497	-4.0441	16.9060	-236.6691	4.0444	-16.9621
103	259.6147	-5.0089	19.4670	-250.8466	5.0091	-19.5188
104	287.2901	-6.6483	23.4817	-275.6534	6.6481	-23.5299
105	324.5683	-9.0255	28.9432	-271.8795	7.0190	-30.7442
106	331.8999	-10.1835	37.5879	-346.4932	12.0531	-40.8855
107	416.0201	-16.0535	49.1416	-404.2948	17.0909	-51.0123
108	481.4934	-21.9643	60.6414	-475.5135	24.2406	-64.6992
109	558.2984	-30.0054	75.6565	-538.3856	32.5345	-80.1141
110	624.5182	-39.2315	92.3543	-587.9323	41.9969	-96.9434
111	675.1026	-49.6163	110.3944	-603.2430	51.0793	-112.7864
112	689.0566	-59.5965	127.3744	-612.2565	62.6724	-132.0388
113	694.3917	-72.1225	147.6915	-593.7325	75.3792	-152.3637
114	669.9168	-85.7598	168.9751	-543.2077	89.1683	-173.6266

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	611.3245	-100.4377	191.0965	-445.5652	102.1863	-193.4673
116	503.7102	-114.2571	211.6817	-320.5825	117.8267	-216.2384
117	367.1123	-130.7354	235.0716	-152.9902	134.3750	-239.5326
118	186.5991	-148.0434	258.8621	59.5890	151.7240	-263.2017
119	-39.8291	-166.1033	282.8926	325.3958	167.9465	-284.9734
120	-319.9462	-182.9545	304.8898	626.2466	164.8260	-277.1351
121	57.5767	-18.0101	46.7514	-216.6455	1.9248	-20.3407
122	225.2495	-2.2606	21.4073	-221.2912	2.2605	-21.4616
123	243.3398	-3.1841	24.0558	-237.7662	3.1838	-24.1062
124	272.8648	-4.7614	28.2109	-264.5264	4.7612	-28.2578
125	311.8281	-7.0522	33.8643	-279.3786	5.9538	-36.1361
126	337.6781	-9.0144	43.2183	-353.1457	10.8072	-46.6681
127	420.9852	-14.6934	55.1991	-411.1746	15.6969	-57.1547
128	486.7972	-20.4628	67.0935	-482.7408	22.6789	-71.3051
129	564.1349	-28.3081	82.5993	-546.7263	30.7868	-87.2022
130	631.7365	-37.3438	99.8017	-598.1806	40.0686	-104.5220
131	684.4837	-47.5606	118.3487	-616.1622	49.0036	-120.8054
132	701.4073	-57.3869	135.7916	-628.4573	60.4350	-140.5649
133	710.2934	-69.7824	156.6100	-613.7861	73.0191	-161.3737
134	689.9116	-83.2698	178.3732	-567.6434	86.6682	-183.0944
135	635.8940	-97.8315	200.9326	-474.7464	99.5811	-203.3299
136	533.1763	-111.6054	221.8975	-354.7311	115.1792	-226.4849
137	401.6155	-128.0316	245.6457	-192.1899	131.6906	-250.1088
138	226.1543	-145.3343	269.7202	15.4429	149.0405	-274.0299
139	4.5840	-163.3956	293.9538	276.3746	165.2515	-296.0039
140	-270.8465	-180.2502	316.0915	571.8202	161.8986	-287.7509
141	-2.4417	-16.9845	35.5086	-150.9233	0.0791	-7.3508
142	160.0531	-0.4200	8.3103	-159.2958	0.4202	-8.3518
143	182.3763	-1.3462	10.7488	-179.9518	1.3462	-10.7873
144	216.6739	-2.9196	14.5860	-211.4160	2.9195	-14.6214
145	260.9919	-5.2154	19.7841	-236.1461	4.3907	-22.1932
146	297.3935	-7.4648	28.6948	-314.7566	9.1523	-31.6711
147	386.2146	-13.0543	39.4686	-395.4186	15.0120	-42.8817
148	475.3000	-19.7645	51.9418	-473.5079	21.9821	-55.7398
149	559.7808	-27.6730	66.0070	-526.4537	28.8804	-68.0837
150	616.8569	-35.4768	79.5329	-584.6579	38.0598	-83.5897
151	676.7798	-45.6161	96.1523	-625.4021	48.4197	-100.2426
152	716.7721	-56.9061	113.8654	-643.5832	59.9128	-117.9822
153	731.7223	-69.3848	132.6204	-634.1477	72.5725	-136.7628
154	716.6087	-82.9750	152.3420	-579.3203	84.6255	-154.5032
155	653.8053	-95.9616	170.9564	-501.9065	99.3629	-175.1114
156	566.2930	-111.5649	192.3599	-383.8095	115.0728	-196.5220
157	436.2354	-128.1482	214.4967	-221.5093	131.7369	-218.6589
158	260.4179	-145.5863	237.2751	-12.2411	149.2176	-241.4381
159	36.4887	-163.8363	260.6275	252.9433	165.6606	-262.6788
160	-244.0804	-180.9592	282.3618	561.4243	162.5779	-259.0896
161	-646.7484	-11.3220	41.2369	611.9363	-10.2340	-13.7735
162	-590.5998	8.1243	13.9611	555.9483	-7.4498	-14.2746
163	-528.8099	6.2617	15.5213	493.4866	-5.3628	-16.2355
164	-450.6495	3.6785	18.5994	416.6918	-2.5451	-19.7303
165	-357.9533	0.0591	23.2575	328.1497	1.3133	-24.8184
166	-254.9659	-4.6922	29.5736	232.3382	6.3029	-31.5753
167	-146.5138	-10.6114	37.5890	134.2086	12.4596	-40.0369
168	-36.7567	-17.5096	47.3551	37.5404	19.5848	-50.2313
169	79.3950	-24.0709	58.8778	-65.4150	26.3621	-61.9909
170	195.0638	-31.4680	71.9965	-165.5188	33.9621	-75.2933
171	323.0794	-38.2005	86.6850	-278.6705	40.8834	-90.1556
172	487.2375	-42.8592	103.0433	-431.5961	45.7147	-106.6741
173	537.7656	-56.2809	120.9259	-452.9089	59.2946	-124.6968
174	551.9938	-70.9249	140.2270	-435.1617	74.0718	-144.1234
175	524.3559	-86.7269	160.8657	-373.0665	89.9808	-164.8648
176	449.8099	-103.6400	182.7320	-261.7982	106.9808	-186.8143
177	396.4347	-118.4176	205.7671	-176.0989	121.8183	-209.9139
178	229.9035	-136.9705	229.9073	30.0388	140.4134	-234.0985
179	0.3190	-156.6275	254.9481	300.9567	160.0792	-259.1650
180	-291.3916	-177.1258	280.7642	635.4710	156.5844	-256.6816
181	-984.5243	8.6187	44.1900	905.7086	-32.0368	-15.7545
182	-896.9305	31.7180	15.5342	814.6299	-30.9389	-15.8148
183	-788.6956	29.9499	16.6869	705.5936	-28.9370	-17.3887
184	-663.1129	27.1955	19.4205	581.7720	-25.9399	-20.5599
185	-522.6077	23.3311	23.8107	445.9430	-21.8295	-25.4026
186	-374.2724	18.3870	29.9280	305.1648	-16.6387	-31.9824
187	-221.5983	12.2690	37.8324	163.1550	-10.2813	-40.3545
188	-69.9082	4.9175	47.5518	25.3324	-2.6974	-50.5240
189	77.2904	-3.8360	59.0996	-104.5187	6.2704	-62.3212
190	216.3956	-14.2618	72.2797	-222.3383	16.9018	-75.7075
191	399.3234	-31.8992	87.1467	-369.3301	34.7217	-90.7477
192	473.8877	-44.2552	103.4843	-417.8315	47.2361	-107.2066
193	517.8073	-57.7992	121.1768	-432.9817	60.9312	-125.0561
194	525.4763	-72.4994	140.3771	-396.2451	74.1129	-142.4848
195	478.8550	-86.6666	159.0115	-330.6041	89.9689	-163.0694
196	401.1102	-103.4706	180.5591	-217.3827	106.8586	-184.6759
197	273.7883	-121.2564	203.1899	-52.8598	124.6957	-207.3748
198	93.6733	-139.9248	226.8109	165.8067	143.3937	-231.0410
199	-141.4838	-159.3950	251.2814	440.5371	162.8657	-255.5259
200	-432.9362	-179.5232	276.3720	771.7488	159.2027	-252.3171
201	-1008.5580	12.0003	40.7109	940.9709	-35.1293	-12.4647
202	-935.7375	34.9404	12.1039	876.0887	-34.5325	-12.2972
203	-861.0964	33.9405	13.1919	801.8386	-33.4629	-13.5755
204	-771.4933	32.1709	15.4110	700.0196	-31.0132	-16.6763
205	-485.6490	21.5129	19.1819	440.8262	-20.8292	-20.0112
206	-353.7116	16.7249	23.8028	298.7277	-15.1372	-25.9338
207	-248.2846	12.5951	30.5381	213.8989	-11.6888	-31.8184
208	-157.6416	8.6121	37.0456	128.8607	-7.6301	-38.4984
209	-67.0553	3.9816	44.8667	27.3707	-1.7872	-48.1615
210	38.8872	-2.4678	55.3993	-52.4911	3.6807	-57.2967
211	121.7979	-8.5914	65.4318	-143.3386	11.2429	-69.5832
212	218.1483	-16.4426	78.6503	-211.1754	17.8797	-80.8705
213	281.9837	-24.1619	90.7799	-278.4973	27.2577	-95.2480
214	347.4578	-34.2291	105.9970	-313.2006	35.8853	-108.3740
215	378.3785	-43.5933	120.1451	-329.0807	45.3227	-122.5714
216	388.6645	-53.7788	135.0196	-333.5149	57.4429	-139.8280
217	393.9490	-68.1557	153.0853	-305.9966	70.0890	-155.6029
218	373.3005	-86.0233	169.7940	-263.4222	90.0892	-174.8413
219	299.4801	-102.9161	189.7061	-157.3397	105.0396	-192.2731
220	173.5309	-116.5472	207.7079	-0.2503	129.2365	-207.7173

ENVOLVENTE MINIMOS FLECTORES TREN IPF-B, l=15 m, via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0012	-4.4066	-0.7334	7.2042	4.4066	0.7334
2	-42.4646	-25.9774	-0.8839	84.9385	25.9774	0.8839
3	-84.9329	-25.9751	-0.9899	127.4057	25.9751	0.9899
4	-127.3969	-25.9669	-1.1503	169.8600	25.9669	1.1502
5	-169.8569	-25.9706	-1.3643	212.3226	25.9706	1.3642
6	-212.3161	-25.9583	-1.6309	254.7627	25.9583	1.6309
7	-254.7632	-25.9595	-1.9515	297.2106	25.9595	1.9515
8	-297.2137	-25.9765	-2.3259	339.6888	25.9765	2.3260
9	-339.6861	-25.9834	-2.7520	382.1739	25.9834	2.7520
10	-382.1530	-25.9916	-3.2333	424.6505	25.9916	3.2333
11	-424.6280	-25.9778	-3.7688	467.1005	25.9778	3.7687
12	-467.0831	-25.9602	-4.3571	522.5222	36.3128	0.8796
13	-522.5093	-36.2995	-1.5184	583.3702	38.2993	-1.1197
14	-583.3683	-38.2972	0.4274	646.8867	39.2972	-1.7074
15	-646.8689	-39.3062	0.9554	713.1971	41.3064	-3.5402
16	-713.1781	-41.3105	2.7423	782.0543	43.3098	-5.2958
17	-782.2434	-45.1314	7.3695	856.8384	46.1315	-8.5545
18	-900.5450	-98.3827	69.2221	1063.2826	100.3831	-71.7018
19	-1099.0701	-144.1185	122.5062	1335.8584	146.1182	-124.9451
20	-1365.3949	-185.3986	171.8721	1669.4738	156.6224	-140.6328
21	-1693.8740	213.0167	-250.5772	1230.5554	-221.6015	255.3869
22	-1249.6997	204.8816	-235.9740	868.1984	-176.6076	192.8006
23	-917.2996	130.2401	-134.1358	656.8709	-130.2413	134.3282
24	-700.6152	81.5925	-70.7701	537.4622	-81.5922	70.9484
25	-574.1500	44.4154	-17.5507	485.3372	-44.4160	17.7142
26	-549.5337	-2.4771	4.1653	554.4890	2.4743	-4.0166
27	-554.4952	-2.4681	3.3054	559.4332	2.4668	-3.1712
28	-559.4274	-2.4601	2.4361	564.3495	2.4596	-2.3163
29	-564.3531	-2.4564	1.5603	569.2748	2.4560	-1.4554
30	-569.2562	-2.4588	0.6795	574.1745	2.4585	-0.5890
31	-574.1630	-2.4311	-0.2122	579.0240	2.4317	0.2881
32	-579.0021	-2.4386	-1.1075	583.8807	2.4385	1.1693
33	-583.8733	-2.4325	-2.0151	588.7374	2.4323	2.0620
34	-588.7157	-2.4459	-2.9268	605.1755	18.0876	-6.5905
35	-605.1702	-18.0987	5.7027	643.7794	20.0987	-8.3069
36	-643.7673	-20.0966	7.3944	686.3732	22.0964	-9.9586
37	-700.6573	-50.3533	23.9473	803.7720	52.3530	-26.4651
38	-847.2747	-93.6697	86.4916	1037.0128	95.6697	-88.9568
39	-1089.2192	-144.1849	151.8681	1379.9703	146.1850	-154.2747
40	-1424.6556	-192.5454	212.2000	1811.8640	165.0509	-179.7553
41	-1841.4375	217.8795	-246.4416	1368.3706	-226.1768	253.7722
42	-1388.5308	209.4844	-234.6238	1008.3972	-181.6104	191.7622
43	-1060.6991	135.3465	-133.5166	789.9623	-135.3470	133.7206
44	-838.8145	86.8949	-70.7029	664.9939	-86.8951	70.8918
45	-706.9551	45.5973	-10.7597	615.7407	-45.5975	10.9328
46	-676.3781	4.0443	4.0977	668.2885	-4.0459	-3.9398
47	-668.2888	4.0448	3.0600	660.2012	-4.0445	-2.9177
48	-660.1994	4.0243	2.0400	652.1525	-4.0237	-1.9135
49	-652.1487	4.0262	1.0275	644.1004	-4.0245	-0.9168
50	-644.1010	4.0119	0.0287	636.0800	-4.0106	0.0668
51	-636.0873	4.0256	-0.9588	628.0372	-4.0293	1.0396
52	-628.0272	4.0459	-1.9319	619.9368	-4.0492	1.9970
53	-619.9442	4.0808	-2.8942	611.7908	-4.0808	2.9442
54	-611.7753	4.0732	-3.8445	613.8679	11.8451	-6.0665
55	-613.8615	-11.8369	5.1615	639.9563	13.8364	-7.7670
56	-639.9273	-13.8348	6.8622	670.0207	15.8345	-9.4271
57	-690.9169	-55.0384	25.7336	803.4384	57.0383	-28.2523
58	-847.7542	-98.6841	88.8820	1047.5886	100.6841	-91.3474
59	-1100.4968	-149.3681	154.4199	1401.7234	151.3681	-156.8265
60	-1446.7404	-197.8007	214.7473	1844.8304	170.3180	-182.1887
61	-1877.4766	217.7366	-245.7556	1405.0981	-226.0268	253.2049
62	-1425.1846	209.3374	-234.0946	1046.4039	-181.5277	190.9991
63	-1098.8256	135.3035	-132.6947	828.2789	-135.3033	132.8996
64	-877.4613	86.9092	-69.7443	703.6852	-86.9100	69.9348
65	-746.0107	45.7173	-9.6749	654.5985	-45.7184	9.8494
66	-712.5779	6.4414	5.5733	699.7027	-6.4396	-5.4147
67	-699.7149	6.4391	4.4899	686.8478	-6.4368	-4.3468
68	-686.8383	6.4088	3.4244	674.0258	-6.4064	-3.2973
69	-674.0266	6.4126	2.3814	661.2038	-6.4143	-2.2697
70	-661.1868	6.4427	1.3577	648.2962	-6.4455	-1.2612
71	-648.2839	6.4549	0.3584	635.3763	-6.4548	-0.2778
72	-635.3950	6.4631	-0.6242	622.4718	-6.4627	0.6890
73	-622.4963	6.4523	-1.5961	609.5874	-6.4519	1.6461
74	-609.5897	6.4356	-2.5423	605.1757	9.4102	-7.2644
75	-605.1729	-9.3803	6.3738	626.3482	11.3800	-8.9819
76	-626.3391	-11.3730	8.0961	651.5015	13.3730	-10.6634
77	-675.6924	-55.8381	26.1005	789.7733	57.8383	-28.6226
78	-835.3636	-99.5288	88.9094	1036.8096	101.5287	-91.3789
79	-1090.8678	-150.2424	154.3179	1393.7249	152.2420	-156.7292
80	-1439.4191	-198.6908	214.5951	1839.0490	171.4477	-183.9031
81	-1870.6567	216.3120	-221.0360	1401.0952	-224.3215	226.2643
82	-1421.5095	207.6651	-207.4866	1048.2893	-180.3351	169.6632
83	-1101.6708	134.2528	-113.2245	833.1158	-134.2529	113.4305
84	-883.7643	86.3063	-55.2850	711.1127	-86.3065	55.4740
85	-754.5309	46.0788	-5.7873	662.3555	-46.0821	5.9623
86	-710.7025	13.4051	-14.1451	683.8820	-13.4037	14.3032
87	-683.8591	13.3937	-15.2079	657.0684	-13.3901	15.3501
88	-657.0403	13.3898	-16.2239	630.2467	-13.3898	16.3501
89	-630.2272	13.3845	-17.2026	603.4545	-13.3848	17.3140
90	-603.4225	13.3738	-18.1432	576.6637	-13.3743	18.2384
91	-576.6113	13.3811	-19.0325	549.8465	-13.3808	19.1117
92	-549.7976	13.3661	-19.8845	523.0632	-13.3650	19.9481
93	-523.0364	13.3552	-20.6933	496.3227	-13.3544	20.7404
94	-496.2890	13.3524	-21.4632	469.5790	-13.3531	21.4943
95	-469.5511	13.3538	-22.1949	469.9770	3.7806	9.1075
96	-469.9548	-3.7851	-9.7825	479.9482	5.7851	7.1865
97	-526.7026	-59.8193	35.9993	648.7904	61.8191	-38.5517
98	-693.8012	-105.0994	105.6566	906.4728	107.0991	-108.1603
99	-954.0667	-160.4739	182.6992	1277.5083	162.4738	-185.1456
100	-1306.1122	-194.5750	227.0292	1693.1115	168.3958	-198.1569
101	-1665.4330	199.8299	-202.2964	1295.0957	-183.9122	179.7477
102	-1315.4387	155.3614	-145.8768	1043.5282	-155.3615	146.0771
103	-1068.0236	117.6559	-103.1117	862.1004	-117.6558	103.2981
104	-891.8931	79.5518	-62.5770	752.6604	-79.5509	62.7499
105	-783.5933	46.2152	-28.2642	702.7075	-46.2150	28.4221
106	-750.1537	14.6445	-60.8720	724.5146	-14.6430	61.0155
107	-724.4225	14.6446	-61.8563	698.7797	-14.6455	61.9859
108	-698.6999	14.6608	-62.8054	673.0284	-14.6652	62.9210
109	-672.9479	14.6728	-63.7168	647.2580	-14.6759	63.8183
110	-647.1647	14.6989	-64.5980	621.4420	-14.6995	64.6855
111	-621.3629	14.7059	-65.4394	595.6181	-14.7040	65.5129
112	-595.5243	14.6831	-66.2416	569.8291	-14.6815	66.3003
113	-569.7539	14.6688	-67.0192	544.0739	-14.6689	67.0630
114	-543.9886	14.6723	-67.7563	532.9913	1.3836	55.8828

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	-532.8979	-1.3638	-56.5573	536.2387	2.3637	55.2796
116	-536.1562	-2.3889	-55.9352	542.7468	4.3900	53.3523
117	-573.2947	-58.1856	17.0177	677.0415	60.1861	-19.5695
118	-711.1176	-103.0976	93.6723	892.9722	105.0971	-96.1888
119	-923.4034	-138.8195	146.0453	1167.3262	139.8188	-147.1896
120	-1207.7883	-180.7725	203.2077	1521.7866	155.8304	-178.5334
121	-1478.0850	195.3416	-194.7669	1101.8207	-203.0677	196.5543
122	-1120.1394	188.5758	-180.0206	827.6334	-162.7229	152.8368
123	-871.0203	122.3982	-106.3208	656.7968	-122.3982	106.4624
124	-697.2152	80.2018	-62.1642	556.8406	-80.2011	62.2944
125	-591.2778	44.3655	-27.9724	513.6277	-44.3638	28.0923
126	-563.7700	2.3042	-63.5607	559.7306	-2.3029	63.6690
127	-559.6640	2.3123	-64.3184	555.6144	-2.3158	64.4169
128	-555.5337	2.3480	-65.0727	551.4102	-2.3511	65.1596
129	-551.3163	2.3486	-65.8173	547.2004	-2.3475	65.8943
130	-547.1240	2.3500	-66.5614	543.0057	-2.3505	66.6280
131	-542.9173	2.3622	-67.2956	538.7688	-2.3611	67.3512
132	-538.6900	2.3241	-68.0319	534.6143	-2.3215	68.0765
133	-534.5356	2.3280	-68.7612	530.4504	-2.3281	68.7954
134	-530.3693	2.3200	-69.4815	549.0227	13.4648	58.5058
135	-548.9276	-13.4600	-59.1890	573.4432	14.4600	57.9184
136	-573.3497	-14.4560	-58.6153	601.0583	16.4563	56.0416
137	-622.6620	-61.2826	12.3603	731.8279	63.2816	-14.8997
138	-761.9035	-96.0962	75.5034	931.5057	98.0945	-78.0055
139	-975.7714	-140.8866	144.4188	1223.3142	141.8853	-145.5447
140	-1262.1937	-182.6956	202.1994	1578.3779	156.8842	-175.4027
141	-1516.4886	198.5348	-230.6713	1121.1482	-206.7462	234.5243
142	-1140.1897	191.8081	-217.2734	824.8073	-165.2425	184.3430
143	-868.5870	123.5854	-134.8590	646.1508	-123.5865	135.0063
144	-685.2257	79.7286	-84.5210	541.7314	-79.7283	84.6569
145	-574.5667	41.9764	-38.1148	499.0109	-41.9769	38.2394
146	-552.4083	-3.2669	-36.7197	558.2818	3.2665	36.8323
147	-558.2473	-3.2567	-37.4951	564.0980	3.2582	37.5982
148	-564.0393	-3.2793	-38.2857	569.9359	3.2790	38.3781
149	-569.8850	-3.2482	-39.0714	575.7236	3.2463	39.1525
150	-575.6834	-3.2564	-39.8826	581.5368	3.2566	39.9529
151	-581.4882	-3.2493	-40.6907	587.3283	3.2497	40.7497
152	-587.2756	-3.2732	-41.5020	593.1587	3.2734	41.5492
153	-593.1114	-3.2542	-42.3310	601.1240	17.7482	31.9117
154	-601.0700	-17.7485	-32.7123	633.9208	18.7484	31.4262
155	-633.8599	-18.7359	-32.2466	669.9916	20.7364	29.6563
156	-669.9333	-20.7537	-30.4918	709.2941	22.7538	27.9360
157	-717.5534	-56.1577	15.2402	820.2393	58.1581	-17.7588
158	-851.0689	-98.2350	87.2956	1029.0940	100.2355	-89.7725
159	-1062.6467	-143.6230	150.5111	1322.0623	144.6226	-151.6077
160	-1352.8926	-186.1763	205.1202	1690.5433	159.2156	-174.6108
161	-1717.6776	211.7583	-251.5496	1258.2469	-219.5150	256.9842
162	-1276.6514	202.7666	-237.5940	891.8574	-174.3235	193.8252
163	-937.8270	127.8668	-135.0300	682.0705	-127.8671	135.1992
164	-721.0185	89.7471	-85.7111	541.5056	-89.7484	85.8687
165	-593.4148	41.8704	-16.9415	509.6698	-41.8696	17.0859
166	-557.5216	2.3615	8.1726	552.8066	-2.3586	-8.0407
167	-552.8174	2.3372	7.3129	548.1428	-2.3356	-7.1953
168	-548.1426	2.3350	6.4674	543.4721	-2.3362	-6.3615
169	-543.4846	2.3414	5.6184	538.8023	-2.3415	-5.5255
170	-538.7888	2.3408	4.7859	534.1027	-2.3388	-4.7078
171	-534.1041	2.3252	3.9684	529.4592	-2.3240	-3.9016
172	-529.4740	2.3086	3.1420	524.8539	-2.3095	-3.0882
173	-524.8657	2.3290	2.3277	520.2089	-2.3305	-2.2862
174	-520.2141	2.3416	1.5179	521.6526	12.8062	-11.2441

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	-521.6579	-12.8091	10.4684	549.7004	14.8089	-13.0842
176	-549.7038	-14.8009	12.3094	581.7237	16.8011	-14.8851
177	-604.0986	-56.0228	34.4296	718.5785	58.0233	-36.9591
178	-756.3352	-94.8749	89.0731	948.5329	96.8749	-91.5505
179	-1003.4644	-145.3654	153.7106	1296.6583	147.3650	-156.1276
180	-1342.8087	-193.7465	213.6782	1733.2839	166.6660	-181.3973
181	-1772.9425	206.7864	-237.0894	1333.5250	-215.0103	244.7259
182	-1352.7761	198.7603	-225.9433	1008.4269	-172.2893	183.4932
183	-1059.6013	127.3636	-126.4056	811.1758	-127.3632	126.6116
184	-860.3078	80.6315	-64.7868	703.0377	-80.6321	64.9779
185	-745.2769	41.2657	-6.5527	664.7863	-41.2686	6.7285
186	-697.9859	19.7658	7.0511	659.4331	-19.7683	-6.8923
187	-659.4349	19.7816	6.0588	620.8536	-19.7795	-5.9175
188	-620.8682	19.7765	5.1134	582.2957	-19.7750	-4.9861
189	-582.2989	19.7771	4.2316	543.7222	-19.7805	-4.1215
190	-543.7325	19.7939	3.4073	505.1224	-19.7962	-3.3071
191	-505.1265	19.7991	2.5541	466.5084	-19.7983	-2.4734
192	-466.5030	19.7869	1.9204	427.9145	-19.7838	-1.8667
193	-427.9154	19.7669	1.3838	389.3564	-19.7664	-1.3416
194	-389.3531	19.7818	0.7544	350.7660	-19.7839	-0.7196
195	-350.7644	19.7881	0.1523	327.4952	-3.6727	-11.6688
196	-327.4900	3.6702	11.2802	323.1469	-1.6702	-13.9039
197	-369.3016	-50.9242	41.6023	471.3566	52.9245	-44.1841
198	-513.6830	-95.1737	101.6343	701.9526	97.1737	-104.1744
199	-745.9141	-134.7799	151.8079	1011.3420	136.7797	-154.2859
200	-1064.4773	-182.4253	210.9055	1422.3868	156.7843	-182.2910
201	-1451.8018	179.1047	-166.5958	1197.3351	-165.2621	141.7595
202	-1209.1764	141.6699	-114.2645	1009.4246	-141.6695	114.4479
203	-1025.6774	109.5269	-76.2464	871.2367	-109.5239	76.3713
204	-894.1578	74.6244	-35.9159	788.9408	-74.6224	36.0507
205	-822.2487	36.4084	8.1396	770.9122	-36.4069	-8.0267
206	-770.9116	36.4225	7.6807	719.5549	-36.4236	-7.6113
207	-719.5538	36.4296	7.2301	668.1854	-36.4327	-7.0900
208	-668.1971	36.4214	6.0033	616.8486	-36.4223	-5.8655
209	-616.8371	36.4343	5.4908	565.4629	-36.4348	-5.4225
210	-565.4528	36.4588	5.0697	514.0384	-36.4603	-4.9885
211	-514.0413	36.4571	4.4699	462.6326	-36.4581	-4.3788
212	-462.6460	36.4618	3.9390	411.2383	-36.4641	-3.8749
213	-411.2360	36.4769	3.6306	359.7987	-36.4758	-3.5895
214	-359.7975	36.4607	3.3894	308.3931	-36.4601	-3.3371
215	-308.4041	36.4537	2.9782	257.0002	-36.4540	-2.9302
216	-256.9993	36.4548	2.7876	205.6061	-36.4520	-2.7614
217	-205.6092	36.4568	2.6327	154.2043	-36.4579	-2.6046
218	-154.2068	36.4656	2.4356	102.7877	-36.4656	-2.4115
219	-102.7911	36.4561	2.3213	51.3880	-36.4551	-2.3118
220	-51.3901	36.4516	2.2944	-0.0021	-29.0015	-2.1476

ENVOLVENTE MINIMOS CORTANTES TREN IPF-B, l=15 m, via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0083	-11.7228	-19.5912	28.3748	26.5535	-0.2179
2	-6.5458	-13.2228	-17.7756	27.0629	28.5127	-2.5385
3	13.5950	-16.0929	-14.6126	14.9895	31.2671	-5.5327
4	41.5337	-19.7513	-10.7166	-22.0083	35.7240	-10.2905
5	91.4818	-25.1171	-5.0087	-69.4719	41.5374	-16.4868
6	149.0558	-31.8026	2.1725	-102.0415	47.5396	-22.9713
7	188.9824	-38.6879	9.6673	-149.6920	55.7626	-31.9435
8	241.3494	-47.7700	19.6600	-189.7897	65.2694	-42.4556
9	283.6588	-58.0990	31.1929	-195.8403	74.3598	-52.6855
10	289.5386	-67.9965	42.4353	-203.0416	86.0355	-65.8157
11	294.3572	-80.4596	56.5570	-167.3238	96.8723	-78.2247
12	254.2233	-92.0353	69.9310	-121.2294	110.1953	-93.5838
13	201.8685	-106.0908	86.2168	-43.0362	124.3135	-110.0205
14	115.8146	-120.8958	103.5380	82.3084	137.3672	-125.3796
15	-18.7881	-134.5901	119.7302	230.9750	152.8613	-143.7146
16	-177.8320	-150.6982	138.8477	418.4906	168.9773	-162.9340
17	-376.5774	-167.3729	158.7886	654.8114	183.8716	-180.6952
18	-624.6904	-182.7968	177.2049	922.9875	201.0578	-201.3933
19	-904.9148	-200.4344	198.5115	1232.6998	218.6562	-222.7670
20	-1226.6519	-218.4472	220.4263	1590.7915	211.1136	-217.1969
21	87.6542	-28.3235	1.0793	-187.8238	26.8629	2.3856
22	198.2988	-9.8347	-24.1156	-160.6413	27.8312	0.1262
23	189.6880	-11.5407	-20.8458	-148.6185	29.5374	-3.1437
24	195.3562	-14.0610	-16.5025	-149.2472	32.0577	-7.4873
25	212.2758	-17.4522	-11.0234	-167.0091	35.7772	-18.9978
26	244.5844	-22.1063	1.6709	-214.9270	41.7330	-27.6914
27	304.8952	-29.0463	11.5881	-262.7969	48.9053	-38.0620
28	362.6572	-37.2457	23.2142	-304.7853	57.3325	-50.1227
29	411.7688	-46.7168	36.5440	-334.8297	67.0098	-63.6939
30	445.9465	-57.4503	51.3862	-346.7137	77.9529	-78.7250
31	458.8991	-69.4818	67.6732	-334.1653	90.1661	-95.1864
32	444.3375	-82.7499	85.3576	-291.1145	103.6026	-113.0294
33	396.2526	-97.2398	104.3778	-211.6580	118.2404	-132.1893
34	308.8937	-112.8996	124.6505	-90.3014	134.0312	-152.5811
35	177.0037	-129.6796	146.0773	78.0321	150.9223	-174.1047
36	-4.1914	-147.5100	168.5468	297.7940	168.8381	-196.6488
37	-238.7298	-166.3124	191.9368	572.7415	187.7070	-220.0906
38	-529.8589	-186.0155	216.1167	905.7964	207.4481	-244.3012
39	-879.9497	-206.4887	240.9494	1298.9098	227.9328	-269.1456
40	-1290.3617	-227.6262	266.3003	1752.8577	225.4658	-265.6881
41	238.2158	-32.5198	4.0539	-372.7755	32.7177	3.2448
42	383.9242	-15.7061	-24.7137	-334.4999	33.7095	0.6592
43	364.4412	-17.4478	-21.1072	-311.5342	35.4512	-2.9437
44	359.2981	-20.0107	-16.4278	-301.2526	38.0137	-7.6178
45	365.3690	-23.4529	-10.6182	-300.4512	41.4565	-13.4242
46	379.1027	-27.8324	-3.6357	-320.5337	46.5347	-28.5542
47	411.5263	-33.8939	12.7102	-360.0384	53.7785	-39.2344
48	460.8303	-42.1538	24.6258	-393.3564	62.2576	-51.5774
49	501.1554	-51.6857	38.2211	-414.4048	72.0016	-65.4063
50	526.2312	-62.4894	53.2978	-417.0016	83.0051	-80.6623
51	529.7939	-74.5782	69.7855	-394.8983	95.2769	-97.3158
52	505.5666	-87.9040	87.6343	-342.0215	108.7710	-115.3154
53	447.5493	-102.4487	106.7838	-252.4876	123.4646	-134.5983
54	350.0006	-118.1626	127.1522	-120.7978	139.3047	-155.0813
55	207.6942	-134.9896	148.6426	58.0521	156.2374	-176.6625
56	15.9140	-152.8517	171.1425	288.4830	174.1880	-199.2344
57	-229.3418	-171.6787	194.5356	574.1805	193.0730	-222.6782
58	-531.2572	-191.3906	218.6985	918.0484	212.8221	-246.8709
59	-892.1741	-211.8625	243.4880	1321.9825	233.3041	-271.6749
60	-1313.3889	-232.9953	268.7945	1786.8929	230.7708	-268.2077
61	279.0596	-33.4459	3.9993	-415.0375	33.6980	3.5007
62	426.1706	-16.6924	-24.9228	-374.7998	34.6888	0.8736
63	404.7427	-18.4374	-21.2931	-349.8821	36.4335	-2.7518
64	397.6529	-21.0038	-16.6009	-337.6614	39.0009	-7.4402
65	401.7785	-24.4551	-10.7876	-334.8854	42.4514	-13.2489
66	413.5284	-28.8404	-3.8102	-351.0606	47.4392	-28.4292
67	442.0231	-34.8148	12.5796	-388.7407	54.6984	-39.0716
68	489.4762	-43.0897	24.4600	-420.1746	63.1891	-51.3831
69	527.8835	-52.6303	38.0187	-439.2858	72.9504	-65.1797
70	550.9745	-63.4691	53.0655	-439.8147	83.9800	-80.4087
71	552.4084	-75.5491	69.5222	-415.5999	96.2436	-97.0367
72	526.0372	-88.8941	87.3501	-360.5350	109.7599	-115.0192
73	465.8040	-103.4357	106.4883	-268.8250	124.4306	-134.2933
74	366.0507	-119.1307	126.8487	-134.9676	140.2749	-154.7709
75	221.5746	-135.9816	148.3371	46.0932	157.2302	-176.3527
76	27.5997	-153.8683	170.8396	278.7247	175.1921	-198.9290
77	-219.8188	-172.6952	194.2383	566.5844	194.0839	-222.3801
78	-523.8736	-192.3977	218.4043	912.5257	213.8217	-246.5762
79	-886.8095	-212.8722	243.2093	1318.4377	234.3075	-271.3951
80	-1309.9117	-234.0102	268.5147	1785.1289	231.7368	-267.4465
81	243.3294	-27.9979	-7.4630	-391.0790	28.3225	14.1352
82	402.4237	-11.3357	-35.3468	-361.7411	29.3392	11.2873
83	391.9401	-13.1204	-31.2932	-347.6859	31.1244	7.2379
84	395.6887	-15.7435	-25.9769	-346.1841	33.7473	1.9262
85	410.4427	-19.2686	-19.3371	-353.8912	37.2724	-4.7100
86	432.5197	-23.7527	-11.3241	-380.1297	42.3863	-21.1446
87	470.8505	-29.8635	6.5170	-427.2510	49.7902	-33.4323
88	527.4464	-38.3031	20.2185	-467.3869	58.4540	-47.5938
89	574.2083	-48.0319	35.7970	-494.3799	68.3920	-63.4258
90	604.8035	-59.0470	53.0198	-501.9461	79.6090	-80.8346
91	612.8658	-71.3364	71.7632	-483.8407	92.0788	-99.7390
92	592.1712	-84.8747	91.9498	-433.9932	105.7820	-120.0617
93	536.7550	-99.6169	113.4578	-346.6424	120.6664	-141.6734
94	441.0058	-115.5377	136.1574	-216.3156	136.7137	-164.4449
95	299.7625	-132.5746	159.8909	-38.1347	153.8597	-188.2161
96	108.4905	-150.6319	184.4807	192.0779	171.9908	-212.8072
97	-136.5651	-169.6422	209.7341	477.8361	191.0555	-238.0273
98	-438.3578	-189.5075	235.4538	821.6668	210.9518	-263.6812
99	-798.8060	-210.1137	261.4285	1225.1130	231.5573	-289.5533
100	-1218.8232	-231.3281	287.4426	1683.5439	228.4571	-281.2557
101	261.2553	-36.1798	-8.8850	-412.0862	34.6770	16.7000
102	422.9808	-19.8872	-34.9898	-374.3903	35.6387	13.9371
103	399.9744	-21.5296	-30.8574	-348.5098	37.2811	9.8091
104	387.8550	-23.9084	-25.3666	-332.2286	39.6595	4.3220
105	384.0597	-27.0748	-18.5236	-322.8916	42.8262	-2.5171
106	385.6936	-31.0685	-10.3569	-317.5369	46.8194	-10.6795
107	389.5223	-35.9403	-0.8905	-328.4855	52.5921	-26.9911
108	407.6416	-42.6059	16.6822	-351.7527	60.6334	-41.7362
109	435.8667	-51.5542	32.6404	-364.4529	69.8345	-58.0941
110	451.2085	-61.6993	50.1600	-361.5113	80.2159	-75.7451
111	448.5607	-73.0122	68.8975	-321.9703	90.2265	-92.2849
112	406.9431	-83.9254	86.4453	-273.7754	102.7525	-112.1055
113	354.3892	-97.3713	107.1887	-195.7604	116.3792	-132.8575
114	269.8655	-111.8856	128.7596	-83.6466	131.0453	-154.4074

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	149.2699	-127.4049	151.0211	77.4685	144.9048	-174.3882
116	-22.0452	-142.0490	171.5967	267.5944	161.3700	-197.1493
117	-223.7669	-159.2944	194.8268	501.6534	178.6851	-220.2837
118	-470.4417	-177.3040	218.2989	781.6204	196.7358	-243.6353
119	-763.6146	-195.9909	241.8623	1115.2736	213.5853	-264.9388
120	-1110.6060	-213.3953	263.2408	1483.9608	211.0180	-256.4822
121	317.2991	-37.2478	-16.1867	-428.9149	36.9141	21.6004
122	438.8580	-22.0838	-39.7600	-386.4210	37.8352	18.7090
123	410.5606	-23.6625	-35.4483	-355.3610	39.4138	14.4010
124	392.9606	-25.9544	-29.7401	-333.7482	41.7057	8.6960
125	383.6831	-29.0122	-22.6442	-319.1210	44.7629	1.6046
126	380.0216	-32.8953	-14.1960	-321.7282	49.3420	-12.4800
127	391.9312	-38.3336	1.2167	-326.9557	55.0886	-24.1683
128	404.5152	-44.9805	14.1848	-343.7636	62.9482	-39.3928
129	426.5227	-53.7414	30.6345	-350.8172	71.9715	-56.2340
130	436.5093	-63.7057	48.6428	-343.0319	82.1821	-74.3595
131	429.2979	-74.8510	67.8543	-299.4297	92.0455	-91.3074
132	383.9097	-85.6307	85.8088	-247.7413	104.4303	-111.5788
133	328.1276	-98.9380	106.9849	-166.8092	117.9263	-132.7461
134	240.8967	-113.3297	128.9501	-52.2370	132.4796	-154.6679
135	118.0107	-128.7534	151.5530	111.0391	146.2544	-174.9467
136	-55.3531	-143.3469	172.3843	303.1329	162.6722	-197.9685
137	-259.0196	-160.5476	195.8267	539.1393	179.9582	-221.2861
138	-507.7001	-178.5467	219.4280	821.2086	198.0045	-244.7346
139	-803.1276	-197.2472	243.0077	1157.1195	214.8545	-266.0544
140	-1152.6189	-214.6672	264.3223	1527.6147	212.0671	-256.9781
141	284.4341	-38.1553	2.1813	-385.1215	37.4479	4.3842
142	395.3068	-22.1706	-23.3021	-340.8248	38.3689	1.6686
143	365.8320	-23.7463	-19.2952	-308.5148	39.9446	-2.3360
144	347.6681	-26.0394	-14.0265	-286.2244	42.2373	-7.6012
145	338.4433	-29.1082	-7.5314	-271.4744	45.3066	-14.0936
146	335.3892	-33.0040	0.1619	-278.2378	50.0650	-27.1074
147	352.1581	-38.6342	14.3384	-300.7457	56.7900	-39.3436
148	382.6795	-46.2593	27.7055	-318.6253	64.6749	-53.0955
149	406.3682	-55.0836	42.5384	-309.1305	72.4892	-66.2072
150	400.3018	-63.8396	56.6966	-302.4835	82.6209	-82.3464
151	394.6175	-74.9289	73.8281	-275.9076	93.9304	-99.5101
152	366.5288	-87.1859	91.9294	-224.2648	106.3909	-117.6386
153	310.9115	-100.5936	110.9401	-142.5897	119.9793	-136.6746
154	222.9159	-115.1054	130.7931	-13.2226	132.9541	-154.5464
155	85.0634	-128.9756	149.4152	140.8301	148.5750	-175.1629
156	-79.4184	-145.4443	170.7087	337.4513	165.1503	-196.4622
157	-288.1020	-162.8216	192.6135	579.8055	182.6085	-218.3680
158	-543.7814	-181.0253	215.0499	870.3219	200.8548	-240.8050
159	-848.4437	-199.9534	237.9553	1217.4579	217.9758	-261.5985
160	-1210.0969	-217.6850	259.1330	1608.1240	215.5018	-257.4525
161	240.0120	-28.4690	3.8511	-351.6811	29.3213	2.2885
162	361.5934	-12.2724	-23.8405	-319.0419	30.2743	-0.2017
163	347.2695	-13.9593	-20.3610	-301.3452	31.9613	-3.6782
164	347.0907	-16.4538	-15.8396	-296.1743	34.4558	-8.1965
165	358.1103	-19.8198	-10.2130	-300.4645	37.8214	-13.8191
166	376.9021	-24.1202	-3.4361	-336.9999	43.4053	-28.7933
167	425.8328	-30.6836	12.7330	-379.9840	50.5337	-39.1770
168	478.7435	-38.8329	24.3420	-417.3021	58.9099	-51.2148
169	523.2253	-48.2579	37.6294	-442.8581	68.5508	-64.7380
170	552.9780	-58.9749	52.3944	-450.4120	79.4707	-79.6876
171	561.6782	-70.9594	68.5723	-433.7400	91.6444	-96.0391
172	543.0742	-84.2014	86.1432	-386.7378	105.0586	-113.7700
173	491.1092	-98.6794	105.0375	-303.4433	119.6951	-132.8064
174	399.9724	-114.3529	125.1863	-178.2696	135.5016	-153.0794

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	264.3360	-131.1479	146.5011	-6.1933	152.4035	-174.4963
176	79.4956	-149.0088	168.8726	217.2658	170.3516	-196.9516
177	-158.6399	-167.8218	192.1955	495.7954	189.2242	-220.3387
178	-453.2271	-187.5239	216.3561	832.2879	208.9687	-244.5442
179	-806.5901	-208.0076	241.2187	1228.6387	229.4611	-269.4325
180	-1219.9939	-229.1521	266.6667	1686.1396	226.6127	-266.5814
181	137.7703	-21.3135	4.0266	-297.1942	20.9793	3.9563
182	307.9596	-4.4132	-25.0490	-282.2300	21.9680	1.5987
183	311.0132	-6.1539	-21.6884	-281.8877	23.7086	-1.7579
184	327.6666	-8.7144	-17.2684	-293.5450	26.2698	-6.1743
185	354.8249	-12.1581	-11.7284	-313.9879	29.7134	-11.7116
186	388.9531	-16.5360	-5.0147	-355.3825	34.8588	-26.9291
187	441.8526	-22.6628	11.4083	-415.0452	42.2055	-37.3320
188	510.5335	-31.0133	23.0593	-467.9013	50.7883	-49.4321
189	569.6743	-40.6326	36.4114	-508.0098	60.6218	-63.0318
190	613.1992	-51.5275	51.2659	-529.3363	71.7225	-78.0947
191	634.9874	-63.6613	67.6613	-525.9187	84.0386	-94.6632
192	629.1374	-77.0149	85.2747	-492.0614	97.5506	-112.3974
193	590.0194	-91.5455	104.1236	-422.2462	112.2325	-131.4035
194	512.2523	-107.2357	124.3654	-298.1462	126.4042	-149.8754
195	377.8485	-122.3538	143.8850	-142.8645	143.2110	-171.3428
196	210.2878	-140.0571	166.2311	61.9249	161.0001	-193.7486
197	-8.4502	-158.6824	189.5019	319.5011	179.6766	-217.0871
198	-281.0775	-178.1193	213.5782	632.1789	199.1430	-241.2096
199	-609.2709	-198.2782	238.3992	1001.2873	219.3038	-266.0446
200	-993.8497	-219.0324	263.5354	1426.8480	216.2668	-262.8812
201	95.6029	-14.7846	13.7043	-284.6939	10.6264	0.1508
202	291.3704	1.4802	-15.1122	-284.5119	11.2099	-1.8576
203	301.1947	0.4737	-12.4527	-292.9148	12.2158	-4.5005
204	319.2385	-0.9858	-9.0523	-308.9018	13.6752	-7.9036
205	344.3323	-2.9422	-4.7143	-331.2370	15.6321	-12.2350
206	375.0973	-5.4416	0.2330	-358.4769	18.1328	-17.1698
207	409.9092	-8.4934	6.0127	-388.9824	21.1839	-22.9692
208	446.9386	-12.1391	13.1841	-420.8760	24.8294	-30.1408
209	484.2036	-16.4184	20.7609	-485.0976	31.2266	-50.7680
210	552.4121	-23.4597	42.2410	-527.4696	37.3628	-61.0534
211	597.2700	-30.2534	53.6164	-579.3149	45.5952	-74.6836
212	650.0121	-39.1943	68.0958	-602.0168	53.3216	-87.2318
213	671.8801	-47.6353	81.2694	-626.3483	63.4214	-102.6529
214	693.5235	-58.4126	97.4805	-616.2199	72.7592	-116.7727
215	678.7228	-68.5102	112.8077	-585.3446	82.9300	-132.1504
216	641.2855	-79.4499	128.6038	-540.9950	95.8041	-150.3288
217	588.2475	-93.0819	147.5695	-456.2047	107.7057	-167.0037
218	492.5554	-105.7547	165.1887	-345.9094	122.5107	-187.1517
219	369.3061	-121.3262	185.9019	-192.2605	136.1400	-205.3848
220	200.5818	-135.7364	205.4952	-0.2477	148.4257	-205.5048

ENVOLVENTE MINIMOS TORSORES TREN IPF-B, l=15 m, via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0712	143.8242	-234.8019	-233.5187	-142.1526	233.0675
2	208.7513	126.8808	-214.8823	-410.1223	-123.4766	211.2233
3	369.6754	111.0520	-193.7270	-546.8217	-109.3225	191.7226
4	488.2650	97.3530	-175.0011	-635.6138	-93.8523	170.9378
5	553.7016	81.3204	-155.0819	-672.7837	-77.7794	150.7906
6	551.2957	62.9012	-135.8869	-645.7272	-61.1266	133.5388
7	505.7088	46.8567	-119.6959	-562.5490	-43.2964	115.0905
8	470.9579	35.3114	-102.3130	-507.1962	-31.7569	97.5303
9	413.3842	24.5712	-85.8259	-441.5323	-22.8019	83.2441
10	347.8642	16.4501	-72.6310	-348.3741	-12.9423	67.6211
11	257.0724	7.3531	-58.1127	-254.8901	-5.6126	55.4411
12	167.9412	0.7786	-47.0370	-139.1476	2.6429	42.0318
13	58.3024	-6.7497	-34.7275	107.9770	5.0980	31.3371
14	-188.4015	-8.8746	-25.1189	202.9119	8.8746	25.1190
15	-450.8505	-19.6994	-20.1187	483.0589	19.6994	20.1188
16	-548.5680	-22.3705	-16.2763	585.1432	22.3705	16.2765
17	-627.2856	-23.9545	-13.4744	666.4447	23.9545	13.4743
18	-696.7725	-25.0553	-11.6832	737.7402	25.0553	11.6830
19	-757.9693	-25.7411	-10.8566	800.0558	25.7411	10.8566
20	-806.3198	-25.9396	-10.9734	1031.4172	16.7544	25.0923
21	-809.2777	154.1050	-241.9006	451.5249	-182.8936	273.4399
22	-461.6611	165.8662	-251.9385	149.7814	-163.4658	249.1219
23	-178.5123	147.1770	-228.2956	-97.7471	-144.5820	225.2455
24	51.2800	129.1022	-205.2128	-292.3573	-126.3282	201.9310
25	229.5654	111.7259	-182.8051	-436.1273	-108.7922	179.2982
26	358.7437	95.1157	-161.1893	-531.6344	-92.0383	157.4687
27	441.8200	79.3439	-140.4703	-582.1851	-76.1440	136.5476
28	482.4477	64.4647	-120.7426	-591.6304	-61.1762	116.6361
29	484.7477	50.5565	-102.0987	-564.3446	-47.1893	97.8266
30	453.2589	37.6458	-84.6123	-505.1038	-34.2182	80.1946
31	392.6521	25.6955	-68.3404	-418.6777	-22.2498	63.7976
32	280.2761	12.7132	-53.3381	-278.5151	-9.2748	48.6930
33	78.0403	-3.3387	-39.7597	116.4902	7.3632	36.4789
34	-222.5622	-13.2121	-29.0274	248.9785	13.2121	29.0273
35	-335.9407	-17.5755	-22.9726	371.0842	17.5755	22.9728
36	-445.1508	-20.9792	-18.2782	487.1036	20.9792	18.2784
37	-547.9626	-23.5721	-14.8942	595.0970	23.5721	14.8943
38	-638.2351	-25.2721	-12.7716	688.7720	25.2721	12.7715
39	-714.8906	-26.2306	-11.8507	767.3432	26.2306	11.8506
40	-776.1975	-26.5342	-12.0694	1010.2848	17.1439	23.3457
41	-625.3439	148.4849	-239.1550	278.5831	-176.9865	273.2795
42	-289.3851	159.9755	-251.5498	-11.1523	-157.5619	248.7125
43	-19.7281	141.3434	-227.7007	-245.1922	-138.7398	224.6380
44	197.7014	123.3011	-204.4584	-427.3993	-120.5220	201.1714
45	363.5217	105.9506	-181.9278	-558.6675	-103.0123	178.4226
46	466.8048	90.0183	-160.2288	-629.5920	-86.9422	156.5149
47	449.3691	78.9134	-139.5504	-588.9074	-75.7204	135.6404
48	488.2289	64.1010	-119.9240	-596.6767	-60.8172	115.8328
49	488.9522	50.2534	-101.3769	-567.9139	-46.8894	97.1207
50	456.1085	37.3744	-83.9812	-507.3919	-33.9657	79.5808
51	394.5665	25.5118	-67.7951	-420.1577	-22.0675	63.2686
52	309.0278	14.6599	-52.8575	-311.0877	-11.2196	48.2265
53	131.7021	0.0979	-39.2278	56.5510	3.8502	36.0508
54	-254.7251	-4.1326	-28.6490	262.9892	4.1326	28.6486
55	-362.6858	-6.0587	-22.6498	374.8028	6.0587	22.6493
56	-449.0074	-9.4485	-17.9668	467.9048	9.4485	17.9667
57	-528.8399	-12.0132	-14.5533	552.8673	12.0132	14.5531
58	-597.7721	-14.3707	-12.3584	626.5207	14.3707	12.3584
59	-673.8182	-19.9242	-11.3544	713.6729	19.9242	11.3542
60	-759.2201	-25.7889	-11.5266	991.9124	16.3992	22.7475
61	-566.8201	145.7318	-240.0084	225.8857	-174.2383	274.2260
62	-236.6590	157.2293	-252.3998	-58.3145	-154.8110	249.5756
63	28.6894	138.5658	-228.4620	-287.9817	-135.9588	225.4071
64	238.7088	120.6048	-205.1235	-462.9512	-117.8242	201.8411
65	399.0684	103.2717	-182.4994	-588.7904	-100.3323	178.9953
66	510.3440	86.7175	-160.7001	-666.4781	-83.6347	156.9837
67	571.6906	71.2212	-139.8272	-695.7917	-68.0328	135.9117
68	481.8119	62.9691	-120.0382	-587.9431	-59.6759	115.9406
69	458.0592	50.5648	-101.4794	-537.6129	-47.1975	97.2172
70	425.9506	37.6903	-84.0774	-477.8240	-34.2717	79.6691
71	365.2160	25.8507	-67.8884	-391.4874	-22.4135	63.3549
72	281.0021	15.0562	-52.9529	-283.8872	-11.6248	48.3139
73	178.5175	5.3012	-39.2974	0.5986	-1.7241	36.1259
74	-98.2255	-3.5868	-28.4895	105.3979	3.5871	28.4917
75	-321.5855	-14.5566	-22.2749	350.6933	14.5564	22.2762
76	-425.0025	-17.9461	-17.5415	460.8873	17.9460	17.5425
77	-519.9957	-20.4349	-14.1112	560.8573	20.4349	14.1101
78	-603.8344	-22.1188	-11.9295	648.0596	22.1189	11.9276
79	-674.1644	-23.0699	-10.9366	720.2962	23.0698	10.9337
80	-729.1652	-23.3736	-11.0831	948.9065	14.1764	21.6698
81	-521.7443	142.6724	-225.9064	197.0268	-170.8572	259.1149
82	-468.8546	162.8726	-237.7198	162.2604	-160.4108	234.4305
83	-192.1363	144.1868	-214.0885	-78.6370	-141.5355	210.5689
84	30.9122	126.1575	-191.2267	-266.3916	-123.3340	187.4907
85	-54.0308	120.0159	-169.3504	-169.2274	-117.0354	165.4172
86	-53.2911	110.3748	-148.8700	-150.1050	-107.2554	144.7592
87	23.0777	96.6561	-129.5903	-197.9466	-93.4298	125.3326
88	68.0387	83.7139	-111.5195	-215.5012	-80.3973	107.1430
89	107.3806	70.0591	-94.7115	-225.7614	-66.6791	90.2480
90	95.7044	58.8359	-79.2048	-189.7375	-55.4027	74.6888
91	78.8346	47.1419	-65.0589	-147.6369	-43.6927	60.5248
92	39.2839	36.4914	-52.2716	121.4770	-34.3733	49.8480
93	-224.3063	28.2204	-42.9393	168.5099	-28.3505	42.9841
94	-262.9935	23.2169	-37.3713	216.5474	-23.2171	37.4012
95	-300.1521	19.0704	-33.0178	261.9980	-19.0694	33.0325
96	-332.5418	15.8496	-29.7906	300.8355	-15.8494	29.7907
97	-356.5715	13.4926	-27.5900	329.5779	-13.4929	27.5753
98	-369.3018	11.9438	-26.3028	345.4103	-11.9442	26.2721
99	-368.5462	11.1053	-25.8115	347.2412	-10.9752	25.7663
100	-353.8400	10.7499	-25.9913	537.1734	-15.0252	34.9157
101	-1401.2942	156.6579	-218.6608	1087.6967	-183.8657	250.4062
102	-1098.2854	169.0761	-232.9405	817.9993	-166.2013	228.6865
103	-843.3095	152.1007	-212.3402	584.9083	-150.5859	210.1914
104	-624.0050	137.1998	-194.9880	400.1206	-134.0319	190.5652
105	-451.7217	121.4485	-176.5445	255.0476	-118.1177	172.0523
106	-317.6521	106.3604	-159.2171	147.6395	-102.8914	154.6745
107	-219.4544	92.0120	-143.0404	67.5143	-90.2339	140.6793
108	-146.5326	80.2529	-130.2433	26.5963	-76.6395	125.6580
109	-110.6107	67.5713	-116.4044	14.0570	-63.9070	111.8366
110	-100.7411	55.7793	-103.7510	230.3963	-48.9607	99.8696
111	-317.3964	41.7480	-92.9160	244.3265	-41.7461	92.9895
112	-329.2659	35.4424	-87.1241	267.2371	-35.4408	87.1823
113	-347.8547	30.0492	-82.3627	295.2581	-30.0493	82.4064
114	-369.3844	25.5514	-78.5607	324.6561	-25.5533	78.5916

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	-390.3235	21.9233	-75.6523	351.9410	-21.9227	75.6681
116	-407.4492	19.0617	-73.5546	374.0811	-19.0595	73.5575
117	-418.0171	16.9712	-72.1780	388.3073	-16.9707	72.1667
118	-419.6580	15.5919	-71.4402	392.3574	-15.5918	71.4134
119	-410.5231	14.8499	-71.2331	384.5269	-14.8499	71.1930
120	-389.3868	14.6667	-71.4694	553.6270	-18.4753	77.4176
121	-1168.5193	148.1949	-220.5439	872.9376	-174.0213	248.5133
122	-882.5671	159.1936	-230.8850	620.3145	-156.3568	226.4893
123	-644.1655	142.1785	-210.0556	403.3817	-140.6777	207.8340
124	-440.7241	127.2233	-192.6166	234.6107	-124.0759	188.0814
125	-284.3266	111.3975	-174.1044	105.3650	-108.0755	169.5213
126	-166.0767	96.1927	-156.7847	13.8196	-92.7285	152.1754
127	-83.8479	81.7175	-140.6900	-50.1482	-79.9350	138.3008
128	-27.2628	69.8329	-128.0587	-74.5903	-66.2106	123.4475
129	-8.0516	57.0083	-114.4284	-70.2003	-53.3213	109.8634
130	-15.4079	45.0491	-102.0463	155.9704	-37.2916	99.2255
131	-242.1715	29.9611	-92.5671	189.7216	-29.9600	92.6229
132	-274.1718	23.5343	-87.0816	232.9732	-23.5317	87.1258
133	-313.3583	18.0471	-82.6382	281.7632	-18.0472	82.6727
134	-355.8837	13.4443	-79.1645	332.3418	-13.4443	79.1875
135	-398.1664	9.7181	-76.5760	381.1486	-9.7193	76.5884
136	-436.9091	6.8180	-74.7956	424.9624	-6.8192	74.7971
137	-469.1755	4.6912	-73.7214	460.9618	-4.6916	73.7133
138	-492.5302	3.3020	-73.2443	486.7415	-3.3029	73.2249
139	-504.9788	2.5537	-73.2656	500.5064	-2.5542	73.2353
140	-505.1904	2.3789	-73.6728	688.6018	-7.4654	81.2321
141	-1172.8978	148.7105	-224.1053	866.2762	-175.4291	253.9679
142	-876.1596	160.1514	-235.6241	605.3451	-157.4534	231.9247
143	-630.0777	142.8343	-214.6350	388.4129	-139.9262	210.8502
144	-427.3253	126.0263	-194.6325	208.4064	-124.4969	192.6861
145	-260.4184	111.3637	-177.5405	76.7722	-108.1771	173.5903
146	-140.5112	95.8789	-159.5314	-15.2058	-92.5424	155.4862
147	-58.5683	81.1060	-142.5140	-69.9356	-77.6479	138.3710
148	-11.8706	67.1174	-126.4937	-90.4139	-63.5635	122.2533
149	2.7680	53.9822	-111.4642	-89.3684	-52.1792	109.1971
150	-1.7480	43.5248	-99.5033	-52.7998	-39.8924	95.1110
151	-39.3131	32.2105	-86.4933	6.5463	-28.5664	82.0108
152	-97.1663	21.8047	-74.4575	261.2131	-19.6212	73.3017
153	-347.8971	13.8381	-66.8026	322.9827	-13.8380	66.8377
154	-403.3745	8.9607	-61.3634	387.2367	-8.9615	61.3893
155	-459.1578	4.9852	-56.9126	450.1753	-4.9855	56.9266
156	-511.6969	1.8388	-53.4136	508.3750	-1.8392	53.4183
157	-557.8706	-0.4746	-50.8425	558.7126	0.4743	50.8356
158	-594.9105	-2.0743	-49.1587	598.6431	2.0747	49.1406
159	-620.7245	-2.9702	-48.3356	626.0672	2.9702	48.3065
160	-633.6595	-3.2619	-48.3539	862.9602	-1.6485	57.0417
161	-777.7289	161.6613	-243.9918	387.6985	-189.9554	276.2325
162	-409.7871	174.7101	-254.6351	80.4809	-172.3132	251.8565
163	-109.5644	156.2348	-230.8923	-184.6396	-153.6426	227.8829
164	139.1753	138.1316	-207.6651	-398.1995	-135.3538	204.4260
165	336.5062	120.7085	-185.0584	-560.9700	-117.7709	181.5934
166	484.7451	104.0778	-163.1913	-675.5845	-101.0054	159.5097
167	586.9268	88.3107	-142.1600	-745.2546	-85.1124	138.2710
168	645.4374	73.1806	-122.0692	-772.0954	-69.8819	117.9891
169	653.4611	57.4148	-103.0004	-746.8510	-54.0382	98.7447
170	616.3428	42.2048	-85.0652	-677.4195	-38.7839	80.6544
171	519.8733	26.1114	-68.3600	-546.8377	-22.6640	63.8068
172	339.2342	7.7062	-53.0287	-327.6182	-4.2572	48.3549
173	223.1851	-2.1238	-39.0363	-36.1629	6.8252	35.3257
174	-60.4879	-12.1666	-27.4167	84.8288	12.1668	27.4095

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	-171.0415	-16.5218	-20.8952	204.0909	16.5222	20.8921
176	-277.5661	-19.9280	-15.7442	317.4221	19.9263	15.7439
177	-448.8362	-25.5940	-11.9663	500.0301	25.5956	11.9691
178	-551.0360	-27.6273	-9.5709	606.2927	27.6273	9.5763
179	-634.7223	-28.6762	-8.4360	692.0793	28.6763	8.4443
180	-701.0448	-28.9852	-8.5089	921.4405	18.5450	19.4583
181	-580.2276	145.6408	-234.1688	258.0968	-173.8852	268.2148
182	-268.5350	157.3254	-246.9416	-19.7955	-154.7883	244.0417
183	-8.7183	138.9711	-223.4538	-245.3938	-136.2406	220.3141
184	199.8915	121.2514	-200.5264	-420.2251	-118.3426	197.1505
185	357.9081	104.2733	-178.2696	-545.2181	-101.2097	174.6659
186	470.4356	88.0217	-156.7970	-625.5184	-84.8289	152.9769
187	539.1995	72.6181	-136.2234	-663.1895	-69.3110	132.2043
188	567.8162	58.1295	-116.6229	-662.1494	-54.7459	112.4217
189	557.9573	44.7612	-98.0915	-624.5792	-41.3203	93.7281
190	511.5455	32.8276	-80.7042	-553.1906	-29.3511	76.1821
191	378.4108	27.7997	-64.5127	-408.6637	-24.3334	59.8904
192	303.1478	17.3967	-49.6927	-311.7789	-13.9638	45.0031
193	213.7538	7.9683	-36.1131	-64.9501	-5.5828	34.3313
194	-25.1685	0.5785	-26.7370	24.0384	-0.5786	26.7379
195	-103.8985	-3.4727	-20.4785	110.6747	3.4727	20.4797
196	-178.2418	-6.6287	-15.4438	191.1696	6.6288	15.4435
197	-244.8323	-8.9446	-11.6348	262.2774	8.9446	11.6339
198	-300.9435	-10.5004	-9.0310	321.4270	10.5009	9.0292
199	-344.5919	-11.3665	-7.5202	366.7597	11.3666	7.5171
200	-374.5614	-11.6423	-7.1904	550.5360	2.5304	16.1295
201	-315.0620	129.7837	-164.3323	105.3947	-156.2465	194.4832
202	-111.8517	144.1357	-179.1607	-84.7902	-142.6244	177.1543
203	68.2124	130.9484	-162.4765	-245.8687	-129.3660	160.3537
204	213.5082	118.4250	-146.3907	-366.8821	-115.0424	141.9167
205	151.3268	112.3088	-128.6139	-302.7327	-110.5089	126.2886
206	212.2857	102.5048	-114.0066	-341.8577	-98.7043	109.2020
207	289.3998	89.1210	-97.6674	-406.7318	-87.1217	95.0966
208	348.6764	78.0831	-84.0067	-448.7157	-76.0186	81.3778
209	385.3623	67.5917	-71.4733	-467.4628	-62.4610	64.8432
210	400.1280	54.6642	-55.7486	-474.8023	-51.6663	51.6164
211	404.9839	44.5687	-43.2379	-301.9606	-33.3390	35.8771
212	227.3219	26.5256	-28.3997	-264.7198	-26.5255	28.4041
213	194.8314	20.8140	-21.8990	-224.1862	-20.8135	21.9017
214	156.9814	15.8390	-16.2455	-179.3157	-15.8389	16.2491
215	116.7263	11.6000	-11.3442	-133.0860	-11.5999	11.3468
216	77.0958	8.1135	-7.3938	-88.5359	-8.1136	7.3959
217	41.2202	5.3907	-4.2516	-48.8208	-5.3911	4.2531
218	-19.3499	10.9274	-1.9284	3.9426	-10.9275	1.9299
219	-33.3871	11.8409	-0.4010	16.6912	-11.8408	0.4014
220	-16.6918	11.8383	-0.4080	0.0004	-11.8379	0.4082

ENVOLVENTE MAXIMOS FLECTORES TREN UIC-71, via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0001	1.2480	-0.1874	-65.7135	-40.2573	-112.2878
2	251.8188	147.8578	429.2553	-475.9036	-120.7379	-355.3869
3	475.5438	120.7374	355.8271	-665.4134	-105.8378	-315.7704
4	665.0847	105.8229	316.3940	-828.1587	-89.1355	-272.3437
5	827.8876	89.1434	273.1211	-960.5666	-74.2887	-233.2179
6	960.3380	74.2607	234.1172	-1065.8308	-47.2237	-160.5493
7	1065.6599	47.2309	161.5534	-1137.2476	-42.9159	-151.4308
8	1137.1128	42.9444	152.5084	-1183.3848	-15.9810	-79.0092
9	1183.2944	16.0007	80.1270	-1198.8091	-1.2850	-40.3470
10	1198.7368	1.2886	41.4901	-1187.9875	13.4268	-1.7093
11	1187.9583	-13.4618	2.8445	-1147.4871	29.6928	40.9519
12	1147.5161	-29.7083	-39.8499	-1080.1995	56.5176	113.3749
13	1080.2722	-56.5376	-112.3393	-986.5973	60.3302	122.4949
14	986.7306	-60.3435	-121.5465	-863.9156	87.0211	195.1489
15	864.0797	-87.0030	-194.3095	-719.3924	102.7358	238.2787
16	719.6045	-102.7347	-237.5861	-547.1458	106.0635	247.9217
17	547.5436	-104.4525	-242.3162	-353.8451	130.8800	316.0838
18	392.0316	-84.4830	-209.6386	-254.0192	99.6848	253.8098
19	285.4545	-60.8327	-161.8972	-223.5504	39.6150	116.4733
20	249.6257	-4.7042	-29.0783	-231.2442	21.1304	64.4110
21	250.3893	-25.2834	11.1437	-193.1431	28.6290	-11.9520
22	211.0003	-13.7883	50.1623	-207.7994	-7.4637	-85.7741
23	252.6359	48.6472	192.5256	-317.5536	-30.4676	-141.6476
24	357.9012	73.6848	253.5730	-473.6268	-55.3298	-202.8034
25	507.6101	92.2569	307.6615	-660.4257	-73.7513	-256.9936
26	709.6935	111.2886	277.0906	-899.8045	-92.6443	-226.5124
27	899.5427	92.6334	227.5412	-1050.9290	-73.8877	-177.0401
28	1050.7253	73.8732	178.2643	-1162.6589	-55.0564	-127.8233
29	1162.5552	55.0470	129.1877	-1234.5238	-36.1828	-78.7847
30	1234.4535	36.1948	80.2407	-1267.1633	-6.5576	0.5401
31	1267.1536	6.5228	0.9648	-1259.8215	12.3672	49.4190
32	1259.8651	-12.3683	-47.9252	-1212.3291	31.2232	98.3300
33	1212.4639	-31.2159	-96.8846	-1125.4178	60.8194	177.7087
34	1125.5881	-60.8087	-176.3706	-999.6971	79.5746	226.8648
35	999.9632	-79.5597	-225.6795	-835.1909	98.2309	276.2496
36	835.5176	-98.2339	-275.2617	-632.7435	116.7840	325.9214
37	645.2505	-91.8271	-303.3739	-455.5125	110.2219	354.1351
38	492.5993	-73.4724	-249.1534	-340.8396	91.6904	300.0210
39	385.6545	-48.5873	-187.9176	-315.4821	31.3654	150.6560
40	353.8705	9.8160	-43.6830	-357.4975	9.5226	87.0760
41	385.7090	-29.2157	10.4544	-324.6897	28.6336	-8.9651
42	342.6718	-13.7926	47.4356	-329.7196	-3.4390	-85.3907
43	376.4543	44.5614	192.5690	-433.7785	-26.3524	-141.7190
44	477.7310	69.4255	254.1780	-585.3683	-51.0457	-203.4229
45	623.4013	87.7824	308.7188	-767.5648	-69.2529	-258.0519
46	821.0917	105.9636	277.8877	-1000.7648	-87.3131	-227.2995
47	1000.4982	87.3312	228.4851	-1141.3936	-68.5750	-177.9615
48	1141.1860	68.5873	179.3149	-1242.5927	-49.7656	-128.8418
49	1242.4598	49.7640	130.3288	-1303.8604	-30.9023	-79.8880
50	1303.8004	30.9246	81.4504	-1325.9441	-1.2741	-0.6415
51	1325.9666	1.2426	2.2352	-1308.0334	17.6419	48.1960
52	1308.0955	-17.6581	-46.6272	-1249.8927	36.5103	97.0823
53	1250.0496	-36.5532	-95.5819	-1152.2556	66.1702	176.4384
54	1152.4609	-66.1688	-175.0553	-1015.7416	84.9288	225.6006
55	1016.0197	-84.9315	-224.3865	-840.4016	103.6018	275.0054
56	840.7172	-103.6119	-274.0134	-627.1026	122.1537	324.7185
57	645.6070	-87.4719	-306.3156	-464.5329	105.8619	357.1157
58	502.6190	-68.8548	-252.5645	-360.0937	87.0632	303.4624
59	405.9037	-43.8097	-191.4147	-345.3279	26.5758	154.1791
60	384.4256	14.6792	-47.1169	-399.2213	0.7988	93.0402
61	427.8971	-26.5735	7.4930	-367.9491	29.9807	-8.4565
62	386.2436	-15.1576	46.9421	-367.0860	-2.2038	-84.9033
63	414.3799	43.2790	191.9757	-469.1630	-25.0702	-141.1180
64	513.8549	68.0746	253.3924	-618.7814	-49.6961	-202.6368
65	657.5235	86.3296	307.7575	-798.7594	-67.8083	-257.0974
66	850.0496	102.5458	276.5537	-1022.8210	-83.8953	-225.9784
67	1022.5631	83.9023	227.1942	-1156.5471	-65.1583	-176.6896
68	1156.3232	65.1906	178.0722	-1250.8684	-46.3724	-127.6219
69	1250.7380	46.3570	129.1165	-1305.2629	-27.4945	-78.7024
70	1305.1808	27.4628	80.2672	-1320.3740	2.1812	0.5197
71	1320.3441	-2.1824	1.0542	-1295.5269	21.0642	49.3482
72	1295.5847	-21.0713	-47.8034	-1230.5618	39.9155	98.2267
73	1230.7056	-39.9120	-96.7446	-1126.2581	69.5103	177.5762
74	1126.4539	-69.4993	-176.2320	-983.1433	88.2630	226.7438
75	983.4157	-88.2943	-225.5841	-801.1959	106.9492	276.1716
76	801.5220	-106.9605	-275.2374	-581.3531	125.4960	325.9097
77	602.7119	-87.9868	-306.7647	-420.7827	106.3615	357.5333
78	459.9311	-69.2868	-252.7953	-316.7317	87.4834	303.6641
79	363.4515	-44.1997	-191.6139	-296.4410	22.9832	156.8321
80	336.0194	18.2772	-49.8453	-356.5736	1.1567	93.0109
81	385.3224	-20.5288	-13.9886	-337.3780	23.9655	12.9491
82	355.6754	-9.1428	25.6525	-348.3740	-8.2031	-63.9328
83	395.9591	49.2305	172.0125	-462.7426	-30.9902	-121.4598
84	508.0097	73.8010	236.5132	-624.4640	-55.3897	-186.0686
85	663.6695	91.6865	296.3272	-815.6519	-73.1295	-245.9726
86	857.6003	101.3998	292.9581	-1028.0762	-82.7162	-242.6696
87	1027.7905	82.7360	243.8989	-1159.3914	-63.9657	-193.6480
88	1159.1648	63.9619	195.0309	-1251.1589	-45.1143	-144.7909
89	1251.0062	45.1264	146.2939	-1302.9840	-26.2429	-96.0321
90	1302.8906	26.2462	97.6029	-1315.6422	3.3934	-16.8549
91	1315.5963	-3.3994	18.4217	-1288.2864	22.2817	31.9432
92	1288.3126	-22.2558	-30.4002	-1220.9640	41.1049	80.8793
93	1221.0682	-41.0750	-79.4276	-1114.3361	70.6721	160.3387
94	1114.4895	-70.6781	-159.0109	-969.0948	89.4288	209.7378
95	969.3330	-89.4290	-208.5905	-785.3768	108.0639	259.5130
96	785.6830	-108.0571	-258.5970	-564.1916	126.5544	309.7395
97	601.7434	-83.7309	-286.9427	-429.5888	102.0646	338.3273
98	468.9694	-59.1182	-225.8269	-348.4999	66.0441	247.6125
99	381.8497	-32.0481	-162.5568	-318.3373	21.9778	159.1609
100	359.1325	19.3362	-53.1179	-381.4686	0.2966	94.9702
101	407.7813	-25.7300	-16.2641	-356.0559	29.3592	13.8978
102	365.3169	-16.1865	21.8836	-330.6988	8.0091	-36.5159
103	364.3200	28.1047	135.7807	-410.8874	-11.5446	-90.6278
104	445.8511	49.2951	198.7363	-529.2126	-44.7305	-187.1812
105	561.6911	79.7653	302.8373	-675.2993	-62.8251	-257.4495
106	719.8287	92.6789	304.2512	-857.1017	-64.9520	-228.5847
107	856.8155	64.9562	229.4735	-964.8563	-47.8117	-183.8787
108	964.6414	47.7926	184.8777	-1039.7754	-42.7721	-172.8152
109	1039.6042	42.7730	173.8874	-1083.1172	-14.9409	-98.0513
110	1082.9811	14.9149	99.1772	-1095.8790	0.7209	-56.9994
111	1095.8186	-0.7371	58.1297	-1077.3809	18.0110	-11.9584
112	1077.3510	-17.9740	13.0648	-1026.7687	35.2041	33.3468
113	1026.7991	-35.1960	-32.2837	-947.5566	62.9812	108.4820
114	947.6448	-62.9929	-107.5087	-835.2905	67.8987	120.6236

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	835.4254	-67.9200	-119.7690	-691.8699	84.8865	166.8788
116	692.0640	-84.8574	-166.1750	-520.8974	112.4754	242.7917
117	545.9891	-70.0576	-270.1546	-421.6720	86.7398	317.7389
118	450.7511	-51.8309	-232.9427	-358.2404	56.0782	247.1274
119	387.6442	-18.4038	-156.6405	-358.0951	5.8822	155.2210
120	381.5939	29.9845	-64.3277	-421.0590	-11.6652	98.6049
121	436.3766	-26.6385	-20.5377	-381.4312	30.9567	16.1255
122	388.6921	-17.7007	19.7386	-345.4579	31.7021	18.8856
123	372.8856	4.7022	80.8753	-415.5662	-10.6970	-89.1158
124	441.0809	40.6024	173.8455	-508.2440	-36.0982	-162.4607
125	544.5871	74.0305	281.6816	-647.5853	-57.1432	-236.4414
126	694.0391	96.6941	314.7212	-838.1867	-68.9799	-239.1141
127	837.9280	68.9730	239.9841	-952.9283	-51.8535	-194.5012
128	952.7043	51.8165	195.4897	-1035.0192	-46.7999	-183.5160
129	1034.8214	46.7972	184.5891	-1085.5094	-18.9634	-108.7824
130	1085.3929	18.9538	109.9159	-1105.6659	-1.6713	-63.9056
131	1105.5920	1.6546	65.0527	-1094.4076	13.9815	-22.7784
132	1094.3947	-13.9259	23.9229	-1051.1995	31.1836	22.4829
133	1051.2322	-31.1891	-21.3858	-979.1280	58.9928	97.5922
134	979.2089	-58.9829	-96.5754	-874.0367	63.9238	109.7341
135	874.1556	-63.9320	-108.8399	-737.6137	80.9433	156.0326
136	737.7891	-80.9438	-155.2695	-573.4015	108.5914	231.9391
137	590.8388	-75.9365	-263.3247	-455.9507	92.6755	311.0500
138	482.6078	-64.0098	-239.2790	-368.3007	68.3145	253.6494
139	405.2915	-34.3038	-172.7203	-349.2757	27.0354	162.3862
140	388.2926	6.5531	-79.1541	-387.7173	11.4044	118.8111
141	418.2748	-34.1862	11.1284	-350.8118	33.4128	-10.7260
142	357.3554	-19.7424	47.4717	-315.7209	11.8497	-61.3523
143	342.1300	25.6850	163.0189	-382.7125	-8.9101	-116.7667
144	406.8372	39.7820	201.8684	-474.2110	-22.7905	-155.4421
145	508.4312	57.4960	257.6310	-606.9922	-52.5130	-244.7503
146	665.5166	100.6109	297.8617	-818.2178	-83.2680	-251.1219
147	817.9642	83.2575	251.9787	-939.9637	-55.1343	-175.1067
148	939.7432	55.1569	176.1081	-1030.4104	-37.6405	-129.1728
149	1030.2589	37.6008	130.2541	-1087.3582	-20.0141	-83.1871
150	1087.2656	20.0278	84.3525	-1110.0494	-4.0225	-41.0597
151	1110.0007	4.0166	42.2375	-1100.6747	24.1831	34.7990
152	1100.6768	-24.1629	-33.6393	-1059.5928	29.5721	47.2507
153	1059.6541	-29.5894	-46.1202	-983.6092	47.1531	93.5586
154	983.7217	-47.1584	-92.5137	-874.4052	64.6420	140.0672
155	874.5651	-64.6538	-139.1383	-734.7712	92.7504	216.4252
156	734.9841	-92.7306	-215.6533	-564.2317	110.0141	263.3815
157	572.0871	-81.0865	-285.6609	-421.5428	85.9941	299.7693
158	449.5546	-49.3980	-203.8741	-334.5210	66.2888	251.7545
159	362.5818	-28.0272	-156.1002	-319.7299	20.8954	147.4096
160	346.0751	15.9156	-53.0929	-361.7665	1.8123	91.9911
161	383.8043	-26.9355	11.6543	-325.1001	26.4718	-9.5542
162	342.2593	-11.6106	47.9517	-331.9393	-5.6669	-85.8193
163	373.9942	46.9212	192.6397	-434.8706	-28.7467	-141.6945
164	470.6198	62.5872	228.8103	-563.7357	-44.2314	-177.9677
165	611.6028	86.7278	294.4741	-753.0770	-68.2114	-243.7310
166	795.8215	103.2256	273.4314	-969.6761	-84.5868	-222.7777
167	969.4183	84.6188	223.9214	-1104.6921	-65.8659	-173.3456
168	1104.4888	65.8699	174.6509	-1200.3778	-47.0311	-124.1412
169	1200.2515	47.0228	125.5811	-1256.1711	-28.1447	-75.1208
170	1256.0798	28.1472	76.6114	-1272.6945	1.5014	4.2083
171	1272.6929	-1.4874	-2.7086	-1249.3641	20.3862	53.1415
172	1249.4598	-20.3637	-51.6454	-1185.9370	39.2432	102.0831
173	1186.0850	-39.2613	-100.6786	-1082.9459	68.8837	181.5229
174	1083.1520	-68.9095	-180.2404	-941.0408	87.6970	230.7439

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	941.3277	-87.6899	-229.6358	-760.3243	106.3837	280.1963
176	760.6604	-106.3982	-279.3270	-541.6197	124.9610	329.9575
177	561.4301	-90.2824	-294.5534	-374.9208	108.6888	345.2596
178	408.2616	-75.8710	-251.7938	-251.9580	94.0943	302.5821
179	300.6763	-50.9558	-189.7803	-216.2343	30.6224	154.2277
180	257.4408	10.6268	-46.8986	-262.7050	8.2759	90.4736
181	292.5064	-15.3452	4.0630	-256.9276	18.2460	-4.7051
182	275.3000	-3.8380	42.0013	-284.5169	-13.4620	-80.4381
183	331.6744	53.3429	184.5560	-405.3913	-35.4083	-134.5875
184	450.9598	76.9141	243.7915	-571.1693	-58.8045	-193.9404
185	610.6794	96.5217	306.3968	-768.8889	-78.2606	-256.6559
186	793.1090	94.5375	270.1985	-946.5289	-65.3525	-190.2623
187	946.2832	65.3411	191.3394	-1063.6543	-46.9054	-141.7542
188	1063.4764	46.9104	142.9846	-1142.9851	-28.3985	-93.4621
189	1142.8560	28.3947	94.7748	-1184.0004	-9.8280	-45.2983
190	1183.9390	9.8137	46.6550	-1186.7001	7.2814	-0.5983
191	1186.6980	-7.2894	2.1297	-1151.7106	25.8560	47.3263
192	1151.7579	-25.8430	-46.1739	-1078.2938	44.3788	95.7161
193	1078.4012	-44.3586	-94.7073	-966.9166	62.8386	144.2516
194	967.1196	-62.8572	-143.0789	-818.0781	81.2416	192.6206
195	818.3545	-81.2427	-191.6001	-632.6701	99.5003	241.2592
196	632.9319	-99.4974	-240.6870	-411.7761	117.5957	290.4713
197	451.7471	-71.1630	-244.0535	-287.0703	89.0718	293.9087
198	323.0355	-51.4976	-193.0966	-199.1661	69.1873	243.0418
199	236.8906	-35.7795	-157.8253	-176.7359	25.0267	152.2413
200	222.4016	15.5106	-47.9336	-237.4326	3.7814	90.2751
201	266.4247	-5.7598	-2.1053	-253.0953	9.4472	1.3300
202	263.2548	11.5402	51.9936	-271.5750	-0.2598	-20.8822
203	285.7732	28.8343	91.7904	-357.1028	-38.0225	-101.9988
204	377.3128	69.0320	175.6650	-473.9990	-67.2117	-169.1033
205	503.4600	101.1616	249.1565	-632.5125	-88.4198	-213.4965
206	632.4284	88.4096	213.7530	-738.2123	-63.4002	-144.3763
207	738.1274	63.3951	144.7309	-827.0643	-61.0916	-138.3562
208	826.8882	61.0955	139.5678	-894.9268	-35.9158	-70.3844
209	894.8809	35.8894	70.8717	-940.1163	-22.8610	-35.2911
210	940.0903	22.8323	35.8133	-966.6708	-7.9279	4.2743
211	966.6761	7.9470	-3.4152	-969.9291	3.3368	34.2926
212	969.9791	-3.3512	-33.4779	-951.3575	28.7060	102.7084
213	951.4012	-28.7195	-102.2127	-912.1434	31.6591	108.6797
214	912.1968	-31.6352	-108.2393	-851.5374	57.0944	177.4803
215	851.7215	-57.0925	-176.6192	-765.2566	70.3699	212.1731
216	765.3668	-70.3705	-211.8031	-657.4865	83.6884	247.4552
217	657.6317	-83.6922	-247.1035	-528.2599	97.0312	282.7466
218	528.5362	-97.0344	-282.2505	-376.5226	122.5835	351.6353
219	376.7796	-122.5749	-351.3520	-199.0128	135.9418	387.1332
220	199.1320	-135.9331	-387.0752	0.3240	108.7539	276.1536

ENVOLVENTE MAXIMOS CORTANTES TREN UIC-71, via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.1514	164.6331	473.4646	-252.2184	-147.8561	-429.0206
2	241.8083	148.2703	431.0490	-461.4550	-131.5323	-386.7912
3	433.0761	132.7604	390.8241	-630.4740	-117.8682	-350.7793
4	586.7617	119.8946	356.7340	-748.6734	-103.2484	-312.7274
5	692.2648	106.1021	320.5256	-840.5923	-91.2604	-280.6267
6	774.0318	94.8842	290.1999	-884.6934	-78.3669	-246.3498
7	810.4886	82.8037	257.6524	-896.9600	-66.3895	-213.8564
8	817.5076	71.6178	226.8415	-902.6707	-56.9172	-187.0463
9	820.2844	62.8923	201.6770	-866.1135	-46.6642	-157.9117
10	782.9692	53.3652	174.1729	-810.5416	-37.2926	-130.3962
11	728.7262	44.6860	148.2695	-765.2403	-30.1599	-108.4470
12	686.6879	38.2685	127.9271	-684.7567	-22.4398	-84.0861
13	611.2208	31.2068	105.1726	-597.3164	-15.5734	-61.2781
14	530.3808	24.9924	83.9823	-533.1366	-10.7140	-44.0409
15	474.1708	20.7528	68.3798	-442.6253	-5.4348	-24.3704
16	392.8051	16.0465	50.3599	-381.3783	-1.9344	-10.3182
17	341.6466	13.0731	37.9824	-300.0699	1.8916	5.8613
18	271.1253	9.7625	23.5087	-264.2951	3.7373	24.3470
19	246.5808	8.3768	6.7511	-249.5825	4.7029	29.3362
20	243.2579	7.8263	3.5212	-140.4289	-15.5107	-29.4831
21	-1339.7970	205.5128	495.5618	934.8741	-211.5093	-504.3489
22	-943.7621	211.7951	504.9008	572.6547	-193.6145	-453.9469
23	-597.0313	194.4834	457.2008	259.4370	-176.1286	-406.3596
24	-298.9321	177.6669	412.2129	-5.2803	-159.1619	-361.4808
25	-48.4037	161.4003	369.8250	-222.7929	-142.7607	-319.1919
26	156.2687	145.7794	329.9333	-395.0140	-127.0291	-279.3866
27	317.3040	130.8811	292.4356	-524.4625	-112.0682	-241.9596
28	437.5517	116.7911	257.2384	-614.3113	-97.9193	-206.8152
29	520.4919	103.5563	224.2523	-668.3302	-84.6779	-173.8592
30	570.0809	91.2441	193.3995	-690.7460	-72.3714	-143.0165
31	590.7308	79.8751	164.6185	-686.1924	-61.0346	-114.2233
32	587.1420	69.4915	137.8550	-659.6658	-50.7288	-87.4257
33	564.3187	60.1326	113.0776	-616.3640	-41.4642	-62.5949
34	527.3453	51.7988	90.2635	-561.5681	-33.2491	-39.7091
35	481.3807	44.4988	69.4077	-500.6302	-26.1016	-18.7690
36	431.5264	38.2223	50.5265	-438.7858	-20.0069	0.2072
37	382.7343	32.9686	33.6423	-322.5289	-16.9638	32.1700
38	281.1269	30.7093	3.8167	-326.5421	-14.7123	40.3565
39	300.9365	29.1877	-2.1787	-343.3101	-13.1911	46.3370
40	334.1240	28.3239	-5.9142	-276.0722	-29.6697	-13.7893
41	-1480.4856	209.9565	494.4543	1066.5643	-215.9116	-503.6579
42	-1075.3525	216.1935	503.9960	694.6987	-197.9848	-453.0696
43	-719.2852	198.8627	456.0959	372.3830	-180.4812	-405.2690
44	-412.2952	182.0348	410.8926	98.9522	-163.5081	-360.1608
45	-153.2009	165.7807	368.2728	-127.0126	-147.1291	-317.6284
46	59.8494	150.1804	328.1432	-307.5483	-131.4228	-277.5763
47	229.1766	135.3288	290.4066	-445.3087	-116.5067	-239.8993
48	357.7569	121.2721	254.9700	-543.5191	-102.4133	-204.5073
49	449.1018	108.0928	221.7550	-605.9761	-89.2013	-171.3186
50	507.2226	95.8049	190.6891	-636.9760	-76.9362	-140.2579
51	536.5505	84.4714	161.7123	-641.1705	-65.6348	-111.2668
52	541.7881	74.1362	134.7764	-623.5402	-55.3669	-84.2973
53	527.9418	64.7992	109.8504	-589.2689	-46.1358	-59.3193
54	500.0941	56.5102	86.9176	-543.7010	-37.9639	-36.3195
55	463.4366	49.2435	65.9768	-492.1585	-30.8580	-15.2998
56	423.0582	43.0102	47.0387	-330.4009	-25.3653	25.8594
57	274.4244	38.3536	7.9989	-335.1459	-22.3519	36.2034
58	293.8691	36.1226	-0.1850	-350.1246	-20.1202	44.3710
59	324.6760	34.6140	-6.1389	-377.9146	-18.6111	50.3087
60	368.8976	33.7607	-9.8162	-317.3214	-34.5613	-10.3663
61	-1503.7499	209.3177	494.4775	1090.8147	-215.2608	-503.6204
62	-1099.7446	215.5495	503.9248	720.4741	-197.3404	-452.9904
63	-745.2031	198.2239	456.0005	399.6660	-179.8461	-405.1735
64	-439.7145	181.4080	410.7822	127.7203	-162.8850	-360.0578
65	-182.0922	165.1679	368.1623	-96.8007	-146.5183	-317.5309
66	29.5439	149.5878	328.0393	-275.9653	-130.8410	-277.4903
67	197.5316	134.7508	290.3163	-412.4140	-115.9338	-239.8332
68	324.8203	120.7209	254.8980	-509.3714	-101.8625	-204.4622
69	414.9633	107.5399	221.6997	-570.6522	-88.6552	-171.2927
70	471.9368	95.2660	190.6491	-600.5175	-76.3966	-140.2487
71	500.1799	83.9448	161.6831	-603.6891	-65.1190	-111.2683
72	504.4574	73.6364	134.7508	-585.1888	-54.8834	-84.3052
73	489.7706	64.3307	109.8290	-550.1660	-45.6777	-59.3321
74	461.1916	56.0584	86.8913	-503.9359	-37.5227	-36.3249
75	423.8879	48.8077	65.9324	-451.7990	-30.4298	-15.2848
76	382.9169	42.5896	46.9710	-290.0489	-25.0046	25.7056
77	234.2770	37.9983	8.0903	-294.2699	-22.0003	36.0954
78	253.1727	35.7743	-0.1430	-308.7160	-19.7771	44.3120
79	283.4041	34.2722	-6.1560	-335.9463	-18.2762	50.3083
80	327.0034	33.4236	-9.8924	-274.5234	-34.1982	-10.3109
81	-1515.6429	209.6751	502.7008	1101.8632	-215.5758	-512.3102
82	-1110.7633	215.8610	512.5748	730.5876	-197.6204	-461.9447
83	-755.3420	198.5116	464.8127	409.0135	-180.1002	-414.2971
84	-449.1014	181.6643	419.6724	136.4355	-163.1104	-369.2535
85	-190.8299	165.4253	377.0220	-88.6746	-146.7430	-326.6785
86	21.4249	149.8427	336.7405	-268.3863	-131.0679	-286.4468
87	190.0272	135.0257	298.7207	-405.4458	-116.1745	-248.4475
88	318.0496	120.9971	262.8622	-503.1612	-102.1164	-212.5784
89	409.0742	107.8647	229.0795	-565.4331	-88.9781	-178.7526
90	467.2032	95.6542	197.3001	-596.6404	-76.7877	-146.8940
91	496.9434	84.4149	167.4620	-601.5480	-65.5965	-116.9444
92	503.0992	74.1810	139.5405	-585.2301	-55.4386	-88.8778
93	490.7302	64.9515	113.5093	-552.9045	-46.3169	-62.6741
94	464.9351	56.7616	89.3802	-509.8874	-38.2609	-38.3419
95	430.8534	49.6050	67.1666	-461.5206	-31.2680	-15.9017
96	393.5679	43.4797	46.9112	-305.8474	-26.0326	28.0652
97	250.7939	39.0583	5.2141	-312.9277	-23.0558	38.9860
98	272.1786	36.8506	-3.3537	-329.8918	-20.8475	47.5370
99	304.3632	35.3407	-9.4453	-359.0554	-19.3374	53.6110
100	349.1027	34.4558	-12.9552	-298.6820	-35.2661	-8.0182
101	-1454.7971	198.9648	459.4735	1120.3270	-206.2203	-477.7822
102	-1124.4484	206.3605	477.1636	807.1328	-189.6929	-431.8720
103	-824.2145	190.3830	433.1796	519.3407	-174.9749	-391.1877
104	-548.8322	176.2624	394.3944	285.6134	-159.3210	-348.9597
105	-326.6076	161.2748	354.0277	90.0680	-144.1952	-308.4574
106	-141.3559	146.8411	315.3757	-68.7899	-129.6540	-269.6535
107	8.6123	133.0416	278.4038	-210.5266	-117.4212	-236.2651
108	143.1150	121.5718	246.8483	-303.5281	-104.3013	-200.8782
109	230.7077	109.2593	213.2915	-367.4000	-91.9926	-167.1224
110	291.1466	97.7533	181.3805	-405.5729	-80.5092	-134.9924
111	327.9620	87.1004	151.1153	-444.4930	-71.5131	-108.6313
112	367.6024	78.9340	126.6494	-443.7416	-61.8395	-79.8851
113	369.6546	70.0684	99.8410	-429.1648	-53.1005	-52.8079
114	359.8804	62.1421	74.7465	-405.2259	-45.3507	-27.4280

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	342.6141	55.1780	51.4092	-400.9711	-39.8665	-8.3851
116	346.7222	50.4419	34.4734	-278.3975	-36.1191	40.4867
117	233.9607	47.4184	-12.2185	-304.7067	-33.4172	50.8896
118	271.2489	45.3886	-20.3617	-338.4437	-31.3877	59.0171
119	316.7803	43.9849	-26.1492	-381.5162	-29.9843	64.7884
120	372.0682	43.1434	-29.4944	-326.3409	-44.6101	-0.5117
121	-1304.5192	194.9901	469.3345	980.4556	-202.5521	-488.2881
122	-983.9067	202.6643	487.8733	674.4750	-186.0697	-442.7662
123	-690.3492	186.7038	444.2061	392.4118	-171.3248	-402.2911
124	-420.3526	172.5390	405.5710	164.3053	-155.6476	-360.2838
125	-203.5702	157.5004	365.3728	-26.0806	-140.4488	-319.9270
126	-23.4096	142.9781	326.8194	-179.9736	-125.8071	-281.1943
127	121.5257	129.0674	289.8722	-316.5725	-113.4447	-247.7691
128	250.7057	117.4632	258.2339	-404.2019	-100.1876	-212.3235
129	332.6825	105.0027	224.5854	-462.3158	-87.7192	-178.4504
130	387.0885	93.3435	192.5268	-494.2086	-76.0831	-146.1395
131	417.3015	82.5291	162.0514	-526.0163	-66.9217	-119.5581
132	449.5221	74.2095	137.3464	-517.6947	-57.0770	-90.5360
133	443.6824	65.1800	110.2419	-494.8252	-48.1704	-63.1263
134	425.3141	57.0884	84.8064	-461.8575	-40.2483	-37.3650
135	398.7576	49.9584	61.0817	-447.9201	-34.6151	-17.9822
136	392.9710	45.0907	43.8140	-311.3644	-29.3158	31.8072
137	266.0782	40.5235	-3.7822	-324.7587	-26.5226	42.4571
138	290.3617	38.4189	-12.1573	-345.3618	-24.4185	50.8192
139	322.7486	36.9539	-18.1443	-375.1806	-22.9531	56.7926
140	364.8482	36.0665	-21.6538	-315.0099	-38.8028	-7.9923
141	-1328.4711	196.6345	466.3587	993.8698	-203.9858	-484.1035
142	-997.0495	204.0856	483.6760	676.6306	-187.1977	-437.2472
143	-692.7910	187.8253	438.8171	384.7287	-172.1031	-395.6864
144	-413.5599	173.3273	399.2411	149.0855	-156.1461	-352.6006
145	-189.8379	158.0147	358.1400	-47.0787	-140.6700	-311.3558
146	-4.5074	143.2345	318.8675	-204.9721	-125.7660	-271.9508
147	143.8968	129.0800	281.4272	-326.3863	-111.5240	-234.3916
148	257.4187	115.6247	245.8317	-432.6287	-99.6244	-202.5255
149	357.6327	104.5273	215.9269	-490.0156	-86.9123	-168.7278
150	411.0142	92.6698	184.0971	-519.7866	-75.0614	-136.7966
151	438.9462	81.6636	154.1361	-525.7069	-64.1049	-106.7325
152	445.2630	71.5643	126.0525	-511.9131	-54.0860	-78.5554
153	434.0972	62.4014	99.8797	-507.5519	-46.5019	-56.3428
154	434.5608	55.6650	79.6844	-468.1035	-38.3794	-32.0455
155	402.0158	48.3700	57.4335	-422.2532	-31.2636	-9.7243
156	364.9883	42.0591	37.1838	-283.5069	-25.9561	35.9307
157	236.7539	37.5186	-6.3672	-291.3337	-23.1200	46.1416
158	256.5025	35.4079	-14.4411	-307.2800	-21.0093	54.2024
159	285.4373	33.9720	-20.3354	-333.6304	-19.5739	60.0830
160	325.4476	33.1535	-24.0173	-272.6413	-35.5192	-3.9711
161	-1356.1836	203.2402	493.3387	956.2988	-209.4290	-502.4522
162	-964.9965	209.7091	502.9831	598.5796	-191.5344	-451.9619
163	-622.4716	192.3940	455.2020	289.4174	-174.0398	-404.2886
164	-328.1988	175.5494	410.1373	28.4412	-157.0336	-359.3299
165	-81.2769	159.2627	367.6840	-185.5186	-140.6174	-316.9753
166	119.9329	143.6304	327.7401	-354.3517	-124.8786	-277.1215
167	277.6252	128.7248	290.2128	-480.4967	-109.8921	-239.6685
168	394.5789	114.6016	255.0043	-567.0242	-95.7205	-204.5194
169	474.1833	101.3352	222.0343	-617.6400	-82.4279	-171.5906
170	520.3589	88.9753	191.2160	-636.5920	-70.0904	-140.7910
171	537.5396	77.5899	162.4858	-628.5757	-58.7376	-112.0628
172	530.4679	67.1910	135.8073	-598.5207	-48.4020	-85.3690
173	504.0735	57.8031	111.1295	-551.6118	-39.1111	-60.6548
174	463.4829	49.4451	88.4336	-493.1812	-30.8795	-37.9103

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	413.8735	42.1386	67.7155	-428.6374	-23.7315	-17.1302
176	360.4079	35.8697	48.9757	-363.2635	-17.6466	1.6799
177	308.0871	30.6272	32.2419	-245.2041	-14.3609	33.1079
178	204.6519	28.1311	2.9235	-244.9177	-12.1295	41.2633
179	220.1088	26.6280	-3.0759	-257.3703	-10.6266	47.2485
180	248.8883	25.7837	-6.8607	-189.3848	-27.3371	-12.5874
181	-1413.6650	200.1264	484.9518	1027.8215	-206.2689	-494.6691
182	-1036.7153	206.5684	495.1037	683.9969	-188.6347	-445.0637
183	-708.0282	189.5336	448.1074	387.6713	-171.4255	-398.1902
184	-426.3036	172.9958	403.7524	138.1727	-154.7371	-353.9487
185	-190.3803	157.0212	361.9282	-65.8741	-138.6316	-312.2329
186	1.5181	141.6975	322.5295	-226.5101	-123.2184	-272.9201
187	151.7090	127.1210	285.4542	-346.3458	-108.5754	-235.9165
188	263.0859	113.3504	250.6141	-428.6129	-94.7773	-201.1291
189	339.1536	100.4464	217.9237	-477.0677	-81.8743	-168.4665
190	383.8650	88.4567	187.3058	-518.1029	-71.3706	-141.2347
191	423.6934	78.8835	162.1130	-513.1594	-60.3766	-112.6359
192	420.2051	68.8164	135.4134	-488.0939	-50.3856	-85.8550
193	399.1251	59.7529	110.6128	-447.8946	-41.4273	-61.0452
194	365.3479	51.6925	87.8606	-397.6346	-33.5136	-38.2638
195	323.8167	44.6638	67.0621	-342.5096	-26.6547	-17.3403
196	279.4685	38.6489	48.0763	-185.9287	-21.7881	23.7951
197	135.3568	34.5764	9.0230	-187.5841	-18.9717	34.0747
198	150.8052	32.5037	0.8521	-198.9906	-16.8992	42.2306
199	176.8433	31.1143	-5.1827	-222.3190	-15.5100	48.2453
200	215.1116	30.3323	-8.9593	-159.2627	-31.1028	-9.5532
201	-1181.1921	174.8912	359.3597	926.5417	-185.9978	-381.5024
202	-931.3369	186.1652	381.7459	708.2940	-172.2742	-341.3924
203	-721.4813	172.7906	343.7933	501.0455	-160.1090	-308.0700
204	-522.5582	160.9940	312.1919	333.6772	-146.7328	-271.9358
205	-363.2513	148.0332	277.4632	177.8017	-135.1682	-241.8130
206	-214.7114	136.9226	249.1755	46.0174	-124.0005	-213.5207
207	-89.7658	126.2144	222.3917	-45.5980	-111.4937	-182.3322
208	-4.3274	114.2073	192.4792	-130.2024	-101.1293	-156.9945
209	75.3785	104.3719	168.8076	-174.5227	-89.3857	-128.6647
210	115.7370	93.1835	141.9625	-217.3263	-79.9878	-106.4455
211	155.7724	84.3606	121.1828	-219.0005	-69.1551	-81.1285
212	156.0787	74.1192	97.3154	-226.4713	-60.8270	-61.7613
213	163.6575	66.4176	79.3963	-220.6508	-53.1069	-43.7806
214	159.4748	59.3165	62.8748	-172.5459	-43.9062	-22.6967
215	114.6504	50.7512	43.2163	-144.2648	-37.3871	-7.5845
216	91.4071	44.9042	29.5648	47.1351	-30.8504	28.3942
217	-93.1808	39.0331	-4.9429	46.0927	-27.7514	36.1417
218	-83.4687	36.6176	-11.2333	39.7836	-25.3391	42.4274
219	-66.6193	34.8816	-16.0159	25.3862	-23.6021	47.1942
220	-39.7685	33.8319	-19.2272	0.0242	-22.5507	19.2295

ENVOLVENTE MAXIMOS TORSORES TREN UIC-71, via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.1548	135.4866	489.3753	-204.5606	-118.7096	-444.9313
2	194.1318	119.1230	446.8996	-366.1212	-102.3850	-402.6418
3	337.7252	103.6162	406.5557	-487.4683	-88.7240	-366.5109
4	443.7445	90.7581	372.2853	-558.0075	-74.1119	-328.2789
5	501.5838	76.9641	335.8363	-602.2622	-62.1224	-295.9374
6	535.6890	65.7540	305.2129	-598.7223	-49.2367	-261.3628
7	524.4955	53.6739	272.3041	-563.3398	-37.2597	-228.5080
8	483.8729	42.4725	241.0733	-521.3760	-27.7719	-201.2781
9	438.9826	33.7411	215.4308	-437.1515	-17.5130	-171.6653
10	356.5723	24.3732	187.3880	-336.7429	-8.3006	-143.6115
11	254.9311	15.7193	160.8880	-244.0843	-1.1932	-121.0655
12	170.2615	9.5804	139.8933	-121.4268	6.2483	-96.0522
13	81.4953	4.2409	116.4496	-23.5014	11.3925	-72.5552
14	34.6248	1.7005	94.6217	0.6988	12.5779	-54.6804
15	-13.6730	-0.5384	78.3957	80.0270	15.8564	-34.3863
16	-129.3855	-5.2281	59.7211	175.5980	19.3402	-19.6793
17	-215.2812	-8.1815	46.6455	291.6053	23.1462	-2.8019
18	-320.5362	-11.4969	31.4227	398.1356	26.2141	10.1740
19	-415.8577	-14.1020	20.1386	472.1437	27.9083	18.0411
20	-478.4693	-15.3770	13.9871	555.5217	5.7486	-35.7825
21	-783.7565	166.8420	508.3860	456.1595	-172.8385	-517.1731
22	-310.2398	167.6566	518.5557	27.3891	-149.4760	-467.6017
23	7.8506	148.1692	471.7813	-252.8349	-129.8144	-420.9401
24	213.3236	131.3501	427.5779	-424.9200	-112.8452	-376.8458
25	371.2151	115.0858	385.8390	-549.7984	-96.4462	-335.2061
26	483.2498	99.4655	346.4491	-629.3859	-80.7152	-295.9027
27	551.6606	84.5704	309.3116	-666.2163	-65.7575	-258.8359
28	579.2727	70.4866	274.3329	-663.4399	-51.6148	-223.9096
29	571.5469	57.5151	241.4239	-627.3194	-38.6367	-191.0307
30	532.2589	45.5502	210.5094	-561.5520	-26.6775	-160.1263
31	503.5369	37.9202	181.5469	-515.1060	-19.0797	-131.1514
32	449.8162	30.0879	154.5484	-443.5478	-11.3252	-104.1194
33	359.8085	21.4910	129.4556	-334.5858	-2.8226	-78.9729
34	245.9564	13.1780	106.2091	-202.9569	5.3717	-55.6553
35	122.7721	5.8776	84.8026	-64.7932	12.5196	-34.1638
36	-4.3127	-0.3948	65.2497	74.2748	18.6102	-14.5158
37	-130.3444	-5.6549	47.5771	209.1944	23.6635	3.2564
38	-250.6123	-9.9156	31.8232	335.2663	27.6967	18.0771
39	-360.8798	-13.2202	19.0740	448.4270	30.7597	28.9296
40	-196.8099	-6.7061	10.4655	267.2980	0.0295	-24.7633
41	-543.7942	159.3903	509.0998	231.0252	-165.3454	-518.3034
42	-239.8247	165.6245	519.9263	-39.6751	-147.4158	-469.0001
43	15.0728	148.2931	473.1592	-260.8164	-129.9116	-422.3321
44	221.3258	131.2895	428.9260	-433.1633	-112.7629	-378.1945
45	378.8877	115.0336	387.1278	-557.5905	-96.3821	-336.4834
46	490.3970	99.4342	347.6601	-636.5855	-80.6766	-297.0931
47	558.7754	84.7542	310.4314	-673.7413	-65.9321	-259.9240
48	651.6922	66.9476	275.3940	-728.7821	-48.0888	-224.9315
49	642.4427	53.2365	242.4738	-689.5894	-34.3450	-192.0372
50	595.8118	41.0311	211.5398	-616.0006	-22.1624	-161.1084
51	519.4281	30.0418	182.5323	-515.1655	-11.2052	-132.0869
52	483.9474	24.5924	155.4451	-466.5944	-5.8231	-104.9665
53	393.3937	16.7040	130.2979	-358.5196	1.9594	-79.7671
54	269.8574	8.4518	107.0115	-217.3303	10.0945	-56.4136
55	137.0902	1.1913	85.5680	-69.6869	17.1942	-34.8906
56	0.5715	-5.0439	65.9799	78.7233	23.2570	-15.2163
57	-134.7246	-10.2655	48.2756	222.7969	28.2668	2.5775
58	-264.0825	-14.4942	32.4983	357.8622	32.2678	17.4102
59	-383.3348	-17.7735	19.7242	479.9116	35.3062	28.2802
60	-346.6981	-15.3230	10.9895	433.9081	8.6536	-25.2449
61	-657.1878	162.8321	508.7850	337.2050	-168.7752	-517.9279
62	-272.9093	166.5683	519.5024	-8.4199	-148.3592	-468.5681
63	-16.3280	149.2436	472.6983	-231.2656	-130.8658	-421.8713
64	191.1898	132.4276	428.4491	-405.2423	-113.9046	-377.7250
65	350.8468	116.1808	386.6513	-531.7898	-97.5312	-336.0200
66	464.5069	100.6055	347.1965	-612.9856	-81.8587	-296.6476
67	534.7310	85.7591	309.9913	-651.6484	-66.9421	-259.5078
68	570.5062	71.3608	274.9416	-656.3540	-52.5024	-224.5058
69	623.3096	54.1889	241.9947	-672.3187	-35.3042	-191.5873
70	605.5040	39.5238	211.1329	-622.6244	-20.6544	-160.7326
71	525.4395	27.9324	182.2005	-516.9446	-9.1066	-131.7863
72	417.6660	17.6143	155.1363	-386.3784	1.1387	-104.6910
73	290.9159	8.3111	129.9070	-239.2993	10.3419	-79.4102
74	151.3485	-0.1411	106.4917	-81.7135	18.6768	-55.9252
75	109.1115	-1.8538	84.9369	-35.7219	20.2317	-34.2895
76	-32.5407	-8.0403	65.3357	117.6863	26.2403	-14.6010
77	-173.3963	-13.2417	47.6020	267.2299	31.2304	3.2256
78	-308.3434	-17.4560	31.7748	407.8306	35.2157	18.1127
79	-433.1738	-20.7205	18.9389	535.4293	38.2406	29.0467
80	-543.1623	-22.9109	10.1081	645.5070	16.2440	-24.5629
81	-816.9432	187.1188	511.0017	448.2859	-193.0195	-520.6111
82	-398.4602	191.2757	521.9155	67.4640	-173.0349	-471.2855
83	67.2075	168.0110	475.3789	-352.5244	-149.5996	-424.8634
84	317.0650	150.9763	431.4085	-568.3459	-132.4225	-380.9896
85	513.9215	134.7460	389.8391	-732.0503	-116.0637	-339.4951
86	664.7774	119.1507	350.5501	-850.3412	-100.3759	-300.2564
87	771.9607	104.3376	313.4295	-925.9926	-85.4864	-263.1559
88	838.5717	90.3114	278.3686	-962.2970	-71.4307	-228.0846
89	868.1897	77.1846	245.2932	-963.1772	-58.2980	-194.9664
90	864.9209	64.9800	214.1292	-932.9941	-46.1135	-163.7229
91	833.9537	53.6732	184.8056	-877.0630	-34.8548	-134.2882
92	778.5790	43.4467	157.3068	-799.2302	-24.7043	-106.6441
93	704.7048	34.2288	131.6027	-705.4175	-15.5942	-80.7671
94	617.4142	26.0379	107.7061	-600.9050	-7.5372	-56.6679
95	521.8423	18.8788	85.6338	-491.0427	-0.5418	-34.3688
96	423.0660	12.7565	65.4247	-381.0789	5.3785	-13.9124
97	325.9946	7.6503	47.1423	-276.0018	10.2655	4.6305
98	235.2215	3.5263	30.8582	-180.2057	14.1506	20.0890
99	154.6497	0.3410	17.7655	-136.6706	15.7518	30.9954
100	126.6890	-0.6333	9.3269	-20.7682	-4.5415	-25.7683
101	-404.6619	160.6340	489.2512	137.2801	-167.8895	-507.5598
102	-141.4453	168.0342	508.2644	-108.7886	-151.3666	-462.9723
103	91.6672	152.0471	465.5119	-329.4485	-136.6390	-423.5200
104	299.9118	137.9404	427.8652	-496.0577	-120.9990	-382.4309
105	455.0158	122.9523	388.5556	-624.4936	-105.8727	-342.9852
106	573.1556	108.5149	350.8613	-716.2307	-91.3278	-305.1395
107	655.9949	94.7179	314.7645	-790.8353	-79.0975	-272.6259
108	723.3716	83.2371	283.9892	-816.6937	-65.9666	-238.0193
109	743.8201	70.9206	251.1220	-813.4157	-53.6539	-204.9530
110	737.0969	59.4029	219.8139	-784.4054	-42.1588	-173.4263
111	706.7369	48.7408	190.0570	-756.1292	-33.1535	-147.5723
112	679.1821	40.5872	166.0072	-688.2108	-23.4927	-119.2424
113	614.0727	31.7303	139.5284	-606.4850	-14.7624	-92.4953
114	537.1466	23.7965	114.6721	-515.3873	-7.0051	-67.3536

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	452.7181	16.8246	91.4828	-443.9499	-1.5131	-48.4584
116	389.6479	12.1022	74.6059	-346.8291	4.3436	-26.8211
117	302.3383	6.9583	55.0567	-253.1446	9.2171	-7.2589
118	219.6333	2.7554	37.6643	-166.6630	13.1304	8.0403
119	144.9445	-0.5360	24.6147	-151.8601	13.7704	16.1481
120	142.3592	-0.6127	18.8411	-33.5639	-6.2699	-39.9720
121	-458.1722	164.1923	498.8886	188.0117	-171.7543	-517.8420
122	-191.5035	171.8669	518.4910	-64.0277	-155.2723	-473.3836
123	48.1093	155.9048	475.8189	-292.1445	-140.5258	-433.9038
124	264.1554	141.7377	438.1022	-466.2931	-124.8463	-392.8152
125	426.9848	126.7009	398.7579	-602.7305	-109.6493	-353.3120
126	553.1950	112.1890	360.9773	-702.6948	-95.0180	-315.3525
127	644.2071	98.2723	324.7344	-785.3550	-82.6496	-282.6308
128	719.4413	86.6428	293.7272	-818.9954	-69.3672	-247.8168
129	747.4203	74.1817	260.6362	-823.1103	-56.8982	-214.5013
130	747.8411	62.5193	229.0643	-801.0139	-45.2589	-182.6769
131	724.0582	51.6993	199.0013	-778.8157	-36.0919	-156.5076
132	702.2701	43.4025	174.6381	-716.5241	-26.2700	-127.8278
133	642.4619	34.3700	147.8039	-639.6843	-17.3604	-100.6880
134	570.1241	26.2822	122.5633	-552.7503	-9.4421	-75.1220
135	489.5971	19.1482	98.9577	-484.8358	-3.8049	-55.8581
136	429.8345	14.2797	81.7405	-390.5310	2.2250	-33.7708
137	345.1878	8.9821	61.7718	-299.0347	7.2551	-13.7417
138	264.5854	4.6338	43.9468	-214.1977	11.3114	2.0263
139	191.5315	1.2195	30.4796	-208.4187	11.7356	9.7382
140	198.0354	1.3745	25.1591	-81.9775	-7.9760	-45.3900
141	-360.5420	144.4489	493.5458	119.8703	-151.8002	-511.2901
142	-123.0861	151.8993	512.0710	-103.4086	-135.0114	-465.6426
143	87.2084	135.6319	468.2903	-301.3328	-119.9097	-425.1599
144	272.4580	121.1350	429.6685	-442.9988	-103.9538	-383.0279
145	402.2056	105.8205	389.3826	-545.1789	-88.4758	-342.5981
146	493.5502	91.0400	350.8005	-609.0895	-73.5715	-303.8847
147	547.9679	76.8814	313.9179	-636.5135	-59.3254	-266.8829
148	567.4947	63.4330	278.7559	-648.7677	-47.4327	-235.4494
149	573.7235	52.3260	249.1453	-612.1562	-34.7110	-201.9459
150	533.1085	40.4736	217.4864	-547.9391	-22.8652	-170.1858
151	467.0510	29.4658	187.5635	-459.8669	-11.9071	-140.1608
152	379.3772	19.3660	159.3905	-352.0758	-1.8877	-111.8934
153	389.8039	18.6200	133.0706	-384.4635	-2.7205	-89.5338
154	383.7764	16.5403	112.7419	-346.9004	0.7453	-65.1028
155	324.2447	11.7493	90.3355	-278.5693	5.3571	-42.6269
156	259.5744	7.4421	69.8880	-206.9978	9.4507	-22.1259
157	165.7938	2.3758	51.4648	-106.0511	14.2686	-3.9364
158	114.4031	-0.0782	35.3601	-76.4317	15.4952	7.5235
159	54.5475	-2.5330	26.0135	10.4920	18.7484	18.4311
160	26.8485	-3.4399	17.2623	34.7983	-4.7971	-35.4719
161	-864.9474	170.9322	508.3494	529.6852	-177.1210	-517.4628
162	-320.1166	169.9484	518.7642	33.2275	-151.7737	-467.7434
163	-57.1447	152.6336	471.8541	-196.3818	-134.2794	-420.9406
164	157.5791	135.7878	427.5352	-377.8044	-117.2720	-376.7277
165	324.9421	119.5008	385.7094	-512.2071	-100.8555	-335.0001
166	446.5975	103.8697	346.2666	-601.4837	-85.1179	-295.6481
167	524.7327	88.9650	309.1192	-648.0764	-70.1323	-258.5746
168	562.1356	74.8389	274.1677	-655.0509	-55.9578	-223.6836
169	562.1955	61.5742	241.3335	-626.1259	-42.6669	-190.8901
170	528.8291	49.2132	210.5295	-565.5245	-30.3283	-160.1045
171	467.3329	37.8981	181.6916	-478.9762	-19.0458	-131.2696
172	380.8695	27.4964	154.7803	-369.5235	-8.7074	-104.3429
173	275.0430	18.1103	129.7511	-243.1901	0.5817	-79.2763
174	157.1345	9.8801	106.5817	-107.6939	8.6855	-56.0586

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	39.1876	3.1384	85.2722	24.0547	15.2687	-34.6866
176	-43.0381	-0.7896	65.8796	113.5098	19.0127	-15.2239
177	-168.3202	-6.0173	48.4109	247.5049	24.0290	2.3150
178	-288.0812	-10.2601	32.8723	372.8804	28.0358	16.8955
179	-397.7051	-13.5338	20.3337	485.1357	31.0605	27.5248
180	-493.6384	-15.9022	11.7900	580.2579	9.3040	-25.8818
181	-992.2333	177.6183	494.3256	650.2911	-183.7608	-504.0429
182	-457.8277	176.9247	505.1489	162.9304	-158.9910	-455.1091
183	-52.2941	154.7610	459.1150	-200.2393	-136.6529	-409.1975
184	161.6057	138.2218	415.6411	-381.9077	-119.9631	-365.8381
185	329.6893	122.2440	374.5983	-518.1105	-103.8544	-324.9027
186	453.7498	106.9185	335.8828	-610.9018	-88.4394	-286.2734
187	536.1160	92.3333	299.3813	-662.8942	-73.7877	-249.8432
188	579.7115	78.5577	265.0187	-677.3696	-59.9846	-215.5331
189	587.9100	65.6486	232.7008	-657.9536	-47.0765	-183.2438
190	564.8592	53.6469	202.3537	-631.1989	-36.5608	-156.2822
191	556.3804	42.3581	177.3581	-574.6046	-23.8512	-127.8821
192	481.8452	32.2676	150.7418	-478.4441	-13.8368	-101.1836
193	389.6123	23.1845	125.9287	-367.0521	-4.8589	-76.3614
194	298.7125	12.1474	103.0626	-253.8663	6.0315	-53.4655
195	182.1455	4.3724	82.0217	-122.2463	13.6367	-32.2999
196	59.1856	-1.6460	62.7596	11.2354	19.4527	-12.9308
197	-61.4367	-6.2970	45.3370	138.4897	23.8640	4.5661
198	-174.1321	-9.9493	29.7981	254.7211	27.2591	19.1444
199	-266.6363	-10.9806	17.2754	344.5126	28.0192	29.7232
200	-345.2613	-12.2597	8.6991	420.8281	5.4414	-21.7692
201	-459.3269	149.0191	368.3230	241.1589	-160.1257	-390.4650
202	-245.8879	160.2875	391.7151	59.3309	-146.3965	-351.3622
203	-72.3604	146.9056	354.3716	-111.5756	-134.2240	-318.6479
204	90.4435	135.1149	323.2577	-242.8339	-120.8537	-283.0021
205	223.7341	121.7024	289.2286	-372.0523	-108.8374	-253.5773
206	367.7158	109.0392	261.2479	-497.0921	-96.1171	-225.5928
207	453.9530	98.2950	234.8071	-549.9503	-83.5743	-194.7473
208	621.1777	79.6901	206.0593	-707.0401	-66.6121	-170.5745
209	657.9095	69.5003	182.8063	-707.8858	-54.5141	-142.6615
210	649.0954	58.2891	156.3544	-701.4827	-45.0934	-120.8379
211	639.9132	49.4708	136.1557	-653.9439	-34.2653	-96.1007
212	597.2847	39.3586	112.7833	-618.6694	-26.0664	-77.2286
213	555.8392	31.6401	95.1415	-563.7950	-18.3294	-59.5260
214	502.6087	24.5549	78.8460	-466.6643	-9.1446	-38.6682
215	408.7610	15.9991	59.5957	-389.3705	-2.6350	-23.9627
216	336.5042	10.1482	46.1052	-194.6606	12.0052	8.4913
217	148.6084	-3.8254	15.1057	-135.2621	15.1064	16.0537
218	97.8646	-6.2436	9.0455	-81.1081	17.5232	22.1140
219	54.2537	-7.9751	4.4004	-35.0561	19.2550	26.7643
220	20.6679	-9.0172	1.2213	-0.0018	20.2975	-1.2218

ENVOLVENTE MINIMOS FLECTORES TREN UIC-71, via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.1548	141.6750	488.3998	-140.4868	-79.4567	-334.5716
2	-46.0363	-28.1429	17.7915	92.0559	28.1426	-17.7756
3	-92.0725	-28.1401	17.6820	138.0875	28.1383	-17.6553
4	-138.1007	-28.1317	17.5135	184.1093	28.1317	-17.4761
5	-184.1269	-28.1333	17.2864	230.1361	28.1327	-17.2385
6	-230.1503	-28.1274	17.0039	276.1423	28.1258	-16.9453
7	-276.1632	-28.1248	16.6605	322.1511	28.1275	-16.5910
8	-322.1724	-28.1411	16.2605	368.1967	28.1439	-16.1806
9	-368.2185	-28.1477	15.8038	414.2437	28.1485	-15.7133
10	-414.2471	-28.1628	15.2866	460.2935	28.1611	-15.1852
11	-460.2939	-28.1406	14.7124	506.3022	28.1372	-14.6003
12	-506.3155	-28.1237	14.0800	552.2994	28.1217	-13.9573
13	-552.3085	-28.1152	13.3930	598.2795	28.1132	-13.2603
14	-598.2941	-28.1084	12.6476	644.2495	28.1100	-12.5035
15	-644.2578	-28.1175	11.8381	690.2328	28.1197	-11.6832
16	-690.2381	-28.1223	10.9776	736.2181	28.1193	-10.8129
17	-736.3524	-29.7421	4.9780	784.9726	29.7408	-4.8018
18	-822.8501	-76.1344	-102.1206	947.3387	76.1359	102.3076
19	-978.4189	-114.9851	-194.9605	1166.4243	114.9845	195.1570
20	-1192.1050	-149.8932	-283.5863	1436.9248	132.1377	244.5658
21	-1450.2408	195.9144	473.1675	1072.1274	-172.1502	-388.7074
22	-1090.6016	157.3104	349.3058	776.0404	-157.3099	-349.0950
23	-821.4230	116.1243	241.5707	589.2112	-116.1243	-241.3753
24	-630.0426	72.9161	129.0476	484.2370	-72.9169	-128.8667
25	-518.6323	35.9773	23.9246	446.6890	-35.9800	-23.7585
26	-496.2956	-1.5649	3.8462	499.4177	1.5635	-3.6950
27	-499.4239	-1.5539	3.0709	502.5314	1.5533	-2.9340
28	-502.5321	-1.5446	2.2894	505.6131	1.5428	-2.1674
29	-505.6281	-1.5398	1.5042	508.7083	1.5387	-1.3971
30	-508.7018	-1.5443	0.7154	516.1318	11.6373	-3.9896
31	-516.1275	-11.6114	3.2857	539.3462	11.6106	-3.1861
32	-539.3341	-11.6171	2.4664	562.5647	11.6172	-2.3509
33	-562.5614	-11.6145	1.6072	585.7876	11.6154	-1.4754
34	-585.7703	-11.6280	0.7160	609.0248	11.6294	-0.5685
35	-609.0212	-11.6335	-0.2121	632.2950	11.6340	0.3764
36	-632.2896	-11.6312	-1.1787	655.5529	11.6311	1.3597
37	-667.6641	-36.5895	-23.9921	740.8284	36.5907	24.1884
38	-777.4500	-73.3407	-129.5743	924.1039	73.3406	129.7871
39	-968.3849	-116.4461	-242.6627	1201.2335	116.4448	242.8918
40	-1239.0157	-157.6252	-351.0543	1557.0588	165.3590	392.4389
41	-1590.8618	174.7861	391.2150	1220.7454	-177.1358	-387.5102
42	-1239.3396	162.2947	347.8437	914.6897	-162.2953	-347.6100
43	-961.9646	121.1708	239.6526	719.5761	-121.1715	-239.4356
44	-763.9993	78.1041	126.5716	607.7641	-78.1040	-126.3705
45	-646.2040	41.3634	20.9870	563.4560	-41.3637	-20.8026
46	-617.3204	4.6422	1.1521	608.0265	-4.6407	-0.9842
47	-608.0273	4.6352	0.2064	598.7484	-4.6345	-0.0554
48	-598.7433	4.6210	-0.7199	589.4931	-4.6212	0.8546
49	-589.4945	4.6268	-1.6356	580.2359	-4.6251	1.7540
50	-580.2386	4.6085	-2.5364	571.0125	-4.6077	2.6386
51	-571.0177	4.6204	-3.4242	581.6674	5.9593	-0.4202
52	-581.6544	-5.9446	-0.3660	593.5436	5.9421	0.4820
53	-593.5457	-5.9180	-1.2718	605.3828	5.9164	1.4044
54	-605.3646	-5.9146	-2.1961	617.1990	5.9134	2.3449
55	-617.1951	-5.9036	-3.1399	629.0005	5.9035	3.3041
56	-628.9832	-5.9041	-4.0989	640.7964	5.9026	4.2796
57	-658.8882	-40.5803	-22.7541	740.0573	40.5791	22.9505
58	-777.6688	-77.5895	-127.8889	932.8765	77.5900	128.1016
59	-978.1415	-120.8433	-240.9090	1219.8685	120.8423	241.1380
60	-1258.3556	-162.0952	-349.3706	1586.8186	169.9115	390.6858
61	-1615.2999	174.1177	391.4068	1246.2507	-176.5433	-387.7516
62	-1265.1570	161.7221	348.0889	941.7812	-161.7225	-347.8538
63	-989.6128	120.6430	240.0204	748.3716	-120.6423	-239.8023
64	-793.5332	77.6438	127.1321	638.2775	-77.6427	-126.9303
65	-677.4260	41.0020	21.7269	595.4357	-41.0009	-21.5419
66	-647.0595	6.2652	2.2680	634.5284	-6.2670	-2.0996
67	-634.5356	6.2645	1.2838	622.0013	-6.2657	-1.1318
68	-621.9872	6.2411	0.3177	609.5137	-6.2405	-0.1822
69	-609.5079	6.2464	-0.6270	597.0164	-6.2464	0.7457
70	-597.0034	6.2761	-1.5532	584.4464	-6.2759	1.6554
71	-584.4309	6.2744	-2.4547	591.0312	4.2839	-1.2927
72	-591.0359	-4.2675	0.4934	599.5759	4.2678	-0.3783
73	-599.5905	-4.2785	-0.4281	608.1525	4.2817	0.5596
74	-608.1534	-4.2933	-1.3574	616.7409	4.2928	1.5042
75	-616.7354	-4.2751	-2.2957	625.2789	4.2700	2.4589
76	-625.2616	-4.2578	-3.2491	633.7728	4.2551	3.4281
77	-654.7186	-41.7677	-22.7043	738.2418	41.7680	22.8993
78	-776.9154	-78.8360	-128.0926	934.5625	78.8363	128.3034
79	-980.7451	-122.1191	-241.1798	1224.9360	122.1198	241.4064
80	-1263.9059	-163.3834	-349.6424	1597.3665	171.2164	391.7140
81	-1628.2953	174.5130	398.7838	1258.2827	-177.0022	-394.5444
82	-1277.1681	162.1773	354.7047	952.7429	-162.1770	-354.4686
83	-1000.8487	121.1481	245.5790	758.4981	-121.1480	-245.3598
84	-804.2097	78.3298	129.8848	647.5106	-78.3303	-129.6834
85	-687.0921	42.0413	19.3377	602.9823	-42.0416	-19.1534
86	-645.2430	13.7684	-27.6334	617.6977	-13.7698	27.8023
87	-617.6616	13.7625	-28.5968	590.1277	-13.7621	28.7478
88	-590.0871	13.7594	-29.5105	562.5591	-13.7593	29.6447
89	-562.5258	13.7536	-30.3850	535.0088	-13.7517	30.5031
90	-534.9639	13.7428	-31.2202	507.4725	-13.7424	31.3212
91	-507.4070	13.7457	-32.0048	485.8442	-4.1564	32.2613
92	-485.7834	4.1449	-32.9229	477.4873	-4.1425	33.0129
93	-477.4393	4.1266	-33.6469	469.1758	-4.1259	33.7502
94	-469.1173	4.1256	-34.3604	460.8523	-4.1262	34.4765
95	-460.8048	4.1336	-35.0655	452.5241	-4.1327	35.1939
96	-452.4837	4.1267	-35.7551	444.2231	-4.1257	35.8971
97	-481.3608	-38.6972	-58.5937	558.7617	38.6962	58.7484
98	-597.6519	-81.6497	-171.4534	760.9760	81.6482	171.6203
99	-793.7605	-115.6440	-257.2335	1025.0845	115.6434	257.4130
100	-1065.2513	-156.9570	-364.4170	1431.0476	165.2833	402.1227
101	-1581.8296	164.2371	355.3862	1278.4475	-169.4746	-353.5123
102	-1288.1693	156.3020	316.6630	1014.6102	-156.3026	-316.4363
103	-1048.6405	120.1901	216.4041	838.2841	-120.1915	-216.1934
104	-873.6025	82.4384	107.5875	729.3138	-82.4363	-107.3922
105	-762.0967	47.4051	-8.5296	679.1328	-47.4032	8.7079
106	-723.9143	17.5462	-55.5715	693.1968	-17.5477	55.7338
107	-693.1174	17.5458	-56.5151	662.3969	-17.5482	56.6620
108	-662.3254	17.5612	-57.4148	631.5804	-17.5635	57.5451
109	-631.5071	17.5692	-58.2723	600.7520	-17.5713	58.3870
110	-600.6655	17.5890	-59.0918	569.8787	-17.5921	59.1911
111	-569.8031	17.6012	-59.8647	543.0104	-5.8473	58.5810
112	-542.9307	5.8275	-59.2282	532.7292	-5.8263	59.3134
113	-532.6598	5.8150	-59.9405	522.4727	-5.8144	60.0376
114	-522.3992	5.8256	-60.6384	512.1997	-5.8262	60.7475

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	-512.1251	5.8426	-61.3213	501.8848	-5.8435	61.4421
116	-501.8153	5.8176	-61.9933	491.6237	-5.8157	62.1254
117	-516.4005	-36.5977	-34.7705	580.4440	36.5990	34.9140
118	-609.1530	-71.5118	-119.9112	734.3008	71.5116	120.0671
119	-763.2812	-109.1841	-210.9789	954.3584	109.1826	211.1460
120	-977.3817	-145.0509	-302.7224	1242.1887	153.0530	336.3684
121	-1395.5787	159.7719	367.4316	1101.8484	-164.3321	-363.5028
122	-1109.5811	151.0765	326.8019	845.1650	-151.0764	-326.6142
123	-873.0149	114.6729	226.3010	672.3097	-114.6729	-226.1266
124	-698.1927	84.7653	141.1006	549.8260	-84.7656	-140.9390
125	-586.4916	46.8342	21.6435	504.5160	-46.8326	-21.4954
126	-551.2219	7.2809	-56.6674	538.4772	-7.2811	56.8022
127	-538.4185	7.2859	-57.3980	525.6561	-7.2889	57.5191
128	-525.5888	7.3193	-58.1127	512.7684	-7.3205	58.2211
129	-512.6872	7.3202	-58.8070	499.8655	-7.3207	58.9022
130	-499.8020	7.3236	-59.4887	486.9777	-7.3249	59.5718
131	-486.9036	7.3332	-60.1501	488.7099	3.5149	60.0915
132	-488.6385	-3.5461	-60.6718	494.8389	3.5471	60.7605
133	-494.7716	-3.5397	-61.3357	500.9630	3.5397	61.4362
134	-500.8921	-3.5494	-62.0049	507.0994	3.5520	62.1172
135	-507.0169	-3.5475	-62.6745	513.2114	3.5463	62.7990
136	-513.1325	-3.5435	-63.3602	519.3243	3.5413	63.4981
137	-536.4584	-36.2010	-32.0850	599.8061	36.2001	32.2340
138	-626.1087	-64.8707	-104.1824	739.6339	64.8685	104.3442
139	-776.2133	-98.8849	-185.6900	949.2640	98.8834	185.8640
140	-987.8180	-132.4680	-269.7838	1229.4706	114.1054	222.0527
141	-1423.0624	187.4156	444.9091	1110.3004	-165.1404	-360.6518
142	-1117.3633	151.4708	322.9974	844.7424	-151.4729	-322.8091
143	-871.6128	113.9373	220.5340	666.5397	-113.9381	-220.3584
144	-691.0753	83.0681	134.9080	541.5667	-83.0675	-134.7460
145	-576.1384	48.3592	32.4409	489.0908	-48.3595	-32.2920
146	-547.9139	0.2599	-20.7426	547.4384	-0.2611	20.8783
147	-547.4229	0.2710	-21.5032	546.9268	-0.2722	21.6272
148	-546.8930	0.2521	-22.2722	546.4352	-0.2535	22.3814
149	-546.4097	0.2789	-23.0270	545.8947	-0.2791	23.1238
150	-545.8801	0.2734	-23.7985	552.3729	11.1501	17.6820
151	-552.3467	-11.1416	-18.3570	572.3959	11.1415	18.4498
152	-572.3669	-11.1650	-19.1334	592.4632	11.1642	19.2437
153	-592.4377	-11.1524	-19.9490	612.5031	11.1526	20.1480
154	-612.4722	-11.1453	-20.8660	632.5248	11.1438	21.0066
155	-632.4919	-11.1320	-21.7359	652.5257	11.1319	21.8191
156	-652.4931	-11.1475	-22.5576	672.5585	11.1480	22.8027
157	-680.1087	-40.0782	-0.6907	752.2383	40.0793	0.8770
158	-779.8892	-76.6723	-97.1779	917.8866	76.6736	97.3793
159	-945.5310	-114.9360	-193.7080	1152.3910	114.9360	193.9251
160	-1178.2596	-151.7470	-289.2332	1451.2002	133.4813	249.4623
161	-1469.1027	193.3193	470.2246	1081.5673	-169.7142	-386.9091
162	-1099.3368	154.8524	347.4939	789.6007	-154.8525	-347.2970
163	-832.1988	113.5985	239.8644	604.9769	-113.5986	-239.6822
164	-641.1945	79.7545	152.3104	481.6667	-79.7555	-152.1422
165	-529.9411	37.2592	35.6869	455.4121	-37.2594	-35.5327
166	-498.4980	2.2469	6.1387	494.0054	-2.2450	-5.9981
167	-494.0146	2.2284	5.3699	489.5577	-2.2274	-5.2425
168	-489.5590	2.2253	4.6122	485.1112	-2.2256	-4.4995
169	-485.1227	2.2321	3.8532	480.6542	-2.2316	-3.7545
170	-480.6492	2.2306	3.1103	481.2377	7.3272	-6.9281
171	-481.2437	-7.3409	6.2808	495.9276	7.3428	-6.1882
172	-495.9468	-7.3535	5.5223	510.6620	7.3526	-5.4132
173	-510.6783	-7.3378	4.7446	525.3574	7.3361	-4.6191
174	-525.3642	-7.3276	3.9410	540.0193	7.3267	-3.8009

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	-540.0254	-7.3286	3.1135	554.6889	7.3266	-2.9571
176	-554.6923	-7.3176	2.2712	569.3312	7.3194	-2.0997
177	-588.7364	-41.9905	-33.4034	672.7320	41.9930	33.5904
178	-705.6009	-74.8098	-127.4817	855.2406	74.8098	127.6846
179	-903.4211	-117.9494	-241.2987	1139.3418	117.9483	241.5172
180	-1179.9404	-159.1990	-350.0885	1511.1171	167.0263	392.2619
181	-1527.6029	165.1871	381.7578	1183.8911	-168.0718	-379.6948
182	-1202.8368	153.6649	341.1951	903.1049	-153.6640	-340.9667
183	-950.7747	113.7844	236.0399	728.8292	-113.7845	-235.8276
184	-774.8428	72.2815	126.1742	633.8511	-72.2829	-125.9773
185	-673.7397	34.5572	13.3857	606.3326	-34.5587	-13.2049
186	-630.8657	18.2733	-0.2104	595.2154	-18.2741	0.3749
187	-595.2112	18.2828	-1.1079	559.5395	-18.2827	1.2543
188	-559.5431	18.2835	-1.9606	523.8742	-18.2852	2.0914
189	-523.8737	18.2893	-2.7551	488.1968	-18.2912	2.8688
190	-488.1979	18.3002	-3.4950	452.5019	-18.2995	3.5977
191	-452.4971	18.3030	-4.2607	418.8963	-8.8209	1.0929
192	-418.8881	8.8122	-1.5797	401.7009	-8.8108	1.6494
193	-401.7004	8.7981	-2.0729	384.5386	-8.7996	2.1627
194	-384.5290	8.8068	-2.6759	367.3512	-8.8082	2.7914
195	-367.3408	8.8141	-3.2888	350.1488	-8.8135	3.4028
196	-350.1383	8.8118	-3.7424	332.9504	-8.8119	3.8548
197	-372.5666	-37.6229	-50.2365	445.9529	37.6238	50.3696
198	-481.4647	-75.1937	-151.4226	628.1358	75.1948	151.5670
199	-665.3789	-108.6003	-237.3160	885.7455	133.2244	312.1717
200	-930.7549	-173.7651	-417.5418	1272.6841	157.8031	384.5984
201	-1309.5494	140.3723	258.3415	1093.3730	-147.9635	-266.6744
202	-1103.9246	126.9769	212.2987	924.8815	-126.9765	-212.0980
203	-939.3002	98.4068	140.6847	800.5404	-98.4060	-140.5491
204	-820.9185	67.3952	66.5846	725.8879	-67.3920	-66.4372
205	-755.5568	33.4422	-13.8856	708.4000	-33.4405	14.0076
206	-708.3929	33.4546	-14.3148	661.2166	-33.4565	14.3902
207	-661.2059	33.4610	-14.7282	614.0188	-33.4594	14.8793
208	-613.9987	33.4527	-15.8441	566.8280	-33.4534	15.9957
209	-566.8106	33.4680	-16.3283	519.6126	-33.4725	16.4014
210	-519.5913	33.4900	-16.7132	472.3597	-33.4894	16.8033
211	-472.3456	33.4851	-17.2631	425.1243	-33.4842	17.3610
212	-425.1152	33.4864	-17.7495	377.8954	-33.4911	17.8213
213	-377.8808	33.5049	-18.0381	330.6279	-33.5029	18.0841
214	-330.6200	33.4911	-18.2610	283.3944	-33.4884	18.3184
215	-283.3866	33.4802	-18.6369	236.1678	-33.4833	18.6878
216	-236.1595	33.4863	-18.8145	188.9447	-33.4855	18.8433
217	-188.9372	33.4866	-18.9570	141.7166	-33.4854	18.9879
218	-141.6961	33.4889	-19.1368	94.4688	-33.4905	19.1639
219	-94.4513	33.4862	-19.2445	47.2326	-33.4870	19.2553
220	-47.2268	33.4807	-19.2696	0.1519	12.5459	126.7939

ENVOLVENTE MINIMOS CORTANTES TREN UIC-71, via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.0149	-15.4736	52.1789	36.0088	28.5546	-16.0327
2	-16.6976	-16.7035	48.4993	54.7057	29.7836	-12.3424
3	-18.7021	-18.7412	43.0071	60.0417	31.8197	-6.8394
4	-9.9648	-21.5806	35.7548	-109.5932	36.1820	21.2175
5	171.1628	-26.7464	5.9911	-184.1481	43.5092	38.1041
6	254.7048	-34.8640	-12.5696	-217.8387	49.7689	52.5135
7	294.9432	-41.8899	-28.6349	-272.0611	58.5740	72.5397
8	353.3721	-51.4635	-50.3027	-309.8974	68.0687	94.1400
9	393.1924	-61.6807	-73.5478	-304.9419	76.4819	113.3597
10	388.1348	-70.8332	-94.4194	-303.7610	87.3150	138.2021
11	384.8837	-82.3390	-120.9296	-258.6345	97.0746	160.7351
12	335.8715	-92.7742	-145.1560	-208.0637	109.0689	188.9584
13	279.8003	-105.4120	-175.1061	-129.0533	121.5731	218.9449
14	193.8567	-118.5300	-206.8580	-4.3556	133.0829	246.7495
15	60.9970	-130.6056	-236.4729	135.0474	146.5205	280.4136
16	-87.5623	-144.5936	-271.9914	306.3414	160.3280	316.0014
17	-268.7685	-158.9013	-309.4872	525.1944	173.2293	349.5453
18	-498.0504	-172.2604	-345.0012	761.7526	187.6854	389.1508
19	-745.2740	-187.1337	-386.6147	1030.1808	202.3353	430.8352
20	-1024.3436	-202.1557	-430.3678	1348.0491	192.2164	411.9796
21	135.8117	-29.7029	-8.1802	-201.4220	28.9135	-9.9533
22	210.9975	-13.7883	50.1623	-167.4306	29.7851	-6.0094
23	193.4928	-15.3171	43.9704	-146.8691	31.3144	0.1989
24	188.6353	-17.5678	35.5684	-137.5088	33.5648	8.6173
25	193.7362	-20.5959	25.0129	-291.0677	38.1272	46.8455
26	360.2122	-25.9862	-15.3121	-340.4131	44.3453	65.9616
27	420.5657	-33.0734	-36.4878	-385.9283	51.5832	87.0510
28	474.8676	-41.2205	-59.6082	-422.6598	59.8595	110.0995
29	517.9441	-50.4357	-84.6762	-445.4899	69.1793	135.1126
30	544.4904	-60.6858	-111.7086	-449.2774	79.4991	162.1090
31	549.2738	-71.9654	-140.7355	-428.9920	90.8364	191.1202
32	527.2467	-84.2478	-171.8074	-379.8462	103.1344	222.1985
33	473.6970	-97.4629	-204.9882	-297.3938	116.3329	255.4079
34	384.2901	-111.5826	-240.3546	-177.5401	130.4053	290.8251
35	255.1763	-126.5250	-277.9995	-16.7282	145.2945	328.5387
36	83.0461	-142.2556	-318.0188	188.0383	160.9276	368.6441
37	-134.7343	-158.6800	-360.5191	439.0743	177.2289	411.2437
38	-400.0442	-175.7063	-405.6092	737.9039	194.1027	456.4421
39	-713.9103	-193.2424	-453.4014	1085.1940	211.4597	504.3458
40	-1076.4622	-211.1767	-504.0011	1481.1584	205.1793	495.2286
41	269.8439	-33.5772	-10.2799	-328.7630	32.8387	-9.2686
42	338.5585	-17.7161	49.7259	-287.1094	33.7189	-5.5554
43	313.6318	-19.2641	43.7718	-259.0883	35.2670	0.4151
44	301.4689	-21.5412	35.6087	-242.3695	37.5434	8.5945
45	299.2989	-24.6008	25.2894	-390.7959	42.2559	46.4624
46	460.6657	-30.1501	-14.6813	-432.8496	48.5313	65.3148
47	513.7122	-37.2930	-35.6025	-470.8242	55.8174	86.1644
48	560.4254	-45.4884	-58.5027	-499.7869	64.1376	109.0048
49	595.6520	-54.7397	-83.3770	-514.5949	73.4943	133.8353
50	614.0859	-65.0318	-110.2482	-510.1554	83.8506	160.6803
51	610.5617	-76.3523	-139.1468	-481.4387	95.2266	189.5713
52	580.0203	-88.6703	-170.1233	-423.6606	107.5595	220.5600
53	517.7547	-101.9399	-203.2389	-332.3677	120.8131	253.7078
54	419.4338	-116.0892	-238.5677	-203.5219	134.9224	289.0896
55	281.2265	-131.0670	-276.2033	-33.5837	149.8311	326.7939
56	99.8858	-146.8235	-316.2386	180.4460	165.4918	366.9138
57	-127.2026	-163.2566	-358.7760	440.7870	181.7966	409.5470
58	-401.8649	-180.2922	-403.9169	748.9710	198.6822	454.7885
59	-725.1054	-197.8278	-451.7753	1105.6185	216.0359	502.7499
60	-1097.0242	-215.7587	-502.4377	1510.5328	209.7389	493.6429
61	311.1058	-34.8033	-10.7042	-367.3962	33.9874	-8.9142
62	377.3613	-18.8774	49.3949	-323.6183	34.8740	-5.2406
63	350.3040	-20.4342	43.4646	-293.4449	36.4318	0.7063
64	335.9727	-22.7208	35.3181	-274.5412	38.7169	8.8689
65	331.5988	-25.7967	25.0062	-421.1041	43.5259	46.9244
66	491.0730	-31.4306	-15.1590	-460.7186	49.8090	65.7930
67	541.6411	-38.5890	-36.1015	-496.1769	57.1041	86.6573
68	585.8033	-46.7937	-59.0133	-522.5425	65.4425	109.5033
69	618.3983	-56.0624	-83.9003	-534.7026	74.8136	134.3402
70	634.1378	-66.3757	-110.7740	-527.4962	85.2057	161.1836
71	627.7700	-77.7070	-139.6759	-495.9592	96.5764	190.0750
72	594.3612	-90.0298	-170.6486	-435.3355	108.9094	221.0564
73	529.2203	-103.2967	-203.7499	-341.1955	122.1554	254.1862
74	428.0343	-117.4453	-239.0624	-209.5178	136.2662	289.5518
75	287.0141	-132.4443	-276.6775	-36.7283	151.2061	327.2366
76	102.8441	-148.1999	-316.6922	180.0838	166.8545	367.3336
77	-127.0125	-164.6358	-359.2046	443.1662	183.1690	409.9418
78	-404.3807	-181.6595	-404.3253	753.9796	200.0351	455.1661
79	-730.2028	-199.1847	-452.1565	1113.1342	217.3811	503.1032
80	-1104.5450	-217.1106	-502.8069	1520.5726	211.0506	494.2285
81	267.7199	-28.7313	-32.6429	-329.4464	26.8649	18.0828
82	339.4539	-11.7559	22.4849	-299.9361	27.7591	21.6970
83	326.7057	-13.3259	16.7386	-284.0480	29.3290	27.4554
84	326.6698	-15.6362	8.9009	-387.4198	32.2788	50.5382
85	444.5434	-19.3765	-16.2052	-438.3748	37.6154	66.6241
86	508.3553	-25.5588	-34.2707	-489.6516	43.9694	84.5934
87	570.4965	-32.7919	-54.1961	-536.4809	51.3459	104.4464
88	625.9015	-41.0852	-75.9945	-573.8698	59.7703	126.1981
89	669.3707	-50.4456	-99.6883	-596.6934	69.2151	149.8748
90	695.6284	-60.8417	-125.3300	-599.8291	79.6848	175.5311
91	699.4795	-72.2638	-153.0002	-578.3190	91.1440	203.2503
92	675.9775	-84.6499	-182.7798	-527.5353	103.5386	233.1124
93	620.5729	-97.9603	-214.7854	-443.1402	116.8241	265.2323
94	529.0968	-112.1720	-249.1321	-321.1726	130.9944	299.7271
95	397.8455	-127.1933	-285.9671	-158.3400	145.9430	336.7389
96	223.8122	-142.9683	-325.4396	48.0913	161.6021	376.4171
97	4.6701	-159.3885	-367.7200	300.0959	177.8900	418.9265
98	-261.0830	-176.3894	-412.9713	598.8368	194.7237	464.4266
99	-574.0737	-193.8400	-461.3710	944.5027	211.9795	513.0868
100	-933.9326	-211.6385	-513.0869	1345.3932	205.1591	505.0505
101	280.6194	-35.2455	-39.6994	-341.1445	32.6627	21.5521
102	346.7662	-19.3502	15.1018	-300.6565	33.3514	23.5523
103	319.8018	-20.6443	11.4580	-271.4278	34.6455	27.2079
104	303.2691	-22.5888	6.1551	-251.4893	36.5899	32.5226
105	294.8926	-25.2373	-0.8094	-371.6965	40.8532	53.0260
106	425.3250	-30.2406	-22.9860	-409.8387	47.0073	68.1427
107	472.1111	-37.1610	-39.7948	-418.8826	52.6159	81.6514
108	488.0102	-43.5711	-55.0313	-445.5118	60.5899	100.3901
109	519.5394	-52.3508	-75.5397	-460.1112	69.4891	121.0731
110	536.9951	-62.0838	-98.0323	-458.5627	79.3070	143.7618
111	536.2153	-72.7285	-122.5983	-416.4438	88.3594	164.7377
112	492.7638	-82.5782	-145.5181	-372.3957	99.8515	191.5748
113	445.3725	-94.8892	-174.3714	-301.4034	112.1457	220.6731
114	369.1394	-107.9724	-205.5772	-200.5804	125.1687	252.1478

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	261.3216	-121.7563	-239.2504	-51.2070	137.3220	281.8800
116	103.4420	-134.6105	-271.2852	115.7835	151.6513	318.3038
117	-73.2954	-149.6186	-310.1196	318.5231	166.4951	357.4399
118	-286.6895	-165.0930	-351.7789	557.6229	181.7778	399.4138
119	-536.9702	-180.9346	-396.3878	850.2828	196.1930	439.6677
120	-840.9341	-195.8497	-439.3951	1173.4006	188.2084	429.1455
121	313.0289	-36.5223	-41.0087	-367.9377	34.4670	25.2290
122	372.2445	-21.0987	11.5098	-323.0743	35.1000	27.1403
123	340.5154	-22.3136	8.0057	-289.2191	36.3146	30.6576
124	319.1412	-24.1659	2.8812	-264.6029	38.1676	35.7938
125	306.0156	-26.7002	-3.8675	-373.3959	41.7050	54.5263
126	425.0824	-30.9599	-24.2429	-407.5627	47.6634	69.2310
127	468.0467	-37.6873	-40.6111	-413.6608	53.1187	82.3947
128	481.2267	-43.9351	-55.4794	-437.8547	60.9148	100.7009
129	510.6008	-52.5439	-75.5338	-450.8428	69.6629	120.9533
130	526.7690	-62.1157	-97.5880	-448.4738	79.3298	143.2262
131	525.4917	-72.6128	-121.7282	-406.0403	88.2420	163.8305
132	482.0634	-82.3256	-144.2708	-362.4189	99.6059	190.2753
133	435.4030	-94.5194	-172.7385	-292.3491	111.7880	219.0173
134	360.3619	-107.4980	-203.5966	-192.8187	124.7288	250.1763
135	254.0708	-121.2083	-236.9763	-44.9719	136.7955	279.6238
136	97.8926	-133.9992	-268.7490	120.2836	151.0798	315.8283
137	-77.0048	-148.9795	-307.3996	321.3029	165.9124	354.8190
138	-288.6418	-164.4500	-348.9513	558.8294	181.1912	396.7272
139	-537.3847	-180.3089	-393.5546	849.8793	195.5945	436.9185
140	-839.8556	-195.2145	-436.5612	1173.5732	187.7721	426.5897
141	298.7829	-38.9419	-11.9968	-352.5087	38.2420	-9.2353
142	356.3800	-24.4714	46.8983	-299.3768	38.8691	-7.1593
143	317.0339	-25.6918	43.0799	-257.8348	40.0906	-3.3257
144	288.6355	-27.5630	37.4810	-226.0700	41.9615	2.2876
145	269.0157	-30.1334	30.0794	-201.8235	44.5313	9.7066
146	255.6583	-33.4449	20.8438	-355.5094	50.1974	44.9059
147	418.6943	-39.8972	-16.2017	-381.9524	57.0789	62.6928
148	452.6910	-47.5934	-35.8600	-401.2295	64.9353	82.5214
149	477.5279	-56.2942	-57.6040	-385.6729	72.2199	100.7385
150	465.3917	-64.4202	-77.7625	-378.4394	81.9335	124.6503
151	459.3592	-74.9930	-103.6646	-351.1561	92.5745	150.7074
152	431.0370	-86.4941	-131.7592	-299.8438	104.1080	178.9516
153	376.4817	-98.8796	-162.0858	-220.7571	116.4898	209.4142
154	292.0341	-112.0804	-194.6934	-93.5544	128.0714	238.1694
155	157.5017	-124.4663	-225.6488	49.8357	141.9913	273.1901
156	5.0293	-139.1510	-262.9330	229.8107	156.5731	310.5991
157	-185.5045	-154.4663	-302.6690	448.1641	171.7499	350.4487
158	-415.5794	-170.3104	-344.9131	705.9685	187.4172	392.7854
159	-685.8796	-186.5993	-389.6988	1019.9300	202.2763	433.5540
160	-1012.7005	-202.0094	-432.9911	1358.4949	195.1157	422.2672
161	272.8169	-31.3063	-8.2772	-331.3628	30.5452	-10.5308
162	340.4217	-15.4037	50.9340	-293.6056	31.4054	-6.7679
163	318.9305	-16.9159	44.8993	-269.0876	32.9176	-0.7176
164	309.9631	-19.1480	36.6297	-255.6563	35.1494	7.5680
165	310.8987	-22.1539	26.1796	-401.4737	39.8578	46.4682
166	469.5800	-27.6952	-14.8457	-445.9334	46.0475	65.5686
167	525.0372	-34.7468	-36.0354	-486.7275	53.2581	86.6759
168	574.6348	-42.8733	-59.2028	-518.8829	61.5199	109.7702
169	613.1492	-52.0657	-84.3380	-537.2465	70.8173	134.8456
170	635.2478	-62.3129	-111.4580	-536.6287	81.1481	161.9274
171	635.6658	-73.5991	-140.5975	-512.0307	92.4727	191.0464
172	609.3781	-85.8607	-171.7858	-458.6450	104.7666	222.2270
173	551.6114	-99.1113	-205.0836	-371.9103	118.0063	255.5456
174	457.9561	-113.2713	-240.5626	-247.7224	132.1291	291.0585

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	324.5213	-128.2630	-278.3033	-82.5585	147.0530	328.8501
176	148.0490	-144.0383	-318.3947	126.6333	162.7279	369.0122
177	-74.1249	-160.4880	-360.9392	382.0590	179.0500	411.6320
178	-343.7720	-177.5462	-406.0214	685.2255	195.9528	456.8015
179	-661.8861	-195.1092	-453.7589	1036.7225	213.3333	504.6241
180	-1028.5039	-213.0697	-504.2350	1435.3876	207.0099	495.1681
181	182.5342	-23.6129	-15.5976	-253.2171	21.1167	-4.8520
182	263.2639	-6.4102	44.1290	-235.5392	22.0145	-1.0451
183	261.5507	-7.9752	38.1452	-230.7743	23.5795	4.9499
184	271.8451	-10.2700	30.0290	-347.0276	27.0002	34.5475
185	401.8345	-14.4702	-1.6354	-407.4291	32.4066	51.4736
186	474.3637	-20.7042	-20.5833	-467.6384	38.8172	70.3165
187	544.7790	-27.9861	-41.4197	-522.9704	46.2441	91.0631
188	608.1152	-36.3033	-64.1251	-568.6768	54.6867	113.6917
189	659.4122	-45.6719	-88.7095	-599.7693	64.1571	138.2184
190	693.5649	-56.0669	-115.1888	-611.3558	74.6065	164.6419
191	705.6304	-67.4508	-143.4905	-598.7531	86.0259	192.9419
192	690.8538	-79.7792	-173.9345	-557.5032	98.3426	223.4642
193	644.9735	-93.0012	-206.5333	-483.6291	111.5433	256.0628
194	564.2092	-107.0964	-241.0956	-356.3840	124.1507	287.2401
195	427.9174	-120.5336	-274.4121	-207.5468	138.9680	324.0168
196	268.1264	-136.1548	-313.4750	-16.4756	154.4781	363.1980
197	64.8036	-152.4090	-354.9532	218.4524	170.5898	404.7592
198	-183.3372	-169.1925	-398.9248	498.1679	187.2013	448.8227
199	-476.7798	-186.4174	-445.4349	822.8062	204.2212	495.4383
200	-814.8927	-203.9693	-494.8430	1192.0892	197.2607	485.7772
201	144.6282	-18.3887	-33.7535	-257.4872	9.6125	2.9348
202	263.2239	1.1534	25.4374	-256.8988	10.1270	5.6741
203	271.5494	0.2617	21.0940	-263.9624	11.0181	10.0358
204	287.2000	-1.0356	15.2231	-310.4673	13.7743	32.7445
205	341.8162	-4.2344	-8.8398	-353.2753	16.7148	44.5122
206	392.1156	-7.6564	-22.2416	-424.8050	21.5538	62.5012
207	470.3895	-12.9889	-41.6637	-469.8138	25.6671	77.2219
208	521.2725	-17.6300	-57.3527	-513.2520	30.3712	92.8576
209	569.4247	-22.8973	-74.8067	-577.3769	37.2972	114.9463
210	637.1094	-30.4025	-98.3201	-609.4088	43.3250	133.8443
211	671.4200	-36.9962	-118.4373	-654.9178	51.7151	158.4600
212	717.7393	-46.0249	-144.4796	-665.0927	59.1015	179.9935
213	727.1320	-54.0449	-167.6386	-679.5778	69.0333	207.7815
214	739.2386	-64.5927	-196.9086	-656.4326	77.7739	232.4342
215	712.1527	-74.0048	-222.6705	-613.6286	87.2356	258.2023
216	663.3819	-84.1385	-250.2516	-559.3000	99.3994	290.4875
217	601.3848	-96.9839	-284.0205	-465.3480	110.3015	319.6518
218	497.9921	-108.5711	-314.5267	-348.6877	123.9787	354.8347
219	369.8167	-122.9260	-351.3913	-191.5550	136.2929	387.1725
220	199.1320	-135.9331	-387.0752	0.4558	147.2136	387.0630

ENVOLVENTE MINIMOS TORSORES TREN UIC-71, via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.0211	18.8516	32.5466	-31.5462	-5.3041	4.6541
2	50.8767	17.1563	27.8728	-104.4838	-2.4887	12.6240
3	140.5045	13.5280	18.1597	-179.6212	0.8565	21.6322
4	229.7083	9.3746	7.4634	-300.2476	7.0473	36.7689
5	361.8343	2.3901	-9.3195	-422.4663	14.3727	53.4147
6	493.0355	-5.7353	-27.5825	-503.7950	20.6402	67.5264
7	580.9216	-12.7616	-43.2864	-605.6648	29.4457	87.1911
8	686.9982	-22.3190	-64.5345	-691.1824	38.9242	108.3718
9	774.5002	-32.5291	-87.3015	-733.9113	47.3303	127.1134
10	814.5894	-41.8374	-107.6345	-777.6233	58.3192	151.4174
11	858.7229	-53.3697	-133.5481	-779.8390	68.1053	173.3536
12	852.3148	-64.0851	-157.1222	-771.4124	80.3798	200.9246
13	809.3106	-78.4569	-186.3831	-702.6347	94.6180	230.2221
14	681.9458	-95.5985	-217.4974	-529.9348	110.1514	257.3890
15	548.8748	-109.3128	-246.4888	-387.6412	125.2277	290.4295
16	434.6746	-123.3171	-281.3526	-250.6843	139.0515	325.3625
17	288.2617	-137.6428	-318.1503	-66.5893	151.9707	358.2085
18	93.6011	-151.0014	-352.9152	135.3389	166.4263	397.0647
19	-118.8847	-165.8738	-393.7431	369.0337	181.0754	437.9636
20	-363.2042	-180.8982	-436.6671	652.1552	170.9589	418.2791
21	-420.2680	8.9719	-21.0043	332.4167	-15.6941	8.1679
22	-477.6549	36.2879	31.2102	379.2151	-18.7647	16.5053
23	-412.7592	35.4063	20.5300	312.7869	-17.6408	29.2325
24	-271.0026	31.3893	5.7502	177.0278	-13.4033	45.0967
25	-120.7793	26.3700	-12.1154	35.9343	-8.1895	62.8595
26	33.2345	20.3299	-31.8279	-106.0495	-1.9708	82.4775
27	186.2264	13.2423	-53.3637	-244.2030	5.2675	103.9272
28	333.1749	5.0890	-76.7025	-373.5702	13.5500	127.1936
29	466.9217	-4.3904	-101.8475	-486.5426	23.1340	152.2841
30	582.1248	-15.0126	-128.8184	-578.2431	33.8259	179.2188
31	628.8768	-30.6859	-157.6639	-591.1381	49.5569	208.0483
32	676.5310	-43.9418	-188.5008	-609.7280	62.8284	238.8922
33	677.9548	-58.8384	-221.3662	-578.8860	77.7084	271.7859
34	665.7558	-72.9577	-256.3003	-536.2379	91.7804	306.7714
35	613.8218	-87.9022	-293.3944	-452.6052	106.6717	343.9336
36	518.8805	-103.6389	-332.7420	-325.0175	122.3109	383.3671
37	378.3115	-120.0581	-374.4539	-151.2006	138.6070	425.1789
38	190.2387	-137.0871	-418.6372	70.3976	155.4835	469.4702
39	-46.4028	-154.6245	-465.4028	340.4636	172.8418	516.3472
40	-592.5346	-181.4796	-514.9747	937.8504	175.4822	506.2025
41	-666.9014	16.9949	-24.9257	562.4277	-23.6788	10.8312
42	-552.6080	38.8023	28.3415	448.0411	-21.2327	19.3001
43	-421.4971	35.6869	17.7834	320.1197	-17.8822	31.9160
44	-278.1608	31.7837	3.1376	182.7393	-13.7631	47.6652
45	-125.7834	26.7069	-14.6026	39.7783	-8.4934	65.3172
46	29.8815	20.4260	-34.1981	-103.2358	-2.0448	84.8314
47	184.1237	13.2845	-55.6272	-242.4086	5.2399	106.1890
48	266.5240	8.8421	-78.9267	-314.5699	9.8071	129.4289
49	402.3572	0.1226	-104.0957	-431.0409	18.6320	154.5538
50	525.5474	-10.2528	-131.0989	-531.1921	29.0716	181.5308
51	627.6644	-21.9246	-159.9668	-607.4202	40.7989	210.3915
52	637.8088	-39.1305	-190.7920	-580.5468	58.0197	241.2293
53	652.0945	-53.8584	-223.6864	-562.8815	72.7316	274.1556
54	649.7443	-68.0268	-258.6617	-529.9748	86.8600	309.1838
55	607.6943	-83.0088	-295.7944	-456.1888	101.7729	346.3846
56	522.4039	-98.7681	-335.1798	-338.2010	117.4364	385.8549
57	391.4392	-115.2057	-376.9179	-173.9734	133.7457	427.6888
58	212.8885	-132.2439	-421.1162	38.1029	150.6339	471.9875
59	-14.2203	-149.7802	-467.8766	298.6215	167.9883	518.8513
60	-432.2643	-172.5449	-517.3163	759.3309	166.5250	508.5215
61	-535.4898	11.6862	-25.0117	441.0907	-18.3841	10.9020
62	-504.3515	35.9897	28.3088	405.3252	-18.4196	19.3599
63	-378.6144	32.8570	17.7438	282.8514	-15.0535	31.9801
64	-240.2954	28.7643	3.0753	150.8964	-10.7420	47.7436
65	-93.8155	23.6689	-14.6904	13.8819	-5.4633	65.4134
66	56.1129	17.5538	-34.3163	-123.7052	0.8246	84.9503
67	204.6574	10.3948	-55.7764	-257.1426	8.1203	106.3318
68	344.0086	2.3477	-79.0568	-379.0134	16.3011	129.5468
69	410.0831	-2.7071	-104.1952	-433.0759	21.4583	154.6348
70	500.6105	-10.6292	-131.2578	-505.4374	29.4592	181.6675
71	602.5525	-21.6908	-160.1932	-582.7535	40.5602	210.5931
72	681.2021	-34.0039	-191.0341	-634.2030	52.8835	241.4423
73	728.0901	-47.2760	-223.8280	-652.0795	66.1347	274.2644
74	737.4888	-61.2682	-258.6628	-631.3073	80.0891	309.1521
75	601.8091	-81.7818	-295.6820	-452.8257	100.5436	346.2411
76	518.2990	-97.5701	-335.0568	-336.6137	116.2246	385.6986
77	389.7132	-114.0070	-376.7747	-174.8002	132.5402	427.5118
78	213.6155	-131.0306	-420.9433	34.7462	149.4062	471.7837
79	-11.0148	-148.5587	-467.6698	292.7147	166.7551	518.6164
80	-285.3424	-166.6672	-517.0590	600.5045	160.6072	508.4806
81	-430.9796	-6.1750	-40.9438	372.2630	-0.5228	26.8192
82	-421.1209	17.6657	12.7087	358.6216	-0.0676	34.6895
83	-491.1480	20.4112	2.5207	420.1928	-2.5770	46.9271
84	-382.1994	16.4571	-11.7406	317.3615	1.5909	62.2743
85	-260.2079	11.3028	-29.0223	205.0009	6.9361	79.4407
86	-134.9971	5.1332	-48.0804	92.3032	13.2774	98.4030
87	-11.4368	-2.1038	-68.9049	-15.9343	20.6578	119.1549
88	105.3797	-10.3995	-91.5009	-114.7342	29.0846	141.7043
89	210.2548	-19.7655	-115.9020	-198.9494	38.5350	166.0886
90	297.9105	-30.1675	-142.1591	-263.4754	49.0106	192.3600
91	362.4690	-41.5221	-170.3438	-302.8036	60.4023	220.5941
92	400.4978	-53.9156	-200.5461	-313.5354	72.8043	250.8787
93	406.5984	-67.2376	-232.8788	-290.6273	86.1014	283.3253
94	376.6175	-81.4483	-267.4580	-230.1550	100.2707	318.0531
95	306.8565	-96.4671	-304.4343	-128.8178	115.2168	355.2061
96	194.3140	-112.2451	-343.9530	16.1314	130.8789	394.9308
97	36.6609	-128.6684	-386.1843	206.6511	147.1699	437.3909
98	-167.6071	-145.6663	-431.2921	443.9031	164.0006	482.7474
99	-419.1126	-163.1153	-479.4546	728.0812	181.2547	531.1704
100	-717.4820	-180.9139	-530.8370	1067.4803	174.4345	522.8006
101	-769.5159	3.0853	-69.4772	843.4955	-17.4150	51.3644
102	-837.8294	30.7230	-16.0337	796.2969	-16.7225	54.9445
103	-777.1122	29.4392	-21.1663	549.3264	-6.9538	60.9500
104	-517.4397	18.9966	-28.7255	448.1098	-2.6742	73.1763
105	-404.6586	14.0273	-42.5198	342.8652	2.5307	87.5538
106	-289.1864	8.0856	-58.4716	237.6025	8.6811	103.6287
107	-175.2715	1.1627	-76.1555	161.4261	14.2922	118.0122
108	-92.2464	-5.2364	-92.1722	67.6541	22.2552	137.5312
109	6.4274	-14.0121	-113.3702	-14.0955	31.1504	158.9037
110	91.0446	-23.7334	-136.4657	-79.7302	40.9566	182.1957
111	157.4404	-34.3689	-161.5400	-104.8074	49.9998	203.6787
112	181.1842	-44.2314	-184.8759	-127.9267	61.5047	230.9321
113	200.9544	-56.5511	-214.0588	-124.0832	73.8076	260.3605
114	191.8731	-69.6268	-245.5028	-90.4189	86.8231	292.0734

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	151.2176	-83.4029	-279.3240	-8.2281	98.9686	321.9533
116	60.5163	-96.2708	-311.4177	91.6064	113.3116	358.4360
117	-49.0642	-111.2815	-350.2194	227.1981	128.1580	397.5401
118	-195.3110	-126.7570	-391.7568	399.1494	143.4418	439.3915
119	-378.4417	-142.5958	-436.1526	624.6587	157.8542	479.4328
120	-615.2571	-157.5095	-478.8553	880.6235	149.8682	468.6058
121	-533.3174	-5.7245	-70.5628	424.5062	3.6692	54.7829
122	-420.1587	9.6987	-19.1079	415.4283	4.3026	57.7577
123	-397.9432	8.4854	-23.6071	372.8838	1.8209	62.5178
124	-342.9133	10.3301	-29.8975	290.5018	5.8936	74.1404
125	-249.0456	5.5720	-43.0679	203.2540	10.9055	87.9113
126	-151.5223	-0.1708	-58.4008	115.1587	16.8743	103.3892
127	-54.6348	-6.8922	-75.4734	55.1218	22.3236	117.2564
128	12.4909	-13.1147	-90.9727	-23.0614	30.0944	136.1942
129	95.8630	-21.7229	-111.5846	-90.0484	38.8419	157.0042
130	166.0163	-31.2915	-134.1255	-141.6684	48.5056	179.7636
131	218.7351	-41.7830	-158.6781	-153.2409	57.4122	200.7800
132	229.3153	-51.5186	-181.5625	-163.5895	68.7989	227.5671
133	236.6234	-63.7094	-210.3005	-147.4900	80.9780	256.5790
134	215.5518	-76.6918	-241.3535	-101.9259	93.9226	287.9333
135	163.2315	-90.3981	-274.8523	-8.0563	105.9853	317.4997
136	61.0291	-103.1882	-306.6755	103.2253	120.2688	353.7550
137	-59.8895	-118.1679	-345.3023	250.2621	135.1008	392.7218
138	-217.5487	-133.6310	-386.7592	433.7960	150.3722	434.5351
139	-412.2982	-149.4854	-431.1935	670.8491	164.7710	474.5575
140	-660.7745	-164.3877	-473.9587	940.5413	156.9453	463.9875
141	-669.1462	13.2437	-39.1838	699.5714	-25.3623	23.0124
142	-695.6638	39.1336	13.4421	638.1849	-24.7373	26.5293
143	-620.4881	37.9217	8.3135	386.5893	-15.8210	36.1547
144	-355.7452	28.3475	-2.9533	293.9443	-12.8510	45.8003
145	-250.9580	24.6810	-14.2487	171.9199	-7.9053	60.3832
146	-118.0423	18.9920	-30.5234	48.6080	-1.9971	76.8397
147	14.6231	12.3014	-48.6924	-71.8250	4.8803	95.1841
148	142.6150	4.5983	-68.7843	-185.0905	12.7436	115.4453
149	261.4372	-4.0929	-90.8224	-263.5324	20.0186	133.9566
150	343.2974	-12.2240	-111.1518	-350.2868	29.7373	158.0395
151	431.2544	-22.7952	-137.0920	-416.9960	40.3767	184.1357
152	496.9227	-34.2958	-165.0972	-459.6810	51.9097	212.2896
153	420.7750	-55.0982	-195.2767	-343.8456	72.7084	242.6051
154	342.8185	-72.9557	-227.7509	-214.7574	88.9467	271.2267
155	235.2728	-87.8456	-258.5508	-93.8482	105.3706	306.0927
156	110.4433	-104.5340	-295.6372	62.0918	121.9561	343.3033
157	-23.3346	-120.1133	-335.1486	224.1628	137.3969	382.9286
158	-234.7613	-137.8599	-377.1160	466.7449	154.9666	424.9885
159	-446.6144	-154.1483	-421.5718	722.2601	169.8253	465.4271
160	-760.5540	-171.2873	-464.4919	1051.0554	164.3937	453.7680
161	-218.4416	1.0024	-23.2877	148.8442	-7.4398	10.3901
162	-358.0764	30.0346	29.2425	273.3647	-12.5428	18.5080
163	-248.0185	27.0321	18.7527	165.7432	-9.2875	31.0586
164	-124.8420	23.0581	4.1077	48.2369	-5.0850	46.8003
165	7.0321	18.0808	-13.6803	-74.7530	0.0947	64.4930
166	142.8884	12.0665	-33.3722	-198.7769	6.2858	84.0952
167	277.9104	5.0137	-54.9418	-319.1309	13.4976	105.5820
168	407.0547	-3.1095	-78.3662	-430.8354	21.7561	128.9344
169	525.1354	-12.3048	-103.6372	-528.7594	31.0564	154.1451
170	626.7893	-22.5519	-130.7715	-607.7064	41.3871	181.2409
171	705.9027	-33.9102	-159.8033	-661.6555	52.7838	210.2532
172	759.0346	-46.1725	-190.7588	-687.6873	65.0784	241.2009
173	780.6731	-59.4230	-223.7053	-680.3550	78.3180	274.1671
174	764.3212	-73.7096	-258.7107	-633.2200	92.5674	309.2068

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	699.2258	-89.2686	-295.8600	-535.2575	108.0586	346.4065
176	551.5020	-107.3848	-335.2986	-350.1360	126.0744	385.9161
177	402.2784	-123.8493	-377.1082	-167.6291	142.4113	427.8014
178	205.9439	-140.9049	-421.3466	62.2188	159.3115	472.1264
179	-38.8635	-158.4714	-468.1254	340.4171	176.6955	518.9909
180	-332.1904	-176.4350	-517.5288	665.7991	170.3752	508.4624
181	-238.9233	-1.1039	-24.9714	168.9679	-5.9645	9.7394
182	-360.2997	27.8074	28.8661	277.7109	-10.5444	17.8780
183	-386.3833	29.7132	18.2600	297.0837	-12.2021	30.5834
184	-255.9983	25.5124	3.5141	173.0907	-7.7755	46.4369
185	-118.2730	20.3088	-14.3055	44.8420	-2.3724	64.1434
186	22.1072	14.0762	-33.9366	-83.2243	4.0368	83.6698
187	160.3890	6.8008	-55.3468	-206.4371	11.4572	104.9898
188	291.5766	-1.5158	-78.5297	-319.9969	19.8992	128.0957
189	410.7064	-10.8775	-103.4866	-418.9274	29.3627	152.9957
190	512.3233	-21.2373	-130.2367	-498.0508	39.7769	179.6894
191	574.5378	-30.9450	-158.7356	-538.8640	49.5201	208.1881
192	629.0416	-43.2105	-189.2629	-567.0195	61.7739	238.7928
193	650.2877	-55.8097	-221.8492	-561.4886	74.3518	271.3790
194	630.8535	-67.5532	-256.2976	-500.1577	84.6075	302.4418
195	569.5943	-80.2441	-289.3717	-427.8120	98.6785	338.9764
196	488.4112	-95.8618	-328.1583	-315.3543	114.1851	377.8814
197	363.3117	-112.4834	-369.2246	-157.9336	130.6642	419.0301
198	191.9126	-129.6496	-412.6331	45.7875	147.6584	462.5307
199	-34.0028	-148.8114	-458.5149	306.6764	166.6152	508.5181
200	-305.9480	-167.4054	-507.0591	611.8248	160.6968	497.9931
201	-577.2628	7.4840	-42.7168	498.4778	-18.8902	16.6067
202	-492.7591	29.6599	10.7589	435.8082	-17.4692	22.4781
203	-421.1865	27.8601	3.6815	366.2874	-15.5952	29.9588
204	-343.1351	25.5594	-5.1878	265.6315	-12.0861	43.8108
205	-238.7104	21.8102	-20.6052	190.5228	-9.3298	56.2765
206	-190.2522	20.2238	-34.3140	118.2491	-6.3264	74.5733
207	-73.3631	14.9318	-54.0791	34.5699	-2.2536	89.6370
208	-104.1232	16.8809	-70.9328	63.4848	-4.1397	106.4376
209	-13.0908	11.9731	-88.8054	-44.0278	2.4268	128.9431
210	103.7541	4.4914	-112.7120	-125.2552	8.4311	148.2367
211	187.2739	-2.1063	-133.4102	-219.9696	16.8252	173.4322
212	276.5217	-11.2637	-159.9475	-272.8843	24.3403	195.4608
213	334.9400	-19.2668	-183.3838	-336.4244	34.2552	223.5269
214	396.0955	-29.8305	-212.8798	-362.3066	43.0117	248.4057
215	418.0311	-39.2517	-239.0499	-368.5137	52.4825	274.5805
216	418.2756	-49.3815	-266.7920	-363.1983	64.6424	307.0287
217	405.2896	-62.2240	-300.7074	-318.2629	75.5416	336.3388
218	350.9284	-73.8078	-331.4045	-250.6410	89.2154	371.7129
219	271.7878	-88.1680	-368.3724	-142.5342	101.5349	404.1529
220	142.6594	-101.5343	-404.1166	0.4778	101.5345	404.1049

ENVOLVENTE MAXIMOS FLECTORES TREN UIC-71, via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0806	141.4718	-260.8024	-214.6830	-124.6914	238.3720
2	252.7291	147.8284	-237.8468	-476.9501	-120.7131	199.5684
3	477.1411	120.7080	-199.1267	-667.1220	-105.7990	178.2772
4	667.2804	105.7908	-177.6524	-830.4349	-89.1023	154.8274
5	830.5756	89.1047	-154.0478	-963.3018	-74.2465	133.0441
6	963.4200	74.2164	-132.1416	-1068.9625	-47.1808	93.5621
7	1069.0627	47.1979	-92.5550	-1140.6039	-42.8690	87.0429
8	1140.6776	42.8944	-85.9617	-1186.9270	-15.9360	47.3138
9	1186.9827	15.9437	-46.1921	-1202.4362	-1.2130	25.0652
10	1202.4382	1.2214	-23.9184	-1191.6150	13.4834	2.7922
11	1191.5876	-13.5023	-1.6525	-1151.0282	29.7263	-21.4264
12	1150.9875	-29.7509	22.5314	-1083.5507	56.5629	-61.1532
13	1083.4847	-56.5831	62.1923	-989.7125	60.3802	-67.6716
14	989.6434	-60.3908	68.6232	-866.7040	87.0590	-107.1674
15	866.5878	-87.0417	108.0107	-721.8082	102.7737	-130.9176
16	721.6736	-102.7775	131.6117	-549.1472	106.1043	-136.9107
17	549.1729	-104.4913	134.6410	-355.3714	130.9148	-173.0206
18	394.0859	-84.4705	114.5307	-256.1748	99.6650	-137.2352
19	287.8282	-60.7864	87.8324	-226.2255	39.5461	-63.7282
20	252.2897	-4.6230	17.6705	-234.0326	21.0865	-36.0868
21	252.9069	-25.5677	-3.4419	-195.0109	28.9510	3.8222
22	212.3106	-14.0884	-23.7280	-207.3345	-7.2593	44.1018
23	251.2222	48.4774	-101.0934	-315.8492	-30.2971	74.9360
24	354.9298	73.5418	-136.1368	-470.4323	-55.1845	109.8705
25	503.2126	88.2270	-160.9948	-648.0368	-69.7160	134.6270
26	705.2687	111.4001	-155.2137	-895.6661	-92.7503	128.7560
27	895.8235	92.7359	-127.7311	-1047.4709	-73.9840	101.1961
28	1047.5875	73.9683	-99.9760	-1159.7655	-55.1483	73.3811
29	1159.8713	55.1426	-72.0216	-1232.0645	-36.2741	45.3872
30	1232.0957	36.2880	-43.9353	-1264.9490	-6.6392	1.3638
31	1264.9453	6.6002	0.1388	-1257.7640	12.2914	-26.7908
32	1257.7115	-12.2907	28.2813	-1210.3062	31.1481	-54.9128
33	1210.2443	-31.1490	56.3562	-1123.3279	60.7581	-98.8833
34	1123.1998	-60.7353	100.2183	-997.3787	79.5112	-126.7599
35	997.2306	-79.4971	127.9421	-832.5232	98.1685	-154.4082
36	832.3348	-98.1747	155.3924	-629.6017	116.7290	-181.7692
37	642.0899	-91.5998	168.3457	-452.7418	109.9956	-194.6201
38	491.2099	-73.2762	136.8149	-339.7818	91.4960	-162.9832
39	385.9605	-48.3725	101.9885	-317.4556	31.1082	-81.7875
40	356.9076	10.1023	25.0382	-361.1166	9.2655	-47.6392
41	390.1153	-29.5740	-3.8995	-328.4880	28.9887	4.1075
42	346.7104	-14.1513	-23.7670	-332.7534	-3.0953	44.2410
43	379.5139	44.2184	-100.8531	-436.1480	-26.0118	74.6415
44	479.7968	69.0796	-135.3552	-586.7584	-50.6977	109.0489
45	624.2397	87.4097	-166.6236	-767.6882	-68.8812	140.2299
46	821.7571	105.8187	-154.2484	-1001.1661	-87.1647	127.7766
47	1001.3011	87.1715	-126.5905	-1141.9111	-68.4150	100.0531
48	1142.0029	68.4357	-98.6991	-1243.1218	-49.6097	72.1125
49	1243.1924	49.6027	-70.6238	-1304.2732	-30.7359	44.0044
50	1304.3230	30.7482	-42.4403	-1326.0881	-1.1012	-0.1281
51	1326.1158	1.0788	1.7206	-1307.8281	17.8076	-28.3495
52	1307.7926	-17.8281	29.9175	-1249.2144	36.6912	-56.5228
53	1249.1685	-36.7329	58.0225	-1151.0183	66.3457	-100.5407
54	1150.9083	-66.3360	101.9212	-1013.7941	85.1009	-128.4365
55	1013.6523	-85.1118	129.6475	-837.6210	103.7823	-156.0893
56	837.4214	-103.7864	157.0776	-623.4090	122.3267	-183.4321
57	641.7859	-87.4706	168.0132	-460.6576	105.8641	-194.2735
58	499.8519	-68.8505	135.9426	-357.3229	87.0567	-162.1049
59	404.1153	-43.7782	100.9729	-344.0463	26.5225	-80.7586
60	383.7800	14.7539	24.0256	-398.9573	0.7117	-46.6426
61	427.8852	-26.4923	-4.0773	-368.0575	29.9199	4.3445
62	386.2068	-15.0876	-23.9691	-366.5914	-2.2971	44.4649
63	413.4440	43.3907	-101.1237	-468.4777	-25.1850	74.9460
64	512.4083	68.1998	-135.7831	-617.6297	-49.8207	109.5033
65	655.4302	86.4359	-167.1944	-796.9207	-67.9105	140.8197
66	848.6307	102.8272	-155.1936	-1022.0158	-84.1754	128.7348
67	1022.1616	84.1879	-127.5207	-1156.7538	-65.4404	100.9901
68	1156.8378	65.4692	-99.6039	-1251.9620	-46.6460	73.0196
69	1252.0375	46.6351	-71.5236	-1307.1307	-27.7691	44.9041
70	1307.1415	27.7362	-43.3363	-1322.8500	1.9108	0.7721
71	1322.8136	-1.9158	0.8059	-1298.5181	20.7996	-27.4388
72	1298.4789	-20.8139	28.9896	-1233.9324	39.6706	-55.6032
73	1233.8721	-39.6573	57.0885	-1129.9396	69.2569	-99.6081
74	1129.8186	-69.2510	100.9575	-986.9709	88.0083	-127.4796
75	986.8361	-88.0445	128.6460	-805.0411	106.7091	-155.0945
76	804.8608	-106.7176	156.0339	-585.1258	125.2541	-182.3961
77	606.4341	-87.4960	167.7141	-425.4349	105.8725	-193.9804
78	465.7540	-68.8174	135.9169	-323.4674	87.0117	-162.0820
79	371.2761	-43.7045	101.0345	-306.1246	22.4146	-80.9019
80	346.4588	18.8690	24.1732	-368.1960	0.5971	-46.9642
81	397.3384	-21.7025	-13.3283	-346.9869	25.1717	13.5185
82	365.4134	-10.3638	-32.8709	-355.4316	-6.9428	52.5046
83	403.1394	47.8993	-107.5147	-467.3353	-29.6395	80.8224
84	512.5737	72.2514	-137.1738	-625.9742	-53.8185	110.3722
85	664.7413	89.5665	-158.5548	-812.4884	-70.9860	131.6643
86	855.6528	100.0382	-125.2064	-1023.3789	-81.3348	98.2496
87	1023.4950	81.3563	-97.0256	-1152.2495	-62.5558	70.0324
88	1152.3192	62.5538	-68.6580	-1241.3749	-43.6862	41.6574
89	1241.4095	43.6995	-40.1683	-1290.3453	-24.7944	13.1902
90	1290.3276	24.8077	-11.6361	-1300.0338	4.8561	-31.0810
91	1299.9583	-4.8657	32.6294	-1269.4219	23.7659	-59.5014
92	1269.3168	-23.7447	61.0205	-1198.6368	42.6215	-87.7782
93	1198.5140	-42.5902	89.2013	-1088.5570	72.2012	-131.7493
94	1088.3698	-72.1944	133.0425	-939.4843	90.9658	-159.5469
95	939.2727	-90.9781	160.6595	-751.7053	109.6343	-186.9630
96	751.4756	-109.6309	187.8374	-526.2887	128.1541	-213.9177
97	567.7255	-80.1119	173.6449	-402.2309	98.4667	-199.4799
98	442.2301	-59.9930	135.5007	-319.1654	66.9462	-144.6984
99	361.4891	-19.4947	73.0912	-335.1249	8.9768	-64.7596
100	360.4210	19.5672	23.6272	-383.4038	0.0952	-47.7247
101	420.7692	-27.2026	-16.4230	-366.6018	30.8615	15.3212
102	385.2250	-5.4953	-48.9377	-381.7246	-2.1073	54.7650
103	403.9453	35.6141	-96.9825	-463.0045	-19.0549	71.6586
104	489.9032	52.8998	-111.7325	-578.9141	-48.3306	104.0564
105	606.7784	77.9282	-138.3891	-716.4645	-60.9858	113.3105
106	758.8562	89.0907	-84.5454	-889.5559	-61.3642	44.3362
107	889.5897	61.3673	-43.4117	-990.7012	-44.2225	18.5494
108	990.7150	44.2034	-17.5216	-1058.8896	-39.1717	10.3710
109	1058.8704	39.1668	-9.2758	-1095.7051	-11.3280	-30.7541
110	1095.6472	11.3033	31.8957	-1101.8862	4.3387	-54.3442
111	1101.8271	-4.3553	55.4828	-1076.3406	21.6264	-79.7492
112	1076.2390	-21.5962	80.8556	-1018.5788	38.8356	-104.8795
113	1018.4550	-38.8155	105.9359	-932.5267	66.6039	-145.5925
114	932.3731	-66.6204	146.5521	-812.8815	71.5306	-152.6209

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	812.6969	-71.5528	153.4544	-662.0433	88.5224	-176.7652
116	661.8416	-88.4914	177.4407	-483.9116	116.1057	-216.6676
117	510.9934	-68.3018	152.7491	-389.0203	84.9856	-175.5752
118	419.4684	-46.8165	105.4816	-334.9702	51.0649	-110.4605
119	362.0763	-21.0774	62.6719	-342.5387	13.1923	-54.1097
120	378.5981	23.2268	-0.0796	-413.4819	-10.0669	-15.5140
121	439.6810	-28.7535	-23.9231	-381.4321	32.8652	19.7218
122	398.1771	-19.9921	-36.4349	-366.6622	12.2737	42.0822
123	405.7196	23.5536	-87.4686	-442.1151	-7.0725	61.9713
124	478.4989	44.5625	-105.3330	-551.8528	-40.0556	97.5063
125	582.8425	71.8855	-131.5161	-681.2973	-54.9826	106.3109
126	726.0938	92.3999	-75.4672	-862.4104	-64.6904	35.2070
127	862.4666	64.6781	-34.3156	-969.2356	-47.5488	9.3613
128	969.2492	47.5058	-8.3567	-1043.2502	-42.4745	1.1396
129	1043.2144	42.4802	-0.0616	-1085.9431	-14.6482	-39.9891
130	1085.9021	14.6423	41.1202	-1098.0900	1.0028	-63.5837
131	1098.0166	-1.0272	64.7218	-1078.5668	18.3183	-89.0031
132	1078.4718	-18.2629	90.1277	-1026.8505	35.5260	-114.1315
133	1026.7269	-35.5308	115.2030	-946.5978	63.3406	-154.8379
134	946.4460	-63.3336	155.8171	-832.7476	68.2842	-161.8156
135	832.5525	-68.2879	162.6661	-687.5058	85.3066	-185.8664
136	687.2883	-85.3140	186.5763	-514.7855	112.9603	-225.7361
137	533.9227	-73.1299	163.5492	-403.0715	89.8744	-186.2050
138	429.9249	-60.6822	128.9126	-320.5237	64.9923	-133.6750
139	360.0460	-26.9359	70.2840	-334.8327	18.9043	-61.7936
140	369.5297	17.3889	6.9764	-388.2049	0.6003	-24.7453
141	412.6203	-34.1882	-5.6062	-344.4081	38.1756	7.9610
142	361.8548	-24.9091	-25.4246	-335.9904	12.8632	27.9131
143	375.4575	24.1516	-76.1037	-412.3525	-7.4215	50.7518
144	447.5950	46.3969	-99.7932	-526.0753	-29.4445	74.6223
145	555.6980	62.9866	-119.7099	-663.4006	-58.0430	112.2376
146	711.0708	98.2613	-114.1318	-858.8535	-80.9539	89.2870
147	858.9495	80.9372	-88.3850	-976.5117	-52.8377	47.9831
148	976.5555	52.8669	-46.9417	-1062.5687	-35.3843	22.3002
149	1062.5931	35.3465	-21.1823	-1115.2037	-17.7973	-3.3217
150	1115.2119	17.8110	4.5201	-1133.7665	-1.8250	-27.2526
151	1133.7308	1.8150	28.4576	-1120.2997	26.3778	-68.6845
152	1120.2334	-26.3492	69.8664	-1074.9332	31.7181	-76.5833
153	1074.8414	-31.7387	77.7291	-994.6718	49.2659	-101.8530
154	994.5479	-49.2725	102.9133	-881.2774	66.7183	-126.9225
155	881.1169	-66.7300	127.8586	-737.5164	94.8019	-167.8282
156	737.3327	-94.7891	168.6047	-562.8851	112.0361	-192.4379
157	570.0642	-82.3692	153.3266	-417.2785	87.2356	-159.5390
158	444.5677	-51.5861	93.4312	-325.7213	68.4377	-117.1109
159	355.3846	-29.8627	58.6000	-309.8162	22.6275	-52.4492
160	337.0122	14.3126	0.2237	-349.8117	3.4235	-20.5792
161	371.9423	-26.5746	-2.4882	-312.1089	29.9122	2.8259
162	328.7554	-15.0275	-22.5788	-320.0958	-6.0980	43.5953
163	361.2036	47.3958	-100.5811	-423.0616	-29.2225	74.4722
164	457.8950	63.1067	-122.1009	-552.1077	-44.7507	95.8891
165	598.4128	87.3090	-161.6628	-741.1176	-68.7993	135.3536
166	783.8212	103.9247	-158.8543	-959.1239	-85.2793	132.4517
167	959.2799	85.3106	-131.3221	-1096.0127	-66.5599	104.8425
168	1096.1166	66.5596	-103.5511	-1193.4431	-47.7204	77.0048
169	1193.5300	47.7152	-75.5781	-1250.8811	-28.8201	48.9818
170	1250.8956	28.8119	-47.4995	-1268.8527	0.8346	4.9499
171	1268.8571	-0.8047	-3.4570	-1246.9315	19.7063	-23.1703
172	1246.9225	-19.6862	24.6612	-1184.7896	38.5597	-51.2805
173	1184.7239	-38.5747	52.6807	-1082.9645	68.2050	-95.2076
174	1082.8547	-68.2321	96.4913	-942.1054	87.0240	-123.0446

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	941.9651	-87.0208	124.1520	-762.3109	105.7116	-150.6498
176	762.1350	-105.7247	151.5217	-544.4397	124.2883	-177.9491
177	564.1233	-89.4144	159.1406	-379.3725	107.8210	-185.4918
178	412.7030	-75.0658	135.1874	-258.0460	93.2872	-161.4578
179	306.6040	-50.1848	101.1127	-223.7352	29.7533	-81.6824
180	264.4478	11.4731	25.2404	-271.3849	7.5073	-47.6810
181	300.2156	-15.6592	-4.1046	-263.8523	18.6378	4.6540
182	281.2190	-4.1922	-23.9700	-287.3468	-13.1969	44.9238
183	333.0530	53.1297	-100.4411	-406.4500	-35.1930	74.7797
184	450.3071	76.7369	-134.3771	-570.2650	-58.6208	108.5987
185	607.9567	93.6096	-164.5916	-760.5555	-75.3408	138.7035
186	790.2320	94.4481	-151.7537	-943.5529	-65.2594	109.8668
187	943.6923	65.2464	-108.7925	-1060.9480	-46.8065	82.7477
188	1061.0623	46.8156	-81.5228	-1140.4341	-28.2904	55.4128
189	1140.5020	28.2769	-54.1020	-1181.4553	-9.7048	27.9496
190	1181.4984	9.6969	-26.5966	-1184.0693	7.3991	2.0688
191	1184.0583	-7.4054	-0.5454	-1148.8341	25.9908	-25.6283
192	1148.7933	-25.9769	26.7821	-1075.0569	44.5180	-52.8680
193	1075.0024	-44.5020	53.8735	-963.1301	62.9864	-79.9610
194	963.0167	-63.0048	81.1252	-813.6154	81.3986	-107.2174
195	813.4604	-81.4046	108.2329	-627.4119	99.6677	-134.2046
196	627.2591	-99.6593	134.7701	-405.7338	117.7613	-160.6166
197	446.6054	-71.0090	134.2152	-282.1736	88.9218	-159.9912
198	319.6122	-51.3589	104.8055	-195.9705	69.0489	-130.4897
199	234.8337	-35.6220	84.3497	-176.6966	24.7489	-80.3237
200	223.6347	15.8245	24.9571	-239.2883	3.5201	-46.9008
201	269.2614	-5.8075	-0.4129	-255.8022	9.5481	0.8906
202	266.5318	11.4255	-28.3847	-274.6909	-0.1453	12.1186
203	289.2526	28.7183	-49.2543	-360.4593	-37.9250	54.9930
204	380.9176	68.9443	-94.0425	-477.4758	-67.1324	90.7293
205	507.1958	101.1019	-133.3152	-636.1504	-88.3608	114.7274
206	636.1913	88.3483	-114.4692	-741.9221	-63.3434	78.3609
207	741.9613	63.3368	-78.0025	-830.7845	-61.0362	74.5037
208	830.8800	61.0485	-73.2874	-898.8650	-35.8791	36.9816
209	898.8782	35.8509	-36.4933	-944.1180	-22.8136	17.8260
210	944.1258	22.7810	-17.3008	-970.5602	-7.8743	-3.7263
211	970.5672	7.8884	4.5912	-973.7384	3.3911	-21.0933
212	973.7326	-3.3907	21.9081	-955.0629	28.7454	-58.1664
213	955.0370	-28.7764	58.6646	-915.6699	31.7225	-62.0728
214	915.6368	-31.6940	62.5164	-854.8348	57.1435	-98.7622
215	854.7566	-57.1345	99.6264	-768.1825	70.4158	-118.3200
216	768.1300	-70.4153	118.6899	-660.1272	83.7382	-137.2847
217	660.0628	-83.7463	137.6375	-530.4718	97.0825	-156.2429
218	530.3218	-97.0872	156.7383	-378.0994	122.6380	-192.8398
219	377.9596	-122.6276	193.1246	-200.0146	135.9960	-211.5891
220	199.9544	-135.9884	211.6475	-0.2527	147.2690	-211.6609

ENVOLVENTE MAXIMOS CORTANTES TREN UIC-71, via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0791	164.6069	-260.5123	-252.5079	-147.8265	238.0819
2	242.7043	148.2401	-238.6841	-462.4867	-131.4973	216.0669
3	434.5921	132.7211	-217.2791	-632.0809	-117.8279	196.4179
4	588.7506	119.8625	-198.3243	-750.7322	-103.2076	175.4552
5	694.6062	106.0591	-178.1331	-843.0289	-91.2194	157.1247
6	776.6732	94.8440	-160.6428	-887.2874	-78.3193	137.6172
7	813.2144	82.7698	-142.0221	-899.6794	-66.3577	118.9427
8	820.3055	71.5880	-124.2805	-905.4513	-56.8842	103.1689
9	823.1027	62.8534	-109.4770	-868.9035	-46.6364	86.3669
10	785.7574	53.3557	-93.6605	-813.3026	-37.2729	70.5611
11	731.4551	44.6817	-78.8584	-767.9497	-30.1565	57.7742
12	689.3473	38.2625	-67.0812	-687.4082	-22.4366	44.0469
13	613.8086	31.2157	-54.3633	-599.9265	-15.5861	31.3825
14	532.9212	25.0115	-42.6968	-535.6738	-10.7352	21.7317
15	476.6315	20.7829	-34.0266	-445.1694	-5.4719	11.1599
16	395.2678	16.0868	-24.4221	-383.9516	-1.9788	3.5570
17	344.1377	13.1239	-17.7585	-302.6463	1.8323	-4.8352
18	273.6166	9.8267	-10.2775	-266.9780	3.6574	-14.5594
19	249.1691	8.4577	-1.4408	-252.3056	4.6222	-17.4098
20	245.8713	7.9076	0.5530	-142.0797	-15.5932	14.0857
21	-1355.7308	205.8389	-261.1846	950.8240	-211.8547	266.4603
22	-958.5038	212.1297	-268.8508	586.6595	-193.9479	242.7696
23	-609.9393	194.8019	-245.6833	271.6307	-176.4454	219.4892
24	-310.1529	177.9725	-223.0300	5.2394	-159.4647	196.7265
25	-58.0779	161.6969	-201.0024	-213.7993	-143.0505	174.5990
26	147.9997	146.0565	-179.7037	-387.3837	-127.2997	153.2147
27	310.2914	131.1433	-159.2370	-518.0485	-112.3238	132.6764
28	431.6559	117.0319	-139.6968	-608.9483	-98.1583	113.0840
29	515.5558	103.7892	-121.1743	-663.8983	-84.8947	94.5305
30	565.9918	91.4627	-103.7452	-687.1263	-72.5885	77.0914
31	587.3931	80.0834	-87.4699	-683.2806	-61.2411	60.8290
32	584.4671	69.6987	-72.4064	-657.3998	-50.9242	45.7996
33	562.2452	60.3347	-58.5842	-614.6805	-41.6644	32.0309
34	525.8319	52.0068	-46.0266	-560.4444	-33.4546	19.5445
35	480.4155	44.7084	-34.7371	-500.0606	-26.3095	8.3394
36	431.1207	38.4410	-24.7012	-329.2866	-20.3046	-11.3897
37	273.4139	33.2716	-6.1080	-323.9538	-17.2749	-16.8915
38	282.7512	31.0313	-1.6945	-328.8086	-15.0347	-21.3200
39	303.4247	29.5200	1.6963	-346.4591	-13.5233	-24.7258
40	337.5133	28.6666	4.1199	-279.1024	-29.9320	6.4937
41	-1487.8832	209.9509	-259.7293	1073.4491	-215.9283	264.9475
42	-1081.4451	216.2118	-267.5417	700.7487	-198.0052	241.4071
43	-724.6094	198.8861	-244.5429	377.6339	-180.5059	218.3090
44	-416.9029	182.0501	-222.0766	103.4838	-163.5219	195.7467
45	-157.1704	165.8044	-200.2548	-123.1358	-147.1488	173.8383
46	56.4386	150.2048	-179.1734	-304.2410	-131.4516	152.6811
47	226.2566	135.3483	-158.9287	-442.4551	-116.5207	132.3756
48	355.2178	121.2924	-139.6118	-541.0316	-102.4226	113.0139
49	446.8710	108.0899	-121.3020	-603.7815	-89.2029	94.6778
50	505.2350	95.8108	-104.0716	-634.9934	-76.9343	77.4421
51	534.7151	84.4820	-87.9839	-639.3545	-65.6453	61.3697
52	540.0743	74.1468	-73.0848	-621.8398	-55.3808	46.5039
53	526.3190	64.8138	-59.4041	-587.6452	-46.1442	32.8749
54	498.5319	56.5311	-46.9595	-542.1594	-37.9823	20.4967
55	461.9453	49.2654	-35.7522	-490.6967	-30.8822	9.3691
56	421.6503	43.0426	-25.7714	-329.2560	-25.4528	-10.0078
57	273.3369	38.4466	-7.5052	-334.2410	-22.4442	-15.5040
58	293.0282	36.2233	-3.0774	-349.4819	-20.2206	-19.9488
59	324.0995	34.7220	0.3516	-377.5511	-18.7193	-23.3941
60	368.5991	33.8738	2.8283	-316.3975	-34.6372	7.4856
61	-1520.1230	209.8490	-259.1659	1106.1638	-215.8129	264.4725
62	-1114.1021	216.0943	-267.1129	733.7003	-197.8853	241.0124
63	-757.5354	198.7688	-244.1729	410.8532	-180.3920	217.9652
64	-450.1097	181.9452	-221.7536	136.9733	-163.4216	195.4429
65	-190.6493	165.7032	-199.9604	-89.3742	-147.0487	173.5570
66	22.7036	150.1052	-178.8963	-270.2354	-131.3529	152.4098
67	192.2913	135.2622	-158.6585	-408.2512	-116.4379	132.1067
68	321.0613	121.2212	-139.3410	-506.6653	-102.3648	112.7423
69	412.5769	108.0404	-121.0316	-569.2840	-89.1525	94.4049
70	470.8223	95.7655	-103.8003	-600.4076	-76.8902	77.1646
71	500.2579	84.4422	-87.7106	-604.7609	-65.6108	61.0897
72	505.6813	74.1139	-72.8128	-587.3507	-55.3504	46.2223
73	492.0562	64.8051	-59.1314	-553.4126	-46.1556	32.5938
74	464.5364	56.5442	-46.6947	-508.2329	-38.0083	20.2259
75	428.2708	49.2951	-35.5043	-457.1375	-30.9138	9.1160
76	388.3480	43.0841	-25.5429	-296.7963	-25.5745	-10.4332
77	241.1172	38.5774	-7.1103	-302.2600	-22.5783	-15.8907
78	261.2660	36.3565	-2.7214	-317.9726	-20.3602	-20.2960
79	292.7731	34.8640	0.6598	-346.4949	-18.8681	-23.6941
80	337.6677	34.0221	3.0921	-285.7306	-34.7194	7.0567
81	-1516.1039	208.6320	-238.2617	1104.1201	-214.5068	242.7280
82	-1112.1775	214.7984	-245.4430	734.0015	-196.5382	218.8273
83	-758.0092	197.4397	-222.2314	413.7270	-179.0072	195.5011
84	-453.1589	180.5906	-199.6903	142.5762	-162.0120	172.8641
85	-196.3723	164.3458	-177.9525	-81.0045	-145.6406	151.0506
86	14.3268	148.7675	-157.1362	-259.1321	-129.9657	130.1849
87	181.3527	133.9641	-137.3499	-394.5881	-115.0941	110.3785
88	307.8009	119.9649	-118.6946	-490.7161	-101.0594	91.7386
89	397.3138	106.8583	-101.2592	-551.4832	-87.9433	74.3463
90	454.0483	94.6913	-85.1086	-581.3288	-75.7983	58.2766
91	482.5680	83.4962	-70.3072	-585.0576	-64.6495	43.5890
92	487.7463	73.3042	-56.8788	-567.7973	-54.5438	30.3081
93	474.6682	64.1484	-44.8498	-534.8389	-45.4905	18.4565
94	448.5077	56.0303	-34.2098	-491.5717	-37.5052	8.0201
95	414.4871	48.9491	-24.9361	-443.3792	-30.5954	-1.0220
96	377.7246	42.9175	-16.9898	-297.4090	-25.8858	-13.7692
97	245.0252	39.0337	-5.2537	-307.1027	-23.0304	-17.7600
98	269.4261	36.9473	-2.1853	-327.3338	-20.9445	-20.8456
99	305.3079	35.5700	0.0838	-360.4576	-19.5669	-23.1311
100	354.4586	34.8240	1.6636	-305.7826	-35.0914	6.7131
101	-1353.0250	193.7961	-220.8505	1014.5870	-200.9579	225.6335
102	-1022.3429	201.2698	-227.7311	714.5846	-184.6022	202.5449
103	-734.8938	185.4639	-205.6663	438.8468	-170.0567	183.0124
104	-471.1679	171.5161	-187.1774	216.9458	-154.5716	162.1433
105	-260.3610	156.6914	-167.3896	32.4756	-139.6040	142.4965
106	-85.7783	142.4207	-148.8348	-115.9836	-125.2300	124.0999
107	54.2007	128.7929	-131.5459	-248.4367	-113.1731	109.0524
108	179.8199	117.4979	-117.6013	-332.3841	-100.2199	93.1219
109	258.7833	105.3482	-102.7757	-387.9535	-88.0728	78.5010
110	311.3624	94.0133	-89.2390	-418.5573	-76.7657	65.1873
111	341.0502	83.5281	-76.9932	-451.0288	-67.9363	54.8598
112	374.7024	75.5410	-67.6972	-444.1249	-58.4423	44.0342
113	371.0558	66.8564	-57.8587	-424.2289	-49.8910	34.4677
114	356.4368	59.1092	-49.2321	-395.7562	-42.3161	26.1296

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	335.1151	52.3239	-41.7743	-388.1427	-37.0124	20.1940
116	336.3572	47.7744	-36.6472	-274.0867	-33.7656	16.2578
117	232.6099	45.2457	-33.4466	-299.5542	-31.2435	13.3135
118	269.5515	43.3999	-31.1560	-333.2658	-29.3989	11.0080
119	315.5563	42.1794	-29.4219	-377.1350	-28.1789	9.2587
120	372.1356	41.5215	-28.1552	-326.4852	-42.6884	33.7941
121	-1203.8667	189.0073	-212.1374	874.6865	-196.5232	216.0611
122	-882.2624	196.8270	-218.0049	583.7580	-180.2291	192.6559
123	-603.3004	181.0545	-195.6897	315.5013	-165.6744	172.9667
124	-346.6599	167.0821	-177.1030	100.9176	-150.1821	151.9417
125	-142.9362	152.2273	-157.2087	-76.7736	-135.1681	132.2137
126	24.9752	137.8919	-138.6160	-218.7481	-120.7102	113.8030
127	158.4683	124.1593	-121.3549	-344.6492	-108.5345	98.8361
128	277.4315	112.7439	-107.5313	-421.8719	-95.4588	83.0141
129	349.4897	100.4809	-92.8448	-470.4415	-83.1909	68.5618
130	394.8453	89.0148	-79.5051	-493.6048	-71.7480	55.4758
131	416.8427	78.3974	-67.5073	-517.9644	-62.7882	45.3955
132	442.1336	70.2852	-58.4748	-502.5473	-53.1376	34.8805
133	429.7391	61.4495	-48.9606	-473.5194	-44.4330	25.6777
134	405.7648	53.5567	-40.6998	-435.2997	-36.7112	17.7487
135	374.5217	46.6349	-33.6479	-417.4710	-31.2899	12.1582
136	365.4156	41.9801	-28.8541	-291.0714	-26.6519	8.9081
137	249.2623	38.0765	-26.3190	-303.6617	-24.0758	6.1888
138	273.3329	36.1887	-24.2296	-324.4293	-22.1885	4.0875
139	306.4792	34.9421	-22.6563	-355.3899	-20.9415	2.5017
140	350.3143	34.2714	-21.5066	-299.2452	-36.6298	28.0875
141	-1226.0519	192.2158	-243.3376	881.3917	-199.6380	247.5819
142	-889.3925	199.9415	-249.5354	577.3928	-183.0967	224.3603
143	-597.8015	183.9225	-227.2928	297.0723	-168.2222	204.3770
144	-329.6284	169.6335	-208.2933	72.6319	-152.4906	183.3409
145	-116.6309	154.5321	-188.2403	-113.2714	-137.2277	163.4367
146	58.8895	139.9525	-169.3307	-261.7926	-122.5166	144.6642
147	198.3231	125.9774	-151.5557	-374.6642	-108.4591	127.0124
148	303.6745	112.7068	-134.8990	-473.4880	-96.7285	112.1771
149	396.8110	101.7628	-121.0626	-523.7276	-84.1794	96.6902
150	443.3649	90.0564	-106.5601	-547.0212	-72.4901	82.2924
151	465.0997	79.2019	-93.1505	-547.0665	-61.6750	68.9886
152	465.7949	69.2419	-80.8182	-528.0058	-51.7985	56.7491
153	449.5833	60.2065	-69.5283	-519.0674	-44.3316	47.0464
154	445.6624	53.5763	-60.7558	-475.2772	-36.3267	36.8327
155	408.9371	46.3934	-51.4485	-425.5355	-29.3259	27.5965
156	368.1529	40.1837	-43.0882	-283.1131	-23.8722	17.0308
157	236.3421	35.4871	-33.3669	-287.2643	-21.0889	12.6685
158	252.4788	33.4196	-29.8158	-299.6750	-19.0210	9.1052
159	277.9030	32.0151	-27.0348	-322.5743	-17.6167	6.3121
160	314.4441	31.2173	-24.9902	-260.0052	-33.9392	32.3495
161	-1387.1509	204.1759	-262.3949	985.8571	-210.4008	267.4810
162	-993.3807	210.6677	-269.9159	625.0025	-192.4949	243.8826
163	-647.8241	193.3439	-246.8345	312.8024	-174.9905	220.6939
164	-350.6361	176.4848	-224.2591	48.9284	-157.9697	198.0135
165	-100.9292	160.1854	-202.2979	-167.8060	-141.5380	175.9525
166	102.9248	144.5375	-181.0521	-339.2425	-125.7842	154.6163
167	263.0982	129.6159	-160.6137	-467.8297	-110.7840	134.1030
168	382.3733	115.4710	-141.0840	-556.6352	-96.5751	114.5116
169	464.1529	102.1782	-122.5406	-609.3834	-83.2795	95.9290
170	512.3521	89.8156	-105.0715	-630.3167	-70.9252	78.4427
171	531.4182	78.4146	-88.7411	-624.1486	-59.5583	62.1039
172	526.1127	68.0037	-73.5834	-595.8309	-49.2123	46.9654
173	501.3797	58.6012	-59.6535	-550.5482	-39.9062	33.0699
174	462.3530	50.2320	-46.9655	-493.6665	-31.6682	20.4312
175	414.2373	42.9149	-35.5302	-430.5957	-24.5067	9.0579
176	362.2062	36.6385	-25.3430	-366.6638	-18.4179	-1.0592
177	311.2774	31.3921	-16.3787	-249.4676	-15.2237	-17.0097
178	208.6649	28.9856	-1.5467	-250.6381	-12.9841	-21.4745
179	225.5346	27.4745	1.8453	-264.4852	-11.4729	-24.8802
180	255.6574	26.6202	4.2241	-196.1741	-28.0914	6.5012
181	-1431.4464	200.4754	-251.4464	1046.2513	-206.6345	257.3614
182	-1053.7654	206.9130	-259.8362	700.2604	-188.9765	234.2480
183	-723.0448	189.8551	-237.2550	401.9422	-171.7400	211.5433
184	-439.4708	173.2864	-215.1779	150.6653	-155.0206	189.3512
185	-201.9135	157.2965	-193.7133	-54.9972	-138.9014	167.7822
186	-8.5348	141.9552	-172.9680	-217.0614	-123.4658	146.9471
187	142.9482	127.3486	-153.0381	-338.1194	-108.7963	126.9486
188	255.4458	113.5614	-134.0249	-421.4423	-94.9798	107.8793
189	332.4712	100.6364	-116.0019	-470.7964	-82.0548	89.8312
190	377.9955	88.6286	-99.0561	-512.6706	-71.5438	74.5397
191	418.6216	79.0593	-84.8720	-508.4522	-60.5368	58.7160
192	415.7544	68.9802	-70.2891	-483.9347	-50.5452	44.2194
193	395.1925	59.9059	-56.9588	-444.2231	-41.5738	30.8960
194	361.9171	51.8483	-44.7269	-394.4773	-33.6597	18.6933
195	320.8983	44.8185	-33.6855	-339.8794	-26.8068	7.7765
196	277.0695	38.8070	-23.9749	-184.6943	-22.0654	-12.1571
197	134.3752	34.8662	-5.1068	-187.1673	-19.2615	-17.3341
198	150.6621	32.8056	-0.9649	-199.4309	-17.2008	-21.4912
199	177.5863	31.4282	2.1684	-223.6715	-15.8239	-24.6453
200	216.7886	30.6592	4.4137	-160.4895	-31.3174	5.6806
201	-1184.3943	174.9772	-185.6391	928.6576	-186.1022	197.1547
202	-933.0622	186.2760	-199.3199	709.8760	-172.3968	178.5575
203	-722.9222	172.9158	-180.8038	502.2893	-160.2376	162.2791
204	-523.7247	161.1284	-165.0423	334.6909	-146.8716	144.1820
205	-364.0900	148.1678	-147.7784	178.4093	-135.3052	129.1832
206	-215.3600	137.0579	-133.1826	46.5023	-124.1342	114.5929
207	-90.2731	126.3454	-119.3214	-45.3102	-111.6320	98.2672
208	-4.4218	114.3527	-103.9624	-130.3679	-101.2736	85.1980
209	75.4670	104.5072	-91.4651	-174.7783	-89.5201	70.4919
210	115.9010	93.3177	-77.5111	-217.6773	-80.1192	58.7817
211	156.0643	84.4820	-66.5977	-219.4489	-69.2731	45.5366
212	156.4328	74.2422	-54.1492	-227.0033	-60.9571	35.4573
213	164.0396	66.5456	-44.8564	-221.1523	-53.2315	26.2259
214	159.8249	59.4319	-36.4028	-172.9837	-44.0263	15.4666
215	114.9512	50.8788	-26.4598	-144.6504	-37.5057	7.8458
216	91.6320	45.0209	-19.6163	47.3167	-30.9868	-8.4712
217	-93.5156	39.1643	-4.0664	46.2482	-27.8831	-12.1120
218	-83.7738	36.7452	-1.2099	39.9143	-25.4647	-14.9725
219	-66.8693	35.0061	0.9179	25.4616	-23.7264	-17.1170
220	-39.9198	33.9586	2.3772	-0.0019	-22.6777	-2.3751

ENVOLVENTE MAXIMOS TORSORES TREN UIC-71, via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0059	-12.7982	0.9197	9.4824	13.2644	-1.3522
2	3.3418	-11.9645	2.1640	-20.0931	13.5511	-4.1154
3	48.1797	-14.7789	5.7242	-51.8053	16.0869	-7.4853
4	106.2771	-15.8896	9.9510	-146.3295	19.2326	-13.8374
5	217.8496	-19.7500	17.2289	-253.1023	23.4332	-21.2127
6	358.9873	-22.2665	25.6021	-353.5136	24.0912	-27.7682
7	427.6894	-28.5246	33.1592	-437.4093	32.1295	-37.3332
8	516.8609	-37.3349	43.7279	-507.2387	40.8689	-47.9696
9	589.6539	-46.8300	55.3714	-536.3759	48.5635	-57.6698
10	619.5461	-55.2732	66.0786	-571.3221	58.6553	-70.3750
11	653.1884	-66.0793	79.7767	-564.1681	67.7504	-82.0813
12	642.7451	-75.8794	92.4555	-553.2162	79.0956	-96.7322
13	626.8033	-87.8909	108.0461	-515.3522	90.9704	-112.2865
14	598.5988	-99.6401	124.5079	-450.6143	101.1206	-126.7260
15	662.9725	-104.4525	139.9425	-520.3457	107.2753	-144.0809
16	581.2722	-117.4398	158.2222	-417.5578	120.0896	-162.2911
17	457.2750	-131.2670	177.2239	-256.6510	132.5189	-179.2757
18	285.5073	-144.1635	194.9411	-78.4483	146.5026	-198.8707
19	96.0734	-158.6140	215.2090	131.4346	160.7282	-219.0679
20	-123.3680	-173.1982	236.0286	389.7129	150.1488	-207.5278
21	-587.5305	-6.5413	40.9132	628.4720	-20.0472	-10.8538
22	-620.4807	19.7726	11.0259	433.3614	-14.3904	-12.2031
23	-409.7941	13.5284	13.4396	337.5365	-11.7597	-15.9227
24	-298.7770	10.2437	18.2825	231.0863	-8.2569	-21.4838
25	-178.0548	6.0156	25.0117	117.8988	-3.8297	-28.3156
26	-51.9315	0.8191	33.0673	2.1146	1.5447	-36.4664
27	75.1259	-5.3891	42.4782	-111.8635	7.9070	-45.9636
28	198.3701	-12.6274	53.2665	-219.3508	15.2726	-56.8238
29	312.8422	-20.9037	65.4391	-315.4323	23.6552	-69.0518
30	413.3826	-30.2143	78.9839	-395.0863	33.0435	-82.6329
31	494.8569	-40.5478	93.8782	-453.3705	43.4228	-97.5422
32	574.2714	-50.2125	110.0825	-510.8730	53.1039	-113.7395
33	694.1379	-56.7315	127.6525	-615.2068	59.6135	-131.2811
34	711.9103	-69.4731	146.4860	-605.2582	72.3082	-150.0639
35	685.1950	-83.5490	166.4424	-548.5915	86.3290	-169.9516
36	617.3463	-98.4639	187.4263	-449.7348	101.1421	-190.8493
37	506.7655	-114.0404	209.3292	-307.5892	116.5944	-212.6523
38	348.5210	-130.3596	232.0493	-117.2448	132.7615	-235.2647
39	142.3198	-147.2492	255.4747	121.0729	149.4704	-258.5779
40	-112.4739	-164.6143	279.4952	407.4731	142.6018	-251.3141
41	-747.3740	-1.1817	42.4177	662.4716	-21.5151	-11.4897
42	-654.1610	21.2282	11.4531	568.6160	-19.6581	-12.8079
43	-543.3495	18.7328	13.8763	459.8694	-16.9316	-16.4327
44	-420.3568	15.3841	18.6630	341.7729	-13.3703	-21.9264
45	-287.8822	11.0979	25.3564	217.1130	-8.8880	-28.7069
46	-138.3382	5.2758	33.3962	79.2887	-2.9043	-36.8277
47	78.2932	-5.0875	42.8899	-115.8191	7.6132	-46.3928
48	203.1691	-12.3764	53.7923	-224.7520	15.0313	-57.3542
49	318.9852	-20.7106	66.0667	-321.9990	23.4563	-69.6731
50	420.6035	-30.0604	79.7004	-402.6064	32.8842	-83.3332
51	502.9342	-40.4382	94.6672	-461.6324	43.3157	-98.3076
52	561.1736	-51.7897	110.9232	-494.5608	54.6776	-114.5503
53	640.9514	-60.8344	128.4379	-553.7384	63.7080	-132.0322
54	709.2018	-70.2633	147.2672	-600.8921	73.0919	-150.8091
55	701.2446	-89.1451	167.2376	-553.3923	91.9101	-170.7111
56	625.6217	-106.4665	188.2182	-441.9582	109.1319	-191.6071
57	498.1088	-121.3415	210.0909	-284.2962	123.8802	-213.3838
58	337.2898	-133.5450	232.7603	-99.6485	135.9324	-235.9526
59	136.1353	-147.9511	256.1539	128.6320	150.1552	-259.2431
60	-120.0218	-165.3087	280.1529	416.5524	143.2607	-252.0097
61	-794.8599	0.3464	43.6567	839.3436	-27.5667	-12.8548
62	-831.1077	27.2867	12.7391	609.9828	-21.1975	-13.9193
63	-585.8769	20.3118	14.9045	499.1753	-18.5050	-17.4188
64	-458.1074	16.8864	19.5548	376.4783	-14.8642	-22.7845
65	-322.6049	12.5928	26.1198	248.8275	-10.3852	-29.4446
66	-181.9981	7.3158	34.0307	118.8762	-4.9315	-37.4449
67	-37.2558	0.8477	43.3160	-12.1459	1.6731	-46.8089
68	200.3152	-12.2575	54.0546	-222.1225	14.9139	-57.6131
69	335.9609	-21.8748	66.2929	-336.6064	24.6309	-69.8988
70	435.0969	-31.2429	79.8977	-414.6780	34.0756	-83.5356
71	514.8038	-41.6363	94.8376	-471.0825	44.5142	-98.4857
72	570.1180	-53.0211	111.0704	-501.0333	55.9018	-114.7103
73	596.2507	-65.3560	128.5467	-500.0103	68.2335	-132.1578
74	588.8437	-78.6140	147.1907	-463.9015	81.4424	-150.7489
75	658.7909	-86.8231	166.9702	-515.6408	89.5860	-170.4590
76	585.0154	-101.7221	187.8822	-410.9325	104.3873	-191.2879
77	466.4514	-117.3844	209.7057	-260.6963	119.9208	-213.0158
78	301.4402	-133.7042	232.3352	-63.6632	136.0862	-235.5405
79	88.5655	-150.5844	255.6600	181.2294	152.7826	-258.7601
80	-172.7267	-167.9395	279.5790	474.1526	145.8658	-251.2342
81	-853.6592	6.8874	41.8098	752.3505	-29.5916	-10.9771
82	-512.1796	21.3000	11.0840	426.2224	-19.6911	-12.7728
83	-401.9251	18.7864	14.2700	318.1408	-16.9401	-17.2274
84	-278.5013	15.3534	20.0362	199.8789	-13.2899	-23.7513
85	-28.9534	5.8609	27.9351	-31.3289	-3.6037	-31.7641
86	284.7527	-8.4233	37.6909	-316.2634	10.8497	-41.6168
87	432.9251	-16.8736	49.1006	-446.6426	19.4537	-53.0977
88	562.5112	-26.0376	62.0575	-556.4398	28.7370	-66.1008
89	673.2689	-36.0882	76.5079	-645.1043	38.8864	-80.5673
90	743.5798	-45.7022	92.3949	-693.8292	48.5641	-96.4374
91	792.5182	-56.2714	109.6328	-719.0453	59.1727	-113.6244
92	828.3741	-69.1573	128.1650	-726.5653	72.0613	-132.0723
93	819.5685	-81.6440	147.8667	-690.3414	84.5398	-151.6565
94	776.4869	-95.0696	168.6264	-618.3066	97.9088	-172.2665
95	695.1798	-109.3642	190.3143	-506.8170	112.1338	-193.7733
96	572.2398	-124.4535	212.7746	-352.8141	127.1057	-216.0250
97	404.9220	-140.2460	235.8505	-153.8390	142.7678	-238.8688
98	191.2042	-156.6949	259.3737	91.7734	159.0475	-262.1391
99	-70.0875	-173.6788	283.1738	384.8238	175.8335	-285.6736
100	-379.2045	-191.0889	307.0774	720.1167	168.6829	-275.0714
101	104.7228	-23.7881	45.4181	-162.0743	0.2564	-14.5870
102	170.0382	-0.5674	15.5527	-203.7718	3.3074	-17.2431
103	224.2651	-4.1689	19.5824	-240.5488	5.2320	-21.8320
104	273.0265	-6.6932	25.5396	-309.0247	9.0134	-30.7201
105	352.5782	-11.1323	35.7901	-381.9150	13.6923	-41.1090
106	435.3291	-16.5101	47.5229	-455.4580	19.2766	-52.7124
107	517.3122	-22.8332	60.4546	-501.0265	24.2837	-63.1167
108	569.6825	-28.6188	72.1511	-564.8910	31.6392	-77.1297
109	638.5020	-36.7724	87.4182	-617.8985	39.9202	-92.2177
110	694.4724	-45.8746	103.7182	-655.9752	49.1022	-108.3178
111	733.4581	-55.8802	120.9673	-654.9924	57.5095	-123.3309
112	731.2546	-65.0871	137.0626	-653.0019	68.3672	-141.3267
113	725.9758	-76.7655	156.0767	-625.2283	80.0262	-160.0885
114	692.8961	-89.2580	175.7628	-568.6049	92.4569	-179.5007

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	629.0889	-102.4834	196.0108	-464.4855	104.0544	-197.8711
116	516.0985	-114.7911	215.1146	-343.0348	117.8271	-218.3949
117	384.3081	-129.2986	236.2613	-186.1173	132.1809	-239.2339
118	215.8925	-144.3380	257.6136	7.2145	147.0229	-260.2674
119	10.2382	-159.8106	279.0388	254.3322	161.0668	-280.2337
120	-249.6147	-174.4106	299.2781	516.6143	152.7345	-267.0430
121	92.0188	-22.1502	49.0854	-144.7847	-1.5033	-18.8207
122	152.5522	1.1998	19.8098	-190.4254	1.7503	-21.1462
123	210.1316	-2.5760	23.5648	-228.0738	3.5849	-25.9135
124	259.3660	-4.9924	29.7484	-296.5368	7.2177	-35.1187
125	338.6642	-9.2609	40.3607	-369.9844	11.7434	-45.8482
126	421.8765	-14.4659	52.4755	-444.7319	17.1722	-57.8138
127	505.0867	-20.6307	65.7985	-492.3897	22.0609	-68.5232
128	559.6453	-26.3003	77.8325	-558.5967	29.2851	-82.9278
129	630.9718	-34.2985	93.5155	-614.6241	37.4225	-98.4071
130	690.1976	-43.2555	110.2268	-656.3647	46.4804	-114.8938
131	733.0784	-53.1506	127.8768	-659.4698	54.7806	-130.2651
132	735.2267	-62.2282	144.3486	-662.1505	65.5119	-148.6416
133	734.8568	-73.8262	163.7412	-639.4013	77.1148	-167.7504
134	707.0244	-86.2354	183.7691	-588.0908	89.4676	-187.4712
135	648.6979	-99.3940	204.3067	-489.4915	100.9860	-206.1350
136	541.3516	-111.6830	223.6938	-373.5719	114.7683	-226.8866
137	415.1495	-126.1942	245.0415	-222.0729	129.1314	-247.8861
138	252.1473	-141.2660	266.5141	-33.8961	144.0094	-268.9972
139	51.5681	-156.7765	287.9752	208.0474	158.0620	-289.0683
140	-203.2805	-171.3981	308.2624	464.9583	149.8916	-275.8184
141	42.6198	-20.9855	38.4684	-142.6138	0.3858	-6.7928
142	150.8675	-0.6943	7.6871	-144.5871	0.4894	-9.7204
143	165.2261	-1.3174	11.9647	-208.4570	3.2734	-16.2672
144	241.2064	-4.6776	19.8321	-256.0413	5.7516	-22.3411
145	300.2029	-7.7965	27.1904	-332.9414	10.1297	-31.9647
146	387.4646	-12.8646	38.0786	-411.8388	15.4200	-42.6646
147	475.4243	-18.8923	50.0025	-488.8513	21.6366	-54.4081
148	559.9118	-25.8648	62.9414	-560.0014	28.7723	-67.1704
149	636.7318	-33.8339	76.8510	-597.9237	35.3381	-79.0545
150	678.3185	-41.2034	89.8587	-645.6719	44.2839	-93.8545
151	727.5851	-51.0053	105.7213	-675.1882	54.1553	-109.5586
152	756.4219	-61.6990	122.4399	-682.5373	64.8801	-126.1273
153	760.8938	-73.3065	139.9839	-663.9470	76.4802	-143.5271
154	737.2570	-85.7297	158.2950	-598.9726	87.3003	-160.1497
155	665.1799	-97.3763	175.7638	-519.4328	100.4673	-179.0922
156	576.6604	-111.3136	195.4881	-404.8619	114.3004	-198.6925
157	451.4541	-125.9244	215.8067	-253.1836	128.7722	-218.8966
158	287.7525	-141.0812	236.6526	-63.0861	143.7493	-239.6498
159	84.6191	-156.7487	257.9889	182.7677	158.0038	-259.4598
160	-174.9100	-171.6017	278.3104	453.1044	150.2007	-250.0920
161	-529.0257	-15.6912	43.3433	588.3373	-10.6135	-12.6303
162	-580.5105	10.3468	12.8556	414.9851	-5.0361	-13.8975
163	-383.9793	2.5813	15.1469	334.5374	-0.8398	-17.5899
164	-296.4686	-0.6572	19.9220	251.3062	2.6256	-23.0735
165	-199.0985	-4.8380	26.5205	161.2029	7.0092	-29.7663
166	-96.1549	-10.0081	34.3831	68.3940	12.3564	-37.7206
167	7.8890	-16.1881	43.5402	-22.7414	18.6995	-46.9608
168	116.4681	-21.7847	54.0267	-118.9397	24.4303	-57.5207
169	225.6693	-28.0261	65.8492	-213.8759	30.7802	-69.4010
170	330.4784	-35.1677	79.0364	-302.1900	37.9997	-82.6273
171	492.3800	-37.2320	93.6087	-457.5015	40.1146	-97.2240
172	555.5310	-48.5536	109.5913	-495.4371	51.4527	-113.2083
173	589.8018	-60.8487	126.8287	-502.6302	63.7505	-130.4320
174	590.7035	-74.0889	145.2691	-474.8329	76.9453	-148.8344

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	554.1134	-88.1936	164.8261	-408.2709	90.9838	-168.3416
176	476.4703	-103.1256	185.4163	-299.6122	105.8146	-188.8621
177	419.2995	-115.9826	206.9786	-216.3755	118.5440	-210.3485
178	264.2027	-132.0086	229.4715	-29.8371	134.4140	-232.7558
179	56.8111	-148.8293	252.7197	209.4249	151.0491	-255.9174
180	-200.9359	-166.1993	276.6282	499.3215	144.1124	-248.8069
181	-809.9332	2.7193	44.9307	851.6627	-30.1312	-14.4995
182	-843.8689	29.8480	14.3748	618.0432	-23.4609	-15.2709
183	-595.0073	22.5802	16.1951	504.3297	-20.6724	-18.7021
184	-466.5657	19.1249	20.7344	380.8588	-16.9907	-23.9889
185	-328.2820	14.6703	27.1845	250.5832	-12.3343	-30.5527
186	-186.8659	9.2802	34.9566	119.8402	-6.7679	-38.4288
187	-45.5722	2.8770	44.0905	-8.1194	-0.2133	-47.6534
188	90.9829	-4.5503	54.5896	-128.7342	7.3397	-58.2301
189	219.9685	-13.1474	66.4686	-238.9964	16.0312	-70.1639
190	338.4684	-23.1347	79.7136	-335.7073	26.0850	-83.4713
191	492.9940	-39.4158	94.4163	-456.0034	42.3904	-98.1681
192	548.9116	-50.8622	110.3407	-487.1575	53.8349	-114.0191
193	576.0245	-63.2231	127.3656	-487.9143	66.1638	-131.0420
194	570.1128	-76.4477	145.6648	-437.1287	77.9039	-147.6852
195	510.5482	-89.0672	163.4594	-366.6859	91.9046	-167.0614
196	429.3383	-103.8976	183.7702	-255.7422	106.6235	-187.2537
197	305.8583	-119.4308	204.9507	-102.0551	122.0120	-208.3519
198	138.3118	-135.5415	226.9443	95.7645	137.9484	-230.2535
199	-74.1795	-152.1760	249.6399	338.2971	154.3772	-252.8439
200	-331.5870	-169.1864	272.8468	624.6899	146.8613	-245.0609
201	-835.0891	5.3153	42.3957	750.1882	-28.0081	-12.0810
202	-745.5066	27.8376	11.8202	683.1054	-26.9258	-12.7512
203	-664.0561	26.1728	13.6611	603.4679	-25.1864	-14.8618
204	-573.6659	23.9288	16.6633	490.5217	-21.7441	-20.4237
205	-307.6847	13.6337	22.8841	263.0545	-12.4367	-25.2497
206	-185.6030	8.7900	28.9007	121.8193	-6.1870	-33.5468
207	-77.0688	3.9260	37.9773	45.8716	-2.5306	-40.4559
208	4.2211	-0.1997	45.4919	-28.6892	1.6593	-48.0242
209	83.6258	-4.9018	54.1336	-124.9222	8.0152	-58.9014
210	183.8191	-11.7997	65.8392	-190.2926	13.4459	-68.3522
211	251.9037	-17.8236	76.1420	-270.3754	21.2583	-81.0291
212	336.8694	-25.8613	89.6997	-320.6000	27.6597	-92.2237
213	383.5385	-33.2491	101.7004	-373.2521	36.9533	-106.4652
214	434.5481	-43.1509	116.7462	-389.8706	45.0564	-119.2592
215	447.7988	-51.9036	130.5029	-388.3119	53.8607	-133.0099
216	441.2631	-61.3729	144.9088	-377.2140	65.3477	-149.5770
217	423.3382	-73.5362	162.2510	-328.2051	75.5747	-164.6582
218	365.5756	-84.4341	178.1936	-258.1166	88.5605	-182.7903
219	284.9263	-98.1010	196.9824	-149.5171	100.1891	-199.2375
220	163.9106	-110.4211	214.0100	-0.2546	121.7017	-214.0232

ENVOLVENTE MINIMOS FLECTORES TREN UIC-71, via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0000	-3.9116	-0.8402	8.4564	5.1722	0.9773
2	-46.2792	-28.3085	-1.3149	92.5649	28.3086	1.3310
3	-92.5596	-28.3061	-1.4253	138.8472	28.3050	1.4521
4	-138.8393	-28.2999	-1.5954	185.1108	28.2989	1.6330
5	-185.1069	-28.2995	-1.8226	231.3865	28.2994	1.8708
6	-231.3821	-28.2924	-2.1076	277.6412	28.2916	2.1666
7	-277.6365	-28.2954	-2.4520	323.9022	28.2958	2.5218
8	-323.8959	-28.3089	-2.8546	370.1907	28.3116	2.9349
9	-370.1840	-28.3123	-3.3137	416.4848	28.3143	3.4048
10	-416.4644	-28.3256	-3.8328	462.7780	28.3249	3.9350
11	-462.7550	-28.3083	-4.4109	509.0374	28.3039	4.5236
12	-509.0244	-28.2904	-5.0466	555.2806	28.2866	5.1700
13	-555.2685	-28.2778	-5.7376	601.5037	28.2768	5.8713
14	-601.4983	-28.2715	-6.4866	647.7217	28.2736	6.6317
15	-647.7046	-28.2850	-7.3005	693.9510	28.2882	7.4563
16	-693.9341	-28.2896	-8.1653	740.1839	28.2856	8.3309
17	-740.3491	-29.9041	-6.2927	789.2299	29.9008	6.4700
18	-828.1075	-76.3441	51.5406	952.9384	76.3467	-51.3528
19	-984.7700	-115.2247	100.0110	1173.1650	115.2256	-99.8136
20	-1199.4364	-150.1438	144.8314	1445.0649	132.3646	-123.9966
21	-1466.9663	196.2158	-250.7988	1088.5098	-172.5184	202.9392
22	-1105.4883	157.6563	-184.2449	790.2432	-157.6569	184.4583
23	-833.8372	116.4340	-128.2569	601.0142	-116.4343	128.4548
24	-639.8470	73.1993	-67.6735	493.4777	-73.1996	67.8565
25	-526.0480	40.1500	-16.8323	445.7647	-40.1515	17.0005
26	-502.8172	-1.5411	3.7570	505.9015	1.5389	-3.6039
27	-505.9057	-1.5287	2.9716	508.9646	1.5283	-2.8334
28	-508.9610	-1.5218	2.1802	512.0089	1.5227	-2.0571
29	-512.0126	-1.5221	1.3861	515.0566	1.5231	-1.2780
30	-515.0433	-1.5275	0.5870	522.4574	11.7342	0.8772
31	-522.4455	-11.7075	-1.5901	545.8503	11.7076	1.6904
32	-545.8304	-11.7151	-2.4188	569.2553	11.7137	2.5364
33	-569.2486	-11.7096	-3.2889	592.6582	11.7098	3.4226
34	-592.6361	-11.7214	-4.1906	616.0765	11.7253	4.3402
35	-616.0726	-11.7299	-5.1292	639.5269	11.7307	5.2956
36	-639.5189	-11.7288	-6.1072	662.9703	11.7287	6.2895
37	-675.6802	-36.8547	7.0346	749.3702	36.8547	-6.8361
38	-788.0923	-73.5798	64.2236	935.2166	73.5784	-64.0087
39	-981.6798	-116.7026	124.2154	1215.0355	116.7016	-123.9834
40	-1254.8066	-157.9101	179.5259	1572.9237	165.5740	-205.1494
41	-1599.0216	174.8137	-203.2080	1228.4658	-177.1863	201.7365
42	-1246.3699	162.3481	-183.2770	921.6180	-162.3473	183.5125
43	-968.0878	121.2228	-127.6832	725.6026	-121.2233	127.9018
44	-768.9967	78.1522	-67.5977	612.6604	-78.1528	67.7996
45	-649.9269	41.4474	-10.3165	567.0153	-41.4483	10.5020
46	-620.9156	4.5079	3.6970	611.8914	-4.5094	-3.5278
47	-611.8895	4.5013	2.7451	602.8905	-4.5007	-2.5927
48	-602.8807	4.4899	1.8122	593.9049	-4.4887	-1.6765
49	-593.8979	4.4887	0.8901	584.9253	-4.4880	-0.7706
50	-584.9180	4.4736	-0.0178	575.9694	-4.4716	0.1205
51	-575.9702	4.4870	-0.9137	587.1978	6.1751	2.0147
52	-587.1919	-6.1554	-2.8086	599.4960	6.1520	2.9260
53	-599.5010	-6.1328	-3.7237	611.7646	6.1317	3.8572
54	-611.7484	-6.1282	-4.6582	624.0042	6.1262	4.8083
55	-623.9968	-6.1236	-5.6120	636.2432	6.1223	5.7779
56	-636.2169	-6.1176	-6.5822	648.4516	6.1181	6.7643
57	-667.0396	-40.9720	8.5668	748.9889	40.9714	-8.3688
58	-788.4317	-77.9866	66.2945	944.4279	77.9862	-66.0798
59	-991.5082	-121.2659	126.4324	1234.0745	121.2655	-126.2013
60	-1274.1287	-162.5410	181.7416	1603.5570	170.2928	-207.4391
61	-1632.5872	174.6697	-202.4725	1262.4297	-177.1299	200.9804
62	-1280.2581	162.2962	-182.5539	955.7351	-162.2962	182.7911
63	-1002.3026	121.2047	-126.9114	759.9426	-121.2042	127.1311
64	-803.6266	78.1902	-66.7069	647.2805	-78.1902	66.9103
65	-684.8663	41.5733	-9.3146	601.7362	-41.5735	9.5013
66	-653.2699	6.6528	5.0458	639.9650	-6.6519	-4.8761
67	-639.9729	6.6503	4.0529	626.6738	-6.6494	-3.8999
68	-626.6622	6.6262	3.0794	613.4125	-6.6266	-2.9426
69	-613.4131	6.6360	2.1284	600.1471	-6.6378	-2.0084
70	-600.1319	6.6644	1.1982	586.8087	-6.6655	-1.0951
71	-586.7941	6.6670	0.2930	592.2079	3.9505	0.9783
72	-592.2153	-3.9408	-1.7805	600.0937	3.9407	1.8958
73	-600.1145	-3.9504	-2.7022	608.0057	3.9511	2.8334
74	-608.0080	-3.9609	-3.6310	615.9301	3.9604	3.7774
75	-615.9316	-3.9391	-4.5688	623.8034	3.9361	4.7317
76	-623.7913	-3.9257	-5.5193	631.6429	3.9249	5.6989
77	-653.1608	-41.6793	8.8613	736.4987	41.6786	-8.6658
78	-777.0691	-78.7367	66.2860	934.5113	78.7363	-66.0745
79	-982.6048	-122.0405	126.3074	1226.6353	122.0410	-126.0804
80	-1267.2916	-163.3272	181.5713	1601.8831	171.1429	-206.5895
81	-1629.9080	173.5074	-182.5684	1261.7471	-176.0235	181.6153
82	-1279.8719	161.2158	-163.4881	957.3763	-161.2171	163.7260
83	-1004.8110	120.2585	-109.5197	764.2467	-120.2593	109.7406
84	-809.2475	77.6442	-53.8114	653.9312	-77.6442	54.0145
85	-692.4929	41.8958	-5.9249	608.6846	-41.8973	6.1116
86	-651.6746	12.8362	-12.3827	625.9982	-12.8361	12.5522
87	-625.9785	12.8325	-13.3579	600.3097	-12.8289	13.5096
88	-600.2899	12.8246	-14.2869	574.6348	-12.8257	14.4226
89	-574.6151	12.8184	-15.1799	548.9704	-12.8190	15.2992
90	-548.9437	12.8154	-16.0374	523.3172	-12.8133	16.1391
91	-523.2720	12.8117	-16.8456	506.3948	-2.9367	19.8556
92	-506.3548	2.9276	-20.5439	500.4917	-2.9258	20.6403
93	-500.4687	2.9105	-21.3019	494.6381	-2.9096	21.4120
94	-494.6054	2.9109	-22.0566	488.7724	-2.9113	22.1797
95	-488.7448	2.9160	-22.8038	482.9021	-2.9160	22.9402
96	-482.8778	2.9066	-23.5390	477.0569	-2.9045	23.6893
97	-518.7332	-45.1332	16.5939	609.0115	45.1341	-16.4301
98	-649.2799	-83.6137	80.1096	816.5302	83.6114	-79.9321
99	-859.1560	-131.0630	150.8782	1121.3215	131.0614	-150.6875
100	-1146.9578	-159.6052	190.7480	1510.9081	167.9925	-217.8595
101	-1481.8516	159.2647	-166.3718	1177.6902	-164.4850	173.7295
102	-1196.0651	139.1185	-141.0426	952.5799	-139.1183	141.2580
103	-974.5778	105.6134	-99.6847	789.7294	-105.6124	99.8848
104	-816.4330	71.7644	-60.1953	690.8236	-71.7628	60.3807
105	-718.5132	42.1636	-26.2155	644.7168	-42.1636	26.3859
106	-686.9567	14.0569	-55.1293	662.3430	-14.0569	55.2839
107	-662.2604	14.0612	-56.0322	637.6352	-14.0622	56.1715
108	-637.5655	14.0745	-56.8974	612.9174	-14.0769	57.0218
109	-612.8438	14.0831	-57.7296	588.1846	-14.0864	57.8388
110	-588.0978	14.1053	-58.5309	563.4057	-14.1089	58.6247
111	-563.3302	14.1152	-59.2944	549.4376	-2.3417	58.7310
112	-549.3537	2.3226	-59.3799	545.2799	-2.3193	59.4713
113	-545.2122	2.3105	-60.1100	541.1575	-2.3112	60.2134
114	-541.0852	2.3200	-60.8321	537.0136	-2.3230	60.9480

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	-536.9419	2.3382	-61.5492	532.8353	-2.3382	61.6777
116	-532.7641	2.3137	-62.2612	528.7041	-2.3116	62.4029
117	-555.9455	-45.4890	1.4325	635.5516	45.4895	-1.2783
118	-666.1842	-83.6587	71.0793	812.5913	83.6583	-70.9130
119	-839.9084	-113.6467	118.1695	1038.7993	113.6470	-117.9906
120	-1075.0948	-150.0676	171.3752	1341.6770	158.1951	-202.3433
121	-1297.9519	153.9421	-155.7745	1003.0139	-158.6640	164.7474
122	-1019.5154	145.7912	-148.7451	764.3539	-145.7920	148.9225
123	-803.1958	109.9654	-103.9791	610.7285	-109.9649	104.1442
124	-646.9257	72.4741	-60.9852	520.0795	-72.4723	61.1376
125	-550.9095	40.6465	-27.1259	479.7624	-40.6458	27.2662
126	-524.4217	3.2261	-57.9326	518.7683	-3.2275	58.0602
127	-518.7060	3.2331	-58.6361	513.0405	-3.2373	58.7517
128	-512.9675	3.2681	-59.3341	507.2395	-3.2692	59.4363
129	-507.1532	3.2689	-60.0200	501.4260	-3.2680	60.1105
130	-501.3594	3.2682	-60.7034	499.5141	7.7869	61.6690
131	-499.4382	-7.7738	-62.2642	513.0291	7.7757	62.3472
132	-512.9596	-7.8075	-62.9531	526.6175	7.8093	63.0499
133	-526.5485	-7.8039	-63.6602	540.1996	7.8035	63.7706
134	-540.1278	-7.8113	-64.3809	553.7878	7.8119	64.5040
135	-553.7020	-7.8109	-65.1122	567.3578	7.8100	65.2475
136	-567.2757	-7.8065	-65.8690	580.9257	7.8069	66.0207
137	-600.2266	-47.6343	-3.9383	683.5851	47.6320	4.1033
138	-710.6299	-76.8277	52.8632	845.0750	76.8235	-52.6855
139	-884.8145	-114.8834	115.4926	1085.8655	114.8822	-115.3011
140	-1120.8076	-151.1728	169.2455	1382.2455	132.7714	-153.7832
141	-1321.4596	183.2058	-234.0899	1004.7776	-161.0602	193.6227
142	-1021.9558	147.7900	-176.9420	755.9563	-147.7914	177.1180
143	-795.1785	110.7776	-129.4206	595.7897	-110.7787	129.5837
144	-630.8213	71.8083	-80.7806	501.5806	-71.8076	80.9316
145	-531.0225	38.2643	-35.8603	462.1478	-38.2652	35.9995
146	-509.6628	-1.9579	-33.9374	513.1775	1.9559	34.0644
147	-513.1466	-1.9460	-34.6510	516.6398	1.9461	34.7659
148	-516.5916	-1.9657	-35.3771	520.1265	1.9659	35.4789
149	-520.0790	-1.9390	-36.0952	523.5638	1.9388	36.1866
150	-523.5289	-1.9458	-36.8340	538.1149	13.0754	33.9165
151	-538.0696	-13.0719	-34.5719	561.5939	13.0740	34.6662
152	-561.5499	-13.0924	-35.3340	585.1114	13.0924	35.4432
153	-585.0674	-13.0793	-36.1387	608.6012	13.0776	36.2651
154	-608.5509	-13.0729	-36.9751	632.0783	13.0723	37.1168
155	-632.0272	-13.0642	-37.8457	655.5322	13.0637	38.0021
156	-655.4808	-13.0733	-38.7444	679.0082	13.0729	38.9181
157	-686.3482	-42.7408	0.0156	763.2695	42.7418	0.1723
158	-790.7512	-78.3897	65.5095	931.8368	78.3919	-65.3063
159	-961.7181	-116.9664	123.1131	1172.2275	116.9669	-122.8945
160	-1199.6731	-153.9060	174.0885	1476.7570	135.5896	-153.9062
161	-1501.0353	194.2396	-252.7933	1113.4502	-170.7669	203.7213
162	-1129.7751	155.8793	-185.0478	817.9868	-155.8791	185.2495
163	-858.8069	114.5835	-128.9324	629.6164	-114.5829	129.1188
164	-664.1983	80.6945	-81.7948	502.7893	-80.6960	81.9684
165	-548.8740	38.1373	-16.1879	472.5913	-38.1378	16.3463
166	-515.1164	3.0185	7.4208	509.0839	-3.0164	-7.2764
167	-509.0944	2.9984	6.6295	503.1034	-2.9972	-6.4986
168	-503.1041	2.9928	5.8503	497.1191	-2.9930	-5.7349
169	-497.1300	3.0022	5.0718	491.1298	-3.0032	-4.9697
170	-491.1207	3.0028	4.3126	488.9593	6.6910	-3.2060
171	-488.9640	-6.7054	2.5473	502.3777	6.7079	-2.4541
172	-502.3964	-6.7192	1.7779	515.8391	6.7183	-1.6685
173	-515.8506	-6.7065	0.9937	529.2654	6.7045	-0.8674
174	-529.2687	-6.6928	0.1851	542.6523	6.6920	-0.0436

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	-542.6554	-6.6935	-0.6474	556.0476	6.6934	0.8046
176	-556.0509	-6.6853	-1.4922	569.4188	6.6857	1.6642
177	-589.3181	-41.5566	17.0505	672.4393	41.5582	-16.8625
178	-706.0162	-74.3103	66.7457	854.6531	74.3107	-66.5433
179	-903.4970	-117.4156	126.0851	1138.3491	117.4145	-125.8660
180	-1179.3816	-158.6413	181.0773	1510.4658	166.4016	-206.0030
181	-1546.1937	165.5500	-195.0833	1202.7208	-168.4611	193.6107
182	-1219.7867	154.0143	-175.5135	919.3768	-154.0139	175.7458
183	-964.8099	114.0806	-121.0488	742.2922	-114.0803	121.2641
184	-785.9074	72.5370	-62.1297	644.4191	-72.5379	62.3296
185	-681.9056	37.5464	-6.4862	608.6687	-37.5490	6.6699
186	-638.1696	18.4360	6.4978	602.2096	-18.4383	-6.3323
187	-602.2129	18.4432	5.5926	566.2356	-18.4427	-5.4423
188	-566.2414	18.4414	4.7280	530.2702	-18.4402	-4.5947
189	-530.2733	18.4481	3.9224	494.2931	-18.4494	-3.8067
190	-494.3015	18.4548	3.1733	458.2951	-18.4551	-3.0693
191	-458.2985	18.4619	2.3990	424.3561	-8.8490	-0.5944
192	-424.3533	8.8378	0.1019	407.1146	-8.8372	-0.0306
193	-407.1132	8.8241	-0.3975	389.9002	-8.8237	0.4882
194	-389.8977	8.8357	-1.0095	372.6624	-8.8367	1.1272
195	-372.6589	8.8404	-1.6320	355.4106	-8.8400	1.7467
196	-355.4061	8.8395	-2.0919	338.1614	-8.8391	2.2053
197	-379.2220	-37.9208	24.2191	453.1832	37.9215	-24.0838
198	-490.8645	-75.4739	79.0119	638.0776	75.4746	-78.8655
199	-677.2023	-108.9049	124.4588	898.3617	133.4823	-166.6050
200	-945.6473	-174.0573	220.8872	1287.7031	158.0840	-203.3066
201	-1313.5769	140.4954	-131.0141	1096.5737	-148.1053	135.9196
202	-1107.0988	127.1329	-109.4779	927.8416	-127.1343	109.6791
203	-942.2892	98.5633	-73.0481	803.3126	-98.5625	73.1846
204	-823.6867	67.5446	-34.4333	728.4567	-67.5402	34.5823
205	-758.0632	33.5668	7.7354	710.7322	-33.5671	-7.6130
206	-710.7339	33.5823	7.3051	663.3861	-33.5847	-7.2292
207	-663.3809	33.5866	6.8906	616.0313	-33.5866	-6.7378
208	-616.0428	33.5836	5.7705	568.6963	-33.5850	-5.6197
209	-568.6913	33.5954	5.2861	521.3228	-33.5973	-5.2107
210	-521.3165	33.6205	4.8979	473.9081	-33.6220	-4.8079
211	-473.9124	33.6073	4.3482	426.5236	-33.6078	-4.2502
212	-426.5312	33.6154	3.8584	379.1338	-33.6169	-3.7877
213	-379.1358	33.6325	3.5693	331.7128	-33.6308	-3.5235
214	-331.7116	33.6175	3.3467	284.3164	-33.6131	-3.2893
215	-284.3293	33.6111	2.9694	236.9377	-33.6111	-2.9172
216	-236.9446	33.6124	2.7909	189.5521	-33.6140	-2.7626
217	-189.5581	33.6130	2.6488	142.1642	-33.6122	-2.6172
218	-142.1667	33.6161	2.4672	94.7661	-33.6157	-2.4400
219	-94.7688	33.6106	2.3603	47.3760	-33.6112	-2.3496
220	-47.3781	33.6074	2.3348	-0.0009	-31.1789	-2.1181

ENVOLVENTE MINIMOS CORTANTES TREN UIC-71, via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0072	-15.6385	-19.2339	36.2544	28.7190	0.4427
2	-16.8489	-16.8686	-17.6671	55.1224	29.9490	-1.1133
3	-18.9793	-18.9085	-15.2979	60.5936	31.9877	-3.4718
4	-10.3469	-21.7535	-12.0738	-109.4496	36.3254	-15.2623
5	171.2044	-26.8939	0.6275	-184.0814	43.6575	-23.4078
6	254.8268	-35.0138	9.7131	-217.8185	49.9188	-30.6757
7	295.1069	-42.0483	17.9428	-272.0216	58.7335	-40.9132
8	353.5034	-51.6267	29.1529	-309.8174	68.2410	-52.1911
9	393.2584	-61.8610	41.4026	-304.7031	76.6749	-62.4975
10	387.9992	-71.0351	52.6736	-303.3080	87.4975	-75.7663
11	384.4898	-82.5259	66.8893	-257.8840	97.2774	-87.9905
12	335.1265	-92.9825	80.0355	-206.9389	109.2790	-103.1086
13	278.6158	-105.6305	96.0426	-127.4696	121.7904	-119.0794
14	192.1539	-118.7499	112.8639	-2.2309	133.3107	-133.8784
15	58.6863	-130.8470	128.4679	137.7884	146.7501	-151.4027
16	-90.5529	-144.8288	146.7531	309.7423	160.5589	-169.6186
17	-272.4938	-159.1309	165.6748	529.3647	173.4633	-186.5230
18	-502.6057	-172.5002	183.2260	766.6914	187.9197	-205.9520
19	-750.6425	-187.3700	203.2606	1035.8579	202.5645	-225.9160
20	-1030.4950	-202.3803	223.7713	1355.2444	192.4113	-214.0671
21	136.9037	-29.9326	6.8318	-203.0035	29.2248	2.9004
22	212.3078	-14.0884	-23.7280	-168.1450	30.0854	0.6931
23	193.9591	-15.6047	-20.5412	-146.7624	31.6011	-2.4771
24	188.3024	-17.8437	-16.3379	-136.6301	33.8407	-6.6641
25	192.6527	-20.8599	-11.0607	-288.9705	38.2974	-24.6602
26	357.9278	-26.1457	8.0664	-337.8301	44.5065	-34.4533
27	417.8048	-33.2315	19.0274	-382.8725	51.7464	-45.5005
28	471.6327	-41.3736	31.2709	-419.1408	60.0158	-57.8158
29	514.2299	-50.5876	44.7950	-441.4694	69.3361	-71.3953
30	540.2405	-60.8398	59.5821	-444.7034	79.6660	-86.2187
31	544.4299	-72.1338	75.6025	-423.7921	91.0058	-102.2544
32	521.7187	-84.4187	92.8055	-373.9279	103.3071	-119.4501
33	467.3874	-97.6527	111.1274	-290.6341	116.5317	-137.7435
34	377.0546	-111.7745	130.4903	-169.8258	130.6066	-157.0558
35	246.8696	-126.7335	150.8024	-7.9205	145.5104	-177.2990
36	73.5419	-142.4882	171.9664	198.1000	161.1634	-198.3776
37	-145.6110	-158.9180	193.8761	450.5176	177.4690	-220.1871
38	-412.4212	-175.9618	216.4218	750.8777	194.3607	-242.6250
39	-727.9328	-193.5090	239.4923	1099.8225	211.7272	-265.5831
40	-1092.2539	-211.4530	262.9807	1496.9036	205.4374	-257.7878
41	273.4163	-33.9336	7.0065	-332.5287	33.2296	3.3558
42	342.4412	-18.1077	-23.9516	-290.2128	34.1103	0.9100
43	316.8300	-19.6565	-20.5170	-261.5060	35.6594	-2.5083
44	303.9662	-21.9335	-16.0631	-244.0876	37.9364	-6.9459
45	301.0790	-24.9920	-10.5364	-392.0840	42.5998	-25.3269
46	461.9990	-30.4904	8.9711	-433.4967	48.8647	-35.3986
47	514.3835	-37.6344	20.2026	-470.8047	56.1629	-46.7017
48	560.4007	-45.8262	32.6832	-499.0648	64.4839	-59.2404
49	594.8875	-55.0858	46.4182	-513.1281	73.8344	-73.0210
50	612.5322	-65.3856	61.3862	-507.8717	84.2122	-88.0153
51	608.1379	-76.7157	77.5537	-478.2645	95.5960	-104.1907
52	576.6330	-89.0407	94.8728	-419.4983	107.9315	-121.4955
53	513.2999	-102.3193	113.2796	-327.1013	121.1956	-139.8698
54	413.7771	-116.4730	132.6985	-197.0266	135.3045	-159.2365
55	274.2495	-131.4684	153.0412	-25.7278	150.2361	-179.5108
56	91.4560	-147.2262	174.2120	189.7501	165.8944	-200.5966
57	-137.1982	-163.6672	196.1069	451.6783	182.2086	-222.3958
58	-413.5473	-180.7096	218.6256	761.5435	199.0998	-244.8140
59	-738.5727	-198.2530	241.6545	1119.9646	216.4600	-267.7396
60	-1112.3495	-216.1870	265.1061	1526.6600	210.1418	-259.9588
61	310.1184	-34.7269	6.8815	-367.2037	33.9215	3.5168
62	377.0986	-18.8060	-24.0701	-323.5002	34.8023	1.0382
63	350.1142	-20.3555	-20.6195	-293.4167	36.3528	-2.3963
64	335.8766	-22.6387	-16.1575	-274.6151	38.6359	-6.8427
65	331.6081	-25.7077	-10.6314	-421.1513	43.4119	-25.1032
66	491.0555	-31.3104	8.7489	-460.9470	49.6915	-35.1497
67	541.7953	-38.4667	19.9487	-496.5868	56.9843	-46.4286
68	586.1268	-46.6733	32.4105	-523.1209	65.3265	-58.9566
69	618.8628	-55.9366	46.1245	-535.4070	74.6894	-72.7182
70	634.6834	-66.2572	61.0783	-528.2592	85.0866	-87.7033
71	628.3316	-77.5951	77.2345	-496.7202	96.4698	-103.8705
72	594.8655	-89.9289	94.5478	-435.9880	108.8064	-121.1751
73	529.5328	-103.1899	112.9593	-341.6485	122.0642	-139.5585
74	428.0586	-117.3659	132.3895	-209.6387	136.1910	-158.9355
75	286.6221	-132.3752	152.7444	-36.3960	151.1349	-179.2204
76	101.8930	-148.1367	173.9274	180.9958	166.7989	-200.3199
77	-128.6535	-164.5816	195.8396	444.7780	183.1149	-222.1369
78	-406.8296	-181.6209	218.3716	756.4148	199.9997	-244.5645
79	-733.5714	-199.1549	241.4195	1116.4816	217.3499	-267.5068
80	-1108.9269	-217.0835	264.8744	1524.6134	211.0066	-259.5171
81	278.8356	-29.9356	-2.7716	-340.3564	28.3096	15.9177
82	350.4421	-13.2100	-36.2819	-308.0158	29.2137	13.2475
83	334.8613	-14.7976	-32.4575	-289.2590	30.8005	9.4367
84	331.9295	-17.1293	-27.4404	-389.5618	33.5763	-9.1664
85	446.6803	-20.7078	-7.5743	-437.8051	38.9684	-19.2517
86	507.6984	-26.9517	3.8161	-486.1399	45.3813	-30.7389
87	566.7755	-34.2481	16.6342	-529.7284	52.8315	-43.6279
88	618.7886	-42.6278	30.8627	-563.5211	61.3305	-57.9028
89	658.4665	-52.0649	46.4778	-582.3324	70.8664	-73.5336
90	680.4654	-62.5556	63.4246	-580.9929	81.4207	-90.4632
91	679.5704	-74.0868	81.6253	-554.4548	92.9915	-108.6139
92	650.7205	-86.5807	100.9924	-498.0529	105.4880	-127.8963
93	589.3496	-100.0055	121.4126	-407.3829	118.9046	-148.1984
94	491.1979	-114.3409	142.7600	-278.4623	133.1835	-169.3974
95	352.5656	-129.5078	164.8978	-107.9041	148.2807	-191.3538
96	170.3677	-145.4305	187.6640	107.0250	164.0860	-213.9114
97	-57.7582	-161.9963	210.8886	368.3553	180.5214	-236.9037
98	-333.3545	-179.1483	234.4075	677.2584	197.5043	-260.1692
99	-657.0493	-196.7588	258.0395	1033.9653	214.9167	-283.5360
100	-1028.5017	-214.7195	281.6125	1432.6897	208.3170	-272.6037
101	298.6286	-37.3766	-3.6640	-357.4125	34.6631	21.7692
102	367.2003	-21.5216	-39.3697	-317.2912	35.5225	19.2172
103	340.1251	-22.9863	-35.5278	-287.6509	36.9873	15.3882
104	322.7059	-25.1038	-30.4149	-266.5266	39.1051	10.2873
105	312.6675	-27.9240	-24.0371	-394.4506	43.7914	-17.8550
106	450.3352	-33.3472	5.3581	-428.7433	50.1147	-30.6673
107	492.7804	-40.4418	19.4023	-433.4261	55.8935	-42.1839
108	503.8176	-47.0214	32.1119	-454.5663	64.0428	-57.2101
109	529.3551	-55.9844	48.2899	-462.8741	73.1333	-73.2090
110	539.9990	-65.9052	65.3921	-454.1952	83.1339	-90.1120
111	531.5690	-76.7322	83.3333	-404.3560	92.3627	-105.8164
112	479.8645	-86.7717	100.0050	-351.4119	104.0529	-124.3892
113	423.0282	-99.2628	119.4685	-270.6577	116.5245	-143.6005
114	336.4708	-112.5368	139.4808	-159.1895	129.7368	-163.3385

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	217.4456	-126.5055	159.9243	1.4506	142.0776	-181.9051
116	47.7354	-139.5513	179.0911	180.9100	156.5885	-202.4911
117	-142.0450	-154.7381	200.1661	397.0099	171.6214	-223.2579
118	-369.3730	-170.3999	221.3051	650.3409	187.0860	-244.0792
119	-634.4572	-186.4286	242.3858	957.8677	201.6859	-263.7001
120	-953.8509	-201.5248	262.1467	1280.5522	193.8497	-250.0309
121	323.4787	-39.3166	-8.3510	-378.0901	37.1747	27.7338
122	387.0434	-23.9977	-45.2174	-332.7997	37.9992	25.0588
123	354.3589	-25.4046	-41.2091	-297.6543	39.4058	21.0635
124	331.1649	-27.4494	-35.8955	-270.8827	41.4509	15.7637
125	315.3482	-30.1748	-29.2864	-387.4419	45.3324	-14.5390
126	441.6425	-34.7842	2.2939	-416.6845	51.4919	-27.7519
127	479.1331	-41.7112	16.7583	-417.2876	57.1427	-39.6025
128	486.2594	-48.1587	29.8190	-434.7001	65.1450	-55.0337
129	508.2847	-56.9741	46.4128	-439.9985	74.0994	-71.4242
130	516.1743	-66.7529	63.9110	-428.9618	83.9792	-88.6979
131	505.6346	-77.4707	82.2232	-377.2065	93.1021	-104.7315
132	452.2750	-87.3979	99.2214	-322.8933	104.6829	-123.6345
133	394.3040	-99.8095	119.0028	-241.1199	117.0995	-143.1322
134	306.9264	-113.0176	139.2810	-128.8639	130.2511	-163.1026
135	187.2613	-126.9459	159.9273	32.4152	142.5391	-181.8767
136	16.9973	-139.9648	179.2677	212.5317	157.0515	-202.5801
137	-173.4216	-155.1615	200.4127	429.4533	172.1002	-223.3766
138	-401.6288	-170.8538	221.5351	683.9168	187.5987	-244.1384
139	-667.9818	-186.9328	242.4845	992.6304	202.2195	-263.6976
140	-988.7832	-202.0571	262.1097	1316.3756	194.5520	-249.7853
141	297.8461	-39.8163	7.0212	-352.6707	38.4839	7.2254
142	361.8548	-24.9091	-25.4246	-304.0694	39.3072	4.6897
143	326.4136	-26.3147	-21.6678	-266.0996	40.7131	0.9476
144	301.0057	-28.3580	-16.7279	-237.0147	42.7560	-3.9768
145	283.5224	-31.0888	-10.6374	-350.7015	45.7772	-26.8454
146	407.5906	-34.8435	13.3716	-379.4517	51.7972	-38.6481
147	445.2192	-41.6411	26.2816	-404.7484	58.7838	-51.3773
148	477.6291	-49.4264	40.0873	-422.3552	66.7321	-65.0066
149	500.3909	-58.2087	54.7520	-404.7526	74.1113	-77.6455
150	485.8295	-66.4242	68.3950	-394.8345	83.9033	-93.0812
151	476.7594	-77.0715	84.7854	-364.4927	94.6196	-109.3135
152	445.0568	-88.6237	101.9221	-309.7548	106.2033	-126.3007
153	386.7886	-101.0593	119.7675	-226.9318	118.6312	-143.9998
154	298.3468	-114.2976	138.2672	-95.6887	130.2665	-160.8129
155	159.5417	-126.7302	155.8156	51.9927	144.2196	-179.8349
156	2.5878	-141.4337	175.5150	236.3766	158.8188	-199.4095
157	-192.5214	-156.7519	195.6995	459.2310	173.9981	-219.4798
158	-427.2256	-172.5925	216.3138	721.5627	189.6591	-240.0013
159	-702.1329	-188.8598	237.3258	1040.2726	204.5132	-259.4873
160	-1033.7485	-204.2542	257.2256	1383.6744	197.2516	-249.6972
161	259.4016	-30.9385	8.0402	-319.9489	30.1820	1.9088
162	328.7522	-15.0275	-22.5788	-282.6898	31.0287	-0.4616
163	307.7745	-16.5257	-19.2492	-258.7161	32.5269	-3.7755
164	299.3730	-18.7412	-14.9252	-245.8805	34.7427	-8.0842
165	300.9304	-21.7335	-9.5519	-391.8614	39.3814	-25.4636
166	459.8022	-27.2020	8.9326	-437.1672	45.5520	-35.2647
167	516.1242	-34.2397	19.8761	-478.8650	52.7528	-46.2909
168	566.6398	-42.3529	32.0705	-511.9678	61.0002	-58.5593
169	606.1078	-51.5293	45.5282	-531.3009	70.2848	-72.0753
170	629.1756	-61.7786	60.2311	-531.6586	80.6121	-86.8168
171	630.5583	-73.0378	76.1437	-508.0521	91.9222	-102.7533
172	605.2313	-85.3094	93.2458	-455.6123	104.2100	-119.8563
173	548.3794	-98.5388	111.4604	-369.8117	117.4423	-138.0582
174	455.6140	-112.7018	130.7352	-246.5034	131.5598	-157.2939

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	323.0053	-127.6876	150.9723	-82.1668	146.4793	-177.4822
176	147.3123	-143.4551	172.0922	126.2217	162.1459	-198.5326
177	-74.1171	-159.9040	193.9937	380.8960	178.4670	-220.3572
178	-343.0640	-176.9521	216.5836	683.3287	195.3592	-242.8624
179	-660.4966	-194.5074	239.7543	1034.1012	212.7288	-265.9468
180	-1026.4292	-212.4523	263.4155	1433.3344	206.3672	-258.5895
181	188.0026	-23.9020	7.1048	-258.9709	21.5079	4.0520
182	268.5278	-6.7828	-24.2738	-240.0804	22.3874	1.8187
183	265.6539	-8.3301	-21.0719	-234.1891	23.9346	-1.3719
184	274.8723	-10.6051	-16.8584	-348.2151	27.2248	-15.3211
185	402.6764	-14.6819	-1.8322	-407.9036	32.6224	-23.9597
186	474.5324	-20.9069	7.9304	-467.4602	39.0235	-33.8257
187	544.3160	-28.1808	18.9464	-522.2047	46.4489	-44.9339
188	607.0760	-36.5009	31.2407	-567.2858	54.8946	-57.3050
189	657.7430	-45.8722	44.8022	-597.7263	64.3603	-70.9220
190	691.2253	-56.2629	59.6118	-608.6188	74.8177	-85.7922
191	702.5155	-67.6612	75.7464	-595.2120	86.2401	-101.9218
192	686.9565	-80.0006	92.8848	-553.1470	98.5776	-118.9861
193	640.2204	-93.2373	111.0146	-478.3445	111.7825	-137.1144
194	558.3419	-107.3433	130.3188	-349.8761	124.4039	-154.7625
195	420.7110	-120.8049	148.9769	-199.7222	139.2467	-175.0025
196	259.6342	-136.4344	170.0744	-7.3535	154.7648	-195.9818
197	54.8683	-152.7150	191.9030	229.0771	170.9006	-217.7272
198	-194.9480	-169.5098	214.3786	510.4987	187.5210	-240.1107
199	-490.1635	-186.7552	237.4629	836.9475	204.5609	-263.0902
200	-830.3670	-204.3199	260.7886	1207.2181	197.5992	-255.4260
201	146.4919	-18.4970	16.8343	-260.4039	9.7195	0.0901
202	266.3438	1.0418	-14.4471	-259.8619	10.2384	-1.8189
203	274.6962	0.1459	-11.9035	-266.9481	11.1339	-4.3444
204	290.3521	-1.1524	-8.6494	-313.6499	13.8809	-16.1767
205	345.1475	-4.3398	4.0685	-356.4767	16.8171	-22.6435
206	395.4661	-7.7571	11.1384	-427.9678	21.6404	-31.9947
207	473.6893	-13.0763	21.2968	-472.9625	25.7519	-39.9852
208	524.4785	-17.7063	30.5602	-516.3104	30.4461	-49.3016
209	572.6023	-22.9710	40.2944	-580.4671	37.3648	-61.2718
210	640.3089	-30.4680	53.0794	-612.5052	43.3944	-71.8017
211	674.5588	-37.0717	64.6301	-657.9298	51.7867	-85.7262
212	720.7686	-46.0815	79.3644	-668.0319	59.1600	-98.0972
213	730.1283	-54.1168	92.3490	-682.4657	69.1013	-113.3236
214	742.1789	-64.6507	108.3332	-659.2358	77.8366	-127.0556
215	714.7902	-74.0592	123.1946	-616.1092	87.2966	-141.9117
216	665.8308	-84.1983	138.4752	-561.6470	99.4533	-159.3529
217	603.6450	-97.0386	156.6719	-467.4209	110.3575	-175.2899
218	499.7268	-108.6265	173.5047	-350.2021	124.0330	-194.3114
219	370.9967	-122.9787	193.0853	-192.5568	136.3471	-211.5498
220	199.9544	-135.9884	211.6475	-0.2527	147.2690	-211.6609

ENVOLVENTE MINIMOS TORSORES TREN UIC-71, via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0745	141.6409	-244.2622	-225.6474	-137.9408	240.6283
2	203.6678	124.3783	-223.2383	-395.1286	-120.7158	219.4176
3	359.1861	109.6741	-202.7082	-529.6837	-107.8612	200.6435
4	468.6279	95.3889	-184.6941	-601.2843	-91.8143	180.6215
5	524.4245	80.0523	-165.5203	-641.0130	-78.2930	163.3084
6	530.9861	64.8121	-149.1536	-603.1889	-61.3677	144.9245
7	526.0077	53.5067	-131.7343	-575.3175	-50.1749	127.4513
8	493.9221	43.0682	-115.2511	-543.1292	-41.4447	112.9360
9	459.7521	35.0710	-101.7554	-470.8130	-31.9344	97.4418
10	387.5600	26.2807	-87.2955	-381.5277	-23.2782	82.9928
11	300.3537	18.3194	-73.8926	-304.4377	-16.8746	71.6048
12	227.1511	12.5797	-63.5530	-193.9109	-9.8341	59.3151
13	121.9509	6.1696	-52.3036	-77.8143	-3.6204	48.1194
14	5.2009	0.2102	-42.1384	21.9064	0.9858	39.9697
15	-241.0037	-10.5519	-35.1318	313.0049	12.7826	31.0617
16	-371.2214	-15.1535	-27.3210	422.9244	16.1812	25.2523
17	-460.3628	-17.5883	-22.5028	541.3699	19.4641	18.7057
18	-568.3646	-20.4424	-16.9198	649.9427	22.0751	14.3859
19	-666.1845	-22.6279	-13.5218	725.7754	23.3543	12.6629
20	-733.1929	-23.5887	-12.7017	813.8391	0.8670	43.4349
21	-616.4304	151.0051	-251.1344	305.1749	-173.0179	279.3979
22	-314.1532	157.8827	-258.7749	34.7856	-155.6979	255.6812
23	-60.2934	141.2144	-235.7363	-186.8555	-138.8549	232.5300
24	145.5774	125.1044	-213.3732	-360.7659	-122.5937	210.0574
25	304.9700	109.6078	-191.7848	-488.6820	-106.9584	188.3695
26	419.9165	94.7950	-171.0811	-572.7920	-92.0352	167.5798
27	492.9842	80.7554	-151.3582	-615.9781	-77.9329	147.7851
28	527.3365	67.5525	-132.7042	-621.6822	-64.6759	129.0790
29	526.6918	55.2368	-115.2062	-593.9392	-52.3393	111.5502
30	495.2019	43.8519	-98.9326	-537.1261	-40.9747	95.2666
31	437.1938	33.4108	-83.9378	-455.7471	-30.5655	80.2844
32	332.7282	22.0751	-70.2742	-326.4262	-19.2976	66.6552
33	148.2211	8.0946	-58.0791	-112.1912	-5.4213	54.5137
34	17.9049	0.2153	-47.3357	35.0452	2.3399	43.8414
35	-112.3177	-6.2087	-37.9875	178.4936	8.6107	34.5778
36	-244.3378	-11.6403	-30.0129	320.8153	13.8602	26.6978
37	-374.9162	-16.1683	-23.3774	458.7945	18.1793	20.1627
38	-497.1284	-19.6891	-18.0437	585.3678	21.4738	15.4644
39	-608.5865	-22.3250	-14.4939	831.3770	28.4212	13.1961
40	-839.2428	-28.6910	-13.3187	795.2507	1.4553	44.1422
41	-452.8910	145.7681	-251.0211	150.8407	-167.7483	279.2358
42	-161.6235	152.6672	-258.4092	-107.9703	-150.4634	255.2703
43	81.6579	136.0092	-235.1615	-318.8628	-133.6318	231.9235
44	276.6682	119.9026	-212.6342	-481.7762	-117.3773	209.3005
45	422.1613	104.5573	-190.9235	-595.9561	-101.9046	187.5032
46	516.9070	90.2244	-170.1405	-660.7314	-87.4740	166.6440
47	500.5212	80.3362	-150.4558	-622.6856	-77.5114	146.8986
48	533.1973	67.1892	-131.8965	-626.7935	-64.3222	128.2951
49	531.0474	54.9214	-114.4927	-597.6044	-52.0373	110.8641
50	498.2391	43.5787	-98.3114	-539.5300	-40.7050	94.6778
51	439.2488	33.1991	-83.4098	-457.3084	-30.3652	79.7912
52	358.4899	23.7710	-69.8256	-355.4925	-21.0079	66.2409
53	203.0599	11.5774	-57.6084	-173.9052	-8.9105	54.0754
54	29.5407	0.8912	-46.8954	22.1253	1.6547	43.4287
55	-119.7043	-0.7347	-37.5918	174.9675	3.1152	34.2048
56	-244.3279	-3.7327	-29.6428	304.9909	5.9414	26.3422
57	-358.2346	-8.9501	-22.9989	427.6393	10.9454	19.7872
58	-478.0477	-16.5620	-17.6223	559.9692	18.3308	15.0351
59	-594.6267	-21.6629	-14.0382	815.5985	27.7013	12.6572
60	-823.5189	-27.9737	-12.7533	778.6804	0.7827	43.6713
61	-400.8330	143.3524	-251.8237	103.8480	-165.3131	280.1178
62	-113.3969	150.1930	-259.2046	-151.2219	-147.9808	256.0913
63	124.9139	133.5390	-235.8927	-357.1549	-131.1590	232.6723
64	313.3766	117.5119	-213.2923	-513.6654	-114.9852	209.9692
65	456.9041	102.0434	-191.5037	-625.6286	-99.3857	188.0879
66	555.9182	87.2891	-170.6341	-693.8321	-84.5336	167.1360
67	609.5853	73.5057	-150.7756	-718.0478	-70.6782	147.2114
68	527.8412	66.1740	-132.0732	-619.3615	-63.3144	128.4619
69	503.9159	55.2135	-114.6568	-570.9860	-52.3223	111.0169
70	471.7373	43.8769	-98.4653	-513.5602	-40.9984	94.8175
71	413.4627	33.5080	-83.5529	-432.1185	-30.6734	79.9187
72	333.9248	24.1272	-69.9604	-331.6373	-21.3605	66.3573
73	237.9656	15.7479	-57.7110	-217.2213	-13.0953	54.1605
74	130.2186	8.3588	-46.8199	-93.5599	-5.8196	43.3383
75	-98.3255	-3.9169	-37.3401	159.8659	6.3014	33.9393
76	-226.1113	-9.3218	-29.3388	297.8247	11.5249	26.0268
77	-350.3894	-13.7389	-22.6645	429.2007	15.7263	19.4449
78	-467.3876	-17.2207	-17.2735	550.4016	18.9822	14.6811
79	-573.5949	-19.8295	-13.6486	784.0295	25.6359	12.2176
80	-791.9121	-25.9046	-12.2775	749.5290	-1.0342	42.8904
81	-369.4452	140.3860	-238.8733	77.9740	-162.2640	266.3361
82	-319.6241	155.1667	-245.8143	44.7266	-152.9099	242.1955
83	-71.2656	138.4909	-222.6861	-171.1021	-136.0616	218.9526
84	128.6989	122.3873	-200.4128	-338.8613	-119.8120	196.5830
85	165.0238	112.0379	-179.1237	-353.7692	-109.3361	175.2184
86	97.4785	106.2017	-159.2504	-273.1396	-103.4031	155.2960
87	153.8931	94.3312	-140.6735	-303.8533	-91.4645	136.6993
88	185.8909	82.9613	-123.3836	-310.7901	-80.0591	119.4246
89	192.5264	72.3578	-107.4225	-293.6852	-69.4461	103.5066
90	194.5295	61.2225	-92.8311	-270.8640	-58.3327	88.9960
91	172.2974	50.9858	-79.6391	-225.7589	-48.1425	75.9175
92	117.3453	43.0858	-67.8852	-152.9539	-40.3287	64.3115
93	61.5836	34.8563	-57.5575	-79.1631	-32.2017	54.1616
94	-4.7752	27.6442	-48.6426	2.4890	-25.1225	45.4496
95	-76.7496	21.4432	-41.1048	86.8724	-19.0928	38.1437
96	-149.5150	16.2281	-34.8922	169.0433	-14.0743	32.1821
97	-218.5132	11.9860	-29.9411	417.6961	-3.2350	28.4257
98	-452.9236	1.8603	-27.0885	449.1925	-1.8626	27.2661
99	-469.6656	1.1227	-26.7314	467.4139	-1.1243	26.9217
100	-473.1779	0.9258	-27.0783	387.1677	-27.0699	54.4453
101	-1151.6740	152.8294	-231.1448	872.6792	-173.9923	256.0472
102	-882.1784	160.8494	-239.1740	632.9081	-158.1829	234.1072
103	-655.4804	145.6505	-218.3030	416.8601	-144.2445	215.7689
104	-451.6818	132.3567	-201.0535	253.7414	-129.4134	196.1390
105	-299.6707	118.2282	-182.5479	126.8502	-115.1419	177.7739
106	-182.5418	104.6952	-165.3092	34.5540	-101.5055	160.6936
107	-98.4295	91.8411	-149.3724	-43.3902	-90.2225	146.9986
108	-26.8737	81.3471	-136.8083	-74.6693	-78.0701	132.4487
109	-0.0208	70.0192	-123.3884	-79.5691	-66.7449	119.2331
110	2.5197	59.5191	-111.2797	-61.5950	-56.2726	107.3473
111	-15.7218	49.8659	-100.4744	-47.5960	-48.2753	98.4603
112	-27.8840	42.6794	-92.6282	3.7172	-39.5818	89.0843
113	-75.3499	34.7985	-84.2537	66.0279	-31.8341	80.9815
114	-131.8784	27.8446	-77.0899	135.0263	-25.0526	74.1068

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	-193.3515	21.8260	-71.0934	181.4460	-20.5156	69.6321
116	-230.7205	17.9770	-67.4243	332.8826	-17.9694	67.1542
117	-371.8636	16.1170	-65.6730	343.6469	-16.1158	65.6597
118	-371.4252	14.8948	-64.8293	500.3545	-3.1261	64.9414
119	-516.4036	2.4741	-64.6697	512.0683	-2.4738	64.8485
120	-516.2753	2.3111	-65.0525	422.0849	-29.2488	90.4478
121	-964.5486	144.4459	-230.8748	701.1055	-165.9632	254.9184
122	-709.7632	152.7865	-237.9015	476.0849	-150.1899	232.6721
123	-497.3769	137.5970	-216.7927	273.3842	-136.2183	214.1895
124	-306.6558	124.2601	-199.4615	123.6044	-121.3614	194.4202
125	-167.8593	110.0915	-180.8687	9.6378	-107.0335	175.9929
126	-63.6576	96.4792	-163.6182	-69.8876	-93.2989	158.9253
127	7.6013	83.5142	-147.7335	-134.8953	-81.8907	145.3348
128	66.0590	72.9123	-135.3210	-153.0393	-69.6287	130.9240
129	79.5637	61.4599	-122.0715	-144.4745	-58.1712	117.9083
130	68.3725	50.8224	-110.1951	-112.5403	-47.5570	106.2863
131	35.9213	41.0467	-99.6773	-83.9237	-39.4389	97.6853
132	8.8781	33.7325	-92.1420	-17.5707	-30.5862	88.6676
133	-53.8473	25.7164	-84.1330	60.3532	-22.7013	80.9699
134	-126.1881	18.6147	-77.3775	145.5547	-15.7705	74.5463
135	-203.9995	12.4626	-71.8227	442.4820	1.2642	71.8633
136	-491.9702	-3.8395	-69.9404	498.6769	3.8399	70.0921
137	-537.8828	-5.7226	-68.8777	547.8909	5.7203	69.0430
138	-575.8438	-6.9520	-68.4405	587.9921	6.9478	68.6185
139	-604.0832	-7.6072	-68.5416	617.3888	7.6060	68.7332
140	-621.4176	-7.7569	-69.0801	536.4494	-19.6545	93.7904
141	-962.5469	145.2052	-234.8754	689.5372	-167.0256	259.8097
142	-698.4367	153.4484	-242.1171	457.1581	-151.0020	237.6327
143	-479.2427	138.0137	-220.9528	248.1832	-136.7119	218.7276
144	-282.8604	124.3597	-203.0725	94.3864	-121.6150	198.8097
145	-140.6947	109.9488	-184.1780	-21.9217	-107.0430	180.0656
146	-34.7982	96.1098	-166.4759	-102.1553	-93.0722	162.5001
147	36.5253	82.9140	-149.9492	-148.3194	-79.7941	146.0966
148	75.5518	70.4364	-134.5929	-182.2432	-68.8563	132.5613
149	104.2981	60.3384	-122.0986	-169.6142	-57.1534	118.4170
150	88.5909	49.4680	-108.9988	-132.1527	-46.3003	105.4221
151	50.2549	39.4651	-97.0358	-73.6634	-36.3363	93.5641
152	-6.9076	30.3376	-86.1962	1.7600	-27.2927	82.8171
153	-78.8237	22.1521	-76.4607	64.8756	-20.6754	74.6693
154	-136.3428	16.3428	-69.2946	160.7855	-13.4915	66.0619
155	-224.7247	9.9573	-61.6485	260.7450	-7.2882	58.4868
156	-315.4352	4.4972	-55.0027	360.3394	-2.0443	51.8960
157	-404.3376	-0.0155	-49.3193	494.7895	-0.5244	47.0521
158	-526.9634	-0.8997	-45.3468	528.5772	0.8998	45.3269
159	-548.2040	-1.6928	-44.4691	551.2457	1.6929	44.4364
160	-557.9960	-1.9526	-44.4102	659.1835	-15.1677	72.4605
161	-583.5052	157.4654	-253.5432	259.6364	-179.6921	281.6238
162	-268.1158	164.5320	-260.9030	-23.9848	-162.3607	257.8643
163	-8.7208	149.4682	-237.7884	-254.5437	-147.1164	234.6422
164	214.1595	133.3248	-215.3178	-445.5407	-130.8114	212.0661
165	390.7246	117.7981	-193.5788	-590.6792	-115.1523	190.2274
166	522.9330	102.9843	-172.6808	-692.1369	-100.2327	169.2398
167	613.3379	88.9467	-152.7080	-752.7257	-86.1165	149.1917
168	656.8803	74.1058	-133.7700	-764.4055	-71.2116	130.1918
169	656.1895	59.7402	-115.9330	-732.5396	-56.8429	112.3155
170	615.1543	46.1699	-99.3138	-661.8243	-43.2810	95.6790
171	471.6531	27.4788	-84.0205	-478.4996	-24.6243	80.3786
172	381.3041	18.0192	-70.1295	-367.0462	-15.2293	66.5056
173	274.1973	9.5606	-57.5912	-241.2783	-6.8673	54.0021
174	155.3658	2.1098	-46.4178	-106.4308	0.4524	42.8785

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	29.8002	-4.3221	-36.6168	32.3202	6.7288	33.1385
176	-97.6333	-9.7530	-28.1695	169.9677	11.9718	24.7617
177	-286.8046	-17.0139	-21.0890	371.8934	19.0185	17.7517
178	-417.2358	-20.8219	-15.3871	507.1247	22.5935	12.6575
179	-532.4047	-23.5266	-11.4907	623.9221	25.0546	9.8691
180	-631.9074	-25.3309	-9.8539	722.9663	2.7203	40.7998
181	-419.8093	143.2054	-246.2375	131.1009	-164.9688	274.5753
182	-140.3576	150.2468	-254.1916	-117.8384	-147.9147	251.0263
183	92.5434	133.8591	-231.3309	-319.6426	-131.3484	228.0428
184	279.2212	118.0206	-209.1362	-475.4423	-115.3592	205.7326
185	420.0707	102.8551	-187.7118	-586.0087	-100.0645	184.2042
186	519.5573	88.3374	-167.1580	-655.7908	-85.4523	163.5606
187	579.0830	74.5998	-147.5828	-686.5801	-71.6519	143.9151
188	601.8202	61.7129	-129.0606	-681.9013	-58.7356	125.3374
189	589.2778	49.8555	-111.6735	-643.7748	-46.8782	107.9261
190	543.3307	39.3328	-95.5015	-597.0634	-37.8525	93.4094
191	441.6945	36.4739	-82.2701	-463.6754	-33.5557	78.5381
192	369.8957	27.3919	-68.7780	-372.1754	-24.5612	65.1320
193	285.0444	19.2284	-56.6128	-269.9490	-16.5008	52.9736
194	189.8541	12.0547	-45.6841	-160.0131	-9.4705	42.0740
195	89.0397	5.8698	-36.0490	-47.2679	-3.4625	32.5634
196	-12.7832	0.6588	-27.7051	63.5129	1.5436	24.3276
197	-111.2042	-3.6035	-20.6359	167.8335	5.5677	17.3325
198	-202.1904	-6.9490	-14.7925	261.7276	8.6557	12.1234
199	-282.3089	-9.4246	-10.6326	342.0232	10.8616	9.0869
200	-348.9976	-11.1134	-8.7254	406.2186	-11.3218	38.3285
201	-196.6613	128.9486	-180.3819	-2.1232	-151.3539	208.1080
202	-3.5945	140.5882	-193.4298	-163.1282	-137.9891	188.8767
203	142.6903	127.8361	-174.8273	-307.7068	-126.4382	172.5134
204	276.0464	116.8288	-159.1543	-410.5695	-113.8522	154.5032
205	226.7212	111.0796	-141.7954	-368.0529	-109.4973	139.4104
206	287.9072	102.3712	-127.6563	-415.8112	-100.7278	125.2764
207	368.9348	92.2174	-114.2409	-464.3501	-88.7842	109.3963
208	412.8676	80.7544	-98.8141	-508.2383	-78.9555	96.2602
209	451.8329	71.4604	-86.7859	-512.5010	-67.7537	82.0231
210	452.6472	60.8264	-73.3245	-516.5621	-58.9081	70.8048
211	454.5078	52.5997	-62.7966	-480.8860	-48.6711	57.9459
212	414.5241	42.6173	-50.7961	-448.4509	-40.6123	48.3150
213	386.3288	35.5388	-42.0848	-407.6728	-33.5050	39.6641
214	347.9274	29.0820	-34.2442	-326.2462	-24.9568	29.5184
215	270.6101	21.1885	-24.8193	-266.3967	-19.0957	22.4154
216	216.6233	15.9980	-18.6201	-78.2355	-7.2989	7.0996
217	36.1734	4.8766	-4.0770	-43.0484	-4.8767	4.0790
218	10.5912	3.1417	-1.8165	-15.0213	-3.1417	1.8181
219	-5.9130	2.0971	-0.3193	2.9564	-2.0970	0.3200
220	-2.9562	2.0969	-0.3208	0.0001	-2.0968	0.3210

ENVOLVENTE DE MAX. FLECTORES CON SOBRECARGA UNIFORME

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	26.8236	15.4654	-1.2018	-50.5736	-13.5851	1.2018
3	50.5755	13.5845	-1.1384	-71.2501	-11.7042	1.1384
4	71.2499	11.7026	-1.0484	-88.8481	-9.8223	1.0484
5	88.8485	9.8227	-0.9365	-103.3743	-7.9424	0.9365
6	103.3734	7.9398	-0.8070	-114.8175	-6.0595	0.8070
7	114.8190	6.0603	-0.6624	-123.1899	-4.1800	0.6624
8	123.1904	4.1844	-0.5073	-128.4972	-2.3041	0.5074
9	128.4962	2.3053	-0.3462	-130.7293	-0.4250	0.3462
10	130.7249	0.4268	-0.1819	-129.8861	1.4535	0.1819
11	129.8819	-1.4585	-0.0180	-125.9620	3.3388	0.0180
12	125.9587	-3.3405	0.1410	-118.9594	5.2208	-0.1410
13	118.9576	-5.2252	0.2895	-108.8762	7.1055	-0.2894
14	108.8765	-7.1064	0.4261	-95.7207	8.9867	-0.4261
15	95.7187	-8.9839	0.5468	-79.4922	10.8642	-0.5468
16	79.4897	-10.8647	0.6470	-60.1891	12.7450	-0.6470
17	60.2111	-12.5131	0.7076	-38.2131	14.3934	-0.7075
18	43.7522	-7.7199	0.4114	-29.5932	9.6002	-0.4114
19	34.1330	-4.0124	0.2601	-26.0355	5.8927	-0.2601
20	29.7828	-0.8730	0.2030	-26.8187	2.7533	-0.2030
21	29.5451	-3.3811	0.1811	-22.7840	3.3811	-0.1811
22	25.2981	-1.2456	0.1784	-20.5084	3.5452	-0.1784
23	26.8637	2.3780	0.0394	-29.3190	-0.0785	-0.0394
24	34.9991	6.2935	-0.2436	-45.2847	-3.9939	0.2436
25	50.0544	8.7444	-0.5218	-65.2397	-6.4448	0.5218
26	73.4577	12.4236	-0.8792	-96.0007	-10.1240	0.8792
27	96.0035	10.1209	-0.7313	-113.9432	-7.8214	0.7313
28	113.9435	7.8204	-0.5560	-127.2845	-5.5208	0.5559
29	127.2862	5.5204	-0.3605	-136.0274	-3.2208	0.3605
30	136.0241	3.2223	-0.1514	-140.1686	-0.9228	0.1514
31	140.1667	0.9167	0.0640	-139.7010	1.3829	-0.0640
32	139.6977	-1.3818	0.2787	-134.6374	3.6814	-0.2787
33	134.6360	-3.6821	0.4866	-124.9746	5.9817	-0.4866
34	124.9706	-5.9797	0.6783	-110.7162	8.2792	-0.6784
35	110.7172	-8.2791	0.8482	-91.8644	10.5786	-0.8482
36	91.8643	-10.5773	0.9894	-68.4161	12.8769	-0.9893
37	70.2122	-9.2730	0.8291	-49.3718	11.5725	-0.8290
38	54.8332	-6.2924	0.5264	-39.9531	8.5919	-0.5264
39	46.5241	-2.3939	0.2718	-39.4387	4.6935	-0.2718
40	45.0576	1.2290	0.1665	-45.2174	1.0705	-0.1665
41	49.3469	-3.9594	0.0897	-41.4273	3.9594	-0.0897
42	44.0350	-1.8263	0.1226	-38.0814	4.1267	-0.1226
43	44.8020	1.7846	0.0402	-46.0722	0.5158	-0.0402
44	52.3609	5.6756	-0.1701	-61.4136	-3.3752	0.1701
45	66.8278	8.6546	-0.4364	-81.8386	-6.3542	0.4365
46	89.5840	11.6518	-0.7854	-110.5908	-9.3514	0.7855
47	110.5905	9.3528	-0.6159	-126.9987	-7.0524	0.6159
48	126.9986	7.0558	-0.4210	-138.8113	-4.7554	0.4208
49	138.8103	4.7546	-0.2072	-146.0205	-2.4542	0.2072
50	146.0229	2.4546	0.0179	-148.6337	-0.1542	-0.0178
51	148.6368	0.1533	0.2466	-146.6434	2.1471	-0.2465
52	146.6422	-2.1511	0.4723	-140.0390	4.4515	-0.4726
53	140.0415	-4.4569	0.6866	-128.8257	6.7573	-0.6865
54	128.8247	-6.7579	0.8858	-113.0069	9.0583	-0.8857
55	113.0076	-9.0589	1.0602	-92.5867	11.3593	-1.0600
56	92.5833	-11.3603	1.2023	-67.5590	13.6607	-1.2022
57	70.2062	-8.6585	0.6495	-50.5860	10.9589	-0.6495
58	56.1652	-5.6384	0.2752	-42.5855	7.9388	-0.2753
59	49.2641	-1.7186	0.0056	-43.5259	4.0190	-0.0057
60	49.2064	1.9132	-0.0944	-50.7326	0.3872	0.0944
61	54.8789	-4.0925	0.0538	-46.6952	4.0925	-0.0538
62	49.3111	-1.9608	0.0909	-43.0907	4.2603	-0.0908
63	49.8478	1.6460	-0.0011	-50.8398	0.6535	0.0011
64	57.1917	5.5292	-0.2320	-65.9490	-3.2297	0.2320
65	71.4278	8.4955	-0.5174	-86.1172	-6.1960	0.5174
66	93.5280	11.2054	-0.9198	-113.6363	-8.9059	0.9197
67	113.6374	8.9055	-0.7443	-129.1466	-6.6059	0.7445
68	129.1436	6.6109	-0.5459	-140.0657	-4.3113	0.5458
69	140.0659	4.3096	-0.3306	-146.3858	-2.0101	0.3305
70	146.3829	2.0050	-0.1056	-148.0937	0.2945	0.1057
71	148.0922	-0.2954	0.1207	-145.2033	2.5949	-0.1206
72	145.2047	-2.5971	0.3433	-137.7143	4.8967	-0.3430
73	137.7174	-4.8945	0.5571	-125.6319	7.1941	-0.5571
74	125.6314	-7.1903	0.7502	-108.9538	9.4898	-0.7499
75	108.9528	-9.4951	0.9170	-87.6666	11.7947	-0.9169
76	87.6646	-11.7976	1.0521	-61.7760	14.0971	-1.0521
77	64.8414	-8.6818	0.6053	-45.1831	10.9813	-0.6051
78	50.9216	-5.6533	0.2652	-37.3198	7.9529	-0.2653
79	44.1379	-1.7289	0.0037	-38.3819	4.0284	-0.0038
80	44.1430	1.9048	-0.0989	-45.6548	0.3947	0.0989
81	49.8244	-3.3429	-1.9140	-43.1378	3.3429	1.9140
82	45.7803	-1.2135	-1.8451	-41.0510	3.5140	1.8450
83	47.9032	2.3769	-1.7320	-50.3577	-0.0765	1.7320
84	56.8618	6.2121	-1.4021	-66.9890	-3.9116	1.4022
85	72.5833	9.0771	-0.5360	-88.4406	-6.7766	0.5359
86	94.5856	10.9141	2.3848	-114.1181	-8.6137	-2.3848
87	114.1160	8.6156	2.5618	-129.0508	-6.3151	-2.5619
88	129.0464	6.3164	2.7594	-139.3812	-4.0159	-2.7594
89	139.3770	4.0181	2.9743	-145.1139	-1.7176	-2.9742
90	145.1074	1.7182	3.1984	-146.2444	0.5823	-3.1983
91	146.2345	-0.5828	3.4223	-142.7688	2.8833	-3.4223
92	142.7585	-2.8794	3.6416	-134.6985	5.1799	-3.6419
93	134.6916	-5.1763	3.8477	-122.0335	7.4768	-3.8475
94	122.0257	-7.4779	4.0356	-104.7657	9.7784	-4.0354
95	104.7587	-9.7794	4.1971	-82.8956	12.0798	-4.1970
96	82.8893	-12.0780	4.3247	-56.4291	14.3785	-4.3247
97	62.1734	-7.4920	2.3071	-44.8851	9.7925	-2.3072
98	50.1504	-4.2787	1.1198	-39.2900	6.5792	-1.1198
99	44.9040	-1.6640	0.3771	-39.2760	3.9644	-0.3771
100	46.1897	2.0104	-0.1422	-47.9113	0.2901	0.1422
101	52.7388	-4.1043	-2.3377	-45.5559	4.1043	2.3377
102	47.6918	-2.2431	-2.1739	-42.0047	4.2557	2.1738
103	47.8210	0.8871	-1.6388	-47.6125	1.1256	1.6387
104	53.6562	5.2832	-0.2402	-61.1417	-3.2706	0.2403
105	64.7620	7.4136	1.6520	-75.9755	-5.4010	-1.6519
106	82.2184	9.5427	6.1239	-97.1596	-7.5300	-6.1240
107	97.1486	7.5295	6.2559	-108.5644	-5.5169	-6.2559
108	108.5557	5.5145	6.4014	-116.4460	-3.5019	-6.4014
109	116.4354	3.5019	6.5584	-120.8028	-1.4892	-6.5584
110	120.7914	1.4850	6.7212	-121.6288	0.5277	-6.7211
111	121.6194	-0.5291	6.8847	-118.9326	2.5418	-6.8848
112	118.9219	-2.5385	7.0438	-112.7180	4.5512	-7.0436
113	112.7090	-4.5486	7.1952	-102.9871	6.5613	-7.1953
114	102.9774	-6.5632	7.3346	-89.7308	8.5759	-7.3347

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	89.7205	-8.5786	7.4552	-72.9446	10.5913	-7.4550
116	72.9353	-10.5872	7.5534	-52.6445	12.5998	-7.5533
117	56.3962	-5.6966	0.9218	-44.6648	7.7092	-0.9217
118	48.4406	-3.4746	-0.9383	-40.5995	5.4872	0.9382
119	46.0589	-0.0031	-2.3635	-44.2932	2.0158	2.3634
120	48.8592	3.1926	-3.0181	-52.6855	-1.1800	3.0181
121	55.9165	-4.3749	-2.9072	-48.2589	4.3749	2.9072
122	50.1996	-2.5055	-2.7242	-44.0532	4.5182	2.7242
123	49.0960	0.6600	-2.1098	-48.4894	1.3527	2.1098
124	53.1614	4.0763	-0.8355	-58.5337	-2.0636	0.8353
125	62.5300	6.7005	1.2312	-72.4941	-4.6878	-1.2313
126	78.7356	9.9977	7.3710	-94.4722	-7.9850	-7.3711
127	94.4655	7.9836	7.4988	-106.6760	-5.9709	-7.4985
128	106.6658	5.9648	7.6420	-115.3443	-3.9521	-7.6421
129	115.3313	3.9529	7.7965	-120.4878	-1.9402	-7.7965
130	120.4790	1.9386	7.9590	-122.1103	0.0741	-7.9591
131	122.0997	-0.0763	8.1234	-120.2059	2.0890	-8.1235
132	120.1958	-2.0816	8.2864	-114.7908	4.0943	-8.2864
133	114.7810	-4.0952	8.4412	-105.8523	6.1079	-8.4412
134	105.8421	-6.1059	8.5842	-93.3936	8.1186	-8.5842
135	93.3803	-8.1203	8.7084	-77.4069	10.1330	-8.7083
136	77.3949	-10.1337	8.8127	-57.8977	12.1464	-8.8129
137	60.5147	-6.8790	2.7685	-46.7146	8.8917	-2.7682
138	50.7931	-4.2580	0.3424	-41.5803	6.2707	-0.3424
139	46.5146	-0.8418	-1.2681	-43.2805	2.8545	1.2680
140	47.5432	2.3308	-2.0191	-49.8621	-0.3181	2.0191
141	52.6333	-4.5953	-0.0834	-44.3630	4.5953	0.0834
142	46.3350	-2.6685	0.0725	-39.6702	4.7382	-0.0725
143	44.7013	0.6081	0.5150	-43.9340	1.4617	-0.5150
144	48.3831	4.1682	1.2605	-54.0231	-2.0985	-1.2605
145	57.7852	6.4336	2.0322	-67.5032	-4.3638	-2.0324
146	75.1282	10.6514	3.2583	-92.4356	-8.5817	-3.2582
147	92.4318	8.5794	3.3856	-106.0107	-6.5096	-3.3855
148	106.0030	6.5134	3.5337	-115.8642	-4.4437	-3.5333
149	115.8579	4.4390	3.6926	-121.9849	-2.3693	-3.6924
150	121.9807	2.3703	3.8629	-124.3836	-0.3005	-3.8628
151	124.3774	0.2997	4.0345	-123.0551	1.7701	-4.0351
152	123.0485	-1.7660	4.2035	-118.0057	3.8357	-4.2034
153	118.0007	-3.8394	4.3676	-109.2286	5.9091	-4.3676
154	109.2217	-5.9086	4.5194	-96.7227	7.9784	-4.5191
155	96.7153	-7.9805	4.6532	-80.4898	10.0503	-4.6536
156	80.4811	-10.0485	4.7650	-60.5335	12.1182	-4.7651
157	61.5939	-7.7992	0.2468	-45.6936	9.8690	-0.2469
158	49.4935	-4.7890	-1.5654	-39.0109	6.8588	1.5654
159	43.1967	-1.3289	-2.3939	-38.9422	3.3987	2.3939
160	42.8097	1.9050	-2.6940	-44.3759	0.1648	2.6941
161	47.5529	-3.5895	0.2221	-40.3721	3.5895	-0.2221
162	42.7905	-1.4510	0.2433	-37.5882	3.7512	-0.2433
163	43.5438	2.1833	0.1081	-45.6092	0.1169	-0.1081
164	50.6617	4.7517	-0.1115	-57.8655	-2.4514	0.1115
165	64.5989	8.5655	-0.6022	-79.4320	-6.2653	0.6019
166	85.5722	11.3105	-1.3632	-105.8945	-9.0102	1.3631
167	105.8962	9.0139	-1.2000	-121.6250	-6.7136	1.1998
168	121.6244	6.7146	-1.0137	-132.7529	-4.4143	1.0136
169	132.7546	4.4123	-0.8075	-139.2807	-2.1120	0.8073
170	139.2780	2.1124	-0.5939	-141.2009	0.1878	0.5941
171	141.2009	-0.1846	-0.3789	-138.5300	2.4849	0.3790
172	138.5345	-2.4819	-0.1644	-131.2686	4.7822	0.1644
173	131.2701	-4.7848	0.0375	-119.3977	7.0851	-0.0374
174	119.3982	-7.0885	0.2217	-102.9172	9.3888	-0.2212

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	102.9178	-9.3886	0.3803	-81.8394	11.6888	-0.3804
176	81.8394	-11.6904	0.5061	-56.1550	13.9907	-0.5057
177	58.9896	-8.9876	0.4677	-38.7127	11.2878	-0.4678
178	43.5048	-6.5753	0.3079	-28.0524	8.8756	-0.3079
179	35.0401	-2.6778	0.1493	-27.3821	4.9780	-0.1493
180	33.2592	0.9491	0.0912	-32.8567	1.3511	-0.0912
181	37.0488	-2.4696	-0.1568	-32.2305	2.4696	0.1567
182	34.7767	-0.3947	-0.1488	-31.8189	2.6378	0.1488
183	38.4608	3.0997	-0.2781	-42.3174	-0.8566	0.2781
184	48.7060	6.8268	-0.5440	-59.8336	-4.5837	0.5441
185	65.3385	9.5987	-0.8255	-81.8723	-7.3555	0.8257
186	86.1630	10.1122	-0.8748	-103.6969	-7.8691	0.8751
187	103.6984	7.8672	-0.7205	-116.8553	-5.6240	0.7206
188	116.8562	5.6250	-0.5447	-125.6387	-3.3818	0.5448
189	125.6383	3.3811	-0.3556	-130.0453	-1.1380	0.3557
190	130.0457	1.1357	-0.1610	-130.0719	1.1074	0.1605
191	130.0710	-1.1083	0.0576	-125.7199	3.3514	-0.0576
192	125.7184	-3.3498	0.2241	-116.9959	5.5930	-0.2236
193	116.9969	-5.5900	0.3685	-103.9036	7.8331	-0.3685
194	103.9028	-7.8355	0.5360	-86.4311	10.0786	-0.5362
195	86.4300	-10.0793	0.6820	-64.5798	12.3224	-0.6820
196	64.5786	-12.3222	0.7642	-38.3544	14.5653	-0.7642
197	44.1847	-7.8603	0.5506	-26.6647	10.1034	-0.5506
198	31.9742	-4.7035	0.2903	-20.6116	6.9466	-0.2903
199	26.1424	-2.1424	0.1183	-19.7760	4.3855	-0.1183
200	26.4609	1.4452	0.0123	-27.0913	0.7979	-0.0123
201	31.3520	-1.1116	-0.1254	-29.7840	1.1116	0.1254
202	31.2986	1.9040	-0.1023	-32.8401	-0.2825	0.1023
203	34.9153	4.3897	-0.1271	-39.9612	-2.7682	0.1271
204	42.8896	7.2275	-0.1966	-51.9380	-5.6060	0.1967
205	56.1965	10.4882	-0.2871	-69.8410	-8.8667	0.2871
206	69.8400	8.8650	-0.2506	-81.1959	-7.2434	0.2508
207	81.1951	7.2428	-0.1988	-90.2635	-5.6213	0.1991
208	90.2637	5.6213	-0.0242	-97.0476	-3.9998	0.0238
209	97.0453	3.9970	0.0455	-101.5380	-2.3755	-0.0456
210	101.5362	2.3699	0.1206	-103.7358	-0.7484	-0.1208
211	103.7361	0.7502	0.2453	-103.6516	0.8713	-0.2453
212	103.6540	-0.8712	0.3625	-101.2810	2.4927	-0.3628
213	101.2808	-2.4960	0.4341	-96.6179	4.1176	-0.4339
214	96.6176	-4.1144	0.4979	-89.6716	5.7360	-0.4980
215	89.6741	-5.7346	0.6219	-80.4446	7.3561	-0.6219
216	80.4453	-7.3570	0.6752	-68.9297	8.9786	-0.6752
217	68.9313	-8.9786	0.7265	-55.1279	10.6002	-0.7264
218	55.1269	-10.6011	0.7978	-39.0358	12.2227	-0.7976
219	39.0346	-12.2211	0.8387	-20.6597	13.8426	-0.8383
220	20.6595	-13.8413	0.8466	-0.0010	15.4629	-0.8468
221	17.5949	-8.3783	0.0000	0.0000	8.3783	0.0000
222	18.8306	-8.9662	0.0000	0.0000	8.9662	0.0000
223	53.4542	-25.4545	0.0000	0.0000	25.4545	0.0000
224	53.3584	-25.4086	0.0000	0.0000	25.4086	0.0000
225	56.1238	-26.7252	0.0000	0.0000	26.7252	0.0000
226	55.9220	-26.6295	0.0000	0.0000	26.6295	0.0000
227	56.6733	-26.9871	0.0000	0.0000	26.9871	0.0000
228	56.6887	-26.9942	0.0000	0.0000	26.9942	0.0000
229	57.9171	-27.5803	0.0000	0.0000	27.5803	0.0000
230	55.5556	-26.4549	0.0000	0.0000	26.4549	0.0000
231	52.3832	-24.9447	0.0000	0.0000	24.9447	0.0000
232	55.2417	-26.3052	0.0000	0.0000	26.3052	0.0000
233	54.9852	-26.1835	0.0000	0.0000	26.1835	0.0000
234	54.5706	-25.9858	0.0000	0.0000	25.9858	0.0000

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
235	49.6503	-23.6434	0.0000	0.0000	23.6434	0.0000
236	49.5530	-23.5967	0.0000	0.0000	23.5967	0.0000
237	15.8124	-7.5302	0.0000	0.0000	7.5302	0.0000
238	16.6590	-7.9325	0.0000	0.0000	7.9325	0.0000

ENVOLVENTE DE MIN. FLECTORES CON SOBRECARGA UNIFORME

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0000	14.0325	-0.6166	-21.4062	-12.1522	0.6166
2	-5.4168	-3.3129	0.6121	10.8327	3.3129	-0.6121
3	-10.8340	-3.3126	0.5983	16.2511	3.3126	-0.5983
4	-16.2507	-3.3119	0.5778	21.6662	3.3119	-0.5778
5	-21.6665	-3.3120	0.5506	27.0833	3.3120	-0.5506
6	-27.0837	-3.3103	0.5165	32.4975	3.3103	-0.5165
7	-32.4978	-3.3111	0.4754	37.9128	3.3111	-0.4754
8	-37.9133	-3.3130	0.4278	43.3307	3.3130	-0.4278
9	-43.3320	-3.3128	0.3736	48.7493	3.3128	-0.3736
10	-48.7492	-3.3144	0.3124	54.1681	3.3144	-0.3124
11	-54.1673	-3.3123	0.2442	59.5831	3.3123	-0.2442
12	-59.5818	-3.3116	0.1684	64.9970	3.3116	-0.1684
13	-64.9954	-3.3081	0.0872	70.4055	3.3081	-0.0872
14	-70.4060	-3.3091	-0.0014	75.8171	3.3091	0.0014
15	-75.8157	-3.3096	-0.0965	81.2284	3.3096	0.0964
16	-81.2272	-3.3103	-0.1987	86.6398	3.3103	0.1987
17	-86.6629	-3.5424	-0.2930	92.4540	3.5424	0.2929
18	-97.9944	-10.2167	-0.0654	114.7000	10.2167	0.0654
19	-119.2388	-15.8046	-0.0208	145.0804	15.8046	0.0208
20	-148.8277	-20.8232	-0.1130	182.8754	20.8232	0.1130
21	-185.6021	26.3833	-0.2559	135.1428	-24.0837	0.2560
22	-137.6569	21.9477	-0.4257	93.7674	-21.9477	0.4257
23	-100.1225	16.0251	-0.3997	68.0780	-16.0251	0.3997
24	-73.7585	9.8103	-0.1762	54.1397	-9.8103	0.1762
25	-58.9096	5.0588	0.0884	48.7924	-5.0588	-0.0884
26	-57.0104	-0.9197	0.4711	58.8477	0.9197	-0.4711
27	-58.8502	-0.9182	0.3808	60.6867	0.9182	-0.3808
28	-60.6864	-0.9177	0.2868	62.5226	0.9177	-0.2868
29	-62.5237	-0.9177	0.1903	64.3572	0.9177	-0.1904
30	-64.3559	-0.9178	0.0919	66.1924	0.9178	-0.0919
31	-66.1905	-0.9145	-0.0101	68.0200	0.9145	0.0103
32	-68.0174	-0.9145	-0.1139	69.8474	0.9145	0.1138
33	-69.8475	-0.9146	-0.2219	71.6764	0.9146	0.2220
34	-71.6734	-0.9164	-0.3317	73.5062	0.9164	0.3316
35	-73.5058	-0.9175	-0.4451	75.3406	0.9175	0.4452
36	-75.3389	-0.9174	-0.5611	77.1736	0.9174	0.5611
37	-78.9709	-4.5206	-0.4138	88.0104	4.5206	0.4140
38	-93.4733	-9.8008	-0.1705	113.0711	9.8008	0.1705
39	-119.6428	-15.9992	-0.0276	151.6354	15.9992	0.0276
40	-157.2545	-21.9221	-0.0955	201.0892	21.9221	0.0954
41	-205.2198	26.9968	-0.1698	153.5172	-24.6964	0.1699
42	-156.1248	22.5636	-0.3751	110.9888	-22.5636	0.3751
43	-117.7089	16.6524	-0.4051	84.3982	-16.6524	0.4052
44	-90.6867	10.4612	-0.2534	69.7614	-10.4612	0.2533
45	-75.1760	5.1817	-0.0001	64.8103	-5.1817	0.0001
46	-72.5558	-0.1166	0.3755	72.7882	0.1166	-0.3756
47	-72.7885	-0.1177	0.2629	73.0226	0.1177	-0.2629
48	-73.0227	-0.1193	0.1510	73.2616	0.1193	-0.1510
49	-73.2615	-0.1190	0.0386	73.4994	0.1190	-0.0385
50	-73.4996	-0.1206	-0.0753	73.7412	0.1206	0.0752
51	-73.7424	-0.1198	-0.1885	73.9806	0.1198	0.1885
52	-73.9797	-0.1167	-0.3022	74.2126	0.1167	0.3022
53	-74.2140	-0.1130	-0.4162	74.4395	0.1130	0.4163
54	-74.4384	-0.1135	-0.5309	74.6648	0.1135	0.5310
55	-74.6647	-0.1126	-0.6461	74.8895	0.1126	0.6461
56	-74.8872	-0.1119	-0.7616	75.1105	0.1119	0.7616
57	-77.7583	-5.1140	-0.2195	87.9874	5.1140	0.2195
58	-93.5664	-10.4351	0.0968	114.4394	10.4351	-0.0967
59	-121.1178	-16.6548	0.2556	154.4327	16.6548	-0.2556
60	-160.1136	-22.5869	0.1854	205.2950	22.5869	-0.1854
61	-209.4408	26.9552	-0.1130	157.8402	-24.6556	0.1129
62	-160.4555	22.5237	-0.3213	115.4157	-22.5237	0.3213
63	-122.1715	16.6170	-0.3401	88.9427	-16.6170	0.3402
64	-95.2945	10.4347	-0.1680	74.4283	-10.4347	0.1679
65	-79.9078	5.1697	0.1043	69.5688	-5.1697	-0.1043
66	-76.9806	0.1601	0.5318	76.6611	-0.1601	-0.5320
67	-76.6620	0.1601	0.4132	76.3426	-0.1601	-0.4132
68	-76.3401	0.1562	0.2959	76.0272	-0.1562	-0.2956
69	-76.0274	0.1572	0.1796	75.7127	-0.1572	-0.1796
70	-75.7106	0.1617	0.0628	75.3881	-0.1617	-0.0630
71	-75.3858	0.1618	-0.0522	75.0622	-0.1618	0.0520
72	-75.0633	0.1635	-0.1670	74.7386	-0.1635	0.1671
73	-74.7412	0.1625	-0.2830	74.4162	-0.1625	0.2830
74	-74.4166	0.1602	-0.3980	74.0963	-0.1602	0.3980
75	-74.0964	0.1637	-0.5113	73.7690	-0.1637	0.5112
76	-73.7685	0.1651	-0.6249	73.4386	-0.1651	0.6249
77	-76.5040	-5.2501	-0.1960	87.0019	5.2501	0.1962
78	-92.7419	-10.5775	0.0790	113.8923	10.5775	-0.0790
79	-120.7125	-16.8016	0.2236	154.3100	16.8016	-0.2238
80	-160.0712	-22.7352	0.1479	205.5336	22.7352	-0.1478
81	-209.7052	26.8602	2.2250	158.2733	-24.5597	-2.2249
82	-160.9162	22.4302	1.9798	116.0460	-22.4302	-1.9798
83	-122.8984	16.5391	1.7504	89.8115	-16.5391	-1.7506
84	-96.3152	10.4026	1.3604	75.5049	-10.4026	-1.3605
85	-81.0985	5.2383	0.4808	70.6179	-5.2383	-0.4808
86	-76.7625	1.1000	-2.4131	74.5619	-1.1000	2.4129
87	-74.5591	1.0984	-2.5283	72.3619	-1.0984	2.5285
88	-72.3576	1.0985	-2.6396	70.1599	-1.0985	2.6395
89	-70.1564	1.0974	-2.7469	67.9619	-1.0974	2.7470
90	-67.9572	1.0962	-2.8521	65.7633	-1.0962	2.8522
91	-65.7566	1.0963	-2.9524	63.5627	-1.0963	2.9526
92	-63.5570	1.0958	-3.0504	61.3649	-1.0958	3.0505
93	-61.3615	1.0932	-3.1442	59.1743	-1.0932	3.1443
94	-59.1684	1.0934	-3.2350	56.9815	-1.0934	3.2349
95	-56.9770	1.0932	-3.3229	54.7885	-1.0932	3.3228
96	-54.7846	1.0931	-3.4076	52.5982	-1.0931	3.4076
97	-58.3461	-5.7933	-1.3848	69.9357	5.7933	1.3848
98	-75.2032	-11.3072	-0.2359	97.8232	11.3072	0.2359
99	-103.4384	-16.2242	0.4170	135.8933	16.2242	-0.4172
100	-142.8077	-22.1984	0.7891	187.2141	22.1984	-0.7890
101	-191.8824	24.9559	1.7100	149.9670	-22.9432	-1.7100
102	-152.1023	21.0823	1.4056	115.2050	-21.0823	-1.4056
103	-121.0200	15.9393	0.7708	93.1239	-15.9393	-0.7709
104	-99.1656	9.5293	-0.6875	82.4880	-9.5293	0.6875
105	-86.1055	5.3869	-2.6086	76.6761	-5.3869	2.6086
106	-82.9180	1.2463	-7.0826	80.7371	-1.2463	7.0829
107	-80.7252	1.2460	-7.1906	78.5441	-1.2460	7.1904
108	-78.5337	1.2478	-7.2965	76.3501	-1.2478	7.2967
109	-76.3389	1.2487	-7.3994	74.1533	-1.2487	7.3993
110	-74.1415	1.2519	-7.4997	71.9501	-1.2519	7.4997
111	-71.9404	1.2527	-7.5956	69.7480	-1.2527	7.5958
112	-69.7367	1.2504	-7.6889	67.5481	-1.2504	7.6889
113	-67.5382	1.2476	-7.7804	65.3539	-1.2476	7.7804
114	-65.3435	1.2500	-7.8679	63.1560	-1.2500	7.8682

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	-63.1453	1.2516	-7.9534	60.9546	-1.2516	7.9535
116	-60.9432	1.2485	-8.0353	58.7585	-1.2485	8.0352
117	-62.5082	-5.6547	-1.4117	72.4057	5.6547	1.4116
118	-76.1800	-9.8897	0.4100	93.4879	9.8897	-0.4100
119	-98.9462	-15.3739	1.7642	125.8527	15.3739	-1.7641
120	-130.4171	-20.5814	2.3092	166.4374	20.5814	-2.3092
121	-169.8471	24.3218	3.0579	129.0408	-22.3091	-3.0580
122	-130.9814	20.4394	2.7663	95.2078	-20.4394	-2.7664
123	-100.2504	15.2605	2.0828	73.5415	-15.2605	-2.0829
124	-78.2136	9.8330	0.7750	61.0037	-9.8330	-0.7749
125	-65.0005	5.1962	-1.2954	55.9060	-5.1962	1.2954
126	-62.1470	-0.1142	-7.4129	62.3475	0.1142	7.4127
127	-62.3389	-0.1135	-7.4971	62.5367	0.1135	7.4972
128	-62.5273	-0.1088	-7.5811	62.7172	0.1088	7.5809
129	-62.7053	-0.1091	-7.6652	62.8960	0.1091	7.6651
130	-62.8868	-0.1085	-7.7504	63.0768	0.1085	7.7504
131	-63.0659	-0.1066	-7.8350	63.2532	0.1066	7.8350
132	-63.2427	-0.1122	-7.9209	63.4386	0.1122	7.9208
133	-63.4290	-0.1110	-8.0064	63.6235	0.1110	8.0062
134	-63.6133	-0.1117	-8.0929	63.8092	0.1117	8.0930
135	-63.7970	-0.1110	-8.1777	63.9921	0.1110	8.1777
136	-63.9809	-0.1108	-8.2639	64.1754	0.1108	8.2640
137	-66.7925	-5.3777	-2.2287	76.2056	5.3777	2.2289
138	-80.2854	-10.0129	0.1585	97.8102	10.0129	-0.1586
139	-102.7450	-15.4419	1.6927	129.7712	15.4419	-1.6927
140	-134.0338	-20.6273	2.3274	170.1357	20.6273	-2.3274
141	-172.8674	24.6998	0.0367	130.2764	-22.6300	-0.0367
142	-132.2485	20.7033	-0.2383	94.9877	-20.7033	0.2384
143	-100.0182	15.3565	-0.7576	72.3793	-15.3565	0.7577
144	-76.8274	9.7270	-1.5425	59.3217	-9.7270	1.5430
145	-63.0842	5.3920	-2.3215	53.3810	-5.3920	2.3215
146	-61.0045	-0.8962	-3.5280	62.6176	0.8962	3.5280
147	-62.6130	-0.8946	-3.6146	64.2225	0.8946	3.6148
148	-64.2162	-0.8974	-3.7037	65.8318	0.8974	3.7037
149	-65.8254	-0.8935	-3.7942	67.4337	0.8935	3.7940
150	-67.4288	-0.8947	-3.8885	69.0385	0.8947	3.8884
151	-69.0331	-0.8932	-3.9835	70.6412	0.8932	3.9836
152	-70.6349	-0.8966	-4.0802	72.2487	0.8966	4.0800
153	-72.2427	-0.8942	-4.1812	73.8533	0.8942	4.1813
154	-73.8475	-0.8937	-4.2827	75.4555	0.8937	4.2828
155	-75.4488	-0.8921	-4.3882	77.0546	0.8921	4.3883
156	-77.0478	-0.8944	-4.4944	78.6580	0.8944	4.4944
157	-79.7192	-5.2132	-0.0018	89.1014	5.2132	0.0019
158	-92.9013	-10.2934	1.7499	111.4279	10.2934	-1.7498
159	-115.6131	-15.8235	2.4789	144.0912	15.8235	-2.4786
160	-147.9583	-21.1270	2.6327	185.9828	21.1270	-2.6325
161	-189.1590	26.1371	-0.4321	139.1798	-23.8368	0.4321
162	-141.5981	21.6982	-0.6050	98.1968	-21.6982	0.6049
163	-104.1524	15.7635	-0.5627	72.6222	-15.7635	0.5628
164	-77.6740	10.8950	-0.3842	55.8807	-10.8950	0.3844
165	-62.6135	4.7799	0.1083	53.0532	-4.7799	-0.1081
166	-59.1935	-0.2632	0.9102	59.7204	0.2632	-0.9099
167	-59.7226	-0.2658	0.8182	60.2537	0.2658	-0.8183
168	-60.2535	-0.2664	0.7259	60.7871	0.2664	-0.7259
169	-60.7883	-0.2654	0.6316	61.3191	0.2654	-0.6315
170	-61.3179	-0.2654	0.5376	61.8494	0.2654	-0.5375
171	-61.8496	-0.2672	0.4440	62.3845	0.2672	-0.4440
172	-62.3871	-0.2686	0.3473	62.9249	0.2686	-0.3472
173	-62.9264	-0.2671	0.2507	63.4611	0.2671	-0.2508
174	-63.4612	-0.2650	0.1524	63.9919	0.2650	-0.1527
175	-63.9924	-0.2656	0.0535	64.5238	0.2656	-0.0533
176	-64.5245	-0.2646	-0.0456	65.0544	0.2646	0.0458
177	-67.8899	-5.2671	-0.0216	78.4244	5.2671	0.0216
178	-83.2178	-9.9784	0.0775	103.1771	9.9784	-0.0775
179	-110.1659	-16.1768	0.1214	142.5230	16.1768	-0.1214
180	-148.3999	-22.1039	0.0019	192.6140	22.1039	-0.0018
181	-196.8038	25.6265	0.1409	149.0057	-23.3834	-0.1409
182	-151.5513	21.3088	-0.0408	109.9876	-21.3088	0.0410
183	-116.6286	15.5713	-0.0297	86.2553	-15.5713	0.0293
184	-92.6432	9.6010	0.1698	73.9158	-9.6010	-0.1698
185	-79.4198	4.5851	0.4318	70.4760	-4.5851	-0.4317
186	-74.7648	1.8278	0.4987	71.1988	-1.8278	-0.4986
187	-71.1995	1.8300	0.3924	67.6299	-1.8300	-0.3924
188	-67.6314	1.8296	0.2902	64.0630	-1.8296	-0.2902
189	-64.0629	1.8290	0.1938	60.4948	-1.8290	-0.1940
190	-60.4956	1.8314	0.1033	56.9239	-1.8314	-0.1034
191	-56.9235	1.8315	0.0074	53.3507	-1.8315	-0.0075
192	-53.3495	1.8300	-0.0625	49.7792	-1.8300	0.0626
193	-49.7794	1.8287	-0.1238	46.2125	-1.8287	0.1235
194	-46.2125	1.8308	-0.1987	42.6425	-1.8308	0.1987
195	-42.6423	1.8308	-0.2711	39.0715	-1.8308	0.2711
196	-39.0712	1.8302	-0.3202	35.5005	-1.8302	0.3203
197	-41.3313	-4.8749	-0.1033	50.8412	4.8749	0.1035
198	-56.1510	-10.2737	0.1216	76.1916	10.2737	-0.1215
199	-81.7233	-15.0785	0.2156	111.1362	15.0785	-0.2157
200	-117.8211	-20.9092	0.1662	158.6056	20.9092	-0.1662
201	-162.8662	21.9909	0.1725	133.0012	-20.3694	-0.1725
202	-134.5154	17.3540	-0.0006	110.0454	-17.3540	0.0006
203	-112.1208	13.2467	-0.0491	93.4427	-13.2467	0.0491
204	-96.3717	8.7897	-0.0232	83.9789	-8.7897	0.0232
205	-88.2388	3.9065	0.0288	82.7288	-3.9065	-0.0286
206	-82.7293	3.9085	-0.0150	77.2189	-3.9085	0.0153
207	-77.2186	3.9085	-0.0640	71.7055	-3.9085	0.0640
208	-71.7065	3.9073	-0.2030	66.1957	-3.9073	0.2030
209	-66.1939	3.9084	-0.2509	60.6824	-3.9084	0.2509
210	-60.6800	3.9122	-0.2958	55.1632	-3.9122	0.2958
211	-55.1621	3.9102	-0.3612	49.6478	-3.9102	0.3611
212	-49.6481	3.9123	-0.4175	44.1310	-3.9123	0.4177
213	-44.1308	3.9141	-0.4489	38.6116	-3.9141	0.4489
214	-38.6110	3.9114	-0.4742	33.0948	-3.9114	0.4742
215	-33.0951	3.9105	-0.5200	27.5801	-3.9105	0.5199
216	-27.5798	3.9117	-0.5384	22.0641	-3.9117	0.5385
217	-22.0645	3.9120	-0.5550	16.5477	-3.9120	0.5547
218	-16.5472	3.9121	-0.5765	11.0309	-3.9121	0.5763
219	-11.0300	3.9114	-0.5877	5.5147	-3.9114	0.5877
220	-5.5148	3.9107	-0.5899	0.0007	-3.9107	0.5899
221	-3.1692	1.5086	0.0000	0.0000	-1.5086	0.0000
222	-3.7878	1.8029	0.0000	0.0000	-1.8029	0.0000
223	-4.5191	2.1520	0.0000	0.0000	-2.1520	0.0000
224	-4.4765	2.1318	0.0000	0.0000	-2.1318	0.0000
225	-7.7477	3.6898	0.0000	0.0000	-3.6898	0.0000
226	-7.6354	3.6358	0.0000	0.0000	-3.6358	0.0000
227	-8.5010	4.0478	0.0000	0.0000	-4.0478	0.0000
228	-8.6036	4.0965	0.0000	0.0000	-4.0965	0.0000
229	-8.6829	4.1346	0.0000	0.0000	-4.1346	0.0000
230	-6.8299	3.2524	0.0000	0.0000	-3.2524	0.0000
231	-6.3235	3.0109	0.0000	0.0000	-3.0109	0.0000
232	-9.2398	4.4003	0.0000	0.0000	-4.4003	0.0000
233	-5.9752	2.8448	0.0000	0.0000	-2.8448	0.0000
234	-5.6955	2.7122	0.0000	0.0000	-2.7122	0.0000

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
235	-4.9490	2.3562	0.0000	0.0000	-2.3562	0.0000
236	-4.8223	2.2960	0.0000	0.0000	-2.2960	0.0000
237	-3.8114	1.8152	0.0000	0.0000	-1.8152	0.0000
238	-4.4011	2.0964	0.0000	0.0000	-2.0964	0.0000

ENVOLVENTE DE MAX. CORTANTES CON SOBRECARGA UNIFORME

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0000	17.3452	-1.2357	-26.8222	-15.4649	1.2357
2	25.3831	15.5246	-1.1928	-49.2299	-13.6443	1.1928
3	45.1966	13.8203	-1.1090	-66.2566	-11.9400	1.1090
4	60.0096	12.2322	-0.9962	-78.4729	-10.3519	0.9962
5	70.3909	10.7618	-0.8660	-86.4516	-8.8815	0.8660
6	76.9024	9.4036	-0.7280	-90.7388	-7.5233	0.7280
7	80.0850	8.1609	-0.5887	-91.8909	-6.2806	0.5887
8	80.4770	7.0329	-0.4549	-90.4411	-5.1526	0.4550
9	78.5998	6.0109	-0.3317	-86.8912	-4.1306	0.3317
10	74.9395	5.0950	-0.2222	-81.7325	-3.2147	0.2222
11	69.9699	4.2790	-0.1275	-75.4290	-2.3987	0.1275
12	64.1328	3.5646	-0.0494	-68.4233	-1.6843	0.0494
13	57.8466	2.9462	0.0117	-61.1260	-1.0659	-0.0117
14	51.4964	2.4207	0.0584	-53.9177	-0.5404	-0.0584
15	45.4337	1.9840	0.0923	-47.1400	-0.1037	-0.0923
16	39.9708	1.6293	0.1169	-41.0970	0.2510	-0.1169
17	35.3780	1.3507	0.1340	-36.0483	0.5296	-0.1340
18	31.8793	1.1460	0.1491	-32.2159	0.7343	-0.1491
19	29.6605	1.0074	0.1656	-29.7701	0.8729	-0.1656
20	28.8505	0.9283	0.1876	-28.8307	0.9520	-0.1876
21	-185.5985	26.3833	-0.2559	135.1399	-24.0837	0.2560
22	-136.3032	24.1231	-0.4546	90.3638	-21.8235	0.4546
23	-93.7648	21.9483	-0.5705	52.1761	-19.6488	0.5705
24	-57.7614	19.8676	-0.6173	20.3323	-17.5680	0.6173
25	-27.9687	17.8897	-0.6113	-5.5049	-15.5901	0.6113
26	-3.9897	16.0241	-0.5656	-25.7533	-13.7245	0.5656
27	14.6404	14.2763	-0.4931	-40.8885	-11.9768	0.4931
28	28.4428	12.6554	-0.4055	-51.4503	-10.3558	0.4055
29	38.0018	11.1647	-0.3135	-58.0300	-8.8651	0.3134
30	43.9370	9.8101	-0.2235	-61.2539	-7.5106	0.2235
31	46.9029	8.5869	-0.1430	-61.7743	-6.2873	0.1432
32	47.5592	7.5040	-0.0756	-60.2651	-5.2044	0.0756
33	46.5764	6.5562	-0.0227	-57.3873	-4.2566	0.0227
34	44.6067	5.7431	0.0144	-53.7918	-3.4436	-0.0144
35	42.2797	5.0605	0.0381	-50.1003	-2.7610	-0.0381
36	40.1823	4.5044	0.0524	-46.8912	-2.2048	-0.0523
37	38.8508	4.0691	0.0626	-44.6888	-1.7696	-0.0626
38	38.7560	3.7467	0.0754	-43.9489	-1.4472	-0.0754
39	40.2889	3.5287	0.0973	-45.0460	-1.2291	-0.0973
40	43.7481	3.4054	0.1368	-48.2589	-1.1059	-0.1368
41	-205.2173	26.9968	-0.1698	153.5150	-24.6964	0.1699
42	-154.7033	24.7374	-0.3985	107.5206	-22.4370	0.3985
43	-110.9868	22.5639	-0.5462	68.1530	-20.2635	0.5463
44	-73.8299	20.4859	-0.6260	35.1523	-18.1855	0.6259
45	-42.8979	18.5130	-0.6530	8.1679	-16.2126	0.6531
46	-17.7779	16.6515	-0.6407	-13.2298	-14.3511	0.6406
47	2.0002	14.9116	-0.6010	-29.5271	-12.6112	0.6010
48	16.9721	13.2968	-0.5437	-41.2692	-10.9964	0.5435
49	27.7203	11.8119	-0.4792	-49.0471	-9.5115	0.4793
50	34.8708	10.4607	-0.4148	-53.4954	-8.1603	0.4150
51	39.0721	9.2448	-0.3566	-55.2652	-6.9444	0.3566
52	40.9889	8.1665	-0.3081	-55.0242	-5.8661	0.3079
53	41.2883	7.2228	-0.2722	-53.4359	-4.9224	0.2722
54	40.6221	6.4137	-0.2469	-51.1504	-4.1133	0.2470
55	39.6175	5.7353	-0.2305	-48.7902	-3.4349	0.2306
56	38.8619	5.1827	-0.2210	-46.9286	-2.8823	0.2210
57	38.8869	4.7504	-0.2113	-46.0887	-2.4500	0.2114
58	40.1605	4.4301	-0.1971	-46.7205	-2.1297	0.1970
59	43.0690	4.2139	-0.1695	-49.1973	-1.9135	0.1694
60	47.9074	4.0914	-0.1233	-53.7904	-1.7910	0.1233
61	-209.4399	26.9552	-0.1130	157.8394	-24.6556	0.1129
62	-159.0288	24.6962	-0.3478	111.9441	-22.3967	0.3478
63	-115.4139	22.5233	-0.4983	72.6742	-20.2238	0.4984
64	-78.3562	20.4474	-0.5812	39.7674	-18.1479	0.5811
65	-47.5177	18.4771	-0.6099	12.8678	-16.1776	0.6099
66	-22.4823	16.6182	-0.5981	-8.4496	-14.3187	0.5979
67	-2.7795	14.8790	-0.5577	-24.6739	-12.5794	0.5578
68	12.1206	13.2679	-0.5014	-36.3538	-10.9683	0.5015
69	22.8116	11.7837	-0.4368	-44.0773	-9.4842	0.4369
70	29.9112	10.4338	-0.3735	-48.4770	-8.1343	0.3733
71	34.0729	9.2206	-0.3172	-50.2125	-6.9211	0.3170
72	35.9627	8.1440	-0.2704	-49.9487	-5.8444	0.2707
73	36.2440	7.2043	-0.2363	-48.3516	-4.9047	0.2363
74	35.5708	6.3971	-0.2142	-46.0642	-4.0976	0.2144
75	34.5649	5.7206	-0.2035	-43.7049	-3.4210	0.2036
76	33.8111	5.1695	-0.1983	-41.8496	-2.8700	0.1983
77	33.8416	4.7382	-0.1950	-41.0186	-2.4387	0.1951
78	35.1208	4.4194	-0.1873	-41.6601	-2.1198	0.1872
79	38.0319	4.2044	-0.1671	-44.1396	-1.9049	0.1670
80	42.8652	4.0828	-0.1275	-48.7317	-1.7833	0.1275
81	-209.7046	26.8602	2.2250	158.2729	-24.5597	-2.2249
82	-159.4727	24.6013	1.9813	112.5603	-22.3008	-1.9813
83	-116.0490	22.4300	1.8004	73.4789	-20.1296	-1.8006
84	-79.1796	20.3561	1.6690	40.7590	-18.0556	-1.6691
85	-48.5220	18.3909	1.5698	14.0320	-16.0904	-1.5698
86	-23.6456	16.5389	1.4889	-7.1383	-14.2385	-1.4889
87	-4.0714	14.8095	1.4154	-23.2537	-12.5090	-1.4153
88	10.7482	13.2082	1.3371	-34.8693	-10.9077	-1.3372
89	21.4095	11.7393	1.2493	-42.5916	-9.4388	-1.2490
90	28.5457	10.4044	1.1435	-47.0596	-8.1039	-1.1436
91	32.8156	9.2072	1.0182	-48.9339	-6.9067	-1.0181
92	34.8885	8.1481	0.8725	-48.8879	-5.8476	-0.8726
93	35.4310	7.2242	0.7084	-47.5809	-4.9237	-0.7084
94	35.0906	6.4327	0.5327	-45.6579	-4.1322	-0.5326
95	34.4813	5.7721	0.3505	-43.7286	-3.4717	-0.3506
96	34.1777	5.2378	0.1729	-42.3550	-2.9373	-0.1729
97	34.6935	4.8213	0.0100	-42.0375	-2.5208	-0.0101
98	36.4706	4.5158	-0.1239	-43.2029	-2.2153	0.1239
99	39.8639	4.3107	-0.2136	-46.1872	-2.0103	0.2136
100	45.1305	4.1968	-0.2439	-51.2257	-1.8963	0.2439
101	-191.8824	24.9559	1.7100	149.9670	-22.9432	-1.7100
102	-150.9033	22.9798	1.4813	112.4463	-20.9672	-1.4813
103	-115.2069	21.0823	1.2498	80.0712	-19.0696	-1.2500
104	-84.5775	19.2706	1.0141	52.6125	-17.2580	-1.0141
105	-58.7335	17.5544	0.7671	29.7707	-15.5418	-0.7670
106	-37.3341	15.9390	0.5075	11.1991	-13.9263	-0.5075
107	-20.0007	14.4289	0.2349	-3.4904	-12.4163	-0.2351
108	-6.3126	13.0300	-0.0536	-14.7309	-11.0174	0.0538
109	4.1898	11.7460	-0.3560	-22.9861	-9.7333	0.3558
110	11.9929	10.5786	-0.6709	-28.7465	-8.5659	0.6709
111	17.5981	9.5303	-0.9937	-32.5168	-7.5176	0.9935
112	21.5175	8.6008	-1.3215	-34.8086	-6.5881	1.3216
113	24.2555	7.7889	-1.6479	-36.1264	-5.7762	1.6479
114	26.3066	7.0937	-1.9645	-36.9607	-5.0810	1.9647

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	28.1459	6.5101	-2.2650	-37.7780	-4.4974	2.2652
116	30.2125	6.0351	-2.5380	-39.0141	-4.0225	2.5380
117	32.9067	5.6637	-2.7730	-41.0575	-3.6511	2.7730
118	36.5742	5.3895	-2.9592	-44.2470	-3.3769	2.9591
119	41.5059	5.2049	-3.0835	-48.8547	-3.1922	3.0834
120	47.9176	5.1015	-3.1351	-55.0848	-3.0889	3.1351
121	-169.8471	24.3218	3.0579	129.0408	-22.3091	-3.0580
122	-129.9267	22.3430	2.8539	92.5829	-20.3303	-2.8539
123	-95.2115	20.4390	2.6378	61.2004	-18.4263	-2.6379
124	-65.5208	18.6202	2.4077	34.6932	-16.6075	-2.4077
125	-40.5976	16.8916	2.1603	12.7962	-14.8789	-2.1603
126	-20.1281	15.2610	1.8940	-4.8193	-13.2483	-1.8943
127	-3.7556	13.7349	1.6060	-18.5225	-11.7222	-1.6058
128	8.9258	12.3178	1.2987	-28.7245	-10.3051	-1.2990
129	18.3622	11.0173	0.9719	-35.8829	-9.0046	-0.9719
130	25.0348	9.8316	0.6292	-40.4802	-7.8189	-0.6294
131	29.4386	8.7655	0.2743	-43.0199	-6.7528	-0.2745
132	32.0860	7.8197	-0.0877	-44.0109	-5.8070	0.0876
133	33.4851	6.9914	-0.4499	-43.9597	-4.9787	0.4498
134	34.1336	6.2807	-0.8044	-43.3644	-4.2680	0.8043
135	34.5133	5.6838	-1.1418	-42.6987	-3.6711	1.1418
136	35.0734	5.1973	-1.4497	-42.4080	-3.1846	1.4497
137	36.2270	4.8163	-1.7185	-42.8956	-2.8036	1.7187
138	38.3347	4.5337	-1.9338	-44.5091	-2.5210	1.9338
139	41.6994	4.3435	-2.0831	-47.5405	-2.3308	2.0830
140	46.5523	4.2364	-2.1521	-52.2063	-2.2237	2.1521
141	-172.8609	24.6998	0.0367	130.2702	-22.6300	-0.0367
142	-131.1834	22.6641	-0.1695	92.2568	-20.5944	0.1696
143	-94.9815	20.7029	-0.3694	59.5828	-18.6331	0.3695
144	-64.0780	18.8263	-0.5645	32.0589	-16.7566	0.5651
145	-38.2236	17.0419	-0.7559	9.4150	-14.9721	0.7557
146	-17.0941	15.3561	-0.9435	-8.6800	-13.2864	0.9436
147	-0.3255	13.7760	-1.1292	-22.6063	-11.7062	1.1294
148	12.5008	12.3107	-1.3123	-32.7935	-10.2410	1.3126
149	21.8541	10.9580	-1.4936	-39.7125	-8.8883	1.4938
150	28.2275	9.7273	-1.6715	-43.8710	-7.6575	1.6714
151	32.1475	8.6170	-1.8455	-45.7921	-6.5472	1.8453
152	34.1505	7.6300	-2.0140	-46.0187	-5.5603	2.0139
153	34.7762	6.7636	-2.1737	-45.0853	-4.6939	2.1738
154	34.5538	6.0188	-2.3217	-43.5233	-3.9490	2.3215
155	34.0001	5.3926	-2.4557	-41.8428	-3.3228	2.4555
156	33.5992	4.8804	-2.5693	-40.5195	-2.8107	2.5694
157	33.7968	4.4777	-2.6608	-39.9930	-2.4079	2.6607
158	34.9908	4.1782	-2.7234	-40.6469	-2.1084	2.7235
159	37.5140	3.9748	-2.7532	-42.8047	-1.9050	2.7532
160	41.6332	3.8590	-2.7458	-46.7160	-1.7892	2.7458
161	-189.1535	26.1371	-0.4321	139.1746	-23.8368	0.4321
162	-140.3144	23.8760	-0.6365	94.8576	-21.5758	0.6364
163	-98.1911	21.6978	-0.7559	57.0920	-19.3976	0.7560
164	-62.5772	19.6142	-0.8050	25.6448	-17.3139	0.8053
165	-33.1617	17.6322	-0.7999	0.1944	-15.3320	0.7998
166	-9.5556	15.7644	-0.7526	-19.6764	-13.4641	0.7527
167	8.7015	14.0162	-0.6760	-34.4346	-11.7159	0.6757
168	22.1267	12.3907	-0.5817	-44.6093	-10.0904	0.5814
169	31.2965	10.8958	-0.4792	-50.7899	-8.5955	0.4792
170	36.8295	9.5363	-0.3781	-53.6012	-7.2361	0.3784
171	39.3774	8.3134	-0.2851	-53.7033	-6.0131	0.2851
172	39.6068	7.2274	-0.2030	-51.7614	-4.9271	0.2029
173	38.1840	6.2769	-0.1354	-48.4376	-3.9766	0.1353
174	35.7635	5.4616	-0.0835	-44.3857	-3.1613	0.0836

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	32.9733	4.7785	-0.0457	-40.2309	-2.4783	0.0457
176	30.4077	4.2224	-0.0192	-36.5513	-1.9221	0.0196
177	28.5996	3.7877	-0.0004	-33.8754	-1.4875	0.0004
178	28.0223	3.4660	0.0173	-32.6545	-1.1657	-0.0173
179	29.0602	3.2495	0.0393	-33.2577	-0.9493	-0.0393
180	32.0061	3.1270	0.0729	-35.9597	-0.8268	-0.0729
181	-196.7955	25.6265	0.1409	148.9980	-23.3834	-0.1409
182	-150.1459	23.4246	-0.0713	106.6433	-21.1815	0.0715
183	-109.9799	21.3090	-0.2067	70.6036	-19.0659	0.2063
184	-76.0529	19.2889	-0.2765	40.6173	-17.0458	0.2766
185	-48.0311	17.3735	-0.2959	16.3315	-15.1303	0.2961
186	-25.5045	15.5703	-0.2805	-2.6775	-13.3272	0.2808
187	-8.0107	13.8870	-0.2403	-16.8883	-11.6438	0.2402
188	4.9728	12.3296	-0.1868	-26.8336	-10.0864	0.1868
189	14.0197	10.8984	-0.1289	-33.0900	-8.6553	0.1289
190	19.7302	9.6016	-0.0746	-36.2698	-7.3585	0.0742
191	22.7336	8.4382	-0.0246	-37.0041	-6.1951	0.0246
192	23.6666	7.4084	0.0021	-35.9295	-5.1652	-0.0016
193	23.1618	6.5119	0.0147	-33.6753	-4.2688	-0.0153
194	21.8315	5.7456	0.0254	-30.8495	-3.5025	-0.0255
195	20.2604	5.1058	0.0239	-28.0311	-2.8627	-0.0239
196	18.9901	4.5873	0.0039	-25.7502	-2.3442	-0.0038
197	18.5044	4.1834	-0.0146	-24.4761	-1.9403	0.0146
198	19.2152	3.8869	-0.0272	-24.6086	-1.6438	0.0272
199	21.4534	3.6882	-0.0322	-26.4594	-1.4451	0.0322
200	25.4542	3.5770	-0.0136	-30.2427	-1.3339	0.0136
201	-162.8582	21.9909	0.1725	132.9937	-20.3694	-0.1725
202	-133.6459	20.3941	-0.0195	106.0331	-18.7726	0.0195
203	-107.9155	18.8467	-0.1141	82.4848	-17.2252	0.1141
204	-85.5701	17.3551	-0.1736	62.2433	-15.7336	0.1737
205	-66.4798	15.9193	-0.2414	45.1755	-14.2978	0.2416
206	-50.4861	14.5495	-0.2568	31.1155	-12.9279	0.2572
207	-37.4071	13.2458	-0.2680	19.8726	-11.6243	0.2682
208	-27.0316	12.0136	-0.3073	11.2342	-10.3921	0.3073
209	-19.1227	10.8579	-0.3194	4.9557	-9.2364	0.3193
210	-13.4155	9.7820	-0.3293	0.7647	-8.1605	0.3291
211	-9.6184	8.7878	-0.3425	-1.6309	-7.1663	0.3422
212	-7.4236	7.8821	-0.3611	-2.5470	-6.2606	0.3610
213	-6.4972	7.0628	-0.3825	-2.3187	-5.4412	0.3825
214	-6.4890	6.3325	-0.4059	-1.2972	-4.7109	0.4057
215	-7.0378	5.6953	-0.4361	0.1498	-4.0738	0.4360
216	-7.7625	5.1549	-0.4683	1.6378	-3.5333	0.4684
217	-8.2715	4.7098	-0.5008	2.7735	-3.0882	0.5005
218	-8.1610	4.3619	-0.5355	3.1539	-2.7403	0.5353
219	-7.0226	4.1120	-0.5653	2.3678	-2.4905	0.5654
220	-4.4426	3.9612	-0.5838	0.0007	-2.3396	0.5838
221	-3.1682	1.5086	0.0000	0.0000	-1.5086	0.0000
222	-3.7865	1.8029	0.0000	0.0000	-1.8029	0.0000
223	-4.5183	2.1520	0.0000	0.0000	-2.1520	0.0000
224	-4.4758	2.1318	0.0000	0.0000	-2.1318	0.0000
225	-7.7470	3.6898	0.0000	0.0000	-3.6898	0.0000
226	-7.6346	3.6358	0.0000	0.0000	-3.6358	0.0000
227	-8.4999	4.0478	0.0000	0.0000	-4.0478	0.0000
228	-8.6025	4.0965	0.0000	0.0000	-4.0965	0.0000
229	-8.6828	4.1346	0.0000	0.0000	-4.1346	0.0000
230	-6.8299	3.2524	0.0000	0.0000	-3.2524	0.0000
231	-6.3224	3.0109	0.0000	0.0000	-3.0109	0.0000
232	-9.2393	4.4003	0.0000	0.0000	-4.4003	0.0000
233	-5.9745	2.8448	0.0000	0.0000	-2.8448	0.0000
234	-5.6947	2.7122	0.0000	0.0000	-2.7122	0.0000

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
235	-4.9483	2.3562	0.0000	0.0000	-2.3562	0.0000
236	-4.8216	2.2960	0.0000	0.0000	-2.2960	0.0000
237	-3.8106	1.8152	0.0000	0.0000	-1.8152	0.0000
238	-4.4005	2.0964	0.0000	0.0000	-2.0964	0.0000

ENVOLVENTE DE MIN. CORTANTES CON SOBRECARGA UNIFORME

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0000	-1.4916	0.6082	3.9755	3.3719	-0.6082
2	-1.1905	-1.6684	0.5761	5.4557	3.5487	-0.5761
3	-0.2668	-1.9616	0.5319	5.0118	3.8419	-0.5319
4	2.2036	-2.3709	0.4840	3.2100	4.2512	-0.4840
5	5.6588	-2.8952	0.4383	0.6123	4.7755	-0.4383
6	9.5476	-3.5316	0.3990	-2.2358	5.4119	-0.3990
7	13.3372	-4.2806	0.3693	-4.7998	6.1609	-0.3693
8	16.5047	-5.1387	0.3509	-6.5650	7.0190	-0.3509
9	18.5517	-6.1016	0.3435	-7.0378	7.9819	-0.3435
10	19.0035	-7.1690	0.3464	-5.7454	9.0493	-0.3464
11	17.4093	-8.3365	0.3565	-2.2437	10.2168	-0.3565
12	13.3464	-9.5994	0.3699	3.8864	11.4797	-0.3699
13	6.4218	-10.9540	0.3829	13.0278	12.8343	-0.3828
14	-3.7229	-12.3985	0.3893	25.5326	14.2788	-0.3893
15	-17.4067	-13.9227	0.3841	41.7091	15.8030	-0.3842
16	-34.9074	-15.5269	0.3582	61.8304	17.4072	-0.3582
17	-56.4610	-17.2012	0.3056	86.1231	19.0815	-0.3056
18	-82.2585	-18.9437	0.2177	114.7698	20.8240	-0.2177
19	-112.4412	-20.7454	0.0880	147.8978	22.6257	-0.0880
20	-147.1033	-22.5989	-0.0920	185.5910	24.4792	0.0920
21	28.4873	-1.1214	0.1700	-23.9459	3.4210	-0.1700
22	25.2966	-1.2456	0.1784	-20.5073	3.5452	-0.1784
23	24.2301	-1.4644	0.1686	-19.0028	3.7639	-0.1686
24	24.9851	-1.7867	0.1483	-19.1140	4.0863	-0.1483
25	27.1769	-2.2211	0.1262	-20.4367	4.5207	-0.1262
26	30.3585	-2.7741	0.1078	-22.5126	5.0737	-0.1078
27	34.0172	-3.4532	0.0989	-24.8132	5.7527	-0.0989
28	37.5818	-4.2626	0.1021	-26.7591	6.5622	-0.1022
29	40.4367	-5.2053	0.1211	-27.7297	7.5049	-0.1211
30	41.9378	-6.2850	0.1553	-27.0701	8.5845	-0.1553
31	41.4189	-7.5013	0.2024	-24.1199	9.8009	-0.2024
32	38.2119	-8.8528	0.2596	-18.2112	11.1524	-0.2597
33	31.6628	-10.3397	0.3188	-8.6885	12.6393	-0.3187
34	21.1347	-11.9568	0.3732	5.0726	14.2563	-0.3734
35	6.0336	-13.7008	0.4123	23.6614	16.0003	-0.4122
36	-14.1920	-15.5634	0.4255	47.6115	17.8630	-0.4255
37	-40.0260	-17.5402	0.4000	77.3989	19.8397	-0.3997
38	-71.8768	-19.6220	0.3205	113.4116	21.9215	-0.3205
39	-110.0616	-21.7986	0.1746	155.9494	24.0982	-0.1746
40	-154.8039	-24.0590	-0.0551	205.2102	26.3585	0.0550
41	48.3143	-1.6998	0.0805	-42.6145	4.0002	-0.0805
42	44.0337	-1.8263	0.1226	-38.0804	4.1267	-0.1226
43	41.9020	-2.0490	0.1479	-35.5042	4.3494	-0.1479
44	41.6033	-2.3761	0.1636	-34.5502	4.6765	-0.1636
45	42.7392	-2.8163	0.1765	-34.8065	5.1167	-0.1765
46	44.8548	-3.3758	0.1936	-35.8022	5.6762	-0.1935
47	47.4286	-4.0616	0.2171	-37.0047	6.3620	-0.2171
48	49.8835	-4.8754	0.2519	-37.8298	7.1758	-0.2519
49	51.6055	-5.8253	0.3000	-37.6523	8.1257	-0.3000
50	51.9467	-6.9117	0.3593	-35.8205	9.2121	-0.3595
51	50.2407	-8.1327	0.4293	-31.6731	10.4331	-0.4292
52	45.8220	-9.4905	0.5048	-24.5374	11.7909	-0.5049
53	38.0340	-10.9832	0.5797	-13.7633	13.2836	-0.5795
54	26.2401	-12.6066	0.6469	1.2767	14.9070	-0.6468

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
55	9.8469	-14.3540	0.6945	21.1664	16.6544	-0.6944
56	-11.6910	-16.2221	0.7125	46.4407	18.5225	-0.7123
57	-38.8528	-18.2026	0.6886	77.5645	20.5030	-0.6887
58	-72.0433	-20.2874	0.6084	114.9247	22.5878	-0.6083
59	-111.5785	-22.4651	0.4576	158.8163	24.7655	-0.4577
60	-157.6739	-24.7259	0.2246	209.4342	27.0263	-0.2246
61	53.8476	-1.8338	0.0435	-47.8821	4.1334	-0.0435
62	49.3077	-1.9608	0.0909	-43.0884	4.2603	-0.0908
63	46.9180	-2.1839	0.1191	-40.2528	4.4834	-0.1191
64	46.3594	-2.5121	0.1365	-39.0382	4.8116	-0.1365
65	47.2333	-2.9535	0.1502	-39.0294	5.2530	-0.1502
66	49.0818	-3.5138	0.1658	-39.7566	5.8133	-0.1659
67	51.3829	-4.2006	0.1885	-40.6848	6.5002	-0.1883
68	53.5612	-5.0179	0.2225	-41.2301	7.3175	-0.2224
69	54.9984	-5.9681	0.2684	-40.7665	8.2676	-0.2686
70	55.0458	-7.0547	0.3262	-38.6394	9.3542	-0.3261
71	53.0381	-8.2781	0.3945	-34.1863	10.5776	-0.3944
72	48.3098	-9.6371	0.4682	-26.7400	11.9367	-0.4680
73	40.2058	-11.1290	0.5432	-15.6536	13.4286	-0.5432
74	28.0973	-12.7503	0.6080	-0.3019	15.0498	-0.6079
75	11.3916	-14.5008	0.6563	19.9036	16.8004	-0.6564
76	-10.4602	-16.3707	0.6742	45.4934	18.6702	-0.6742
77	-37.9343	-18.3513	0.6503	76.9283	20.6508	-0.6500
78	-71.4333	-20.4349	0.5701	114.5927	22.7345	-0.5701
79	-111.2645	-22.6133	0.4210	158.7806	24.9128	-0.4212
80	-157.6435	-24.8742	0.1868	209.6811	27.1737	-0.1867
81	48.8033	-1.0841	-1.9150	-44.3343	3.3846	1.9150
82	45.7803	-1.2135	-1.8451	-41.0510	3.5140	1.8450
83	44.9066	-1.4409	-1.7718	-39.7239	3.7413	1.7718
84	45.8553	-1.7751	-1.6860	-40.0044	4.0756	1.6862
85	48.2155	-2.2239	-1.5809	-41.4663	4.5244	1.5808
86	51.5176	-2.7953	-1.4496	-43.6253	5.0957	1.4494
87	55.2275	-3.4935	-1.2880	-45.9381	5.7940	1.2880
88	58.7589	-4.3236	-1.0956	-47.8091	6.6241	1.0956
89	61.4849	-5.2893	-0.8722	-48.6022	7.5898	0.8722
90	62.7486	-6.3924	-0.6211	-47.6604	8.6929	0.6214
91	61.8832	-7.6336	-0.3490	-44.3128	9.9341	0.3490
92	58.2172	-9.0070	-0.0633	-37.8984	11.3075	0.0631
93	51.1076	-10.5168	0.2254	-27.7668	12.8173	-0.2251
94	39.9226	-12.1572	0.5030	-13.3013	14.4577	-0.5030
95	24.0807	-13.9232	0.7543	6.0719	16.2236	-0.7542
96	3.0548	-15.8063	0.9600	30.8644	18.1068	-0.9600
97	-23.6114	-17.8008	1.1019	61.5226	20.1013	-1.1019
98	-56.2949	-19.8970	1.1590	98.3992	22.1975	-1.1590
99	-95.2701	-22.0849	1.1078	141.7493	24.3853	-1.1080
100	-140.7123	-24.3495	0.9271	191.7227	26.6500	-0.9270
101	51.9752	-2.1280	-2.3120	-46.4898	4.1407	2.3120
102	47.6918	-2.2431	-2.1739	-42.0047	4.2557	2.1738
103	45.1059	-2.4453	-1.9949	-39.0654	4.4580	1.9949
104	43.9467	-2.7417	-1.7744	-37.3875	4.7543	1.7745
105	43.8860	-3.1380	-1.5147	-36.6331	5.1506	1.5147
106	44.5546	-3.6401	-1.2197	-36.4232	5.6528	1.2199
107	45.5411	-4.2547	-0.8899	-36.3335	6.2673	0.8899
108	46.3897	-4.9835	-0.5336	-35.9064	6.9961	0.5336
109	46.6194	-5.8281	-0.1545	-34.6579	7.8408	0.1546
110	45.7326	-6.7932	0.2395	-32.0814	8.8059	-0.2394
111	43.2170	-7.8771	0.6395	-27.6695	9.8898	-0.6392
112	38.5635	-9.0770	1.0351	-20.9169	11.0897	-1.0350
113	31.2794	-10.3936	1.4154	-11.3284	12.4063	-1.4155
114	20.8847	-11.8236	1.7690	1.5688	13.8363	-1.7690

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	6.9291	-13.3627	2.0803	18.2192	15.3754	-2.0802
116	-10.9972	-15.0026	2.3355	39.0164	17.0152	-2.3355
117	-33.2504	-16.7408	2.5182	64.3114	18.7534	-2.5182
118	-60.1310	-18.5692	2.6115	94.3908	20.5818	-2.6115
119	-91.8719	-20.4781	2.5999	129.4725	22.4908	-2.5998
120	-128.6326	-22.4579	2.4670	169.6983	24.4705	-2.4670
121	55.0956	-2.3965	-2.8774	-49.1394	4.4092	2.8774
122	50.1980	-2.5055	-2.7242	-44.0517	4.5182	2.7242
123	46.9486	-2.6986	-2.5230	-40.4638	4.7113	2.5230
124	45.1044	-2.9824	-2.2756	-38.1229	4.9951	2.2755
125	44.3646	-3.3647	-1.9847	-36.7139	5.3774	1.9846
126	44.3808	-3.8517	-1.6537	-35.8784	5.8644	1.6537
127	44.7593	-4.4489	-1.2847	-35.2105	6.4616	1.2850
128	45.0554	-5.1600	-0.8867	-34.2626	7.1727	0.8867
129	44.7985	-5.9886	-0.4642	-32.5559	8.0013	0.4641
130	43.4937	-6.9353	-0.0259	-29.5942	8.9480	0.0260
131	40.6330	-8.0019	0.4194	-24.8663	10.0146	-0.4193
132	35.7049	-9.1852	0.8606	-17.8675	11.1979	-0.8606
133	28.2103	-10.4864	1.2850	-8.0961	12.4991	-1.2851
134	17.6642	-11.9014	1.6790	4.9274	13.9141	-1.6789
135	3.6069	-13.4288	2.0282	21.6568	15.4415	-2.0281
136	-14.3816	-15.0607	2.3157	42.5022	17.0734	-2.3158
137	-36.6747	-16.7910	2.5254	67.8240	18.8037	-2.5251
138	-63.5859	-18.6144	2.6400	97.9261	20.6271	-2.6401
139	-95.3646	-20.5201	2.6394	133.0398	22.5328	-2.6394
140	-132.1825	-22.4994	2.5069	173.3218	24.5121	-2.5069
141	51.7443	-2.5596	-0.0590	-45.2753	4.6294	0.0590
142	46.3345	-2.6685	0.0725	-39.6697	4.7382	-0.0725
143	42.6511	-2.8615	0.2331	-35.6391	4.9313	-0.2331
144	40.4545	-3.1465	0.4206	-32.9301	5.2162	-0.4207
145	39.4395	-3.5312	0.6309	-31.2221	5.6010	-0.6309
146	39.2504	-4.0220	0.8589	-30.1494	6.0917	-0.8589
147	39.4766	-4.6240	1.1008	-29.2917	6.6938	-1.1006
148	39.6623	-5.3435	1.3537	-28.1839	7.4132	-1.3535
149	39.3153	-6.1812	1.6091	-26.3292	8.2509	-1.6093
150	37.9174	-7.1417	1.8645	-23.2018	9.2115	-1.8644
151	34.9292	-8.2230	2.1122	-18.2687	10.2928	-2.1124
152	29.8160	-9.4270	2.3455	-10.9860	11.4967	-2.3454
153	22.0404	-10.7525	2.5567	-0.8259	12.8222	-2.5566
154	11.0837	-12.1946	2.7392	12.7283	14.2644	-2.7386
155	-3.5454	-13.7532	2.8818	30.1606	15.8230	-2.8820
156	-22.3017	-15.4206	2.9777	51.9178	17.4903	-2.9779
157	-45.5918	-17.1908	3.0170	78.3949	19.2606	-3.0169
158	-73.7655	-19.0572	2.9897	109.9277	21.1270	-2.9897
159	-107.1018	-21.0114	2.8887	146.7798	23.0812	-2.8884
160	-145.8066	-23.0434	2.7026	189.1428	25.1132	-2.7023
161	46.4605	-1.3285	0.2102	-41.5023	3.6288	-0.2102
162	42.7806	-1.4510	0.2433	-37.5787	3.7512	-0.2433
163	41.1962	-1.6669	0.2548	-35.5612	3.9671	-0.2548
164	41.4164	-1.9865	0.2525	-35.1430	4.2868	-0.2526
165	43.0663	-2.4176	0.2437	-35.9312	4.7178	-0.2438
166	45.7055	-2.9668	0.2363	-37.4701	5.2671	-0.2362
167	48.8270	-3.6431	0.2340	-39.2412	5.9434	-0.2340
168	51.8660	-4.4479	0.2401	-40.6676	6.7482	-0.2399
169	54.2071	-5.3887	0.2590	-41.1294	7.6890	-0.2591
170	55.2055	-6.4654	0.2887	-39.9731	8.7656	-0.2887
171	54.1963	-7.6787	0.3291	-36.5372	9.9790	-0.3289
172	50.5161	-9.0277	0.3773	-30.1584	11.3280	-0.3772
173	43.5044	-10.5139	0.4266	-20.1731	12.8142	-0.4265
174	32.5197	-12.1323	0.4706	-5.9510	14.4326	-0.4704

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	16.9628	-13.8768	0.4999	13.0920	16.1770	-0.4998
176	-3.7104	-15.7426	0.5045	37.4991	18.0429	-0.5043
177	-29.9895	-17.7209	0.4721	67.7336	20.0211	-0.4722
178	-62.2741	-19.8028	0.3909	104.1842	22.1031	-0.3909
179	-100.8776	-21.9818	0.2477	147.1460	24.2820	-0.2477
180	-146.0161	-24.2426	0.0268	196.8073	26.5428	-0.0267
181	36.0776	-0.2676	-0.1686	-33.3675	2.5107	0.1685
182	34.7657	-0.3947	-0.1488	-31.8084	2.6378	0.1488
183	35.5065	-0.6182	-0.1449	-32.1122	2.8613	0.1449
184	37.9796	-0.9461	-0.1494	-33.9466	3.1892	0.1494
185	41.7923	-1.3871	-0.1522	-36.8992	3.6303	0.1523
186	46.4927	-1.9470	-0.1479	-40.5071	4.1901	0.1480
187	51.5697	-2.6314	-0.1341	-44.2489	4.8746	0.1343
188	56.4630	-3.4456	-0.1044	-47.5540	5.6888	0.1045
189	60.5711	-4.3910	-0.0577	-49.8191	6.6341	0.0576
190	63.2738	-5.4712	0.0055	-50.4136	7.7143	-0.0058
191	63.9301	-6.6856	0.0949	-48.7007	8.9287	-0.0948
192	61.9068	-8.0314	0.1755	-44.0536	10.2746	-0.1754
193	56.5903	-9.5066	0.2545	-35.8586	11.7497	-0.2542
194	47.3865	-11.1104	0.3475	-23.5271	13.3535	-0.3476
195	33.7435	-12.8356	0.4310	-6.5180	15.0787	-0.4310
196	15.1636	-14.6758	0.4842	15.6507	16.9189	-0.4842
197	-8.7806	-16.6222	0.5033	43.3905	18.8653	-0.5031
198	-38.4358	-18.6654	0.4743	77.0326	20.9085	-0.4742
199	-74.0574	-20.7978	0.3902	116.8128	23.0409	-0.3903
200	-115.8009	-23.0054	0.2016	162.8615	25.2485	-0.2016
201	30.8822	0.4856	-0.1286	-30.4238	1.1359	0.1286
202	31.2679	0.4112	-0.0904	-30.7052	1.2103	0.0904
203	32.8285	0.2825	-0.0720	-32.0839	1.3390	0.0720
204	35.4399	0.0961	-0.0583	-34.4333	1.5254	0.0583
205	38.9535	-0.1539	-0.0280	-37.5937	1.7754	0.0280
206	43.1906	-0.4729	-0.0214	-41.3807	2.0945	0.0215
207	47.9459	-0.8632	-0.0078	-45.5864	2.4847	0.0079
208	52.9886	-1.3295	0.0779	-49.9722	2.9510	-0.0782
209	58.0576	-1.8758	0.1138	-54.2696	3.4973	-0.1139
210	62.8663	-2.5066	0.1568	-58.1896	4.1281	-0.1568
211	67.1073	-3.2193	0.2366	-61.4258	4.8408	-0.2364
212	70.4586	-4.0211	0.3228	-63.6454	5.6426	-0.3228
213	72.5689	-4.9161	0.3868	-64.4945	6.5377	-0.3866
214	73.0753	-5.8991	0.4500	-63.6132	7.5207	-0.4500
215	71.6081	-6.9778	0.5650	-60.6266	8.5993	-0.5651
216	67.7756	-8.1546	0.6311	-55.1359	9.7762	-0.6311
217	61.1777	-9.4285	0.6963	-46.7405	11.0501	-0.6962
218	51.4008	-10.8015	0.7796	-35.0273	12.4231	-0.7794
219	38.0323	-12.2716	0.8331	-19.5877	13.8931	-0.8327
220	20.6595	-13.8413	0.8466	-0.0010	15.4629	-0.8468
221	17.5946	-8.3783	0.0000	0.0000	8.3783	0.0000
222	18.8304	-8.9662	0.0000	0.0000	8.9662	0.0000
223	53.4539	-25.4545	0.0000	0.0000	25.4545	0.0000
224	53.3581	-25.4086	0.0000	0.0000	25.4086	0.0000
225	56.1236	-26.7252	0.0000	0.0000	26.7252	0.0000
226	55.9218	-26.6295	0.0000	0.0000	26.6295	0.0000
227	56.6730	-26.9871	0.0000	0.0000	26.9871	0.0000
228	56.6884	-26.9942	0.0000	0.0000	26.9942	0.0000
229	57.9170	-27.5803	0.0000	0.0000	27.5803	0.0000
230	55.5551	-26.4549	0.0000	0.0000	26.4549	0.0000
231	52.3831	-24.9447	0.0000	0.0000	24.9447	0.0000
232	55.2416	-26.3052	0.0000	0.0000	26.3052	0.0000
233	54.9850	-26.1835	0.0000	0.0000	26.1835	0.0000
234	54.5704	-25.9858	0.0000	0.0000	25.9858	0.0000
235	49.6501	-23.6434	0.0000	0.0000	23.6434	0.0000
236	49.5528	-23.5967	0.0000	0.0000	23.5967	0.0000
237	15.8122	-7.5302	0.0000	0.0000	7.5302	0.0000
238	16.6588	-7.9325	0.0000	0.0000	7.9325	0.0000

ENVOLVENTE DE MAX. TORSORES CON SOBRECARGA UNIFORME

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0000	-0.1216	0.0225	0.1988	0.1216	-0.0225
2	0.5228	-0.1511	0.2840	-0.2755	0.1511	-0.2840
3	2.2993	-0.2395	0.8044	-1.9084	0.2395	-0.8044
4	5.0438	-0.3862	1.5874	-4.4121	0.3862	-1.5874
5	8.4663	-0.5912	2.6379	-7.4995	0.5912	-2.6379
6	12.2885	-0.8539	3.9572	-10.8918	0.8539	-3.9572
7	16.2372	-1.1728	5.5481	-14.3201	1.1728	-5.5481
8	20.0442	-1.5471	7.4118	-17.5146	1.5471	-7.4117
9	23.4676	-1.9744	9.5476	-20.2393	1.9744	-9.5476
10	26.2499	-2.4550	11.9563	-22.2359	2.4550	-11.9563
11	28.1642	-2.9867	14.6366	-23.2812	2.9867	-14.6366
12	28.9260	-3.5722	17.5878	-23.0858	3.5722	-17.5877
13	28.4576	-4.2006	20.8069	-21.5892	4.2006	-20.8069
14	28.7186	-4.7697	24.2918	-20.9199	4.7697	-24.2918
15	25.5648	-5.4729	28.0434	-16.6164	5.4729	-28.0434
16	25.8399	-6.0054	32.0559	-16.0217	6.0054	-32.0559
17	22.5762	-6.6664	36.3327	-11.6757	6.6664	-36.3328
18	14.4677	-7.4776	40.8652	-2.2422	7.4776	-40.8652
19	4.0573	-8.3281	45.6466	9.5594	8.3281	-45.6465
20	-9.1518	-9.2287	50.6731	24.2412	9.2287	-50.6731
21	-38.4017	1.1417	1.4664	36.1195	-1.1417	-1.4664
22	-35.5629	1.1219	1.7019	33.3208	-1.1219	-1.7019
23	-31.6503	1.0610	2.2609	29.5293	-1.0610	-2.2609
24	-26.7651	0.9528	3.1480	24.8599	-0.9528	-3.1480
25	-21.0684	0.7929	4.3665	19.4834	-0.7929	-4.3665
26	-14.7608	0.5767	5.9201	13.6077	-0.5767	-5.9202
27	-8.0745	0.3014	7.8119	7.4726	-0.3014	-7.8120
28	-1.2730	-0.0375	10.0436	1.3478	0.0375	-10.0436
29	5.3588	-0.4409	12.6171	-4.4772	0.4409	-12.6171
30	11.4952	-0.9117	15.5325	-9.6722	0.9117	-15.5325
31	16.9073	-1.4436	18.7896	-14.0203	1.4436	-18.7896
32	22.4520	-1.9485	22.3878	-18.5550	1.9485	-22.3879
33	25.3556	-2.6252	26.3259	-20.1062	2.6252	-26.3258
34	31.2857	-3.0876	30.6022	-25.1126	3.0876	-30.6022
35	32.9372	-3.7858	35.2149	-25.3671	3.7858	-35.2150
36	30.8458	-4.6303	40.1549	-21.5878	4.6303	-40.1548
37	25.9896	-5.5424	45.4156	-14.9065	5.5424	-45.4156
38	17.7749	-6.5325	50.9895	-4.7126	6.5325	-50.9895
39	6.7806	-7.5618	56.8691	8.3391	7.5618	-56.8691
40	-7.8082	-8.6509	63.0469	25.1060	8.6509	-63.0469
41	-49.2927	1.5037	1.7071	46.2849	-1.5037	-1.7071
42	-45.4132	1.4731	1.9286	42.4666	-1.4731	-1.9286
43	-40.3385	1.3940	2.4772	37.5494	-1.3940	-2.4772
44	-34.2492	1.2639	3.3572	31.7214	-1.2639	-3.3572
45	-26.2185	1.0311	4.5720	24.1555	-1.0311	-4.5721
46	-14.4635	0.5828	6.1300	13.2968	-0.5828	-6.1300
47	-7.6747	0.3061	8.0292	7.0622	-0.3061	-8.0292
48	-0.7862	-0.0358	10.2691	0.8578	0.0358	-10.2691
49	5.9084	-0.4442	12.8507	-5.0197	0.4442	-12.8506
50	12.0971	-0.9188	15.7747	-10.2583	0.9188	-15.7747
51	17.4687	-1.4609	19.0398	-14.5472	1.4609	-19.0398
52	21.9735	-2.0483	22.6447	-17.8750	2.0483	-22.6447
53	25.7110	-2.6638	26.5874	-20.3825	2.6638	-26.5874
54	27.0813	-3.3919	30.8658	-20.2977	3.3919	-30.8658
55	32.2327	-3.8836	35.4797	-24.4649	3.8836	-35.4799
56	30.6072	-4.6998	40.4223	-21.2064	4.6998	-40.4223
57	25.6153	-5.6152	45.6849	-14.3838	5.6152	-45.6850
58	17.2636	-6.6063	51.2603	-4.0492	6.6063	-51.2603
59	6.1240	-7.6366	57.1406	9.1517	7.6366	-57.1406
60	-8.6122	-8.7261	63.3196	26.0673	8.7261	-63.3195
61	-52.8973	1.6150	1.7988	49.6672	-1.6150	-1.7988
62	-49.0777	1.5941	2.0142	45.8895	-1.5941	-2.0142
63	-43.8062	1.5183	2.5553	40.7695	-1.5183	-2.5553
64	-37.9401	1.4069	3.4277	35.1263	-1.4069	-3.4277
65	-30.7776	1.2230	4.6337	28.3312	-1.2230	-4.6337
66	-22.3406	0.9470	6.1775	20.4460	-0.9470	-6.1775
67	-8.1792	0.3232	8.0664	7.5333	-0.3232	-8.0664
68	0.3236	-0.1116	10.3015	-0.1013	0.1116	-10.3017
69	6.8617	-0.5199	12.8802	-5.8233	0.5199	-12.8802
70	12.8920	-0.9947	15.8001	-10.9037	0.9947	-15.8000
71	18.0937	-1.5366	19.0618	-15.0219	1.5366	-19.0620
72	22.1949	-2.1432	22.6623	-17.9108	2.1432	-22.6624
73	24.7274	-2.8221	26.6003	-19.0847	2.8221	-26.6003
74	25.5245	-3.5628	30.8722	-18.4017	3.5628	-30.8721
75	31.9965	-3.9694	35.4765	-24.0609	3.9694	-35.4765
76	29.6154	-4.8131	40.4159	-19.9911	4.8131	-40.4160
77	23.9847	-5.7452	45.6734	-12.4956	5.7452	-45.6735
78	15.3851	-6.7352	51.2426	-1.9179	6.7352	-51.2425
79	3.6318	-7.7778	57.1170	11.9204	7.7778	-57.1171
80	-11.3844	-8.8673	63.2887	29.1175	8.8673	-63.2887
81	-43.8727	1.6770	1.7266	40.5184	-1.6770	-1.7266
82	-36.4434	1.5358	1.9678	33.3722	-1.5358	-1.9678
83	-30.9789	1.4458	2.5550	28.0879	-1.4458	-2.5550
84	-25.2047	1.3290	3.4889	22.5467	-1.3290	-3.4888
85	-18.6616	1.1592	4.7721	16.3422	-1.1592	-4.7721
86	-11.5484	0.9317	6.4096	9.6852	-0.9317	-6.4095
87	-4.1035	0.6424	8.4025	2.8185	-0.6424	-8.4026
88	3.4008	0.2888	10.7533	-3.9772	-0.2888	-10.7534
89	10.6515	-0.1325	13.4628	-10.3861	0.1325	-13.4628
90	17.3305	-0.6203	16.5280	-16.0882	0.6203	-16.5280
91	23.1033	-1.1794	19.9480	-20.7442	1.1794	-19.9480
92	27.6304	-1.8076	23.7200	-24.0138	1.8076	-23.7201
93	30.5736	-2.5034	27.8381	-25.5642	2.5034	-27.8381
94	31.6027	-3.2682	32.2967	-25.0635	3.2682	-32.2966
95	30.4046	-4.0996	37.0877	-22.2029	4.0996	-37.0877
96	26.6868	-4.9927	42.2038	-16.6987	4.9927	-42.2038
97	20.1877	-5.9466	47.6347	-8.2910	5.9466	-47.6347
98	10.6824	-6.9573	53.3696	3.2347	6.9573	-53.3696
99	-2.0127	-8.0187	59.3980	18.0536	8.0187	-59.3979
100	-18.0283	-9.1256	65.7070	36.2832	9.1256	-65.7070
101	12.3014	-0.0842	0.9904	-12.1549	0.0842	-0.9904
102	13.0595	-0.1199	1.1828	-12.8500	0.1199	-1.1828
103	14.6183	-0.1946	1.6983	-14.2771	0.1946	-1.6983
104	16.8704	-0.3129	2.5377	-16.3224	0.3129	-2.5377
105	19.6745	-0.4780	3.7001	-18.8378	0.4780	-3.7001
106	22.8614	-0.6938	5.1829	-21.6480	0.6938	-5.1829
107	26.2408	-0.9630	6.9857	-24.5559	0.9630	-6.9856
108	29.6007	-1.2877	9.1069	-27.3465	1.2877	-9.1069
109	32.7084	-1.6697	11.5406	-29.7862	1.6697	-11.5406
110	35.3218	-2.1119	14.2861	-31.6264	2.1119	-14.2861
111	37.1876	-2.6126	17.3374	-32.6156	2.6126	-17.3374
112	38.0483	-3.1703	20.6907	-32.4996	3.1703	-20.6906
113	37.6551	-3.7884	24.3396	-31.0251	3.7884	-24.3396
114	35.7564	-4.4654	28.2789	-27.9414	4.4654	-28.2790

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	32.1131	-5.1997	32.5007	-23.0127	5.1997	-32.5007
116	26.5030	-5.9856	36.9981	-16.0271	5.9856	-36.9980
117	18.7306	-6.8243	41.7625	-6.7870	6.8243	-41.7626
118	8.6189	-7.7126	46.7865	4.8787	7.7126	-46.7866
119	-3.9756	-8.6451	52.0605	19.1062	8.6451	-52.0605
120	-19.1632	-9.6182	57.5762	35.9963	9.6182	-57.5762
121	10.2599	0.0153	1.1660	-10.2864	-0.0153	-1.1660
122	11.2153	-0.0211	1.3622	-11.1782	0.0211	-1.3622
123	12.9248	-0.0949	1.8862	-12.7583	0.0949	-1.8862
124	15.2962	-0.2111	2.7367	-14.9266	0.2111	-2.7366
125	18.2022	-0.3723	3.9121	-17.5513	0.3723	-3.9120
126	21.4867	-0.5830	5.4121	-20.4662	0.5830	-5.4121
127	24.9686	-0.8465	7.2334	-23.4882	0.8465	-7.2333
128	28.4443	-1.1668	9.3731	-26.4028	1.1668	-9.3730
129	31.6831	-1.5418	11.8285	-28.9853	1.5418	-11.8285
130	34.4511	-1.9765	14.5960	-30.9927	1.9765	-14.5959
131	36.4950	-2.4712	17.6700	-32.1699	2.4712	-17.6699
132	37.5582	-3.0229	21.0464	-32.2675	3.0229	-21.0464
133	37.3886	-3.6360	24.7184	-31.0247	3.6360	-24.7184
134	35.7324	-4.3079	28.6792	-28.1928	4.3079	-28.6792
135	32.3471	-5.0378	32.9212	-23.5303	5.0378	-32.9212
136	27.0059	-5.8230	37.4366	-16.8148	5.8230	-37.4365
137	19.5000	-6.6609	42.2165	-7.8436	6.6609	-42.2166
138	9.6508	-7.5494	47.2531	3.5615	7.5494	-47.2531
139	-2.6973	-8.4836	52.5355	17.5446	8.4836	-52.5354
140	-17.6595	-9.4595	58.0543	34.2138	9.4595	-58.0543
141	7.1485	0.0697	0.3708	-7.2734	-0.0697	-0.3708
142	8.2949	0.0317	0.5617	-8.3514	-0.0317	-0.5617
143	10.2127	-0.0431	1.0771	-10.1354	0.0431	-1.0771
144	12.8202	-0.1579	1.9143	-12.5356	0.1579	-1.9142
145	15.9977	-0.3182	3.0702	-15.4244	0.3182	-3.0703
146	19.5915	-0.5273	4.5436	-18.6419	0.5273	-4.5436
147	23.4222	-0.7882	6.3306	-22.0033	0.7882	-6.3305
148	27.2856	-1.1030	8.4302	-25.2995	1.1030	-8.4304
149	31.0450	-1.4637	10.8381	-28.4100	1.4637	-10.8382
150	34.3008	-1.8947	13.5531	-30.8904	1.8947	-13.5531
151	36.8615	-2.3862	16.5694	-32.5667	2.3862	-16.5693
152	38.4636	-2.9366	19.8843	-33.1782	2.9366	-19.8842
153	38.8452	-3.5492	23.4957	-32.4574	3.5492	-23.4958
154	37.7399	-4.2200	27.3966	-30.1441	4.2200	-27.3966
155	34.8963	-4.9498	31.5843	-25.9875	4.9498	-31.5844
156	30.0779	-5.7342	36.0530	-19.7571	5.7342	-36.0530
157	23.0693	-6.5739	40.7982	-11.2368	6.5739	-40.7982
158	13.6741	-7.4624	45.8160	-0.2435	7.4624	-45.8159
159	1.7357	-8.3989	51.0993	13.3803	8.3989	-51.0993
160	-12.8767	-9.3777	56.6448	29.7544	9.3777	-56.6448
161	-43.2759	1.3829	1.6464	40.5095	-1.3829	-1.6464
162	-39.9683	1.3644	1.8740	37.2388	-1.3644	-1.8740
163	-35.6008	1.3047	2.4261	32.9904	-1.3047	-2.4262
164	-30.2704	1.1978	3.3059	27.8747	-1.1978	-3.3059
165	-24.1408	1.0401	4.5161	22.0599	-1.0401	-4.5161
166	-17.3971	0.8258	6.0610	15.7452	-0.8258	-6.0610
167	-10.2734	0.5511	7.9433	9.1705	-0.5511	-7.9434
168	-3.0302	0.2148	10.1644	2.6003	-0.2148	-10.1644
169	4.0501	-0.1874	12.7272	-3.6757	0.1874	-12.7272
170	10.6573	-0.6577	15.6309	-9.3427	0.6577	-15.6309
171	16.4628	-1.1971	18.8759	-14.0684	1.1971	-18.8758
172	21.1289	-1.8059	22.4608	-17.5163	1.8059	-22.4611
173	24.2814	-2.4804	26.3842	-19.3200	2.4804	-26.3843
174	25.6351	-3.2240	30.6421	-19.1870	3.2240	-30.6423

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	24.8589	-4.0315	35.2306	-16.7955	4.0315	-35.2306
176	21.6698	-4.9052	40.1448	-11.8585	4.9052	-40.1446
177	15.7890	-5.8361	45.3788	-4.1155	5.8361	-45.3788
178	10.3536	-6.6893	50.9287	3.0258	6.6893	-50.9288
179	0.1875	-7.6749	56.7912	15.1633	7.6749	-56.7912
180	-13.8011	-8.7358	62.9561	31.2738	8.7358	-62.9560
181	-54.0255	1.7911	1.9168	50.5323	-1.7911	-1.9168
182	-50.0082	1.7721	2.1285	46.5522	-1.7721	-2.1285
183	-44.9284	1.7100	2.6559	41.5929	-1.7100	-2.6559
184	-38.6470	1.5891	3.5046	35.5469	-1.5891	-3.5047
185	-31.8662	1.4271	4.6779	29.0830	-1.4271	-4.6778
186	-24.1721	1.1906	6.1795	21.8498	-1.1906	-6.1795
187	-16.0926	0.8886	8.0120	14.3602	-0.8886	-8.0120
188	-7.5077	0.4911	10.1785	6.5505	-0.4911	-10.1786
189	3.3484	-0.1580	12.6824	-3.0405	0.1580	-12.6824
190	10.1199	-0.6648	15.5241	-8.8243	0.6648	-15.5241
191	16.2877	-1.2737	18.7016	-13.8031	1.2737	-18.7015
192	20.4331	-1.8805	22.2070	-16.7649	1.8805	-22.2070
193	23.1061	-2.5533	26.0379	-18.1255	2.5533	-26.0379
194	24.0450	-3.3043	30.2017	-17.6001	3.3043	-30.2016
195	22.8284	-4.1100	34.6892	-14.8112	4.1100	-34.6892
196	19.2621	-4.9731	39.4849	-9.5611	4.9731	-39.4849
197	13.0999	-5.8939	44.5923	-1.6034	5.8939	-44.5923
198	4.1397	-6.8654	50.0051	9.2513	6.8654	-50.0049
199	-7.7224	-7.8762	55.7158	23.0871	7.8762	-55.7159
200	-22.7238	-8.9439	61.7122	40.1694	8.9439	-61.7124
201	-53.9532	1.9149	2.0730	51.2538	-1.9149	-2.0730
202	-48.9292	1.8282	2.2405	46.3517	-1.8282	-2.2405
203	-40.8955	1.6132	2.6655	38.6215	-1.6132	-2.6656
204	-31.2634	1.3053	3.3318	29.4222	-1.3053	-3.3319
205	-26.7648	1.1881	4.2155	25.0900	-1.1881	-4.2155
206	-20.4820	0.9710	5.3480	19.1132	-0.9710	-5.3480
207	-15.9304	0.8109	6.7078	14.7862	-0.8109	-6.7078
208	-10.7857	0.5930	8.2841	9.9489	-0.5930	-8.2841
209	-5.9801	0.3598	10.1074	5.4724	-0.3598	-10.1077
210	-1.2326	0.0884	12.1628	1.1075	-0.0884	-12.1628
211	3.3294	-0.2269	14.4505	-3.0092	0.2269	-14.4508
212	7.5429	-0.5837	16.9735	-6.7202	0.5837	-16.9735
213	11.2475	-0.9853	19.7252	-9.8590	0.9853	-19.7252
214	14.2675	-1.4301	22.7066	-12.2508	1.4301	-22.7067
215	16.4060	-1.9230	25.9282	-13.6934	1.9230	-25.9281
216	17.4980	-2.4624	29.3683	-14.0252	2.4624	-29.3683
217	17.3344	-3.0504	33.0359	-13.0335	3.0504	-33.0360
218	15.6940	-3.6874	36.9367	-10.4946	3.6874	-36.9366
219	12.3965	-4.3728	41.0562	-6.2315	4.3728	-41.0561
220	7.2561	-5.1085	45.3888	-0.0537	5.1085	-45.3887
221	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
222	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
224	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
225	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
226	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
227	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
228	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
229	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
230	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
231	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
232	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
233	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
234	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
235	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
236	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
237	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
238	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

ENVOLVENTE DE MIN. TORSORES CON SOBRECARGA UNIFORME

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0157	6.2112	-52.2687	-10.1712	-6.2112	52.2687
2	8.8366	5.3592	-47.2140	-17.5998	-5.3592	47.2140
3	15.0510	4.5659	-42.4097	-22.5175	-4.5659	42.4097
4	18.9457	3.8304	-37.8619	-25.2084	-3.8304	37.8619
5	20.8012	3.1531	-33.5748	-25.9575	-3.1531	33.5748
6	20.8963	2.5316	-29.5538	-25.0352	-2.5316	29.5538
7	19.4957	1.9657	-25.8011	-22.7092	-1.9657	25.8011
8	16.8652	1.4563	-22.3196	-19.2467	-1.4563	22.3196
9	13.2577	0.9982	-19.1129	-14.8899	-0.9982	19.1129
10	8.8987	0.5924	-16.1798	-9.8677	-0.5924	16.1799
11	4.0326	0.2354	-13.5236	-4.4184	-0.2354	13.5236
12	-1.1495	-0.0726	-11.1416	1.2681	0.0726	11.1417
13	-6.5490	-0.3406	-9.0361	7.1060	0.3406	9.0361
14	-12.3322	-0.5849	-7.2046	13.2889	0.5849	7.2046
15	-19.8640	-0.8718	-5.6508	21.2887	0.8718	5.6507
16	-31.3014	-1.2791	-4.3705	33.3930	1.2791	4.3705
17	-38.6041	-1.4766	-3.3688	41.0175	1.4766	3.3688
18	-43.7834	-1.5759	-2.6393	46.3603	1.5759	2.6393
19	-48.1374	-1.6359	-2.1771	50.8122	1.6359	2.1771
20	-51.2360	-1.6495	-1.9800	53.9324	1.6495	1.9800
21	-40.4560	9.2390	-63.2481	21.9818	-9.2390	63.2481
22	-22.5360	8.1508	-57.0904	6.2377	-8.1508	57.0904
23	-7.9849	7.1090	-51.2292	-6.2300	-7.1090	51.2291
24	3.3385	6.1195	-45.6722	-15.5757	-6.1195	45.6722
25	11.6323	5.1858	-40.4259	-22.0010	-5.1858	40.4259
26	17.1156	4.3106	-35.4968	-25.7356	-4.3106	35.4968
27	20.0470	3.4993	-30.8925	-27.0446	-3.4993	30.8925
28	20.7144	2.7532	-26.6174	-26.2195	-2.7532	26.6174
29	19.4139	2.0726	-22.6763	-23.5579	-2.0726	22.6762
30	16.4584	1.4586	-19.0730	-19.3751	-1.4586	19.0730
31	12.0314	0.8985	-15.8085	-13.8291	-0.8985	15.8085
32	6.3650	0.3915	-12.8883	-7.1484	-0.3915	12.8883
33	-0.7514	-0.0929	-10.3120	0.9367	0.0929	10.3120
34	-12.4610	-0.7427	-8.0801	13.9466	0.7427	8.0801
35	-20.6695	-1.0819	-6.1967	22.8325	1.0819	6.1967
36	-28.1675	-1.3282	-4.6551	30.8240	1.3282	4.6551
37	-35.0863	-1.5100	-3.4510	38.1057	1.5100	3.4510
38	-41.1774	-1.6309	-2.5802	44.4385	1.6309	2.5802
39	-46.0922	-1.6914	-2.0395	49.4748	1.6914	2.0395
40	-50.0187	-1.7101	-1.8249	53.4386	1.7101	1.8248
41	-28.7450	8.8674	-63.2476	11.0076	-8.8674	63.2476
42	-11.6308	7.7805	-57.0743	-3.9332	-7.7805	57.0743
43	1.7192	6.7562	-51.1996	-15.2329	-6.7562	51.1997
44	11.7979	5.7874	-45.6326	-23.3738	-5.7874	45.6326
45	17.6698	4.9279	-40.3792	-27.5267	-4.9279	40.3793
46	17.7053	4.2839	-35.4517	-26.2739	-4.2839	35.4517
47	20.5013	3.4760	-30.8507	-27.4548	-3.4760	30.8506
48	21.0498	2.7339	-26.5803	-26.5182	-2.7339	26.5802
49	19.6597	2.0583	-22.6435	-23.7767	-2.0583	22.6435
50	16.6271	1.4488	-19.0439	-19.5246	-1.4488	19.0439
51	12.2528	0.9021	-15.7840	-14.0572	-0.9021	15.7840
52	6.8198	0.4176	-12.8648	-7.6550	-0.4176	12.8648
53	-0.2799	-0.0641	-10.2892	0.4077	0.0641	10.2892
54	-6.8396	-0.4142	-8.0567	7.6682	0.4142	8.0567

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
55	-19.4283	-1.0099	-6.1694	21.4482	1.0099	6.1694
56	-27.4324	-1.2835	-4.6266	30.0006	1.2835	4.6266
57	-34.2755	-1.4642	-3.4208	37.2042	1.4642	3.4207
58	-39.9687	-1.5719	-2.5474	43.1133	1.5719	2.5474
59	-45.1274	-1.6450	-2.0053	48.4175	1.6450	2.0053
60	-48.9856	-1.6645	-1.7893	52.3157	1.6645	1.7893
61	-25.4806	8.7471	-63.2493	7.9895	-8.7471	63.2493
62	-8.5960	7.6602	-57.0715	-6.7210	-7.6602	57.0715
63	4.5422	6.6349	-51.1929	-17.8095	-6.6349	51.1930
64	14.8395	5.6485	-45.6203	-26.1353	-5.6485	45.6204
65	21.6023	4.7401	-40.3616	-31.0806	-4.7401	40.3615
66	24.1169	3.9645	-35.4233	-32.0450	-3.9645	35.4234
67	20.4045	3.4611	-30.8160	-27.3251	-3.4611	30.8161
68	20.9313	2.7199	-26.5436	-26.3705	-2.7199	26.5437
69	18.2562	2.1280	-22.6065	-22.5116	-2.1280	22.6065
70	15.2663	1.5309	-19.0075	-18.3279	-1.5309	19.0074
71	11.1461	0.9921	-15.7478	-13.1300	-0.9921	15.7478
72	6.0790	0.5217	-12.8289	-7.1217	-0.5217	12.8288
73	0.3787	0.1167	-10.2517	-0.6123	-0.1167	10.2518
74	-6.0309	-0.2461	-8.0145	6.5228	0.2461	8.0145
75	-19.6218	-0.9102	-6.1233	21.4420	0.9102	6.1232
76	-26.7978	-1.1550	-4.5789	29.1078	1.1550	4.5789
77	-32.9356	-1.3165	-3.3713	35.5668	1.3165	3.3713
78	-38.4141	-1.4279	-2.4969	41.2690	1.4279	2.4969
79	-42.9394	-1.4888	-1.9506	45.9167	1.4888	1.9506
80	-46.4792	-1.5080	-1.7304	49.4933	1.5080	1.7304
81	-34.8028	8.7429	-60.4949	17.3141	-8.7429	60.4948
82	-21.2962	7.7736	-54.3565	5.7460	-7.7736	54.3565
83	-8.0336	6.7546	-48.5373	-5.4784	-6.7546	48.5372
84	2.4507	5.7753	-43.0398	-14.0031	-5.7753	43.0399
85	9.9506	4.8533	-37.8717	-19.6583	-4.8533	37.8718
86	14.6944	3.9920	-33.0392	-22.6791	-3.9920	33.0393
87	16.9406	3.1957	-28.5484	-23.3335	-3.1957	28.5484
88	16.9908	2.4667	-24.4037	-21.9245	-2.4667	24.4038
89	15.1641	1.8056	-20.6070	-18.7757	-1.8056	20.6069
90	11.7922	1.2143	-17.1619	-14.2201	-1.2143	17.1617
91	7.2163	0.6917	-14.0678	-8.5994	-0.6917	14.0677
92	1.7751	0.2390	-11.3241	-2.2524	-0.2390	11.3241
93	-4.1990	-0.1469	-8.9292	4.4934	0.1469	8.9292
94	-10.3890	-0.4663	-6.8790	11.3216	0.4663	6.8791
95	-16.4975	-0.7219	-5.1697	17.9434	0.7219	5.1697
96	-22.2567	-0.9187	-3.7953	24.0943	0.9187	3.7953
97	-27.4315	-1.0594	-2.7496	29.5511	1.0594	2.7496
98	-31.8331	-1.1484	-2.0247	34.1307	1.1484	2.0247
99	-35.3187	-1.1910	-1.6131	37.7022	1.1910	1.6131
100	-37.7977	-1.1943	-1.5069	40.1877	1.1943	1.5069
101	-70.5064	8.9167	-55.0033	54.9004	-8.9167	55.0033
102	-55.8469	7.9855	-49.6224	41.8712	-7.9855	49.6224
103	-43.7277	7.0980	-44.5454	31.3046	-7.0980	44.5454
104	-34.0105	6.2564	-39.7715	23.0606	-6.2564	39.7715
105	-26.5342	5.4660	-35.3053	16.9673	-5.4660	35.3052
106	-21.1128	4.7278	-31.1448	12.8379	-4.7278	31.1448
107	-17.5393	4.0463	-27.2920	10.4567	-4.0463	27.2920
108	-15.5850	3.4221	-23.7463	9.5952	-3.4221	23.7461
109	-15.0095	2.8566	-20.5056	10.0091	-2.8566	20.5056
110	-15.5597	2.3513	-17.5707	11.4443	-2.3513	17.5707
111	-16.9804	1.9052	-14.9375	13.6463	-1.9052	14.9376
112	-19.0152	1.5163	-12.6038	16.3613	-1.5163	12.6038
113	-21.4173	1.1861	-10.5666	19.3418	-1.1861	10.5667
114	-23.9459	0.9133	-8.8200	22.3470	-0.9133	8.8200

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	-26.3727	0.6956	-7.3611	25.1550	-0.6956	7.3612
116	-28.4930	0.5270	-6.1841	27.5701	-0.5270	6.1842
117	-30.1304	0.4076	-5.2830	29.4159	-0.4076	5.2830
118	-31.1333	0.3340	-4.6515	30.5469	-0.3340	4.6514
119	-31.3835	0.3012	-4.2842	30.8563	-0.3012	4.2843
120	-30.8042	0.3038	-4.1741	30.2719	-0.3038	4.1741
121	-56.6156	8.2439	-55.1116	42.1873	-8.2439	55.1116
122	-43.1105	7.3115	-49.7237	30.3147	-7.3115	49.7237
123	-32.1115	6.4214	-44.6440	20.8730	-6.4214	44.6440
124	-23.4960	5.5761	-39.8733	13.7366	-5.5761	39.8733
125	-17.1145	4.7810	-35.4120	8.7473	-4.7810	35.4118
126	-12.7917	4.0375	-31.2601	5.7265	-4.0375	31.2600
127	-10.3291	3.3501	-27.4184	4.4665	-3.3501	27.4186
128	-9.5037	2.7198	-23.8870	4.7442	-2.7198	23.8870
129	-10.0761	2.1479	-20.6644	6.3186	-2.1479	20.6644
130	-11.8014	1.6354	-17.7479	8.9392	-1.6354	17.7479
131	-14.4203	1.1829	-15.1343	12.3496	-1.1829	15.1341
132	-17.6763	0.7888	-12.8213	16.2960	-0.7888	12.8212
133	-21.3205	0.4547	-10.8058	20.5246	-0.4547	10.8059
134	-25.1048	0.1774	-9.0813	24.7956	-0.1774	9.0815
135	-28.8013	-0.0437	-7.6431	28.8776	0.0437	7.6430
136	-32.1958	-0.2124	-6.4851	32.5676	0.2124	6.4852
137	-35.1020	-0.3313	-5.6017	35.6821	0.3313	5.6017
138	-37.3620	-0.4030	-4.9845	38.0676	0.4030	4.9845
139	-38.8500	-0.4335	-4.6283	39.6093	0.4335	4.6285
140	-39.4797	-0.4275	-4.5249	40.2292	0.4275	4.5249
141	-57.5043	8.5976	-58.2452	42.0313	-8.5976	58.2452
142	-43.0975	7.6504	-52.6847	29.3287	-7.6504	52.6845
143	-31.2199	6.7306	-47.4254	19.1064	-6.7306	47.4254
144	-21.8634	5.8556	-42.4673	11.3239	-5.8556	42.4673
145	-14.8826	5.0302	-37.8093	5.8295	-5.0302	37.8092
146	-10.1038	4.2558	-33.4525	2.4442	-4.2558	33.4527
147	-7.3300	3.5365	-29.3988	0.9652	-3.5365	29.3984
148	-6.3357	2.8746	-25.6460	1.1628	-2.8746	25.6460
149	-6.9692	2.2574	-22.1946	2.9070	-2.2574	22.1946
150	-8.8234	1.7135	-19.0446	5.7401	-1.7135	19.0446
151	-11.6990	1.2308	-16.1966	9.4850	-1.2308	16.1964
152	-15.3307	0.8065	-13.6467	13.8794	-0.8065	13.6470
153	-19.4570	0.4433	-11.3951	18.6596	-0.4433	11.3950
154	-23.8215	0.1374	-9.4407	23.5747	-0.1374	9.4408
155	-28.1846	-0.1117	-7.7811	28.3855	0.1117	7.7811
156	-32.3215	-0.3086	-6.4148	32.8779	0.3086	6.4148
157	-36.0393	-0.4529	-5.3388	36.8543	0.4529	5.3387
158	-39.1630	-0.5528	-4.5516	40.1582	0.5528	4.5516
159	-41.5652	-0.6086	-4.0518	42.6603	0.6086	4.0518
160	-43.1455	-0.6266	-3.8369	44.2736	0.6266	3.8369
161	-31.2255	8.8900	-63.3585	13.4422	-8.8900	63.3585
162	-13.9652	7.7999	-57.1854	-1.6361	-7.7999	57.1854
163	-0.0682	6.7567	-51.3080	-13.4467	-6.7567	51.3080
164	10.6050	5.7654	-45.7337	-22.1379	-5.7654	45.7338
165	18.2450	4.8296	-40.4699	-27.9050	-4.8296	40.4698
166	23.0920	3.9536	-35.5244	-30.9989	-3.9536	35.5243
167	25.3819	3.1405	-30.9018	-31.6639	-3.1405	30.9019
168	25.3946	2.3923	-26.6083	-30.1796	-2.3923	26.6084
169	23.4490	1.7107	-22.6489	-26.8704	-1.7107	22.6486
170	19.8591	1.0979	-19.0268	-22.0551	-1.0979	19.0267
171	14.9553	0.5538	-15.7454	-16.0634	-0.5538	15.7453
172	9.0713	0.0802	-12.8056	-9.2326	-0.0802	12.8054
173	2.5627	-0.3285	-10.2091	-1.9061	0.3285	10.2090
174	-4.2762	-0.6693	-7.9556	5.6151	0.6693	7.9556

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	-11.1372	-0.9456	-6.0447	13.0285	0.9456	6.0446
176	-17.7330	-1.1635	-4.4740	20.0605	1.1635	4.4740
177	-23.8332	-1.3257	-3.2406	26.4842	1.3257	3.2406
178	-33.1664	-1.5928	-2.3453	36.3522	1.5928	2.3452
179	-39.3226	-1.7042	-1.7878	42.7309	1.7042	1.7876
180	-43.6802	-1.7368	-1.5611	47.1538	1.7368	1.5610
181	-26.3892	8.6790	-61.4431	9.4597	-8.6790	61.4431
182	-10.0371	7.6204	-55.4201	-4.8276	-7.6204	55.4200
183	3.0908	6.6095	-49.6879	-15.9828	-6.6095	49.6879
184	12.8946	5.6610	-44.2531	-23.9373	-5.6610	44.2532
185	20.1052	4.7572	-39.1229	-29.3861	-4.7572	39.1230
186	24.3122	3.9320	-34.3049	-31.9818	-3.9320	34.3049
187	26.1158	3.1728	-29.8037	-32.3047	-3.1728	29.8037
188	25.3550	2.5120	-25.6258	-30.2560	-2.5120	25.6258
189	19.8300	2.1360	-21.7772	-23.9958	-2.1360	21.7771
190	17.1584	1.5657	-18.2606	-20.2122	-1.5657	18.2606
191	13.4939	1.0507	-15.0729	-15.5437	-1.0507	15.0727
192	8.3638	0.6725	-12.2240	-9.6759	-0.6725	12.2240
193	3.3974	0.2950	-9.7045	-3.9735	-0.2950	9.7045
194	-1.7699	-0.0222	-7.5149	1.8126	0.0222	7.5148
195	-6.8951	-0.2788	-5.6572	7.4386	0.2788	5.6572
196	-11.7335	-0.4791	-4.1243	12.6687	0.4791	4.1243
197	-16.0738	-0.6263	-2.9166	17.2950	0.6263	2.9166
198	-19.7439	-0.7263	-2.0325	21.1602	0.7263	2.0325
199	-22.6227	-0.7823	-1.4650	24.1484	0.7823	1.4650
200	-24.6771	-0.8076	-1.2200	26.2520	0.8076	1.2200
201	-11.7169	7.7332	-43.5879	0.8131	-7.7332	43.5880
202	-3.0732	7.0300	-39.2624	-6.8397	-7.0300	39.2625
203	0.2309	6.5033	-35.1547	-9.4007	-6.5033	35.1548
204	2.8450	5.9918	-31.2738	-11.2935	-5.9918	31.2739
205	8.6703	5.3246	-27.6095	-16.1779	-5.3246	27.6098
206	13.3764	4.6715	-24.1771	-19.9640	-4.6715	24.1769
207	14.6635	4.1578	-20.9678	-20.5262	-4.1578	20.9677
208	16.6101	3.5933	-17.9631	-21.6765	-3.5933	17.9631
209	17.6131	3.0549	-15.2095	-21.9200	-3.0549	15.2094
210	17.6135	2.5566	-12.6828	-21.2182	-2.5566	12.6829
211	16.6993	2.1064	-10.3778	-19.6699	-2.1064	10.3778
212	15.1288	1.6980	-8.3059	-17.5225	-1.6980	8.3059
213	13.0430	1.3331	-6.4708	-14.9223	-1.3331	6.4709
214	10.6181	1.0151	-4.8657	-12.0492	-1.0151	4.8658
215	8.0367	0.7451	-3.4838	-9.0871	-0.7451	3.4838
216	5.4999	0.5222	-2.3388	-6.2356	-0.5222	2.3388
217	3.2032	0.3481	-1.4204	-3.6939	-0.3481	1.4204
218	1.3532	0.2235	-0.7277	-1.6679	-0.2235	0.7277
219	0.1587	0.1484	-0.2621	-0.3680	-0.1484	0.2621
220	-0.1732	0.1231	-0.0188	0.0000	-0.1231	0.0188
221	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
222	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
224	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
225	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
226	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
227	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
228	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
229	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
230	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
231	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
232	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
233	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
234	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
235	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
236	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
237	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
238	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

ENVOLVENTES DE ESFUERZOS CON IMPACTO

ENVOL. MAX. FLECTORES -IPF

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0913	175.4933	-306.5975	-345.6035	-198.9173	140.1183
2	622.2731	360.0849	278.8022	-1173.3119	-313.2679	-243.1621
3	1173.0645	313.2518	244.2835	-1651.8511	-273.2091	-213.9971
4	1651.6060	273.1783	215.5833	-2056.9355	-226.3605	-180.2286
5	2056.7424	226.3747	182.2079	-2390.4995	-179.5515	-146.9588
6	2390.3313	179.4917	149.2495	-2651.0591	-139.4425	-119.2856
7	2650.9622	139.4519	121.8426	-2838.9402	-92.6541	-86.7428
8	2838.8496	92.7511	89.4850	-2955.7368	-46.3178	-54.9664
9	2955.6667	46.3283	57.8146	-2999.3552	-6.2888	-27.9695
10	2999.2593	6.3270	30.8796	-2970.8660	40.4964	4.1703
11	2970.7986	-40.5851	-1.2785	-2870.5576	80.6343	31.1558
12	2870.5554	-80.6820	-28.3493	-2696.2805	127.5120	63.4797
13	2696.2969	-127.5753	-60.8438	-2450.2805	174.1912	96.5068
14	2450.3867	-174.2018	-94.0916	-2132.6880	214.0170	123.2392
15	2132.7708	-213.9736	-121.0967	-1741.8492	260.7893	156.5155
16	1741.9581	-260.7891	-154.7545	-1279.4719	307.6145	190.3161
17	1280.0321	-303.5179	-185.5795	-773.5120	318.3579	201.0380
18	871.2401	-200.3495	-129.6906	-522.4977	169.8101	116.6390
19	602.6893	-70.9908	-53.7019	-459.4283	104.2474	79.2096
20	525.7111	-15.4711	-18.2579	-473.2270	48.7262	43.7042
21	521.5770	-59.6826	9.3399	-402.2322	59.6812	-9.4019
22	446.9609	-21.9219	36.3312	-362.4601	62.5941	-5.1357
23	475.3099	42.1552	78.7002	-546.8524	-55.8747	-80.1917
24	647.9099	165.7840	155.5752	-970.0032	-151.3792	-142.6356
25	1054.9552	240.3347	220.5942	-1480.5569	-187.5276	-180.6588
26	1615.9176	288.2311	182.7654	-2138.1638	-236.5637	-144.2682
27	2137.9875	236.5218	146.8811	-2554.2244	-183.4554	-107.2611
28	2554.0872	183.4183	110.3692	-2863.8901	-129.1745	-69.6568
29	2863.8765	129.1574	73.1216	-3067.3435	-76.0422	-33.6992
30	3067.2634	76.0740	37.3937	-3163.9309	-22.8984	2.0053
31	3163.8879	22.7956	1.8182	-3153.1777	30.4368	37.6049
32	3153.1770	-30.4118	-33.8113	-3035.4470	84.6419	74.3802
33	3035.5254	-84.6533	-70.7064	-2811.0984	137.8981	110.2607
34	2811.1885	-137.8623	-106.8625	-2479.5024	191.1062	146.5729
35	2479.6870	-191.0740	-143.5637	-2040.7908	244.3373	183.4714
36	2040.9963	-244.3364	-180.9658	-1495.5597	298.5605	222.0239
37	1527.3390	-234.8994	-208.1620	-1020.7341	260.5928	228.7982
38	1116.6929	-167.1965	-158.5756	-772.4691	137.6907	150.2882
39	888.0591	-28.0732	-74.4181	-791.2642	68.7452	105.4906
40	890.1495	35.9914	-31.3342	-921.4552	13.8278	61.7578
41	994.1331	-64.6403	6.0919	-846.5291	73.7875	-6.8797
42	892.5399	-36.0590	34.4537	-779.7125	76.7465	-3.4180
43	898.5690	27.8079	78.0113	-913.4996	12.8791	-46.9631
44	1024.8752	96.6281	123.6469	-1260.4590	-140.1954	-144.0987
45	1356.4905	233.5613	215.0185	-1768.9159	-182.0666	-176.3503
46	1905.6644	275.6940	185.8748	-2400.4441	-222.6851	-146.0975
47	2400.2451	222.7079	149.1129	-2788.9961	-169.6383	-109.4761
48	2788.8367	169.6836	112.9185	-3071.2583	-115.4373	-72.2019
49	3071.1545	115.4380	75.9845	-3247.1853	-62.2953	-36.5422
50	3247.1621	62.3261	40.5165	-3316.3401	-9.1398	-1.0926
51	3316.3906	9.0687	5.1434	-3278.2131	44.1527	34.3099
52	3278.2590	-44.1919	-30.3217	-3132.8911	98.4611	70.8981
53	3133.0244	-98.5578	-67.0849	-2880.6470	151.8182	106.6710
54	2880.7710	-151.8260	-103.1566	-2520.9419	205.0978	142.8994
55	2521.1536	-205.1183	-139.8162	-2053.9307	258.3812	179.7631
56	2054.1262	-258.3934	-177.2447	-1480.3328	312.6498	218.3159
57	1527.2214	-224.2547	-212.3932	-1042.2683	249.7927	233.3683
58	1140.4327	-155.6955	-164.3571	-829.6076	123.9948	157.3429
59	947.2631	-13.9925	-81.7121	-878.5863	54.6797	112.7778
60	978.7592	50.2360	-38.4854	-1038.5576	0.9117	68.3577
61	1111.7700	-66.4535	4.4917	-957.9772	76.9139	-5.8452
62	1004.3154	-39.2148	33.4814	-885.2394	79.8869	-2.4824
63	1004.9491	24.5739	76.8775	-1013.4203	16.0973	-45.8644
64	1126.1212	93.2523	122.1519	-1342.3717	-137.3007	-142.5588
65	1439.7268	230.4313	213.1023	-1845.8046	-178.9315	-174.4414
66	1976.7014	267.4621	183.0313	-2454.9143	-214.4793	-143.2676
67	2454.7510	214.4790	146.3586	-2826.9180	-161.4242	-106.7366
68	2826.7368	161.5181	110.2548	-3092.7681	-107.3106	-69.5478
69	3092.6768	107.2833	73.3520	-3252.3391	-54.1526	-33.9246
70	3252.2532	54.0409	37.9084	-3304.7473	-0.8486	1.5006
71	3304.7158	0.8503	2.5062	-3250.0403	52.3788	36.9278
72	3250.1357	-52.4226	-32.9917	-3088.4202	106.6618	73.5592
73	3088.5703	-106.6123	-69.7888	-2820.2351	159.8324	109.3510
74	2820.3535	-159.7887	-105.9307	-2444.8184	213.0381	145.6534
75	2444.9973	-213.1379	-142.6957	-1961.9473	266.4108	182.6190
76	1962.1471	-266.4415	-180.2403	-1372.5300	320.6686	221.3003
77	1426.7775	-225.0028	-213.4948	-941.3837	250.4694	234.2645
78	1042.3314	-156.2214	-164.6828	-732.9982	124.3404	157.0558
79	853.0946	-14.2703	-81.3176	-783.8981	54.9418	112.3699
80	885.4434	49.9900	-38.1734	-944.7403	1.2518	67.7984
81	1018.3118	-52.5984	-35.2186	-891.9466	63.1689	33.6303
82	938.6227	-25.4984	-5.5092	-846.9186	66.1875	36.5195
83	968.0521	38.0376	41.2125	-1003.4449	2.6508	-10.1889
84	1118.4941	105.9695	95.6051	-1360.5261	-149.3151	-124.2284
85	1459.6681	240.9218	213.1172	-1886.8292	-189.3343	-175.2868
86	1994.9498	262.1656	245.7773	-2462.6179	-209.1349	-206.3449
87	2462.3787	209.1679	209.4660	-2823.9246	-156.0590	-170.1162
88	2823.6946	156.0804	173.6183	-3078.9077	-101.8365	-132.8926
89	3078.7368	101.8522	136.7010	-3227.4329	-48.7084	-97.4750
90	3227.2961	48.7229	101.4492	-3269.0535	4.4682	-62.1640
91	3268.8931	-4.4708	66.1235	-3203.4358	57.7190	-26.7321
92	3203.3311	-57.6648	30.6271	-3031.0759	111.3914	8.0257
93	3031.0823	-111.3335	-4.3660	-2752.0662	165.0969	45.9346
94	2752.0769	-165.0916	-42.5992	-2365.8801	218.3566	82.4633
95	2365.9490	-218.3798	-79.5872	-1872.6310	272.1123	118.8193
96	1872.7744	-272.0803	-116.5433	-1272.8190	325.3093	156.9620
97	1373.0129	-209.8219	-175.0647	-925.6351	235.4783	201.7961
98	1025.8756	-131.9933	-129.1460	-787.9830	99.3167	131.5106
99	883.5286	4.1967	-104.1333	-851.2373	36.4909	135.1850
100	934.6710	52.2980	-43.8195	-997.7929	-0.4548	69.4262
101	1078.0479	-66.2347	-41.9236	-941.8010	77.3887	36.3182
102	976.5881	-28.3688	-28.6360	-895.7836	63.9675	55.7563
103	966.1347	24.5732	25.6319	-977.9830	11.0257	1.5018
104	1056.0148	80.0277	94.2315	-1173.4418	-84.3615	-26.6181
105	1249.6202	166.6207	139.3288	-1560.0580	-159.6153	-209.1167
106	1670.3400	233.2013	305.9951	-2037.9409	-184.3729	-270.1354
107	2037.5984	184.3692	272.4397	-2322.8076	-142.2956	-239.9844
108	2322.5190	142.2669	242.5539	-2524.1526	-93.4074	-206.7302
109	2523.8936	93.3847	209.4881	-2643.2847	-44.5093	-171.9426
110	2643.0312	44.4519	174.8225	-2680.1311	4.7162	-137.8225

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
111	2679.9644	-4.7538	140.7060	-2634.4080	46.8444	-110.0126
112	2634.2534	-46.7758	112.8251	-2505.1658	95.6583	-75.2675
113	2505.0913	-95.6246	77.9628	-2293.7920	144.5019	-41.8232
114	2293.7314	-144.5334	44.2799	-2000.1656	193.6952	-7.1623
115	2000.1309	-193.7376	9.3094	-1623.7391	235.8479	23.3231
116	1623.7477	-235.7695	-21.5672	-1164.0056	284.6457	58.1127
117	1230.2227	-169.9143	-171.8126	-910.9722	196.4903	203.1607
118	985.8107	-103.6524	-174.5980	-833.3740	64.6480	191.5645
119	904.4829	21.3248	-128.7375	-910.6811	14.2729	155.9032
120	985.6033	77.5863	-100.1109	-1087.9589	-29.0170	114.1745
121	1140.0515	-68.9942	-57.6675	-994.2952	81.9658	44.4136
122	1024.2152	-48.7246	-16.7589	-907.7797	84.3227	43.8785
123	991.5689	7.5347	34.3839	-973.5930	28.0642	-7.2508
124	1051.6471	57.6629	68.3865	-1141.8662	-61.4838	-2.7398
125	1226.8347	150.2542	120.5172	-1516.7463	-143.0093	-192.2709
126	1632.4706	240.7635	333.6917	-2013.3196	-191.9377	-297.8994
127	2013.0477	191.9114	300.1375	-2311.4490	-149.8249	-267.7280
128	2311.1714	149.7178	270.2617	-2525.9075	-100.8543	-234.4891
129	2525.6064	100.8722	237.2241	-2658.1443	-51.9933	-199.7136
130	2657.9421	51.9662	202.5914	-2708.2480	-3.0931	-166.7245
131	2708.0583	3.0596	169.6266	-2675.7903	39.3011	-137.8540
132	2675.6492	-39.1795	140.7444	-2559.8843	88.0582	-103.1994
133	2559.7805	-88.0679	105.9565	-2361.8059	136.9576	-69.8354
134	2361.7280	-136.9401	72.3781	-2081.4226	186.1008	-35.2720
135	2081.3340	-186.1187	37.4920	-1718.2695	228.2473	-4.8510
136	1718.2384	-228.2577	6.7233	-1271.7024	277.1510	29.8232
137	1318.0992	-184.9394	-146.8296	-969.3081	212.0709	179.4565
138	1036.5099	-138.5954	-152.8257	-800.3773	103.7575	170.7664
139	896.7130	-12.1958	-139.2358	-844.2447	47.7913	166.4405
140	937.0436	41.0017	-121.4691	-975.5167	3.9499	138.1068
141	1044.2823	-75.7276	-1.8306	-889.0085	85.0806	-8.8482
142	918.8226	-50.8115	36.7735	-794.4206	87.4201	-8.8306
143	877.3441	7.3847	86.2465	-857.6845	29.2242	-58.2944
144	932.4497	59.6030	113.0071	-1053.7800	-105.5093	-146.5034
145	1134.2677	192.3002	228.4023	-1431.9208	-143.0188	-191.2847
146	1566.6885	255.2870	259.3909	-1979.9702	-205.5038	-223.0536
147	1979.7512	205.4577	225.2893	-2306.3579	-155.7010	-186.6004
148	2306.1123	155.7756	189.1906	-2546.1416	-106.3275	-152.1747
149	2545.9683	106.2338	154.9659	-2698.0564	-62.8404	-122.4200
150	2697.9458	62.8664	125.4194	-2762.6106	-13.3645	-88.3841
151	2762.5044	13.3508	91.4101	-2739.9958	36.8134	-53.7208
152	2739.9185	-36.7495	56.6953	-2630.3674	86.2872	-19.5104
153	2630.3340	-86.3327	22.4020	-2433.8723	136.5072	15.3407
154	2433.8657	-136.5235	-12.6657	-2149.0979	179.9195	45.2895
155	2149.1228	-179.9536	-42.9158	-1776.9459	229.5310	80.4593
156	1777.0096	-229.4911	-78.4924	-1317.5260	279.6610	116.5537
157	1336.6752	-205.0947	-193.5159	-939.3837	231.9397	221.3639
158	1009.5121	-140.1635	-173.3186	-749.6528	105.9818	179.9737
159	822.9352	-8.3200	-123.0509	-775.0403	44.9270	151.0337
160	843.0508	48.8215	-88.2982	-898.0265	-3.3037	109.0768
161	954.1696	-58.1908	1.3340	-819.9966	67.1006	-8.6550
162	863.0060	-29.2868	36.0177	-763.7399	69.9711	-4.9632
163	869.5203	34.9689	78.6299	-898.7819	5.7157	-47.5645
164	988.5693	80.3767	106.2436	-1210.8082	-122.8618	-125.3919
165	1330.6294	230.9776	201.3605	-1737.3918	-178.1603	-161.3647
166	1846.0477	267.3108	172.6020	-2326.3574	-215.6487	-133.9864
167	2326.2209	215.7360	136.8793	-2700.9509	-162.6743	-97.2139
168	2700.8103	162.6926	100.5177	-2969.2004	-108.4452	-59.8066
169	2969.1555	108.4140	63.4557	-3131.0903	-55.2729	-23.9899
170	3131.0142	55.2659	27.7739	-3185.9988	-2.0651	11.6698

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
171	3186.0059	2.1310	-7.8699	-3133.9958	51.0913	47.3286
172	3134.1228	-51.0560	-43.5264	-2975.1018	105.3020	84.1014
173	2975.2410	-105.3463	-80.5328	-2709.3472	158.6216	120.1139
174	2709.4871	-158.6587	-116.8565	-2336.0676	211.9411	156.5747
175	2336.2651	-211.9409	-153.7585	-1855.5431	265.2328	193.6661
176	1855.7893	-265.2700	-191.4513	-1268.2820	319.5151	232.5321
177	1318.4968	-231.1022	-208.0210	-821.8768	256.8803	227.9980
178	906.6229	-173.5139	-164.0785	-554.5107	144.3718	154.1579
179	678.1803	-34.7403	-76.5683	-568.0085	75.4234	107.6592
180	672.1812	29.4253	-32.6586	-690.3572	19.6184	63.4501
181	764.9534	-38.9000	0.1098	-672.7781	47.2594	-0.5353
182	718.2756	-10.5800	26.9555	-658.9442	50.2540	3.3219
183	777.0916	51.2032	68.5135	-838.2725	-11.5296	-38.2244
184	952.0617	117.1025	111.9147	-1217.0105	-158.4876	-131.7580
185	1315.2722	250.9173	213.9936	-1754.8184	-198.9059	-174.7283
186	1823.3115	243.8894	177.1750	-2249.9680	-191.8046	-138.0804
187	2249.7949	191.7641	140.8153	-2575.2415	-139.5959	-101.8605
188	2575.1426	139.6130	104.9828	-2799.0442	-87.3915	-66.1170
189	2798.9597	87.3828	69.4565	-2920.9446	-35.1149	-30.6413
190	2920.9087	35.0630	34.0897	-2941.1230	18.1799	5.7333
191	2941.1208	-18.1855	-1.8509	-2859.5024	70.4799	40.6423
192	2859.5210	-70.4443	-37.7088	-2675.7344	122.7573	76.7092
193	2675.8096	-122.7040	-74.1492	-2390.3557	175.9309	114.1612
194	2390.4775	-175.9791	-111.1897	-2003.0857	221.5455	144.9845
195	2003.2609	-221.5542	-142.3974	-1513.3307	273.8813	181.6613
196	1513.4886	-273.8853	-180.2112	-921.6401	326.6484	218.8733
197	1024.3497	-208.1888	-188.8485	-594.1878	233.7276	210.9105
198	687.4027	-138.2182	-143.0856	-452.5899	105.3782	134.4349
199	549.8812	-20.4139	-76.4881	-471.3757	60.0875	106.7544
200	589.0190	43.0214	-34.4856	-634.2377	8.1977	64.1761
201	709.1361	-13.6019	-3.7076	-673.6707	25.1472	2.9629
202	700.1899	28.1956	34.9604	-719.7319	0.4839	-13.1373
203	756.2686	72.1656	62.8727	-837.8004	-43.4881	-40.9935
204	889.4835	122.3442	92.0964	-1041.7705	-93.6693	-70.2281
205	1116.9861	180.0149	125.5820	-1381.3792	-222.9652	-138.5484
206	1381.3147	222.9271	139.2030	-1666.4493	-180.6898	-106.9168
207	1666.3748	180.7016	107.8193	-1897.0410	-145.2438	-80.9863
208	1896.9061	145.2441	84.0787	-2074.8044	-109.7729	-57.3014
209	2074.7432	109.7205	58.5387	-2197.1357	-67.4662	-26.4208
210	2197.0908	67.3799	27.7495	-2266.4456	-31.9136	-0.9628
211	2266.4421	31.9415	3.1568	-2281.6418	10.2962	28.7300
212	2281.7141	-10.3324	-26.6550	-2242.7354	45.7948	53.4418
213	2242.7795	-45.8474	-52.1780	-2150.7351	88.0908	84.2642
214	2150.7822	-88.0250	-83.1400	-2003.5129	123.4757	109.9028
215	2003.6649	-123.4371	-107.7169	-1803.6708	158.9005	134.4989
216	1803.7578	-158.9229	-133.5502	-1549.1886	201.1667	165.6998
217	1549.3055	-201.1658	-164.8044	-1240.9574	236.6210	191.7094
218	1241.1368	-236.6263	-190.4506	-879.4578	278.8646	222.5752
219	879.6172	-278.8403	-221.8549	-462.9570	314.2981	248.9368
220	463.0318	-314.2823	-248.7870	-0.1416	90.3001	-118.3798

ENVOL. MAX CORTANTES -IPF

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.1062	400.1103	308.8201	-618.6201	-360.4423	-278.7660
2	592.8846	361.5002	280.7442	-1126.6367	-315.5956	-246.2346
3	1055.0703	318.7034	250.1509	-1527.4703	-279.2307	-220.5437
4	1416.7960	284.3939	226.1842	-1799.8011	-238.9551	-192.5473
5	1656.7163	246.2111	199.7159	-1969.5492	-201.1492	-166.5806
6	1800.5581	210.3685	175.1028	-2081.3188	-171.3649	-146.2375
7	1892.8273	182.6464	155.9954	-2092.7380	-139.0103	-118.6916
8	1890.8241	152.3267	129.5650	-2064.0750	-111.0315	-98.7425
9	1854.6281	126.1999	110.6425	-2006.5575	-88.9490	-82.6996
10	1795.1611	106.0191	95.5820	-1124.1526	-68.8188	-67.4166
11	1673.6213	83.6436	78.2637	-1125.2729	-62.6066	-63.9623
12	1551.3008	67.0527	64.8556	-995.1432	-50.7280	-55.5118
13	1022.2518	52.0875	43.9151	-842.2547	-39.6237	-46.8582
14	909.9584	42.7952	35.0279	-787.0098	-34.3982	-42.9189
15	802.7297	35.0693	27.1403	-602.3096	-24.5673	-33.7830
16	706.1151	28.7910	20.2811	-409.8172	-15.6687	-24.3679
17	624.8893	23.8647	14.5236	-322.1661	-11.5924	-19.7569
18	563.0197	20.2430	9.9409	-175.1795	-5.9469	-0.9061
19	523.7796	17.7863	6.5910	-184.9027	-5.9482	-1.1319
20	509.4598	16.3876	4.5537	160.9969	-95.9533	-73.6324
21	-3958.9949	505.2576	335.2164	2833.0964	-549.9412	-356.5350
22	-2854.2368	550.6515	354.3842	1831.3464	-498.8421	-314.8216
23	-1892.0040	501.0413	315.6396	971.6363	-448.9738	-276.3043
24	-1070.8667	452.8537	279.8384	251.9673	-400.6294	-240.6738
25	-387.4236	406.3238	246.6393	-332.0266	-354.0276	-207.5793
26	163.7611	361.7057	215.7425	-786.7773	-309.4348	-176.9099
27	589.9309	319.2038	187.0440	-1120.5197	-267.0704	-148.6625
28	900.1696	279.0634	160.5652	-1343.3242	-227.1380	-122.5635
29	1105.2993	241.4608	136.0542	-1466.8591	-189.8293	-98.3651
30	1217.4652	206.5239	113.2999	-1528.1090	-157.3534	-72.7247
31	1274.1432	176.4211	89.0062	-1528.9388	-127.9722	-52.8868
32	1277.3872	149.4783	70.4269	-960.1670	-106.3268	-26.4254
33	717.9650	130.2346	45.2044	-937.7391	-89.5632	-13.8661
34	711.6111	115.8569	33.8695	-902.6160	-75.1824	-2.5758
35	698.9269	103.7787	23.8435	-865.7908	-63.1070	7.4060
36	690.2909	93.9428	15.1941	-837.4804	-53.2697	16.0106
37	695.1874	86.2338	8.0081	-826.9598	-45.5610	23.1525
38	721.9376	80.5221	2.4044	-842.2924	-39.8501	28.7123
39	777.4570	76.6657	-1.4860	-890.0998	-35.9937	32.5585
40	867.0338	74.4807	-3.5221	157.1494	-95.8762	-73.2770
41	-4299.8379	516.5364	331.7416	3152.6675	-560.5688	-357.2453
42	-3174.0542	561.2888	354.5638	2129.3796	-509.4562	-314.9802
43	-2191.0139	511.6919	315.2291	1249.1090	-459.6095	-275.8574
44	-1349.8239	463.5554	278.8063	509.4826	-411.3298	-239.5962
45	-646.7446	417.1049	244.9728	-94.1501	-364.8121	-205.8639
46	-76.0461	372.5920	213.4446	-568.5242	-320.3456	-174.5641
47	369.7280	330.2614	184.1331	-922.1718	-278.1486	-145.7056
48	699.9471	290.2665	157.0702	-1165.2616	-238.3637	-119.0266
49	925.5162	252.7881	132.0243	-1309.4614	-201.1768	-94.3008
50	1058.6327	217.9753	108.7928	-1392.1360	-168.8275	-68.1382
51	1136.9753	188.0010	84.0250	-1414.8375	-139.5289	-47.8550
52	1162.2977	161.1387	65.0678	-852.2137	-120.1558	-19.7785
53	609.2383	144.1577	38.2842	-856.9238	-103.4766	-6.9140
54	630.2687	129.8425	26.7192	-849.3076	-89.1530	4.5996
55	645.2983	117.8444	16.5344	-840.3522	-77.1618	14.7341
56	664.7330	108.0673	7.7944	-840.2228	-67.3842	23.4231
57	697.9731	100.4182	0.5905	-858.1512	-59.7319	30.5763
58	753.2813	94.7524	-4.9721	-902.1239	-54.0642	36.0884
59	837.4989	90.9240	-8.7568	-978.6924	-50.2367	39.8226
60	955.8451	88.7597	-10.6475	156.6203	-95.8727	-73.2287
61	-4368.9189	515.5471	332.3754	3223.8215	-559.4913	-357.7089
62	-3245.3252	560.2112	354.9240	2203.1655	-508.3895	-315.3599
63	-2264.9624	510.6511	315.5566	1325.4917	-458.5912	-276.2138
64	-1426.3638	462.5406	279.1207	588.3935	-410.3253	-239.9442
65	-725.7933	416.1429	245.2969	-12.8621	-363.8705	-206.2246
66	-157.4502	371.6596	213.7944	-485.0509	-319.4441	-174.9541
67	286.2235	329.3635	184.5190	-836.6531	-277.2747	-146.1298
68	614.4430	289.4494	157.4882	-1077.9816	-237.5718	-119.4856
69	838.3247	252.0089	132.4689	-1220.6447	-200.4051	-94.7817
70	969.9841	217.1887	109.2565	-1301.6904	-168.0420	-68.6390
71	1046.8318	187.2596	84.4910	-1323.1493	-138.8205	-48.3501
72	1071.0596	160.4409	65.5168	-760.2952	-119.6747	-20.8575
73	517.8374	143.7329	39.3116	-764.5972	-103.0568	-7.9537
74	538.4985	129.4440	27.6862	-756.6710	-88.7753	3.6203
75	553.2481	117.4783	17.4185	-747.5148	-76.8101	13.8365
76	572.4805	107.7360	8.5896	-747.2621	-67.0671	22.6159
77	605.5776	100.1075	1.2802	-765.1039	-59.4373	29.8746
78	660.7402	94.4694	-4.3974	-808.9863	-53.7984	35.5009
79	744.7650	90.6602	-8.3166	-885.3863	-49.9887	39.3689
80	862.7917	88.5080	-10.3402	155.7749	-95.8406	-73.8862
81	-4373.6826	514.3064	372.6361	3231.2820	-557.6503	-403.3318
82	-3252.8943	558.3903	400.4057	2213.6553	-506.4898	-361.4704
83	-2275.6887	508.7646	361.1827	1339.4790	-456.6501	-322.2057
84	-1440.6240	460.6624	324.3143	606.0204	-408.4268	-285.1891
85	-743.6193	414.3305	289.4039	8.2106	-362.0574	-250.0132
86	-178.5126	369.9744	256.0872	-461.0824	-317.7913	-216.5262
87	262.5511	327.8799	224.2469	-810.7960	-275.8713	-184.7870
88	589.3286	288.2160	193.9696	-1051.5696	-236.4568	-154.6092
89	813.1833	251.1182	165.1254	-1195.5692	-199.7101	-125.8568
90	946.7943	216.7668	137.5989	-1275.2941	-167.4071	-98.4207
91	1022.9506	186.8942	111.3280	-720.4247	-139.3019	-50.5857
92	471.5052	161.1976	64.6766	-753.2679	-120.5031	-33.2620
93	514.6717	144.8182	48.5550	-763.6582	-104.1254	-17.1936
94	541.9845	130.7923	33.7904	-762.9313	-90.1040	-2.4794
95	564.3395	119.0671	20.4990	-761.8396	-78.3773	10.7603
96	591.8471	109.5525	8.8499	-770.3016	-68.8623	22.3573
97	633.5607	102.1313	-0.9414	-797.1730	-61.4430	32.0979
98	697.2850	96.6652	-8.6561	-849.9656	-55.9768	39.7602
99	789.2923	92.9861	-14.0247	-934.6133	-52.2985	45.0762
100	914.0850	90.9051	-16.7727	147.9177	-95.7823	-74.0701
101	-4006.5737	478.8845	334.0039	3079.7825	-519.0989	-374.3444
102	-3094.6523	519.6628	370.9832	2241.0642	-471.6469	-334.2913
103	-2288.3984	473.6088	332.2629	1507.1412	-431.7632	-299.9424
104	-1585.5343	435.2429	299.1889	896.7364	-387.1701	-261.7673
105	-1003.8789	392.3383	262.1911	395.4626	-344.3768	-224.6684
106	-528.3007	351.3047	226.2404	-2.8160	-303.5701	-188.6924
107	-152.1153	312.3935	191.3734	-332.5797	-270.8376	-159.1383
108	159.7206	281.6246	162.9212	-554.4162	-234.9162	-123.9650
109	368.3237	247.6995	128.8668	-722.2613	-203.8505	-95.7379
110	527.9781	218.7294	101.7868	-828.5431	-174.8282	-68.0311
111	631.3246	191.7994	75.2758	-404.7174	-154.7737	-1.7744
112	209.9079	173.8485	10.3049	-483.0232	-138.2460	17.1981
113	295.9054	159.3907	-7.2787	-543.7323	-123.7959	34.7316
114	369.3848	146.9960	-23.3011	-595.5239	-111.4022	50.7080

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	438.7197	136.6173	-37.6165	-646.6932	-101.0164	64.9753
116	511.7351	128.1260	-50.0484	-704.8420	-92.5212	77.3593
117	595.4458	121.4665	-60.4104	-776.9046	-85.8675	87.6732
118	696.0108	116.5327	-68.5007	-868.8404	-80.9350	95.7146
119	818.5356	113.1816	-74.1097	-985.4952	-77.5839	101.2755
120	966.8497	111.2639	-77.0203	157.6504	-95.6000	-73.3636
121	-3586.7222	469.7852	359.8479	2683.4934	-507.4362	-403.5883
122	-2697.2495	507.9515	400.6856	1863.7990	-459.9307	-364.0786
123	-1908.5820	461.7649	362.3357	1147.6486	-419.9019	-330.0276
124	-1222.5677	423.2375	329.4038	553.7283	-375.1080	-291.8861
125	-656.8870	380.0555	292.3142	68.7301	-332.0168	-254.5853
126	-197.3467	338.6745	256.0453	-312.9300	-290.8260	-218.2022
127	162.1143	299.3451	220.6542	-624.5610	-257.7172	-188.2547
128	455.4659	268.1664	191.7113	-827.5040	-221.3438	-152.5842
129	644.6342	233.8306	157.0680	-974.7974	-189.9445	-123.9620
130	783.0980	204.4872	129.5175	-1059.2360	-160.5452	-95.7050
131	863.8765	177.1938	102.3962	-1114.7814	-137.4412	-71.7860
132	921.0823	156.2174	79.7173	-686.7155	-119.1028	-8.2413
133	499.9858	139.9540	17.5196	-713.7855	-104.3533	9.8968
134	539.1755	127.2687	0.8806	-730.7974	-91.6709	26.4992
135	573.1653	116.6186	-14.0702	-746.1476	-81.0211	41.4145
136	609.9346	107.9184	-27.1229	-767.6871	-72.3211	54.4331
137	656.7432	101.0777	-38.0817	-802.5190	-65.4810	65.3572
138	719.9796	95.9920	-46.7283	-856.8585	-60.3965	73.9684
139	804.9960	92.5291	-52.8107	-935.8120	-56.9336	80.0152
140	915.8923	90.5335	-56.0986	161.6109	-95.7655	-72.3384
141	-3684.7271	476.0224	313.5724	2742.5647	-516.2986	-351.7160
142	-2756.4680	516.7962	348.7844	1886.0836	-468.0142	-311.4324
143	-1932.3032	469.8515	309.9857	1149.4558	-420.8969	-272.3869
144	-1227.2567	424.2332	272.3989	516.1508	-381.4245	-239.5428
145	-623.6840	386.3843	241.0108	9.7175	-337.3996	-203.6491
146	-144.2555	344.1178	206.5452	-387.6240	-295.2533	-169.4991
147	229.4430	303.8463	173.8151	-682.8173	-255.2228	-137.0901
148	505.0234	265.8374	142.8207	-890.4750	-218.3802	-102.2293
149	697.7626	231.0092	109.3707	-1056.8091	-190.3141	-78.6422
150	854.3103	205.0849	87.2224	-1136.9167	-160.2463	-53.1503
151	930.0790	177.1693	63.1653	-1159.2468	-132.3046	-28.7882
152	953.7191	151.4027	40.2690	-707.5473	-113.6595	19.2390
153	508.9698	134.9124	-6.2280	-718.8658	-98.3065	34.4252
154	532.7872	121.7039	-19.8487	-718.9119	-85.0969	48.0119
155	550.5870	110.5852	-31.8002	-716.6977	-73.9767	59.9273
156	570.9620	101.5022	-42.0102	-720.7272	-64.8945	70.1011
157	601.8360	94.3569	-50.3950	-738.7430	-57.7497	78.4505
158	650.2388	89.0412	-56.8747	-777.5685	-52.4315	84.8934
159	722.1194	85.4277	-61.3737	-842.9480	-48.8206	89.3567
160	822.2072	83.3723	-63.8048	164.9868	-95.5484	-72.6091
161	-3993.4155	501.3858	327.5000	2878.7930	-544.3410	-351.2563
162	-2899.4878	545.0357	349.0239	1887.5806	-493.1952	-309.3690
163	-1947.0292	495.3655	310.1233	1037.5570	-443.2651	-270.7255
164	-1135.0112	447.0897	274.2223	327.0501	-394.8245	-235.0349
165	-460.3709	400.4680	241.0056	-248.0544	-348.1570	-201.9699
166	82.1816	355.7937	210.1774	-694.1807	-303.5220	-171.4236
167	499.8239	313.2939	181.6446	-1019.4547	-261.1565	-143.3942
168	801.5676	273.1122	155.4205	-1233.7511	-221.1804	-117.5941
169	998.1437	235.4263	131.2662	-1348.6525	-183.7868	-93.7873
170	1101.6472	200.4194	108.9269	-1400.2653	-151.2246	-68.2930
171	1148.6199	170.2944	84.7928	-1391.4142	-121.8161	-48.6853
172	1142.0785	143.2852	66.5000	-821.9789	-99.7321	-24.2006
173	581.8567	123.6183	43.2384	-788.4421	-82.9386	-11.9064
174	564.2922	109.2207	32.1782	-742.0649	-68.5385	-0.8855

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	540.2764	97.1419	22.4108	-693.8825	-56.4588	8.8402
176	520.2220	87.3131	13.9703	-654.1834	-46.6285	17.2412
177	513.6416	79.6260	6.9486	-632.2186	-38.9403	24.2231
178	528.8089	73.9397	1.4273	-636.0187	-33.2553	29.7036
179	572.5859	70.1076	-2.4703	-672.1313	-29.4244	33.5604
180	650.1490	67.9500	-4.6336	153.5513	-95.6690	-73.2190
181	-4124.0825	490.6113	329.0145	3054.2139	-533.8282	-353.5609
182	-3075.1614	534.5683	351.1509	2105.7197	-483.4264	-312.2525
183	-2165.3120	485.6800	312.6838	1295.0393	-434.3441	-273.9887
184	-1391.9214	438.3052	277.0172	619.4253	-386.8814	-238.4621
185	-751.0072	392.6913	243.8342	73.8257	-341.2855	-205.3853
186	-236.4692	349.0703	212.8574	-348.8577	-297.7951	-174.8143
187	159.4897	307.6948	184.1773	-657.4773	-256.6527	-146.5599
188	446.4845	268.7729	157.6198	-862.6389	-218.0484	-120.3596
189	635.7856	232.4472	132.9564	-980.3178	-182.5276	-92.1516
190	743.8336	199.2462	106.1419	-1043.1980	-151.7262	-70.8343
191	803.6068	170.8317	86.2094	-503.5514	-127.0641	-39.9666
192	267.5336	148.5252	56.3751	-518.5504	-108.8462	-25.7742
193	292.6292	132.6578	43.4095	-512.6973	-92.9858	-12.8386
194	303.1059	119.1058	31.9057	-496.7386	-79.4356	-1.3646
195	309.3386	107.7868	21.6724	-480.8877	-68.1112	8.8103
196	320.8792	98.6134	12.6242	-474.5421	-58.9388	17.8029
197	346.2675	91.4697	5.1231	-485.9962	-51.7946	25.2539
198	392.8156	86.2130	-0.7646	-522.2853	-46.5384	31.0951
199	466.3417	82.6939	-5.0117	-588.9525	-43.0202	35.2780
200	571.0211	80.7211	-7.3082	138.7339	-95.4466	-71.6758
201	-3353.6414	414.6707	227.5777	2674.3079	-460.2290	-252.7679
202	-2686.0244	460.6640	250.4761	2060.3018	-425.2032	-222.9556
203	-2093.6582	426.5149	223.4467	1518.8306	-391.0574	-196.1352
204	-1573.4277	393.3113	198.2959	1050.4886	-351.0792	-165.9047
205	-1125.4678	354.3946	168.9356	651.0931	-318.9375	-141.8062
206	-744.9839	323.3875	146.7978	401.3013	-282.3727	-118.3727
207	-512.5735	288.0183	124.4910	145.5780	-254.8169	-99.5385
208	-272.2924	261.7022	106.2003	-53.6765	-228.3494	-81.2169
209	-85.8113	236.5991	89.4061	-197.7327	-196.3271	-59.0713
210	48.1482	205.9648	68.3302	-312.8969	-170.5021	-41.4354
211	156.3236	181.6157	51.6540	212.0095	-145.6934	-16.1084
212	-372.1031	158.3141	27.2990	169.0918	-129.6461	-5.0901
213	-328.9733	143.8554	17.2631	146.3291	-115.1757	4.8688
214	-302.0378	130.9351	8.3102	137.6398	-102.2460	13.8588
215	-284.9904	119.6748	0.2328	136.4560	-90.9927	21.9202
216	-271.0342	110.0964	-6.8151	136.0175	-81.4181	28.8973
217	-253.2713	102.2253	-12.7588	129.3496	-73.5481	34.8497
218	-224.5581	96.0900	-17.7141	109.2773	-67.4121	39.7916
219	-177.6544	91.6682	-21.5353	68.6231	-62.9828	43.5639
220	-105.2825	88.9987	-24.0621	0.0301	-60.3148	24.0681

ENVOL. MAX. TORSORES -IPF

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.2029	163.0397	636.3615	-248.5756	-143.2049	-580.0692
2	235.2963	143.7323	582.6534	-441.5351	-120.7812	-517.6406
3	405.4227	122.3383	522.7806	-580.9957	-102.5999	-466.7681
4	525.3986	105.1903	474.3562	-656.3188	-82.4700	-410.4415
5	584.5699	86.0922	420.3791	-680.4178	-63.5598	-357.2519
6	595.7838	68.1841	369.4545	-675.6131	-48.6842	-314.4828
7	581.2598	54.3155	328.8883	-616.4545	-32.1264	-266.8750
8	515.4272	38.7552	283.4240	-523.7900	-16.8031	-222.1113
9	421.8679	24.6106	240.7635	-426.5383	-5.4216	-186.6516
10	320.8840	13.9285	207.3813	-284.4557	7.6343	-147.0589
11	180.5187	1.7953	169.8453	-561.9735	-31.3346	-119.1245
12	52.7259	-6.5313	141.0246	-497.0613	-25.3927	-102.4599
13	-57.4422	-13.7580	108.5669	-420.6652	-19.8346	-85.6934
14	420.6652	19.8346	85.6934	-393.0240	-17.2228	-77.5035
15	393.0240	17.2228	77.5035	-300.7950	-12.3036	-60.4961
16	300.7950	12.3036	60.4961	-204.5303	-7.8419	-43.3486
17	204.5303	7.8419	43.3486	-160.6970	-5.8018	-34.8229
18	160.6970	5.8018	34.8229	-61.5624	-2.1041	-18.2551
19	61.5624	2.1041	18.2551	33.5247	1.0718	-8.5043
20	-587.0725	-18.8716	12.4747	80.0588	-47.9573	-139.3157
21	-1261.6597	203.2858	653.5979	796.9290	-225.6017	-695.0346
22	-530.1996	216.2508	696.9656	137.0583	-190.3500	-623.8066
23	-168.0944	191.4519	629.3206	-173.8089	-165.4218	-556.0466
24	123.5543	167.3727	564.7813	-414.7632	-141.2613	-491.3647
25	346.4665	144.1124	503.1935	-587.9761	-117.9734	-429.5997
26	503.3532	121.8150	444.3917	-696.6926	-95.6807	-370.9518
27	597.8551	100.5759	388.5998	-745.0370	-74.5113	-315.8279
28	634.5265	80.5292	336.2299	-738.0629	-54.5724	-264.0909
29	621.2258	62.0762	287.1599	-684.6870	-36.2660	-215.6195
30	563.8190	45.0495	241.2864	-590.6475	-19.4045	-170.3151
31	535.9152	35.3905	198.5577	-541.5596	-9.9489	-128.1284
32	436.1362	22.2479	158.9812	-553.5477	-33.6747	-105.9985
33	308.2574	9.9724	122.4915	-507.6898	-27.9793	-92.4236
34	507.6898	27.9793	92.4236	-447.5109	-22.5025	-78.7059
35	447.5109	22.5025	78.7059	-374.9590	-17.3117	-64.8167
36	374.9590	17.3117	64.8167	-292.4039	-12.4654	-50.7304
37	292.4039	12.4654	50.7304	-202.7250	-8.0153	-36.4330
38	202.7250	8.0153	36.4330	-109.1525	-4.0240	-21.9230
39	109.1525	4.0240	21.9230	-14.8794	-0.5275	-10.1872
40	14.8794	0.5275	10.1872	78.1438	-47.9601	-138.7200
41	-953.6042	194.0060	647.8979	509.2319	-216.0083	-696.2846
42	-520.4296	216.3626	698.4402	126.8161	-190.4475	-625.2535
43	-158.1193	191.5631	630.7347	-184.1108	-165.5232	-557.4258
44	133.3078	167.4917	566.1024	-424.7763	-141.3828	-492.6465
45	355.7499	144.2742	504.3992	-597.4974	-118.1255	-430.7649
46	512.0529	122.0089	445.4719	-705.6611	-95.8865	-371.9927
47	605.9745	100.8454	389.5504	-753.5435	-74.7928	-316.7395
48	725.4650	76.0786	337.1051	-819.9423	-50.1282	-264.9287
49	710.2018	56.6793	288.0316	-762.6980	-30.8759	-216.4571
50	643.4620	39.3820	242.1552	-658.7767	-13.7436	-171.1526
51	536.0178	23.7492	199.3968	-518.2645	1.6823	-128.9393
52	477.0157	15.4812	159.7464	-554.6906	-33.4842	-106.2079
53	349.9932	3.9786	123.2263	-508.2804	-27.8031	-92.5623
54	508.2804	27.8031	92.5623	-447.6201	-22.3490	-78.7808
55	447.6201	22.3490	78.7808	-374.6462	-17.1848	-64.8362
56	374.6462	17.1848	64.8362	-291.7955	-12.3560	-50.7102
57	291.7955	12.3560	50.7102	-201.9266	-7.9321	-36.3924
58	201.9266	7.9321	36.3924	-108.2758	-3.9678	-21.8858
59	108.2758	3.9678	21.8858	-14.0600	-0.4975	-10.1777
60	14.0600	0.4975	10.1777	77.8640	-47.9382	-138.6893
61	-997.4695	195.1918	647.3350	550.1908	-217.1373	-695.7472
62	-561.5928	217.4957	697.8474	165.8607	-191.5861	-624.6873
63	-197.3602	192.7211	630.1320	-147.0460	-166.6945	-556.8543
64	96.0638	168.6747	565.5114	-389.7576	-142.5704	-492.0887
65	320.5824	145.4730	503.8330	-564.6065	-119.3400	-430.2344
66	479.0434	123.2482	444.9423	-675.0497	-97.1384	-371.4996
67	575.5473	102.0812	389.0635	-725.5150	-76.0370	-316.2889
68	622.3530	81.6571	336.6113	-727.9497	-55.7205	-264.4710
69	676.5544	58.4835	287.5046	-732.6677	-32.6843	-215.9646
70	655.8857	37.4370	241.7139	-667.3654	-11.8197	-170.7446
71	543.8165	21.0722	199.0404	-520.7921	4.3481	-128.6167
72	394.5926	6.4601	159.4098	-553.8223	-33.4066	-106.0346
73	220.1384	-6.6864	122.7752	-507.3091	-27.7425	-92.4262
74	507.3091	27.7425	92.4262	-446.6207	-22.2892	-78.6782
75	446.6207	22.2892	78.6782	-373.6826	-17.1284	-64.7644
76	373.6826	17.1284	64.7644	-290.9420	-12.3139	-50.6656
77	290.9420	12.3139	50.6656	-201.3038	-7.9051	-36.3705
78	201.3038	7.9051	36.3705	-108.0062	-3.9557	-21.8785
79	108.0062	3.9557	21.8785	-14.2066	-0.5016	-10.1767
80	14.2066	0.5016	10.1767	77.7034	-47.9410	-138.8946
81	-1298.7473	229.2042	650.7124	783.7256	-250.9941	-700.8726
82	-720.4201	248.7815	702.6266	261.8960	-222.8543	-629.5663
83	-90.7612	216.4657	634.9586	-301.2983	-190.4361	-561.6456
84	256.1917	192.1951	570.2657	-597.0666	-166.1015	-496.6482
85	527.8497	169.0469	508.3015	-819.2191	-142.9362	-434.3197
86	733.6741	146.8625	448.8820	-977.1905	-120.7936	-374.8622
87	877.5253	125.8194	392.2206	-1075.4313	-99.8390	-318.7159
88	964.2750	105.9816	338.7698	-1119.2170	-80.1216	-265.7801
89	999.5601	87.4236	288.4769	-1114.5751	-61.7314	-215.9967
90	989.6508	70.2281	241.2797	-1068.0989	-44.7139	-169.3128
91	941.2801	54.4092	197.1397	-1009.9557	-30.8557	-125.9554
92	885.4489	41.6862	156.3488	-548.3891	-33.0685	-111.3052
93	798.1445	29.6265	120.1664	-502.0154	-27.4350	-97.1679
94	502.0154	27.4350	97.1679	-442.0801	-22.0560	-82.6307
95	442.0801	22.0560	82.6307	-370.7288	-16.9882	-67.6350
96	370.7288	16.9882	67.6350	-290.6151	-12.2975	-52.1387
97	290.6151	12.2975	52.1387	-204.8368	-8.0359	-36.1062
98	204.8368	8.0359	36.1062	-116.8895	-4.2674	-19.5189
99	116.8895	4.2674	19.5189	-29.7135	-1.0130	-5.5241
100	103.3436	-4.5067	10.9602	75.2695	-48.4229	-138.3529
101	-732.7656	194.1759	614.8593	360.6891	-214.5225	-671.2195
102	-365.8723	214.7001	672.1627	17.7995	-190.7078	-603.8983
103	-39.4668	191.5696	607.2678	-272.0951	-170.6544	-547.3537
104	234.6392	172.2974	553.1115	-500.0729	-148.2784	-484.4087
105	447.9799	150.7607	492.5229	-673.0814	-126.7928	-424.3094
106	607.8811	130.1496	434.7395	-794.1601	-106.2928	-367.0536
107	717.6354	110.5924	379.8017	-880.3146	-89.8166	-320.7384
108	794.5783	95.0798	335.7859	-910.6867	-71.4815	-268.9594
109	818.0692	77.7611	286.3143	-902.2326	-54.3889	-220.0898
110	805.2291	61.6964	239.7706	-886.9664	-41.1686	-176.4212
111	788.2271	49.5331	198.4430	-845.4078	-29.6763	-141.5126
112	747.5708	39.1208	165.9186	-481.4397	-33.0847	-118.6768
113	675.9145	27.7073	129.3224	-428.2686	-26.7222	-100.9515
114	428.2686	26.7222	100.9515	-362.6282	-20.6670	-82.6406

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	362.6282	20.6670	82.6406	-341.3982	-17.8025	-73.4762
116	341.3982	17.8025	73.4762	-257.3510	-12.4081	-54.1899
117	257.3510	12.4081	54.1899	-168.6223	-7.5442	-34.2731
118	201.4607	-2.4063	37.2213	-78.7028	-3.2736	-14.5620
119	153.9326	-4.2033	29.3065	-35.3017	-1.3720	-6.9144
120	118.7815	-5.2799	24.4435	79.2802	-48.4611	-138.0971
121	-779.4492	199.8386	632.1106	403.2804	-218.7287	-686.3066
122	-407.5892	218.8660	687.1814	52.0237	-194.8771	-618.9823
123	-72.1425	195.6710	622.2215	-246.8085	-174.7490	-562.3246
124	211.3349	176.2922	567.8976	-484.3074	-152.2495	-499.1693
125	434.4232	154.5965	507.0520	-666.9019	-130.5969	-438.7583
126	604.0062	133.8200	448.9228	-797.3915	-109.9111	-381.1093
127	723.0988	114.0390	393.5468	-892.1276	-93.2319	-334.4137
128	808.3829	98.2987	349.1255	-930.6479	-74.6350	-282.1152
129	839.6879	80.7580	299.1072	-929.4640	-57.3127	-232.6731
130	833.7911	64.4481	251.9746	-920.1843	-43.9092	-188.8436
131	822.3500	52.0951	210.4744	-884.1414	-32.2304	-153.5305
132	786.8110	41.5162	177.5518	-481.7473	-33.9370	-121.1515
133	719.5997	29.8890	140.4883	-430.5543	-27.4970	-103.3019
134	509.8855	15.8854	106.7015	-366.4680	-21.3535	-84.7845
135	441.7530	10.4209	87.2346	-346.3718	-18.4244	-75.4889
136	346.3718	18.4244	75.4889	-262.9343	-12.9140	-55.8717
137	311.4499	2.3724	56.4505	-174.1848	-7.9249	-35.5295
138	256.1018	-0.3192	45.3351	-83.5742	-3.5293	-15.2927
139	211.0031	-2.1967	37.2283	-39.7529	-1.5657	-7.3554
140	178.2146	-3.3373	32.2455	80.5167	-48.6222	-137.9977
141	-673.0023	174.6822	626.2554	332.7207	-194.6360	-678.9629
142	-336.6551	194.7520	680.0069	15.5095	-170.3351	-610.9329
143	-35.9704	171.1214	614.4418	-241.1032	-146.6183	-544.9903
144	204.5137	148.1703	550.9606	-445.1430	-126.7516	-489.9429
145	393.3849	129.1207	498.3503	-585.4448	-104.6081	-429.3172
146	519.9014	107.8601	440.1677	-670.6236	-83.4039	-371.7943
147	593.0013	87.6013	385.0668	-704.2108	-63.2719	-317.3552
148	616.5312	68.4960	333.0557	-690.5414	-44.3212	-266.0016
149	595.1866	50.5444	284.1151	-651.0620	-29.3748	-224.7059
150	550.6198	36.6862	245.2567	-559.1935	-12.8301	-179.1729
151	456.4030	21.2159	202.1530	-436.1935	2.3841	-136.7127
152	333.8943	7.1033	162.1369	-472.9086	-32.7863	-110.8997
153	288.3320	1.5559	125.2558	-421.5499	-26.4496	-94.1231
154	421.5499	26.4496	94.1231	-411.6078	-23.3729	-85.9411
155	411.6078	23.3729	85.9411	-335.4882	-17.5020	-68.8556
156	335.4882	17.5020	68.8556	-249.6397	-12.0277	-51.6307
157	249.6397	12.0277	51.6307	-157.3092	-7.0397	-34.3062
158	157.3092	7.0397	34.3062	-61.7796	-2.5995	-17.7059
159	25.1662	-6.7244	24.7695	-14.4784	-0.6083	-11.6005
160	44.0467	-5.5686	19.3415	81.8986	-47.7659	-138.6311
161	-1298.7634	207.5035	650.2311	827.8961	-228.7801	-694.5512
162	-609.6379	221.3041	696.4022	206.2800	-195.3841	-623.1877
163	-236.7180	196.4753	628.6064	-115.4394	-170.4250	-555.2921
164	66.0798	172.3467	563.9716	-367.5019	-146.2141	-490.5328
165	300.2747	149.0430	502.3479	-551.9595	-122.8877	-428.7583
166	468.5401	126.7179	443.5834	-672.0328	-100.5817	-370.1713
167	574.4547	105.4776	387.8982	-731.8148	-79.4094	-315.1807
168	622.5505	85.4053	335.7047	-736.2367	-59.4399	-263.6413
169	618.1614	66.5662	286.8843	-691.0569	-40.7490	-215.4354
170	567.3849	49.0709	241.3075	-602.7769	-23.4364	-170.4408
171	477.9182	33.0693	198.8908	-479.5824	-7.6425	-128.5725
172	354.8850	18.3752	159.5717	-547.8058	-33.6555	-104.7606
173	206.2413	5.1358	123.2960	-502.1026	-27.9216	-91.2084
174	502.1026	27.9216	91.2084	-442.0630	-22.4090	-77.5591

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	442.0630	22.4090	77.5591	-369.6717	-17.1998	-63.7775
176	369.6717	17.1998	63.7775	-287.3894	-12.3352	-49.8509
177	287.3894	12.3352	49.8509	-198.1653	-7.8886	-35.7695
178	198.1653	7.8886	35.7695	-105.3076	-3.9072	-21.5358
179	105.3076	3.9072	21.5358	-12.1541	-0.4370	-10.1308
180	-604.0836	-19.0578	10.8303	76.3045	-47.7884	-138.5045
181	-1498.5145	215.9106	627.3672	1019.6622	-237.5517	-675.1292
182	-606.5222	222.8901	676.7468	208.5917	-197.3241	-604.7038
183	-239.1920	198.4641	610.0175	-109.2015	-172.8035	-537.8416
184	60.0401	174.7944	546.3218	-359.5959	-149.0855	-473.9844
185	293.1846	151.9919	485.5060	-545.1198	-126.2926	-413.0375
186	463.2560	130.1934	427.4823	-669.3080	-104.5632	-355.5433
187	574.1973	109.5115	372.7938	-736.6318	-83.9962	-301.5178
188	630.8858	90.0536	321.4941	-752.4278	-64.6949	-250.8451
189	638.6663	71.8995	273.4538	-722.4543	-46.7330	-203.4017
190	604.0648	55.0805	228.5779	-653.5270	-30.1469	-159.1162
191	558.5106	37.5106	186.8930	-573.1316	-12.8376	-117.9604
192	455.2086	23.5433	148.1040	-494.8342	-30.6111	-101.1329
193	330.1893	11.0314	112.3187	-444.4593	-24.9174	-87.1680
194	444.4593	24.9174	87.1680	-435.8592	-22.1673	-80.5296
195	435.8592	22.1673	80.5296	-362.0851	-16.9359	-66.2802
196	362.0851	16.9359	66.2802	-279.7609	-12.0917	-51.7983
197	279.7609	12.0917	51.7983	-192.0860	-7.7127	-37.1640
198	192.0860	7.7127	37.1640	-102.6796	-3.8478	-22.3372
199	102.6796	3.8478	22.3372	-15.0663	-0.5424	-10.3600
200	15.0663	0.5424	10.3600	69.0415	-47.7583	-135.2716
201	-756.5279	174.3875	434.7494	464.2716	-197.1494	-481.8560
202	-470.3255	197.3525	483.5213	204.0579	-179.6205	-432.5286
203	-220.6114	180.2683	436.5004	-20.2155	-162.5403	-385.6110
204	-6.6211	163.6708	391.6885	-208.2797	-142.5556	-331.1410
205	183.9834	143.6375	339.3438	-373.8056	-125.9052	-288.5466
206	368.2850	126.1575	298.6556	-490.1749	-105.6532	-245.1090
207	435.3965	108.4330	257.2506	-568.6916	-91.8308	-210.2761
208	659.1155	86.8991	225.1464	-760.0889	-70.2191	-178.0775
209	697.6324	73.8870	194.1957	-479.2124	-56.8941	-138.8832
210	702.0290	58.5408	155.2978	-512.7678	-52.9863	-129.4736
211	512.7678	52.9863	129.4736	-486.0897	-44.9389	-110.2547
212	486.0897	44.9389	110.2547	-494.3104	-40.7991	-100.7820
213	494.3104	40.7991	100.7820	-431.6389	-32.4014	-81.2325
214	431.6389	32.4014	81.2325	-411.9708	-28.1302	-71.7142
215	411.9708	28.1302	71.7142	-380.5265	-23.8168	-62.1101
216	380.5265	23.8168	62.1101	-260.2019	-15.0652	-42.2467
217	260.2019	15.0652	42.2467	-15.5878	3.6844	-0.4502
218	126.4827	-8.4278	11.8921	-10.3902	3.6849	-0.4657
219	70.3532	-10.6290	5.7710	-5.1943	3.6843	-0.4719
220	26.9665	-11.9551	1.5839	-0.0023	26.2950	-1.5849

ENVOLVENTES DE ESFUERZOS CON IMPACTO

ENVOL. MIN. FLECTORES -IPF

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.2035	165.7661	633.1796	35.6411	21.7966	-6.2991
2	-95.7296	-58.5390	18.2024	191.4428	58.5390	-18.2024
3	-191.4566	-58.5341	17.9626	287.1682	58.5341	-17.9626
4	-287.1765	-58.5168	17.6011	382.8626	58.5168	-17.6012
5	-382.8817	-58.5254	17.1189	478.5784	58.5254	-17.1190
6	-478.5897	-58.4977	16.5185	574.2418	58.4977	-16.5183
7	-574.2654	-58.5050	15.7957	669.9230	58.5050	-15.7958
8	-669.9471	-58.5454	14.9515	765.6771	58.5454	-14.9513
9	-765.6934	-58.5497	13.9915	881.1705	76.0053	-20.8545
10	-881.1463	-76.0280	19.7688	1009.3100	80.5474	-16.2566
11	-1009.2834	-80.5118	15.0499	1143.1410	82.7699	-13.2270
12	-1143.1350	-82.7288	11.9004	1283.4719	87.2470	-8.2921
13	-1283.4675	-87.2232	6.8524	1429.4773	91.7386	-3.1847
14	-1429.4996	-91.7265	1.6244	1581.4778	93.9824	0.3784
15	-1581.4695	-94.0127	-2.0738	1739.8051	98.5350	5.8847
16	-1739.7899	-98.5386	-7.6832	1903.8761	103.0604	11.5747
17	-1904.2646	-107.1791	-16.8984	2081.2563	109.4367	19.1485
18	-2178.7703	-227.4610	-91.7100	2554.8513	231.9816	95.7913
19	-2634.7793	-330.7884	-160.6151	3178.1587	335.3096	164.7989
20	-3244.1633	-424.0721	-228.3886	3938.6997	336.2633	174.0235
21	-3982.9321	498.4473	330.7189	2859.9519	-532.9492	-345.5418
22	-2905.1169	495.1885	315.5613	2046.6350	-402.4269	-242.8369
23	-2159.8647	297.6784	167.2828	1564.6208	-297.6813	-166.6996
24	-1666.0160	187.7764	90.2754	1290.5406	-187.7790	-89.7348
25	-1375.7814	98.8141	11.5408	1178.1897	-98.8154	-11.0439
26	-1313.8030	-1.8882	9.3903	1317.5801	1.8862	-8.9392
27	-1317.6018	-1.8695	7.3425	1321.3328	1.8671	-6.9357
28	-1321.3229	-1.8584	5.2852	1325.0284	1.8549	-4.9217
29	-1325.0450	-1.8421	3.2243	1328.7285	1.8387	-2.9058
30	-1328.6953	-1.8499	1.1627	1332.3920	1.8480	-0.9686
31	-1332.3721	-1.7817	-0.8317	1335.9188	1.7808	1.1424
32	-1335.8801	-1.7953	-2.9830	1339.4735	1.7987	3.0891
33	-1339.4591	-1.7932	-4.9895	1375.4175	41.7593	11.5112
34	-1375.3713	-41.7834	-13.4543	1464.3304	46.3053	17.1335
35	-1464.3218	-46.3336	-19.1273	1562.3773	50.8552	22.9028
36	-1562.3539	-50.8454	-24.9532	1669.4169	55.3668	28.8352
37	-1700.9351	-119.0179	-42.9308	1944.3151	123.5371	46.9341
38	-2039.9580	-216.9479	-118.2009	2479.1555	221.4658	122.3400
39	-2594.3689	-331.0824	-200.1913	3261.7888	335.6024	204.4796
40	-3360.2512	-440.3368	-281.6788	4246.5645	355.4089	224.9210
41	-4323.1982	509.7038	327.2195	3195.0527	-453.2125	-273.1763
42	-3241.4944	415.4838	242.5594	2410.3821	-415.4848	-241.8409
43	-2529.6082	310.9280	165.2618	1907.6416	-310.9288	-164.5948
44	-2019.3555	201.4296	86.8739	1616.4242	-201.4288	-86.2575
45	-1712.7458	108.0480	15.1112	1496.5951	-108.0525	-14.5450
46	-1633.5850	14.4239	5.4833	1604.7250	-14.4281	-4.9671
47	-1604.7269	14.4244	2.9837	1575.8708	-14.4152	-2.5191
48	-1575.8678	14.3746	0.5431	1547.1151	-14.3720	-0.1295
49	-1547.1088	14.3752	-1.8650	1518.3420	-14.3745	2.2286
50	-1518.3413	14.3428	-4.2260	1489.6543	-14.3406	4.5397
51	-1489.6644	14.3763	-6.5462	1460.8999	-14.3788	6.8095
52	-1460.8773	14.4185	-8.8167	1432.0303	-14.4274	9.0297
53	-1432.0515	14.4999	-11.0476	1424.3212	27.4191	16.0228
54	-1424.2917	-27.4382	-18.0467	1484.5946	31.9570	21.7272
55	-1484.5789	-31.9387	-23.7605	1553.8698	36.4563	27.5336
56	-1553.8071	-36.4500	-29.5655	1632.1202	40.9695	33.4470
57	-1678.7137	-129.3511	-39.5699	1942.8522	133.8719	43.5718
58	-2040.6804	-227.9758	-113.5904	2502.1086	232.4954	117.7292
59	-2619.3818	-342.4944	-195.3153	3309.8691	347.0134	199.6033
60	-3409.6184	-451.9233	-276.8988	4319.0312	367.1025	220.3222
61	-4392.1108	508.7146	327.8585	3270.6145	-452.3740	-274.5045
62	-3317.3794	414.6714	243.8501	2488.2043	-414.6741	-243.1288
63	-2608.2915	310.2268	166.7753	1987.9712	-310.2215	-166.1054
64	-2101.0083	200.8691	88.7907	1699.3578	-200.8683	-88.1696
65	-1797.0016	107.7436	17.3983	1581.5452	-107.7479	-16.8293
66	-1712.6930	19.2065	8.6918	1674.2922	-19.2036	-8.1740
67	-1674.3119	19.2055	6.0916	1635.8990	-19.1994	-5.6242
68	-1635.8745	19.1356	3.5471	1597.6145	-19.1324	-3.1313
69	-1597.6136	19.1501	1.0673	1559.3062	-19.1568	-0.7018
70	-1559.2698	19.2221	-1.3541	1520.8097	-19.2251	1.6678
71	-1520.7864	19.2450	-3.7059	1482.3015	-19.2475	3.9695
72	-1482.3346	19.2668	-6.0037	1443.7982	-19.2668	6.2173
73	-1443.8539	19.2467	-8.2658	1422.0388	22.5250	13.6367
74	-1422.0465	-22.5617	-15.6643	1472.5740	27.0809	19.3366
75	-1472.5714	-27.0216	-21.3502	1532.0011	31.5373	25.1154
76	-1531.9753	-31.5165	-27.1207	1600.3864	36.0341	30.9949
77	-1654.3334	-131.7020	-39.1201	1923.0754	136.2217	43.1133
78	-2023.6982	-230.4534	-113.8414	2489.8992	234.9741	117.9690
79	-2609.6328	-345.0457	-195.7910	3304.9644	349.5648	200.0666
80	-3406.0837	-454.5068	-277.4275	4320.5024	370.2816	215.5995
81	-4395.6260	507.4270	368.8738	3286.2026	-451.6973	-306.3327
82	-3333.3013	414.0322	275.0827	2505.0654	-414.0339	-274.3564
83	-2626.5613	309.8004	194.5706	2006.8292	-309.8011	-193.8975
84	-2122.1987	201.1811	107.4083	1719.7347	-201.1812	-106.7894
85	-1819.1498	109.5760	17.6703	1599.9396	-109.5773	-17.1004
86	-1708.2743	36.7334	-52.8982	1634.7753	-36.7335	53.4171
87	-1634.7056	36.7144	-55.4481	1561.2559	-36.7171	55.9145
88	-1561.1677	36.7125	-57.8696	1487.7213	-36.7148	58.2836
89	-1487.6522	36.7026	-60.1871	1414.2374	-36.6957	60.5495
90	-1414.1461	36.6726	-62.3987	1340.7850	-36.6712	62.7097
91	-1340.6537	36.6848	-64.4742	1267.2563	-36.6866	64.7325
92	-1267.1293	36.6518	-66.4459	1193.8162	-36.6457	66.6518
93	-1193.7300	36.6199	-68.2990	1120.4789	-36.6155	68.4519
94	-1120.3719	36.6109	-70.0443	1080.3193	5.9749	84.6251
95	-1080.2274	-5.9698	-86.1627	1097.5465	10.4898	89.8011
96	-1097.4634	-10.5017	-91.2761	1123.8635	15.0231	95.0103
97	-1223.7919	-130.5063	-76.7594	1490.2391	135.0258	80.6005
98	-1590.1621	-238.5236	-153.8871	2072.6804	243.0419	157.8493
99	-2167.8408	-346.5652	-186.7709	2866.4683	351.0851	190.8711
100	-2949.4741	-439.8669	-284.8144	3845.8506	360.1213	214.8350
101	-4011.9160	474.9480	331.5758	3219.2498	-428.3924	-258.9397
102	-3254.3528	379.3727	248.7069	2590.3774	-379.3727	-248.0268
103	-2661.0117	290.8386	164.8351	2151.9741	-290.8385	-164.2029
104	-2230.2368	199.7708	67.3429	1880.5914	-199.7673	-66.7569
105	-1956.9558	117.5166	-46.5090	1751.2686	-117.5157	47.0460
106	-1861.7124	43.9233	-143.9811	1784.8069	-43.9277	144.4694
107	-1784.6013	43.9346	-146.4148	1707.6694	-43.9350	146.8544
108	-1707.4865	43.9690	-148.7387	1630.5137	-43.9732	149.1301
109	-1630.3274	43.9880	-150.9540	1553.3021	-43.9965	151.2988
110	-1553.0868	44.0439	-153.0751	1475.9778	-44.0477	153.3709
111	-1475.7994	44.0734	-155.0807	1398.6357	-44.0704	155.3281

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
112	-1398.4258	44.0149	-156.9724	1321.3860	-44.0102	157.1724
113	-1321.2109	43.9814	-158.7827	1252.8075	-22.7208	147.9761
114	-1252.6179	22.7384	-149.5216	1246.9547	2.3725	166.2550
115	-1246.7539	-2.3306	-167.7473	1252.9303	4.5919	169.6987
116	-1252.7465	-4.6519	-171.1394	1266.2645	9.1741	174.8952
117	-1332.2412	-123.9122	-61.3032	1553.3546	128.4329	65.1368
118	-1627.9181	-221.2662	-94.3199	2018.2777	225.7849	98.2397
119	-2089.0718	-311.7621	-162.2751	2636.7905	314.0223	164.5575
120	-2711.3599	-405.8780	-222.2368	3440.7837	328.6861	148.8529
121	-3592.5989	465.8414	357.4502	2707.8081	-411.9671	-284.9456
122	-2738.0618	378.7260	255.3140	2075.2144	-378.7257	-254.8163
123	-2159.2949	286.8585	175.2839	1657.2164	-286.8577	-174.8198
124	-1735.5266	201.1448	113.0429	1383.4646	-201.1437	-112.6148
125	-1468.6776	112.3891	-5.2611	1271.9546	-112.3853	5.6545
126	-1387.8568	14.6128	-146.7036	1362.2723	-14.6165	147.0611
127	-1362.1232	14.6354	-148.5534	1336.4857	-14.6467	148.8767
128	-1336.3059	14.7204	-150.3710	1310.5208	-14.7214	150.6583
129	-1310.3092	14.7116	-152.1466	1284.5377	-14.7110	152.3987
130	-1284.3685	14.7253	-153.8989	1258.5751	-14.7300	154.1180
131	-1258.3860	14.7571	-155.6069	1232.5300	-14.7554	155.7899
132	-1232.3563	14.6703	-157.2959	1206.6676	-14.6631	157.4430
133	-1206.4929	14.6793	-158.9482	1215.3451	24.7927	165.4554
134	-1215.1677	-24.8113	-166.9522	1261.7186	29.3313	170.5888
135	-1261.5066	-29.3208	-172.0682	1314.9357	31.5799	174.0391
136	-1314.7310	-31.5745	-175.5382	1375.3674	36.0914	179.3210
137	-1421.5557	-128.3054	-62.4049	1650.3633	132.8227	66.2722
138	-1717.3175	-206.3042	-93.5340	2081.4915	210.8214	97.4943
139	-2177.5444	-302.3914	-130.2897	2708.8621	304.6488	132.6214
140	-2801.3408	-393.4402	-179.5664	3510.0103	312.7018	110.7155
141	-3693.3447	472.1790	310.9023	2752.5293	-506.7106	-348.5966
142	-2782.7031	472.4363	318.5123	2075.8594	-382.0862	-215.4389
143	-2159.0999	287.2844	136.6173	1642.0194	-287.2857	-136.1372
144	-1717.0734	198.4666	80.6733	1359.8667	-198.4668	-80.2312
145	-1440.6056	111.6703	-1.8475	1239.5953	-111.6726	2.2529
146	-1374.5758	-0.6020	-70.0575	1375.6373	0.5975	70.4274
147	-1375.5829	-0.5708	-71.9737	1376.5806	0.5700	72.3087
148	-1376.4691	-0.6221	-73.9065	1377.5765	0.6236	74.2066
149	-1377.4866	-0.5514	-75.8123	1378.4587	0.5471	76.0769
150	-1378.3920	-0.5679	-77.7580	1379.3978	0.5711	77.9866
151	-1379.3083	-0.5595	-79.6797	1380.2916	0.5631	79.8689
152	-1380.1965	-0.6137	-81.5904	1392.7749	39.1273	73.4073
153	-1392.6863	-39.0859	-75.1877	1465.7295	43.6031	78.8400
154	-1465.6276	-43.5971	-80.6577	1546.1094	45.8563	82.6464
155	-1545.9933	-45.8339	-84.5015	1633.8760	50.3549	88.3017
156	-1633.7662	-50.3868	-90.1862	1728.9403	54.9062	94.0793
157	-1747.8795	-129.4701	-17.5541	1984.4734	133.9910	21.5448
158	-2054.3508	-225.7675	-70.6453	2463.3660	230.2906	74.7445
159	-2536.3523	-327.9490	-133.4205	3128.5801	330.2083	135.9083
160	-3196.2539	-423.9551	-201.2104	3964.4070	340.0572	146.0387
161	-4017.6260	494.4940	322.7597	2905.1836	-527.2993	-340.0478
162	-2948.6169	489.4805	310.0237	2079.7468	-396.3383	-239.3224
163	-2185.8999	291.3977	164.0310	1603.0461	-291.3967	-163.5052
164	-1693.1544	205.3003	104.1164	1282.5015	-205.3015	-103.6306
165	-1402.5953	97.1759	27.7389	1208.2211	-97.1739	-27.2918
166	-1317.0845	8.0267	16.7930	1301.0372	-8.0211	-16.3871
167	-1301.0634	7.9757	14.7672	1285.1138	-7.9752	-14.4009
168	-1285.1149	7.9670	12.7779	1269.1733	-7.9694	-12.4516
169	-1269.1971	7.9836	10.7914	1253.2324	-7.9830	-10.5038
170	-1253.2075	7.9848	8.8490	1237.2245	-7.9804	-8.6055
171	-1237.2340	7.9509	6.9498	1221.3469	-7.9459	-6.7440

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
172	-1221.3888	7.9120	5.0382	1205.5566	-7.9127	-4.8719
173	-1205.5862	7.9451	3.1645	1205.6333	30.5090	2.2974
174	-1205.6399	-30.4779	-4.0272	1272.0033	34.9950	7.6687
175	-1272.0194	-34.9935	-9.4184	1347.4307	39.5131	13.1544
176	-1347.4460	-39.5004	-14.9023	1431.8406	44.0230	18.7439
177	-1481.7806	-132.4129	-43.4984	1752.0176	136.9352	47.4621
178	-1836.4470	-220.2996	-112.4584	2282.4739	224.8193	116.5555
179	-2405.7744	-334.4566	-196.1962	3080.1311	338.9747	200.4460
180	-3183.8748	-443.8252	-278.5911	4076.1118	359.0530	222.5125
181	-4141.2764	485.2845	325.5617	3123.2588	-430.9964	-272.8888
182	-3169.1589	394.3227	243.3893	2400.0195	-394.3219	-242.6725
183	-2518.5193	292.8570	168.7711	1947.2902	-292.8574	-168.1051
184	-2061.3762	187.2881	93.2564	1696.0619	-187.2868	-92.6428
185	-1794.5831	94.8505	10.0426	1609.5634	-94.8497	-9.4749
186	-1678.2754	49.8518	7.3398	1581.0120	-49.8600	-6.8252
187	-1581.0151	49.8910	4.9520	1483.6893	-49.8992	-4.4902
188	-1483.7159	49.8920	2.6847	1386.3905	-49.8896	-2.2748
189	-1386.3960	49.8953	0.5790	1289.0737	-49.8933	-0.2214
190	-1289.0900	49.9176	-1.3793	1191.6984	-49.9228	1.7030
191	-1191.6959	49.9326	-3.3946	1094.2872	-49.9344	3.6570
192	-1094.2671	49.9055	-4.8982	996.9183	-49.9005	5.0720
193	-996.9160	49.8711	-6.1570	899.6298	-49.8733	6.2966
194	-899.6171	49.9020	-7.6120	802.2727	-49.9060	7.7224
195	-802.2585	49.9148	-8.9955	770.0713	-6.4708	21.2287
196	-770.0527	6.4665	-22.1002	763.7411	-1.9474	25.7127
197	-866.2140	-116.5042	-55.6685	1099.5365	121.0245	59.3830
198	-1192.4421	-216.5266	-127.8388	1620.6357	221.0478	131.6518
199	-1717.5958	-306.0144	-190.9674	2323.4895	315.0544	198.4020
200	-2440.6748	-418.1667	-273.4000	3333.5293	416.2275	282.8755
201	-3413.9800	342.3712	170.9829	2859.5203	-379.1971	-190.9892
202	-2886.3130	325.8574	150.3896	2426.8525	-325.8604	-149.7912
203	-2463.5452	253.2166	98.7740	2106.4993	-253.2080	-98.3649
204	-2158.3020	174.3499	46.5024	1912.4695	-174.3366	-46.0622
205	-1987.8240	88.0010	-9.9732	1863.7389	-87.9976	10.3406
206	-1863.7286	88.0336	-11.1212	1739.5818	-88.0311	11.3463
207	-1739.5691	88.0355	-12.2077	1615.4194	-88.0410	12.6612
208	-1615.4028	88.0241	-15.1157	1491.2714	-88.0289	15.5699
209	-1491.2368	88.0638	-16.4155	1367.0486	-88.0686	16.6364
210	-1367.0118	88.1148	-17.4315	1242.7344	-88.1204	17.7005
211	-1242.7168	88.1116	-18.8701	1118.4584	-88.1145	19.1653
212	-1118.4633	88.1247	-20.1568	994.2025	-88.1365	20.3682
213	-994.1876	88.1745	-20.9201	869.8445	-88.1748	21.0570
214	-869.8299	88.1233	-21.5062	745.5785	-88.1145	21.6781
215	-745.5690	88.1075	-22.4894	621.3306	-88.1057	22.6458
216	-621.3189	88.1112	-22.9684	497.0799	-88.1125	23.0523
217	-497.0768	88.1209	-23.3421	372.8239	-88.1241	23.4354
218	-372.7999	88.1343	-23.8162	248.5154	-88.1360	23.8962
219	-248.4978	88.1204	-24.1001	124.2490	-88.1153	24.1309
220	-124.2446	88.1060	-24.1699	0.2935	74.8817	248.7756

ENVOLVENTES DE ESFUERZOS CON IMPACTO

ENVOL. MIN. CORTANTES -IPF

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.0124	-26.3258	42.4178	63.8879	59.8436	-16.5896
2	-14.6741	-29.7143	39.0944	60.8028	64.2692	-12.4063
3	30.9087	-36.1996	33.4890	33.4413	70.4927	-7.1766
4	94.0855	-44.4653	26.9730	-50.1723	80.5621	0.6368
5	206.9441	-56.5838	17.9821	-157.4156	93.6932	10.1831
6	337.0365	-71.6907	7.3362	-231.0601	107.2543	19.5727
7	427.3173	-87.2459	-3.0963	-338.7577	125.8325	31.9839
8	545.6992	-107.7541	-16.5265	-429.4417	147.3002	45.8998
9	641.4081	-131.0809	-31.4602	-443.3062	167.8276	58.8745
10	654.9504	-153.4481	-45.4733	-461.4489	194.3889	75.5437
11	667.7663	-181.7733	-63.2251	-383.6147	219.2134	90.9774
12	580.0110	-208.2687	-79.8043	-286.9314	250.5160	110.6375
13	469.2586	-241.2403	-100.6943	-117.3952	284.3037	132.0941
14	282.0266	-276.5571	-123.4774	166.9357	314.9954	151.9607
15	-23.1400	-308.7202	-144.7861	504.3745	352.9053	177.1420
16	-383.9551	-348.0024	-171.5233	938.0669	392.8805	204.5764
17	-842.9421	-389.2544	-200.6519	1491.4791	428.5564	230.1694
18	-1422.9308	-426.1199	-228.0888	2128.9480	471.9031	262.3686
19	-2087.5647	-470.4942	-262.2364	2874.9255	516.6227	297.1099
20	-2860.6558	-516.1572	-299.0789	3731.3049	487.1448	288.1589
21	-192.6450	-94.7702	-71.0745	-422.9359	60.3916	-7.8490
22	150.1306	-22.2546	3.1722	-362.4560	62.5941	-5.1357
23	428.4179	-25.7929	31.7998	-336.1792	66.4655	-0.6041
24	442.0937	-31.5026	25.5912	-338.4375	72.1751	5.6042
25	481.1425	-39.1833	17.8474	-380.6709	80.6628	21.2710
26	556.2319	-49.7794	0.7511	-489.5691	94.1350	33.4730
27	693.1276	-65.4738	-12.7871	-598.3479	110.3558	47.3325
28	824.2632	-84.0113	-27.9127	-693.8487	129.4033	62.7558
29	935.8810	-105.4192	-44.5704	-762.3713	151.2873	79.4797
30	1013.7859	-129.6917	-62.5270	-789.8947	176.0200	97.4665
31	1043.7921	-156.8726	-81.7774	-763.4862	203.7413	119.6267
32	1012.9039	-186.9749	-105.2763	-683.2983	236.2569	141.5817
33	921.4301	-221.8682	-128.6750	-514.5496	271.8009	165.3816
34	734.9213	-259.7232	-154.0627	-243.1719	310.2370	191.2330
35	439.8590	-300.3918	-181.6768	143.6492	351.4161	219.3813
36	24.1244	-343.6965	-211.7885	657.2200	395.1644	249.9748
37	-522.6810	-389.4498	-244.5723	1306.8502	441.2580	283.1286
38	-1208.7424	-437.4125	-280.1615	2099.7478	489.4817	319.1684
39	-2040.0027	-487.2992	-318.8959	3040.6655	539.5276	358.4312
40	-3019.8701	-538.8197	-361.1149	4132.1812	520.4847	352.9545
41	-198.9076	-94.5492	-72.2227	-867.4921	74.5069	-5.3603
42	892.5394	-36.0590	34.4537	-779.7124	76.7465	-3.4180
43	847.2600	-39.9949	30.7148	-726.5621	80.6819	0.3330
44	834.4066	-45.7853	25.2906	-702.1272	86.4730	5.7694
45	846.9495	-53.5684	18.3153	-699.1010	94.2571	12.7567
46	876.8001	-63.4714	9.8823	-723.8224	104.7435	32.2728
47	929.4400	-76.1731	-10.9906	-813.9390	121.1131	45.4514
48	1041.7391	-94.8426	-25.4818	-890.1318	140.2762	60.2597
49	1133.8097	-116.3768	-41.5624	-938.6627	162.2903	76.4261
50	1191.5028	-140.7912	-59.0146	-945.5610	187.1592	93.9281
51	1200.6625	-168.1030	-77.8370	-897.4517	214.9455	115.7399
52	1147.8252	-198.2706	-101.0513	-795.9567	247.6443	137.2646
53	1034.8146	-233.3559	-124.0819	-605.0736	283.3664	160.7181
54	825.9399	-271.3795	-149.1836	-310.7758	321.9529	186.3066
55	507.7697	-312.1812	-176.5991	99.5857	363.2577	214.2860
56	68.3140	-355.6024	-206.6053	637.1422	407.1108	244.8035
57	-502.6089	-401.4353	-239.3703	1311.1123	453.2784	277.9608
58	-1213.1034	-449.4594	-275.0056	2128.5559	501.5396	314.0661
59	-2068.9539	-499.3714	-313.8650	3094.1072	551.6014	353.4642
60	-3073.4434	-550.8998	-356.2285	4209.8774	532.3332	347.9303
61	-199.6076	-94.5798	-72.1481	-979.0632	77.6389	-4.3054
62	1004.3141	-39.2148	33.4814	-885.2387	79.8869	-2.4824
63	952.9996	-43.1631	29.8204	-826.0264	83.8343	1.1928
64	934.0697	-48.9722	24.4515	-795.4844	89.6454	6.5751
65	940.4717	-56.7802	17.5075	-786.2682	97.4523	13.5323
66	964.0838	-66.6967	9.0876	-793.7192	107.3847	32.8561
67	999.3820	-78.8585	-11.6075	-878.6221	123.7954	46.1086
68	1106.3955	-97.5684	-26.1657	-949.4352	142.9962	60.9751
69	1193.0074	-119.1411	-42.3191	-992.4411	165.0599	77.2036
70	1245.0621	-143.6272	-59.8253	-993.5194	189.9841	94.7540
71	1248.2509	-170.9205	-78.7062	-939.4468	217.7621	116.5941
72	1189.3678	-201.1413	-101.9376	-831.8228	250.5018	138.1954
73	1070.1506	-236.2090	-125.0308	-634.7656	286.2115	161.6999
74	855.0386	-274.2249	-150.1865	-334.3007	324.7911	187.3354
75	530.6930	-315.0898	-177.6371	82.3723	366.1783	215.3367
76	84.9593	-358.5580	-207.6652	626.2379	410.0420	245.8617
77	-492.1862	-404.3998	-240.4294	1306.4161	456.2193	279.0083
78	-1208.8226	-452.3944	-276.0659	2129.8621	504.4590	315.1039
79	-2070.5461	-502.3078	-314.8883	3101.1924	554.5283	354.4580
80	-3080.6042	-553.8471	-357.2441	4222.5718	535.0668	350.6179
81	-200.6134	-94.5342	-72.8830	-913.0850	63.9035	35.0309
82	938.6227	-25.4984	-5.5092	-846.9186	66.1875	36.5195
83	915.0713	-29.5123	-8.4505	-815.3369	70.2007	39.4741
84	923.7603	-35.4102	-12.7201	-812.2216	76.0979	43.7591
85	957.4528	-43.3369	-18.1794	-830.0635	84.0254	49.2316
86	1007.8812	-53.4223	-24.7178	-860.3136	94.1118	55.7839
87	1065.6133	-65.7494	-32.2674	-974.1277	110.7328	77.2595
88	1201.0420	-84.7067	-54.7234	-1069.2236	130.2262	88.7340
89	1311.3518	-106.5872	-67.1704	-1135.1384	152.5790	101.2321
90	1385.7028	-131.3726	-80.6982	-1157.7356	177.8130	114.8021
91	1409.7693	-159.0266	-95.4217	-1123.7257	205.9471	132.5574
92	1370.3079	-189.5428	-114.4531	-1034.2084	239.0204	149.5167
93	1268.6487	-224.9750	-132.8975	-853.7831	275.0813	168.4137
94	1069.7567	-263.3566	-153.5013	-568.6360	314.0500	189.5706
95	760.4714	-304.5485	-176.6468	-166.4327	355.7080	213.3896
96	329.2640	-348.2719	-202.7773	363.3386	399.8497	240.1832
97	-233.4185	-394.3763	-232.2299	1029.3079	446.2663	270.2280
98	-934.9794	-442.6027	-265.3010	1837.7357	494.7191	304.0203
99	-1780.2828	-492.6492	-302.5179	2792.2273	544.8894	342.0834
100	-2771.5220	-544.1905	-344.4075	3898.9282	523.1727	350.4702
101	-216.9610	-93.7334	-73.6101	-956.3022	77.9524	36.6054
102	975.6282	-44.3116	-8.9694	-866.9218	79.9103	36.0897
103	920.0529	-47.8061	-9.0868	-805.2301	83.4051	36.2201
104	890.0689	-52.9664	-9.8632	-766.2175	88.5624	37.0104
105	879.8790	-59.8997	-11.3113	-743.8932	95.4958	38.4709
106	882.9649	-68.7103	-13.4914	-731.5552	104.3085	40.6637
107	892.0026	-79.4937	-16.4543	-721.7274	115.0929	43.6380
108	899.0033	-92.3017	-20.2919	-779.5276	132.5222	63.9448
109	968.6566	-111.7881	-41.5665	-815.9503	153.0718	70.7293
110	1011.7112	-134.4628	-49.4346	-818.2416	176.2813	79.0237
111	1015.3259	-159.7688	-58.9776	-738.7581	198.6610	87.4078

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
112	931.8326	-184.1988	-68.7859	-641.1810	226.7116	99.0047
113	825.1013	-214.3082	-81.9977	-483.8755	258.4098	115.3436
114	653.7772	-248.0211	-100.1782	-251.7187	294.1618	131.0374
115	403.1705	-285.7018	-117.9544	102.0868	326.7973	147.2690
116	27.0418	-320.1166	-136.5329	524.6006	367.1305	169.0652
117	-420.9464	-362.1998	-160.9538	1056.0090	409.6686	194.8283
118	-980.1369	-406.3150	-189.6348	1701.6647	454.1259	224.8653
119	-1654.9104	-452.2105	-222.8743	2472.8840	494.0021	254.7210
120	-2455.5552	-493.3431	-256.2356	3355.9490	478.5108	267.9182
121	-199.9067	-93.1931	-71.6797	-1007.6511	82.4828	44.6496
122	1024.2152	-48.7246	-16.7589	-907.7797	84.3227	43.8785
123	957.1013	-52.0479	-16.5005	-834.8445	87.6469	43.6336
124	915.2596	-56.9854	-16.8064	-784.3657	92.5844	43.9512
125	893.3375	-63.6547	-17.6975	-750.7764	99.2514	44.8556
126	885.2157	-72.1777	-19.2459	-727.7385	107.7757	46.4179
127	883.8947	-82.6456	-21.5159	-733.2896	119.4873	62.6878
128	906.7785	-96.3932	-38.5972	-778.9177	136.9603	66.7772
129	964.8815	-115.9040	-43.6186	-803.9875	157.0682	72.4356
130	997.3253	-138.1237	-50.3394	-796.9277	179.8439	79.6125
131	992.3228	-163.0131	-58.7549	-709.9765	201.8516	87.0280
132	902.1123	-187.0831	-67.5853	-606.4568	229.5322	97.5373
133	790.1262	-216.8497	-79.7373	-444.9196	260.9302	112.7582
134	615.1696	-250.2711	-96.8367	-209.2880	296.2090	127.3260
135	361.5648	-287.5188	-113.5504	146.6507	328.5519	142.6843
136	-16.3390	-321.7162	-131.3309	570.1405	368.6199	163.5428
137	-465.1337	-363.5323	-154.9143	1101.8972	410.9413	188.5331
138	-1024.6921	-407.4818	-182.9310	1747.7836	455.2684	217.9961
139	-1699.9181	-453.2808	-215.7645	2519.6418	495.0758	247.5663
140	-2501.6191	-494.3773	-249.0069	3404.3074	479.4261	262.0993
141	510.5748	-93.8910	-2.2764	-902.5577	85.5870	-8.5132
142	918.8226	-50.8115	36.7735	-794.4206	87.4201	-8.8306
143	844.9778	-54.1384	36.2416	-714.5868	90.7472	-8.2896
144	797.8572	-59.1037	34.7931	-658.5353	95.7108	-6.8324
145	772.0247	-65.8310	32.3563	-620.5885	102.4401	-4.3844
146	761.1545	-74.4419	28.8651	-597.5704	111.0538	11.6032
147	761.3428	-85.0388	11.7508	-649.0938	126.0626	17.7776
148	831.5358	-102.1004	4.3818	-691.2065	143.7237	25.8086
149	887.2949	-121.8913	-4.9545	-672.3121	161.2299	34.1919
150	876.6381	-141.5386	-14.7172	-660.6093	183.9946	45.7025
151	867.5622	-166.4831	-27.7286	-604.5446	209.4375	59.1483
152	808.4691	-194.0747	-42.7985	-492.4303	237.4890	74.6685
153	687.7515	-224.2834	-60.0616	-326.1539	270.4761	94.9589
154	507.5309	-259.3691	-82.2458	-40.1087	301.0505	112.3894
155	202.5897	-291.9735	-101.7190	302.4725	339.2019	135.0458
156	-163.3188	-332.0495	-126.5833	750.3568	379.8646	160.9676
157	-638.2565	-374.5504	-154.8700	1312.0624	422.8349	190.4123
158	-1229.9126	-419.2210	-186.8510	1994.0555	467.8670	223.3431
159	-1943.7731	-465.8068	-222.4586	2809.5662	508.5289	255.1989
160	-2792.0352	-507.8594	-257.1795	3739.4370	493.5315	256.6451
161	-185.2911	-94.0748	-70.1714	-840.2767	67.8004	-7.0871
162	863.0021	-29.2868	36.0177	-763.7360	69.9711	-4.9632
163	827.8355	-33.1166	32.0240	-720.9109	73.8011	-0.9585
164	824.5729	-38.7724	26.2760	-706.3265	79.4572	4.8001
165	846.5500	-46.4015	18.9153	-713.0547	87.0848	12.1720
166	886.0190	-56.1386	10.0456	-775.5421	98.8542	31.6566
167	976.4908	-70.1163	-10.8446	-871.3281	114.9786	45.4767
168	1094.6809	-88.5487	-26.0022	-954.2636	133.9270	60.9461
169	1193.8005	-109.8796	-42.7559	-1010.5732	155.7464	77.7788
170	1259.6062	-134.1152	-60.8865	-1026.1696	180.4366	95.9513
171	1277.8085	-161.2136	-80.3882	-988.5967	208.1337	118.3730

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
172	1235.9065	-191.3301	-104.1643	-896.4663	240.5842	140.6530
173	1132.6063	-226.1877	-127.9209	-716.0877	276.1091	164.8196
174	934.5671	-264.0426	-153.6833	-433.2447	314.5678	191.0357
175	628.1273	-304.7313	-181.6562	-35.0813	355.7827	219.5356
176	201.1725	-348.1191	-212.0991	489.8047	399.5973	250.4531
177	-356.7926	-393.8917	-245.1655	1150.5759	445.7277	283.8576
178	-1053.7936	-441.8927	-280.9300	1954.4657	493.9893	320.0434
179	-1895.7421	-491.8361	-319.7369	2906.1123	544.1001	359.3407
180	-2885.8733	-543.4139	-361.8801	4006.8132	524.0624	351.9975
181	-202.0072	-94.4444	-72.3411	-693.3179	47.9954	1.0130
182	104.1767	-16.3969	2.5375	-658.9399	50.2540	3.3219
183	72.1879	-16.3979	2.6697	-657.4942	54.2127	7.3739
184	761.4477	-20.3469	17.2691	-683.0652	60.0215	13.0304
185	821.9952	-28.1517	10.1550	-728.3877	67.8267	20.1539
186	898.2012	-38.0598	1.6914	-803.4620	78.5201	39.5356
187	999.2453	-50.9665	-18.9614	-939.1677	95.1326	52.8738
188	1155.3176	-69.8516	-33.4790	-1059.4792	114.5395	67.6895
189	1289.8381	-91.6027	-49.4634	-1150.9757	136.7827	83.7410
190	1389.0878	-116.2224	-66.6777	-1200.0842	161.8541	100.9547
191	1439.3336	-143.6476	-84.8741	-1194.2419	189.7922	122.1432
192	1427.9810	-173.9128	-107.7000	-1134.8898	222.6697	143.5346
193	1356.7852	-209.0852	-130.5769	-987.3807	258.4872	166.7936
194	1191.5383	-247.1950	-155.0375	-703.3922	291.9538	188.2357
195	884.4159	-282.7778	-178.1120	-346.7458	333.0077	215.0587
196	499.9598	-325.8736	-206.9449	132.6361	376.5343	244.5287
197	-10.7534	-371.2779	-238.4633	742.7534	422.2896	276.4323
198	-654.6660	-418.7558	-272.6923	1489.4048	470.0030	311.0737
199	-1436.2935	-468.0326	-309.7522	2375.9746	519.4261	348.6733
200	-2357.4646	-518.7952	-350.6614	3403.5168	498.9261	343.3067
201	-215.2393	-94.0666	-72.9918	-685.0905	25.5751	4.1367
202	199.3745	-7.4426	-0.7494	-682.2328	26.8882	5.4536
203	188.8820	-7.4431	-0.5141	-698.8041	29.1574	8.1987
204	192.4359	-8.0344	-14.1826	-732.5434	32.4501	12.0684
205	399.4697	-17.7042	-24.9793	-780.6550	36.8725	16.6948
206	485.8411	-22.9721	-30.1215	-839.8395	42.5288	22.8136
207	677.6381	-34.3345	-40.8651	-906.4295	49.4258	29.8051
208	740.6882	-40.4193	-45.4969	-976.2383	57.6675	36.5471
209	790.9827	-46.7553	-49.8993	-1092.6887	70.4582	62.9549
210	933.0654	-60.2066	-60.1220	-1188.4637	84.3434	74.8741
211	1346.1638	-68.2776	-62.9792	-1305.7139	102.9518	89.8888
212	1465.4707	-88.4807	-78.9187	-1357.1584	120.4136	103.3929
213	1514.9766	-107.5620	-93.8554	-1412.1700	143.2443	121.2238
214	1563.9271	-131.9439	-112.7454	-1389.3838	164.3669	137.3443
215	1530.8529	-154.7550	-128.9868	-1319.9912	187.3426	153.6315
216	1446.4526	-179.4859	-147.1694	-1227.7972	217.8509	179.8261
217	1334.6908	-211.6967	-174.4361	-1040.4106	246.1524	200.1657
218	1122.9902	-241.7502	-195.4865	-796.5445	282.6992	225.7252
219	849.8462	-280.0203	-222.6142	-443.9956	315.1906	249.0366
220	463.0316	-314.2823	-248.7870	0.2868	342.9603	248.7632

ENVOLVENTES DE ESFUERZOS CON IMPACTO

ENVOL. MIN. TORSORES -IPF

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.0298	-0.0081	-2.3434	-31.7398	1.3061	5.3919
2	31.7398	-1.3061	-5.3919	-133.2404	5.8546	20.5780
3	133.2404	-5.8546	-20.5780	-206.1782	9.7285	29.3468
4	206.1782	-9.7285	-29.3468	-342.9611	17.4469	46.7809
5	342.9611	-17.4469	-46.7809	-455.1196	25.0857	63.9172
6	455.1196	-25.0857	-63.9172	-478.6548	28.8682	72.0924
7	478.6548	-28.8682	-72.0924	-549.4276	36.3156	88.8589
8	549.4276	-36.3156	-88.8589	-699.6226	36.4919	112.4662
9	597.9351	-43.5877	-105.5009	-764.0717	46.9643	136.3938
10	575.9104	-47.1591	-113.4275	-833.4918	60.2264	167.4516
11	936.6052	-53.9381	-143.9114	-854.9489	72.6571	196.4036
12	939.3715	-67.9695	-175.0298	-851.9754	89.0988	233.3800
13	894.3639	-86.9606	-214.2400	-773.4969	108.4863	273.7031
14	767.1719	-108.7821	-256.9548	-590.9703	127.9997	310.8484
15	610.1439	-127.1500	-296.4963	-414.0581	149.2384	357.6812
16	473.9024	-146.8025	-345.7310	-241.3734	169.2440	408.0930
17	289.0800	-167.4591	-398.5962	-9.3218	187.1036	454.0438
18	43.7180	-185.8764	-447.0674	264.7636	208.7704	511.2871
19	-243.8141	-208.0647	-506.8997	592.9606	231.1300	571.8783
20	-585.5327	-230.9022	-570.1486	975.9212	216.4280	549.9827
21	-95.7850	-47.4072	-134.9022	3.5945	-0.1046	8.5546
22	-3.5945	0.1046	-8.5546	-90.4881	3.3166	18.9754
23	90.4881	-3.3166	-18.9754	-183.8934	7.2277	33.5239
24	183.8934	-7.2277	-33.5239	-272.9394	11.5717	47.8531
25	272.9394	-11.5717	-47.8531	289.7614	-21.7135	64.7011
26	354.5677	-16.3003	-61.9672	107.9943	-14.8137	87.5858
27	426.4136	-21.3763	-75.8842	-75.3970	-6.4012	113.8306
28	486.4762	-26.7590	-89.6262	-253.2038	3.5728	143.3927
29	371.8912	8.0813	-109.9618	-414.6854	15.4452	176.2572
30	536.2257	-5.1241	-145.3196	-552.3834	29.0433	212.4314
31	607.1351	-25.9086	-184.0276	-580.2056	50.1980	251.9687
32	700.0952	-42.1918	-226.2141	-637.9206	66.8280	295.0038
33	724.6663	-61.7719	-271.9195	-619.6224	86.7363	341.5824
34	730.0839	-80.6949	-321.1954	-582.6386	105.9472	391.7646
35	681.2535	-101.0168	-374.1587	-487.9782	126.5264	445.6666
36	572.2623	-122.6711	-430.9398	-330.0871	148.4032	503.1843
37	397.8844	-145.5390	-491.4557	-104.3384	171.4366	564.1129
38	153.9939	-169.5063	-555.5032	192.9240	195.5387	628.6136
39	-162.3651	-194.4412	-623.2489	564.0777	220.5509	696.8512
40	-793.1851	-228.4082	-694.9236	1267.5961	219.2423	678.5758
41	-98.9421	-47.2593	-137.1344	915.6992	-36.9278	12.7287
42	-5.6912	0.1752	-8.5998	793.0215	-35.1447	21.3787
43	90.5910	-3.3227	-18.8361	647.2596	-32.1803	33.6740
44	185.6131	-7.3036	-33.2421	482.7457	-27.9498	49.5161
45	275.7467	-11.7006	-47.4609	304.7457	-22.3434	68.8334
46	358.0105	-16.4787	-61.4944	119.1768	-15.3063	91.5514
47	430.1103	-21.5813	-75.3594	-67.3642	-6.7733	117.6212
48	490.1436	-26.9777	-89.0777	-173.9977	-1.4731	147.0692
49	285.6046	14.0878	-113.6518	-341.1830	9.5054	179.8872
50	461.3505	1.1436	-148.9606	-490.5735	22.8262	216.0187
51	613.2505	-13.7243	-187.5999	-611.0424	38.0627	255.4946
52	651.0223	-36.0963	-229.6782	-601.2454	60.7832	298.4307
53	691.0583	-55.3521	-275.3242	-598.9370	80.3528	344.9636
54	709.4498	-74.3647	-324.5657	-574.6352	99.6480	395.1239
55	673.4008	-94.7560	-377.5021	-492.5184	120.2949	449.0165
56	576.7608	-116.4737	-434.2715	-346.8532	142.2246	506.5376
57	414.5437	-139.3863	-494.7805	-133.1181	165.3088	567.4712
58	182.6348	-163.3954	-558.8192	152.2327	189.4324	631.9718
59	-121.8555	-188.3521	-626.5521	511.5703	214.4685	700.2023
60	-500.5856	-214.1151	-698.1364	945.9638	204.8574	681.6399
61	-99.2504	-47.2937	-137.1047	855.2278	-33.3923	12.5968
62	-4.8764	0.1477	-8.5965	739.3114	-31.5960	21.2030
63	91.5255	-3.3633	-18.9260	600.3676	-28.6156	33.4786
64	186.5584	-7.3516	-33.4104	442.7503	-24.3527	49.3283
65	276.6371	-11.7623	-47.6885	271.7195	-18.7374	68.6708
66	358.7809	-16.5438	-61.7664	93.2344	-11.6679	91.4305
67	430.7487	-21.6593	-75.6606	-86.1251	-3.1101	117.5556
68	490.5982	-27.0470	-89.3926	-256.0425	6.7846	147.0076
69	304.9362	9.8835	-113.5657	-352.1292	13.7141	179.8155
70	429.8362	0.6474	-148.9843	-458.0690	23.3252	216.0547
71	581.5613	-13.4317	-187.7480	-579.9024	37.7750	255.6536
72	705.0780	-29.4636	-229.8825	-668.5555	54.1386	298.6415
73	787.9596	-46.9943	-275.4467	-712.5359	71.9952	345.0848
74	821.3711	-65.7853	-324.5507	-703.7289	91.0638	395.1052
75	665.7994	-93.2399	-377.3810	-487.9758	118.7844	448.8846
76	571.6514	-114.9867	-434.1697	-344.7584	140.7253	506.4197
77	412.2892	-137.9044	-494.6759	-133.9046	163.8110	567.3446
78	183.2615	-161.8939	-558.6989	148.4976	187.9213	631.8242
79	-119.3848	-187.0794	-626.4002	506.3976	213.1893	700.0192
80	-495.4409	-212.8439	-697.9464	938.3085	203.4603	682.2895
81	-99.8452	-47.2602	-137.5043	676.0375	-7.6935	34.3500
82	-5.3612	0.1802	-8.7791	681.0947	-8.4661	42.4571
83	91.3457	-3.3744	-18.5154	775.7333	-12.9719	54.4472
84	186.5335	-7.4056	-32.4047	654.7388	-8.9023	69.9334
85	276.5927	-11.8662	-46.0363	514.6199	-3.2103	88.7740
86	358.5348	-16.6971	-59.4378	367.2821	3.9126	110.9020
87	430.0584	-21.8650	-72.6497	219.4606	12.5649	136.2691
88	-105.7310	0.4745	-99.8147	78.3803	22.7738	164.8565
89	43.0683	-10.9163	-130.8616	-48.3332	34.5548	196.6845
90	174.1535	-23.9141	-165.1739	-152.8539	47.9273	231.7989
91	278.7074	-38.4038	-202.8204	-226.6273	62.7843	270.2760
92	350.8426	-54.5375	-243.9072	-263.6038	79.2597	312.2294
93	381.9617	-72.1905	-288.5636	-255.5410	97.2197	357.7980
94	364.9323	-91.2913	-336.9494	-195.6531	116.6185	407.1461
95	293.2338	-111.7892	-389.2556	-77.7856	137.3446	460.4737
96	161.1511	-133.5603	-445.6985	103.3173	159.3246	517.7506
97	-36.0847	-156.5065	-506.2625	351.9008	182.4250	578.8392
98	-302.1430	-180.5076	-570.8218	671.1035	206.5412	643.9901
99	-639.4480	-205.4155	-639.6396	1062.6971	231.5098	713.4577
100	-1049.0631	-231.0706	-712.9724	1540.0298	220.5012	701.4446
101	-109.4259	-46.3569	-137.8194	1110.7740	-23.6763	66.9298
102	-1103.7024	40.5991	-20.3096	1029.7950	-22.0343	72.6569
103	-1005.5210	38.2022	-28.1033	942.3447	-19.8732	80.2292
104	-901.9095	35.1943	-37.7413	827.4181	-16.0176	91.2848
105	-772.2677	30.4508	-50.8825	699.9989	-10.8417	105.2538
106	-631.8291	24.3378	-66.9444	565.1980	-4.2771	122.1651
107	-486.0156	16.8023	-85.9956	451.4074	2.2970	139.4679
108	-363.5095	9.2280	-105.4667	320.5243	11.5209	161.9900
109	-226.3717	-1.0456	-130.2109	199.7405	22.2552	187.6757
110	-101.9305	-12.8186	-158.1818	95.5489	34.4780	216.6377
111	3.2356	-26.0927	-189.5013	36.9830	45.9806	244.5631

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
112	60.1500	-38.6605	-219.8712	-15.6174	60.9565	279.9143
113	108.5120	-54.6431	-257.7704	-33.1786	77.3256	318.9764
114	119.4092	-72.0069	-299.4836	-9.9982	95.0558	361.9305
115	87.3656	-90.6953	-345.2106	73.5900	111.2318	402.3644
116	-7.0240	-107.7978	-388.5486	190.5925	131.2862	453.0352
117	-136.3930	-128.7062	-442.2576	361.3455	152.4247	508.2162
118	-320.6741	-150.6326	-500.6229	588.5457	174.5195	567.8460
119	-562.0689	-173.4410	-563.5807	878.3105	194.3281	623.0875
120	-866.1888	-193.8824	-622.2961	1233.6821	186.7336	617.4708
121	-99.7174	-45.9522	-135.8260	772.6980	-9.5877	69.2081
122	-767.3171	26.5848	-22.1508	722.8503	-8.2275	74.4914
123	-700.7479	24.4890	-29.4655	663.9111	-6.2669	81.5466
124	-625.9238	21.7259	-38.5567	579.3336	-2.7699	92.0606
125	-526.7332	17.3539	-51.1316	481.2983	2.0350	105.4374
126	-415.6229	11.6122	-66.5834	374.6895	8.2325	121.7123
127	-297.8125	4.4681	-84.9788	286.2690	14.5275	138.3797
128	-200.3609	-2.8238	-103.8107	180.8680	23.3731	160.2086
129	-88.3435	-12.7258	-127.8612	84.0059	33.7484	185.1736
130	12.5589	-24.1362	-155.1203	2.1932	45.6257	213.4065
131	95.7831	-37.0674	-185.7217	-35.9072	56.8823	240.6839
132	132.6375	-49.3926	-215.4642	-68.8370	71.5436	275.3148
133	161.7292	-65.0635	-252.6680	-68.0124	87.6310	313.6736
134	154.6058	-82.1743	-293.7108	-27.5413	105.1142	355.9615
135	105.5635	-100.6280	-338.8200	72.6089	121.1287	395.8757
136	-5.1560	-117.5773	-381.6896	205.3973	141.0033	445.9986
137	-150.1684	-138.3156	-434.9204	391.4859	161.9975	500.7300
138	-349.7405	-160.1233	-492.9073	633.8317	183.9955	560.0246
139	-606.3334	-182.8576	-555.6266	938.9073	203.7441	615.0974
140	-925.9054	-203.2549	-614.2739	1311.5389	196.0295	610.1970
141	-96.6900	-45.8687	-134.9506	907.0226	-32.9035	30.2898
142	-295.9409	11.0572	-9.3128	815.0775	-31.5969	36.0460
143	64.1630	-2.5697	-12.8023	701.4662	-29.1729	44.7669
144	162.7226	-6.9971	-26.3228	584.8782	-26.2018	54.9581
145	202.4828	-9.4089	-33.0950	442.7356	-21.4412	69.2850
146	289.8017	-14.5881	-47.1403	291.4804	-15.2981	86.7213
147	368.5745	-20.1975	-61.5520	136.7355	-7.7032	107.3198
148	436.5632	-26.1687	-76.3209	-15.3104	1.3950	131.1531
149	112.3118	9.6055	-98.7466	-134.7318	10.2972	154.5903
150	236.0946	-0.3805	-124.5845	-261.1979	22.2193	184.6063
151	364.1010	-13.4012	-157.0563	-365.3482	35.6810	218.1032
152	466.9360	-27.9380	-193.0724	-440.3701	50.6447	255.1974
153	458.3701	-49.7754	-232.7555	-389.7215	72.8760	296.0090
154	365.5236	-74.6699	-276.4230	-230.9157	95.5165	334.6319
155	242.4230	-94.9627	-317.9245	-81.8189	118.5906	382.9958
156	102.0217	-117.5669	-369.2263	104.1949	141.4910	435.5910
157	-108.1865	-141.6895	-424.8227	362.9868	165.8534	492.4935
158	-376.4293	-166.4456	-484.7975	680.7946	190.7919	553.2874
159	-655.1799	-189.7502	-548.7637	1010.3459	211.1246	609.5677
160	-1058.9940	-212.9803	-608.2518	1458.7958	206.1476	598.6982
161	-91.6512	-47.0343	-135.1326	390.7742	-16.3413	11.4845
162	-3.1159	0.0863	-8.5724	527.5405	-22.5444	19.6262
163	88.5946	-3.2706	-19.0524	-180.3445	7.1373	33.6905
164	180.3445	-7.1373	-33.6905	-268.2173	11.4564	48.1283
165	268.2173	-11.4564	-48.1283	128.9561	-10.3141	66.7479
166	349.0410	-16.1663	-62.3661	-27.7481	-3.4733	89.5543
167	420.4081	-21.2275	-76.4130	-186.2012	4.8644	115.7984
168	480.2412	-26.6019	-90.2899	-339.2833	14.7640	145.4346
169	459.1556	-2.7495	-112.0654	-479.4308	26.2466	178.4355
170	604.0592	-15.4356	-147.6126	-598.8149	39.3240	214.8130
171	723.6678	-29.8119	-186.5524	-688.2448	54.0767	254.5925

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
172	812.0428	-45.6850	-228.9059	-742.3054	70.3094	297.7961
173	860.5502	-63.1244	-274.7482	-752.2729	88.0853	344.5160
174	859.0248	-82.2153	-324.1682	-708.0427	107.4715	394.8403
175	791.9557	-103.2780	-377.2754	-593.6829	128.8054	448.8828
176	614.3694	-127.9502	-434.2646	-361.1861	153.6907	506.6066
177	427.4898	-150.8585	-495.0115	-122.8733	176.7746	567.7519
178	171.5853	-174.8604	-559.2512	186.4738	200.9109	632.4301
179	-156.7663	-199.8472	-627.1482	569.6885	225.9775	700.7998
180	-559.1997	-225.6440	-698.8501	1026.4647	215.9408	681.6600
181	-100.4221	-47.2751	-137.2605	437.1381	-15.4683	10.5302
182	-2.8800	0.0824	-8.8072	-94.5446	3.6188	19.5488
183	94.5446	-3.6188	-19.5488	-190.3757	7.8233	34.5168
184	190.3757	-7.8233	-34.5168	-280.9695	12.4714	49.2408
185	280.9695	-12.4714	-49.2408	315.2487	-15.5725	66.0763
186	363.2087	-17.5082	-63.7268	148.2013	-8.4071	88.7712
187	434.9727	-22.8874	-78.0032	-18.9342	0.2641	114.8030
188	494.2220	-28.5575	-92.0957	-179.0311	10.4922	144.1368
189	294.3580	0.9753	-111.6703	-324.6872	22.2889	176.7569
190	443.4796	-11.9641	-146.7407	-447.9833	35.6196	212.6554
191	544.7097	-24.3417	-185.0364	-523.2670	48.3683	251.8119
192	638.2730	-40.3897	-226.8634	-582.6177	64.7631	294.5591
193	693.7886	-57.9558	-272.2381	-600.0471	82.6493	340.8163
194	684.4827	-73.2319	-320.9565	-538.7664	95.6108	383.8790
195	628.3820	-90.5278	-366.6794	-458.9048	115.6372	436.6580
196	535.5491	-111.6010	-422.4163	-319.5465	136.9249	493.3731
197	380.5331	-134.7516	-481.9856	-113.9891	160.2530	553.4478
198	157.2185	-158.9652	-545.0273	161.6019	184.5833	616.9295
199	-151.7739	-187.0954	-611.6370	529.8478	212.7865	684.0427
200	-521.5985	-212.7361	-682.0983	954.1176	202.7996	666.9136
201	-107.2042	-47.0040	-138.1156	844.7323	-31.8917	20.6232
202	-6.7667	0.2441	-12.0250	774.6306	-30.9072	26.8715
203	45.3258	-1.7985	-18.1346	693.5016	-29.3276	34.9443
204	95.3476	-3.9932	-25.7745	588.2649	-26.4670	47.1277
205	198.9754	-8.8428	-45.4898	493.6052	-23.7495	60.0080
206	242.1651	-11.4776	-55.2188	414.2146	-21.4207	77.7066
207	338.1089	-17.1744	-74.9069	301.3746	-16.9080	95.0911
208	369.6557	-20.2159	-84.3820	329.2751	-19.9561	115.0864
209	394.7988	-23.3787	-93.7427	189.5634	-12.7707	140.9251
210	-113.6364	21.5580	-119.5111	70.8623	-5.6234	165.0681
211	7.9679	13.6488	-145.5069	-62.4559	4.2693	196.4153
212	134.3726	2.8060	-178.6298	-150.5906	13.5189	225.0633
213	229.4723	-7.0630	-209.1407	-252.3751	25.7595	261.9190
214	328.2384	-20.1592	-247.8817	-309.8341	36.8683	295.2194
215	380.6913	-32.0582	-282.9004	-343.0646	48.9075	330.5401
216	406.3245	-44.9789	-320.2766	-363.2074	64.7078	375.5766
217	416.7121	-61.6255	-367.2529	-331.9784	78.8554	415.8781
218	373.5090	-76.6542	-409.3919	-272.7096	97.1284	466.6215
219	299.5958	-95.7947	-462.2283	-159.0706	113.3792	511.9039
220	159.2303	-113.3802	-511.8582	0.6031	113.3793	511.8468

ENVOL. MAX. FLECTORES -EC1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0834	153.2740	-269.7471	-550.7889	-320.9146	-258.8154
2	589.9764	344.7457	259.3564	-1111.2615	-285.9114	-226.2391
3	1111.4583	285.9062	226.6940	-1556.8160	-255.0694	-212.5356
4	1556.9792	255.0610	213.1791	-1931.3148	-206.9688	-164.7744
5	1931.4597	206.9713	165.5773	-2238.4456	-163.0506	-124.2226
6	2238.5674	163.0196	125.1522	-2475.9700	-119.7053	-129.9662
7	2476.0732	119.7229	131.0035	-2636.5896	-84.3906	-65.3279
8	2636.6655	84.4167	66.4415	-2734.1157	-28.3281	-43.7295
9	2734.1731	28.3360	44.8848	-2758.4758	2.2472	-31.9807
10	2758.4778	-2.2385	33.1619	-2715.2073	48.3421	16.3243
11	2715.1790	-48.3616	-15.1504	-2605.6626	77.7372	17.3477
12	2605.6208	-77.7625	-16.2095	-2424.5164	136.3440	47.8535
13	2424.4485	-136.3648	-46.7832	-2180.6438	168.1068	103.9752
14	2180.5723	-168.1177	-102.9950	-1867.3557	207.6369	89.7953
15	1867.2362	-207.6190	-88.9267	-1493.8284	254.7243	137.3857
16	1493.6898	-254.7283	-136.6708	-1129.1818	218.5328	114.3413
17	1129.6180	-215.2121	-110.9054	-730.4930	269.6487	147.3551
18	809.7010	-174.0221	-97.9611	-525.4998	205.3303	120.0718
19	590.4812	-125.2677	-76.2867	-473.0902	33.0096	-67.3558
20	516.9728	-9.6070	-11.7500	-493.7950	32.3191	-45.1969
21	518.3951	-52.3766	7.9329	-399.7986	59.3074	-8.3737
22	436.0102	-28.7130	27.2273	-427.5879	-15.1647	-42.9225
23	518.9738	100.0383	94.1752	-669.6994	-200.8738	-366.2893
24	734.2159	151.6434	120.9593	-1130.4725	-195.6066	-257.9287
25	1164.2362	229.6403	205.2707	-1553.2765	-179.6504	-160.4692
26	1612.2253	222.5850	139.2649	-1989.6144	-174.0915	-103.2207
27	1989.7765	174.0767	104.2764	-2265.9583	-125.6776	-69.4181
28	2266.0784	125.6614	70.6748	-2443.2349	-75.3586	-26.8018
29	2443.3438	75.3527	28.2021	-2540.5859	-74.6306	-34.3994
30	2540.5457	74.6573	37.3946	-2608.0757	-13.5927	1.9610
31	2608.0618	13.5167	1.1367	-2613.1140	1.6366	4.2527
32	2613.0598	-1.6358	-2.7174	-2549.3459	51.9528	46.4110
33	2549.2822	-51.9537	-44.9243	-2386.4475	111.3560	62.8511
34	2386.3159	-111.3325	-61.4761	-2123.4741	159.8127	96.8911
35	2123.3215	-159.7982	-95.6734	-1761.2220	209.9281	140.0155
36	1761.0278	-209.9345	-139.0018	-1300.2156	240.5184	148.4767
37	1325.9604	-188.9297	-139.0790	-935.5019	226.8240	164.3004
38	1013.3234	-151.1510	-115.7087	-701.0400	188.6820	141.1489
39	794.7634	-99.8686	-88.5070	-651.9258	64.3478	70.9346
40	732.1014	20.5158	-19.2041	-740.1725	19.3517	40.6199
41	799.0991	-60.5534	6.7515	-672.7731	59.3510	-5.0033
42	710.0637	-28.7822	24.3787	-682.3472	-6.7303	-42.3842
43	778.6472	91.4432	94.4674	-896.0243	-53.9351	-69.0898
44	986.2537	142.6602	122.3875	-1263.6245	-190.2991	-260.5541
45	1302.2302	228.1124	201.2521	-1688.5637	-178.1160	-156.4962
46	1744.2548	216.1617	142.0572	-2109.0835	-167.6623	-106.0916
47	2109.2227	167.6693	107.3133	-2372.7524	-119.3041	-72.4975
48	2372.8472	119.3254	73.8921	-2560.2856	-102.3566	-58.4312
49	2560.2219	102.3477	61.4961	-2686.3774	-63.4873	-36.9601
50	2686.3672	63.5230	40.1804	-2731.5930	-2.4466	-0.7927
51	2731.6450	2.3910	4.0745	-2694.3374	36.5130	20.4419
52	2694.3647	-36.5508	-17.2110	-2578.2739	54.3771	36.5727
53	2578.2268	-54.4200	-35.0280	-2407.0132	115.8400	62.4389
54	2406.8997	-115.8300	-61.0170	-2135.5957	164.5603	96.2991
55	2135.4497	-164.5715	-95.0518	-1763.6316	214.6876	139.4260
56	1763.4259	-214.6918	-138.4080	-1291.5341	263.4138	175.3139
57	1326.0145	-180.1908	-142.4515	-952.9462	218.0778	167.7274
58	1032.5450	-141.8364	-120.1206	-738.9391	179.3435	145.5982
59	834.3195	-90.2155	-93.1551	-710.0554	54.6912	75.6231
60	791.2517	30.3161	-23.7840	-822.1239	1.5558	47.7895
61	881.4557	-54.6578	3.5182	-758.0868	61.6976	-4.2354
62	795.6238	-31.1526	23.6622	-755.6877	-4.6359	-41.6515
63	852.6586	89.2698	93.5775	-965.7699	-51.7629	-68.1572
64	1057.0510	140.3626	121.1376	-1298.3092	-189.2782	-259.1634
65	1352.3422	177.9485	144.7800	-1721.2305	-177.0129	-154.9690
66	1774.4917	212.9771	140.1639	-2132.8770	-164.4885	-104.1840
67	2133.0271	164.5014	105.4345	-2390.2000	-116.1859	-70.6230
68	2390.2864	116.2155	72.0508	-2577.9155	-95.8090	-56.2404
69	2577.8586	95.7819	59.3207	-2690.7654	-56.9215	-34.8122
70	2690.6919	56.8550	38.0388	-2722.5208	4.2148	1.3306
71	2722.4524	-4.2211	1.9159	-2671.8662	43.1197	22.5667
72	2671.8853	-43.1418	-19.3782	-2560.1426	57.6334	37.5063
73	2560.0806	-57.6197	-35.9765	-2382.6042	118.9919	63.3857
74	2382.4797	-118.9858	-61.9958	-2105.0444	167.7308	97.3198
75	2104.9055	-167.7680	-96.1184	-1726.8357	217.9060	140.4924
76	1726.6500	-217.9147	-139.5248	-1248.5986	266.6217	176.4686
77	1270.5463	-227.7308	-191.5910	-871.6042	218.6010	168.4595
78	953.4556	-142.2473	-120.3848	-659.4050	179.7299	145.8295
79	756.7694	-90.5413	-93.2968	-620.6426	46.7597	78.2081
80	702.9525	38.2606	-26.4423	-746.5127	1.8064	47.4281
81	806.1406	-43.4982	-28.1364	-704.8958	50.6113	27.2616
82	742.7214	-20.0918	-7.4350	-724.9197	-15.6003	-11.7710
83	823.0715	100.0437	66.4327	-957.9802	-62.4486	-41.8565
84	1051.2009	150.4340	102.3196	-1306.5677	-196.3828	-247.5376
85	1368.2631	186.6906	141.9056	-1743.5601	-185.1501	-160.9386
86	1788.0195	215.0739	167.5903	-2147.4272	-164.9206	-123.7574
87	2147.5469	164.9428	125.0181	-2407.5396	-116.9368	-89.6827
88	2407.6113	116.9348	91.0984	-2568.2107	-69.1666	-56.8640
89	2568.2463	69.1803	58.3978	-2671.1292	-52.5684	-85.3271
90	2671.0146	52.5855	88.5458	-2694.1462	8.4970	-49.3740
91	2694.0212	-8.5131	52.5826	-2634.4395	47.4290	-28.3849
92	2634.3582	-47.3805	31.5389	-2511.8298	61.4421	-8.0048
93	2511.7036	-61.4098	9.4706	-2326.4485	122.8181	17.9375
94	2326.2556	-122.8111	-16.6055	-2041.7444	171.4553	52.2909
95	2041.5264	-171.4680	-51.1450	-1655.9810	221.6051	95.6855
96	1655.7443	-221.6016	-94.7848	-1171.8872	270.2388	132.5294
97	1214.5671	-220.7554	-174.0104	-856.7743	206.5472	143.0128
98	938.5354	-122.6845	-93.0360	-687.6953	136.9800	106.0015
99	765.6390	-53.0891	-92.1496	-673.0660	31.8832	97.2333
100	741.1401	40.0705	-30.3754	-787.8186	0.4036	48.6629
101	853.4070	-54.5206	-33.6677	-744.3374	62.0273	30.0956
102	773.0581	-22.3323	-27.8657	-733.7961	6.0789	18.7966
103	791.3132	65.6304	39.9621	-900.1086	-31.5175	-19.5383
104	963.8269	105.2607	89.6139	-1141.3705	-95.8529	-85.6185
105	1203.5236	162.4243	169.3817	-1435.7352	-152.9446	-167.5828
106	1523.0453	187.2227	226.2970	-1799.0573	-130.1057	-189.7760
107	1798.7974	130.1132	191.6436	-2014.2241	-94.7952	-170.2892
108	2014.0171	94.7559	172.3768	-2161.6250	-84.4021	-167.3175
109	2161.4287	84.3980	169.5499	-2244.1868	-27.0570	-132.6696
110	2243.9873	27.0047	135.0051	-2263.6980	5.2114	-114.6839
111	2263.5750	-5.2452	117.0209	-2218.3330	40.8265	-94.4588
112	2218.1975	-40.7573	96.7380	-2106.7078	76.2609	-73.6787
113	2106.6118	-76.2318	75.8618	-1936.4857	133.4726	-38.2238
114	1936.4183	-133.5017	40.2147	-1697.6171	143.6122	-32.9572

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	1697.5659	-143.6570	34.6960	-1399.9053	168.2153	60.7998
116	1399.6975	-168.1833	-60.1040	-1044.8868	227.5206	91.9864
117	1088.6919	-142.5102	-120.9277	-835.0130	176.8772	146.4286
118	896.3260	-101.6068	-131.2849	-714.0069	110.3574	140.7669
119	772.2120	-40.6656	-96.7877	-721.6528	19.6467	104.1446
120	782.9977	54.8076	-66.3395	-859.5771	-22.3841	85.5836
121	902.3393	-57.0538	-45.7946	-785.7491	65.7366	36.9227
122	810.4753	-38.8236	-17.1972	-733.4837	45.2951	62.7968
123	801.9634	29.1035	-6.7911	-883.4117	-18.3026	-27.9588
124	947.1672	87.7198	70.5679	-1091.8997	-78.4384	-66.9030
125	1161.2526	150.2935	154.6705	-1368.7490	-115.4896	-134.0344
126	1462.7369	194.7668	246.4316	-1751.6150	-137.6804	-210.0243
127	1751.4064	137.6606	211.8385	-1979.8287	-102.3844	-190.6941
128	1979.6121	102.3020	192.7470	-2140.6177	-91.9526	-187.8477
129	2140.3767	91.9557	190.0633	-2236.5962	-34.6199	-153.2346
130	2236.4336	34.6040	155.5672	-2269.8684	-0.6886	-131.3140
131	2269.7168	0.6462	133.6677	-2238.1636	33.2688	-115.1349
132	2238.0525	-33.1545	117.4721	-2140.3914	68.7109	-94.3981
133	2140.2976	-68.7215	96.6317	-1983.4976	126.0034	-58.9631
134	1983.4244	-125.9860	61.0189	-1757.9878	136.1742	-53.6439
135	1757.9092	-136.1865	55.4410	-1467.8730	171.2374	-30.7288
136	1467.8297	-171.2455	32.2460	-1120.8326	228.1982	6.3891
137	1158.5043	-153.5384	-102.7688	-884.7928	188.0264	128.5903
138	939.9087	-128.4328	-113.6774	-709.4891	137.3060	123.5736
139	788.2976	-63.0769	-105.5094	-704.6317	47.3179	103.6104
140	780.5569	24.6603	-74.3430	-799.1998	12.3648	96.8878
141	855.8220	-70.4256	5.6879	-716.0765	73.7360	-2.8479
142	740.7865	-45.9910	22.7085	-671.2626	25.4543	-34.4424
143	739.1151	51.3317	89.5227	-818.9169	-16.8215	-67.9953
144	880.0651	88.7643	105.1375	-1030.5757	-155.1000	-319.1250
145	1096.0530	124.0971	142.0587	-1358.9972	-153.6505	-208.0441
146	1417.8850	204.8383	189.2418	-1727.3834	-169.1485	-166.6899
147	1727.2211	169.1205	168.5015	-1973.9696	-111.2112	-130.9373
148	1973.7876	111.2645	133.0414	-2155.7683	-75.2155	-110.0788
149	2155.6375	75.1357	112.3440	-2268.6389	-38.9457	-89.1041
150	2268.5518	38.9740	91.5388	-2311.1304	-6.0229	-70.3617
151	2311.0432	6.0065	72.8159	-2287.6035	52.0777	-34.9021
152	2287.5374	-52.0275	37.3139	-2198.5615	63.1289	-30.2126
153	2198.5305	-63.1679	32.5572	-2037.6294	99.3116	-8.5432
154	2037.6176	-99.3238	10.7116	-1808.3530	135.3011	13.5390
155	1808.3524	-135.3253	-11.6181	-1516.4562	193.1789	50.0549
156	1516.4862	-193.1453	-48.4601	-1160.9302	228.7117	73.0719
157	1176.4159	-168.3594	-136.3043	-863.9859	178.4266	144.4372
158	920.9460	-104.0136	-113.7562	-680.0496	138.7683	138.6829
159	739.5054	-59.6266	-100.4252	-648.4324	44.8286	97.8092
160	703.5799	31.1350	-54.4553	-732.9256	5.3929	73.5543
161	778.4189	-55.1154	9.4411	-656.3253	58.0755	-6.9301
162	691.1451	-27.4372	26.1341	-671.5961	-12.1178	-43.4907
163	757.2537	97.1465	94.8204	-883.6702	-59.7083	-69.2390
164	956.3702	129.4647	109.9107	-1194.5854	-185.6331	-271.5382
165	1246.3160	179.2579	136.7956	-1630.8750	-181.2162	-167.3851
166	1674.8596	217.3954	143.1794	-2038.6768	-167.3252	-98.7116
167	2038.8374	167.3575	99.8751	-2302.3037	-119.1126	-65.0598
168	2302.4106	119.1123	66.3900	-2466.4404	-68.7931	-22.4502
169	2466.5300	68.7877	23.9197	-2582.2637	-58.6737	-26.9232
170	2582.1848	58.6679	29.9853	-2617.7935	2.4061	9.4329
171	2617.7961	-2.3609	-6.3506	-2597.4004	12.8438	21.7760
172	2597.3914	-12.8231	-20.2403	-2515.4519	60.8042	53.6916
173	2515.3840	-60.8196	-52.2494	-2334.1169	120.2028	70.2165
174	2334.0042	-120.2307	-68.8943	-2052.8149	168.6735	104.3233

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	2052.6702	-168.6702	-103.1827	-1672.8341	218.8330	147.5121
176	1672.6530	-218.8465	-146.6140	-1192.7692	267.2766	183.6306
177	1213.0432	-231.3565	-203.0033	-776.9221	223.0051	164.5608
178	845.5935	-155.4649	-120.1046	-525.3041	193.0029	145.3580
179	625.4987	-104.1748	-91.3276	-453.1685	62.1870	74.7217
180	537.5452	22.7629	-22.3079	-550.1125	16.2567	44.0764
181	610.5037	-31.9345	-0.0428	-536.4033	37.9903	-0.0526
182	573.2145	-8.2711	18.5722	-589.0196	-27.4587	-36.5797
183	684.6693	109.6668	86.6383	-836.1965	-72.7193	-61.6020
184	928.3049	158.2605	112.6968	-1228.1544	-193.5081	-243.9261
185	1266.9769	229.5465	186.2534	-1653.9688	-179.8151	-140.9140
186	1684.5355	199.4956	127.4723	-2018.1255	-140.8426	-107.2384
187	2018.2690	140.8292	108.3450	-2259.1609	-93.5541	-72.9100
188	2259.2786	93.5634	74.1716	-2407.1392	-46.4942	-39.8388
189	2407.2090	46.4803	41.1889	-2463.0801	0.3139	-7.8327
190	2463.1243	-0.3221	9.2263	-2441.8926	15.1209	1.5146
191	2441.8789	-15.1356	1.6318	-2385.9573	24.6185	29.9947
192	2385.9150	-24.6042	-28.8063	-2297.1431	72.8281	63.8223
193	2297.0869	-72.8116	-62.7866	-2112.4780	122.7568	107.4163
194	2112.3616	-122.7758	-106.2172	-1832.5961	155.6756	105.3234
195	1832.4363	-155.6818	-104.2774	-1456.2195	205.3849	149.3142
196	1456.0621	-205.3762	-148.7318	-986.2084	253.6263	186.4105
197	1028.3062	-205.4714	-213.6040	-586.3212	183.3334	137.9350
198	661.9271	-105.9422	-90.9398	-406.9907	142.3833	115.9286
199	485.8760	-73.5435	-75.6799	-409.0050	-7.3818	-69.4022
200	459.4174	32.2752	-23.6658	-537.5430	-7.6501	-40.9756
201	568.4153	5.2941	-7.7575	-539.9431	20.1557	2.2395
202	550.9945	1.4471	-30.5585	-562.6538	-0.4173	-9.0265
203	592.2765	59.2792	43.8122	-739.0890	-78.2259	-48.4160
204	780.9773	142.1156	84.0712	-980.0190	-138.3744	-80.7252
205	1040.9755	208.3314	119.3165	-1306.7227	-182.0840	-101.7322
206	1306.6782	182.0606	102.2623	-1524.5383	-130.5459	-67.9959
207	1524.4912	130.5339	68.7302	-1707.5842	-125.7916	-65.7681
208	1707.5012	125.8083	68.2688	-1847.6055	-73.9487	-34.4049
209	1847.5718	73.8925	35.4097	-1940.7612	-47.0448	-17.9891
210	1940.7424	46.9817	19.0679	-1995.3478	-16.2763	0.5644
211	1995.3605	16.3105	1.2113	-2001.9774	6.9297	13.5953
212	2002.0229	-6.9442	-11.9169	-1963.6129	59.1749	45.8783
213	1963.6313	-59.2208	-44.8545	-1882.6476	65.2830	48.0051
214	1882.6685	-65.2291	-47.0946	-1757.5634	117.6650	81.0796
215	1757.6724	-117.6538	-79.3026	-1579.4423	145.0093	96.6687
216	1579.5017	-145.0094	-95.9066	-1357.1421	172.4494	113.4756
217	1357.2253	-172.4617	-112.7500	-1090.4937	199.9371	130.2988
218	1090.6237	-199.9452	-129.2776	-777.2606	252.5781	163.5594
219	777.3813	-252.5586	-162.9742	-410.9982	280.0959	180.8104
220	411.0590	-280.0791	-180.6905	-0.2628	161.4995	-219.2313

ENVOL. MAX CORTANTES -EC1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.0941	377.4743	272.3733	-578.0217	-347.0217	-267.8311
2	567.9240	347.4477	267.2108	-1028.5693	-304.6238	-235.7421
3	999.8380	305.8843	234.4935	-1418.6945	-278.1537	-229.2991
4	1374.0642	280.2493	227.3355	-1641.1730	-239.2681	-197.0948
5	1583.3632	242.2051	194.3366	-1780.3134	-203.8383	-161.2736
6	1711.9670	207.5717	157.6499	-1919.6135	-178.6267	-154.6042
7	1843.3184	183.2107	150.0672	-1921.5269	-141.9908	-119.0474
8	1686.9475	147.5020	105.6378	-1862.3657	-117.2154	-86.3937
9	1692.6887	129.5181	94.9660	-1787.0675	-96.0996	-73.6911
10	1615.7883	109.9225	82.9278	-1672.5596	-76.8025	-61.6301
11	1503.9867	92.0487	71.4934	-1579.1855	-62.1259	-52.1930
12	1417.3162	78.8269	62.6713	-1413.3298	-46.2227	-41.2404
13	1261.7803	64.2952	52.3336	-1233.1602	-32.0943	-30.7925
14	1095.2010	51.5040	42.5241	-1100.8748	-22.0927	-22.9785
15	979.3264	42.7818	35.3838	-648.1077	-13.3636	10.8592
16	811.7150	33.0973	26.7159	-597.6831	-9.7603	2.7825
17	706.3578	26.9829	20.8306	-526.5554	-5.8328	-6.1241
18	561.0842	20.1769	13.6281	-502.4398	-3.9557	-16.4186
19	510.6223	17.3395	5.4696	-499.9527	-2.9620	-19.6479
20	503.8031	16.2059	4.1964	779.5124	-132.3749	-318.5363
21	-2776.3936	423.6922	241.4085	2459.4980	-505.7625	-308.0694
22	-2467.4084	506.0458	305.6072	1635.9122	-466.1978	-283.7551
23	-1659.8905	467.0774	280.7540	886.4646	-425.5182	-259.6966
24	-926.1425	427.0912	256.0495	219.3526	-383.9247	-235.5093
25	-273.7763	386.2239	231.1051	-358.5381	-341.5643	-208.4666
26	290.7646	344.6605	203.2087	-841.2189	-298.6895	-177.8105
27	761.8138	302.6484	171.6076	-1224.1014	-255.6011	-143.3567
28	1135.1171	260.4504	136.1257	-1504.2740	-212.5156	-106.2762
29	1408.0798	218.3154	97.9432	-1372.1953	-174.6598	-81.7086
30	1170.1549	188.1880	92.3439	-1419.2085	-149.3087	-67.9028
31	1213.4675	164.7572	79.4631	-1410.5570	-125.9440	-54.9961
32	1206.7573	143.3659	67.4120	-1356.5775	-104.7026	-42.8749
33	1160.3608	124.0813	56.1282	-1267.9757	-85.6225	-31.4809
34	1084.7726	106.9198	45.5640	-1155.6729	-68.7048	-20.7695
35	990.6501	91.8834	35.7107	-470.8494	-58.1627	20.8641
36	888.5265	78.9632	26.6001	-357.0983	-51.9813	0.5630
37	675.8326	68.2274	28.3603	-413.7588	-48.8625	-5.1793
38	580.7944	63.5928	2.1859	-480.9047	-46.5558	-9.9118
39	454.7593	61.4757	-10.3006	-561.2354	-45.0012	-13.6860
40	552.0212	60.5988	-7.5381	615.8802	-146.5703	-324.7103
41	-3057.4197	432.5046	241.7668	2726.3696	-514.6566	-308.6275
42	-2734.6055	514.9486	305.9555	1860.3864	-474.1911	-283.9173
43	-1884.9628	475.0984	280.6874	1075.1323	-432.7255	-259.5424
44	-1115.5795	434.3160	255.6618	377.9372	-390.4474	-235.1390
45	-433.2344	392.7983	230.4956	-225.1720	-347.5529	-207.9626
46	156.4739	350.7006	202.4674	-729.0056	-304.2356	-177.2487
47	648.6817	308.2492	170.8137	-1129.7295	-260.8015	-142.7993
48	1039.8751	265.7163	135.3460	-1425.1439	-217.4016	-105.7893
49	1328.1584	223.2389	97.2526	-1246.0503	-183.7563	-78.9400
50	1042.8313	197.3642	89.2160	-1310.1285	-158.4866	-64.7003
51	1103.4036	174.0220	75.9402	-1318.9406	-135.2185	-51.3940
52	1114.3181	152.7315	63.5423	-1282.7413	-114.0701	-38.9272
53	1085.8885	133.5014	51.9597	-1212.2214	-95.0484	-27.2377
54	1028.5847	116.4325	41.1568	-1118.4362	-78.2246	-16.2975
55	953.1434	101.4642	31.1313	-1012.3409	-63.5924	-6.1086
56	870.0497	88.6344	21.9053	-357.1930	-57.3154	6.5595
57	564.1942	79.1042	0.5085	-424.5674	-54.2173	0.8218
58	604.5043	74.5163	-3.3603	-502.4998	-51.9270	-3.9283
59	668.2388	71.4161	-5.9609	-593.6536	-50.3819	-7.7442
60	759.6216	69.6635	-7.1975	574.9572	-151.4404	-323.4327
61	-3114.5891	431.7417	242.3710	2759.7061	-514.4650	-309.3124
62	-2767.8826	514.7548	306.5928	1893.7800	-473.9612	-284.5114
63	-1918.3302	474.8712	281.2560	1108.6964	-432.4778	-260.0693
64	-1149.1306	434.0776	256.1673	411.7043	-390.1904	-235.5961
65	-466.9906	392.5405	230.9431	-191.0737	-347.2628	-208.3489
66	122.4030	350.4109	202.8494	-694.5652	-303.9388	-177.5603
67	614.2828	307.9654	171.1242	-1094.8831	-260.4852	-143.0276
68	1005.0775	265.4120	135.5763	-1389.9152	-217.1234	-105.9169
69	1293.0040	222.9693	97.3790	-1174.1343	-183.1419	-79.1944
70	971.0419	196.7624	89.4543	-1236.9528	-157.8854	-64.9766
71	1030.4509	173.4386	76.1917	-1244.7034	-134.6517	-51.6840
72	1040.4427	152.1828	63.7961	-1207.7157	-113.5408	-39.2254
73	1011.2816	133.0099	52.2185	-1136.6859	-94.5883	-27.5404
74	953.4998	115.9807	41.4025	-1042.5338	-77.7969	-16.5820
75	877.7234	101.0459	31.3409	-936.2046	-63.1839	-6.3539
76	794.4028	88.2439	22.0709	-324.5635	-57.1440	5.0754
77	489.6560	78.8730	1.0094	-391.8045	-54.0587	-0.6219
78	529.8719	74.2947	-2.9503	-469.6056	-51.7734	-5.3302
79	593.4625	71.2103	-5.6611	-560.5938	-50.2364	-9.0967
80	684.6112	69.4691	-7.0043	627.6314	-152.5230	-318.8800
81	-3122.6992	430.8563	272.3723	2754.6746	-512.5331	-340.5466
82	-2762.9736	512.8334	337.7502	1891.4762	-471.8781	-317.5809
83	-1916.2043	472.8066	314.0747	1109.8666	-430.2646	-294.5756
84	-1150.4814	431.8955	290.2607	416.9521	-387.8973	-271.0612
85	-472.3621	390.3011	265.8202	-181.5444	-344.9461	-244.1319
86	112.8664	348.1668	237.8638	-680.7933	-301.6715	-212.8887
87	600.6805	305.7899	205.5088	-1077.4788	-258.3255	-177.0124
88	988.0880	263.3425	168.4468	-1369.8650	-215.1522	-137.6431
89	830.5796	221.1647	131.6549	-1150.4237	-182.2290	-107.5385
90	948.8890	196.0558	115.5572	-1213.3082	-157.1636	-91.2759
91	1008.8967	172.9484	100.0695	-1222.2037	-134.1534	-75.5561
92	1020.5709	151.9097	85.1415	-1187.6182	-113.2819	-60.3268
93	994.3604	132.9729	70.7193	-1120.3757	-94.5616	-45.5441
94	940.8460	116.1757	56.8255	-1031.5028	-78.0391	-31.2315
95	870.7006	101.5107	43.4974	-932.0468	-63.7193	-17.4314
96	794.4312	88.9891	30.8190	-338.9641	-58.0332	8.6258
97	510.6937	80.4348	-0.0408	-411.7373	-55.0918	4.4165
98	557.8528	76.0118	-5.7052	-495.3643	-52.9462	1.0444
99	627.9612	73.0380	-9.6423	-592.2720	-51.5269	-1.6015
100	724.6681	71.3582	-11.6303	314.6249	-140.5477	-285.1322
101	-2892.0569	404.5437	245.7817	2693.7588	-485.4546	-328.2657
102	-2701.7473	485.7759	326.1052	1971.1862	-443.6648	-297.9157
103	-1992.1047	444.5523	294.7007	1280.4985	-415.6984	-290.3695
104	-1313.7893	417.2016	286.0796	707.3425	-372.8448	-258.1527
105	-752.0602	375.0281	252.7490	212.0274	-329.4111	-223.1833
106	-266.9291	332.3123	216.6548	-201.3851	-285.6446	-184.4788
107	137.7487	289.3144	176.8094	-573.5759	-258.4485	-171.3373
108	502.9007	262.9030	162.5319	-817.9651	-215.0833	-130.3185
109	504.1757	221.0457	113.8313	-778.0141	-185.4674	-91.2800
110	620.5843	197.5196	94.9057	-848.8541	-161.9931	-71.8993
111	689.0826	175.7474	76.3458	-922.3875	-143.6329	-55.3846
112	764.5739	159.1093	60.7208	-914.5025	-123.8903	-36.9264
113	762.9317	141.0325	43.2418	-878.9955	-106.0812	-18.8904
114	737.8067	124.8888	26.2798	-825.0115	-90.2968	-1.3374

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	698.0611	110.7270	9.9239	-812.7872	-79.1853	12.1632
116	703.5718	101.1628	-2.2390	-307.2974	-74.3651	58.1627
117	480.5677	95.4440	-47.0351	-402.8543	-71.7608	55.0487
118	557.0244	91.4521	-53.0632	-506.8951	-69.8623	52.5007
119	651.3067	88.7492	-57.2382	-621.4101	-68.6075	50.4322
120	766.5299	87.2048	-59.3791	331.9419	-147.4125	-253.4864
121	-2583.6372	395.5173	264.9130	2358.4336	-473.8997	-347.9843
122	-2366.2368	474.2126	345.9822	1682.0275	-433.2572	-317.6253
123	-1702.1560	434.1074	314.5005	1020.8317	-405.8223	-310.0831
124	-1052.9250	407.2722	305.8228	485.5321	-364.0320	-277.4041
125	-528.8113	366.1385	271.9792	23.3279	-321.5867	-241.7986
126	-76.6802	324.3922	235.2042	-361.6768	-278.6907	-202.3097
127	299.5887	282.2433	194.5313	-716.2328	-251.8002	-188.6958
128	646.9986	256.1359	179.7397	-938.8492	-209.1674	-146.6982
129	864.2956	214.3402	136.5725	-960.7400	-176.0374	-113.1852
130	805.3918	187.8291	116.4123	-1017.4478	-152.2660	-93.3836
131	859.1685	165.7543	97.3804	-1075.3000	-133.6012	-76.3875
132	918.4053	148.8295	81.2377	-1050.8492	-113.5210	-57.3252
133	899.6241	130.4284	63.1197	-997.3949	-95.3815	-38.5721
134	856.0112	113.9645	45.4298	-924.0719	-79.2683	-20.2048
135	796.4777	99.4911	28.2568	-891.3528	-67.8821	-5.9987
136	781.1382	89.6829	15.4087	-620.5089	-57.6467	41.9368
137	530.8007	80.9580	-31.0042	-376.4627	-52.4163	40.3008
138	580.6054	76.8458	-37.4785	-446.2420	-50.4795	38.0191
139	648.1046	74.0529	-42.0246	-526.5250	-49.1969	36.2017
140	736.6173	72.4480	-44.4552	380.4599	-142.2330	-276.2388
141	-2631.1584	400.5158	229.7117	2382.1189	-480.8508	-311.9838
142	-2390.3596	481.1635	309.9717	1678.1953	-440.4854	-281.8586
143	-1699.2163	441.3360	278.8382	1024.2250	-400.4476	-249.0102
144	-1057.7578	401.9012	244.9764	429.5428	-371.3965	-243.9905
145	-474.8617	373.4993	238.9442	-52.7774	-329.0603	-211.2370
146	-3.2360	331.8668	205.1662	-454.5240	-286.1751	-174.7435
147	389.1504	289.7397	167.6453	-771.6439	-243.0582	-137.3372
148	698.5244	247.4333	129.2140	-933.3002	-202.2435	-93.0588
149	777.0770	212.4788	97.7102	-1044.1554	-176.2245	-74.1987
150	880.0104	188.2080	79.8631	-1098.8120	-151.9780	-56.1393
151	931.1672	165.6915	62.8152	-1104.9567	-129.5533	-38.8762
152	938.3896	145.0304	46.5913	-1071.1165	-109.0610	-22.4605
153	910.1909	126.2861	31.2619	-1057.4178	-93.5585	-9.5753
154	906.6299	112.5185	19.4965	-971.6821	-76.9473	4.9308
155	835.2814	97.6063	6.1645	-873.2224	-62.4072	18.4084
156	755.1354	84.7101	-6.0815	-583.6186	-51.3231	54.5503
157	487.2889	75.1959	-40.9261	-349.4712	-47.5593	41.8455
158	524.2507	70.8923	-45.5846	-408.7882	-45.4264	38.0694
159	580.2405	67.9667	-48.7913	-478.9083	-43.9800	35.0220
160	659.0884	66.3019	-50.4777	683.1531	-148.8827	-293.8529
161	-2825.6345	419.6386	237.8721	2474.7175	-503.0706	-304.2716
162	-2482.4666	503.3455	301.7636	1652.6387	-463.2917	-279.5932
163	-1676.1450	464.1662	276.5527	907.8126	-422.5160	-255.2213
164	-946.7813	424.0551	251.5492	247.3668	-380.8817	-230.7885
165	-300.9276	383.1639	226.3755	-322.7328	-338.5866	-203.5701
166	255.9052	341.6761	198.3176	-797.3272	-295.8882	-172.8178
167	718.8986	299.8348	166.6405	-1172.3618	-252.9616	-138.3666
168	1084.3418	257.7892	131.1762	-1445.3148	-210.0201	-101.4090
169	1350.0581	215.7913	93.1391	-1263.8341	-170.6786	-77.9314
170	1063.6923	184.1546	88.7288	-1304.9159	-145.2461	-64.2187
171	1101.0265	160.6846	75.9570	-1290.3060	-121.8448	-51.4577
172	1088.2780	139.2505	64.0906	-1230.1821	-100.5427	-39.5557
173	1035.6167	119.8964	53.0203	-1135.2249	-81.3878	-28.4124
174	953.6110	102.6674	42.7121	-1016.4531	-64.4241	-18.0035

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	852.9542	87.6051	33.1509	-885.0101	-49.6853	-8.3145
176	744.2925	74.6834	24.3417	-393.0107	-41.2722	10.1273
177	637.9454	63.8799	16.3391	-316.9209	-37.9810	-6.3594
178	425.7163	58.8302	1.4181	-362.7443	-35.6735	-11.0844
179	459.0127	55.7256	-1.2675	-421.6274	-34.1172	-14.7881
180	519.6821	53.9760	-2.7157	654.7255	-142.4307	-317.8571
181	-2930.4646	412.6198	240.5106	2658.7705	-499.4901	-308.8080
182	-2666.5100	499.7770	306.2589	1839.7681	-458.5231	-282.7630
183	-1863.2360	459.4281	279.6658	1100.3419	-416.5878	-257.0107
184	-1138.9965	418.1806	253.2671	447.4274	-373.8999	-231.1372
185	-500.2131	376.2440	226.6443	-113.3891	-330.6626	-202.3127
186	47.9511	333.8080	196.9713	-577.5785	-287.1101	-169.7421
187	501.2420	291.1094	163.4684	-941.9908	-243.5119	-133.4851
188	856.8371	248.4199	126.1965	-1205.4467	-200.1949	-95.9874
189	691.7735	207.1153	104.9795	-976.3000	-168.8470	-80.9944
190	784.7162	182.3979	90.8972	-1061.6967	-147.2018	-68.6958
191	867.5844	162.6811	79.5582	-1052.2600	-124.5408	-55.5375
192	861.0382	141.9305	67.0780	-1001.1894	-103.9587	-42.8847
193	818.1472	123.2486	55.2636	-918.8812	-85.4911	-31.0537
194	749.0829	106.6470	44.4277	-815.8752	-69.1885	-20.1576
195	664.0564	92.1668	34.3779	-320.5181	-60.4877	21.9380
196	573.2341	79.7796	24.8244	-224.8203	-55.6026	1.4014
197	277.8239	71.5259	4.0337	-291.5115	-52.7123	-4.0289
198	310.5113	67.2686	-0.1162	-368.2803	-50.5893	-8.4983
199	345.7804	65.2435	-11.4042	-457.3892	-49.1718	-12.0535
200	450.2998	64.4521	-8.7851	1652.7418	-66.8786	-30.1287
201	-2436.5540	360.3644	178.9322	2422.8069	-446.8041	-232.5610
202	-2427.3438	446.9831	230.3309	1846.2782	-417.2374	-213.5482
203	-1859.7157	417.7720	211.2345	1309.2219	-389.2656	-192.9044
204	-1331.3004	390.1831	190.0583	846.7124	-344.6026	-137.7837
205	-876.9934	345.9377	134.0794	424.9726	-317.2366	-116.2945
206	-463.0319	319.0419	112.1751	58.8301	-274.8317	-58.1132
207	-103.9140	277.1092	53.2429	-233.9714	-246.5029	-38.5347
208	182.7474	249.3052	32.6686	-491.7054	-220.3820	-15.7371
209	435.1575	223.7126	9.2819	-359.7801	-184.2730	-59.9180
210	238.5871	192.0962	66.3849	-448.0537	-164.9102	-49.0937
211	321.1918	173.9079	56.2226	-451.6029	-142.5810	-36.6597
212	321.8868	152.8122	44.4612	-467.0788	-125.4376	-27.0931
213	337.5280	136.9521	35.5761	-455.0572	-109.5285	-18.0813
214	328.8787	122.3108	27.2662	-355.8955	-90.5705	-7.4470
215	236.4896	104.6789	17.2592	-297.5827	-77.1396	0.2691
216	188.5303	92.6229	10.2470	246.3951	-66.9427	13.4126
217	-192.2973	80.5433	-9.2796	195.8736	-63.7511	9.8317
218	-172.2598	75.5637	-12.8165	139.9246	-61.2574	7.0342
219	-137.4933	71.9843	-15.5509	75.6347	-59.4632	4.8858
220	-90.5266	70.0024	-20.0678	0.0267	-58.3798	20.0808

ENVOL. MAX. TORSORES -EC1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.1728	171.9438	546.8815	-258.0034	-158.1039	-520.2125
2	258.0034	158.1039	520.2125	-430.6840	-132.0182	-468.6483
3	430.6840	132.0182	468.6483	-586.0128	-119.7775	-443.3521
4	586.0128	119.7775	443.3521	-631.9268	-96.8994	-392.3134
5	631.9268	96.8994	392.3134	-620.6849	-76.1561	-341.3589
6	620.6849	76.1561	341.3589	-651.0903	-66.5865	-316.5785
7	651.0903	66.5865	316.5785	-559.1292	-49.0544	-269.2323
8	559.1292	49.0544	269.2323	-436.9500	-33.5777	-225.8542
9	436.9500	33.5777	225.8542	-388.9817	-26.5907	-205.8720
10	388.9817	26.5907	205.8720	-336.7683	-20.7316	-169.1552
11	336.7683	20.7316	169.1552	-150.9845	-8.5079	-151.0212
12	150.9845	8.5079	151.0212	-88.9302	-4.6244	-122.5449
13	88.9302	4.6244	122.5449	90.5975	4.1838	-94.1444
14	35.6635	1.7515	97.4603	293.3829	12.7486	-78.7821
15	-14.0832	-0.5546	80.7476	359.4869	14.6013	-58.8260
16	-133.2671	-5.3849	61.5127	518.4365	19.7546	-40.4008
17	-221.7396	-8.4269	48.0449	678.5923	24.3552	-31.2768
18	-330.1523	-11.8418	32.3654	739.1833	25.0793	-20.0711
19	-428.3334	-14.5251	20.7428	872.7028	28.0577	-12.2684
20	-492.8234	-15.8383	14.4067	925.8545	-116.3139	-333.0446
21	-807.2692	171.8472	523.6376	456.6657	-233.0753	-598.2477
22	-456.6657	233.0753	598.2477	73.7495	-206.1416	-544.2256
23	-73.7495	206.1416	544.2256	-228.2856	-180.3348	-494.3411
24	228.2856	180.3348	494.3411	-453.5265	-155.7327	-448.4205
25	453.5265	155.7327	448.4205	-607.1037	-132.4593	-406.0352
26	607.1037	132.4593	406.0352	-694.6875	-110.5835	-364.4457
27	694.6875	110.5835	364.4457	-722.7927	-90.2325	-322.9011
28	722.7927	90.2325	322.9011	-698.5623	-71.4673	-281.2656
29	698.5623	71.4673	281.2656	-629.6555	-54.3581	-240.7995
30	629.6555	54.3581	240.7995	-524.1984	-38.9522	-203.4843
31	524.1984	38.9522	203.4843	-390.3092	-25.2449	-169.2633
32	390.3092	25.2449	169.2633	-236.0612	-13.2402	-138.1078
33	236.0612	13.2402	138.1078	-69.1801	-2.8919	-110.0593
34	69.1801	2.8919	110.0593	102.8623	5.8474	-85.1441
35	126.4553	6.0539	87.3467	273.0155	13.0423	-63.3976
36	-4.4421	-0.4066	67.2072	434.8259	18.7466	-44.8741
37	-134.2547	-5.8245	49.0044	582.6495	23.0645	-29.6467
38	-258.1307	-10.2131	32.7779	711.8154	26.1023	-17.7953
39	-371.7062	-13.6168	19.6462	818.7478	27.9695	-9.4105
40	-202.7142	-6.9073	10.7795	903.3557	-115.7404	-331.3988
41	-560.1080	164.1720	524.3727	439.5628	-232.3906	-599.9982
42	-439.5628	232.3906	599.9982	58.1070	-205.4691	-546.0409
43	-58.1070	205.4691	546.0409	-242.0874	-179.6900	-496.1612
44	242.0874	179.6900	496.1612	-465.2625	-155.1432	-450.1892
45	465.2625	155.1432	450.1892	-616.6733	-131.9280	-407.7025
46	616.6733	131.9280	407.7025	-702.2272	-110.1396	-365.9723
47	702.2272	110.1396	365.9723	-728.4429	-89.8806	-324.2574
48	728.4429	89.8806	324.2574	-702.5528	-71.1727	-282.4462
49	702.5528	71.1727	282.4462	-632.2349	-54.1295	-241.8127
50	632.2349	54.1295	241.8127	-525.6144	-38.7788	-204.3458
51	525.6144	38.7788	204.3458	-390.8056	-25.1270	-169.9908
52	390.8056	25.1270	169.9908	-235.8559	-13.1739	-138.7224
53	235.8559	13.1739	138.7224	-68.5043	-2.8804	-110.5848
54	68.5043	2.8804	110.5848	103.7815	5.8105	-85.6042
55	141.2029	1.2270	88.1350	273.9664	12.9518	-63.8155
56	0.5886	-5.1952	67.9593	435.6521	18.6257	-45.2718
57	-138.7663	-10.5735	49.7239	583.2234	22.9083	-30.0397
58	-272.0049	-14.9290	33.4732	712.0802	25.9238	-18.1941
59	-394.8348	-18.3067	20.3159	818.6772	27.7835	-9.8198
60	-357.0990	-15.7827	11.3192	900.8465	-115.7641	-331.1429
61	-676.9034	167.7171	524.0485	435.7777	-232.2874	-599.0598
62	-435.7777	232.2874	599.0598	55.0574	-205.4165	-545.1296
63	-55.0574	205.4165	545.1296	-244.6042	-179.6853	-495.3034
64	244.6042	179.6853	495.3034	-467.4720	-155.1790	-449.4069
65	467.4720	155.1790	449.4069	-618.7578	-132.0152	-407.0146
66	618.7578	132.0152	407.0146	-704.4055	-110.2846	-365.3922
67	704.4055	110.2846	365.3922	-730.8787	-90.0722	-323.7970
68	730.8787	90.0722	323.7970	-705.3810	-71.4136	-282.0980
69	705.3810	71.4136	282.0980	-635.5170	-54.3832	-241.5667
70	635.5170	54.3832	241.5667	-529.2907	-39.0228	-204.1864
71	529.2907	39.0228	204.1864	-394.7781	-25.3849	-169.8944
72	394.7781	25.3849	169.8944	-239.8850	-13.4136	-138.6688
73	239.8850	13.4136	138.6688	-72.2314	-3.0781	-110.5488
74	72.2314	3.0781	110.5488	100.8580	5.6701	-85.5612
75	112.3848	-1.9094	87.4850	272.4890	12.8869	-63.7437
76	-33.5169	-8.2815	67.2958	436.3759	18.6509	-45.1485
77	-178.5982	-13.6390	49.0301	587.1104	23.0628	-29.8420
78	-317.5937	-17.9797	32.7280	720.2025	26.2272	-17.9063
79	-446.1690	-21.3421	19.5071	832.2205	28.2504	-9.4233
80	-559.4572	-23.5982	10.4113	921.9339	-116.7620	-326.1484
81	-841.4515	192.7324	526.3317	1617.4309	-291.5911	-590.5565
82	-1617.4309	291.5911	590.5565	1135.4547	-269.4438	-542.9731
83	-1135.4547	269.4438	542.9731	683.7278	-245.8872	-495.9417
84	-683.7278	245.8872	495.9417	270.0986	-221.0249	-449.1112
85	-270.0986	221.0249	449.1112	-98.1098	-194.9362	-399.7141
86	98.1098	194.9362	399.7141	-731.2437	-117.6202	-348.1138
87	731.2437	117.6202	348.1138	-776.6255	-98.1583	-306.3853
88	776.6255	98.1583	306.3853	-772.7628	-80.2403	-264.4386
89	772.7628	80.2403	264.4386	-726.8036	-63.8746	-223.4041
90	726.8036	63.8746	223.4041	-645.9032	-49.0976	-185.3094
91	858.9723	55.2834	190.3498	-537.5317	-35.9037	-150.1523
92	801.9363	44.7501	162.0260	-408.8943	-24.2728	-117.9390
93	725.8459	35.2557	135.5508	-267.1353	-14.1789	-88.7201
94	635.9366	26.8190	110.9373	-119.1849	-5.5760	-62.5825
95	537.4976	19.4452	88.2028	28.4476	1.5789	-39.6412
96	435.7580	13.1392	67.3874	169.8438	7.3573	-20.0411
97	335.7744	7.8798	48.5566	-133.2674	-5.2542	-5.3123
98	242.2781	3.6321	31.7839	-143.7680	-5.2536	-5.5252
99	159.2892	0.3512	18.2985	-154.2681	-5.2532	-5.7545
100	130.4897	-0.6523	9.6067	629.5810	-104.4036	-292.0467
101	-416.8017	165.4530	503.9287	1648.7341	-278.4680	-560.6682
102	-1648.7341	278.4680	560.6682	1235.1641	-253.5245	-506.5370
103	-1235.1641	253.5245	506.5370	828.4864	-240.5400	-478.8723
104	-828.4864	240.5400	478.8723	483.8884	-213.6360	-425.1603
105	-483.8884	213.6360	425.1603	178.5775	-185.6190	-369.9547
106	-178.5775	185.6190	369.9547	-520.8243	-95.2038	-317.8591
107	675.6747	97.5594	324.2074	-604.3877	-85.4549	-292.9744
108	604.3877	85.4549	292.9744	-841.1945	-67.9456	-245.1599
109	766.1347	73.0482	258.6556	-837.8182	-55.2635	-211.1016
110	759.2098	61.1850	226.4083	-807.9376	-43.4236	-178.6291
111	727.9390	50.2030	195.7587	-778.8130	-34.1481	-151.9995
112	699.5576	41.8048	170.9874	-708.8571	-24.1975	-122.8197
113	632.4949	32.6822	143.7142	-624.6795	-15.2053	-95.2702
114	553.2610	24.5104	118.1123	-530.8489	-7.2153	-69.3742

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	466.2997	17.3293	94.2273	-457.2684	-1.5585	-49.9122
116	401.3373	12.4653	76.8441	-357.2340	4.4739	-27.6257
117	311.4084	7.1670	56.7084	24.3037	10.1999	-10.6525
118	226.2223	2.8381	38.7942	42.1691	10.2010	-10.6080
119	149.2928	-0.5521	25.3531	60.0356	10.2006	-10.5390
120	146.6300	-0.6311	19.4063	668.2217	-103.4434	-288.2943
121	-471.9174	169.1181	513.8552	1457.5066	-271.4808	-570.5273
122	-1457.5066	271.4808	570.5273	1080.7566	-247.6213	-516.0609
123	-1080.7566	247.6213	516.0609	695.8653	-235.1776	-488.2389
124	-695.8653	235.1776	488.2389	381.5870	-209.3444	-433.9041
125	-381.5870	209.3444	433.9041	102.4047	-182.3636	-377.9787
126	-102.4047	182.3636	377.9787	-723.7756	-97.8685	-324.8131
127	663.5333	101.2205	334.4764	-580.8361	-85.3676	-292.7477
128	741.0245	89.2421	302.5390	-843.5652	-71.4482	-255.2513
129	769.8429	76.4072	268.4553	-847.8036	-58.6051	-220.9363
130	770.2764	64.3949	235.9362	-825.0443	-46.6167	-188.1572
131	745.7800	53.2503	204.9713	-802.1801	-37.1747	-161.2028
132	723.3381	44.7046	179.8772	-738.0198	-27.0581	-131.6626
133	661.7358	35.4011	152.2380	-658.8748	-17.8812	-103.7086
134	587.2278	27.0707	126.2402	-569.3328	-9.7254	-77.3757
135	504.2850	19.7226	101.9264	-499.3809	-3.9190	-57.5338
136	442.7295	14.7081	84.1927	-402.2469	2.2917	-34.7839
137	355.5434	9.2516	63.6250	-308.0057	7.4728	-14.1540
138	272.5229	4.7728	45.2652	-230.7458	-9.6683	-13.8961
139	197.2774	1.2561	31.3940	-247.6480	-9.6672	-14.2184
140	203.9765	1.4157	25.9139	688.6824	-104.5043	-305.1689
141	-371.3582	148.7824	508.3522	388.0513	-203.5843	-587.1073
142	-388.0513	203.5843	587.1073	91.2252	-176.6437	-533.3265
143	-91.2252	176.6437	533.3265	-135.4839	-150.9547	-482.8948
144	135.4839	150.9547	482.8948	-348.2456	-138.6185	-458.1163
145	348.2456	138.6185	458.1163	-456.6130	-115.0100	-408.0775
146	456.6130	115.0100	408.0775	-507.7442	-92.9495	-357.7792
147	507.7442	92.9495	357.7792	-507.5159	-72.5711	-307.5515
148	507.5159	72.5711	307.5515	-462.5757	-53.9868	-260.3364
149	462.5757	53.9868	260.3364	-466.2766	-45.3833	-238.4336
150	466.2766	45.3833	238.4336	-353.9264	-29.5986	-196.7547
151	353.9264	29.5986	196.7547	-309.2342	-23.5354	-162.1303
152	390.7585	19.9470	164.1722	-163.6740	-10.9331	-130.3238
153	401.4980	19.1786	137.0627	-3.1827	0.0864	-99.4288
154	395.2897	17.0365	116.1242	189.1244	11.0095	-81.0071
155	333.9720	12.1018	93.0456	260.7836	13.5346	-60.3627
156	267.3616	7.6654	71.9846	431.3513	20.4700	-39.3854
157	170.7676	2.4471	53.0087	589.8284	25.8309	-22.5464
158	117.8352	-0.0805	36.4209	730.4840	29.7045	-9.9219
159	56.1839	-2.6090	26.7939	39.9577	7.0389	-7.7705
160	27.6540	-3.5431	17.7802	950.9584	-113.9253	-327.1729
161	-890.8958	176.0602	523.5999	482.3312	-233.9557	-597.6978
162	-482.3312	233.9557	597.6978	97.9769	-207.2200	-543.8848
163	-97.9769	207.2200	543.8848	-206.6972	-181.5878	-494.1664
164	206.6972	181.5878	494.1664	-435.6592	-157.1892	-448.3550
165	435.6592	157.1892	448.3550	-593.9561	-134.1178	-406.0323
166	593.9561	134.1178	406.0323	-687.2529	-112.4656	-364.4589
167	687.2529	112.4656	364.4589	-721.8933	-92.3005	-322.9308
168	721.8933	92.3005	322.9308	-704.7473	-73.6587	-281.3556
169	704.7473	73.6587	281.3556	-643.2889	-56.6626	-241.0037
170	643.2889	56.6626	241.0037	-545.3845	-41.3490	-203.8568
171	545.3845	41.3490	203.8568	-418.9083	-27.7024	-169.8642
172	418.9083	27.7024	169.8642	-342.4431	-20.5016	-139.8458
173	342.4431	20.5016	139.8458	-186.6180	-9.8050	-114.3513
174	186.6180	9.8050	114.3513	-19.9442	-0.5269	-89.3636

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	19.9442	0.5269	89.3636	149.8434	7.3082	-67.5474
176	-44.3292	-0.8133	67.8560	315.5048	13.7218	-48.9354
177	-173.3698	-6.1978	49.8632	470.5969	18.7589	-33.5749
178	-296.7236	-10.5679	33.8585	609.4815	22.4856	-21.5314
179	-609.4815	-22.4856	21.5314	727.4465	24.9977	-12.8793
180	-727.4465	-24.9977	12.8793	856.7849	-113.4965	-324.5533
181	-1022.0002	182.9468	509.1553	418.5365	-228.1488	-582.8603
182	-418.5365	228.1488	582.8603	62.1818	-202.7881	-528.9370
183	-62.1818	202.7881	528.9370	-221.2384	-178.7388	-479.1825
184	221.2384	178.7388	479.1825	-436.7862	-156.0888	-433.4452
185	436.7862	156.0888	433.4452	-655.4131	-129.8263	-375.6564
186	655.4131	129.8263	375.6564	-354.0053	-159.9404	-321.0977
187	354.0053	159.9404	321.0977	-656.6932	-86.2608	-274.5540
188	656.6932	86.2608	274.5540	-653.3841	-70.0685	-239.7290
189	653.3841	70.0685	239.7290	-610.4702	-55.1918	-208.3585
190	581.8049	55.2563	208.4243	-534.8124	-41.7169	-180.4178
191	573.0718	43.6288	182.6788	-433.9423	-29.6998	-154.3041
192	496.3006	33.2356	155.2641	-315.6405	-19.1814	-127.8331
193	401.3007	23.8800	129.7066	-187.8865	-10.1794	-101.1424
194	307.6739	12.5118	106.1545	-58.6413	-2.7228	-76.8804
195	187.6098	4.5036	84.4823	64.4819	3.2013	-55.9401
196	60.9612	-1.6954	64.6424	11.5725	20.0363	-13.3187
197	-63.2798	-6.4859	46.6971	1.4644	0.4852	-0.0165
198	-179.3560	-10.2478	30.6920	2.4109	0.4852	-0.0137
199	-274.6354	-11.3100	17.7937	3.3575	0.4852	-0.0092
200	-355.6191	-12.6275	8.9601	666.9763	-21.4237	-52.3349
201	-473.1067	153.4897	379.3727	1466.2897	-255.1188	-435.6304
202	-1466.2897	255.1188	435.6304	1115.1060	-239.6687	-397.4624
203	-1115.1060	239.6687	397.4624	791.8639	-224.2209	-360.0518
204	-791.8639	224.2209	360.0518	111.0722	-144.7824	-292.6178
205	230.4461	125.3535	297.9055	-88.5400	-134.6378	-270.7545
206	88.5400	134.6378	270.7545	-512.0048	-99.0006	-232.3606
207	467.5716	101.2438	241.8513	-566.4488	-86.0815	-200.5897
208	639.8130	82.0808	212.2411	-728.2513	-68.6105	-175.6917
209	677.6467	71.5853	188.2905	-729.1224	-56.1495	-146.9413
210	668.5682	60.0378	161.0450	-722.5272	-46.4462	-124.4630
211	659.1106	50.9549	140.2404	-673.5622	-35.2933	-98.9837
212	615.2032	40.5394	116.1668	-637.2294	-26.8484	-79.5455
213	572.5143	32.5893	97.9957	-580.7088	-18.8793	-61.3118
214	517.6870	25.2915	81.2114	-480.6642	-9.4189	-39.8282
215	421.0238	16.4791	61.3836	-401.0516	-2.7140	-24.6816
216	346.5993	10.4526	47.4884	-57.4603	10.1867	-1.1362
217	153.0667	-3.9402	15.5589	-43.0925	10.1866	-1.1855
218	100.8005	-6.4309	9.3169	-29.0081	10.2895	-1.2286
219	55.8813	-8.2144	4.5324	-14.5018	10.2874	-1.2465
220	21.2879	-9.2877	1.2579	-0.0019	20.9064	-1.2585

ENVOL. MIN. FLECTORES -EC1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.1870	201.8618	531.2670	55.2552	33.7844	-19.5746
2	-95.0850	-58.1449	16.9709	190.1594	58.1447	-16.9379
3	-190.1711	-58.1396	16.7444	285.2427	58.1366	-16.6893
4	-285.2482	-58.1245	16.3956	380.2967	58.1235	-16.3184
5	-380.3108	-58.1258	15.9277	475.3683	58.1251	-15.8287
6	-475.3784	-58.1124	15.3432	570.3970	58.1099	-15.2221
7	-570.4136	-58.1128	14.6348	665.4349	58.1160	-14.4913
8	-665.4503	-58.1435	13.8081	760.5390	58.1492	-13.6431
9	-760.5545	-58.1538	12.8648	855.6503	58.1567	-12.6778
10	-855.6328	-58.1830	11.7974	950.7637	58.1806	-11.5877
11	-950.7404	-58.1424	10.6105	1045.7998	58.1343	-10.3790
12	-1045.8000	-58.1065	9.3044	1140.8074	58.1006	-9.0509
13	-1140.8042	-58.0848	7.8851	1235.7766	58.0817	-7.6107
14	-1235.7863	-58.0713	6.3458	1330.7303	58.0751	-6.0480
15	-1330.7212	-58.0946	4.6737	1425.7094	58.1001	-4.3537
16	-1425.6973	-58.1043	2.8967	1520.6940	58.0970	-2.5565
17	-1521.0026	-61.4356	-1.3541	1721.1018	243.5355	353.4137
18	-1761.1458	-291.3720	-293.6628	2263.2329	317.4566	347.3362
19	-2296.0193	-357.5009	-297.2182	2889.4822	369.7397	325.3767
20	-2916.5415	-405.7054	-279.0083	3588.0144	134.5007	-168.5429
21	-3610.5728	203.9371	-217.4963	2701.3931	-432.9845	-303.4456
22	-2718.8809	417.6765	322.7007	1914.2072	-394.2853	-273.7456
23	-1959.1090	351.8257	331.6330	1408.8315	-150.9521	136.8830
24	-1448.8292	106.4200	-74.2782	1236.0193	-106.4263	75.6341
25	-1269.5668	72.3852	-23.0792	1124.7917	-72.4012	24.3260
26	-1183.5558	29.4578	-2.9458	1124.6355	-29.4724	4.0786
27	-1124.6398	29.4829	-4.7299	1065.6689	-29.4935	5.7528
28	-1065.6653	29.5002	-6.4256	1048.1506	3.1575	-4.3512
29	-1048.1699	-3.1538	2.9770	1054.4778	3.1537	-2.7554
30	-1054.4574	-3.1640	1.3415	1069.7467	24.0726	-3.2058
31	-1069.7301	-24.0185	1.7465	1117.7524	24.0177	-1.5406
32	-1117.7195	-24.0322	0.0490	1165.7747	24.0308	0.1911
33	-1165.7643	-24.0238	-1.7322	1213.7992	24.0250	2.0056
34	-1213.7587	-24.0499	-3.5788	1261.8544	24.0553	3.8849
35	-1261.8466	-24.0643	-5.5015	1309.9766	24.0656	5.8422
36	-1309.9628	-24.0608	-7.5045	1358.0789	24.0606	7.8787
37	-1383.6445	-75.6475	-17.4662	1535.4446	253.0883	408.3951
38	-1612.5084	-151.3281	-67.3112	2177.1208	314.1653	394.8598
39	-2224.9780	-358.5833	-332.8469	2950.9912	369.6855	356.9537
40	-2991.9553	-412.1303	-299.7450	3836.7559	159.9366	-237.2004
41	-3863.6365	190.6627	-183.4077	2948.5649	-441.2036	-303.5889
42	-2967.0061	425.9202	322.6022	2128.3901	-414.0253	-296.8175
43	-2176.2539	371.6671	354.3217	1537.7396	-155.9281	140.8811
44	-1582.4355	111.5649	-78.7679	1359.2250	-111.5540	80.1418
45	-1397.6094	73.7475	-20.9342	1250.0598	-73.7564	22.1990
46	-1305.5770	35.7078	-7.5740	1256.5155	-9.4246	-4.6474
47	-1256.5142	9.4106	3.0400	1237.6880	-9.4093	-2.7275
48	-1237.6727	9.3842	1.1251	1218.8999	-9.3832	-0.8466
49	-1218.8940	9.3890	-0.7679	1200.1160	-9.3865	1.0129
50	-1200.1113	9.3546	-2.6308	1181.3914	-9.3517	2.8419
51	-1181.3975	9.3806	-4.4680	1203.9312	12.4984	1.6423
52	-1203.9116	-12.4630	-3.2698	1228.8307	12.4569	3.5102
53	-1228.8380	-12.4123	-5.1454	1253.6619	12.4095	5.4194
54	-1253.6263	-12.4041	-7.0599	1278.4392	12.4008	7.3678
55	-1278.4276	-12.3880	-9.0145	1303.2009	12.3866	9.3545
56	-1303.1561	-12.3824	-11.0015	1341.3409	35.0233	-2.2871
57	-1365.7056	-83.9989	-14.6129	1538.2271	257.9174	404.9488
58	-1613.0836	-160.2434	-63.4422	2190.7266	319.2432	390.9940
59	-2239.2190	-363.8214	-328.8309	2975.7119	374.8935	353.0250
60	-3016.9678	-417.4073	-295.8185	3870.7795	165.0780	-240.4331
61	-3900.6807	190.2334	-181.7758	2982.2888	-441.0264	-304.5453
62	-3000.6519	425.7477	323.5246	2162.4204	-413.8332	-297.7314
63	-2210.3850	371.5089	355.2875	1564.4321	-155.6243	139.1408
64	-1645.0746	160.5090	62.2380	1386.8273	-111.3268	78.2682
65	-1425.5405	73.6114	-18.9446	1278.3303	-73.6120	20.1976
66	-1339.3392	13.3055	7.5332	1312.7281	-13.3065	-7.1850
67	-1312.7438	13.3022	5.4968	1286.1353	-13.3026	-5.1827
68	-1286.1089	13.2533	3.4990	1259.6139	-13.2531	-3.2185
69	-1259.6085	13.2689	1.5464	1233.0785	-13.2707	-1.3006
70	-1233.0493	13.3287	-0.3656	1206.3927	-13.3296	0.5771
71	-1206.3618	13.3296	-2.2266	1218.7362	8.4814	-0.3238
72	-1218.7488	-8.4545	-1.3257	1235.6598	8.4548	1.5630
73	-1235.6962	-8.4758	-3.2242	1252.6429	8.4798	3.4948
74	-1252.6462	-8.5018	-5.1381	1269.6511	8.5008	5.4400
75	-1269.6470	-8.4606	-7.0704	1286.5547	8.4523	7.4063
76	-1286.5245	-8.4290	-9.0315	1341.4399	33.5113	-2.9313
77	-1363.6034	-72.3983	17.9283	1521.2592	258.5735	405.3837
78	-1600.6040	-162.2999	-63.6608	2175.0952	319.9019	391.6272
79	-2224.6313	-364.5052	-329.5873	2961.6770	375.5559	353.7090
80	-3003.5527	-418.0807	-296.5534	3863.1375	166.1968	-244.0805
81	-3892.0029	188.7930	-156.7521	2977.3916	-439.1441	-335.3156
82	-2996.0603	423.8922	353.9866	2160.9414	-411.9421	-328.7376
83	-2209.7993	369.7547	384.5701	1571.2043	-155.2671	128.3314
84	-1661.8610	160.6532	78.3556	1394.7399	-111.3629	72.0877
85	-1434.4584	74.5420	-22.5555	1285.3115	-74.5531	23.8094
86	-1335.8251	27.4027	-41.2166	1281.0067	-27.4041	41.5651
87	-1280.9493	27.3929	-43.2133	1226.1505	-27.3887	43.5251
88	-1226.0883	27.3815	-45.1113	1171.3096	-27.3825	45.3893
89	-1171.2550	27.3692	-46.9318	1116.4985	-27.3678	47.1764
90	-1116.4249	27.3549	-48.6753	1061.7134	-27.3524	48.8841
91	-1061.5992	27.3541	-50.3159	1022.0062	-7.3059	53.6804
92	-1021.9023	7.2847	-55.0708	1007.3184	-7.2803	55.2628
93	-1007.2452	7.2482	-56.5973	992.7283	-7.2466	56.8171
94	-992.6344	7.2476	-58.1095	978.1134	-7.2486	58.3559
95	-978.0361	7.2611	-59.6054	963.4890	-7.2602	59.8781
96	-963.4223	7.2443	-61.0729	948.9184	-7.2411	61.3740
97	-1030.0968	-86.3453	-43.2598	1244.2037	244.6230	388.9418
98	-1285.6804	-284.2570	-323.3519	1881.2759	307.2979	370.7119
99	-1925.1803	-356.1731	-297.6374	2649.9233	367.1815	321.5356
100	-2676.3286	-396.5816	-280.2733	3614.3186	166.5099	-231.6809
101	-3584.3904	170.5650	-164.0773	2891.2056	-422.9449	-329.5568
102	-2910.1316	396.8174	363.2243	2229.9707	-383.8302	-334.7723
103	-2252.6287	349.3202	377.5928	1689.6805	-148.3551	136.8499
104	-1740.7365	158.8289	48.8140	1518.4990	-113.4770	97.2924
105	-1547.0192	82.9898	-62.1022	1401.7338	-82.9857	63.3168
106	-1453.1971	32.5512	-114.0218	1396.2059	-32.5527	114.3482
107	-1396.0389	32.5552	-115.9237	1339.0331	-32.5587	116.2185
108	-1338.8876	32.5848	-117.7416	1281.8326	-32.5896	118.0039
109	-1281.6813	32.6019	-119.4820	1224.6046	-32.6074	119.7126
110	-1224.4261	32.6451	-121.1514	1167.2830	-32.6520	121.3503
111	-1167.1273	32.6679	-122.7339	1125.2214	-8.4347	120.8314
112	-1125.0530	8.3946	-122.1663	1110.3492	-8.3900	122.3482
113	-1110.2083	8.3693	-123.6520	1095.5389	-8.3694	123.8585
114	-1095.3889	8.3900	-125.1146	1080.6897	-8.3937	125.3464

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	-1080.5389	8.4262	-126.5566	1065.7617	-8.4272	126.8134
116	-1065.6167	8.3752	-127.9821	1050.9376	-8.3711	128.2641
117	-1104.5162	-84.5493	-34.3381	1303.3466	230.4021	345.8901
118	-1334.8981	-269.7164	-273.9950	1830.9359	294.8958	326.4601
119	-1859.0725	-325.7838	-277.7859	2439.3884	337.8700	304.8248
120	-2476.7729	-375.3832	-249.8387	3241.2510	149.3461	-254.7394
121	-3196.2141	172.1552	-114.1219	2550.8523	-398.6013	-321.5300
122	-2567.8489	385.3423	338.0124	1904.9172	-372.5768	-309.3493
123	-1944.9243	335.6754	355.6411	1380.0305	-309.2504	-300.1887
124	-1417.3135	270.6349	344.6424	1102.0027	-161.9550	-82.1954
125	-1171.5231	90.1051	-5.6469	1013.8067	-90.1028	5.9439
126	-1107.9128	10.8222	-118.0380	1088.9628	-10.8239	118.3083
127	-1088.8383	10.8346	-119.5151	1069.8575	-10.8420	119.7589
128	-1069.7130	10.9050	-120.9702	1050.6080	-10.9074	121.1871
129	-1050.4355	10.9068	-122.3918	1031.3302	-10.9064	122.5831
130	-1031.1962	10.9096	-123.7979	1016.0865	0.4759	124.8780
131	-1015.9320	-0.4538	-126.0867	1031.7911	11.6293	126.1119
132	-1031.6460	-11.6942	-127.3336	1052.1001	11.6971	127.5247
133	-1051.9597	-11.6839	-128.7458	1072.3975	11.6835	128.9630
134	-1072.2505	-11.7015	-130.1774	1092.7137	11.7048	130.4198
135	-1092.5405	-11.6992	-131.6203	1112.9862	11.6970	131.8879
136	-1112.8204	-11.6905	-133.1061	1133.2574	11.6886	133.4044
137	-1170.7855	-86.3503	-37.1040	1360.5753	231.3425	350.8982
138	-1388.4314	-261.4141	-292.2227	1874.7172	286.8637	344.9776
139	-1915.6488	-326.0653	-280.2863	2499.0767	338.2958	307.4749
140	-2535.0674	-375.6751	-251.9121	3311.0652	132.4830	-177.2529
141	-3248.4561	192.9735	-222.2564	2578.2844	-405.6002	-289.2339
142	-2595.9778	391.9319	306.4150	1905.1117	-379.4035	-278.3651
143	-1945.5105	341.2793	327.4934	1360.3752	-315.2770	-274.0759
144	-1396.4579	275.1375	324.3430	1074.4418	-159.5213	-55.4288
145	-1140.3757	89.2222	-3.5220	980.8640	-65.2366	62.1273
146	-1089.3040	-1.7489	-56.3204	1092.4344	1.7456	56.5910
147	-1092.3866	-1.7252	-57.8388	1095.4736	1.7241	58.0849
148	-1095.3892	-1.7650	-59.3788	1098.5586	1.7638	59.5961
149	-1098.4834	-1.7099	-60.8959	1101.5422	1.7095	61.0897
150	-1101.4912	-1.7226	-62.4515	1123.2024	24.9523	53.1465
151	-1123.1287	-24.9399	-54.5168	1168.0094	24.9420	54.7095
152	-1167.9342	-24.9851	-56.1014	1212.9017	24.9843	56.3275
153	-1212.8302	-24.9587	-57.7703	1257.7373	24.9571	58.1055
154	-1257.6538	-24.9447	-59.5763	1302.5411	24.9426	59.8671
155	-1302.4546	-24.9221	-61.3690	1347.2996	24.9215	61.6158
156	-1347.2130	-24.9474	-63.1411	1410.8002	47.3953	37.5412
157	-1418.3605	-77.9533	2.5605	1603.0728	251.2193	360.6945
158	-1631.3789	-287.9366	-293.0422	2162.8284	300.6095	319.7445
159	-2193.6062	-340.3412	-260.2036	2831.2400	364.6654	313.0756
160	-2859.5090	-402.7127	-260.3458	3591.4534	135.0450	-192.3290
161	-3616.4602	204.6791	-226.5715	2700.6309	-429.7142	-299.4500
162	-2717.4456	414.3800	318.6837	1919.2257	-390.9435	-269.5622
163	-1961.2703	348.4090	327.5688	1282.4156	-323.6662	-277.8737
164	-1344.5546	165.2625	72.6311	1038.0044	-105.4336	90.9863
165	-1111.1796	77.6584	20.0840	962.2543	-61.5986	24.1636
166	-1044.0228	5.4234	13.9663	1033.1819	-5.4192	-13.6727
167	-1033.2023	5.3836	12.3594	1022.4409	-5.3813	-12.0933
168	-1022.4429	5.3746	10.7764	1011.6972	-5.3752	-10.5414
169	-1011.7202	5.3913	9.1927	1000.9375	-5.3918	-8.9859
170	-1000.9230	5.3904	7.6456	999.3029	14.4387	-10.4381
171	-999.3139	-14.4677	9.0929	1028.2544	14.4722	-8.9016
172	-1028.2935	-14.4949	7.5192	1057.2961	14.4930	-7.2942
173	-1057.3248	-14.4656	5.9104	1086.2615	14.4618	-5.6511
174	-1086.2717	-14.4410	4.2499	1115.1517	14.4393	-3.9598

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	-1115.1611	-14.4428	2.5401	1163.8434	34.9164	-11.5587
176	-1163.8469	-34.9080	10.8504	1233.6682	34.9081	-9.7237
177	-1254.1646	-70.8252	28.9999	1433.9364	256.3647	398.0856
178	-1468.5206	-290.0994	-346.7059	2062.8887	301.8088	370.5148
179	-2113.1980	-346.2069	-309.1867	2833.5425	368.5908	354.7164
180	-2875.8057	-411.0544	-297.8488	3715.4587	162.8271	-234.1723
181	-3752.2588	179.0830	-178.9465	2872.9905	-425.4692	-302.8082
182	-2890.5684	410.5890	321.4482	2100.1375	-398.3344	-295.2615
183	-2146.9336	357.2032	351.5995	1563.6370	-150.3400	131.3725
184	-1608.5607	107.5504	-70.4640	1398.7706	-107.5595	71.8242
185	-1437.3818	71.5182	-14.3055	1297.8490	-71.5361	15.5519
186	-1328.2350	51.8497	-1.9891	1233.3478	-37.8138	-6.1361
187	-1233.3468	37.8278	4.6192	1159.5483	-37.8272	-4.3136
188	-1159.5580	37.8266	2.8504	1085.7687	-37.8272	-2.5784
189	-1085.7714	37.8395	1.2023	1011.9645	-37.8428	-0.9660
190	-1011.9744	37.8576	-0.3314	938.1209	-37.8572	0.5443
191	-938.1194	37.8678	-1.9176	868.5500	-18.2000	0.5135
192	-868.5386	18.1795	-1.5221	833.0800	-18.1774	1.6674
193	-833.0780	18.1509	-2.5445	797.6720	-18.1520	2.7304
194	-797.6595	18.1718	-3.7960	762.2140	-18.1742	4.0362
195	-762.1996	18.1841	-5.0684	726.7262	-18.1831	5.3040
196	-726.7108	18.1808	-6.0093	691.2452	-18.1805	6.2419
197	-774.3422	-77.8100	-26.7979	1059.2242	231.1705	358.4266
198	-1098.0360	-269.8495	-301.8506	1636.6086	281.3575	326.7337
199	-1676.9071	-315.7907	-279.7726	2321.4656	363.0293	283.0260
200	-2370.1694	-404.8215	-227.1153	3167.0769	140.3137	-218.1381
201	-3193.7266	167.2231	-126.2122	2595.7605	-407.6673	-295.6332
202	-2606.6016	386.0657	322.8681	2070.7827	-370.6170	-284.4929
203	-2085.6638	341.1889	322.2228	1667.1639	-136.5167	91.0692
204	-1693.9434	138.9880	33.1158	1540.7014	-104.5473	52.1207
205	-1571.1960	69.5547	-8.5334	1473.1067	-69.5669	9.3375
206	-1473.1084	69.5826	-9.6546	1374.9679	-69.5913	10.1523
207	-1374.9624	69.5933	-10.5011	1276.8188	-69.5823	11.4940
208	-1276.8307	69.5792	-12.4903	1178.7032	-69.5882	13.4836
209	-1178.6979	69.5990	-13.8272	1080.5144	-69.6399	14.3251
210	-1080.5079	69.6638	-14.6473	982.2336	-69.6696	15.2347
211	-982.2380	69.6545	-15.7082	884.0222	-69.6280	16.3508
212	-884.0301	69.6358	-16.7544	785.8151	-69.6519	17.2179
213	-785.8172	69.6680	-17.4428	687.5324	-69.6826	17.7465
214	-687.5311	69.6689	-17.9286	589.2946	-69.6524	18.3066
215	-589.3079	69.6504	-18.6361	491.0898	-69.6412	18.9738
216	-491.0969	69.6425	-19.1039	392.8976	-69.6487	19.2924
217	-392.9038	69.6477	-19.4096	294.6670	-69.6521	19.6113
218	-294.6696	69.6561	-19.7658	196.4219	-69.6529	19.9427
219	-196.4247	69.6477	-20.0247	98.2065	-69.6446	20.0962
220	-98.2086	69.6407	-20.1115	0.5620	99.0233	473.5023

ENVOL. MIN. CORTANTES -EC1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0016	-44.5646	0.7997	74.4311	58.9918	-16.0577
2	-63.8994	-45.8317	2.3841	113.1229	61.5246	-13.8594
3	-112.6507	-47.9289	4.7368	124.2544	65.7216	-10.6205
4	-150.3054	-50.8527	7.9113	-225.6141	74.6826	6.1339
5	-9.8436	-56.1482	20.7885	-379.2764	89.7817	15.1372
6	524.8176	-71.9741	-2.9422	-448.7269	102.6783	22.4929
7	607.7516	-86.4563	-11.0129	-560.4052	120.8267	32.5753
8	728.0817	-106.1829	-21.7843	-638.3063	140.3990	43.2074
9	810.0443	-127.2479	-33.1096	-627.9343	157.7515	52.3881
10	799.4180	-146.1243	-42.9982	-625.2810	180.0569	64.3089
11	1097.0538	-170.4725	-24.4506	-532.0140	200.1825	74.9269
12	918.3341	-195.2159	-38.4897	-644.0005	240.1058	70.9589
13	717.8278	-236.3478	-78.2368	-384.2825	281.3550	111.0956
14	450.9073	-278.2233	-117.4976	-13.8034	307.5062	124.2395
15	71.9525	-304.9686	-129.8123	386.4356	350.0544	162.6455
16	-337.7830	-348.0755	-167.4345	857.2946	391.4240	197.1623
17	-818.9286	-389.9532	-201.2244	1436.9764	417.4912	206.7424
18	-1409.4148	-416.4992	-210.1383	2034.5575	456.3181	240.3489
19	-2018.0272	-455.7519	-243.1210	2676.5981	493.2010	273.9514
20	-2671.0745	-493.0113	-276.1604	2784.3921	396.1665	203.8499
21	-812.2127	-150.1111	-272.0705	-416.5582	59.8824	-7.2645
22	413.6098	-43.4332	-10.1007	-345.6429	61.6666	-5.4758
23	336.8582	-44.9960	-6.5625	-302.4404	64.8030	-2.3465
24	273.1771	-47.3023	-2.0667	-282.3631	69.4277	2.0118
25	219.8053	-50.4069	3.4460	-597.4393	78.7173	22.8509
26	332.1935	-55.8494	23.1356	-698.5905	91.5173	32.4535
27	863.5215	-68.2940	-17.9842	-791.8648	106.4295	42.7970
28	974.8953	-85.0719	-29.1874	-867.0546	123.4716	53.8522
29	1063.1393	-104.0540	-41.0776	-913.5681	142.6709	65.6288
30	1117.2728	-125.1714	-53.6903	-920.8002	163.9400	78.1670
31	1126.5146	-148.4222	-67.0870	-878.3676	187.2975	91.5318
32	1080.4342	-173.7265	-81.3720	-1196.2745	216.3431	85.5220
33	1292.5378	-210.5190	-94.0944	-908.2980	257.8271	122.5829
34	997.3110	-252.9272	-130.0537	-521.3987	299.2526	155.6026
35	600.7538	-295.2633	-162.0436	-38.0402	340.4174	184.7712
36	105.6302	-337.3045	-190.2638	538.0998	381.1278	210.2628
37	-484.0361	-378.8151	-214.8993	1201.9220	421.1769	232.4954
38	-1162.6826	-419.6245	-236.3737	1947.1067	460.4140	254.1871
39	-1923.4734	-459.5368	-257.4138	2765.8245	498.6465	276.0640
40	-2758.0291	-498.3640	-278.7444	3067.4038	422.9352	244.5640
41	-691.4214	-150.3524	-323.7844	-681.1304	68.0503	-6.0902
42	542.3197	-47.4114	-9.8290	-594.6418	69.8641	-4.7848
43	458.3859	-49.0064	-6.0437	-536.2121	73.0542	-2.1560
44	387.5800	-51.3528	-1.2972	-501.0508	77.7442	1.6981
45	327.0597	-54.5053	4.4656	-806.3663	87.4014	21.7696
46	950.3446	-62.4597	-5.8815	-892.3367	100.3179	30.8137
47	1058.9386	-77.1752	-15.8619	-969.8777	115.3397	40.6466
48	1154.4509	-94.0540	-26.5941	-1028.8173	132.4801	51.2573
49	1226.2557	-113.1203	-38.0676	-1058.5547	151.7486	62.6387
50	1263.4166	-134.3299	-50.3279	-1048.5679	173.1047	74.8449
51	1255.2605	-157.6600	-63.4409	-988.4943	196.5473	87.9420
52	1191.3529	-183.0423	-77.5080	-868.4537	221.9557	102.0364
53	1343.0491	-215.9327	-90.0536	-947.9044	263.2953	118.4594
54	1037.1805	-258.4310	-125.8458	-550.1238	304.7572	151.3795
55	629.6635	-300.8060	-157.7607	-55.7663	345.9141	180.5409
56	123.4663	-342.8138	-185.9986	531.3423	386.5875	206.1060
57	-477.2139	-384.2935	-210.7304	1205.9879	426.5922	228.4792
58	-1166.7129	-425.0482	-232.3625	1961.7893	465.7686	250.3640
59	-1938.1293	-464.8964	-253.6183	2790.8545	503.9293	272.4675
60	-2783.0112	-503.6480	-275.1800	3128.3086	432.4771	240.6946
61	-646.9928	-150.8927	-323.9359	-756.6379	69.9462	-5.5593
62	582.3729	-48.8605	-10.2586	-666.5320	71.7666	-4.3285
63	495.5891	-50.4569	-6.4513	-604.4674	74.9681	-1.7407
64	421.9272	-52.8113	-1.6933	-565.6310	79.6734	2.0870
65	358.5362	-55.9710	4.0701	-867.5230	89.5459	22.4758
66	1011.5923	-64.6232	-6.6024	-949.3156	102.4855	31.5626
67	1115.9395	-79.3674	-16.6374	-1022.5466	117.5110	41.4356
68	1207.0879	-96.2710	-27.4009	-1077.0332	134.6921	52.0631
69	1274.3789	-115.3590	-38.9091	-1102.2129	153.9881	63.4707
70	1306.8859	-136.6119	-51.1866	-1087.4280	175.4011	75.6847
71	1293.7845	-159.9612	-64.3146	-1022.4598	198.8376	88.7906
72	1224.9034	-185.3575	-78.3838	-897.4632	224.2473	102.8777
73	1360.4803	-216.9003	-91.2950	-964.0707	264.2318	119.6945
74	1053.0731	-259.3925	-127.0786	-565.0050	305.6644	152.5784
75	644.2979	-301.7342	-158.9552	-69.4966	346.8149	181.6709
76	136.9585	-343.7267	-187.1227	518.5195	387.4511	207.1362
77	-464.6069	-385.1672	-211.7509	1193.8625	427.4074	229.3850
78	-1154.7756	-425.8685	-233.2633	1950.1405	466.5409	251.1317
79	-1926.6118	-465.6707	-254.3711	2779.4429	504.6455	273.0840
80	-2771.6616	-504.3711	-275.7954	3136.5415	434.7189	241.7527
81	-684.5336	-145.7494	-337.4774	-689.8969	56.8297	35.0205
82	489.2225	-33.0269	-52.5396	-626.1904	58.6820	35.9928
83	434.3462	-34.6611	-48.4332	-590.5062	61.9334	37.9989
84	392.5023	-37.0619	-43.1573	-800.2910	67.8308	42.6130
85	917.9604	-41.2868	-24.4929	-902.4653	78.8813	48.7936
86	1046.5353	-54.0858	-31.3682	-1005.0652	92.0312	55.4701
87	1171.3901	-69.0512	-38.6888	-1098.1954	107.3027	62.6431
88	1282.0308	-86.2244	-46.4858	-1171.5126	124.7338	70.3442
89	1367.6722	-105.5858	-54.8068	-1214.3966	144.2840	78.6314
90	1417.3765	-127.0992	-63.7626	-1216.2467	165.9387	87.6199
91	1420.4213	-150.7411	-73.5161	-1166.7568	189.6596	97.4755
92	1366.4989	-176.3675	-84.2410	-1370.4182	216.6245	85.1609
93	1464.4539	-210.9776	-91.8391	-1092.0834	257.5616	122.2290
94	1178.4127	-252.8610	-127.8305	-717.8223	298.3702	154.9972
95	794.1487	-294.5842	-159.6318	-250.4597	338.8635	183.6470
96	314.7973	-335.9278	-187.4475	306.1262	378.8332	208.3536
97	-255.3814	-376.6808	-211.4671	946.9023	418.1163	229.5637
98	-910.8515	-416.7020	-232.1348	1665.3390	456.5550	250.2136
99	-1644.5234	-455.7871	-252.4072	2453.7556	493.9639	271.3373
100	-2448.1282	-493.7608	-273.3185	2861.4255	425.8804	239.4202
101	-731.0152	-149.6378	-341.7971	-719.5137	69.3456	44.6209
102	506.7739	-45.5604	-65.9228	-636.4861	70.9401	44.0526
103	437.9802	-47.0690	-61.8199	-575.8511	73.7818	43.8740
104	379.1325	-49.2496	-56.4634	-533.5564	77.9659	44.0942
105	625.7869	-54.7561	-25.5919	-789.1315	87.1839	36.2261
106	901.9300	-65.4954	-18.1567	-863.7394	100.0357	38.5997
107	993.8382	-79.9309	-21.0043	-877.8779	111.7647	40.6515
108	1021.5826	-93.3103	-23.6070	-927.0804	128.3717	44.4754
109	1080.3613	-111.5853	-28.0673	-950.6749	146.9011	49.3000
110	1109.3040	-131.8287	-33.6194	-940.1406	167.3141	55.2593
111	1099.8176	-153.9445	-40.4429	-845.4238	186.1438	60.6889
112	1001.8071	-174.4304	-46.8785	-745.5219	210.0215	69.2012
113	958.0234	-203.1703	-53.2751	-670.1710	249.5166	85.9099
114	737.9584	-245.4092	-90.1532	-377.2983	290.7278	123.2572

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	437.3021	-287.3995	-126.7738	42.4267	316.8181	131.9804
116	8.2349	-314.2160	-134.8788	489.4753	357.5956	163.9520
117	-449.4443	-355.6897	-166.3467	1006.5841	397.5836	193.7496
118	-978.1181	-396.3254	-195.7610	1587.3312	436.5892	224.1637
119	-1570.9709	-435.9120	-225.9079	2293.8762	462.6036	231.0183
120	-2289.7390	-462.4377	-232.6183	2527.5713	393.5198	184.4880
121	-322.1389	-135.7440	-306.1706	-768.4086	73.7909	54.5517
122	547.2421	-49.9992	-77.6716	-675.5502	75.2922	53.7651
123	469.3722	-51.4469	-73.3727	-604.4796	77.9920	53.2727
124	401.2816	-53.5497	-67.7885	-551.5502	82.0070	53.1042
125	640.0046	-58.5812	-34.1485	-783.6629	89.6485	41.1869
126	892.7266	-67.7164	-22.6075	-848.9746	102.1300	42.7235
127	975.5952	-81.7804	-24.5684	-855.8768	113.5692	44.0760
128	996.5106	-94.8566	-26.4302	-898.7314	129.8416	47.0372
129	1049.4520	-112.8035	-29.9946	-917.5665	148.0752	51.0150
130	1074.2317	-132.7346	-34.6873	-903.7586	168.2083	56.1641
131	1062.0601	-154.5860	-40.6902	-806.7442	186.7844	60.8720
132	962.3685	-174.8152	-46.4009	-705.8716	210.4175	68.6400
133	917.8218	-202.0223	-52.2320	-628.8378	248.4733	85.2088
134	696.6185	-244.2689	-89.1755	-334.7522	289.7651	122.6309
135	394.9015	-286.3607	-125.9014	84.7568	315.8954	131.3045
136	-33.8620	-313.2439	-133.9918	533.9442	356.9244	163.4511
137	-493.6607	-354.9778	-165.6835	1054.1682	397.2258	193.4744
138	-1025.5089	-395.9420	-195.3711	1639.1312	436.5792	224.1870
139	-1622.7181	-435.8933	-225.8905	2348.3491	462.7733	231.2430
140	-2344.3865	-462.6060	-232.8786	2564.6472	393.7938	182.1085
141	-365.5405	-137.9817	-284.1923	-726.3347	79.0277	-2.0702
142	577.5948	-59.6058	-18.3811	-621.5496	80.5216	-2.5437
143	479.9801	-61.0510	-14.2703	-539.6525	83.2278	-2.4494
144	392.7056	-63.1517	-9.0260	-476.9772	87.2590	-1.7399
145	313.6004	-65.9655	-2.6781	-569.1008	93.0178	-17.6530
146	683.1464	-70.3371	35.2419	-757.0099	105.0544	6.4455
147	889.8309	-83.9844	10.3823	-810.3018	119.3386	11.6550
148	958.2296	-99.9304	4.3541	-848.2922	135.6174	18.0402
149	1007.2563	-117.9380	-2.9376	-814.1383	150.7211	23.7858
150	979.7578	-134.7697	-9.6485	-796.4721	170.8119	32.5162
151	964.2021	-156.6264	-19.4456	-737.1182	192.8099	42.6357
152	902.3765	-180.3713	-30.7322	-835.3439	219.6264	37.8941
153	914.6888	-214.3281	-44.6233	-590.4691	261.3904	75.8678
154	664.0266	-256.9268	-81.7724	-217.8902	287.5341	86.7370
155	283.6588	-283.8917	-91.8842	194.6640	329.4167	122.0569
156	-138.4461	-326.5473	-126.5064	687.9580	370.7767	154.2522
157	-642.7871	-368.6478	-158.0735	1257.2422	411.4235	184.8431
158	-1224.2767	-409.9757	-188.1040	1896.3041	451.1507	216.0872
159	-1876.2913	-450.3275	-218.8430	2657.3955	477.6796	223.6024
160	-2650.6758	-477.4128	-225.9319	2824.4343	404.1383	177.7471
161	-424.5871	-134.7132	-287.9194	-670.8510	62.5490	-8.8807
162	532.7422	-43.4995	-6.5908	-593.5842	64.3071	-7.4464
163	455.0618	-45.0410	-2.9056	-543.6378	67.4078	-4.6279
164	390.3377	-47.3223	1.7173	-516.5829	71.9889	-0.5317
165	335.8643	-50.4028	7.3341	-817.1351	81.6164	21.6347
166	957.2637	-56.5441	-6.0905	-909.5936	94.3475	31.2130
167	1072.3962	-71.0561	-16.6441	-994.5603	109.1912	41.5965
168	1175.5128	-87.7830	-27.9463	-1061.7762	126.1957	52.7472
169	1255.8346	-106.7029	-39.9741	-1100.6038	145.3352	64.6534
170	1302.3560	-127.8142	-52.7637	-1100.3359	166.6130	77.3639
171	1304.2108	-151.0360	-66.3874	-1050.6852	189.9267	90.9419
172	1251.0476	-176.3052	-80.8962	-1272.9110	216.4424	86.2161
173	1368.4611	-210.6011	-94.8639	-987.3983	257.7717	123.0757
174	1075.7747	-252.8890	-130.6184	-604.0966	299.0555	155.8853

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	682.8935	-295.0671	-162.3966	-125.5191	340.0460	184.8550
176	192.6190	-336.9311	-190.4067	444.8104	380.5811	210.1565
177	-391.1427	-378.2719	-214.8315	1101.8174	420.4517	232.1832
178	-1062.8503	-418.8913	-236.0700	1839.4175	459.5269	253.6406
179	-1815.9005	-458.6495	-256.8419	2649.9375	497.6136	275.2191
180	-2642.0354	-497.3288	-277.8263	2954.7834	425.7784	243.6759
181	-799.7359	-139.6774	-324.2685	-527.5536	43.9033	-0.8240
182	547.7454	-13.5888	20.4509	-489.8882	45.7340	0.7968
183	543.0207	-16.7945	17.5855	-478.9123	48.9395	3.6853
184	563.1189	-21.5014	13.5657	-716.0999	55.8517	19.8032
185	828.6462	-30.0267	-3.5716	-839.7927	66.9799	28.3393
186	977.3630	-42.8594	-13.0325	-963.1516	80.1759	37.5855
187	1121.7678	-57.8519	-23.1475	-1076.5303	95.4738	47.5131
188	1251.6469	-74.9883	-33.8709	-1170.0415	112.8687	58.0783
189	1356.6698	-94.2904	-45.2245	-1233.4204	132.3729	69.3153
190	1426.3339	-115.6997	-57.2443	-1256.5739	153.9069	81.2152
191	1450.3903	-139.1654	-69.7764	-1529.3689	177.4461	62.2415
192	1623.8656	-171.0194	-71.5496	-1372.6986	217.6859	101.9208
193	1462.3842	-212.1853	-110.1314	-1127.0105	257.8327	139.2225
194	1209.4078	-253.2603	-146.2220	-740.0547	283.6697	147.3727
195	813.0147	-279.9627	-153.3319	-321.2127	323.7009	177.7916
196	382.9220	-320.8042	-182.8675	178.6423	363.0364	204.4167
197	-129.7020	-360.9251	-208.6179	753.5950	401.5828	227.4574
198	-718.4420	-400.1502	-230.9064	1482.7401	418.6928	205.4613
199	-1461.7949	-417.9041	-208.1885	1393.3368	438.5318	316.9203
200	-1386.5587	-438.2835	-319.2909	2471.2866	406.7057	237.2617
201	-833.1982	-129.5128	-311.9276	-544.6829	20.3322	1.4150
202	550.8009	-9.2481	-16.2027	-532.2635	20.9764	3.9709
203	544.8537	-10.1714	-13.2572	-546.8378	22.8166	5.8621
204	546.4255	-11.5011	-9.6844	-642.8407	28.4849	17.0648
205	588.3241	-14.7773	3.6556	-731.0446	34.5379	22.5248
206	625.6182	-18.2970	11.1362	-878.3560	44.4900	31.4217
207	972.4011	-26.8472	-20.9779	-971.0596	52.9616	38.3538
208	1077.1235	-36.3964	-27.5963	-1060.4493	62.6418	44.8627
209	1176.2877	-47.2444	-35.5477	-1192.5792	76.9019	55.2847
210	1315.7407	-62.6966	-46.5979	-1258.5714	89.3210	63.9039
211	1386.3580	-76.2899	-55.4214	-1352.2330	106.6068	74.9158
212	1481.6631	-94.8696	-67.0686	-1373.1183	121.8093	84.3532
213	1500.9780	-111.4065	-77.5483	-1402.9047	142.2786	97.2916
214	1525.8600	-133.1207	-91.2327	-1355.1384	160.2788	108.5400
215	1469.7511	-152.5059	-102.4602	-1266.6299	179.7682	119.7793
216	1369.0890	-173.3869	-115.1297	-1154.5754	204.8183	135.0686
217	1241.1807	-199.8432	-131.1691	-960.7520	227.2788	148.6927
218	1027.6504	-223.7135	-145.2527	-719.8564	255.4520	165.3390
219	763.0378	-253.2818	-163.0552	-395.6351	280.8192	180.8914
220	411.0590	-280.0791	-180.6905	0.2092	303.3171	180.6641

ENVOL. MIN. TORSORES -EC1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0002	7.6371	-1.1875	-32.4926	-5.4632	4.7937
2	12.8104	-0.5311	-2.9966	-107.6183	-2.5634	13.0027
3	71.7649	-3.1539	-10.6341	-185.0098	0.8822	22.2812
4	111.0694	-5.2455	-16.0704	-309.2550	7.2587	37.8720
5	215.4593	-10.9802	-30.3067	-435.1403	14.8039	55.0171
6	339.1486	-18.7646	-48.8243	-518.9089	21.2594	69.5522
7	386.0730	-23.4127	-59.4140	-623.8347	30.3291	89.8068
8	511.8497	-34.1752	-84.1289	-631.8374	46.8936	112.9822
9	631.8374	-46.8936	-112.9822	-755.9286	48.7502	130.9268
10	642.9262	-53.9324	-128.5410	-725.6340	69.4390	162.6339
11	725.6340	-69.4390	-162.6339	-689.1740	77.3578	179.2615
12	689.1740	-77.3578	-179.2615	-808.5323	108.3444	216.7678
13	808.5323	-108.3444	-216.7678	-790.4139	130.6832	260.9021
14	790.4139	-130.6832	-260.9021	-646.2525	142.4795	284.1162
15	646.2525	-142.4795	-284.1162	-529.0298	167.3631	334.7455
16	529.0298	-167.3631	-334.7455	-351.4756	193.8461	388.9634
17	351.4756	-193.8461	-388.9634	-70.2911	207.0207	416.2217
18	70.2911	-207.0207	-416.2217	217.3473	232.6150	471.5170
19	-217.3473	-232.6150	-471.5170	553.0013	257.0550	527.4672
20	-553.0013	-257.0550	-527.4672	671.7198	176.0877	430.8275
21	-953.2235	-119.2805	-279.1072	342.3892	-16.1649	8.4129
22	-639.7286	21.7077	-7.3669	390.5915	-19.3276	17.0005
23	-550.1967	20.0242	-14.9350	322.1705	-18.1700	30.1095
24	-434.3924	17.0498	-26.0331	182.3386	-13.8054	46.4496
25	-297.2552	12.6984	-40.5663	37.0123	-8.4352	64.7453
26	-145.4974	6.8999	-58.4297	-109.2310	-2.0299	84.9518
27	13.6729	-0.3720	-79.5395	-251.5291	5.4255	107.0450
28	172.5199	-9.1285	-103.8380	-323.0555	19.3510	131.2908
29	323.0555	-19.3510	-131.2908	-472.7066	31.7628	160.5500
30	472.7066	-31.7628	-160.5500	-591.9374	45.4395	194.0038
31	591.9374	-45.4395	-194.0038	-679.3134	60.5101	230.6473
32	679.3134	-60.5101	-230.6473	-728.3091	76.9019	270.5541
33	728.3091	-76.9019	-270.5541	-733.6080	94.7042	313.7524
34	733.6080	-94.7042	-313.7524	-690.2089	114.1975	358.9296
35	690.2089	-114.1975	-358.9296	-590.3863	135.3122	404.1558
36	590.3863	-135.3122	-404.1558	-427.1692	157.9986	449.5768
37	427.1692	-157.9986	-449.5768	-194.2884	182.0624	495.6167
38	194.2884	-182.0624	-495.6167	113.7456	207.5136	545.0078
39	-113.7456	-207.5136	-545.0078	501.1709	234.1473	598.5245
40	-501.1709	-234.1473	-598.5245	965.9859	180.7467	521.3885
41	-973.0402	-115.4008	-331.0011	579.3005	-24.3892	11.1561
42	-888.4973	30.1699	-9.8433	461.4823	-21.8697	19.8791
43	-776.5811	28.2892	-17.5554	329.7233	-18.4187	32.8735
44	-641.9590	25.2198	-28.6994	188.2215	-14.1760	49.0952
45	-488.6494	20.8689	-43.1917	40.9716	-8.7482	67.2767
46	-321.5974	15.1367	-60.9589	-106.3329	-2.1061	87.3763
47	-146.4399	7.9078	-81.9358	-249.6808	5.3971	109.3747
48	30.4444	-0.8869	-106.0753	-202.0101	11.3131	133.3483
49	202.0101	-11.3131	-133.3483	-360.6624	23.4192	163.7386
50	360.6624	-23.4192	-163.7386	-498.3636	37.2469	197.2074
51	498.3636	-37.2469	-197.2074	-606.7663	52.8096	233.7785
52	606.7663	-52.8096	-233.7785	-677.4354	70.0737	273.5182
53	677.4354	-70.0737	-273.5182	-702.2104	88.9903	316.5114
54	702.2104	-88.9903	-316.5114	-673.4457	109.4849	361.4922
55	673.4457	-109.4849	-361.4922	-584.1147	131.5352	406.5161
56	584.1147	-131.5352	-406.5161	-427.8531	154.9651	451.7207
57	427.8531	-154.9651	-451.7207	-198.9626	179.7526	497.5063
58	198.9626	-179.7526	-497.5063	107.4247	205.7917	546.6158
59	-107.4247	-205.7917	-546.6158	495.0504	232.9300	599.8248
60	-495.0504	-232.9300	-599.8248	782.1108	171.5207	523.7772
61	-966.4147	-115.1240	-331.0238	454.3234	-18.9356	11.2291
62	-882.9423	30.0311	-8.9119	417.4850	-18.9722	19.9407
63	-773.3790	28.2217	-16.6440	291.3369	-15.5051	32.9395
64	-640.4539	25.2035	-27.8323	155.4233	-11.0643	49.1759
65	-488.3127	20.8935	-42.3912	14.2984	-5.6272	67.3758
66	-322.0291	15.1842	-60.2361	-127.4164	0.8493	87.4988
67	-147.3267	7.9683	-81.2965	-264.8569	8.3639	109.5218
68	29.3041	-0.8175	-105.5226	-390.3838	16.7901	133.4332
69	200.7512	-11.2476	-132.8787	-359.3356	23.3672	163.3477
70	359.3356	-23.3672	-163.3477	-496.9239	37.2226	196.8873
71	496.9239	-37.2226	-196.8873	-605.1608	52.7885	233.5229
72	605.1608	-52.7885	-233.5229	-675.6406	70.0645	273.3100
73	675.6406	-70.0645	-273.3100	-700.2227	88.9984	316.3322
74	700.2227	-88.9984	-316.3322	-671.2255	109.5434	361.3318
75	671.2255	-109.5434	-361.3318	-581.5869	131.5839	406.3736
76	581.5869	-131.5839	-406.3736	-424.9133	155.0850	451.5919
77	424.9133	-155.0850	-451.5919	-195.6011	179.8805	497.4071
78	195.6011	-179.8805	-497.4071	111.1860	205.9438	546.5642
79	-111.1860	-205.9438	-546.5642	499.1750	233.1091	599.8439
80	-499.1750	-233.1091	-599.8439	618.5197	165.4254	523.7350
81	-971.7342	-114.9158	-334.6226	383.4309	-0.5385	27.6238
82	-888.0403	30.6426	-15.8865	369.3802	-0.0696	35.7302
83	-777.2910	28.8203	-23.3410	432.7986	-2.6543	48.3349
84	-643.1476	25.7851	-34.0670	326.8824	1.6386	64.1425
85	-489.8504	21.4206	-47.9582	211.1509	7.1442	81.8239
86	-322.5926	15.6476	-64.9370	95.0723	13.6757	101.3551
87	-147.1916	8.3609	-84.9383	-16.4123	21.2775	122.7295
88	29.7725	-0.5223	-107.9161	-118.1762	29.9571	145.9554
89	201.0867	-11.0613	-133.8596	-204.9179	39.6910	171.0712
90	359.0071	-23.3053	-162.7760	-271.3797	50.4809	198.1308
91	495.3885	-37.2848	-194.6631	-601.8384	52.9776	229.5939
92	601.8384	-52.9776	-229.5939	-670.0445	70.3717	267.6842
93	670.0445	-70.3717	-267.6842	-691.9277	89.4055	309.0873
94	691.9277	-89.4055	-309.0873	-659.9011	110.0675	352.5793
95	659.9011	-110.0675	-352.5793	-567.0366	132.2018	396.2710
96	567.0366	-132.2018	-396.2710	-407.2204	155.7534	440.3751
97	407.2204	-155.7534	-440.3751	-175.1337	180.6312	485.3896
98	175.1337	-180.6312	-485.3896	133.6527	206.6979	534.1942
99	-133.6527	-206.6979	-534.1942	522.3039	233.8331	587.6618
100	-522.3039	-233.8331	-587.6618	1099.5048	179.6675	538.4846
101	-1038.6027	-111.1399	-338.0232	868.8004	-17.9375	52.9053
102	-996.9880	38.8753	-32.5732	820.1857	-17.2242	56.5928
103	-880.8261	36.8938	-38.3540	565.8062	-7.1624	62.7785
104	-781.8676	35.3510	-43.0018	461.5531	-2.7544	75.3716
105	-632.3652	31.1345	-53.6020	353.1512	2.6066	90.1804
106	-465.4662	25.2888	-67.5352	244.7306	8.9415	106.7376
107	-286.8992	17.7149	-84.8823	166.2689	14.7210	121.5526
108	-183.5822	13.2485	-94.9932	69.6837	22.9229	141.6571
109	-8.8807	2.8971	-117.5175	-14.5184	32.0849	163.6708
110	158.4992	-9.3800	-143.7175	-82.1221	42.1853	187.6616
111	310.7573	-23.6179	-173.7321	-107.9516	51.4998	209.7890
112	186.6197	-45.5583	-190.4222	-131.7645	63.3498	237.8601
113	450.9519	-48.6575	-225.9410	-127.8057	76.0218	268.1713
114	513.9482	-67.7567	-266.2027	-532.8710	88.6926	311.0123

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	532.8710	-88.6926	-311.0123	-436.5739	99.8057	334.8840
116	436.5739	-99.8057	-334.8840	-356.7716	123.2271	385.3855
117	356.7716	-123.2271	-385.3855	-216.8436	148.1690	436.7555
118	216.8436	-148.1690	-436.7555	-12.9792	174.4662	488.9886
119	12.9792	-174.4662	-488.9886	278.0540	188.0776	515.5592
120	-278.0540	-188.0776	-515.5592	907.0422	154.3642	482.6640
121	-655.3220	-95.2479	-297.5691	437.2414	3.7793	56.4264
122	148.5874	-25.2816	-31.0977	427.8911	4.4317	59.4904
123	-593.7416	24.7866	-33.0910	384.0703	1.8755	64.3933
124	-515.1124	23.2244	-37.1920	299.2169	6.0704	76.3646
125	-385.3213	18.9618	-46.9944	209.3516	11.2327	90.5486
126	-156.0680	-0.1759	-60.1528	118.6135	17.3805	106.4909
127	-56.2738	-7.0990	-77.7376	56.7755	22.9933	120.7741
128	12.8656	-13.5081	-93.7019	-23.7532	30.9972	140.2800
129	98.7389	-22.3746	-114.9321	-92.7498	40.0072	161.7143
130	170.9968	-32.2302	-138.1493	-145.9184	49.9608	185.1565
131	225.2971	-43.0365	-163.4384	-157.8381	59.1346	206.8034
132	236.1948	-53.0642	-187.0094	-168.4972	70.8629	234.3941
133	243.7221	-65.6207	-216.6095	-151.9147	83.4073	264.2764
134	566.3845	-77.3088	-253.1840	-567.2675	97.2419	298.3038
135	567.2675	-97.2419	-298.3038	-8.2980	109.1649	327.0247
136	456.1744	-107.8582	-322.3933	-364.3793	130.2360	373.5149
137	364.3793	-130.2360	-373.5149	-216.0324	154.1146	425.6821
138	216.0324	-154.1146	-425.6821	-7.2499	179.3364	478.8265
139	7.2499	-179.3364	-478.8265	288.7766	192.4111	505.8851
140	-288.7766	-192.4111	-505.8851	968.7575	161.6537	477.9071
141	-672.3220	-96.9709	-291.4242	720.5585	-26.1232	23.7028
142	-672.4428	25.1253	-22.8381	579.2688	-23.2094	28.1388
143	-579.2688	23.2094	-28.1388	398.1870	-16.2956	37.2393
144	-460.8664	19.9176	-36.7322	302.7626	-13.2365	47.1743
145	-377.5990	17.7247	-42.5541	177.0775	-8.1425	62.1947
146	-235.3051	12.1734	-56.1356	50.0662	-2.0570	79.1449
147	-82.6017	5.0201	-73.2317	-73.9797	5.0267	98.0396
148	73.5630	-3.7914	-93.9724	-190.6432	13.1259	118.9087
149	225.6580	-14.2516	-118.5114	-271.4384	20.6192	137.9753
150	279.7518	-20.1010	-132.0597	-360.7954	30.6294	162.7807
151	419.6911	-34.2499	-161.2499	-521.0872	49.2089	195.9149
152	521.0872	-49.2089	-195.9149	-592.6562	65.9540	234.8705
153	592.6562	-65.9540	-234.8705	-627.1753	84.4596	278.2216
154	627.1753	-84.4596	-278.2216	-543.6588	94.3648	301.1784
155	543.6588	-94.3648	-301.1784	-490.8719	115.4004	351.1025
156	490.8719	-115.4004	-351.1025	-383.4393	137.9948	402.3650
157	383.4393	-137.9948	-402.3650	-216.2926	162.0206	454.0334
158	216.2926	-162.0206	-454.0334	14.7478	187.3757	505.8476
159	-14.7478	-187.3757	-505.8476	335.4479	200.5389	532.2015
160	-335.4479	-200.5389	-532.2015	1082.5870	169.3255	467.3810
161	-691.7707	-102.8465	-296.2008	153.3095	-7.6630	10.7018
162	-617.3425	21.0466	-8.4442	281.5656	-12.9191	19.0632
163	-520.5489	19.0382	-15.8629	170.7155	-9.5661	31.9904
164	-402.6304	15.8863	-26.7761	49.6840	-5.2375	48.2043
165	-267.6095	11.4909	-41.0987	-76.9956	0.0975	66.4278
166	-120.3660	5.7588	-58.7577	-204.7402	6.4744	86.6180
167	32.7939	-1.3891	-79.8072	-328.7048	13.9025	108.7495
168	186.9728	-10.0538	-104.2727	-443.7604	22.4088	132.8024
169	332.6009	-20.1513	-131.9387	-471.9392	32.0219	161.7373
170	471.9392	-32.0219	-161.7373	-586.2912	45.4203	195.4814
171	586.2912	-45.4203	-195.4814	-672.1532	60.4726	232.4445
172	672.1532	-60.4726	-232.4445	-721.8452	77.1534	272.6311
173	721.8452	-77.1534	-272.6311	-727.6660	95.4615	316.0897
174	727.6660	-95.4615	-316.0897	-682.2977	115.3149	361.5472

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	682.2977	-115.3149	-361.5472	-579.0381	136.6529	407.0567
176	579.0381	-136.6529	-407.0567	-411.6837	159.3945	452.7531
177	411.6837	-159.3945	-452.7531	-174.7029	183.4836	499.0323
178	174.7029	-183.4836	-499.0323	136.8786	208.8453	548.6197
179	-136.8786	-208.8453	-548.6197	526.9904	235.3663	602.2690
180	-526.9904	-235.3663	-602.2690	685.7730	175.4865	523.7162
181	-993.3785	-115.0583	-331.5864	174.0369	-6.1434	10.0316
182	-897.3020	31.7758	-7.3949	286.0422	-10.8607	18.4143
183	-780.9193	29.6945	-15.3907	305.9962	-12.5682	31.5009
184	-642.0826	26.3810	-26.9542	178.2834	-8.0088	47.8300
185	-485.0007	21.7030	-41.9770	46.1873	-2.4436	66.0677
186	-314.8440	15.5775	-60.3774	-85.7210	4.1579	86.1799
187	-137.4069	7.8948	-82.0712	-212.6302	11.8009	108.1395
188	40.7561	-1.4260	-107.0081	-212.4648	12.4463	135.1504
189	212.4648	-12.4463	-135.1504	-370.0399	25.2134	166.4812
190	370.0399	-25.2134	-166.4812	-505.4518	39.7540	200.9093
191	505.4518	-39.7540	-200.9093	-610.3922	56.0500	238.5256
192	610.3922	-56.0500	-238.5256	-676.6423	74.0811	279.5425
193	676.6423	-74.0811	-279.5425	-696.4479	93.7683	323.8308
194	696.4479	-93.7683	-323.8308	-585.2888	104.2469	346.3760
195	585.2888	-104.2469	-346.3760	-500.5041	126.2886	392.6460
196	500.5041	-126.2886	-392.6460	-351.1094	149.7783	439.2066
197	351.1094	-149.7783	-439.2066	-132.0121	174.6133	486.0746
198	132.0121	-174.6133	-486.0746	161.0754	200.6739	534.8527
199	-161.0754	-200.6739	-534.8527	531.2808	227.8340	587.9031
200	-531.2808	-227.8340	-587.9031	630.1796	165.5177	512.9329
201	-984.0848	-110.4609	-329.2669	913.7296	-34.0884	18.3040
202	-913.7296	34.0884	-18.3040	448.8824	-17.9933	23.1524
203	-842.0773	33.1652	-23.0856	377.2760	-16.0631	30.8576
204	-764.8130	31.8718	-28.7294	273.6004	-12.4487	45.1251
205	-637.5237	28.2068	-43.0334	196.2385	-9.6097	57.9648
206	-546.6423	25.7730	-52.1995	121.7966	-6.5162	76.8105
207	-389.6745	19.6703	-73.4465	35.6070	-2.3212	92.3261
208	-293.4724	15.9398	-86.1889	65.3893	-4.2639	109.6307
209	-199.7785	11.7252	-99.9900	-45.3486	2.4996	132.8114
210	-29.7230	1.8224	-130.6186	-129.0129	8.6840	152.6838
211	53.6547	-3.9067	-147.6880	-214.1056	16.9977	185.2747
212	214.1056	-16.9977	-185.2747	-273.4312	24.3878	205.7124
213	273.4312	-24.3878	-205.7124	-401.7657	40.8923	250.4361
214	401.7657	-40.8923	-250.4361	-421.5528	50.0335	274.2979
215	421.5528	-50.0335	-274.2979	-419.8730	59.7532	299.2889
216	419.8730	-59.7532	-299.2889	-455.8447	81.0959	353.4612
217	455.8447	-81.0959	-353.4612	-390.7651	92.6921	382.1160
218	390.7651	-92.6921	-382.1160	-330.9695	117.7092	443.5059
219	330.9695	-117.7092	-443.5059	-184.2369	131.1434	475.7223
220	184.2369	-131.1434	-475.7223	0.5629	131.1375	475.6840

.2. CÁLCULO ESTRUCTURAL DEL TABLERO EN CONSTRUCCIÓN

.1. CÁLCULO ESTRUCTURAL CON MODELO DE VIGA CONTINUA

.1.1. DISCRETIZACIÓN Y CARACTERÍSTICAS MECÁNICAS

El modelo de cálculo de esfuerzos para las distintas fases de construcción es el mismo que el empleado para el cálculo general de esfuerzos, definido en el apartado 3.1. Para cada fase se activan las barras correspondientes a la parte de la estructura ya construida.

Se modela el tablero mediante un emparrillado plano constituido por un nervio longitudinal, coincidente con el eje de viga en planta, considerándose 3 grados de libertad por nudo (desplazamiento vertical, giro de flexión longitudinal de la barra y giro a torsión). El nervio longitudinal se ha dividido para cada uno de los vanos del tablero en 20 barras de igual longitud asignando las características mecánicas en cada uno de los extremos de la barra. Las propiedades mecánicas de la barra se obtienen como media de las características de sus secciones extremas. En la zona de estribos se ha simulado la riostra de apoyo mediante 2 barras transversales, una a cada lado del nervio longitudinal, con su extremo final coincidente con la posición real de los apoyos tipo POT. En las barras transversales de las riostras de apoyo se ha despreciado su rigidez a torsión. En los apoyos se han prescrito únicamente los movimientos verticales del nudo.

La numeración de nudos y barras es correlativa, tomando como origen el extremo izquierdo del nervio longitudinal, en último lugar se numeran las barras y nudos que permiten simular las riostras de apoyo en los dos estribos. La discretización adoptada aparece en las hojas y esquemas adjuntos.

.2. CÁLCULO DE ESFUERZOS LONGITUDINALES

El cálculo de esfuerzos longitudinales con el modelo de análisis estructural expuesto se detalla a continuación.

La notación adoptada para cada una de las hipótesis de carga es la siguiente:

g1	Peso propio de la estructura.
g2	Carga permanente.
q	Sobrecarga uniforme de ferrocarril.
ΔT	Gradiente de temperatura.
Pii	Pretensado inicial de descimbrado (pretensado parcial con pérdidas iniciales).
Pi	Pretensado inicial (con pérdidas iniciales).
P∞	Pretensado final (con pérdidas iniciales y diferidas).

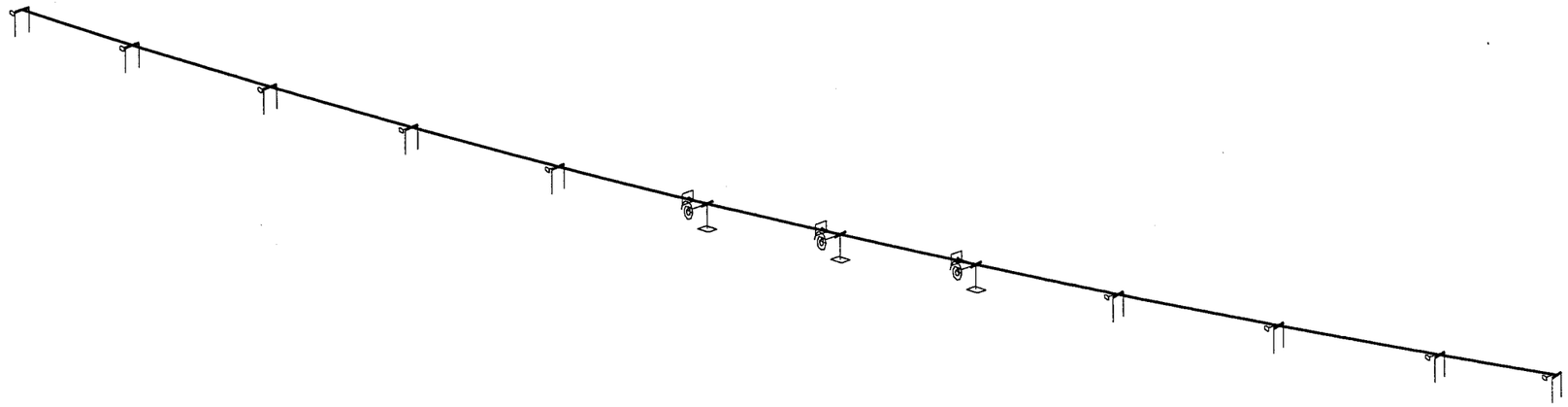
En los listados aparece la siguiente información:

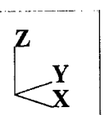
1. Datos generales.
2. Discretización: numeración de barras y nudos, coordenadas de los nudos condiciones de vinculación.
3. Cargas en los nudos para cada hipótesis de carga.
4. Reacciones para cada hipótesis de carga.
5. Esfuerzos en extremo de barra para cada hipótesis de carga.

.3. CÁLCULO DINÁMICO

Con el objectivo de calcular el valor del coeficiente de impacto (a partir de la IPF), fue necesaria la determinación del valor de la frecuencia del primer modo de vibración (de flexión longitudinal). Para ello, se realizó un modelo de barras en ROBOT Millennium v16.1, donde se representó el tablero, estribos y pilas (con sus respectivas cimentaciones). Para las barras se tomaron las características mecánicas de las secciones reales. Los detalles del modelo se presentan a continuación.

Vista del modelo de cálculo





Características: Barras: 1

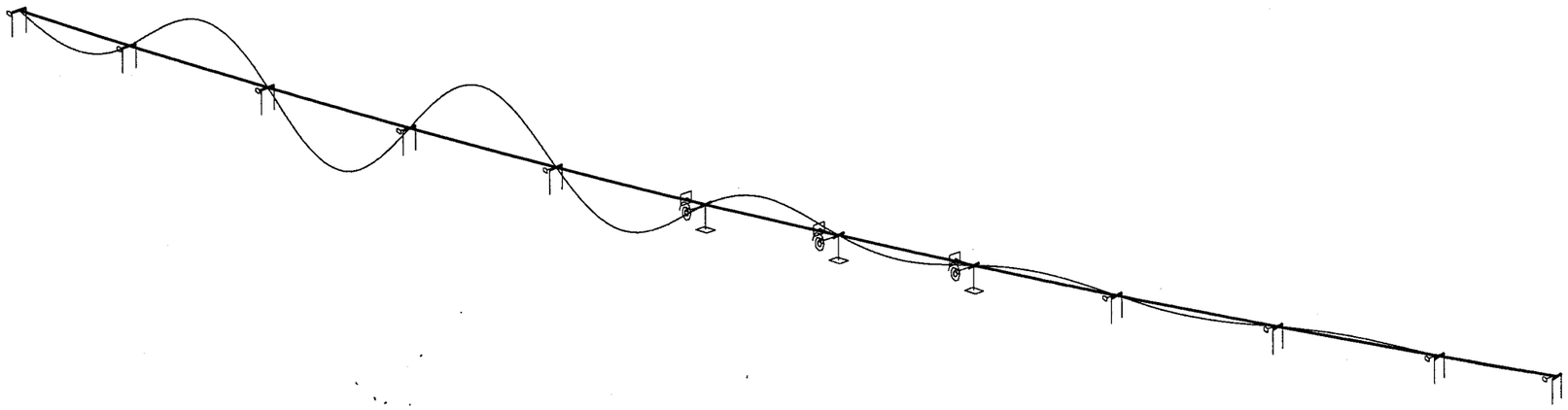
	Nombre de la sección	Lista de barras	SX (m^2)	SY (m^2)	SZ (m^2)	IX (m^4)	IY (m^4)	IZ (m^4)
	Sección maciza	1 20A24 40A44 60A64 80A84 100A104 120A124 140A144 160A164 180A184 200A204 220	19,857	19,857	19,857	6,600	6,433	175,299
	Sección tipo	2A19 25A39 45A59 65A79 85A99 105A119 125A139 145A159 165A179 185A199 205A219	14,095	14,095	14,095	6,600	5,744	145,645
	Traviesa	221A244	4,000	4,000	4,000	1000,000	1,330	1,330

Masas agregadas - pesos - Casos: 1 : Valores: 1

	Caso	Tipo de carga	Lista	Valores de carga
	1	carga trapezoidal (M)	1A244	PX2=13329,00(kG/m) PY2=13329,00(kG/m) PZ2=13329,00(kG/m) PX1=13329,00(kG/m) PY1=13329,00(kG/m) PZ1=13329,00(kG/m) X2=1,000 X1=0,0 global no proyectadas relativa

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Modo 1 de vibración



Resultados: dinámica - Caso: 1 (Modal) Modos activos: 1..10; CQC: Valores: 1

- Caso: 1 (Modal) Modos activos: 1..10; CQC

Filtrar	Caso	Modo
Lista completa	1	1A10
Selección	1	1A10 CQC
Número total	1	
Número seleccion	1	

- Caso: 1 (Modal) Modos activos: 1..10; CQC

Caso/Modo	Valor propio	Frecuencia (Hz)	Período (sec)	Precisión	Pulsación (1/sec)
1/ 1	419,81	3,26	0,31	0,00	20,49
1/ 2	506,93	3,58	0,28	0,00	22,52
1/ 3	589,90	3,87	0,26	0,00	24,29
1/ 4	804,10	4,51	0,22	0,00	28,36
1/ 5	949,10	4,90	0,20	0,00	30,81
1/ 6	1189,23	5,49	0,18	0,00	34,49
1/ 7	1423,03	6,00	0,17	0,00	37,72
1/ 8	1477,94	6,12	0,16	0,00	38,44
1/ 9	1792,20	6,74	0,15	0,00	42,33
1/ 10	1928,03	6,99	0,14	0,00	43,91
1/ CQC	No existe	No existe	No existe	No existe	No existe

.4. CÁLCULO DEL COEFICIENTE DE IMPACTO

De acuerdo con las normativas utilizadas en el cálculo de la estructura, las cargas debidas al tráfico consideradas son mayoradas por el coeficiente de impacto, para que se tenga en consideración la naturaleza dinámica de las mismas. A continuación se presenta el cálculo del coeficiente según el EC 1-3 y la IPF.

PROYECTO: **L.A.V. Madrid - Zaragoza - Barcelona - Frontera Francesa**
O.F. : **Viaducto de Cornellà**

CÁLCULO DEL COEFICIENTE DE IMPACTO

Frecuencia fundamental	3,26 Hz
Luz del vano intermedio	40 m
Longitud total del tablero	405,9 m

COEFICIENTE DE IMPACTO SEGÚN IPF-75

v (km/h)* = 160

Para luces iguales o menores de 6 metros
l = 52,8
ϕ = 1,53

Para luces mayores de 6 metros en tramos simplemente apoyados
l = 22,6
ϕ = 1,23

En general para tramos apoyados continuos
μ = 0,170
l = 12,9
ϕ = 1,13

* La validez de las expresiones de la IPF-75 se limita a trenes con velocidades de circulación inferior a 200 km/h

Valores de k en función del número de vanos

	Número de vanos				
	1	2	3	4	5
k	1	1,2	1,3	1,4	1,5

COEFICIENTE DE IMPACTO SEGÚN EUROCÓDIGO 1.

DETERMINACIÓN DE Lϕ

Número de vanos del tablero = 11
k = 1,5
Lm = 36,90
Lϕ = 55,35

Vías con grado de mantenimiento bueno
ϕ2 = 1,02

Vías con grado de mantenimiento normal
ϕ3 = 1,03

NOTA: La validez de aplicación de las fórmulas del eurocódigo se limita a trenes con velocidades de circulación inferiores a 200 km/h.

4. PRETENSADO

4.1 TRAZADO

El trazado del pretensado en alzado se define en los planos del proyecto mediante una sucesión de tramos formados por recta y parábolas con continuidad en la pendiente. En planta el trazado puede ser recto o curvo, permitiéndose variaciones del radio de curvatura.

Los 2 extremos del trazado son anclajes de tipo activo en el tramo 1, mientras que en el resto de tramos se tesa únicamente desde el frente de avance de la construcción.

4.2 CÁLCULO DEL PRETENSADO

El cálculo de la fuerza de pretensado se realiza con un programa de cálculo automático que considera las pérdidas de tensión instantáneas y diferidas, de acuerdo con la normativa vigente (EHE). El programa calcula, además, un sistema de fuerzas equivalentes a la introducción del pretensado en la estructura, para su consideración en el modelo de análisis estructural del tablero.

El programa permite la determinación de las pérdidas de la fuerza de pretensado asociadas a los siguientes aspectos:

Pérdidas instantáneas

- a.- Pérdidas por rozamiento.
- b.- Pérdidas de penetración de cuña en anclajes.
- c.- Pérdidas por acortamiento elástico del hormigón.

Pérdidas diferidas

- d.- Pérdidas por retracción del hormigón.
- e.- Pérdidas por fluencia del hormigón.
- f.- Pérdidas por relajación del acero de pretensado.

CÁLCULO ESTRUCTURAL

La acción del pretensado sobre la estructura se realiza considerándolo como un sistema de fuerzas equivalentes, constituido por las fuerzas de anclaje y las de interacción (de desviación o repartidas).

Los resultados del programa de cálculo del pretensado son los siguientes:

a. Definición del trazado del pretensado, mediante su excentricidad y cotas respecto a la fibra superior e inferior del elemento.

b. Listados de tensiones en los cables y de las pérdidas instantáneas y diferidas en cada punto.

c. Longitud afectada por la penetración de las cuñas en anclajes.

d. Alargamiento de los cables al tesar.

e. Fuerzas equivalentes del pretensado en los nudos de los elementos por los que pasan los cables del pretensado.

f. Esfuerzos isostáticos de pretensado en los nudos de los elementos atravesados por el trazado.

Al igual que con cualquier estado de cargas introducido en el programa general de análisis estructural, posteriormente se obtienen las reacciones, desplazamientos, esfuerzos y tensiones en todo punto de la estructura.

Referencia del Proyecto:

VIADUCTO CORNELLÀ(TRAZADO FAMILIA 1)

PROGRAMA DE CALCULO DE PRETENSADO EN NERVIOS DE UN EMPARRILLADO

DATOS GENERALES DE PRETENSADO

NUMERO DE NERVIOS = 1
NUMERO DE VANOS = 11
NUMERO DE SECCIONES POR VANO = 21
NUMERO DE MATERIALES = 3

LUZ DEL VANO =	1	L (m) =	32.70
LUZ DEL VANO =	2	L (m) =	40.00
LUZ DEL VANO =	3	L (m) =	40.00
LUZ DEL VANO =	4	L (m) =	40.00
LUZ DEL VANO =	5	L (m) =	40.00
LUZ DEL VANO =	6	L (m) =	35.00
LUZ DEL VANO =	7	L (m) =	35.00
LUZ DEL VANO =	8	L (m) =	36.00
LUZ DEL VANO =	9	L (m) =	40.00
LUZ DEL VANO =	10	L (m) =	39.00
LUZ DEL VANO =	11	L (m) =	28.20

COEFICIENTE DE ROZAMIENTO EN CURVA = 0.21
COEFICIENTE DE DESV. PARASITAS = 0.0060
RELAJACION = 0.04
RETRACCION mm/m = 0.177
COEF. FLUENCIA = 1.978

ACERO DE PRETENSADO (Kp/mm2)

LIMITE DE PROPORCIONALIDAD AL 0,2% = 170.00
TENSION DE ROTURA = 190.00
MODULO DE DEFORMACION = 19000.00

HORMIGON

MODULO DE DEFORMACION DURANTE TESADO (Kp/cm2) = 309000.00
MODULO DE DEFORMACION A 28 DIAS (Kp/cm2) = 320000.00

CARACTERISTICAS MECANICAS DE LA SECCION 1

AREA DE LA SECCION (m2) = 14.323
INERCIA DE LA SECCION (m2) = 5.7458
V_SUP. DE LA SECCION (m2) = 1.01
V_INF. DE LA SECCION (m2) = 1.09
CANTO DE LA SECCION (m2) = 2.10

CARACTERISTICAS MECANICAS DE LA SECCION 2

AREA DE LA SECCION (m2) = 20.048
INERCIA DE LA SECCION (m2) = 6.4312
V_SUP. DE LA SECCION (m2) = 1.04
V_INF. DE LA SECCION (m2) = 1.06
CANTO DE LA SECCION (m2) = 2.10

CARACTERISTICAS MECANICAS DE LA SECCION 3

AREA DE LA SECCION (m2) = 4.410
INERCIA DE LA SECCION (m2) = 1.6200
V_SUP. DE LA SECCION (m2) = 1.05
V_INF. DE LA SECCION (m2) = 1.05
CANTO DE LA SECCION (m2) = 2.10

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 1

Parametros de la parabola = 1
A = 0.00000 B = -0.14805 C = -0.58900
Origen = 0.00 Final = 1.40
Parametros de la parabola = 2
A = 0.00612 B = -0.16518 C = -0.57701
Origen = 1.40 Final = 13.50
Parametros de la parabola = 4
A = 0.00608 B = -0.16427 C = -0.58316
Origen = 13.50 Final = 27.20
Parametros de la parabola = 5
A = -0.02778 B = 1.67818 C = -25.64051
Origen = 27.20 Final = 30.20
Parametros de la parabola = 6
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 30.20 Final = 32.70
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 36.50 Final = 39.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 2

Parametros de la parabola = 1
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 4.10
Parametros de la parabola = 2
A = -0.03371 B = 0.27643 C = -0.86668
Origen = 4.10 Final = 7.10
Parametros de la parabola = 3
A = 0.00784 B = -0.31359 C = 1.22788
Origen = 7.10 Final = 20.00
Parametros de la parabola = 5
A = 0.00634 B = -0.25348 C = 0.62678
Origen = 20.00 Final = 34.50
Parametros de la parabola = 6
A = -0.03063 B = 2.29714 C = -43.37143
Origen = 34.50 Final = 37.50
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 37.50 Final = 40.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 3

Parametros de la parabola = 1
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 4.10
Parametros de la parabola = 2
A = -0.03371 B = 0.27643 C = -0.86668
Origen = 4.10 Final = 7.10
Parametros de la parabola = 3
A = 0.00784 B = -0.31359 C = 1.22788
Origen = 7.10 Final = 20.00
Parametros de la parabola = 5
A = 0.00634 B = -0.25348 C = 0.62678
Origen = 20.00 Final = 34.50
Parametros de la parabola = 6
A = -0.03063 B = 2.29714 C = -43.37143
Origen = 34.50 Final = 37.50
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 37.50 Final = 40.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 4

Parametros de la parabola = 1
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 4.10
Parametros de la parabola = 2
A = -0.03371 B = 0.27643 C = -0.86668
Origen = 4.10 Final = 7.10
Parametros de la parabola = 3
A = 0.00784 B = -0.31359 C = 1.22788
Origen = 7.10 Final = 20.00
Parametros de la parabola = 5
A = 0.00634 B = -0.25348 C = 0.62678
Origen = 20.00 Final = 34.50
Parametros de la parabola = 6
A = -0.03063 B = 2.29714 C = -43.37143
Origen = 34.50 Final = 37.50
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 37.50 Final = 40.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 5

Parametros de la parabola = 1
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 4.10
Parametros de la parabola = 2
A = -0.03371 B = 0.27643 C = -0.86668
Origen = 4.10 Final = 7.10
Parametros de la parabola = 3
A = 0.00784 B = -0.31359 C = 1.22788
Origen = 7.10 Final = 20.00
Parametros de la parabola = 5
A = 0.00634 B = -0.25348 C = 0.62678
Origen = 20.00 Final = 34.50
Parametros de la parabola = 6
A = -0.03063 B = 2.29714 C = -43.37143
Origen = 34.50 Final = 37.50
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 37.50 Final = 40.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 6

Parametros de la parabola = 1
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 3.80
Parametros de la parabola = 2
A = -0.04764 B = 0.36210 C = -0.98799
Origen = 3.80 Final = 6.30
Parametros de la parabola = 3
A = 0.01083 B = -0.37466 C = 1.33280
Origen = 6.30 Final = 17.30
Parametros de la parabola = 5
A = 0.00806 B = -0.27904 C = 0.50565
Origen = 17.30 Final = 30.00
Parametros de la parabola = 6
A = -0.03414 B = 2.25325 C = -37.47860
Origen = 30.00 Final = 33.00
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 33.00 Final = 35.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 7

Parametros de la parabola = 1
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 3.80
Parametros de la parabola = 2
A = -0.04764 B = 0.36210 C = -0.98799
Origen = 3.80 Final = 6.30
Parametros de la parabola = 3
A = 0.01083 B = -0.37466 C = 1.33280
Origen = 6.30 Final = 17.30
Parametros de la parabola = 5
A = 0.00806 B = -0.27904 C = 0.50565
Origen = 17.30 Final = 30.00
Parametros de la parabola = 6
A = -0.03414 B = 2.25325 C = -37.47860
Origen = 30.00 Final = 33.00
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 33.00 Final = 35.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 8

Parametros de la parabola = 1
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 3.90
Parametros de la parabola = 2
A = -0.04594 B = 0.35835 C = -0.99879
Origen = 3.90 Final = 6.40
Parametros de la parabola = 3
A = 0.00999 B = -0.35756 C = 1.29212
Origen = 6.40 Final = 17.90
Parametros de la parabola = 5
A = 0.00762 B = -0.27294 C = 0.53484
Origen = 17.90 Final = 31.00
Parametros de la parabola = 6
A = -0.03329 B = 2.26385 C = -38.78547
Origen = 31.00 Final = 34.00
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 34.00 Final = 36.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 9

Parametros de la parabola = 1
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 4.10
Parametros de la parabola = 2
A = -0.03371 B = 0.27643 C = -0.86668
Origen = 4.10 Final = 7.10
Parametros de la parabola = 3
A = 0.00784 B = -0.31359 C = 1.22788
Origen = 7.10 Final = 20.00
Parametros de la parabola = 5
A = 0.00634 B = -0.25348 C = 0.62678
Origen = 20.00 Final = 34.50
Parametros de la parabola = 6
A = -0.03063 B = 2.29714 C = -43.37143
Origen = 34.50 Final = 37.50
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 37.50 Final = 40.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 10

Parametros de la parabola = 1
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 4.00
Parametros de la parabola = 2
A = -0.03458 B = 0.27665 C = -0.85329
Origen = 4.00 Final = 7.00
Parametros de la parabola = 3
A = 0.00830 B = -0.32367 C = 1.24783
Origen = 7.00 Final = 19.50
Parametros de la parabola = 5
A = 0.00676 B = -0.26350 C = 0.66108
Origen = 19.50 Final = 33.50
Parametros de la parabola = 6
A = -0.03153 B = 2.30165 C = -42.30506
Origen = 33.50 Final = 36.50
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 36.50 Final = 39.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 11

Parametros de la parabola = 1
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 3.90
Parametros de la parabola = 2
A = -0.03569 B = 0.27840 C = -0.84288
Origen = 3.90 Final = 6.90
Parametros de la parabola = 3
A = 0.01071 B = -0.36192 C = 1.36622
Origen = 6.90 Final = 16.90
Parametros de la parabola = 5
A = 0.00877 B = -0.29652 C = 0.81359
Origen = 16.90 Final = 26.80
Parametros de la parabola = 6
A = 0.00000 B = 0.17370 C = -5.48736
Origen = 26.80 Final = 28.20
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 36.50 Final = 39.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
1	0.000	-0.589	1.511	0.447	0.0000	0.6095	0.0000
2	1.635	-0.831	1.269	0.180	0.0029	0.6066	0.0122
3	3.270	-1.052	1.048	-0.041	0.0229	0.5866	0.0122
4	4.905	-1.240	0.860	-0.229	0.0429	0.5666	0.0122
5	6.540	-1.396	0.704	-0.385	0.0629	0.5466	0.0122
6	8.175	-1.519	0.581	-0.508	0.0829	0.5266	0.0122
7	9.810	-1.609	0.491	-0.598	0.1029	0.5066	0.0122
8	11.445	-1.666	0.434	-0.655	0.1229	0.4866	0.0122
9	13.080	-1.691	0.409	-0.680	0.1429	0.4665	0.0122
10	14.715	-1.683	0.417	-0.672	0.1628	0.4466	0.0122
11	16.350	-1.643	0.457	-0.632	0.1827	0.4267	0.0122
12	17.985	-1.570	0.530	-0.559	0.2027	0.4068	0.0122
13	19.620	-1.464	0.636	-0.453	0.2225	0.3869	0.0122
14	21.255	-1.326	0.774	-0.315	0.2425	0.3670	0.0122
15	22.890	-1.156	0.944	-0.145	0.2623	0.3471	0.0122
16	24.525	-0.952	1.148	0.059	0.2822	0.3272	0.0122
17	26.160	-0.717	1.383	0.294	0.3022	0.3073	0.0122
18	27.795	-0.461	1.639	0.550	0.3479	0.2616	-0.0556
19	29.430	-0.316	1.784	0.695	0.4387	0.1708	-0.0556
20	31.065	-0.300	1.800	0.736	0.4815	0.1280	0.0000
21	32.700	-0.300	1.800	0.736	0.4813	0.1281	0.0000
22	34.700	-0.300	1.800	0.736	0.4813	0.1281	0.0000
23	36.700	-0.300	1.800	0.736	0.4813	0.1281	0.0000
24	38.700	-0.422	1.678	0.614	0.6095	0.0000	-0.0674
25	40.700	-0.779	1.321	0.232	0.0882	0.6838	0.0157
26	42.700	-1.124	0.976	-0.113	0.1197	0.6524	0.0157
27	44.700	-1.406	0.694	-0.395	0.1510	0.6210	0.0157
28	46.700	-1.626	0.474	-0.615	0.1823	0.5897	0.0157
29	48.700	-1.783	0.317	-0.772	0.2136	0.5585	0.0157
30	50.700	-1.877	0.223	-0.866	0.2451	0.5270	0.0157
31	52.700	-1.908	0.192	-0.897	0.2765	0.4956	0.0157
32	54.700	-1.883	0.217	-0.872	0.3017	0.4704	0.0127
33	56.700	-1.807	0.293	-0.796	0.3271	0.4450	0.0127
34	58.700	-1.680	0.420	-0.669	0.3524	0.4197	0.0127
35	60.700	-1.502	0.598	-0.491	0.3779	0.3941	0.0127
36	62.700	-1.274	0.826	-0.263	0.4034	0.3687	0.0127
37	64.700	-0.995	1.105	0.016	0.4284	0.3437	0.0127
38	66.700	-0.666	1.434	0.345	0.4538	0.3182	0.0127
39	68.700	-0.369	1.731	0.642	0.5523	0.2197	-0.0613
40	70.700	-0.300	1.800	0.736	0.6437	0.1284	0.0000
41	72.700	-0.300	1.800	0.736	0.6439	0.1281	0.0000
42	74.700	-0.300	1.800	0.736	0.6439	0.1281	0.0000
43	76.700	-0.300	1.800	0.736	0.6439	0.1281	0.0000
44	78.700	-0.422	1.678	0.614	0.7721	0.0000	-0.0674
45	80.700	-0.779	1.321	0.232	0.0882	0.6838	0.0157
46	82.700	-1.124	0.976	-0.113	0.1197	0.6524	0.0157
47	84.700	-1.406	0.694	-0.395	0.1510	0.6210	0.0157
48	86.700	-1.626	0.474	-0.615	0.1823	0.5897	0.0157
49	88.700	-1.783	0.317	-0.772	0.2136	0.5585	0.0157
50	90.700	-1.877	0.223	-0.866	0.2451	0.5270	0.0157
51	92.700	-1.908	0.192	-0.897	0.2765	0.4956	0.0157
52	94.700	-1.883	0.217	-0.872	0.3017	0.4704	0.0127
53	96.700	-1.807	0.293	-0.796	0.3271	0.4450	0.0127
54	98.700	-1.680	0.420	-0.669	0.3524	0.4197	0.0127

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
55	100.700	-1.502	0.598	-0.491	0.3779	0.3941	0.0127
56	102.700	-1.274	0.826	-0.263	0.4034	0.3687	0.0127
57	104.700	-0.995	1.105	0.016	0.4284	0.3437	0.0127
58	106.700	-0.666	1.434	0.345	0.4538	0.3182	0.0127
59	108.700	-0.369	1.731	0.642	0.5523	0.2197	-0.0613
60	110.700	-0.300	1.800	0.736	0.6437	0.1284	0.0000
61	112.700	-0.300	1.800	0.736	0.6439	0.1281	0.0000
62	114.700	-0.300	1.800	0.736	0.6439	0.1281	0.0000
63	116.700	-0.300	1.800	0.736	0.6439	0.1281	0.0000
64	118.700	-0.422	1.678	0.614	0.7721	0.0000	-0.0674
65	120.700	-0.779	1.321	0.232	0.0882	0.6838	0.0157
66	122.700	-1.124	0.976	-0.113	0.1197	0.6524	0.0157
67	124.700	-1.406	0.694	-0.395	0.1510	0.6210	0.0157
68	126.700	-1.626	0.474	-0.615	0.1823	0.5897	0.0157
69	128.700	-1.783	0.317	-0.772	0.2136	0.5585	0.0157
70	130.700	-1.877	0.223	-0.866	0.2451	0.5270	0.0157
71	132.700	-1.908	0.192	-0.897	0.2765	0.4956	0.0157
72	134.700	-1.883	0.217	-0.872	0.3017	0.4704	0.0127
73	136.700	-1.807	0.293	-0.796	0.3271	0.4450	0.0127
74	138.700	-1.680	0.420	-0.669	0.3524	0.4197	0.0127
75	140.700	-1.502	0.598	-0.491	0.3779	0.3941	0.0127
76	142.700	-1.274	0.826	-0.263	0.4034	0.3687	0.0127
77	144.700	-0.995	1.105	0.016	0.4284	0.3437	0.0127
78	146.700	-0.666	1.434	0.345	0.4538	0.3182	0.0127
79	148.700	-0.369	1.731	0.642	0.5523	0.2197	-0.0613
80	150.700	-0.300	1.800	0.736	0.6437	0.1284	0.0000
81	152.700	-0.300	1.800	0.736	0.6439	0.1281	0.0000
82	154.700	-0.300	1.800	0.736	0.6439	0.1281	0.0000
83	156.700	-0.300	1.800	0.736	0.6439	0.1281	0.0000
84	158.700	-0.422	1.678	0.614	0.7721	0.0000	-0.0674
85	160.700	-0.779	1.321	0.232	0.0882	0.6939	0.0157
86	162.700	-1.124	0.976	-0.113	0.1197	0.6625	0.0157
87	164.700	-1.406	0.694	-0.395	0.1510	0.6311	0.0157
88	166.700	-1.626	0.474	-0.615	0.1823	0.5998	0.0157
89	168.700	-1.783	0.317	-0.772	0.2136	0.5685	0.0157
90	170.700	-1.877	0.223	-0.866	0.2451	0.5370	0.0157
91	172.700	-1.908	0.192	-0.897	0.2765	0.5056	0.0157
92	174.700	-1.883	0.217	-0.872	0.3017	0.4804	0.0127
93	176.700	-1.807	0.293	-0.796	0.3271	0.4550	0.0127
94	178.700	-1.680	0.420	-0.669	0.3524	0.4297	0.0127
95	180.700	-1.502	0.598	-0.491	0.3779	0.4042	0.0127
96	182.700	-1.274	0.826	-0.263	0.4034	0.3787	0.0127
97	184.700	-0.995	1.105	0.016	0.4284	0.3538	0.0127
98	186.700	-0.666	1.434	0.345	0.4538	0.3283	0.0127
99	188.700	-0.369	1.731	0.642	0.5523	0.2298	-0.0613
100	190.700	-0.300	1.800	0.736	0.6437	0.1384	0.0000
101	192.700	-0.300	1.800	0.736	0.6439	0.1382	0.0000
102	194.450	-0.300	1.800	0.736	0.6439	0.1382	0.0000
103	196.200	-0.300	1.800	0.736	0.6439	0.1382	0.0000
104	197.950	-0.400	1.700	0.636	0.7821	0.0000	-0.0953
105	199.700	-0.759	1.341	0.252	0.1152	0.7707	0.0217
106	201.450	-1.116	0.984	-0.105	0.1531	0.7329	0.0217
107	203.200	-1.407	0.693	-0.396	0.1910	0.6949	0.0217
108	204.950	-1.632	0.468	-0.621	0.2289	0.6571	0.0217

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
109	206.700	-1.790	0.310	-0.779	0.2669	0.6191	0.0217
110	208.450	-1.882	0.218	-0.871	0.3048	0.5812	0.0217
111	210.200	-1.908	0.192	-0.897	0.3415	0.5445	0.0161
112	211.950	-1.877	0.223	-0.866	0.3697	0.5162	0.0161
113	213.700	-1.798	0.302	-0.787	0.3981	0.4879	0.0161
114	215.450	-1.668	0.432	-0.657	0.4262	0.4598	0.0161
115	217.200	-1.490	0.610	-0.479	0.4546	0.4314	0.0161
116	218.950	-1.262	0.838	-0.251	0.4828	0.4032	0.0161
117	220.700	-0.985	1.115	0.026	0.5110	0.3750	0.0161
118	222.450	-0.658	1.442	0.353	0.5389	0.3471	0.0161
119	224.200	-0.377	1.723	0.634	0.6458	0.2402	-0.0683
120	225.950	-0.300	1.800	0.736	0.7481	0.1379	0.0000
121	227.700	-0.300	1.800	0.736	0.7478	0.1382	0.0000
122	229.450	-0.300	1.800	0.736	0.7478	0.1382	0.0000
123	231.200	-0.300	1.800	0.736	0.7478	0.1382	0.0000
124	232.950	-0.400	1.700	0.636	0.8860	0.0000	-0.0953
125	234.700	-0.759	1.341	0.252	0.1152	0.7704	0.0217
126	236.450	-1.116	0.984	-0.105	0.1531	0.7325	0.0217
127	238.200	-1.407	0.693	-0.396	0.1910	0.6946	0.0217
128	239.950	-1.632	0.468	-0.621	0.2289	0.6567	0.0217
129	241.700	-1.790	0.310	-0.779	0.2669	0.6188	0.0217
130	243.450	-1.882	0.218	-0.871	0.3048	0.5808	0.0217
131	245.200	-1.908	0.192	-0.897	0.3415	0.5441	0.0161
132	246.950	-1.877	0.223	-0.866	0.3697	0.5159	0.0161
133	248.700	-1.798	0.302	-0.787	0.3981	0.4875	0.0161
134	250.450	-1.668	0.432	-0.657	0.4262	0.4595	0.0161
135	252.200	-1.490	0.610	-0.479	0.4546	0.4310	0.0161
136	253.950	-1.262	0.838	-0.251	0.4828	0.4029	0.0161
137	255.700	-0.985	1.115	0.026	0.5110	0.3746	0.0161
138	257.450	-0.658	1.442	0.353	0.5389	0.3467	0.0161
139	259.200	-0.377	1.723	0.634	0.6458	0.2399	-0.0683
140	260.950	-0.300	1.800	0.736	0.7481	0.1375	0.0000
141	262.700	-0.300	1.800	0.736	0.7478	0.1378	0.0000
142	264.500	-0.300	1.800	0.736	0.7478	0.1378	0.0000
143	266.300	-0.300	1.800	0.736	0.7478	0.1378	0.0000
144	268.100	-0.403	1.697	0.633	0.8856	0.0000	-0.0919
145	269.900	-0.765	1.335	0.246	0.1079	0.7417	0.0200
146	271.700	-1.117	0.983	-0.106	0.1439	0.7057	0.0200
147	273.500	-1.405	0.695	-0.394	0.1797	0.6698	0.0200
148	275.300	-1.627	0.473	-0.616	0.2157	0.6338	0.0200
149	277.100	-1.786	0.314	-0.775	0.2517	0.5979	0.0200
150	278.900	-1.879	0.221	-0.868	0.2876	0.5620	0.0200
151	280.700	-1.908	0.192	-0.897	0.3234	0.5262	0.0152
152	282.500	-1.880	0.220	-0.869	0.3508	0.4988	0.0152
153	284.300	-1.804	0.296	-0.793	0.3779	0.4716	0.0152
154	286.100	-1.677	0.423	-0.666	0.4054	0.4442	0.0152
155	287.900	-1.502	0.598	-0.491	0.4330	0.4166	0.0152
156	289.700	-1.277	0.823	-0.266	0.4605	0.3890	0.0152
157	291.500	-1.002	1.098	0.009	0.4881	0.3615	0.0152
158	293.300	-0.678	1.422	0.333	0.5152	0.3343	0.0152
159	295.100	-0.385	1.715	0.626	0.6145	0.2350	-0.0666
160	296.900	-0.300	1.800	0.736	0.7212	0.1284	0.0000
161	298.700	-0.300	1.800	0.736	0.7214	0.1281	0.0000
162	300.700	-0.300	1.800	0.736	0.7214	0.1281	0.0000
163	302.700	-0.300	1.800	0.736	0.7214	0.1281	0.0000
164	304.700	-0.422	1.678	0.614	0.8496	0.0000	-0.0674
165	306.700	-0.779	1.321	0.232	0.0882	0.6837	0.0157

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
166	308.700	-1.124	0.976	-0.113	0.1197	0.6523	0.0157
167	310.700	-1.406	0.694	-0.395	0.1510	0.6209	0.0157
168	312.700	-1.626	0.474	-0.615	0.1823	0.5896	0.0157
169	314.700	-1.783	0.317	-0.772	0.2136	0.5583	0.0157
170	316.700	-1.877	0.223	-0.866	0.2451	0.5268	0.0157
171	318.700	-1.908	0.192	-0.897	0.2765	0.4954	0.0157
172	320.700	-1.883	0.217	-0.872	0.3017	0.4702	0.0127
173	322.700	-1.807	0.293	-0.796	0.3271	0.4448	0.0127
174	324.700	-1.680	0.420	-0.669	0.3524	0.4195	0.0127
175	326.700	-1.502	0.598	-0.491	0.3779	0.3940	0.0127
176	328.700	-1.274	0.826	-0.263	0.4034	0.3685	0.0127
177	330.700	-0.995	1.105	0.016	0.4284	0.3436	0.0127
178	332.700	-0.666	1.434	0.345	0.4538	0.3181	0.0127
179	334.700	-0.369	1.731	0.642	0.5523	0.2196	-0.0613
180	336.700	-0.300	1.800	0.736	0.6437	0.1282	0.0000
181	338.700	-0.300	1.800	0.736	0.6439	0.1280	0.0000
182	340.650	-0.300	1.800	0.736	0.6439	0.1280	0.0000
183	342.600	-0.300	1.800	0.736	0.6439	0.1280	0.0000
184	344.550	-0.418	1.682	0.618	0.7719	0.0000	-0.0692
185	346.500	-0.772	1.328	0.239	0.0927	0.5962	0.0166
186	348.450	-1.119	0.981	-0.108	0.1251	0.5638	0.0166
187	350.400	-1.403	0.697	-0.392	0.1575	0.5314	0.0166
188	352.350	-1.624	0.476	-0.613	0.1899	0.4990	0.0166
189	354.300	-1.782	0.318	-0.771	0.2222	0.4667	0.0166
190	356.250	-1.876	0.224	-0.865	0.2546	0.4343	0.0166
191	358.200	-1.908	0.192	-0.897	0.2869	0.4020	0.0166
192	360.150	-1.882	0.218	-0.871	0.3133	0.3756	0.0135
193	362.100	-1.805	0.295	-0.794	0.3397	0.3492	0.0135
194	364.050	-1.677	0.423	-0.666	0.3660	0.3229	0.0135
195	366.000	-1.497	0.603	-0.486	0.3924	0.2966	0.0135
196	367.950	-1.266	0.834	-0.255	0.4188	0.2701	0.0135
197	369.900	-0.983	1.117	0.028	0.4453	0.2436	0.0135
198	371.850	-0.649	1.451	0.362	0.4715	0.2174	0.0135
199	373.800	-0.362	1.738	0.649	0.5771	0.1118	-0.0631
200	375.750	-0.300	1.800	0.736	0.6655	0.0235	0.0000
201	377.700	-0.300	1.800	0.736	0.6653	0.0236	0.0000
202	379.110	-0.300	1.800	0.736	0.6653	0.0236	0.0000
203	380.520	-0.300	1.800	0.736	0.6653	0.0236	0.0000
204	381.930	-0.304	1.796	0.732	0.6889	0.0000	-0.0714
205	383.340	-0.408	1.692	0.603	0.1006	0.4779	-0.0714
206	384.750	-0.653	1.447	0.358	0.1938	0.3847	0.0214
207	386.160	-0.929	1.171	0.082	0.2240	0.3545	0.0214
208	387.570	-1.163	0.937	-0.152	0.2541	0.3244	0.0214
209	388.980	-1.354	0.746	-0.343	0.2844	0.2941	0.0214
210	390.390	-1.502	0.598	-0.491	0.3146	0.2639	0.0214
211	391.800	-1.608	0.492	-0.597	0.3448	0.2337	0.0214
212	393.210	-1.671	0.429	-0.660	0.3748	0.2037	0.0214
213	394.620	-1.692	0.408	-0.681	0.4051	0.1734	0.0175
214	396.030	-1.674	0.426	-0.663	0.4299	0.1486	0.0175
215	397.440	-1.621	0.479	-0.610	0.4544	0.1241	0.0175
216	398.850	-1.534	0.566	-0.523	0.4794	0.0991	0.0175
217	400.260	-1.411	0.689	-0.400	0.5041	0.0745	0.0175
218	401.670	-1.253	0.847	-0.242	0.5288	0.0498	0.0175
219	403.080	-1.061	1.039	-0.050	0.5535	0.0250	0.0175
220	404.490	-0.834	1.266	0.202	0.5782	0.0003	0.0175
221	405.900	-0.589	1.511	0.447	0.5785	0.0000	0.0000

Referencia del Proyecto:

VIADUCTO CORNELLÀ(TRAZADO FAMILIA 2)

PROGRAMA DE CALCULO DE PRETENSADO EN NERVIOS DE UN EMPARRILLADO

DATOS GENERALES DE PRETENSADO

NUMERO DE NERVIOS = 1
NUMERO DE VANOS = 11
NUMERO DE SECCIONES POR VANO = 21
NUMERO DE MATERIALES = 3

LUZ DEL VANO =	1	L (m) =	32.70
LUZ DEL VANO =	2	L (m) =	40.00
LUZ DEL VANO =	3	L (m) =	40.00
LUZ DEL VANO =	4	L (m) =	40.00
LUZ DEL VANO =	5	L (m) =	40.00
LUZ DEL VANO =	6	L (m) =	35.00
LUZ DEL VANO =	7	L (m) =	35.00
LUZ DEL VANO =	8	L (m) =	36.00
LUZ DEL VANO =	9	L (m) =	40.00
LUZ DEL VANO =	10	L (m) =	39.00
LUZ DEL VANO =	11	L (m) =	28.20

COEFICIENTE DE ROZAMIENTO EN CURVA = 0.21
COEFICIENTE DE DESV. PARASITAS = 0.0060
RELAJACION = 0.04
RETRACCION mm/m = 0.177
COEF. FLUENCIA = 1.978

ACERO DE PRETENSADO (Kp/mm2)

LIMITE DE PROPORCIONALIDAD AL 0,2% = 170.00
TENSION DE ROTURA = 190.00
MODULO DE DEFORMACION = 19000.00

HORMIGON

MODULO DE DEFORMACION DURANTE TESADO (Kp/cm2) = 309000.00
MODULO DE DEFORMACION A 28 DIAS (Kp/cm2) = 320000.00

CARACTERISTICAS MECANICAS DE LA SECCION 1

AREA DE LA SECCION (m2) = 14.323
INERCIA DE LA SECCION (m2) = 5.7458
V_SUP. DE LA SECCION (m2) = 1.01
V_INF. DE LA SECCION (m2) = 1.09
CANTO DE LA SECCION (m2) = 2.10

CARACTERISTICAS MECANICAS DE LA SECCION 2

AREA DE LA SECCION (m2) = 20.048
INERCIA DE LA SECCION (m2) = 6.4312
V_SUP. DE LA SECCION (m2) = 1.04
V_INF. DE LA SECCION (m2) = 1.06
CANTO DE LA SECCION (m2) = 2.10

CARACTERISTICAS MECANICAS DE LA SECCION 3

AREA DE LA SECCION (m2) = 4.410
INERCIA DE LA SECCION (m2) = 1.6200
V_SUP. DE LA SECCION (m2) = 1.05
V_INF. DE LA SECCION (m2) = 1.05
CANTO DE LA SECCION (m2) = 2.10

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 1

Parametros de la parabola = 1
A = 0.00000 B = -0.08940 C = -1.13400
Origen = 0.00 Final = 1.40
Parametros de la parabola = 2
A = 0.00369 B = -0.09974 C = -1.12676
Origen = 1.40 Final = 13.50
Parametros de la parabola = 3
A = 0.00000 B = 0.00000 C = -1.80000
Origen = 13.50 Final = 16.00
Parametros de la parabola = 4
A = 0.00656 B = -0.20980 C = -0.12160
Origen = 16.00 Final = 29.70
Parametros de la parabola = 5
A = -0.02994 B = 1.95808 C = -32.31467
Origen = 29.70 Final = 32.70
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 38.50 Final = 39.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 2

Parametros de la parabola = 2
A = -0.02513 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 3.20
Parametros de la parabola = 3
A = 0.00479 B = -0.19143 C = 0.00629
Origen = 3.20 Final = 20.00
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.90800
Origen = 20.00 Final = 22.00
Parametros de la parabola = 5
A = 0.00634 B = -0.27883 C = 1.15908
Origen = 22.00 Final = 36.50
Parametros de la parabola = 6
A = -0.03063 B = 2.41966 C = -48.08823
Origen = 36.50 Final = 39.50
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 39.50 Final = 40.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 3

Parametros de la parabola = 2
A = -0.02513 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 3.20
Parametros de la parabola = 3
A = 0.00479 B = -0.19143 C = 0.00629
Origen = 3.20 Final = 20.00
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.90800
Origen = 20.00 Final = 22.00
Parametros de la parabola = 5
A = 0.00634 B = -0.27883 C = 1.15908
Origen = 22.00 Final = 36.50
Parametros de la parabola = 6
A = -0.03063 B = 2.41966 C = -48.08823
Origen = 36.50 Final = 39.50
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 39.50 Final = 40.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 4

Parametros de la parabola = 2
A = -0.02513 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 3.20
Parametros de la parabola = 3
A = 0.00479 B = -0.19143 C = 0.00629
Origen = 3.20 Final = 20.00
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.90800
Origen = 20.00 Final = 22.00
Parametros de la parabola = 5
A = 0.00634 B = -0.27883 C = 1.15908
Origen = 22.00 Final = 36.50
Parametros de la parabola = 6
A = -0.03063 B = 2.41966 C = -48.08823
Origen = 36.50 Final = 39.50
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 39.50 Final = 40.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 5

Parametros de la parabola = 2
A = -0.02513 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 3.20
Parametros de la parabola = 3
A = 0.00479 B = -0.19143 C = 0.00629
Origen = 3.20 Final = 20.00
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.90800
Origen = 20.00 Final = 22.00
Parametros de la parabola = 5
A = 0.00634 B = -0.27883 C = 1.15908
Origen = 22.00 Final = 36.50
Parametros de la parabola = 6
A = -0.03063 B = 2.41966 C = -48.08823
Origen = 36.50 Final = 39.50
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 39.50 Final = 40.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 6

Parametros de la parabola = 2
A = -0.03028 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00618 B = -0.21878 C = 0.02816
Origen = 3.00 Final = 17.70
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.90800
Origen = 17.70 Final = 18.80
Parametros de la parabola = 5
A = 0.00806 B = -0.30323 C = 0.94235
Origen = 18.80 Final = 31.50
Parametros de la parabola = 6
A = -0.03414 B = 2.35567 C = -40.93528
Origen = 31.50 Final = 34.50
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 34.50 Final = 35.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 7

Parametros de la parabola = 2
A = -0.03028 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00618 B = -0.21878 C = 0.02816
Origen = 3.00 Final = 17.70
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.90800
Origen = 17.70 Final = 18.80
Parametros de la parabola = 5
A = 0.00806 B = -0.30323 C = 0.94235
Origen = 18.80 Final = 31.50
Parametros de la parabola = 6
A = -0.03414 B = 2.35567 C = -40.93528
Origen = 31.50 Final = 34.50
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 34.50 Final = 35.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 8

Parametros de la parabola = 2
A = -0.02945 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00581 B = -0.21158 C = 0.01737
Origen = 3.00 Final = 18.20
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.90800
Origen = 18.20 Final = 19.30
Parametros de la parabola = 5
A = 0.00752 B = -0.29026 C = 0.89299
Origen = 19.30 Final = 32.50
Parametros de la parabola = 6
A = -0.03309 B = 2.34914 C = -41.99717
Origen = 32.50 Final = 35.50
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 35.50 Final = 36.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 9

Parametros de la parabola = 2
A = -0.02513 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 3.20
Parametros de la parabola = 3
A = 0.00479 B = -0.19143 C = 0.00629
Origen = 3.20 Final = 20.00
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.90800
Origen = 20.00 Final = 22.00
Parametros de la parabola = 5
A = 0.00634 B = -0.27883 C = 1.15908
Origen = 22.00 Final = 36.50
Parametros de la parabola = 6
A = -0.03063 B = 2.41966 C = -48.08823
Origen = 36.50 Final = 39.50
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 39.50 Final = 40.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 10

Parametros de la parabola = 2
A = -0.02577 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 3.20
Parametros de la parabola = 3
A = 0.00506 B = -0.19730 C = 0.01568
Origen = 3.20 Final = 19.50
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.90800
Origen = 19.50 Final = 21.50
Parametros de la parabola = 5
A = 0.00676 B = -0.29052 C = 1.21510
Origen = 21.50 Final = 35.50
Parametros de la parabola = 6
A = -0.03153 B = 2.42776 C = -47.03447
Origen = 35.50 Final = 38.50
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 38.50 Final = 39.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 11

Parametros de la parabola = 2
A = -0.03170 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 2.80
Parametros de la parabola = 3
A = 0.00629 B = -0.21277 C = -0.00213
Origen = 2.80 Final = 16.90
Parametros de la parabola = 5
A = 0.00530 B = -0.17904 C = -0.28711
Origen = 16.90 Final = 26.80
Parametros de la parabola = 6
A = 0.00000 B = 0.10488 C = -4.09167
Origen = 26.80 Final = 28.20
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.30000
Origen = 38.50 Final = 39.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
1	0.000	-1.134	0.966	-0.098	0.0000	0.6364	0.0000
2	1.635	-1.280	0.820	-0.269	0.0017	0.6346	0.0074
3	3.270	-1.413	0.687	-0.402	0.0138	0.6225	0.0074
4	4.905	-1.527	0.573	-0.516	0.0259	0.6105	0.0074
5	6.540	-1.621	0.479	-0.610	0.0380	0.5984	0.0074
6	8.175	-1.695	0.405	-0.684	0.0501	0.5863	0.0074
7	9.810	-1.750	0.350	-0.739	0.0621	0.5742	0.0074
8	11.445	-1.784	0.316	-0.773	0.0742	0.5621	0.0074
9	13.080	-1.799	0.301	-0.788	0.0863	0.5501	0.0074
10	14.715	-1.800	0.300	-0.789	0.0894	0.5470	0.0000
11	16.350	-1.799	0.301	-0.788	0.0940	0.5424	0.0131
12	17.985	-1.774	0.326	-0.763	0.1154	0.5209	0.0131
13	19.620	-1.714	0.386	-0.703	0.1369	0.4995	0.0131
14	21.255	-1.619	0.481	-0.608	0.1583	0.4780	0.0131
15	22.890	-1.489	0.611	-0.478	0.1798	0.4566	0.0131
16	24.525	-1.324	0.776	-0.313	0.2012	0.4351	0.0131
17	26.160	-1.123	0.977	-0.112	0.2227	0.4137	0.0131
18	27.795	-0.888	1.212	0.123	0.2441	0.3923	0.0131
19	29.430	-0.617	1.483	0.394	0.2655	0.3708	0.0131
20	31.065	-0.380	1.720	0.656	0.3509	0.2855	-0.0599
21	32.700	-0.300	1.800	0.736	0.4487	0.1876	-0.0503
22	34.700	-0.400	1.699	0.635	0.5493	0.0871	-0.0503
23	36.700	-0.683	1.417	0.353	0.6172	0.0191	0.0096
24	38.700	-0.970	1.130	0.066	0.6364	0.0000	0.0096
25	40.700	-1.219	0.881	-0.208	0.0192	0.6702	0.0096
26	42.700	-1.429	0.671	-0.418	0.0384	0.6510	0.0096
27	44.700	-1.602	0.498	-0.591	0.0574	0.6319	0.0096
28	46.700	-1.736	0.364	-0.725	0.0766	0.6127	0.0096
29	48.700	-1.831	0.269	-0.820	0.0958	0.5935	0.0096
30	50.700	-1.889	0.211	-0.878	0.1149	0.5744	0.0096
31	52.700	-1.908	0.192	-0.897	0.1341	0.5552	0.0096
32	54.700	-1.908	0.192	-0.897	0.1341	0.5553	0.0000
33	56.700	-1.883	0.217	-0.872	0.1594	0.5299	0.0127
34	58.700	-1.807	0.293	-0.796	0.1848	0.5045	0.0127
35	60.700	-1.680	0.420	-0.669	0.2101	0.4793	0.0127
36	62.700	-1.502	0.598	-0.491	0.2356	0.4537	0.0127
37	64.700	-1.274	0.826	-0.263	0.2609	0.4284	0.0127
38	66.700	-0.995	1.105	0.016	0.2863	0.4030	0.0127
39	68.700	-0.666	1.434	0.345	0.3116	0.3777	0.0127
40	70.700	-0.369	1.731	0.667	0.4099	0.2794	-0.0613
41	72.700	-0.300	1.800	0.736	0.5017	0.1876	-0.0503
42	74.700	-0.400	1.699	0.635	0.6022	0.0871	-0.0503
43	76.700	-0.683	1.417	0.353	0.6702	0.0191	0.0096
44	78.700	-0.970	1.130	0.066	0.6893	0.0000	0.0096
45	80.700	-1.219	0.881	-0.208	0.0192	0.6702	0.0096
46	82.700	-1.429	0.671	-0.418	0.0384	0.6510	0.0096
47	84.700	-1.602	0.498	-0.591	0.0574	0.6319	0.0096
48	86.700	-1.736	0.364	-0.725	0.0766	0.6127	0.0096
49	88.700	-1.831	0.269	-0.820	0.0958	0.5935	0.0096
50	90.700	-1.889	0.211	-0.878	0.1149	0.5744	0.0096
51	92.700	-1.908	0.192	-0.897	0.1341	0.5552	0.0096
52	94.700	-1.908	0.192	-0.897	0.1341	0.5553	0.0000
53	96.700	-1.883	0.217	-0.872	0.1594	0.5299	0.0127
54	98.700	-1.807	0.293	-0.796	0.1848	0.5045	0.0127
55	100.700	-1.680	0.420	-0.669	0.2101	0.4793	0.0127

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
56	102.700	-1.502	0.598	-0.491	0.2356	0.4537	0.0127
57	104.700	-1.274	0.826	-0.263	0.2609	0.4284	0.0127
58	106.700	-0.995	1.105	0.016	0.2863	0.4030	0.0127
59	108.700	-0.666	1.434	0.345	0.3116	0.3777	0.0127
60	110.700	-0.369	1.731	0.667	0.4099	0.2794	-0.0613
61	112.700	-0.300	1.800	0.736	0.5017	0.1876	-0.0503
62	114.700	-0.400	1.699	0.635	0.6022	0.0871	-0.0503
63	116.700	-0.683	1.417	0.353	0.6702	0.0191	0.0096
64	118.700	-0.970	1.130	0.066	0.6893	0.0000	0.0096
65	120.700	-1.219	0.881	-0.208	0.0192	0.6702	0.0096
66	122.700	-1.429	0.671	-0.418	0.0384	0.6510	0.0096
67	124.700	-1.602	0.498	-0.591	0.0574	0.6319	0.0096
68	126.700	-1.736	0.364	-0.725	0.0766	0.6127	0.0096
69	128.700	-1.831	0.269	-0.820	0.0958	0.5935	0.0096
70	130.700	-1.889	0.211	-0.878	0.1149	0.5744	0.0096
71	132.700	-1.908	0.192	-0.897	0.1341	0.5552	0.0096
72	134.700	-1.908	0.192	-0.897	0.1341	0.5553	0.0000
73	136.700	-1.883	0.217	-0.872	0.1594	0.5299	0.0127
74	138.700	-1.807	0.293	-0.796	0.1848	0.5045	0.0127
75	140.700	-1.680	0.420	-0.669	0.2101	0.4793	0.0127
76	142.700	-1.502	0.598	-0.491	0.2356	0.4537	0.0127
77	144.700	-1.274	0.826	-0.263	0.2609	0.4284	0.0127
78	146.700	-0.995	1.105	0.016	0.2863	0.4030	0.0127
79	148.700	-0.666	1.434	0.345	0.3116	0.3777	0.0127
80	150.700	-0.369	1.731	0.667	0.4099	0.2794	-0.0613
81	152.700	-0.300	1.800	0.736	0.5017	0.1876	-0.0503
82	154.700	-0.400	1.699	0.635	0.6022	0.0871	-0.0503
83	156.700	-0.683	1.417	0.353	0.6702	0.0191	0.0096
84	158.700	-0.970	1.130	0.066	0.6893	0.0000	0.0096
85	160.700	-1.219	0.881	-0.208	0.0192	0.6921	0.0096
86	162.700	-1.429	0.671	-0.418	0.0384	0.6729	0.0096
87	164.700	-1.602	0.498	-0.591	0.0574	0.6538	0.0096
88	166.700	-1.736	0.364	-0.725	0.0766	0.6346	0.0096
89	168.700	-1.831	0.269	-0.820	0.0958	0.6154	0.0096
90	170.700	-1.889	0.211	-0.878	0.1149	0.5963	0.0096
91	172.700	-1.908	0.192	-0.897	0.1341	0.5771	0.0096
92	174.700	-1.908	0.192	-0.897	0.1341	0.5772	0.0000
93	176.700	-1.883	0.217	-0.872	0.1594	0.5518	0.0127
94	178.700	-1.807	0.293	-0.796	0.1848	0.5264	0.0127
95	180.700	-1.680	0.420	-0.669	0.2101	0.5012	0.0127
96	182.700	-1.502	0.598	-0.491	0.2356	0.4756	0.0127
97	184.700	-1.274	0.826	-0.263	0.2609	0.4503	0.0127
98	186.700	-0.995	1.105	0.016	0.2863	0.4249	0.0127
99	188.700	-0.666	1.434	0.345	0.3116	0.3996	0.0127
100	190.700	-0.369	1.731	0.667	0.4099	0.3014	-0.0613
101	192.700	-0.300	1.800	0.736	0.5017	0.2095	-0.0606
102	194.450	-0.393	1.707	0.643	0.6077	0.1035	-0.0606
103	196.200	-0.662	1.438	0.374	0.6896	0.0216	0.0124
104	197.950	-0.950	1.150	0.086	0.7112	0.0000	0.0124
105	199.700	-1.200	0.900	-0.189	0.0216	0.7515	0.0124
106	201.450	-1.413	0.687	-0.402	0.0432	0.7299	0.0124
107	203.200	-1.588	0.512	-0.577	0.0649	0.7082	0.0124
108	204.950	-1.724	0.376	-0.713	0.0866	0.6865	0.0124
109	206.700	-1.823	0.277	-0.812	0.1081	0.6650	0.0124
110	208.450	-1.885	0.215	-0.874	0.1299	0.6432	0.0124

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
111	210.200	-1.908	0.192	-0.897	0.1514	0.6218	0.0124
112	211.950	-1.906	0.194	-0.895	0.1612	0.6119	0.0161
113	213.700	-1.869	0.231	-0.858	0.1894	0.5837	0.0161
114	215.450	-1.782	0.318	-0.771	0.2176	0.5555	0.0161
115	217.200	-1.646	0.454	-0.635	0.2459	0.5272	0.0161
116	218.950	-1.460	0.640	-0.449	0.2742	0.4989	0.0161
117	220.700	-1.225	0.875	-0.214	0.3024	0.4707	0.0161
118	222.450	-0.941	1.159	0.070	0.3306	0.4426	0.0161
119	224.200	-0.607	1.493	0.404	0.3589	0.4142	0.0161
120	225.950	-0.353	1.747	0.683	0.4784	0.2947	-0.0683
121	227.700	-0.300	1.800	0.736	0.5636	0.2095	-0.0606
122	229.450	-0.393	1.707	0.643	0.6696	0.1035	-0.0606
123	231.200	-0.662	1.438	0.374	0.7515	0.0216	0.0124
124	232.950	-0.950	1.150	0.086	0.7731	0.0000	0.0124
125	234.700	-1.200	0.900	-0.189	0.0216	0.7466	0.0124
126	236.450	-1.413	0.687	-0.402	0.0432	0.7250	0.0124
127	238.200	-1.588	0.512	-0.577	0.0649	0.7033	0.0124
128	239.950	-1.724	0.376	-0.713	0.0866	0.6816	0.0124
129	241.700	-1.823	0.277	-0.812	0.1081	0.6601	0.0124
130	243.450	-1.885	0.215	-0.874	0.1299	0.6383	0.0124
131	245.200	-1.908	0.192	-0.897	0.1514	0.6169	0.0124
132	246.950	-1.906	0.194	-0.895	0.1612	0.6070	0.0161
133	248.700	-1.869	0.231	-0.858	0.1894	0.5788	0.0161
134	250.450	-1.782	0.318	-0.771	0.2176	0.5506	0.0161
135	252.200	-1.646	0.454	-0.635	0.2459	0.5223	0.0161
136	253.950	-1.460	0.640	-0.449	0.2742	0.4940	0.0161
137	255.700	-1.225	0.875	-0.214	0.3024	0.4658	0.0161
138	257.450	-0.941	1.159	0.070	0.3306	0.4377	0.0161
139	259.200	-0.607	1.493	0.404	0.3589	0.4093	0.0161
140	260.950	-0.353	1.747	0.683	0.4784	0.2898	-0.0683
141	262.700	-0.300	1.800	0.736	0.5636	0.2046	-0.0589
142	264.500	-0.395	1.705	0.641	0.6696	0.0986	-0.0589
143	266.300	-0.669	1.431	0.367	0.7473	0.0209	0.0116
144	268.100	-0.956	1.144	0.080	0.7682	0.0000	0.0116
145	269.900	-1.205	0.895	-0.194	0.0209	0.7128	0.0116
146	271.700	-1.416	0.684	-0.405	0.0419	0.6918	0.0116
147	273.500	-1.590	0.510	-0.579	0.0628	0.6709	0.0116
148	275.300	-1.726	0.374	-0.715	0.0837	0.6500	0.0116
149	277.100	-1.824	0.276	-0.813	0.1047	0.6290	0.0116
150	278.900	-1.885	0.215	-0.874	0.1255	0.6081	0.0116
151	280.700	-1.908	0.192	-0.897	0.1465	0.5871	0.0116
152	282.500	-1.906	0.194	-0.895	0.1563	0.5774	0.0150
153	284.300	-1.868	0.232	-0.857	0.1835	0.5502	0.0150
154	286.100	-1.782	0.318	-0.771	0.2104	0.5232	0.0150
155	287.900	-1.646	0.454	-0.635	0.2376	0.4961	0.0150
156	289.700	-1.462	0.638	-0.451	0.2647	0.4690	0.0150
157	291.500	-1.229	0.871	-0.218	0.2917	0.4419	0.0150
158	293.300	-0.948	1.152	0.063	0.3189	0.4148	0.0150
159	295.100	-0.618	1.482	0.393	0.3459	0.3878	0.0150
160	296.900	-0.356	1.744	0.680	0.4601	0.2736	-0.0662
161	298.700	-0.300	1.800	0.736	0.5461	0.1876	-0.0503
162	300.700	-0.400	1.699	0.635	0.6466	0.0871	-0.0503
163	302.700	-0.683	1.417	0.353	0.7145	0.0191	0.0096
164	304.700	-0.970	1.130	0.066	0.7337	0.0000	0.0096
165	306.700	-1.219	0.881	-0.208	0.0192	0.6743	0.0096
166	308.700	-1.429	0.671	-0.418	0.0384	0.6551	0.0096

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
167	310.700	-1.602	0.498	-0.591	0.0574	0.6360	0.0096
168	312.700	-1.736	0.364	-0.725	0.0766	0.6168	0.0096
169	314.700	-1.831	0.269	-0.820	0.0958	0.5977	0.0096
170	316.700	-1.889	0.211	-0.878	0.1149	0.5785	0.0096
171	318.700	-1.908	0.192	-0.897	0.1341	0.5594	0.0096
172	320.700	-1.908	0.192	-0.897	0.1341	0.5594	0.0000
173	322.700	-1.883	0.217	-0.872	0.1594	0.5340	0.0127
174	324.700	-1.807	0.293	-0.796	0.1848	0.5086	0.0127
175	326.700	-1.680	0.420	-0.669	0.2101	0.4834	0.0127
176	328.700	-1.502	0.598	-0.491	0.2356	0.4579	0.0127
177	330.700	-1.274	0.826	-0.263	0.2609	0.4325	0.0127
178	332.700	-0.995	1.105	0.016	0.2863	0.4071	0.0127
179	334.700	-0.666	1.434	0.345	0.3116	0.3818	0.0127
180	336.700	-0.369	1.731	0.667	0.4099	0.2836	-0.0613
181	338.700	-0.300	1.800	0.736	0.5017	0.1917	-0.0515
182	340.650	-0.398	1.702	0.638	0.6022	0.0912	-0.0515
183	342.600	-0.677	1.423	0.359	0.6737	0.0197	0.0101
184	344.550	-0.965	1.135	0.071	0.6935	0.0000	0.0101
185	346.500	-1.215	0.885	-0.204	0.0197	0.6923	0.0101
186	348.450	-1.427	0.673	-0.416	0.0395	0.6725	0.0101
187	350.400	-1.600	0.500	-0.589	0.0593	0.6528	0.0101
188	352.350	-1.735	0.365	-0.724	0.0790	0.6331	0.0101
189	354.300	-1.831	0.269	-0.820	0.0987	0.6133	0.0101
190	356.250	-1.889	0.211	-0.878	0.1185	0.5936	0.0101
191	358.200	-1.908	0.192	-0.897	0.1382	0.5739	0.0101
192	360.150	-1.908	0.192	-0.897	0.1381	0.5739	0.0000
193	362.100	-1.884	0.216	-0.873	0.1638	0.5482	0.0135
194	364.050	-1.808	0.292	-0.797	0.1903	0.5218	0.0135
195	366.000	-1.681	0.419	-0.670	0.2165	0.4955	0.0135
196	367.950	-1.502	0.598	-0.491	0.2429	0.4691	0.0135
197	369.900	-1.272	0.828	-0.261	0.2694	0.4426	0.0135
198	371.850	-0.991	1.109	0.020	0.2956	0.4164	0.0135
199	373.800	-0.658	1.442	0.353	0.3220	0.3901	0.0135
200	375.750	-0.366	1.734	0.670	0.4253	0.2867	-0.0631
201	377.700	-0.300	1.800	0.736	0.5165	0.1955	-0.0634
202	379.110	-0.363	1.737	0.673	0.6059	0.1061	-0.0634
203	380.520	-0.552	1.548	0.484	0.6943	0.0178	0.0126
204	381.930	-0.789	1.311	0.247	0.7120	0.0000	0.0126
205	383.340	-1.002	1.098	0.009	0.0177	0.2468	0.0126
206	384.750	-1.189	0.911	-0.178	0.0355	0.2290	0.0126
207	386.160	-1.352	0.748	-0.341	0.0532	0.2113	0.0126
208	387.570	-1.489	0.611	-0.478	0.0711	0.1934	0.0126
209	388.980	-1.601	0.499	-0.590	0.0888	0.1757	0.0126
210	390.390	-1.688	0.412	-0.677	0.1065	0.1580	0.0126
211	391.800	-1.751	0.349	-0.740	0.1244	0.1401	0.0126
212	393.210	-1.788	0.312	-0.777	0.1420	0.1225	0.0126
213	394.620	-1.800	0.300	-0.789	0.1597	0.1048	0.0106
214	396.030	-1.789	0.311	-0.778	0.1746	0.0898	0.0106
215	397.440	-1.757	0.343	-0.746	0.1897	0.0748	0.0106
216	398.850	-1.704	0.396	-0.693	0.2046	0.0599	0.0106
217	400.260	-1.630	0.470	-0.619	0.2196	0.0449	0.0106
218	401.670	-1.535	0.565	-0.524	0.2345	0.0300	0.0106
219	403.080	-1.419	0.681	-0.408	0.2493	0.0152	0.0106
220	404.490	-1.282	0.818	-0.246	0.2643	0.0002	0.0106
221	405.900	-1.134	0.966	-0.098	0.2645	0.0000	0.0000

Referencia del Proyecto:

VIADUCTO CORNELLÀ(TRAZADO FAMILIA 3)

PROGRAMA DE CALCULO DE PRETENSADO EN NERVIOS DE UN EMPARRILLADO

DATOS GENERALES DE PRETENSADO

NUMERO DE NERVIOS = 1
NUMERO DE VANOS = 11
NUMERO DE SECCIONES POR VANO = 21
NUMERO DE MATERIALES = 3

LUZ DEL VANO =	1	L (m) =	32.70
LUZ DEL VANO =	2	L (m) =	40.00
LUZ DEL VANO =	3	L (m) =	40.00
LUZ DEL VANO =	4	L (m) =	40.00
LUZ DEL VANO =	5	L (m) =	40.00
LUZ DEL VANO =	6	L (m) =	35.00
LUZ DEL VANO =	7	L (m) =	35.00
LUZ DEL VANO =	8	L (m) =	36.00
LUZ DEL VANO =	9	L (m) =	40.00
LUZ DEL VANO =	10	L (m) =	39.00
LUZ DEL VANO =	11	L (m) =	28.20

COEFICIENTE DE ROZAMIENTO EN CURVA = 0.21
COEFICIENTE DE DESV. PARASITAS = 0.0060
RELAJACION = 0.04
RETRACCION mm/m = 0.177
COEF. FLUENCIA = 1.978

ACERO DE PRETENSADO (Kp/mm2)

LIMITE DE PROPORCIONALIDAD AL 0,2% = 170.00
TENSION DE ROTURA = 190.00
MODULO DE DEFORMACION = 19000.00

HORMIGON

MODULO DE DEFORMACION DURANTE TESADO (Kp/cm2) = 309000.00
MODULO DE DEFORMACION A 28 DIAS (Kp/cm2) = 320000.00

CARACTERISTICAS MECANICAS DE LA SECCION 1

AREA DE LA SECCION (m2) = 14.323
INERCIA DE LA SECCION (m2) = 5.7458
V_SUP. DE LA SECCION (m2) = 1.01
V_INF. DE LA SECCION (m2) = 1.09
CANTO DE LA SECCION (m2) = 2.10

CARACTERISTICAS MECANICAS DE LA SECCION 2

AREA DE LA SECCION (m2) = 20.048
INERCIA DE LA SECCION (m2) = 6.4312
V_SUP. DE LA SECCION (m2) = 1.04
V_INF. DE LA SECCION (m2) = 1.06
CANTO DE LA SECCION (m2) = 2.10

CARACTERISTICAS MECANICAS DE LA SECCION 3

AREA DE LA SECCION (m2) = 4.410
INERCIA DE LA SECCION (m2) = 1.6200
V_SUP. DE LA SECCION (m2) = 1.05
V_INF. DE LA SECCION (m2) = 1.05
CANTO DE LA SECCION (m2) = 2.10

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 1

Parametros de la parabola = 1
A = 0.00000 B = -0.03074 C = -1.67900
Origen = 0.00 Final = 1.40
Parametros de la parabola = 2
A = 0.00127 B = -0.03429 C = -1.67651
Origen = 1.40 Final = 13.50
Parametros de la parabola = 3
A = 0.00000 B = 0.00000 C = -1.90800
Origen = 13.50 Final = 20.20
Parametros de la parabola = 4
A = 0.01169 B = -0.47246 C = 2.86384
Origen = 20.20 Final = 31.20
Parametros de la parabola = 5
A = -0.08576 B = 5.60870 C = -92.00231
Origen = 31.20 Final = 32.70

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 2

Parametros de la parabola = 2
A = -0.09745 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 1.50
Parametros de la parabola = 3
A = 0.01539 B = -0.33853 C = -0.04611
Origen = 1.50 Final = 11.00
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.90800
Origen = 11.00 Final = 26.00
Parametros de la parabola = 5
A = 0.00919 B = -0.47781 C = 4.30347
Origen = 26.00 Final = 38.50
Parametros de la parabola = 6
A = -0.07657 B = 6.12571 C = *********
Origen = 38.50 Final = 40.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 3

Parametros de la parabola = 2
A = -0.09745 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 1.50
Parametros de la parabola = 3
A = 0.01539 B = -0.33853 C = -0.04611
Origen = 1.50 Final = 11.00
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.90800
Origen = 11.00 Final = 26.00
Parametros de la parabola = 5
A = 0.00919 B = -0.47781 C = 4.30347
Origen = 26.00 Final = 38.50
Parametros de la parabola = 6
A = -0.07657 B = 6.12571 C = *********
Origen = 38.50 Final = 40.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 4

Parametros de la parabola = 2
A = -0.09745 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 1.50
Parametros de la parabola = 3
A = 0.01539 B = -0.33853 C = -0.04611
Origen = 1.50 Final = 11.00
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.90800
Origen = 11.00 Final = 26.00
Parametros de la parabola = 5
A = 0.00919 B = -0.47781 C = 4.30347
Origen = 26.00 Final = 38.50
Parametros de la parabola = 6
A = -0.07657 B = 6.12571 C = *********
Origen = 38.50 Final = 40.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 5

Parametros de la parabola = 2
A = -0.09745 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 1.50
Parametros de la parabola = 3
A = 0.01539 B = -0.33853 C = -0.04611
Origen = 1.50 Final = 11.00
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.90800
Origen = 11.00 Final = 26.00
Parametros de la parabola = 5
A = 0.00919 B = -0.47781 C = 4.30347
Origen = 26.00 Final = 38.50
Parametros de la parabola = 6
A = -0.07657 B = 6.12571 C = *********
Origen = 38.50 Final = 40.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 6

Parametros de la parabola = 2
A = -0.10939 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 1.50
Parametros de la parabola = 3
A = 0.01977 B = -0.38747 C = -0.00940
Origen = 1.50 Final = 9.80
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.90800
Origen = 9.80 Final = 22.50
Parametros de la parabola = 5
A = 0.01169 B = -0.52625 C = 4.01236
Origen = 22.50 Final = 33.50
Parametros de la parabola = 6
A = -0.08576 B = 6.00320 C = *********
Origen = 33.50 Final = 35.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 7

Parametros de la parabola = 2
A = -0.10939 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 1.50
Parametros de la parabola = 3
A = 0.01977 B = -0.38747 C = -0.00940
Origen = 1.50 Final = 9.80
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.90800
Origen = 9.80 Final = 22.50
Parametros de la parabola = 5
A = 0.01169 B = -0.52625 C = 4.01236
Origen = 22.50 Final = 33.50
Parametros de la parabola = 6
A = -0.08576 B = 6.00320 C = *********
Origen = 33.50 Final = 35.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 8

Parametros de la parabola = 2
A = -0.10720 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 1.50
Parametros de la parabola = 3
A = 0.01892 B = -0.37835 C = -0.01624
Origen = 1.50 Final = 10.00
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.90800
Origen = 10.00 Final = 23.30
Parametros de la parabola = 5
A = 0.01130 B = -0.52681 C = 4.22928
Origen = 23.30 Final = 34.50
Parametros de la parabola = 6
A = -0.08441 B = 6.07748 C = *********
Origen = 34.50 Final = 36.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 9

Parametros de la parabola = 2
A = -0.09745 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 1.50
Parametros de la parabola = 3
A = 0.01539 B = -0.33853 C = -0.04611
Origen = 1.50 Final = 11.00
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.90800
Origen = 11.00 Final = 26.00
Parametros de la parabola = 5
A = 0.00919 B = -0.47781 C = 4.30347
Origen = 26.00 Final = 38.50
Parametros de la parabola = 6
A = -0.07657 B = 6.12571 C = *********
Origen = 38.50 Final = 40.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 10

Parametros de la parabola = 2
A = -0.09926 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 1.50
Parametros de la parabola = 3
A = 0.01601 B = -0.34581 C = -0.04065
Origen = 1.50 Final = 10.80
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.90800
Origen = 10.80 Final = 25.20
Parametros de la parabola = 5
A = 0.00947 B = -0.47745 C = 4.10793
Origen = 25.20 Final = 37.50
Parametros de la parabola = 6
A = -0.07768 B = 6.05913 C = *********
Origen = 37.50 Final = 39.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 11

Parametros de la parabola = 2
A = -0.11052 B = 0.00000 C = -0.30000
Origen = 0.00 Final = 1.50
Parametros de la parabola = 3
A = 0.02022 B = -0.39220 C = -0.00585
Origen = 1.50 Final = 9.70
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.90800
Origen = 9.70 Final = 16.90
Parametros de la parabola = 5
A = 0.00182 B = -0.06156 C = -1.38780
Origen = 16.90 Final = 26.80
Parametros de la parabola = 6
A = 0.00000 B = 0.03606 C = -2.69598
Origen = 26.80 Final = 28.20

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
1	0.000	-1.679	0.421	-0.643	0.0000	0.9763	0.0000
2	1.635	-1.729	0.371	-0.718	0.0006	0.9757	0.0025
3	3.270	-1.775	0.325	-0.764	0.0048	0.9716	0.0025
4	4.905	-1.814	0.286	-0.803	0.0089	0.9674	0.0025
5	6.540	-1.846	0.254	-0.835	0.0131	0.9633	0.0025
6	8.175	-1.872	0.228	-0.861	0.0172	0.9591	0.0025
7	9.810	-1.891	0.209	-0.880	0.0214	0.9550	0.0025
8	11.445	-1.903	0.197	-0.892	0.0255	0.9508	0.0025
9	13.080	-1.908	0.192	-0.897	0.0297	0.9467	0.0025
10	14.715	-1.908	0.192	-0.897	0.0307	0.9456	0.0000
11	16.350	-1.908	0.192	-0.897	0.0307	0.9456	0.0000
12	17.985	-1.908	0.192	-0.897	0.0307	0.9456	0.0000
13	19.620	-1.908	0.192	-0.897	0.0307	0.9456	0.0000
14	21.255	-1.895	0.205	-0.884	0.0554	0.9209	0.0234
15	22.890	-1.823	0.277	-0.812	0.0937	0.8827	0.0234
16	24.525	-1.689	0.411	-0.678	0.1319	0.8444	0.0234
17	26.160	-1.493	0.607	-0.482	0.1702	0.8062	0.0234
18	27.795	-1.233	0.867	-0.222	0.2084	0.7679	0.0234
19	29.430	-0.912	1.188	0.099	0.2467	0.7297	0.0234
20	31.065	-0.527	1.573	0.509	0.2849	0.6914	0.0234
21	32.700	-0.300	1.800	0.736	0.5454	0.4309	-0.1949
22	34.700	-0.662	1.438	0.374	0.8532	0.1231	0.0308
23	36.700	-1.154	0.946	-0.118	0.9148	0.0615	0.0308
24	38.700	-1.523	0.577	-0.487	0.9763	0.0000	0.0308
25	40.700	-1.770	0.330	-0.759	0.0616	0.9833	0.0308
26	42.700	-1.893	0.207	-0.882	0.1232	0.9217	0.0308
27	44.700	-1.908	0.192	-0.897	0.1541	0.8909	0.0000
28	46.700	-1.908	0.192	-0.897	0.1540	0.8910	0.0000
29	48.700	-1.908	0.192	-0.897	0.1540	0.8910	0.0000
30	50.700	-1.908	0.192	-0.897	0.1542	0.8907	0.0000
31	52.700	-1.908	0.192	-0.897	0.1543	0.8907	0.0000
32	54.700	-1.908	0.192	-0.897	0.1540	0.8909	0.0000
33	56.700	-1.908	0.192	-0.897	0.1542	0.8908	0.0000
34	58.700	-1.908	0.192	-0.897	0.1542	0.8907	0.0000
35	60.700	-1.871	0.229	-0.860	0.1911	0.8539	0.0184
36	62.700	-1.761	0.339	-0.750	0.2280	0.8169	0.0184
37	64.700	-1.577	0.523	-0.566	0.2642	0.7807	0.0184
38	66.700	-1.320	0.780	-0.309	0.3015	0.7434	0.0184
39	68.700	-0.989	1.111	0.022	0.3384	0.7066	0.0184
40	70.700	-0.585	1.515	0.451	0.3751	0.6699	0.0184
41	72.700	-0.300	1.800	0.736	0.6140	0.4309	-0.1949
42	74.700	-0.662	1.438	0.374	0.9218	0.1231	0.0308
43	76.700	-1.154	0.946	-0.118	0.9834	0.0615	0.0308
44	78.700	-1.523	0.577	-0.487	1.0449	0.0000	0.0308
45	80.700	-1.770	0.330	-0.759	0.0616	0.9833	0.0308
46	82.700	-1.893	0.207	-0.882	0.1232	0.9217	0.0308
47	84.700	-1.908	0.192	-0.897	0.1541	0.8909	0.0000
48	86.700	-1.908	0.192	-0.897	0.1540	0.8910	0.0000
49	88.700	-1.908	0.192	-0.897	0.1540	0.8910	0.0000
50	90.700	-1.908	0.192	-0.897	0.1542	0.8907	0.0000
51	92.700	-1.908	0.192	-0.897	0.1543	0.8907	0.0000
52	94.700	-1.908	0.192	-0.897	0.1540	0.8909	0.0000
53	96.700	-1.908	0.192	-0.897	0.1542	0.8908	0.0000
54	98.700	-1.908	0.192	-0.897	0.1542	0.8907	0.0000
55	100.700	-1.871	0.229	-0.860	0.1911	0.8539	0.0184

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
56	102.700	-1.761	0.339	-0.750	0.2280	0.8169	0.0184
57	104.700	-1.577	0.523	-0.566	0.2642	0.7807	0.0184
58	106.700	-1.320	0.780	-0.309	0.3015	0.7434	0.0184
59	108.700	-0.989	1.111	0.022	0.3384	0.7066	0.0184
60	110.700	-0.585	1.515	0.451	0.3751	0.6699	0.0184
61	112.700	-0.300	1.800	0.736	0.6140	0.4309	-0.1949
62	114.700	-0.662	1.438	0.374	0.9218	0.1231	0.0308
63	116.700	-1.154	0.946	-0.118	0.9834	0.0615	0.0308
64	118.700	-1.523	0.577	-0.487	1.0449	0.0000	0.0308
65	120.700	-1.770	0.330	-0.759	0.0616	0.9833	0.0308
66	122.700	-1.893	0.207	-0.882	0.1232	0.9217	0.0308
67	124.700	-1.908	0.192	-0.897	0.1541	0.8909	0.0000
68	126.700	-1.908	0.192	-0.897	0.1540	0.8910	0.0000
69	128.700	-1.908	0.192	-0.897	0.1540	0.8910	0.0000
70	130.700	-1.908	0.192	-0.897	0.1542	0.8907	0.0000
71	132.700	-1.908	0.192	-0.897	0.1543	0.8907	0.0000
72	134.700	-1.908	0.192	-0.897	0.1540	0.8909	0.0000
73	136.700	-1.908	0.192	-0.897	0.1542	0.8908	0.0000
74	138.700	-1.908	0.192	-0.897	0.1542	0.8907	0.0000
75	140.700	-1.871	0.229	-0.860	0.1911	0.8539	0.0184
76	142.700	-1.761	0.339	-0.750	0.2280	0.8169	0.0184
77	144.700	-1.577	0.523	-0.566	0.2642	0.7807	0.0184
78	146.700	-1.320	0.780	-0.309	0.3015	0.7434	0.0184
79	148.700	-0.989	1.111	0.022	0.3384	0.7066	0.0184
80	150.700	-0.585	1.515	0.451	0.3751	0.6699	0.0184
81	152.700	-0.300	1.800	0.736	0.6140	0.4309	-0.1949
82	154.700	-0.662	1.438	0.374	0.9218	0.1231	0.0308
83	156.700	-1.154	0.946	-0.118	0.9834	0.0615	0.0308
84	158.700	-1.523	0.577	-0.487	1.0449	0.0000	0.0308
85	160.700	-1.770	0.330	-0.759	0.0616	1.0289	0.0308
86	162.700	-1.893	0.207	-0.882	0.1232	0.9673	0.0308
87	164.700	-1.908	0.192	-0.897	0.1541	0.9365	0.0000
88	166.700	-1.908	0.192	-0.897	0.1540	0.9366	0.0000
89	168.700	-1.908	0.192	-0.897	0.1540	0.9366	0.0000
90	170.700	-1.908	0.192	-0.897	0.1542	0.9363	0.0000
91	172.700	-1.908	0.192	-0.897	0.1543	0.9363	0.0000
92	174.700	-1.908	0.192	-0.897	0.1540	0.9365	0.0000
93	176.700	-1.908	0.192	-0.897	0.1542	0.9364	0.0000
94	178.700	-1.908	0.192	-0.897	0.1542	0.9363	0.0000
95	180.700	-1.871	0.229	-0.860	0.1911	0.8995	0.0184
96	182.700	-1.761	0.339	-0.750	0.2280	0.8626	0.0184
97	184.700	-1.577	0.523	-0.566	0.2642	0.8263	0.0184
98	186.700	-1.320	0.780	-0.309	0.3015	0.7890	0.0184
99	188.700	-0.989	1.111	0.022	0.3384	0.7522	0.0184
100	190.700	-0.585	1.515	0.451	0.3751	0.7155	0.0184
101	192.700	-0.300	1.800	0.736	0.6140	0.4765	-0.2188
102	194.450	-0.627	1.473	0.409	0.9521	0.1385	0.0395
103	196.200	-1.123	0.977	-0.087	1.0214	0.0692	0.0395
104	197.950	-1.499	0.601	-0.463	1.0906	0.0000	0.0395
105	199.700	-1.753	0.347	-0.742	0.0692	1.1023	0.0395
106	201.450	-1.886	0.214	-0.875	0.1384	1.0331	0.0395
107	203.200	-1.908	0.192	-0.897	0.1800	0.9915	0.0000
108	204.950	-1.908	0.192	-0.897	0.1801	0.9913	0.0000
109	206.700	-1.908	0.192	-0.897	0.1801	0.9914	0.0000
110	208.450	-1.908	0.192	-0.897	0.1802	0.9913	0.0000

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
111	210.200	-1.908	0.192	-0.897	0.1801	0.9913	0.0000
112	211.950	-1.908	0.192	-0.897	0.1801	0.9913	0.0000
113	213.700	-1.908	0.192	-0.897	0.1800	0.9915	0.0000
114	215.450	-1.907	0.193	-0.896	0.1860	0.9855	0.0234
115	217.200	-1.861	0.239	-0.850	0.2272	0.9443	0.0234
116	218.950	-1.744	0.356	-0.733	0.2681	0.9034	0.0234
117	220.700	-1.554	0.546	-0.543	0.3091	0.8624	0.0234
118	222.450	-1.293	0.807	-0.282	0.3496	0.8219	0.0234
119	224.200	-0.961	1.139	0.050	0.3907	0.7808	0.0234
120	225.950	-0.557	1.543	0.479	0.4320	0.7394	0.0234
121	227.700	-0.300	1.800	0.736	0.6949	0.4765	-0.2188
122	229.450	-0.627	1.473	0.409	1.0330	0.1385	0.0395
123	231.200	-1.123	0.977	-0.087	1.1023	0.0692	0.0395
124	232.950	-1.499	0.601	-0.463	1.1715	0.0000	0.0395
125	234.700	-1.753	0.347	-0.742	0.0692	1.0951	0.0395
126	236.450	-1.886	0.214	-0.875	0.1384	1.0259	0.0395
127	238.200	-1.908	0.192	-0.897	0.1800	0.9843	0.0000
128	239.950	-1.908	0.192	-0.897	0.1801	0.9841	0.0000
129	241.700	-1.908	0.192	-0.897	0.1801	0.9842	0.0000
130	243.450	-1.908	0.192	-0.897	0.1802	0.9841	0.0000
131	245.200	-1.908	0.192	-0.897	0.1801	0.9842	0.0000
132	246.950	-1.908	0.192	-0.897	0.1801	0.9841	0.0000
133	248.700	-1.908	0.192	-0.897	0.1800	0.9843	0.0000
134	250.450	-1.907	0.193	-0.896	0.1860	0.9783	0.0234
135	252.200	-1.861	0.239	-0.850	0.2272	0.9371	0.0234
136	253.950	-1.744	0.356	-0.733	0.2681	0.8962	0.0234
137	255.700	-1.554	0.546	-0.543	0.3091	0.8552	0.0234
138	257.450	-1.293	0.807	-0.282	0.3496	0.8147	0.0234
139	259.200	-0.961	1.139	0.050	0.3907	0.7736	0.0234
140	260.950	-0.557	1.543	0.479	0.4320	0.7323	0.0234
141	262.700	-0.300	1.800	0.736	0.6949	0.4693	-0.2144
142	264.500	-0.636	1.464	0.400	1.0280	0.1363	0.0378
143	266.300	-1.133	0.967	-0.097	1.0961	0.0682	0.0378
144	268.100	-1.508	0.592	-0.472	1.1643	0.0000	0.0378
145	269.900	-1.760	0.340	-0.749	0.0682	1.0438	0.0378
146	271.700	-1.889	0.211	-0.878	0.1363	0.9757	0.0378
147	273.500	-1.908	0.192	-0.897	0.1741	0.9379	0.0000
148	275.300	-1.908	0.192	-0.897	0.1740	0.9380	0.0000
149	277.100	-1.908	0.192	-0.897	0.1741	0.9379	0.0000
150	278.900	-1.908	0.192	-0.897	0.1741	0.9379	0.0000
151	280.700	-1.908	0.192	-0.897	0.1743	0.9377	0.0000
152	282.500	-1.908	0.192	-0.897	0.1739	0.9381	0.0000
153	284.300	-1.908	0.192	-0.897	0.1743	0.9377	0.0000
154	286.100	-1.908	0.192	-0.897	0.1763	0.9358	0.0226
155	287.900	-1.867	0.233	-0.856	0.2170	0.8950	0.0226
156	289.700	-1.753	0.347	-0.742	0.2582	0.8539	0.0226
157	291.500	-1.566	0.534	-0.555	0.2985	0.8135	0.0226
158	293.300	-1.306	0.794	-0.295	0.3396	0.7724	0.0226
159	295.100	-0.972	1.128	0.039	0.3799	0.7321	0.0226
160	296.900	-0.565	1.535	0.471	0.4205	0.6915	0.0226
161	298.700	-0.300	1.800	0.736	0.6811	0.4309	-0.1949
162	300.700	-0.662	1.438	0.374	0.9889	0.1231	0.0308
163	302.700	-1.154	0.946	-0.118	1.0505	0.0615	0.0308
164	304.700	-1.523	0.577	-0.487	1.1120	0.0000	0.0308
165	306.700	-1.770	0.330	-0.759	0.0616	0.9895	0.0308
166	308.700	-1.893	0.207	-0.882	0.1232	0.9279	0.0308

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
167	310.700	-1.908	0.192	-0.897	0.1541	0.8970	0.0000
168	312.700	-1.908	0.192	-0.897	0.1540	0.8971	0.0000
169	314.700	-1.908	0.192	-0.897	0.1540	0.8971	0.0000
170	316.700	-1.908	0.192	-0.897	0.1542	0.8969	0.0000
171	318.700	-1.908	0.192	-0.897	0.1543	0.8968	0.0000
172	320.700	-1.908	0.192	-0.897	0.1540	0.8971	0.0000
173	322.700	-1.908	0.192	-0.897	0.1542	0.8969	0.0000
174	324.700	-1.908	0.192	-0.897	0.1542	0.8969	0.0000
175	326.700	-1.871	0.229	-0.860	0.1911	0.8600	0.0184
176	328.700	-1.761	0.339	-0.750	0.2280	0.8231	0.0184
177	330.700	-1.577	0.523	-0.566	0.2642	0.7869	0.0184
178	332.700	-1.320	0.780	-0.309	0.3015	0.7496	0.0184
179	334.700	-0.989	1.111	0.022	0.3384	0.7127	0.0184
180	336.700	-0.585	1.515	0.451	0.3751	0.6760	0.0184
181	338.700	-0.300	1.800	0.736	0.6140	0.4371	-0.1985
182	340.650	-0.654	1.446	0.382	0.9263	0.1248	0.0320
183	342.600	-1.146	0.954	-0.110	0.9888	0.0623	0.0320
184	344.550	-1.516	0.584	-0.480	1.0511	0.0000	0.0320
185	346.500	-1.764	0.336	-0.753	0.0625	1.0054	0.0320
186	348.450	-1.890	0.210	-0.879	0.1250	0.9428	0.0320
187	350.400	-1.908	0.192	-0.897	0.1585	0.9093	0.0000
188	352.350	-1.908	0.192	-0.897	0.1587	0.9091	0.0000
189	354.300	-1.908	0.192	-0.897	0.1586	0.9092	0.0000
190	356.250	-1.908	0.192	-0.897	0.1588	0.9090	0.0000
191	358.200	-1.908	0.192	-0.897	0.1588	0.9090	0.0000
192	360.150	-1.908	0.192	-0.897	0.1588	0.9090	0.0000
193	362.100	-1.908	0.192	-0.897	0.1585	0.9093	0.0000
194	364.050	-1.908	0.192	-0.897	0.1616	0.9062	0.0189
195	366.000	-1.866	0.234	-0.855	0.1986	0.8692	0.0189
196	367.950	-1.753	0.347	-0.742	0.2356	0.8322	0.0189
197	369.900	-1.567	0.533	-0.556	0.2725	0.7954	0.0189
198	371.850	-1.309	0.791	-0.298	0.3098	0.7581	0.0189
199	373.800	-0.980	1.120	0.031	0.3465	0.7213	0.0189
200	375.750	-0.578	1.522	0.458	0.3836	0.6842	0.0189
201	377.700	-0.300	1.800	0.736	0.6258	0.4421	-0.2210
202	379.110	-0.520	1.580	0.516	0.9375	0.1304	-0.2210
203	380.520	-0.951	1.149	0.085	1.0107	0.0571	0.0404
204	381.930	-1.303	0.797	-0.267	1.0678	0.0000	0.0404
205	383.340	-1.575	0.525	-0.564	0.0569	0.2003	0.0404
206	384.750	-1.766	0.334	-0.755	0.1139	0.1432	0.0404
207	386.160	-1.877	0.223	-0.866	0.1710	0.0862	0.0404
208	387.570	-1.908	0.192	-0.897	0.2211	0.0360	0.0000
209	388.980	-1.908	0.192	-0.897	0.2210	0.0361	0.0000
210	390.390	-1.908	0.192	-0.897	0.2210	0.0361	0.0000
211	391.800	-1.908	0.192	-0.897	0.2212	0.0359	0.0000
212	393.210	-1.908	0.192	-0.897	0.2212	0.0359	0.0000
213	394.620	-1.908	0.192	-0.897	0.2212	0.0360	0.0036
214	396.030	-1.904	0.196	-0.893	0.2265	0.0307	0.0036
215	397.440	-1.893	0.207	-0.882	0.2315	0.0257	0.0036
216	398.850	-1.875	0.225	-0.864	0.2369	0.0203	0.0036
217	400.260	-1.850	0.250	-0.839	0.2419	0.0153	0.0036
218	401.670	-1.817	0.283	-0.806	0.2473	0.0098	0.0036
219	403.080	-1.777	0.323	-0.766	0.2520	0.0052	0.0036
220	404.490	-1.730	0.370	-0.694	0.2571	0.0000	0.0036
221	405.900	-1.679	0.421	-0.643	0.2572	0.0000	0.0000

Referencia del Proyecto:

VIADUCTO CORNELLÀ(TRAZADO FAMILIA 4)

PROGRAMA DE CALCULO DE PRETENSADO EN NERVIOS DE UN EMPARRILLADO

DATOS GENERALES DE PRETENSADO

NUMERO DE NERVIOS = 1
NUMERO DE VANOS = 11
NUMERO DE SECCIONES POR VANO = 21
NUMERO DE MATERIALES = 3

LUZ DEL VANO =	1	L (m) =		32.70
LUZ DEL VANO =	2	L (m) =		40.00
LUZ DEL VANO =	3	L (m) =		40.00
LUZ DEL VANO =	4	L (m) =		40.00
LUZ DEL VANO =	5	L (m) =		40.00
LUZ DEL VANO =	6	L (m) =		35.00
LUZ DEL VANO =	7	L (m) =		35.00
LUZ DEL VANO =	8	L (m) =		36.00
LUZ DEL VANO =	9	L (m) =		40.00
LUZ DEL VANO =	10	L (m) =		39.00
LUZ DEL VANO =	11	L (m) =		28.20

COEFICIENTE DE ROZAMIENTO EN CURVA = 0.21
COEFICIENTE DE DESV. PARASITAS = 0.0060
RELAJACION = 0.04
RETRACCION mm/m = 0.177
COEF. FLUENCIA = 1.978

ACERO DE PRETENSADO (Kp/mm2)

LIMITE DE PROPORCIONALIDAD AL 0,2% = 170.00
TENSION DE ROTURA = 190.00
MODULO DE DEFORMACION = 19000.00

HORMIGON

MODULO DE DEFORMACION DURANTE TESADO (Kp/cm2) = 309000.00
MODULO DE DEFORMACION A 28 DIAS (Kp/cm2) = 320000.00

CARACTERISTICAS MECANICAS DE LA SECCION 1

AREA DE LA SECCION (m2) = 14.323
INERCIA DE LA SECCION (m2) = 5.7458
V_SUP. DE LA SECCION (m2) = 1.01
V_INF. DE LA SECCION (m2) = 1.09
CANTO DE LA SECCION (m2) = 2.10

CARACTERISTICAS MECANICAS DE LA SECCION 2

AREA DE LA SECCION (m2) = 20.048
INERCIA DE LA SECCION (m2) = 6.4312
V_SUP. DE LA SECCION (m2) = 1.04
V_INF. DE LA SECCION (m2) = 1.06
CANTO DE LA SECCION (m2) = 2.10

CARACTERISTICAS MECANICAS DE LA SECCION 3

AREA DE LA SECCION (m2) = 4.410
INERCIA DE LA SECCION (m2) = 1.6200
V_SUP. DE LA SECCION (m2) = 1.05
V_INF. DE LA SECCION (m2) = 1.05
CANTO DE LA SECCION (m2) = 2.10

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 1

Parametros de la parabola = 1
A = 0.00000 B = -0.14846 C = -0.69400
Origen = 0.00 Final = 1.40
Parametros de la parabola = 2
A = 0.00613 B = -0.16563 C = -0.68198
Origen = 1.40 Final = 13.50
Parametros de la parabola = 4
A = 0.00696 B = -0.18788 C = -0.53182
Origen = 13.50 Final = 27.00
Parametros de la parabola = 5
A = -0.03131 B = 1.87879 C = -28.43182
Origen = 27.00 Final = 30.00
Parametros de la parabola = 6
A = 0.00000 B = 0.00000 C = -0.25000
Origen = 30.00 Final = 32.70
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.25000
Origen = 36.50 Final = 39.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 2

Parametros de la parabola = 1
A = 0.00000 B = 0.00000 C = -0.25000
Origen = 0.00 Final = 2.00
Parametros de la parabola = 2
A = -0.03107 B = 0.12430 C = -0.37430
Origen = 2.00 Final = 5.00
Parametros de la parabola = 3
A = 0.00621 B = -0.24859 C = 0.55793
Origen = 5.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00661 B = -0.26451 C = 0.71712
Origen = 20.00 Final = 34.50
Parametros de la parabola = 6
A = -0.03196 B = 2.39714 C = -45.19643
Origen = 34.50 Final = 37.50
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.25000
Origen = 37.50 Final = 40.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 3

Parametros de la parabola = 1
A = 0.00000 B = 0.00000 C = -0.25000
Origen = 0.00 Final = 2.00
Parametros de la parabola = 2
A = -0.03107 B = 0.12430 C = -0.37430
Origen = 2.00 Final = 5.00
Parametros de la parabola = 3
A = 0.00621 B = -0.24859 C = 0.55793
Origen = 5.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00661 B = -0.26451 C = 0.71712
Origen = 20.00 Final = 34.50
Parametros de la parabola = 6
A = -0.03196 B = 2.39714 C = -45.19643
Origen = 34.50 Final = 37.50
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.25000
Origen = 37.50 Final = 40.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 4

Parametros de la parabola = 1
A = 0.00000 B = 0.00000 C = -0.25000
Origen = 0.00 Final = 2.00
Parametros de la parabola = 2
A = -0.03107 B = 0.12430 C = -0.37430
Origen = 2.00 Final = 5.00
Parametros de la parabola = 3
A = 0.00621 B = -0.24859 C = 0.55793
Origen = 5.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00661 B = -0.26451 C = 0.71712
Origen = 20.00 Final = 34.50
Parametros de la parabola = 6
A = -0.03196 B = 2.39714 C = -45.19643
Origen = 34.50 Final = 37.50
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.25000
Origen = 37.50 Final = 40.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 5

Parametros de la parabola = 1
A = 0.00000 B = 0.00000 C = -0.25000
Origen = 0.00 Final = 2.00
Parametros de la parabola = 2
A = -0.03107 B = 0.12430 C = -0.37430
Origen = 2.00 Final = 5.00
Parametros de la parabola = 3
A = 0.00621 B = -0.24859 C = 0.55793
Origen = 5.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00661 B = -0.26451 C = 0.71712
Origen = 20.00 Final = 34.50
Parametros de la parabola = 6
A = -0.03196 B = 2.39714 C = -45.19643
Origen = 34.50 Final = 37.50
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.25000
Origen = 37.50 Final = 40.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 6

Parametros de la parabola = 1
A = 0.00000 B = 0.00000 C = -0.25000
Origen = 0.00 Final = 2.00
Parametros de la parabola = 2
A = -0.04330 B = 0.17321 C = -0.42321
Origen = 2.00 Final = 4.50
Parametros de la parabola = 3
A = 0.00833 B = -0.29146 C = 0.62231
Origen = 4.50 Final = 17.50
Parametros de la parabola = 5
A = 0.00932 B = -0.32628 C = 0.92693
Origen = 17.50 Final = 29.50
Parametros de la parabola = 6
A = -0.03729 B = 2.42378 C = -39.63639
Origen = 29.50 Final = 32.50
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.25000
Origen = 32.50 Final = 35.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 7

Parametros de la parabola = 1
A = 0.00000 B = 0.00000 C = -0.25000
Origen = 0.00 Final = 2.00
Parametros de la parabola = 2
A = -0.04330 B = 0.17321 C = -0.42321
Origen = 2.00 Final = 4.50
Parametros de la parabola = 3
A = 0.00833 B = -0.29146 C = 0.62231
Origen = 4.50 Final = 17.50
Parametros de la parabola = 5
A = 0.00932 B = -0.32628 C = 0.92693
Origen = 17.50 Final = 29.50
Parametros de la parabola = 6
A = -0.03729 B = 2.42378 C = -39.63639
Origen = 29.50 Final = 32.50
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.25000
Origen = 32.50 Final = 35.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 8

Parametros de la parabola = 1
A = 0.00000 B = 0.00000 C = -0.25000
Origen = 0.00 Final = 2.10
Parametros de la parabola = 2
A = -0.04221 B = 0.17730 C = -0.43616
Origen = 2.10 Final = 4.60
Parametros de la parabola = 3
A = 0.00788 B = -0.28353 C = 0.62373
Origen = 4.60 Final = 18.00
Parametros de la parabola = 5
A = 0.00866 B = -0.31178 C = 0.87805
Origen = 18.00 Final = 30.50
Parametros de la parabola = 6
A = -0.03609 B = 2.41776 C = -40.74754
Origen = 30.50 Final = 33.50
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.25000
Origen = 33.50 Final = 36.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 9

Parametros de la parabola = 1
A = 0.00000 B = 0.00000 C = -0.25000
Origen = 0.00 Final = 2.00
Parametros de la parabola = 2
A = -0.03107 B = 0.12430 C = -0.37430
Origen = 2.00 Final = 5.00
Parametros de la parabola = 3
A = 0.00621 B = -0.24859 C = 0.55793
Origen = 5.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00661 B = -0.26451 C = 0.71712
Origen = 20.00 Final = 34.50
Parametros de la parabola = 6
A = -0.03196 B = 2.39714 C = -45.19643
Origen = 34.50 Final = 37.50
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.25000
Origen = 37.50 Final = 40.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 10

Parametros de la parabola = 1
A = 0.00000 B = 0.00000 C = -0.25000
Origen = 0.00 Final = 2.00
Parametros de la parabola = 2
A = -0.03196 B = 0.12785 C = -0.37785
Origen = 2.00 Final = 5.00
Parametros de la parabola = 3
A = 0.00661 B = -0.25790 C = 0.58652
Origen = 5.00 Final = 19.50
Parametros de la parabola = 5
A = 0.00705 B = -0.27497 C = 0.75292
Origen = 19.50 Final = 33.50
Parametros de la parabola = 6
A = -0.03290 B = 2.40184 C = -44.08364
Origen = 33.50 Final = 36.50
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.25000
Origen = 36.50 Final = 39.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 11

Parametros de la parabola = 1
A = 0.00000 B = 0.00000 C = -0.25000
Origen = 0.00 Final = 1.75
Parametros de la parabola = 2
A = -0.04092 B = 0.14323 C = -0.37533
Origen = 1.75 Final = 4.25
Parametros de la parabola = 3
A = 0.00809 B = -0.27337 C = 0.50995
Origen = 4.25 Final = 16.90
Parametros de la parabola = 5
A = 0.00880 B = -0.29733 C = 0.71240
Origen = 16.90 Final = 26.80
Parametros de la parabola = 6
A = 0.00000 B = 0.17417 C = -5.60569
Origen = 26.80 Final = 28.20
Parametros de la parabola = 7
A = 0.00000 B = 0.00000 C = -0.25000
Origen = 36.50 Final = 39.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
1	0.000	-0.694	1.406	0.342	0.0000	0.7230	0.0000
2	1.635	-0.936	1.164	0.075	0.0029	0.7201	0.0123
3	3.270	-1.158	0.942	-0.147	0.0229	0.7000	0.0123
4	4.905	-1.347	0.753	-0.336	0.0430	0.6800	0.0123
5	6.540	-1.503	0.597	-0.492	0.0631	0.6599	0.0123
6	8.175	-1.626	0.474	-0.615	0.0831	0.6398	0.0123
7	9.810	-1.716	0.384	-0.705	0.1032	0.6198	0.0123
8	11.445	-1.774	0.326	-0.763	0.1233	0.5997	0.0123
9	13.080	-1.799	0.301	-0.788	0.1433	0.5797	0.0123
10	14.715	-1.790	0.310	-0.779	0.1654	0.5576	0.0139
11	16.350	-1.743	0.357	-0.732	0.1882	0.5348	0.0139
12	17.985	-1.660	0.440	-0.649	0.2109	0.5121	0.0139
13	19.620	-1.539	0.561	-0.528	0.2336	0.4893	0.0139
14	21.255	-1.382	0.718	-0.371	0.2564	0.4666	0.0139
15	22.890	-1.186	0.914	-0.175	0.2791	0.4438	0.0139
16	24.525	-0.954	1.146	0.057	0.3019	0.4210	0.0139
17	26.160	-0.685	1.415	0.326	0.3247	0.3983	0.0139
18	27.795	-0.402	1.698	0.609	0.3862	0.3368	-0.0626
19	29.430	-0.260	1.840	0.751	0.4887	0.2343	-0.0626
20	31.065	-0.250	1.850	0.786	0.5242	0.1988	0.0000
21	32.700	-0.250	1.850	0.786	0.5241	0.1989	0.0000
22	34.700	-0.250	1.850	0.786	0.5241	0.1989	-0.0621
23	36.700	-0.374	1.726	0.662	0.6484	0.0746	-0.0621
24	38.700	-0.710	1.390	0.326	0.7230	0.0000	0.0124
25	40.700	-1.033	1.067	-0.022	0.0249	0.7318	0.0124
26	42.700	-1.307	0.793	-0.296	0.0498	0.7069	0.0124
27	44.700	-1.530	0.570	-0.519	0.0746	0.6821	0.0124
28	46.700	-1.704	0.396	-0.693	0.0995	0.6572	0.0124
29	48.700	-1.829	0.271	-0.818	0.1243	0.6324	0.0124
30	50.700	-1.903	0.197	-0.892	0.1492	0.6075	0.0124
31	52.700	-1.928	0.172	-0.917	0.1742	0.5825	0.0124
32	54.700	-1.902	0.198	-0.891	0.2005	0.5562	0.0132
33	56.700	-1.822	0.278	-0.811	0.2270	0.5297	0.0132
34	58.700	-1.690	0.410	-0.679	0.2533	0.5034	0.0132
35	60.700	-1.505	0.595	-0.494	0.2800	0.4767	0.0132
36	62.700	-1.267	0.833	-0.256	0.3064	0.4503	0.0132
37	64.700	-0.976	1.124	0.035	0.3328	0.4239	0.0132
38	66.700	-0.632	1.468	0.379	0.3591	0.3976	0.0132
39	68.700	-0.322	1.778	0.689	0.4619	0.2948	-0.0639
40	70.700	-0.250	1.850	0.786	0.5575	0.1991	0.0000
41	72.700	-0.250	1.850	0.786	0.5578	0.1989	0.0000
42	74.700	-0.250	1.850	0.786	0.5578	0.1989	-0.0621
43	76.700	-0.374	1.726	0.662	0.6821	0.0746	-0.0621
44	78.700	-0.710	1.390	0.326	0.7567	0.0000	0.0124
45	80.700	-1.033	1.067	-0.022	0.0249	0.7318	0.0124
46	82.700	-1.307	0.793	-0.296	0.0498	0.7069	0.0124
47	84.700	-1.530	0.570	-0.519	0.0746	0.6821	0.0124
48	86.700	-1.704	0.396	-0.693	0.0995	0.6572	0.0124
49	88.700	-1.829	0.271	-0.818	0.1243	0.6324	0.0124
50	90.700	-1.903	0.197	-0.892	0.1492	0.6075	0.0124
51	92.700	-1.928	0.172	-0.917	0.1742	0.5825	0.0124
52	94.700	-1.902	0.198	-0.891	0.2005	0.5562	0.0132
53	96.700	-1.822	0.278	-0.811	0.2270	0.5297	0.0132
54	98.700	-1.690	0.410	-0.679	0.2533	0.5034	0.0132
55	100.700	-1.505	0.595	-0.494	0.2800	0.4767	0.0132

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
56	102.700	-1.267	0.833	-0.256	0.3064	0.4503	0.0132
57	104.700	-0.976	1.124	0.035	0.3328	0.4239	0.0132
58	106.700	-0.632	1.468	0.379	0.3591	0.3976	0.0132
59	108.700	-0.322	1.778	0.689	0.4619	0.2948	-0.0639
60	110.700	-0.250	1.850	0.786	0.5575	0.1991	0.0000
61	112.700	-0.250	1.850	0.786	0.5578	0.1989	0.0000
62	114.700	-0.250	1.850	0.786	0.5578	0.1989	-0.0621
63	116.700	-0.374	1.726	0.662	0.6821	0.0746	-0.0621
64	118.700	-0.710	1.390	0.326	0.7567	0.0000	0.0124
65	120.700	-1.033	1.067	-0.022	0.0249	0.7318	0.0124
66	122.700	-1.307	0.793	-0.296	0.0498	0.7069	0.0124
67	124.700	-1.530	0.570	-0.519	0.0746	0.6821	0.0124
68	126.700	-1.704	0.396	-0.693	0.0995	0.6572	0.0124
69	128.700	-1.829	0.271	-0.818	0.1243	0.6324	0.0124
70	130.700	-1.903	0.197	-0.892	0.1492	0.6075	0.0124
71	132.700	-1.928	0.172	-0.917	0.1742	0.5825	0.0124
72	134.700	-1.902	0.198	-0.891	0.2005	0.5562	0.0132
73	136.700	-1.822	0.278	-0.811	0.2270	0.5297	0.0132
74	138.700	-1.690	0.410	-0.679	0.2533	0.5034	0.0132
75	140.700	-1.505	0.595	-0.494	0.2800	0.4767	0.0132
76	142.700	-1.267	0.833	-0.256	0.3064	0.4503	0.0132
77	144.700	-0.976	1.124	0.035	0.3328	0.4239	0.0132
78	146.700	-0.632	1.468	0.379	0.3591	0.3976	0.0132
79	148.700	-0.322	1.778	0.689	0.4619	0.2948	-0.0639
80	150.700	-0.250	1.850	0.786	0.5575	0.1991	0.0000
81	152.700	-0.250	1.850	0.786	0.5578	0.1989	0.0000
82	154.700	-0.250	1.850	0.786	0.5578	0.1989	-0.0621
83	156.700	-0.374	1.726	0.662	0.6821	0.0746	-0.0621
84	158.700	-0.710	1.390	0.326	0.7567	0.0000	0.0124
85	160.700	-1.033	1.067	-0.022	0.0249	0.7619	0.0124
86	162.700	-1.307	0.793	-0.296	0.0498	0.7370	0.0124
87	164.700	-1.530	0.570	-0.519	0.0746	0.7122	0.0124
88	166.700	-1.704	0.396	-0.693	0.0995	0.6873	0.0124
89	168.700	-1.829	0.271	-0.818	0.1243	0.6625	0.0124
90	170.700	-1.903	0.197	-0.892	0.1492	0.6376	0.0124
91	172.700	-1.928	0.172	-0.917	0.1742	0.6126	0.0124
92	174.700	-1.902	0.198	-0.891	0.2005	0.5863	0.0132
93	176.700	-1.822	0.278	-0.811	0.2270	0.5598	0.0132
94	178.700	-1.690	0.410	-0.679	0.2533	0.5335	0.0132
95	180.700	-1.505	0.595	-0.494	0.2800	0.5068	0.0132
96	182.700	-1.267	0.833	-0.256	0.3064	0.4804	0.0132
97	184.700	-0.976	1.124	0.035	0.3328	0.4540	0.0132
98	186.700	-0.632	1.468	0.379	0.3591	0.4277	0.0132
99	188.700	-0.322	1.778	0.689	0.4619	0.3249	-0.0639
100	190.700	-0.250	1.850	0.786	0.5575	0.2292	0.0000
101	192.700	-0.250	1.850	0.786	0.5578	0.2290	0.0000
102	194.450	-0.250	1.850	0.786	0.5578	0.2290	0.0000
103	196.200	-0.347	1.753	0.689	0.6877	0.0991	-0.0866
104	197.950	-0.678	1.422	0.358	0.7868	0.0000	0.0167
105	199.700	-1.010	1.090	0.001	0.0291	0.8515	0.0167
106	201.450	-1.290	0.810	-0.279	0.0582	0.8223	0.0167
107	203.200	-1.520	0.580	-0.509	0.0875	0.7931	0.0167
108	204.950	-1.698	0.402	-0.687	0.1166	0.7639	0.0167
109	206.700	-1.826	0.274	-0.815	0.1457	0.7349	0.0167
110	208.450	-1.902	0.198	-0.891	0.1749	0.7057	0.0167

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
111	210.200	-1.928	0.172	-0.917	0.2041	0.6765	0.0167
112	211.950	-1.899	0.201	-0.888	0.2365	0.6441	0.0186
113	213.700	-1.814	0.286	-0.803	0.2692	0.6114	0.0186
114	215.450	-1.671	0.429	-0.660	0.3019	0.5787	0.0186
115	217.200	-1.471	0.629	-0.460	0.3347	0.5459	0.0186
116	218.950	-1.214	0.886	-0.203	0.3671	0.5135	0.0186
117	220.700	-0.900	1.200	0.111	0.3999	0.4807	0.0186
118	222.450	-0.532	1.568	0.479	0.4464	0.4342	-0.0746
119	224.200	-0.287	1.813	0.724	0.5770	0.3036	-0.0746
120	225.950	-0.250	1.850	0.786	0.6516	0.2290	0.0000
121	227.700	-0.250	1.850	0.786	0.6516	0.2290	0.0000
122	229.450	-0.250	1.850	0.786	0.6516	0.2290	0.0000
123	231.200	-0.347	1.753	0.689	0.7815	0.0991	-0.0866
124	232.950	-0.678	1.422	0.358	0.8806	0.0000	0.0167
125	234.700	-1.010	1.090	0.001	0.0291	0.8462	0.0167
126	236.450	-1.290	0.810	-0.279	0.0582	0.8170	0.0167
127	238.200	-1.520	0.580	-0.509	0.0875	0.7878	0.0167
128	239.950	-1.698	0.402	-0.687	0.1166	0.7586	0.0167
129	241.700	-1.826	0.274	-0.815	0.1457	0.7296	0.0167
130	243.450	-1.902	0.198	-0.891	0.1749	0.7003	0.0167
131	245.200	-1.928	0.172	-0.917	0.2041	0.6712	0.0167
132	246.950	-1.899	0.201	-0.888	0.2365	0.6388	0.0186
133	248.700	-1.814	0.286	-0.803	0.2692	0.6061	0.0186
134	250.450	-1.671	0.429	-0.660	0.3019	0.5733	0.0186
135	252.200	-1.471	0.629	-0.460	0.3347	0.5406	0.0186
136	253.950	-1.214	0.886	-0.203	0.3671	0.5081	0.0186
137	255.700	-0.900	1.200	0.111	0.3999	0.4754	0.0186
138	257.450	-0.532	1.568	0.479	0.4464	0.4289	-0.0746
139	259.200	-0.287	1.813	0.724	0.5770	0.2983	-0.0746
140	260.950	-0.250	1.850	0.786	0.6516	0.2237	0.0000
141	262.700	-0.250	1.850	0.786	0.6516	0.2237	0.0000
142	264.500	-0.250	1.850	0.786	0.6516	0.2237	0.0000
143	266.300	-0.345	1.755	0.691	0.7783	0.0970	-0.0844
144	268.100	-0.678	1.422	0.358	0.8753	0.0000	0.0158
145	269.900	-1.009	1.091	0.002	0.0284	0.8022	0.0158
146	271.700	-1.290	0.810	-0.279	0.0568	0.7739	0.0158
147	273.500	-1.520	0.580	-0.509	0.0851	0.7456	0.0158
148	275.300	-1.698	0.402	-0.687	0.1134	0.7172	0.0158
149	277.100	-1.826	0.274	-0.815	0.1418	0.6888	0.0158
150	278.900	-1.902	0.198	-0.891	0.1701	0.6606	0.0158
151	280.700	-1.928	0.172	-0.917	0.1986	0.6320	0.0158
152	282.500	-1.900	0.200	-0.889	0.2296	0.6010	0.0173
153	284.300	-1.816	0.284	-0.805	0.2608	0.5698	0.0173
154	286.100	-1.675	0.425	-0.664	0.2921	0.5386	0.0173
155	287.900	-1.479	0.621	-0.468	0.3232	0.5074	0.0173
156	289.700	-1.226	0.874	-0.215	0.3546	0.4760	0.0173
157	291.500	-0.918	1.182	0.093	0.3855	0.4452	0.0173
158	293.300	-0.553	1.547	0.458	0.4222	0.4084	-0.0722
159	295.100	-0.294	1.806	0.717	0.5520	0.2786	-0.0722
160	296.900	-0.250	1.850	0.786	0.6313	0.1993	0.0000
161	298.700	-0.250	1.850	0.786	0.6317	0.1989	0.0000
162	300.700	-0.250	1.850	0.786	0.6317	0.1989	-0.0621
163	302.700	-0.374	1.726	0.662	0.7561	0.0746	-0.0621
164	304.700	-0.710	1.390	0.326	0.8306	0.0000	0.0124
165	306.700	-1.033	1.067	-0.022	0.0249	0.7360	0.0124
166	308.700	-1.307	0.793	-0.296	0.0498	0.7110	0.0124

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
167	310.700	-1.530	0.570	-0.519	0.0746	0.6862	0.0124
168	312.700	-1.704	0.396	-0.693	0.0995	0.6613	0.0124
169	314.700	-1.829	0.271	-0.818	0.1243	0.6365	0.0124
170	316.700	-1.903	0.197	-0.892	0.1492	0.6116	0.0124
171	318.700	-1.928	0.172	-0.917	0.1742	0.5867	0.0124
172	320.700	-1.902	0.198	-0.891	0.2005	0.5603	0.0132
173	322.700	-1.822	0.278	-0.811	0.2270	0.5338	0.0132
174	324.700	-1.690	0.410	-0.679	0.2533	0.5075	0.0132
175	326.700	-1.505	0.595	-0.494	0.2800	0.4808	0.0132
176	328.700	-1.267	0.833	-0.256	0.3064	0.4544	0.0132
177	330.700	-0.976	1.124	0.035	0.3328	0.4280	0.0132
178	332.700	-0.632	1.468	0.379	0.3591	0.4017	0.0132
179	334.700	-0.322	1.778	0.689	0.4619	0.2989	-0.0639
180	336.700	-0.250	1.850	0.786	0.5575	0.2033	0.0000
181	338.700	-0.250	1.850	0.786	0.5578	0.2030	0.0000
182	340.650	-0.250	1.850	0.786	0.5578	0.2030	0.0000
183	342.600	-0.365	1.735	0.671	0.6792	0.0816	-0.0639
184	344.550	-0.696	1.404	0.340	0.7608	0.0000	0.0132
185	346.500	-1.023	1.077	-0.012	0.0258	0.7526	0.0132
186	348.450	-1.299	0.801	-0.288	0.0516	0.7268	0.0132
187	350.400	-1.526	0.574	-0.515	0.0774	0.7010	0.0132
188	352.350	-1.702	0.398	-0.691	0.1031	0.6753	0.0132
189	354.300	-1.827	0.273	-0.816	0.1289	0.6495	0.0132
190	356.250	-1.903	0.197	-0.892	0.1547	0.6237	0.0132
191	358.200	-1.928	0.172	-0.917	0.1805	0.5979	0.0132
192	360.150	-1.901	0.199	-0.890	0.2080	0.5705	0.0141
193	362.100	-1.821	0.279	-0.810	0.2356	0.5429	0.0141
194	364.050	-1.687	0.413	-0.676	0.2630	0.5154	0.0141
195	366.000	-1.499	0.601	-0.488	0.2905	0.4879	0.0141
196	367.950	-1.258	0.842	-0.247	0.3180	0.4604	0.0141
197	369.900	-0.963	1.137	0.048	0.3456	0.4328	0.0141
198	371.850	-0.614	1.486	0.397	0.3731	0.4053	0.0141
199	373.800	-0.314	1.786	0.697	0.4836	0.2948	-0.0658
200	375.750	-0.250	1.850	0.786	0.5755	0.2029	0.0000
201	377.700	-0.250	1.850	0.786	0.5754	0.2030	0.0000
202	379.110	-0.250	1.850	0.786	0.5754	0.2030	0.0000
203	380.520	-0.297	1.803	0.739	0.6630	0.1154	-0.0818
204	381.930	-0.502	1.598	0.534	0.7784	0.0000	-0.0818
205	383.340	-0.775	1.325	0.236	0.0241	0.3564	0.0162
206	384.750	-1.015	1.085	-0.004	0.0469	0.3336	0.0162
207	386.160	-1.224	0.876	-0.213	0.0697	0.3108	0.0162
208	387.570	-1.400	0.700	-0.389	0.0925	0.2880	0.0162
209	388.980	-1.545	0.555	-0.534	0.1153	0.2652	0.0162
210	390.390	-1.657	0.443	-0.646	0.1381	0.2424	0.0162
211	391.800	-1.737	0.363	-0.726	0.1608	0.2197	0.0162
212	393.210	-1.784	0.316	-0.773	0.1838	0.1968	0.0162
213	394.620	-1.800	0.300	-0.789	0.2066	0.1739	0.0176
214	396.030	-1.782	0.318	-0.771	0.2313	0.1492	0.0176
215	397.440	-1.729	0.371	-0.718	0.2562	0.1243	0.0176
216	398.850	-1.641	0.459	-0.630	0.2810	0.0995	0.0176
217	400.260	-1.518	0.582	-0.507	0.3058	0.0747	0.0176
218	401.670	-1.360	0.740	-0.349	0.3305	0.0500	0.0176
219	403.080	-1.167	0.933	-0.156	0.3556	0.0249	0.0176
220	404.490	-0.940	1.160	0.096	0.3804	0.0001	0.0176
221	405.900	-0.694	1.406	0.342	0.3805	0.0000	0.0000

Referencia del Proyecto:

VIADUCTO CORNELLÀ(TRAZADO FAMILIA 5)

PROGRAMA DE CALCULO DE PRETENSADO EN NERVIOS DE UN EMPARRILLADO

DATOS GENERALES DE PRETENSADO

NUMERO DE NERVIOS = 1
NUMERO DE VANOS = 11
NUMERO DE SECCIONES POR VANO = 21
NUMERO DE MATERIALES = 3

LUZ DEL VANO =	1	L (m) =	32.70
LUZ DEL VANO =	2	L (m) =	40.00
LUZ DEL VANO =	3	L (m) =	40.00
LUZ DEL VANO =	4	L (m) =	40.00
LUZ DEL VANO =	5	L (m) =	40.00
LUZ DEL VANO =	6	L (m) =	35.00
LUZ DEL VANO =	7	L (m) =	35.00
LUZ DEL VANO =	8	L (m) =	36.00
LUZ DEL VANO =	9	L (m) =	40.00
LUZ DEL VANO =	10	L (m) =	39.00
LUZ DEL VANO =	11	L (m) =	28.20

COEFICIENTE DE ROZAMIENTO EN CURVA = 0.21
COEFICIENTE DE DESV. PARASITAS = 0.0060
RELAJACION = 0.04
RETRACCION mm/m = 0.177
COEF. FLUENCIA = 1.978

ACERO DE PRETENSADO (Kp/mm2)

LIMITE DE PROPORCIONALIDAD AL 0,2% = 170.00
TENSION DE ROTURA = 190.00
MODULO DE DEFORMACION = 19000.00

HORMIGON

MODULO DE DEFORMACION DURANTE TESADO (Kp/cm2) = 309000.00
MODULO DE DEFORMACION A 28 DIAS (Kp/cm2) = 320000.00

CARACTERISTICAS MECANICAS DE LA SECCION 1

AREA DE LA SECCION (m2) = 14.323
INERCIA DE LA SECCION (m2) = 5.7458
V_SUP. DE LA SECCION (m2) = 1.01
V_INF. DE LA SECCION (m2) = 1.09
CANTO DE LA SECCION (m2) = 2.10

CARACTERISTICAS MECANICAS DE LA SECCION 2

AREA DE LA SECCION (m2) = 20.048
INERCIA DE LA SECCION (m2) = 6.4312
V_SUP. DE LA SECCION (m2) = 1.04
V_INF. DE LA SECCION (m2) = 1.06
CANTO DE LA SECCION (m2) = 2.10

CARACTERISTICAS MECANICAS DE LA SECCION 3

AREA DE LA SECCION (m2) = 4.410
INERCIA DE LA SECCION (m2) = 1.6200
V_SUP. DE LA SECCION (m2) = 1.05
V_INF. DE LA SECCION (m2) = 1.05
CANTO DE LA SECCION (m2) = 2.10

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 1

Parametros de la parabola = 1
A = 0.00000 B = -0.07530 C = -1.23900
Origen = 0.00 Final = 1.40
Parametros de la parabola = 2
A = 0.00311 B = -0.08401 C = -1.23290
Origen = 1.40 Final = 13.50
Parametros de la parabola = 3
A = 0.00000 B = 0.00000 C = -1.80000
Origen = 13.50 Final = 16.20
Parametros de la parabola = 4
A = 0.00696 B = -0.22545 C = 0.02618
Origen = 16.20 Final = 29.70
Parametros de la parabola = 5
A = -0.03131 B = 2.04788 C = -33.73282
Origen = 29.70 Final = 32.70

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 2

Parametros de la parabola = 2
A = -0.07458 B = 0.00000 C = -0.25000
Origen = 0.00 Final = 1.50
Parametros de la parabola = 3
A = 0.00829 B = -0.24859 C = -0.06356
Origen = 1.50 Final = 15.00
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.92800
Origen = 15.00 Final = 22.50
Parametros de la parabola = 5
A = 0.00661 B = -0.29758 C = 1.41973
Origen = 22.50 Final = 37.00
Parametros de la parabola = 6
A = -0.03196 B = 2.55695 C = -51.38905
Origen = 37.00 Final = 40.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 3

Parametros de la parabola = 2
A = -0.07458 B = 0.00000 C = -0.25000
Origen = 0.00 Final = 1.50
Parametros de la parabola = 3
A = 0.00829 B = -0.24859 C = -0.06356
Origen = 1.50 Final = 15.00
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.92800
Origen = 15.00 Final = 22.50
Parametros de la parabola = 5
A = 0.00661 B = -0.29758 C = 1.41973
Origen = 22.50 Final = 37.00
Parametros de la parabola = 6
A = -0.03196 B = 2.55695 C = -51.38905
Origen = 37.00 Final = 40.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 4

Parametros de la parabola = 2
A = -0.07458 B = 0.00000 C = -0.25000
Origen = 0.00 Final = 1.50
Parametros de la parabola = 3
A = 0.00829 B = -0.24859 C = -0.06356
Origen = 1.50 Final = 15.00
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.92800
Origen = 15.00 Final = 22.50
Parametros de la parabola = 5
A = 0.00661 B = -0.29758 C = 1.41973
Origen = 22.50 Final = 37.00
Parametros de la parabola = 6
A = -0.03196 B = 2.55695 C = -51.38905
Origen = 37.00 Final = 40.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 5

Parametros de la parabola = 2
A = -0.07458 B = 0.00000 C = -0.25000
Origen = 0.00 Final = 1.50
Parametros de la parabola = 3
A = 0.00829 B = -0.24859 C = -0.06356
Origen = 1.50 Final = 15.00
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.92800
Origen = 15.00 Final = 22.50
Parametros de la parabola = 5
A = 0.00661 B = -0.29758 C = 1.41973
Origen = 22.50 Final = 37.00
Parametros de la parabola = 6
A = -0.03196 B = 2.55695 C = -51.38905
Origen = 37.00 Final = 40.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 6

Parametros de la parabola = 2
A = -0.08286 B = 0.00000 C = -0.25000
Origen = 0.00 Final = 1.50
Parametros de la parabola = 3
A = 0.01036 B = -0.27967 C = -0.04025
Origen = 1.50 Final = 13.50
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.92800
Origen = 13.50 Final = 20.50
Parametros de la parabola = 5
A = 0.00964 B = -0.39539 C = 2.12476
Origen = 20.50 Final = 32.50
Parametros de la parabola = 6
A = -0.04629 B = 3.24028 C = -56.95482
Origen = 32.50 Final = 35.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 7

Parametros de la parabola = 2
A = -0.08286 B = 0.00000 C = -0.25000
Origen = 0.00 Final = 1.50
Parametros de la parabola = 3
A = 0.01036 B = -0.27967 C = -0.04025
Origen = 1.50 Final = 13.50
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.92800
Origen = 13.50 Final = 20.50
Parametros de la parabola = 5
A = 0.00964 B = -0.39539 C = 2.12476
Origen = 20.50 Final = 32.50
Parametros de la parabola = 6
A = -0.04629 B = 3.24028 C = -56.95482
Origen = 32.50 Final = 35.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 8

Parametros de la parabola = 2
A = -0.08048 B = 0.00000 C = -0.25000
Origen = 0.00 Final = 1.50
Parametros de la parabola = 3
A = 0.00974 B = -0.27065 C = -0.04702
Origen = 1.50 Final = 13.90
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.92800
Origen = 13.90 Final = 21.50
Parametros de la parabola = 5
A = 0.00964 B = -0.41468 C = 2.52979
Origen = 21.50 Final = 33.50
Parametros de la parabola = 6
A = -0.04629 B = 3.33285 C = -60.24139
Origen = 33.50 Final = 36.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 9

Parametros de la parabola = 2
A = -0.07458 B = 0.00000 C = -0.25000
Origen = 0.00 Final = 1.50
Parametros de la parabola = 3
A = 0.00829 B = -0.24859 C = -0.06356
Origen = 1.50 Final = 15.00
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.92800
Origen = 15.00 Final = 22.50
Parametros de la parabola = 5
A = 0.00661 B = -0.29758 C = 1.41973
Origen = 22.50 Final = 37.00
Parametros de la parabola = 6
A = -0.03196 B = 2.55695 C = -51.38905
Origen = 37.00 Final = 40.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 10

Parametros de la parabola = 2
A = -0.07508 B = 0.00000 C = -0.25000
Origen = 0.00 Final = 1.50
Parametros de la parabola = 3
A = 0.00840 B = -0.25045 C = -0.06216
Origen = 1.50 Final = 14.90
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.92800
Origen = 14.90 Final = 21.50
Parametros de la parabola = 5
A = 0.00661 B = -0.28435 C = 1.12877
Origen = 21.50 Final = 36.00
Parametros de la parabola = 6
A = -0.03196 B = 2.49303 C = -48.86405
Origen = 36.00 Final = 39.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 11

Parametros de la parabola = 2
A = -0.05688 B = 0.00000 C = -0.25000
Origen = 0.00 Final = 2.50
Parametros de la parabola = 3
A = 0.01693 B = -0.36905 C = 0.21131
Origen = 2.50 Final = 10.90
Parametros de la parabola = 4
A = 0.00000 B = 0.00000 C = -1.80000
Origen = 10.90 Final = 16.90
Parametros de la parabola = 5
A = 0.00446 B = -0.15081 C = -0.52562
Origen = 16.90 Final = 26.80
Parametros de la parabola = 6
A = 0.00000 B = 0.08835 C = -3.73037
Origen = 26.80 Final = 28.20

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
1	0.000	-1.239	0.861	-0.203	0.0000	0.7496	0.0000
2	1.635	-1.362	0.738	-0.351	0.0015	0.7481	0.0062
3	3.270	-1.474	0.626	-0.463	0.0116	0.7379	0.0062
4	4.905	-1.570	0.530	-0.559	0.0218	0.7277	0.0062
5	6.540	-1.649	0.451	-0.638	0.0320	0.7176	0.0062
6	8.175	-1.712	0.388	-0.701	0.0422	0.7074	0.0062
7	9.810	-1.758	0.342	-0.747	0.0523	0.6972	0.0062
8	11.445	-1.787	0.313	-0.776	0.0625	0.6870	0.0062
9	13.080	-1.799	0.301	-0.788	0.0727	0.6769	0.0062
10	14.715	-1.800	0.300	-0.789	0.0753	0.6743	0.0000
11	16.350	-1.800	0.300	-0.789	0.0774	0.6722	0.0139
12	17.985	-1.778	0.322	-0.767	0.1002	0.6494	0.0139
13	19.620	-1.719	0.381	-0.708	0.1229	0.6267	0.0139
14	21.255	-1.622	0.478	-0.611	0.1457	0.6039	0.0139
15	22.890	-1.489	0.611	-0.478	0.1684	0.5811	0.0139
16	24.525	-1.318	0.782	-0.307	0.1912	0.5584	0.0139
17	26.160	-1.110	0.990	-0.099	0.2139	0.5356	0.0139
18	27.795	-0.864	1.236	0.147	0.2367	0.5129	0.0139
19	29.430	-0.582	1.518	0.429	0.2594	0.4901	0.0139
20	31.065	-0.334	1.766	0.702	0.3488	0.4008	-0.0626
21	32.700	-0.250	1.850	0.786	0.4511	0.2984	-0.1492
22	34.700	-0.528	1.572	0.508	0.6832	0.0664	0.0166
23	36.700	-0.925	1.175	0.111	0.7163	0.0332	0.0166
24	38.700	-1.257	0.843	-0.221	0.7496	0.0000	0.0166
25	40.700	-1.522	0.578	-0.511	0.0331	0.7984	0.0166
26	42.700	-1.721	0.379	-0.710	0.0664	0.7651	0.0166
27	44.700	-1.853	0.247	-0.842	0.0994	0.7320	0.0166
28	46.700	-1.920	0.180	-0.909	0.1326	0.6988	0.0166
29	48.700	-1.928	0.172	-0.917	0.1492	0.6822	0.0000
30	50.700	-1.928	0.172	-0.917	0.1493	0.6821	0.0000
31	52.700	-1.928	0.172	-0.917	0.1494	0.6820	0.0000
32	54.700	-1.928	0.172	-0.917	0.1491	0.6823	0.0000
33	56.700	-1.913	0.187	-0.902	0.1691	0.6623	0.0132
34	58.700	-1.847	0.253	-0.836	0.1956	0.6358	0.0132
35	60.700	-1.728	0.372	-0.717	0.2222	0.6093	0.0132
36	62.700	-1.556	0.544	-0.545	0.2488	0.5826	0.0132
37	64.700	-1.331	0.769	-0.320	0.2747	0.5567	0.0132
38	66.700	-1.053	1.047	-0.042	0.3017	0.5298	0.0132
39	68.700	-0.723	1.377	0.288	0.3282	0.5032	0.0132
40	70.700	-0.378	1.722	0.658	0.4053	0.4261	-0.0639
41	72.700	-0.250	1.850	0.786	0.5330	0.2984	-0.1492
42	74.700	-0.528	1.572	0.508	0.7650	0.0664	0.0166
43	76.700	-0.925	1.175	0.111	0.7982	0.0332	0.0166
44	78.700	-1.257	0.843	-0.221	0.8314	0.0000	0.0166
45	80.700	-1.522	0.578	-0.511	0.0331	0.7984	0.0166
46	82.700	-1.721	0.379	-0.710	0.0664	0.7651	0.0166
47	84.700	-1.853	0.247	-0.842	0.0994	0.7320	0.0166
48	86.700	-1.920	0.180	-0.909	0.1326	0.6988	0.0166
49	88.700	-1.928	0.172	-0.917	0.1492	0.6822	0.0000
50	90.700	-1.928	0.172	-0.917	0.1493	0.6821	0.0000
51	92.700	-1.928	0.172	-0.917	0.1494	0.6820	0.0000
52	94.700	-1.928	0.172	-0.917	0.1491	0.6823	0.0000
53	96.700	-1.913	0.187	-0.902	0.1691	0.6623	0.0132
54	98.700	-1.847	0.253	-0.836	0.1956	0.6358	0.0132
55	100.700	-1.728	0.372	-0.717	0.2222	0.6093	0.0132

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
56	102.700	-1.556	0.544	-0.545	0.2488	0.5826	0.0132
57	104.700	-1.331	0.769	-0.320	0.2747	0.5567	0.0132
58	106.700	-1.053	1.047	-0.042	0.3017	0.5298	0.0132
59	108.700	-0.723	1.377	0.288	0.3282	0.5032	0.0132
60	110.700	-0.378	1.722	0.658	0.4053	0.4261	-0.0639
61	112.700	-0.250	1.850	0.786	0.5330	0.2984	-0.1492
62	114.700	-0.528	1.572	0.508	0.7650	0.0664	0.0166
63	116.700	-0.925	1.175	0.111	0.7982	0.0332	0.0166
64	118.700	-1.257	0.843	-0.221	0.8314	0.0000	0.0166
65	120.700	-1.522	0.578	-0.511	0.0331	0.7984	0.0166
66	122.700	-1.721	0.379	-0.710	0.0664	0.7651	0.0166
67	124.700	-1.853	0.247	-0.842	0.0994	0.7320	0.0166
68	126.700	-1.920	0.180	-0.909	0.1326	0.6988	0.0166
69	128.700	-1.928	0.172	-0.917	0.1492	0.6822	0.0000
70	130.700	-1.928	0.172	-0.917	0.1493	0.6821	0.0000
71	132.700	-1.928	0.172	-0.917	0.1494	0.6820	0.0000
72	134.700	-1.928	0.172	-0.917	0.1491	0.6823	0.0000
73	136.700	-1.913	0.187	-0.902	0.1691	0.6623	0.0132
74	138.700	-1.847	0.253	-0.836	0.1956	0.6358	0.0132
75	140.700	-1.728	0.372	-0.717	0.2222	0.6093	0.0132
76	142.700	-1.556	0.544	-0.545	0.2488	0.5826	0.0132
77	144.700	-1.331	0.769	-0.320	0.2747	0.5567	0.0132
78	146.700	-1.053	1.047	-0.042	0.3017	0.5298	0.0132
79	148.700	-0.723	1.377	0.288	0.3282	0.5032	0.0132
80	150.700	-0.378	1.722	0.658	0.4053	0.4261	-0.0639
81	152.700	-0.250	1.850	0.786	0.5330	0.2984	-0.1492
82	154.700	-0.528	1.572	0.508	0.7650	0.0664	0.0166
83	156.700	-0.925	1.175	0.111	0.7982	0.0332	0.0166
84	158.700	-1.257	0.843	-0.221	0.8314	0.0000	0.0166
85	160.700	-1.522	0.578	-0.511	0.0331	0.8262	0.0166
86	162.700	-1.721	0.379	-0.710	0.0664	0.7929	0.0166
87	164.700	-1.853	0.247	-0.842	0.0994	0.7598	0.0166
88	166.700	-1.920	0.180	-0.909	0.1326	0.7266	0.0166
89	168.700	-1.928	0.172	-0.917	0.1492	0.7101	0.0000
90	170.700	-1.928	0.172	-0.917	0.1493	0.7100	0.0000
91	172.700	-1.928	0.172	-0.917	0.1494	0.7098	0.0000
92	174.700	-1.928	0.172	-0.917	0.1491	0.7101	0.0000
93	176.700	-1.913	0.187	-0.902	0.1691	0.6901	0.0132
94	178.700	-1.847	0.253	-0.836	0.1956	0.6636	0.0132
95	180.700	-1.728	0.372	-0.717	0.2222	0.6371	0.0132
96	182.700	-1.556	0.544	-0.545	0.2488	0.6105	0.0132
97	184.700	-1.331	0.769	-0.320	0.2747	0.5845	0.0132
98	186.700	-1.053	1.047	-0.042	0.3017	0.5576	0.0132
99	188.700	-0.723	1.377	0.288	0.3282	0.5310	0.0132
100	190.700	-0.378	1.722	0.658	0.4053	0.4540	-0.0639
101	192.700	-0.250	1.850	0.786	0.5330	0.3262	-0.1657
102	194.450	-0.498	1.602	0.538	0.7868	0.0724	0.0207
103	196.200	-0.892	1.208	0.144	0.8230	0.0362	0.0207
104	197.950	-1.223	0.877	-0.187	0.8593	0.0000	0.0207
105	199.700	-1.490	0.610	-0.479	0.0364	0.9238	0.0207
106	201.450	-1.694	0.406	-0.683	0.0726	0.8876	0.0207
107	203.200	-1.835	0.265	-0.824	0.1089	0.8514	0.0207
108	204.950	-1.912	0.188	-0.901	0.1452	0.8150	0.0207
109	206.700	-1.928	0.172	-0.917	0.1710	0.7892	0.0000
110	208.450	-1.928	0.172	-0.917	0.1711	0.7892	0.0000

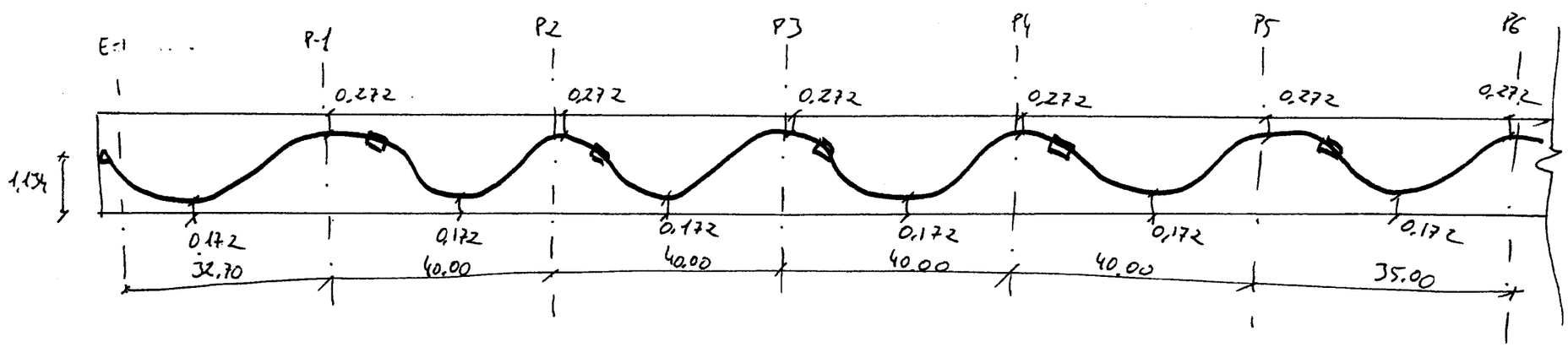
DEFINICION DEL TRAZADO DEL NERVIO= 1

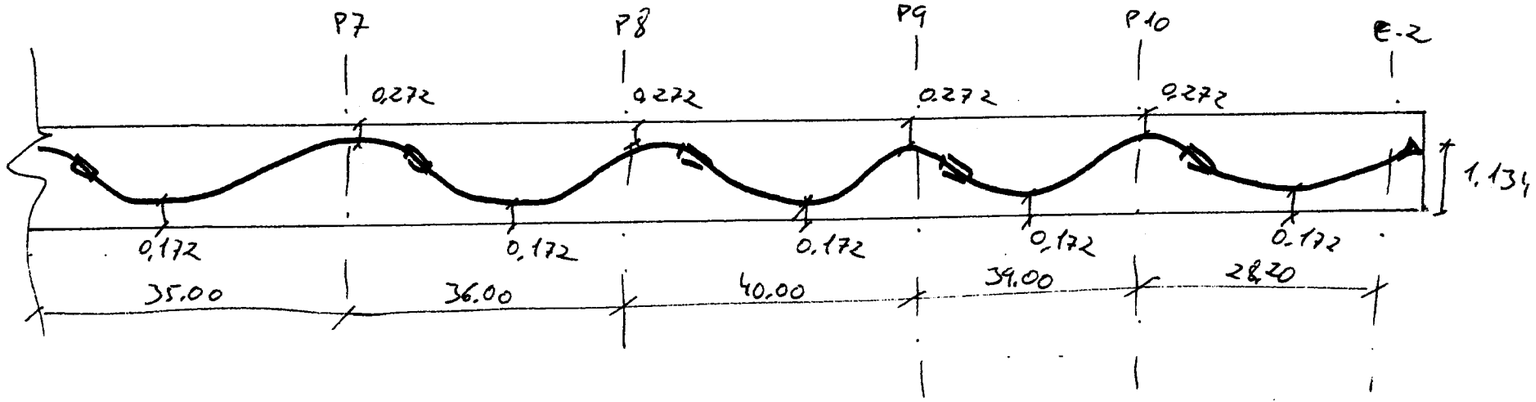
I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
111	210.200	-1.928	0.172	-0.917	0.1712	0.7891	0.0000
112	211.950	-1.928	0.172	-0.917	0.1712	0.7891	0.0000
113	213.700	-1.926	0.174	-0.915	0.1807	0.7796	0.0193
114	215.450	-1.879	0.221	-0.868	0.2146	0.7457	0.0193
115	217.200	-1.774	0.326	-0.763	0.2485	0.7117	0.0193
116	218.950	-1.609	0.491	-0.598	0.2822	0.6781	0.0193
117	220.700	-1.386	0.714	-0.375	0.3161	0.6441	0.0193
118	222.450	-1.103	0.997	-0.092	0.3496	0.6106	0.0193
119	224.200	-0.761	1.339	0.250	0.3835	0.5768	0.0193
120	225.950	-0.392	1.708	0.644	0.4726	0.4876	-0.0926
121	227.700	-0.250	1.850	0.786	0.6340	0.3262	-0.1657
122	229.450	-0.498	1.602	0.538	0.8878	0.0724	0.0207
123	231.200	-0.892	1.208	0.144	0.9240	0.0362	0.0207
124	232.950	-1.223	0.877	-0.187	0.9603	0.0000	0.0207
125	234.700	-1.490	0.610	-0.479	0.0364	0.9151	0.0207
126	236.450	-1.694	0.406	-0.683	0.0726	0.8789	0.0207
127	238.200	-1.835	0.265	-0.824	0.1089	0.8426	0.0207
128	239.950	-1.912	0.188	-0.901	0.1452	0.8063	0.0207
129	241.700	-1.928	0.172	-0.917	0.1710	0.7804	0.0000
130	243.450	-1.928	0.172	-0.917	0.1711	0.7804	0.0000
131	245.200	-1.928	0.172	-0.917	0.1712	0.7803	0.0000
132	246.950	-1.928	0.172	-0.917	0.1712	0.7803	0.0000
133	248.700	-1.926	0.174	-0.915	0.1807	0.7708	0.0193
134	250.450	-1.879	0.221	-0.868	0.2146	0.7369	0.0193
135	252.200	-1.774	0.326	-0.763	0.2485	0.7030	0.0193
136	253.950	-1.609	0.491	-0.598	0.2822	0.6693	0.0193
137	255.700	-1.386	0.714	-0.375	0.3161	0.6354	0.0193
138	257.450	-1.103	0.997	-0.092	0.3496	0.6018	0.0193
139	259.200	-0.761	1.339	0.250	0.3835	0.5680	0.0193
140	260.950	-0.392	1.708	0.644	0.4726	0.4788	-0.0926
141	262.700	-0.250	1.850	0.786	0.6340	0.3175	-0.1610
142	264.500	-0.503	1.597	0.533	0.8813	0.0702	0.0195
143	266.300	-0.895	1.205	0.141	0.9164	0.0351	0.0195
144	268.100	-1.225	0.875	-0.189	0.9515	0.0000	0.0195
145	269.900	-1.491	0.609	-0.480	0.0351	0.8922	0.0195
146	271.700	-1.694	0.406	-0.683	0.0701	0.8572	0.0195
147	273.500	-1.834	0.266	-0.823	0.1052	0.8221	0.0195
148	275.300	-1.912	0.188	-0.901	0.1403	0.7870	0.0195
149	277.100	-1.928	0.172	-0.917	0.1655	0.7618	0.0000
150	278.900	-1.928	0.172	-0.917	0.1656	0.7617	0.0000
151	280.700	-1.928	0.172	-0.917	0.1658	0.7615	0.0000
152	282.500	-1.928	0.172	-0.917	0.1654	0.7618	0.0000
153	284.300	-1.928	0.172	-0.917	0.1677	0.7596	0.0193
154	286.100	-1.893	0.207	-0.882	0.2022	0.7251	0.0193
155	287.900	-1.796	0.304	-0.785	0.2369	0.6904	0.0193
156	289.700	-1.636	0.464	-0.625	0.2720	0.6553	0.0193
157	291.500	-1.414	0.686	-0.403	0.3064	0.6209	0.0193
158	293.300	-1.129	0.971	-0.118	0.3413	0.5860	0.0193
159	295.100	-0.782	1.318	0.229	0.3759	0.5514	0.0193
160	296.900	-0.400	1.700	0.636	0.4622	0.4651	-0.0926
161	298.700	-0.250	1.850	0.786	0.6289	0.2984	-0.1492
162	300.700	-0.528	1.572	0.508	0.8609	0.0664	0.0166
163	302.700	-0.925	1.175	0.111	0.8941	0.0332	0.0166
164	304.700	-1.257	0.843	-0.221	0.9273	0.0000	0.0166
165	306.700	-1.522	0.578	-0.511	0.0331	0.7984	0.0166
166	308.700	-1.721	0.379	-0.710	0.0664	0.7651	0.0166

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
167	310.700	-1.853	0.247	-0.842	0.0994	0.7320	0.0166
168	312.700	-1.920	0.180	-0.909	0.1326	0.6988	0.0166
169	314.700	-1.928	0.172	-0.917	0.1492	0.6823	0.0000
170	316.700	-1.928	0.172	-0.917	0.1493	0.6821	0.0000
171	318.700	-1.928	0.172	-0.917	0.1494	0.6820	0.0000
172	320.700	-1.928	0.172	-0.917	0.1491	0.6823	0.0000
173	322.700	-1.913	0.187	-0.902	0.1691	0.6623	0.0132
174	324.700	-1.847	0.253	-0.836	0.1956	0.6358	0.0132
175	326.700	-1.728	0.372	-0.717	0.2222	0.6093	0.0132
176	328.700	-1.556	0.544	-0.545	0.2488	0.5827	0.0132
177	330.700	-1.331	0.769	-0.320	0.2747	0.5567	0.0132
178	332.700	-1.053	1.047	-0.042	0.3017	0.5298	0.0132
179	334.700	-0.723	1.377	0.288	0.3282	0.5032	0.0132
180	336.700	-0.378	1.722	0.658	0.4053	0.4262	-0.0639
181	338.700	-0.250	1.850	0.786	0.5330	0.2984	-0.1502
182	340.650	-0.519	1.581	0.517	0.7658	0.0656	0.0168
183	342.600	-0.911	1.189	0.125	0.7986	0.0328	0.0168
184	344.550	-1.240	0.860	-0.204	0.8314	0.0000	0.0168
185	346.500	-1.504	0.596	-0.493	0.0328	0.8466	0.0168
186	348.450	-1.705	0.395	-0.694	0.0655	0.8138	0.0168
187	350.400	-1.842	0.258	-0.831	0.0982	0.7811	0.0168
188	352.350	-1.915	0.185	-0.904	0.1312	0.7482	0.0168
189	354.300	-1.928	0.172	-0.917	0.1523	0.7271	0.0000
190	356.250	-1.928	0.172	-0.917	0.1523	0.7271	0.0000
191	358.200	-1.928	0.172	-0.917	0.1522	0.7271	0.0000
192	360.150	-1.928	0.172	-0.917	0.1522	0.7272	0.0000
193	362.100	-1.904	0.196	-0.893	0.1772	0.7022	0.0132
194	364.050	-1.830	0.270	-0.819	0.2032	0.6762	0.0132
195	366.000	-1.706	0.394	-0.695	0.2290	0.6503	0.0132
196	367.950	-1.531	0.569	-0.520	0.2547	0.6246	0.0132
197	369.900	-1.306	0.794	-0.295	0.2805	0.5989	0.0132
198	371.850	-1.030	1.070	-0.019	0.3065	0.5729	0.0132
199	373.800	-0.705	1.395	0.306	0.3322	0.5472	0.0132
200	375.750	-0.372	1.728	0.664	0.4115	0.4679	-0.0639
201	377.700	-0.250	1.850	0.786	0.5363	0.3430	-0.1138
202	379.110	-0.363	1.737	0.673	0.6968	0.1826	-0.1138
203	380.520	-0.695	1.405	0.341	0.8316	0.0478	0.0339
204	381.930	-1.047	1.053	-0.011	0.8794	0.0000	0.0339
205	383.340	-1.332	0.768	-0.321	0.0477	0.2665	0.0339
206	384.750	-1.549	0.551	-0.538	0.0955	0.2187	0.0339
207	386.160	-1.699	0.401	-0.688	0.1432	0.1710	0.0339
208	387.570	-1.782	0.318	-0.771	0.1910	0.1232	0.0339
209	388.980	-1.800	0.300	-0.789	0.2258	0.0884	0.0000
210	390.390	-1.800	0.300	-0.789	0.2259	0.0883	0.0000
211	391.800	-1.800	0.300	-0.789	0.2259	0.0883	0.0000
212	393.210	-1.800	0.300	-0.789	0.2259	0.0884	0.0000
213	394.620	-1.800	0.300	-0.789	0.2260	0.0882	0.0089
214	396.030	-1.791	0.309	-0.780	0.2387	0.0755	0.0089
215	397.440	-1.764	0.336	-0.753	0.2512	0.0630	0.0089
216	398.850	-1.719	0.381	-0.708	0.2639	0.0504	0.0089
217	400.260	-1.657	0.443	-0.646	0.2765	0.0377	0.0089
218	401.670	-1.577	0.523	-0.566	0.2891	0.0252	0.0089
219	403.080	-1.479	0.621	-0.468	0.3017	0.0126	0.0089
220	404.490	-1.364	0.736	-0.328	0.3142	0.0000	0.0089
221	405.900	-1.239	0.861	-0.203	0.3142	0.0000	0.0000

TROZADO MEDIO DEL PRETENSADO. PERFIL LONGITUDINAL.





CÁLCULO DE FUERZAS Y TENSIONES EN CABLES DE PRETENSADO CON TRAZADO MEDIO

Referencia del Proyecto:

VIADUCTO CORNELLÀ(TRAZADO MEDIO FASE 1)

PROGRAMA DE CALCULO DE PRETENSADO EN NERVIOS DE UN EMPARRILLADO

DATOS GENERALES DE PRETENSADO

NUMERO DE NERVIOS = 1
NUMERO DE VANOS = 2
NUMERO DE SECCIONES POR VANO = 21
NUMERO DE MATERIALES = 3
LUZ DEL VANO = 1 L (m) = 32.70
LUZ DEL VANO = 2 L (m) = 40.00

COEFICIENTE DE ROZAMIENTO EN CURVA = 0.21
COEFICIENTE DE DESV. PARASITAS = 0.0060
RELAJACION = 0.04
RETRACCION mm/m = 0.177
COEF. FLUENCIA = 1.978

ACERO DE PRETENSADO (Kp/mm2)

LIMITE DE PROPORCIONALIDAD AL 0,2% = 170.00
TENSION DE ROTURA = 190.00
MODULO DE DEFORMACION = 19000.00

HORMIGON

MODULO DE DEFORMACION DURANTE TESADO (Kp/cm2) = 309000.00
MODULO DE DEFORMACION A 28 DIAS (Kp/cm2) = 320000.00

CARACTERISTICAS MECANICAS DE LA SECCION 1

AREA DE LA SECCION (m2)	=	14.323
INERCIA DE LA SECCION (m2)	=	5.7458
V_SUP. DE LA SECCION (m2)	=	1.01
V_INF. DE LA SECCION (m2)	=	1.09
CANTO DE LA SECCION (m2)	=	2.10

CARACTERISTICAS MECANICAS DE LA SECCION 2

AREA DE LA SECCION (m2)	=	20.048
INERCIA DE LA SECCION (m2)	=	6.4312
V_SUP. DE LA SECCION (m2)	=	1.04
V_INF. DE LA SECCION (m2)	=	1.06
CANTO DE LA SECCION (m2)	=	2.10

CARACTERISTICAS MECANICAS DE LA SECCION 3

AREA DE LA SECCION (m2)	=	4.410
INERCIA DE LA SECCION (m2)	=	1.6200
V_SUP. DE LA SECCION (m2)	=	1.05
V_INF. DE LA SECCION (m2)	=	1.05
CANTO DE LA SECCION (m2)	=	2.10

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 1

Parametros de la parabola = 1
A = 0.00000 B = -0.08940 C = -1.13400
Origen = 0.00 Final = 1.40
Parametros de la parabola = 2
A = 0.00369 B = -0.09974 C = -1.12676
Origen = 1.40 Final = 13.50
Parametros de la parabola = 4
A = 0.00491 B = -0.13264 C = -0.90469
Origen = 13.50 Final = 29.70
Parametros de la parabola = 5
A = -0.02653 B = 1.73492 C = -28.63789
Origen = 29.70 Final = 32.70

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 2

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 20.00 Final = 37.00
Parametros de la parabola = 6
A = -0.02760 B = 2.20800 C = -44.43199
Origen = 37.00 Final = 40.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
1	0.000	-1.134	0.966	-0.098	0.0000	0.6048	0.0000
2	1.635	-1.280	0.820	-0.269	0.0028	0.6020	0.0074
3	3.270	-1.413	0.687	-0.402	0.0150	0.5899	0.0074
4	4.905	-1.527	0.573	-0.516	0.0271	0.5777	0.0074
5	6.540	-1.621	0.479	-0.610	0.0393	0.5656	0.0074
6	8.175	-1.695	0.405	-0.684	0.0514	0.5534	0.0074
7	9.810	-1.750	0.350	-0.739	0.0635	0.5413	0.0074
8	11.445	-1.784	0.316	-0.773	0.0757	0.5291	0.0074
9	13.080	-1.799	0.301	-0.788	0.0878	0.5170	0.0074
10	14.715	-1.793	0.307	-0.782	0.1029	0.5019	0.0098
11	16.350	-1.760	0.340	-0.749	0.1190	0.4858	0.0098
12	17.985	-1.701	0.399	-0.690	0.1352	0.4697	0.0098
13	19.620	-1.616	0.484	-0.605	0.1513	0.4535	0.0098
14	21.255	-1.505	0.595	-0.494	0.1674	0.4374	0.0098
15	22.890	-1.367	0.733	-0.356	0.1835	0.4213	0.0098
16	24.525	-1.203	0.897	-0.192	0.1996	0.4052	0.0098
17	26.160	-1.013	1.087	-0.002	0.2157	0.3891	0.0098
18	27.795	-0.796	1.304	0.215	0.2319	0.3729	0.0098
19	29.430	-0.553	1.547	0.458	0.2480	0.3569	0.0098
20	31.065	-0.343	1.757	0.693	0.3231	0.2817	-0.0531
21	32.700	-0.272	1.828	0.764	0.4099	0.1950	-0.0552
22	34.700	-0.382	1.718	0.654	0.5203	0.0845	-0.0552
23	36.700	-0.681	1.419	0.355	0.5853	0.0196	0.0097
24	38.700	-0.973	1.127	0.063	0.6048	0.0000	0.0097

SECCIONES INICIAL Y FINAL DEL TRAZADO = 1 24
NUMERO DE VANOS INICIAL Y FINAL DEL TRAZADO = 1 2
PENDIENTE INICIAL DEL TRAZADO = -0.08940
PENDIENTE FINAL DEL TRAZADO = -0.13638

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

NUMERO DE CABLES = 18

TENSION EN ANCLAJE IZQUIERDO (Kp/mm2) = 144.00
TESAMOS POR LA IZQUIERDA (SI=1) = 1
TENSION EN ANCLAJE DERECHO (Kp/mm2) = 144.00
TESAMOS POR LA DERECHA (SI=1) = 1

PROPORCION DE TESADO EN LA PRIMERA FASE 0.65
AREA DE PRETENSADO (cm2) = 663.60
PENETRACION DE CUNA EN EXTREMO 1 (mm) = 5.000
PENETRACION DE CUNA EN EXTREMO 2 (mm) = 5.000

LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-1 (m) = 19.08
LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-2 (m) = 12.10

TENSION EN LOS CABLES. PERDIDAS INSTANT. (Kp/mm2)

I	X	To	P_ROZ	P_CUNA	P_ELAS	Ti
1	0.00	93.60	0.00	9.96	0.96	82.68
2	1.63	93.60	0.25	9.46	1.33	82.56
3	3.27	93.60	0.68	8.61	1.59	82.72
4	4.90	93.60	1.10	7.75	1.90	82.85
5	6.54	93.60	1.53	6.90	2.21	82.96
6	8.18	93.60	1.95	6.05	2.50	83.10
7	9.81	93.60	2.38	5.21	2.73	83.28
8	11.45	93.60	2.80	4.37	2.90	83.54
9	13.08	93.60	3.21	3.53	2.98	83.87
10	14.72	93.60	3.68	2.59	2.96	84.36
11	16.35	93.60	4.17	1.62	2.83	84.98
12	17.99	93.60	4.66	0.00	2.62	86.32
13	19.62	93.60	5.14	0.00	2.28	86.18
14	21.26	93.60	5.62	0.00	1.90	86.08
15	22.89	93.60	6.10	0.00	1.55	85.95
16	24.53	93.60	6.57	0.00	1.28	85.75
17	26.16	93.60	7.05	0.00	1.16	85.39
18	27.80	93.60	7.52	0.69	1.28	84.11
19	29.43	93.60	7.77	0.19	1.53	84.12
20	31.07	93.60	6.22	3.28	2.02	82.08
21	32.70	93.60	4.43	6.86	2.23	80.08
22	34.70	93.60	2.11	11.50	1.79	78.19
23	36.70	93.60	0.62	14.49	1.05	77.44
24	38.70	93.60	0.00	15.72	0.76	77.12

ALARGAMIENTO DE LOS CABLES (sobre embolo)= 183.2 mm

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

TENSION EN LOS CABLES. PERDIDAS DIFERIDAS (Kp/mm2)

I	S	Ti	P_RETRA	P_FLUE	P_RELAJ.
1	0.00	82.68	0.00	0.00	0.00
2	1.63	82.56	0.00	0.00	0.00
3	3.27	82.72	0.00	0.00	0.00
4	4.90	82.85	0.00	0.00	0.00
5	6.54	82.96	0.00	0.00	0.00
6	8.18	83.10	0.00	0.00	0.00
7	9.81	83.28	0.00	0.00	0.00
8	11.45	83.54	0.00	0.00	0.00
9	13.08	83.87	0.00	0.00	0.00
10	14.72	84.36	0.00	0.00	0.00
11	16.35	84.98	0.00	0.00	0.00
12	17.99	86.32	0.00	0.00	0.00
13	19.62	86.18	0.00	0.00	0.00
14	21.26	86.08	0.00	0.00	0.00
15	22.89	85.95	0.00	0.00	0.00
16	24.53	85.75	0.00	0.00	0.00
17	26.16	85.39	0.00	0.00	0.00
18	27.80	84.11	0.00	0.00	0.00
19	29.43	84.12	0.00	0.00	0.00
20	31.07	82.08	0.00	0.00	0.00
21	32.70	80.08	0.00	0.00	0.00
22	34.70	78.19	0.00	0.00	0.00
23	36.70	77.44	0.00	0.00	0.00
24	38.70	77.12	0.00	0.00	0.00

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

TENSION EN LOS CABLES (Kp/mm2)

I	S	To	APi	Ti	APf	Tf
1	0.00	93.60	10.92	82.68	0.00	82.68
2	1.63	93.60	11.04	82.56	0.00	82.56
3	3.27	93.60	10.88	82.72	0.00	82.72
4	4.90	93.60	10.75	82.85	0.00	82.85
5	6.54	93.60	10.64	82.96	0.00	82.96
6	8.18	93.60	10.50	83.10	0.00	83.10
7	9.81	93.60	10.32	83.28	0.00	83.28
8	11.45	93.60	10.06	83.54	0.00	83.54
9	13.08	93.60	9.73	83.87	0.00	83.87
10	14.72	93.60	9.24	84.36	0.00	84.36
11	16.35	93.60	8.62	84.98	0.00	84.98
12	17.99	93.60	7.28	86.32	0.00	86.32
13	19.62	93.60	7.42	86.18	0.00	86.18
14	21.26	93.60	7.52	86.08	0.00	86.08
15	22.89	93.60	7.65	85.95	0.00	85.95
16	24.53	93.60	7.85	85.75	0.00	85.75
17	26.16	93.60	8.21	85.39	0.00	85.39
18	27.80	93.60	9.49	84.11	0.00	84.11
19	29.43	93.60	9.48	84.12	0.00	84.12
20	31.07	93.60	11.52	82.08	0.00	82.08
21	32.70	93.60	13.52	80.08	0.00	80.08
22	34.70	93.60	15.41	78.19	0.00	78.19
23	36.70	93.60	16.16	77.44	0.00	77.44
24	38.70	93.60	16.48	77.12	0.00	77.12

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

FUERZAS EN LOS CABLES (T, m)

I	S(m)	Pi (T)	Mpi (mT)	Upi (T/m)	Pf (T)	Mpf (mT)	Upf (T/m)
1	0.00	5486.40	537.7	0.00	5486.40	537.7	0.00
2	1.63	5478.37	1473.5	40.47	5478.37	1473.5	40.47
3	3.27	5489.61	2209.1	40.56	5489.61	2209.1	40.56
4	4.90	5497.74	2837.4	40.62	5497.74	2837.4	40.62
5	6.54	5505.30	3358.5	40.67	5505.30	3358.5	40.67
6	8.18	5514.37	3773.2	40.74	5514.37	3773.2	40.74
7	9.81	5526.70	4082.6	40.83	5526.70	4082.6	40.83
8	11.45	5543.59	4287.4	40.96	5543.59	4287.4	40.96
9	13.08	5565.86	4387.8	41.12	5565.86	4387.8	41.12
10	14.72	5598.08	4376.3	55.00	5598.08	4376.3	55.00
11	16.35	5639.14	4224.3	55.41	5639.14	4224.3	55.41
12	17.99	5728.50	3953.7	56.28	5728.50	3953.7	56.28
13	19.62	5719.12	3460.1	56.19	5719.12	3460.1	56.19
14	21.26	5712.02	2819.2	56.12	5712.02	2819.2	56.12
15	22.89	5703.80	2029.7	56.04	5703.80	2029.7	56.04
16	24.53	5690.24	1091.8	55.91	5690.24	1091.8	55.91
17	26.16	5666.44	9.3	55.67	5666.44	9.3	55.67
18	27.80	5581.73	-1199.3	54.84	5581.73	-1199.3	54.84
19	29.43	5581.91	-2554.5	54.84	5581.91	-2554.5	54.84
20	31.07	5446.79	-3775.1	-288.98	5446.79	-3775.1	-288.98
21	32.70	5313.98	-4059.9	-293.33	5313.98	-4059.9	-293.33
22	34.70	5188.94	-3391.5	-286.43	5188.94	-3391.5	-286.43
23	36.70	5139.24	-1823.8	50.06	5139.24	-1823.8	50.06
24	38.70	5117.65	-320.5	49.85	5117.65	-320.5	49.85

ETAPA DE TESADO INICIAL

FUERZAS HORIZONTALES DE DESVIACION

I	S(m)	R(m)	Ti (T)	Uh(T/m)	Tf(T)	Uh(T/m)
1	0.00	1300.0	5486.40	-4.22	5486.40	-4.22
2	1.63	1300.0	5478.37	-4.22	5478.37	-4.22
3	3.27	1300.0	5489.61	-4.23	5489.61	-4.23
4	4.90	1300.0	5497.74	-4.23	5497.74	-4.23
5	6.54	1300.0	5505.30	-4.24	5505.30	-4.24
6	8.18	1300.0	5514.37	-4.25	5514.37	-4.25
7	9.81	1300.0	5526.70	-4.26	5526.70	-4.26
8	11.45	1300.0	5543.59	-4.27	5543.59	-4.27
9	13.08	1300.0	5565.86	-4.29	5565.86	-4.29
10	14.72	1300.0	5598.08	-4.32	5598.08	-4.32
11	16.35	1300.0	5639.14	-4.37	5639.14	-4.37
12	17.99	1300.0	5728.50	-4.40	5728.50	-4.40
13	19.62	1300.0	5719.12	-4.40	5719.12	-4.40
14	21.26	1300.0	5712.02	-4.39	5712.02	-4.39
15	22.89	1300.0	5703.80	-4.38	5703.80	-4.38
16	24.53	1300.0	5690.24	-4.37	5690.24	-4.37
17	26.16	1300.0	5666.44	-4.33	5666.44	-4.33
18	27.80	1300.0	5581.73	-4.29	5581.73	-4.29
19	29.43	1300.0	5581.91	-4.24	5581.91	-4.24
20	31.07	1300.0	5446.79	-4.14	5446.79	-4.14
21	32.70	1300.0	5313.98	-4.04	5313.98	-4.04
22	34.70	1300.0	5188.94	-3.97	5188.94	-3.97
23	36.70	1300.0	5139.24	-3.94	5139.24	-3.94
24	38.70	1300.0	5117.65	-1.97	5117.65	-1.97

TESADO DEFINITIVO

PRETENSADO EN EL NERVIO = 1

NUMERO DE CABLES = 18

TENSION EN ANCLAJE IZQUIERDO (Kp/mm2) = 144.00
TESAMOS POR LA IZQUIERDA (SI=1) = 1
TENSION EN ANCLAJE DERECHO (Kp/mm2) = 144.00
TESAMOS POR LA DERECHA (SI=1) = 1

PROPORCION DE TESADO EN LA PRIMERA FASE 0.65
AREA DE PRETENSADO (cm2) = 663.60
PENETRACION DE CUNA EN EXTREMO 1 (mm) = 5.000
PENETRACION DE CUNA EN EXTREMO 2 (mm) = 5.000

LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-1 (m) = 15.62
LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-2 (m) = 8.64

TENSION EN LOS CABLES. PERDIDAS INSTANT. (Kp/mm2)

I	X	To	P_ROZ	P_CUNA	P_ELAS	Ti
1	0.00	144.00	0.00	12.17	1.52	130.32
2	1.63	144.00	0.38	11.40	2.10	130.12
3	3.27	144.00	1.04	10.08	2.51	130.37
4	4.90	144.00	1.70	8.77	2.99	130.54
5	6.54	144.00	2.35	7.46	3.48	130.71
6	8.18	144.00	3.01	6.15	3.93	130.91
7	9.81	144.00	3.65	4.86	4.30	131.19
8	11.45	144.00	4.30	3.56	4.56	131.57
9	13.08	144.00	4.94	2.28	4.69	132.09
10	14.72	144.00	5.67	2.59	4.61	131.13
11	16.35	144.00	6.42	1.62	4.39	131.58
12	17.99	144.00	7.17	0.00	4.03	132.81
13	19.62	144.00	7.91	0.00	3.50	132.59
14	21.26	144.00	8.65	0.00	2.93	132.43
15	22.89	144.00	9.38	0.00	2.38	132.23
16	24.53	144.00	10.11	0.00	1.97	131.92
17	26.16	144.00	10.84	0.00	1.79	131.37
18	27.80	144.00	11.56	0.69	1.98	129.77
19	29.43	144.00	11.95	0.19	2.35	129.51
20	31.07	144.00	9.57	2.94	3.16	128.34
21	32.70	144.00	6.82	8.44	3.49	125.25
22	34.70	144.00	3.24	15.59	2.81	122.36
23	36.70	144.00	0.95	20.18	1.64	121.23
24	38.70	144.00	0.00	22.08	1.19	120.74

ALARGAMIENTO DE LOS CABLES (sobre embolo)= 272.0 mm

PROGRAMA DE CALCULO DE PRETENSADO EN NERVIOS DE UN EMPARRILLADO

DATOS GENERALES DE PRETENSADO

NUMERO DE NERVIOS = 1
NUMERO DE VANOS = 3
NUMERO DE SECCIONES POR VANO = 21
NUMERO DE MATERIALES = 3
LUZ DEL VANO = 1 L (m) = 32.70
LUZ DEL VANO = 2 L (m) = 40.00
LUZ DEL VANO = 3 L (m) = 40.00

COEFICIENTE DE ROZAMIENTO EN CURVA = 0.21
COEFICIENTE DE DESV. PARASITAS = 0.0060
RELAJACION = 0.04
RETRACCION mm/m = 0.177
COEF. FLUENCIA = 1.978

ACERO DE PRETENSADO (Kp/mm2)

LIMITE DE PROPORCIONALIDAD AL 0,2% = 170.00
TENSION DE ROTURA = 190.00
MODULO DE DEFORMACION = 19000.00

HORMIGON

MODULO DE DEFORMACION DURANTE TESADO (Kp/cm2) = 309000.00
MODULO DE DEFORMACION A 28 DIAS (Kp/cm2) = 320000.00

CARACTERISTICAS MECANICAS DE LA SECCION 1

AREA DE LA SECCION (m2)	=	14.323
INERCIA DE LA SECCION (m2)	=	5.7458
V_SUP. DE LA SECCION (m2)	=	1.01
V_INF. DE LA SECCION (m2)	=	1.09
CANTO DE LA SECCION (m2)	=	2.10

CARACTERISTICAS MECANICAS DE LA SECCION 2

AREA DE LA SECCION (m2)	=	20.048
INERCIA DE LA SECCION (m2)	=	6.4312
V_SUP. DE LA SECCION (m2)	=	1.04
V_INF. DE LA SECCION (m2)	=	1.06
CANTO DE LA SECCION (m2)	=	2.10

CARACTERISTICAS MECANICAS DE LA SECCION 3

AREA DE LA SECCION (m2)	=	4.410
INERCIA DE LA SECCION (m2)	=	1.6200
V_SUP. DE LA SECCION (m2)	=	1.05
V_INF. DE LA SECCION (m2)	=	1.05
CANTO DE LA SECCION (m2)	=	2.10

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 1

Parametros de la parabola = 1
A = 0.00000 B = -0.08940 C = -1.13400
Origen = 0.00 Final = 1.40
Parametros de la parabola = 2
A = 0.00369 B = -0.09974 C = -1.12676
Origen = 1.40 Final = 13.50
Parametros de la parabola = 4
A = 0.00491 B = -0.13264 C = -0.90469
Origen = 13.50 Final = 29.70
Parametros de la parabola = 5
A = -0.02653 B = 1.73492 C = -28.63789
Origen = 29.70 Final = 32.70
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 2

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 20.00 Final = 37.00
Parametros de la parabola = 6
A = -0.02760 B = 2.20800 C = -44.43199
Origen = 37.00 Final = 40.00
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 3

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 20.00 Final = 37.00
Parametros de la parabola = 6
A = -0.02760 B = 2.20800 C = -44.43199
Origen = 37.00 Final = 40.00
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
24	38.700	-0.973	1.127	0.063	0.0000	0.6636	0.0097
25	40.700	-1.227	0.873	-0.216	0.0196	0.6441	0.0097
26	42.700	-1.441	0.659	-0.430	0.0392	0.6245	0.0097
27	44.700	-1.616	0.484	-0.605	0.0586	0.6050	0.0097
28	46.700	-1.753	0.347	-0.742	0.0782	0.5855	0.0097
29	48.700	-1.850	0.250	-0.839	0.0978	0.5659	0.0097
30	50.700	-1.909	0.191	-0.898	0.1174	0.5462	0.0097
31	52.700	-1.928	0.172	-0.917	0.1369	0.5267	0.0097
32	54.700	-1.909	0.191	-0.898	0.1564	0.5073	0.0097
33	56.700	-1.850	0.250	-0.839	0.1760	0.4877	0.0097
34	58.700	-1.753	0.347	-0.742	0.1955	0.4682	0.0097
35	60.700	-1.616	0.484	-0.605	0.2151	0.4486	0.0097
36	62.700	-1.441	0.659	-0.430	0.2347	0.4290	0.0097
37	64.700	-1.227	0.873	-0.216	0.2542	0.4095	0.0097
38	66.700	-0.973	1.127	0.038	0.2738	0.3898	0.0097
39	68.700	-0.681	1.419	0.330	0.2934	0.3702	0.0097
40	70.700	-0.382	1.718	0.654	0.3582	0.3054	-0.0552
41	72.700	-0.272	1.828	0.764	0.4687	0.1950	-0.0552
42	74.700	-0.382	1.718	0.654	0.5791	0.0845	-0.0552
43	76.700	-0.681	1.419	0.355	0.6441	0.0196	0.0097
44	78.700	-0.973	1.127	0.063	0.6636	0.0000	0.0097

SECCIONES INICIAL Y FINAL DEL TRAZADO = 24 44
NUMERO DE VANOS INICIAL Y FINAL DEL TRAZADO = 2 3
PENDIENTE INICIAL DEL TRAZADO = -0.13638
PENDIENTE FINAL DEL TRAZADO = -0.13638

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

NUMERO DE CABLES = 18

TENSION EN ANCLAJE IZQUIERDO (Kp/mm2) = 144.00
TESAMOS POR LA IZQUIERDA (SI=1) = 0
TENSION EN ANCLAJE DERECHO (Kp/mm2) = 144.00
TESAMOS POR LA DERECHA (SI=1) = 1

PROPORCION DE TESADO EN LA PRIMERA FASE 0.65
AREA DE PRETENSADO (cm2) = 663.60
PENETRACION DE CUNA EN EXTREMO 1 (mm) = 5.000
PENETRACION DE CUNA EN EXTREMO 2 (mm) = 5.000

LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-1 (m) = 15.62
LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-2 (m) = 11.27

TENSION EN LOS CABLES. PERDIDAS INSTANT. (Kp/mm2)

I	X	To	P_ROZ	P_CUNA	P_ELAS	Ti
24	38.70	93.60	0.00	22.08	0.63	70.89
25	40.70	93.60	15.66	0.00	1.17	76.77
26	42.70	93.60	15.14	0.00	1.54	76.91
27	44.70	93.60	14.62	0.00	2.03	76.94
28	46.70	93.60	14.10	0.00	2.54	76.96
29	48.70	93.60	13.57	0.00	2.97	77.06
30	50.70	93.60	13.04	0.00	3.26	77.30
31	52.70	93.60	12.50	0.00	3.38	77.72
32	54.70	93.60	11.96	0.00	3.30	78.33
33	56.70	93.60	11.42	0.00	3.05	79.13
34	58.70	93.60	10.88	0.00	2.64	80.09
35	60.70	93.60	10.32	0.00	2.14	81.13
36	62.70	93.60	9.77	0.00	1.65	82.18
37	64.70	93.60	9.21	0.00	1.27	83.12
38	66.70	93.60	8.65	0.00	1.15	83.80
39	68.70	93.60	8.09	0.72	1.24	83.55
40	70.70	93.60	6.70	3.50	1.87	81.54
41	72.70	93.60	4.43	8.03	2.20	78.94
42	74.70	93.60	2.11	12.67	1.77	77.05
43	76.70	93.60	0.62	15.65	1.04	76.30
44	78.70	93.60	0.00	16.89	0.75	75.97

ALARGAMIENTO DE LOS CABLES (sobre embolo)= 174.7 mm

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

TENSION EN LOS CABLES. PERDIDAS DIFERIDAS (Kp/mm2)

I	S	Ti	P_RETRA	P_FLUE	P_RELAJ.
24	38.70	70.89	0.00	0.00	0.00
25	40.70	76.77	0.00	0.00	0.00
26	42.70	76.91	0.00	0.00	0.00
27	44.70	76.94	0.00	0.00	0.00
28	46.70	76.96	0.00	0.00	0.00
29	48.70	77.06	0.00	0.00	0.00
30	50.70	77.30	0.00	0.00	0.00
31	52.70	77.72	0.00	0.00	0.00
32	54.70	78.33	0.00	0.00	0.00
33	56.70	79.13	0.00	0.00	0.00
34	58.70	80.09	0.00	0.00	0.00
35	60.70	81.13	0.00	0.00	0.00
36	62.70	82.18	0.00	0.00	0.00
37	64.70	83.12	0.00	0.00	0.00
38	66.70	83.80	0.00	0.00	0.00
39	68.70	83.55	0.00	0.00	0.00
40	70.70	81.54	0.00	0.00	0.00
41	72.70	78.94	0.00	0.00	0.00
42	74.70	77.05	0.00	0.00	0.00
43	76.70	76.30	0.00	0.00	0.00
44	78.70	75.97	0.00	0.00	0.00

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

TENSION EN LOS CABLES (Kp/mm2)

I	S	To	APi	Ti	APf	Tf
24	38.70	93.60	22.71	70.89	0.00	70.89
25	40.70	93.60	16.83	76.77	0.00	76.77
26	42.70	93.60	16.69	76.91	0.00	76.91
27	44.70	93.60	16.66	76.94	0.00	76.94
28	46.70	93.60	16.64	76.96	0.00	76.96
29	48.70	93.60	16.54	77.06	0.00	77.06
30	50.70	93.60	16.30	77.30	0.00	77.30
31	52.70	93.60	15.88	77.72	0.00	77.72
32	54.70	93.60	15.27	78.33	0.00	78.33
33	56.70	93.60	14.47	79.13	0.00	79.13
34	58.70	93.60	13.51	80.09	0.00	80.09
35	60.70	93.60	12.47	81.13	0.00	81.13
36	62.70	93.60	11.42	82.18	0.00	82.18
37	64.70	93.60	10.48	83.12	0.00	83.12
38	66.70	93.60	9.80	83.80	0.00	83.80
39	68.70	93.60	10.05	83.55	0.00	83.55
40	70.70	93.60	12.06	81.54	0.00	81.54
41	72.70	93.60	14.66	78.94	0.00	78.94
42	74.70	93.60	16.55	77.05	0.00	77.05
43	76.70	93.60	17.30	76.30	0.00	76.30
44	78.70	93.60	17.63	75.97	0.00	75.97

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

FUERZAS EN LOS CABLES (T, m)

I	S(m)	Pi (T)	Mpi (mT)	Upi (T/m)	Pf (T)	Mpf (mT)	Upf (T/m)
24	38.70	4704.53	-294.7	45.83	4704.53	-294.7	45.83
25	40.70	5094.23	1098.5	49.62	5094.23	1098.5	49.62
26	42.70	5103.97	2194.4	49.72	5103.97	2194.4	49.72
27	44.70	5105.93	3090.5	49.74	5105.93	3090.5	49.74
28	46.70	5107.37	3787.9	49.75	5107.37	3787.9	49.75
29	48.70	5113.93	4291.0	49.82	5113.93	4291.0	49.82
30	50.70	5129.81	4604.1	49.97	5129.81	4604.1	49.97
31	52.70	5157.51	4729.4	50.24	5157.51	4729.4	50.24
32	54.70	5198.09	4665.4	50.64	5198.09	4665.4	50.64
33	56.70	5251.28	4406.2	51.15	5251.28	4406.2	51.15
34	58.70	5314.46	3941.5	51.77	5314.46	3941.5	51.77
35	60.70	5383.89	3258.8	52.45	5383.89	3258.8	52.45
36	62.70	5453.63	2344.7	53.12	5453.63	2344.7	53.12
37	64.70	5515.77	1189.4	53.73	5515.77	1189.4	53.73
38	66.70	5561.08	-209.3	54.17	5561.08	-209.3	54.17
39	68.70	5544.70	-1829.0	54.01	5544.70	-1829.0	54.01
40	70.70	5410.89	-3536.6	-298.68	5410.89	-3536.6	-298.68
41	72.70	5238.75	-4002.4	-289.18	5238.75	-4002.4	-289.18
42	74.70	5113.35	-3342.1	-282.26	5113.35	-3342.1	-282.26
43	76.70	5062.95	-1796.7	49.32	5062.95	-1796.7	49.32
44	78.70	5041.08	-315.7	49.11	5041.08	-315.7	49.11

ETAPA DE TESADO INICIAL

FUERZAS HORIZONTALES DE DESVIACION

I	S(m)	R(m)	Ti (T)	Uh(T/m)	Tf(T)	Uh(T/m)
24	38.70	1300.0	4704.53	-3.77	4704.53	-3.77
25	40.70	1300.0	5094.23	-3.92	5094.23	-3.92
26	42.70	1300.0	5103.97	-3.93	5103.97	-3.93
27	44.70	1300.0	5105.93	-3.93	5105.93	-3.93
28	46.70	1300.0	5107.37	-3.93	5107.37	-3.93
29	48.70	1300.0	5113.93	-3.94	5113.93	-3.94
30	50.70	1300.0	5129.81	-3.96	5129.81	-3.96
31	52.70	1300.0	5157.51	-3.98	5157.51	-3.98
32	54.70	1300.0	5198.09	-4.02	5198.09	-4.02
33	56.70	1300.0	5251.28	-4.06	5251.28	-4.06
34	58.70	1300.0	5314.46	-4.11	5314.46	-4.11
35	60.70	1300.0	5383.89	-4.17	5383.89	-4.17
36	62.70	1300.0	5453.63	-4.22	5453.63	-4.22
37	64.70	1300.0	5515.77	-4.26	5515.77	-4.26
38	66.70	1300.0	5561.08	-4.27	5561.08	-4.27
39	68.70	1300.0	5544.70	-4.21	5544.70	-4.21
40	70.70	1300.0	5410.89	-4.10	5410.89	-4.10
41	72.70	1300.0	5238.75	-3.98	5238.75	-3.98
42	74.70	1300.0	5113.35	-3.91	5113.35	-3.91
43	76.70	1300.0	5062.95	-3.89	5062.95	-3.89
44	78.70	1300.0	5041.08	-1.94	5041.08	-1.94

TESADO DEFINITIVO

PRETENSADO EN EL NERVIO = 1

NUMERO DE CABLES = 18

TENSION EN ANCLAJE IZQUIERDO (Kp/mm2) = 144.00
TESAMOS POR LA IZQUIERDA (SI=1) = 0
TENSION EN ANCLAJE DERECHO (Kp/mm2) = 144.00
TESAMOS POR LA DERECHA (SI=1) = 1

PROPORCION DE TESADO EN LA PRIMERA FASE 0.65
AREA DE PRETENSADO (cm2) = 663.60
PENETRACION DE CUNA EN EXTREMO 1 (mm) = 5.000
PENETRACION DE CUNA EN EXTREMO 2 (mm) = 5.000

LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-1 (m) = 15.62
LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-2 (m) = 8.64

TENSION EN LOS CABLES. PERDIDAS INSTANT. (Kp/mm2)

I	X	To	P_ROZ	P_CUNA	P_ELAS	Ti
24	38.70	144.00	24.89	0.00	1.10	118.01
25	40.70	144.00	24.10	0.00	1.80	118.10
26	42.70	144.00	23.30	0.00	2.37	118.33
27	44.70	144.00	22.50	0.00	3.13	118.37
28	46.70	144.00	21.69	0.00	3.90	118.41
29	48.70	144.00	20.88	0.00	4.56	118.56
30	50.70	144.00	20.06	0.00	5.02	118.93
31	52.70	144.00	19.23	0.00	5.20	119.57
32	54.70	144.00	18.41	0.00	5.08	120.51
33	56.70	144.00	17.57	0.00	4.69	121.74
34	58.70	144.00	16.73	0.00	4.06	123.21
35	60.70	144.00	15.88	0.00	3.30	124.82
36	62.70	144.00	15.03	0.00	2.53	126.43
37	64.70	144.00	14.18	0.00	1.95	127.88
38	66.70	144.00	13.31	0.00	1.76	128.93
39	68.70	144.00	12.44	0.00	1.92	129.64
40	70.70	144.00	10.30	1.38	2.97	129.35
41	72.70	144.00	6.82	8.35	3.49	125.34
42	74.70	144.00	3.24	15.49	2.81	122.46
43	76.70	144.00	0.95	20.08	1.65	121.32
44	78.70	144.00	0.00	21.98	1.19	120.83

ALARGAMIENTO DE LOS CABLES (sobre embolo)= 264.3 mm

PROGRAMA DE CALCULO DE PRETENSADO EN NERVIOS DE UN EMPARRILLADO

DATOS GENERALES DE PRETENSADO

NUMERO DE NERVIOS = 1
NUMERO DE VANOS = 4
NUMERO DE SECCIONES POR VANO = 21
NUMERO DE MATERIALES = 3
LUZ DEL VANO = 1 L (m) = 32.70
LUZ DEL VANO = 2 L (m) = 40.00
LUZ DEL VANO = 3 L (m) = 40.00
LUZ DEL VANO = 4 L (m) = 40.00

COEFICIENTE DE ROZAMIENTO EN CURVA = 0.21
COEFICIENTE DE DESV. PARASITAS = 0.0060
RELAJACION = 0.04
RETRACCION mm/m = 0.177
COEF. FLUENCIA = 1.978

ACERO DE PRETENSADO (Kp/mm2)

LIMITE DE PROPORCIONALIDAD AL 0,2% = 170.00
TENSION DE ROTURA = 190.00
MODULO DE DEFORMACION = 19000.00

HORMIGON

MODULO DE DEFORMACION DURANTE TESADO (Kp/cm2) = 309000.00
MODULO DE DEFORMACION A 28 DIAS (Kp/cm2) = 320000.00

CARACTERISTICAS MECANICAS DE LA SECCION 1

AREA DE LA SECCION (m2)	=	14.323
INERCIA DE LA SECCION (m2)	=	5.7458
V_SUP. DE LA SECCION (m2)	=	1.01
V_INF. DE LA SECCION (m2)	=	1.09
CANTO DE LA SECCION (m2)	=	2.10

CARACTERISTICAS MECANICAS DE LA SECCION 2

AREA DE LA SECCION (m2)	=	20.048
INERCIA DE LA SECCION (m2)	=	6.4312
V_SUP. DE LA SECCION (m2)	=	1.04
V_INF. DE LA SECCION (m2)	=	1.06
CANTO DE LA SECCION (m2)	=	2.10

CARACTERISTICAS MECANICAS DE LA SECCION 3

AREA DE LA SECCION (m2)	=	4.410
INERCIA DE LA SECCION (m2)	=	1.6200
V_SUP. DE LA SECCION (m2)	=	1.05
V_INF. DE LA SECCION (m2)	=	1.05
CANTO DE LA SECCION (m2)	=	2.10

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 1

Parametros de la parabola = 1
A = 0.00000 B = -0.08940 C = -1.13400
Origen = 0.00 Final = 1.40
Parametros de la parabola = 2
A = 0.00369 B = -0.09974 C = -1.12676
Origen = 1.40 Final = 13.50
Parametros de la parabola = 4
A = 0.00491 B = -0.13264 C = -0.90469
Origen = 13.50 Final = 29.70
Parametros de la parabola = 5
A = -0.02653 B = 1.73492 C = -28.63789
Origen = 29.70 Final = 32.70

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 2

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 20.00 Final = 37.00
Parametros de la parabola = 6
A = -0.02760 B = 2.20800 C = -44.43199
Origen = 37.00 Final = 40.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 3

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 20.00 Final = 37.00
Parametros de la parabola = 6
A = -0.02760 B = 2.20800 C = -44.43199
Origen = 37.00 Final = 40.00

(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 4

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 20.00 Final = 37.00

Parametros de la parabola = 6
A = -0.02760 B = 2.20800 C = -44.43199
Origen = 37.00 Final = 40.00
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
44	78.700	-0.973	1.127	0.063	0.0000	0.6636	0.0097
45	80.700	-1.227	0.873	-0.216	0.0196	0.6441	0.0097
46	82.700	-1.441	0.659	-0.430	0.0392	0.6245	0.0097
47	84.700	-1.616	0.484	-0.605	0.0586	0.6050	0.0097
48	86.700	-1.753	0.347	-0.742	0.0782	0.5855	0.0097
49	88.700	-1.850	0.250	-0.839	0.0978	0.5659	0.0097
50	90.700	-1.909	0.191	-0.898	0.1174	0.5462	0.0097
51	92.700	-1.928	0.172	-0.917	0.1369	0.5267	0.0097
52	94.700	-1.909	0.191	-0.898	0.1564	0.5073	0.0097
53	96.700	-1.850	0.250	-0.839	0.1760	0.4877	0.0097
54	98.700	-1.753	0.347	-0.742	0.1955	0.4682	0.0097
55	100.700	-1.616	0.484	-0.605	0.2151	0.4486	0.0097
56	102.700	-1.441	0.659	-0.430	0.2347	0.4290	0.0097
57	104.700	-1.227	0.873	-0.216	0.2542	0.4095	0.0097
58	106.700	-0.973	1.127	0.038	0.2738	0.3898	0.0097
59	108.700	-0.681	1.419	0.330	0.2934	0.3702	0.0097
60	110.700	-0.382	1.718	0.654	0.3582	0.3054	-0.0552
61	112.700	-0.272	1.828	0.764	0.4687	0.1950	-0.0552
62	114.700	-0.382	1.718	0.654	0.5791	0.0845	-0.0552
63	116.700	-0.681	1.419	0.355	0.6441	0.0196	0.0097
64	118.700	-0.973	1.127	0.063	0.6636	0.0000	0.0097

SECCIONES INICIAL Y FINAL DEL TRAZADO = 44 64
NUMERO DE VANOS INICIAL Y FINAL DEL TRAZADO = 3 4
PENDIENTE INICIAL DEL TRAZADO = -0.13638
PENDIENTE FINAL DEL TRAZADO = -0.13638

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

NUMERO DE CABLES = 18

TENSION EN ANCLAJE IZQUIERDO (Kp/mm2) = 144.00
TESAMOS POR LA IZQUIERDA (SI=1) = 0
TENSION EN ANCLAJE DERECHO (Kp/mm2) = 144.00
TESAMOS POR LA DERECHA (SI=1) = 1

PROPORCION DE TESADO EN LA PRIMERA FASE 0.65

AREA DE PRETENSADO (cm2) = 663.60
PENETRACION DE CUNA EN EXTREMO 1 (mm) = 5.000
PENETRACION DE CUNA EN EXTREMO 2 (mm) = 5.000

LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-1 (m) = 15.62
LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-2 (m) = 11.27

TENSION EN LOS CABLES. PERDIDAS INSTANT. (Kp/mm2)

I	X	To	P_ROZ	P_CUNA	P_ELAS	Ti
44	78.70	93.60	0.00	21.98	0.63	70.99
45	80.70	93.60	15.66	0.00	1.17	76.77
46	82.70	93.60	15.14	0.00	1.54	76.91
47	84.70	93.60	14.62	0.00	2.03	76.94
48	86.70	93.60	14.10	0.00	2.54	76.96
49	88.70	93.60	13.57	0.00	2.97	77.06
50	90.70	93.60	13.04	0.00	3.26	77.30
51	92.70	93.60	12.50	0.00	3.38	77.72
52	94.70	93.60	11.96	0.00	3.30	78.33
53	96.70	93.60	11.42	0.00	3.05	79.13
54	98.70	93.60	10.88	0.00	2.64	80.09
55	100.70	93.60	10.32	0.00	2.14	81.13
56	102.70	93.60	9.77	0.00	1.65	82.18
57	104.70	93.60	9.21	0.00	1.27	83.12
58	106.70	93.60	8.65	0.00	1.15	83.80
59	108.70	93.60	8.09	0.72	1.24	83.55
60	110.70	93.60	6.70	3.50	1.87	81.54
61	112.70	93.60	4.43	8.03	2.20	78.94
62	114.70	93.60	2.11	12.67	1.77	77.05
63	116.70	93.60	0.62	15.65	1.04	76.30
64	118.70	93.60	0.00	16.89	0.75	75.97

ALARGAMIENTO DE LOS CABLES (sobre embolo)= 174.7 mm

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

TENSION EN LOS CABLES. PERDIDAS DIFERIDAS (Kp/mm2)

I	S	Ti	P_RETRA	P_FLUE	P_RELAJ.
44	78.70	70.99	0.00	0.00	0.00
45	80.70	76.77	0.00	0.00	0.00
46	82.70	76.91	0.00	0.00	0.00
47	84.70	76.94	0.00	0.00	0.00
48	86.70	76.96	0.00	0.00	0.00
49	88.70	77.06	0.00	0.00	0.00
50	90.70	77.30	0.00	0.00	0.00
51	92.70	77.72	0.00	0.00	0.00
52	94.70	78.33	0.00	0.00	0.00
53	96.70	79.13	0.00	0.00	0.00
54	98.70	80.09	0.00	0.00	0.00
55	100.70	81.13	0.00	0.00	0.00
56	102.70	82.18	0.00	0.00	0.00
57	104.70	83.12	0.00	0.00	0.00
58	106.70	83.80	0.00	0.00	0.00
59	108.70	83.55	0.00	0.00	0.00
60	110.70	81.54	0.00	0.00	0.00
61	112.70	78.94	0.00	0.00	0.00
62	114.70	77.05	0.00	0.00	0.00
63	116.70	76.30	0.00	0.00	0.00
64	118.70	75.97	0.00	0.00	0.00

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

TENSION EN LOS CABLES (Kp/mm2)

I	S	To	APi	Ti	APf	Tf
44	78.70	93.60	22.61	70.99	0.00	70.99
45	80.70	93.60	16.83	76.77	0.00	76.77
46	82.70	93.60	16.69	76.91	0.00	76.91
47	84.70	93.60	16.66	76.94	0.00	76.94
48	86.70	93.60	16.64	76.96	0.00	76.96
49	88.70	93.60	16.54	77.06	0.00	77.06
50	90.70	93.60	16.30	77.30	0.00	77.30
51	92.70	93.60	15.88	77.72	0.00	77.72
52	94.70	93.60	15.27	78.33	0.00	78.33
53	96.70	93.60	14.47	79.13	0.00	79.13
54	98.70	93.60	13.51	80.09	0.00	80.09
55	100.70	93.60	12.47	81.13	0.00	81.13
56	102.70	93.60	11.42	82.18	0.00	82.18
57	104.70	93.60	10.48	83.12	0.00	83.12
58	106.70	93.60	9.80	83.80	0.00	83.80
59	108.70	93.60	10.05	83.55	0.00	83.55
60	110.70	93.60	12.06	81.54	0.00	81.54
61	112.70	93.60	14.66	78.94	0.00	78.94
62	114.70	93.60	16.55	77.05	0.00	77.05
63	116.70	93.60	17.30	76.30	0.00	76.30
64	118.70	93.60	17.63	75.97	0.00	75.97

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

FUERZAS EN LOS CABLES (T, m)

I	S(m)	Pi (T)	Mpi (mT)	Upi (T/m)	Pf (T)	Mpf (mT)	Upf (T/m)
44	78.70	4710.91	-295.1	45.89	4710.91	-295.1	45.89
45	80.70	5094.23	1098.5	49.62	5094.23	1098.5	49.62
46	82.70	5103.97	2194.4	49.72	5103.97	2194.4	49.72
47	84.70	5105.93	3090.5	49.74	5105.93	3090.5	49.74
48	86.70	5107.37	3787.9	49.75	5107.37	3787.9	49.75
49	88.70	5113.93	4291.0	49.82	5113.93	4291.0	49.82
50	90.70	5129.81	4604.1	49.97	5129.81	4604.1	49.97
51	92.70	5157.51	4729.4	50.24	5157.51	4729.4	50.24
52	94.70	5198.09	4665.4	50.64	5198.09	4665.4	50.64
53	96.70	5251.28	4406.2	51.15	5251.28	4406.2	51.15
54	98.70	5314.46	3941.5	51.77	5314.46	3941.5	51.77
55	100.70	5383.89	3258.8	52.45	5383.89	3258.8	52.45
56	102.70	5453.63	2344.7	53.12	5453.63	2344.7	53.12
57	104.70	5515.77	1189.4	53.73	5515.77	1189.4	53.73
58	106.70	5561.08	-209.3	54.17	5561.08	-209.3	54.17
59	108.70	5544.70	-1829.0	54.01	5544.70	-1829.0	54.01
60	110.70	5410.89	-3536.6	-298.68	5410.89	-3536.6	-298.68
61	112.70	5238.75	-4002.4	-289.18	5238.75	-4002.4	-289.18
62	114.70	5113.35	-3342.1	-282.26	5113.35	-3342.1	-282.26
63	116.70	5062.95	-1796.7	49.32	5062.95	-1796.7	49.32
64	118.70	5041.08	-315.7	49.11	5041.08	-315.7	49.11

ETAPA DE TESADO INICIAL

FUERZAS HORIZONTALES DE DESVIACION

I	S(m)	R(m)	Ti (T)	Uh(T/m)	Tf(T)	Uh(T/m)
44	78.70	1300.0	4710.91	-3.77	4710.91	-3.77
45	80.70	1300.0	5094.23	-3.92	5094.23	-3.92
46	82.70	1300.0	5103.97	-3.93	5103.97	-3.93
47	84.70	1300.0	5105.93	-3.93	5105.93	-3.93
48	86.70	1300.0	5107.37	-3.93	5107.37	-3.93
49	88.70	1300.0	5113.93	-3.94	5113.93	-3.94
50	90.70	1300.0	5129.81	-3.96	5129.81	-3.96
51	92.70	1300.0	5157.51	-3.98	5157.51	-3.98
52	94.70	1300.0	5198.09	-4.02	5198.09	-4.02
53	96.70	1300.0	5251.28	-4.06	5251.28	-4.06
54	98.70	1300.0	5314.46	-4.11	5314.46	-4.11
55	100.70	1300.0	5383.89	-4.17	5383.89	-4.17
56	102.70	1300.0	5453.63	-4.22	5453.63	-4.22
57	104.70	1300.0	5515.77	-4.26	5515.77	-4.26
58	106.70	1300.0	5561.08	-4.27	5561.08	-4.27
59	108.70	1300.0	5544.70	-4.21	5544.70	-4.21
60	110.70	1300.0	5410.89	-4.10	5410.89	-4.10
61	112.70	1300.0	5238.75	-3.98	5238.75	-3.98
62	114.70	1300.0	5113.35	-3.91	5113.35	-3.91
63	116.70	1300.0	5062.95	-3.89	5062.95	-3.89
64	118.70	1300.0	5041.08	-1.94	5041.08	-1.94

TESADO DEFINITIVO

PRETENSADO EN EL NERVIO = 1

NUMERO DE CABLES = 18

TENSION EN ANCLAJE IZQUIERDO (Kp/mm2) = 144.00
TESAMOS POR LA IZQUIERDA (SI=1) = 0
TENSION EN ANCLAJE DERECHO (Kp/mm2) = 144.00
TESAMOS POR LA DERECHA (SI=1) = 1

PROPORCION DE TESADO EN LA PRIMERA FASE 0.65
AREA DE PRETENSADO (cm2) = 663.60
PENETRACION DE CUNA EN EXTREMO 1 (mm) = 5.000
PENETRACION DE CUNA EN EXTREMO 2 (mm) = 5.000

LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-1 (m) = 15.62
LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-2 (m) = 8.64

TENSION EN LOS CABLES. PERDIDAS INSTANT. (Kp/mm2)

I	X	To	P_ROZ	P_CUNA	P_ELAS	Ti
44	78.70	144.00	24.89	0.00	1.10	118.01
45	80.70	144.00	24.10	0.00	1.80	118.10
46	82.70	144.00	23.30	0.00	2.37	118.33
47	84.70	144.00	22.50	0.00	3.13	118.37
48	86.70	144.00	21.69	0.00	3.90	118.41
49	88.70	144.00	20.88	0.00	4.56	118.56
50	90.70	144.00	20.06	0.00	5.02	118.93
51	92.70	144.00	19.23	0.00	5.20	119.57
52	94.70	144.00	18.41	0.00	5.08	120.51
53	96.70	144.00	17.57	0.00	4.69	121.74
54	98.70	144.00	16.73	0.00	4.06	123.21
55	100.70	144.00	15.88	0.00	3.30	124.82
56	102.70	144.00	15.03	0.00	2.53	126.43
57	104.70	144.00	14.18	0.00	1.95	127.88
58	106.70	144.00	13.31	0.00	1.76	128.93
59	108.70	144.00	12.44	0.00	1.92	129.64
60	110.70	144.00	10.30	1.38	2.97	129.35
61	112.70	144.00	6.82	8.35	3.49	125.34
62	114.70	144.00	3.24	15.49	2.81	122.46
63	116.70	144.00	0.95	20.08	1.65	121.32
64	118.70	144.00	0.00	21.98	1.19	120.83

ALARGAMIENTO DE LOS CABLES (sobre embolo)= 264.3 mm

PROGRAMA DE CALCULO DE PRETENSADO EN NERVIOS DE UN EMPARRILLADO

DATOS GENERALES DE PRETENSADO

NUMERO DE NERVIOS = 1
NUMERO DE VANOS = 5
NUMERO DE SECCIONES POR VANO = 21
NUMERO DE MATERIALES = 3
LUZ DEL VANO = 1 L (m) = 32.70
LUZ DEL VANO = 2 L (m) = 40.00
LUZ DEL VANO = 3 L (m) = 40.00
LUZ DEL VANO = 4 L (m) = 40.00
LUZ DEL VANO = 5 L (m) = 40.00

COEFICIENTE DE ROZAMIENTO EN CURVA = 0.21
COEFICIENTE DE DESV. PARASITAS = 0.0060
RELAJACION = 0.04
RETRACCION mm/m = 0.177
COEF. FLUENCIA = 1.978

ACERO DE PRETENSADO (Kp/mm2)

LIMITE DE PROPORCIONALIDAD AL 0,2% = 170.00
TENSION DE ROTURA = 190.00
MODULO DE DEFORMACION = 19000.00

HORMIGON

MODULO DE DEFORMACION DURANTE TESADO (Kp/cm2) = 309000.00
MODULO DE DEFORMACION A 28 DIAS (Kp/cm2) = 320000.00

CARACTERISTICAS MECANICAS DE LA SECCION 1

AREA DE LA SECCION (m2)	=	14.323
INERCIA DE LA SECCION (m2)	=	5.7458
V_SUP. DE LA SECCION (m2)	=	1.01
V_INF. DE LA SECCION (m2)	=	1.09
CANTO DE LA SECCION (m2)	=	2.10

CARACTERISTICAS MECANICAS DE LA SECCION 2

AREA DE LA SECCION (m2)	=	20.048
INERCIA DE LA SECCION (m2)	=	6.4312
V_SUP. DE LA SECCION (m2)	=	1.04
V_INF. DE LA SECCION (m2)	=	1.06
CANTO DE LA SECCION (m2)	=	2.10

CARACTERISTICAS MECANICAS DE LA SECCION 3

AREA DE LA SECCION (m2)	=	4.410
INERCIA DE LA SECCION (m2)	=	1.6200
V_SUP. DE LA SECCION (m2)	=	1.05
V_INF. DE LA SECCION (m2)	=	1.05
CANTO DE LA SECCION (m2)	=	2.10

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 1

Parametros de la parabola = 1
A = 0.00000 B = -0.08940 C = -1.13400
Origen = 0.00 Final = 1.40
Parametros de la parabola = 2
A = 0.00369 B = -0.09974 C = -1.12676
Origen = 1.40 Final = 13.50
Parametros de la parabola = 4
A = 0.00491 B = -0.13264 C = -0.90469
Origen = 13.50 Final = 29.70
Parametros de la parabola = 5
A = -0.02653 B = 1.73492 C = -28.63789
Origen = 29.70 Final = 32.70
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 2

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 20.00 Final = 37.00
Parametros de la parabola = 6
A = -0.02760 B = 2.20800 C = -44.43199
Origen = 37.00 Final = 40.00
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 3

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 20.00 Final = 37.00
Parametros de la parabola = 6
A = -0.02760 B = 2.20800 C = -44.43199
Origen = 37.00 Final = 40.00
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 4

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 20.00 Final = 37.00
Parametros de la parabola = 6
A = -0.02760 B = 2.20800 C = -44.43199
Origen = 37.00 Final = 40.00
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 5

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 20.00 Final = 37.00
Parametros de la parabola = 6
A = -0.02760 B = 2.20800 C = -44.43199
Origen = 37.00 Final = 40.00
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
64	118.700	-0.973	1.127	0.063	0.0000	0.6636	0.0097
65	120.700	-1.227	0.873	-0.216	0.0196	0.6441	0.0097
66	122.700	-1.441	0.659	-0.430	0.0392	0.6245	0.0097
67	124.700	-1.616	0.484	-0.605	0.0586	0.6050	0.0097
68	126.700	-1.753	0.347	-0.742	0.0782	0.5855	0.0097
69	128.700	-1.850	0.250	-0.839	0.0978	0.5659	0.0097
70	130.700	-1.909	0.191	-0.898	0.1174	0.5462	0.0097
71	132.700	-1.928	0.172	-0.917	0.1369	0.5267	0.0097
72	134.700	-1.909	0.191	-0.898	0.1564	0.5073	0.0097
73	136.700	-1.850	0.250	-0.839	0.1760	0.4877	0.0097
74	138.700	-1.753	0.347	-0.742	0.1955	0.4682	0.0097
75	140.700	-1.616	0.484	-0.605	0.2151	0.4486	0.0097
76	142.700	-1.441	0.659	-0.430	0.2347	0.4290	0.0097
77	144.700	-1.227	0.873	-0.216	0.2542	0.4095	0.0097
78	146.700	-0.973	1.127	0.038	0.2738	0.3898	0.0097
79	148.700	-0.681	1.419	0.330	0.2934	0.3702	0.0097
80	150.700	-0.382	1.718	0.654	0.3582	0.3054	-0.0552
81	152.700	-0.272	1.828	0.764	0.4687	0.1950	-0.0552
82	154.700	-0.382	1.718	0.654	0.5791	0.0845	-0.0552
83	156.700	-0.681	1.419	0.355	0.6441	0.0196	0.0097
84	158.700	-0.973	1.127	0.063	0.6636	0.0000	0.0097

SECCIONES INICIAL Y FINAL DEL TRAZADO = 64 84
NUMERO DE VANOS INICIAL Y FINAL DEL TRAZADO = 4 5
PENDIENTE INICIAL DEL TRAZADO = -0.13638
PENDIENTE FINAL DEL TRAZADO = -0.13638

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

NUMERO DE CABLES = 18

TENSION EN ANCLAJE IZQUIERDO (Kp/mm2) = 144.00
TESAMOS POR LA IZQUIERDA (SI=1) = 0
TENSION EN ANCLAJE DERECHO (Kp/mm2) = 144.00
TESAMOS POR LA DERECHA (SI=1) = 1

PROPORCION DE TESADO EN LA PRIMERA FASE 0.65
AREA DE PRETENSADO (cm2) = 663.60
PENETRACION DE CUNA EN EXTREMO 1 (mm) = 5.000
PENETRACION DE CUNA EN EXTREMO 2 (mm) = 5.000

LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-1 (m) = 15.62
LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-2 (m) = 11.27

TENSION EN LOS CABLES. PERDIDAS INSTANT. (Kp/mm2)

I	X	To	P_ROZ	P_CUNA	P_ELAS	Ti
64	118.70	93.60	0.00	21.98	0.63	70.99
65	120.70	93.60	15.66	0.00	1.17	76.77
66	122.70	93.60	15.14	0.00	1.54	76.91
67	124.70	93.60	14.62	0.00	2.03	76.94
68	126.70	93.60	14.10	0.00	2.54	76.96
69	128.70	93.60	13.57	0.00	2.97	77.06
70	130.70	93.60	13.04	0.00	3.26	77.30
71	132.70	93.60	12.50	0.00	3.38	77.72
72	134.70	93.60	11.96	0.00	3.30	78.33
73	136.70	93.60	11.42	0.00	3.05	79.13
74	138.70	93.60	10.88	0.00	2.64	80.09
75	140.70	93.60	10.32	0.00	2.14	81.13
76	142.70	93.60	9.77	0.00	1.65	82.18
77	144.70	93.60	9.21	0.00	1.27	83.12
78	146.70	93.60	8.65	0.00	1.15	83.80
79	148.70	93.60	8.09	0.72	1.24	83.55
80	150.70	93.60	6.70	3.50	1.87	81.54
81	152.70	93.60	4.43	8.03	2.20	78.94
82	154.70	93.60	2.11	12.67	1.77	77.05
83	156.70	93.60	0.62	15.65	1.04	76.30
84	158.70	93.60	0.00	16.89	0.75	75.97

ALARGAMIENTO DE LOS CABLES (sobre embolo)= 174.7 mm

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

TENSION EN LOS CABLES. PERDIDAS DIFERIDAS (Kp/mm2)

I	S	Ti	P_RETRA	P_FLUE	P_RELAJ.
64	118.70	70.99	0.00	0.00	0.00
65	120.70	76.77	0.00	0.00	0.00
66	122.70	76.91	0.00	0.00	0.00
67	124.70	76.94	0.00	0.00	0.00
68	126.70	76.96	0.00	0.00	0.00
69	128.70	77.06	0.00	0.00	0.00
70	130.70	77.30	0.00	0.00	0.00
71	132.70	77.72	0.00	0.00	0.00
72	134.70	78.33	0.00	0.00	0.00
73	136.70	79.13	0.00	0.00	0.00
74	138.70	80.09	0.00	0.00	0.00
75	140.70	81.13	0.00	0.00	0.00
76	142.70	82.18	0.00	0.00	0.00
77	144.70	83.12	0.00	0.00	0.00
78	146.70	83.80	0.00	0.00	0.00
79	148.70	83.55	0.00	0.00	0.00
80	150.70	81.54	0.00	0.00	0.00
81	152.70	78.94	0.00	0.00	0.00
82	154.70	77.05	0.00	0.00	0.00
83	156.70	76.30	0.00	0.00	0.00
84	158.70	75.97	0.00	0.00	0.00

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

TENSION EN LOS CABLES (Kp/mm2)

I	S	To	APi	Ti	APf	Tf
64	118.70	93.60	22.61	70.99	0.00	70.99
65	120.70	93.60	16.83	76.77	0.00	76.77
66	122.70	93.60	16.69	76.91	0.00	76.91
67	124.70	93.60	16.66	76.94	0.00	76.94
68	126.70	93.60	16.64	76.96	0.00	76.96
69	128.70	93.60	16.54	77.06	0.00	77.06
70	130.70	93.60	16.30	77.30	0.00	77.30
71	132.70	93.60	15.88	77.72	0.00	77.72
72	134.70	93.60	15.27	78.33	0.00	78.33
73	136.70	93.60	14.47	79.13	0.00	79.13
74	138.70	93.60	13.51	80.09	0.00	80.09
75	140.70	93.60	12.47	81.13	0.00	81.13
76	142.70	93.60	11.42	82.18	0.00	82.18
77	144.70	93.60	10.48	83.12	0.00	83.12
78	146.70	93.60	9.80	83.80	0.00	83.80
79	148.70	93.60	10.05	83.55	0.00	83.55
80	150.70	93.60	12.06	81.54	0.00	81.54
81	152.70	93.60	14.66	78.94	0.00	78.94
82	154.70	93.60	16.55	77.05	0.00	77.05
83	156.70	93.60	17.30	76.30	0.00	76.30
84	158.70	93.60	17.63	75.97	0.00	75.97

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

FUERZAS EN LOS CABLES (T, m)

I	S(m)	Pi (T)	Mpi (mT)	Upi (T/m)	Pf (T)	Mpf (mT)	Upf (T/m)
64	118.70	4710.91	-295.1	45.89	4710.91	-295.1	45.89
65	120.70	5094.23	1098.5	49.62	5094.23	1098.5	49.62
66	122.70	5103.97	2194.4	49.72	5103.97	2194.4	49.72
67	124.70	5105.93	3090.5	49.74	5105.93	3090.5	49.74
68	126.70	5107.37	3787.9	49.75	5107.37	3787.9	49.75
69	128.70	5113.93	4291.0	49.82	5113.93	4291.0	49.82
70	130.70	5129.81	4604.1	49.97	5129.81	4604.1	49.97
71	132.70	5157.51	4729.4	50.24	5157.51	4729.4	50.24
72	134.70	5198.09	4665.4	50.64	5198.09	4665.4	50.64
73	136.70	5251.28	4406.2	51.15	5251.28	4406.2	51.15
74	138.70	5314.46	3941.5	51.77	5314.46	3941.5	51.77
75	140.70	5383.89	3258.8	52.45	5383.89	3258.8	52.45
76	142.70	5453.63	2344.7	53.12	5453.63	2344.7	53.12
77	144.70	5515.77	1189.4	53.73	5515.77	1189.4	53.73
78	146.70	5561.08	-209.3	54.17	5561.08	-209.3	54.17
79	148.70	5544.70	-1829.0	54.01	5544.70	-1829.0	54.01
80	150.70	5410.89	-3536.6	-298.68	5410.89	-3536.6	-298.68
81	152.70	5238.75	-4002.4	-289.18	5238.75	-4002.4	-289.18
82	154.70	5113.35	-3342.1	-282.26	5113.35	-3342.1	-282.26
83	156.70	5062.95	-1796.7	49.32	5062.95	-1796.7	49.32
84	158.70	5041.08	-315.7	49.11	5041.08	-315.7	49.11

ETAPA DE TESADO INICIAL

FUERZAS HORIZONTALES DE DESVIACION

I	S(m)	R(m)	Ti (T)	Uh(T/m)	Tf(T)	Uh(T/m)
64	118.70	1300.0	4710.91	-3.77	4710.91	-3.77
65	120.70	1300.0	5094.23	-3.92	5094.23	-3.92
66	122.70	1300.0	5103.97	-3.93	5103.97	-3.93
67	124.70	1300.0	5105.93	-3.93	5105.93	-3.93
68	126.70	1300.0	5107.37	-3.93	5107.37	-3.93
69	128.70	1300.0	5113.93	-3.94	5113.93	-3.94
70	130.70	1300.0	5129.81	-3.96	5129.81	-3.96
71	132.70	1300.0	5157.51	-3.98	5157.51	-3.98
72	134.70	1300.0	5198.09	-4.02	5198.09	-4.02
73	136.70	1300.0	5251.28	-4.06	5251.28	-4.06
74	138.70	1300.0	5314.46	-4.11	5314.46	-4.11
75	140.70	1300.0	5383.89	-4.17	5383.89	-4.17
76	142.70	1300.0	5453.63	-4.22	5453.63	-4.22
77	144.70	1300.0	5515.77	-4.26	5515.77	-4.26
78	146.70	1300.0	5561.08	-4.27	5561.08	-4.27
79	148.70	1300.0	5544.70	-4.21	5544.70	-4.21
80	150.70	1300.0	5410.89	-4.10	5410.89	-4.10
81	152.70	1300.0	5238.75	-3.98	5238.75	-3.98
82	154.70	1300.0	5113.35	-3.91	5113.35	-3.91
83	156.70	1300.0	5062.95	-3.89	5062.95	-3.89
84	158.70	1300.0	5041.08	-1.94	5041.08	-1.94

TESADO DEFINITIVO

PRETENSADO EN EL NERVIO = 1

NUMERO DE CABLES = 18

TENSION EN ANCLAJE IZQUIERDO (Kp/mm2) = 144.00
TESAMOS POR LA IZQUIERDA (SI=1) = 0
TENSION EN ANCLAJE DERECHO (Kp/mm2) = 144.00
TESAMOS POR LA DERECHA (SI=1) = 1

PROPORCION DE TESADO EN LA PRIMERA FASE 0.65
AREA DE PRETENSADO (cm2) = 663.60
PENETRACION DE CUNA EN EXTREMO 1 (mm) = 5.000
PENETRACION DE CUNA EN EXTREMO 2 (mm) = 5.000

LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-1 (m) = 15.62
LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-2 (m) = 8.64

TENSION EN LOS CABLES. PERDIDAS INSTANT. (Kp/mm2)

I	X	To	P_ROZ	P_CUNA	P_ELAS	Ti
64	118.70	144.00	24.89	0.00	1.10	118.01
65	120.70	144.00	24.10	0.00	1.80	118.10
66	122.70	144.00	23.30	0.00	2.37	118.33
67	124.70	144.00	22.50	0.00	3.13	118.37
68	126.70	144.00	21.69	0.00	3.90	118.41
69	128.70	144.00	20.88	0.00	4.56	118.56
70	130.70	144.00	20.06	0.00	5.02	118.93
71	132.70	144.00	19.23	0.00	5.20	119.57
72	134.70	144.00	18.41	0.00	5.08	120.51
73	136.70	144.00	17.57	0.00	4.69	121.74
74	138.70	144.00	16.73	0.00	4.06	123.21
75	140.70	144.00	15.88	0.00	3.30	124.82
76	142.70	144.00	15.03	0.00	2.53	126.43
77	144.70	144.00	14.18	0.00	1.95	127.88
78	146.70	144.00	13.31	0.00	1.76	128.93
79	148.70	144.00	12.44	0.00	1.92	129.64
80	150.70	144.00	10.30	1.38	2.97	129.35
81	152.70	144.00	6.82	8.35	3.49	125.34
82	154.70	144.00	3.24	15.49	2.81	122.46
83	156.70	144.00	0.95	20.08	1.65	121.32
84	158.70	144.00	0.00	21.98	1.19	120.83

ALARGAMIENTO DE LOS CABLES (sobre embolo)= 264.3 mm

PROGRAMA DE CALCULO DE PRETENSADO EN NERVIOS DE UN EMPARRILLADO

DATOS GENERALES DE PRETENSADO

NUMERO DE NERVIOS = 1
NUMERO DE VANOS = 6
NUMERO DE SECCIONES POR VANO = 21
NUMERO DE MATERIALES = 3
LUZ DEL VANO = 1 L (m) = 32.70
LUZ DEL VANO = 2 L (m) = 40.00
LUZ DEL VANO = 3 L (m) = 40.00
LUZ DEL VANO = 4 L (m) = 40.00
LUZ DEL VANO = 5 L (m) = 40.00
LUZ DEL VANO = 6 L (m) = 35.00

COEFICIENTE DE ROZAMIENTO EN CURVA = 0.21
COEFICIENTE DE DESV. PARASITAS = 0.0060
RELAJACION = 0.04
RETRACCION mm/m = 0.177
COEF. FLUENCIA = 1.978

ACERO DE PRETENSADO (Kp/mm2)

LIMITE DE PROPORCIONALIDAD AL 0,2% = 170.00
TENSION DE ROTURA = 190.00
MODULO DE DEFORMACION = 19000.00

HORMIGON

MODULO DE DEFORMACION DURANTE TESADO (Kp/cm2) = 309000.00
MODULO DE DEFORMACION A 28 DIAS (Kp/cm2) = 320000.00

CARACTERISTICAS MECANICAS DE LA SECCION 1

AREA DE LA SECCION (m2) = 14.323
INERCIA DE LA SECCION (m2) = 5.7458
V_SUP. DE LA SECCION (m2) = 1.01
V_INF. DE LA SECCION (m2) = 1.09
CANTO DE LA SECCION (m2) = 2.10

CARACTERISTICAS MECANICAS DE LA SECCION 2

AREA DE LA SECCION (m2) = 20.048
INERCIA DE LA SECCION (m2) = 6.4312
V_SUP. DE LA SECCION (m2) = 1.04
V_INF. DE LA SECCION (m2) = 1.06
CANTO DE LA SECCION (m2) = 2.10

CARACTERISTICAS MECANICAS DE LA SECCION 3

AREA DE LA SECCION (m2) = 4.410
INERCIA DE LA SECCION (m2) = 1.6200
V_SUP. DE LA SECCION (m2) = 1.05
V_INF. DE LA SECCION (m2) = 1.05
CANTO DE LA SECCION (m2) = 2.10

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 1

Parametros de la parabola = 1
A = 0.00000 B = -0.08940 C = -1.13400
Origen = 0.00 Final = 1.40
Parametros de la parabola = 2
A = 0.00369 B = -0.09974 C = -1.12676
Origen = 1.40 Final = 13.50
Parametros de la parabola = 4
A = 0.00491 B = -0.13264 C = -0.90469
Origen = 13.50 Final = 29.70
Parametros de la parabola = 5
A = -0.02653 B = 1.73492 C = -28.63789
Origen = 29.70 Final = 32.70
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 2

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 20.00 Final = 37.00
Parametros de la parabola = 6
A = -0.02760 B = 2.20800 C = -44.43199
Origen = 37.00 Final = 40.00
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 3

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 20.00 Final = 37.00
Parametros de la parabola = 6
A = -0.02760 B = 2.20800 C = -44.43199
Origen = 37.00 Final = 40.00
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 4

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 20.00 Final = 37.00
Parametros de la parabola = 6
A = -0.02760 B = 2.20800 C = -44.43199
Origen = 37.00 Final = 40.00
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 5

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 20.00 Final = 37.00
Parametros de la parabola = 6
A = -0.02760 B = 2.20800 C = -44.43199
Origen = 37.00 Final = 40.00
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 6

Parametros de la parabola = 2
A = -0.03154 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00653 B = -0.22841 C = 0.07062
Origen = 3.00 Final = 17.50
Parametros de la parabola = 5
A = 0.00653 B = -0.22841 C = 0.07062
Origen = 17.50 Final = 32.00
Parametros de la parabola = 6
A = -0.03154 B = 2.20800 C = -38.91200
Origen = 32.00 Final = 35.00

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
84	158.700	-0.973	1.127	0.063	0.0000	0.6874	0.0097
85	160.700	-1.227	0.873	-0.216	0.0196	0.6678	0.0097
86	162.700	-1.441	0.659	-0.430	0.0392	0.6482	0.0097
87	164.700	-1.616	0.484	-0.605	0.0586	0.6288	0.0097
88	166.700	-1.753	0.347	-0.742	0.0782	0.6092	0.0097
89	168.700	-1.850	0.250	-0.839	0.0978	0.5896	0.0097
90	170.700	-1.909	0.191	-0.898	0.1174	0.5700	0.0097
91	172.700	-1.928	0.172	-0.917	0.1369	0.5505	0.0097
92	174.700	-1.909	0.191	-0.898	0.1564	0.5310	0.0097
93	176.700	-1.850	0.250	-0.839	0.1760	0.5114	0.0097
94	178.700	-1.753	0.347	-0.742	0.1955	0.4919	0.0097
95	180.700	-1.616	0.484	-0.605	0.2151	0.4723	0.0097
96	182.700	-1.441	0.659	-0.430	0.2347	0.4527	0.0097
97	184.700	-1.227	0.873	-0.216	0.2542	0.4332	0.0097
98	186.700	-0.973	1.127	0.038	0.2738	0.4136	0.0097
99	188.700	-0.681	1.419	0.330	0.2934	0.3940	0.0097
100	190.700	-0.382	1.718	0.654	0.3582	0.3292	-0.0552
101	192.700	-0.272	1.828	0.764	0.4687	0.2187	-0.0631
102	194.450	-0.369	1.731	0.667	0.5791	0.1083	-0.0631
103	196.200	-0.649	1.451	0.387	0.6645	0.0229	0.0131
104	197.950	-0.949	1.151	0.087	0.6874	0.0000	0.0131

SECCIONES INICIAL Y FINAL DEL TRAZADO = 84 104
NUMERO DE VANOS INICIAL Y FINAL DEL TRAZADO = 5 6
PENDIENTE INICIAL DEL TRAZADO = -0.13638
PENDIENTE FINAL DEL TRAZADO = -0.15989

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

NUMERO DE CABLES = 18

TENSION EN ANCLAJE IZQUIERDO (Kp/mm2) = 144.00
TESAMOS POR LA IZQUIERDA (SI=1) = 0
TENSION EN ANCLAJE DERECHO (Kp/mm2) = 144.00
TESAMOS POR LA DERECHA (SI=1) = 1

PROPORCION DE TESADO EN LA PRIMERA FASE 0.65
AREA DE PRETENSADO (cm2) = 663.60
PENETRACION DE CUNA EN EXTREMO 1 (mm) = 5.000
PENETRACION DE CUNA EN EXTREMO 2 (mm) = 5.000

LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-1 (m) = 15.62
LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-2 (m) = 10.75

TENSION EN LOS CABLES. PERDIDAS INSTANT. (Kp/mm2)

I	X	To	P_ROZ	P_CUNA	P_ELAS	Ti
84	158.70	93.60	0.00	21.98	0.62	70.99
85	160.70	93.60	15.98	0.00	1.17	76.46
86	162.70	93.60	15.46	0.00	1.54	76.60
87	164.70	93.60	14.94	0.00	2.02	76.63
88	166.70	93.60	14.42	0.00	2.53	76.65
89	168.70	93.60	13.89	0.00	2.95	76.75
90	170.70	93.60	13.36	0.00	3.25	76.99
91	172.70	93.60	12.83	0.00	3.36	77.41
92	174.70	93.60	12.29	0.00	3.29	78.02
93	176.70	93.60	11.75	0.00	3.03	78.81
94	178.70	93.60	11.21	0.00	2.63	79.76
95	180.70	93.60	10.66	0.00	2.13	80.80
96	182.70	93.60	10.11	0.00	1.64	81.85
97	184.70	93.60	9.55	0.00	1.26	82.78
98	186.70	93.60	8.99	0.00	1.14	83.46
99	188.70	93.60	8.43	0.85	1.24	83.09
100	190.70	93.60	7.05	3.62	1.86	81.08
101	192.70	93.60	4.79	8.13	2.19	78.50
102	194.45	93.60	2.51	12.69	1.80	76.60
103	196.20	93.60	0.65	16.40	1.08	75.47
104	197.95	93.60	0.00	17.71	0.75	75.14

ALARGAMIENTO DE LOS CABLES (sobre embolo)= 170.5 mm

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

TENSION EN LOS CABLES. PERDIDAS DIFERIDAS (Kp/mm2)

I	S	Ti	P_RETRA	P_FLUE	P_RELAJ.
84	158.70	70.99	0.00	0.00	0.00
85	160.70	76.46	0.00	0.00	0.00
86	162.70	76.60	0.00	0.00	0.00
87	164.70	76.63	0.00	0.00	0.00
88	166.70	76.65	0.00	0.00	0.00
89	168.70	76.75	0.00	0.00	0.00
90	170.70	76.99	0.00	0.00	0.00
91	172.70	77.41	0.00	0.00	0.00
92	174.70	78.02	0.00	0.00	0.00
93	176.70	78.81	0.00	0.00	0.00
94	178.70	79.76	0.00	0.00	0.00
95	180.70	80.80	0.00	0.00	0.00
96	182.70	81.85	0.00	0.00	0.00
97	184.70	82.78	0.00	0.00	0.00
98	186.70	83.46	0.00	0.00	0.00
99	188.70	83.09	0.00	0.00	0.00
100	190.70	81.08	0.00	0.00	0.00
101	192.70	78.50	0.00	0.00	0.00
102	194.45	76.60	0.00	0.00	0.00
103	196.20	75.47	0.00	0.00	0.00
104	197.95	75.14	0.00	0.00	0.00

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

TENSION EN LOS CABLES (Kp/mm2)

I	S	To	APi	Ti	APf	Tf
84	158.70	93.60	22.61	70.99	0.00	70.99
85	160.70	93.60	17.14	76.46	0.00	76.46
86	162.70	93.60	17.00	76.60	0.00	76.60
87	164.70	93.60	16.97	76.63	0.00	76.63
88	166.70	93.60	16.95	76.65	0.00	76.65
89	168.70	93.60	16.85	76.75	0.00	76.75
90	170.70	93.60	16.61	76.99	0.00	76.99
91	172.70	93.60	16.19	77.41	0.00	77.41
92	174.70	93.60	15.58	78.02	0.00	78.02
93	176.70	93.60	14.79	78.81	0.00	78.81
94	178.70	93.60	13.84	79.76	0.00	79.76
95	180.70	93.60	12.80	80.80	0.00	80.80
96	182.70	93.60	11.75	81.85	0.00	81.85
97	184.70	93.60	10.82	82.78	0.00	82.78
98	186.70	93.60	10.14	83.46	0.00	83.46
99	188.70	93.60	10.51	83.09	0.00	83.09
100	190.70	93.60	12.52	81.08	0.00	81.08
101	192.70	93.60	15.10	78.50	0.00	78.50
102	194.45	93.60	17.00	76.60	0.00	76.60
103	196.20	93.60	18.13	75.47	0.00	75.47
104	197.95	93.60	18.46	75.14	0.00	75.14

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

FUERZAS EN LOS CABLES (T, m)

I	S(m)	Pi (T)	Mpi (mT)	Upi (T/m)	Pf (T)	Mpf (mT)	Upf (T/m)
84	158.70	4711.15	-295.1	45.89	4711.15	-295.1	45.89
85	160.70	5073.67	1094.1	49.42	5073.67	1094.1	49.42
86	162.70	5083.37	2185.6	49.52	5083.37	2185.6	49.52
87	164.70	5085.32	3078.1	49.54	5085.32	3078.1	49.54
88	166.70	5086.75	3772.6	49.55	5086.75	3772.6	49.55
89	168.70	5093.29	4273.6	49.61	5093.29	4273.6	49.61
90	170.70	5109.11	4585.5	49.77	5109.11	4585.5	49.77
91	172.70	5136.70	4710.4	50.04	5136.70	4710.4	50.04
92	174.70	5177.11	4646.6	50.43	5177.11	4646.6	50.43
93	176.70	5230.08	4388.4	50.95	5230.08	4388.4	50.95
94	178.70	5293.01	3925.6	51.56	5293.01	3925.6	51.56
95	180.70	5362.16	3245.6	52.23	5362.16	3245.6	52.23
96	182.70	5431.62	2335.3	52.91	5431.62	2335.3	52.91
97	184.70	5493.51	1184.6	53.51	5493.51	1184.6	53.51
98	186.70	5538.64	-208.4	53.95	5538.64	-208.4	53.95
99	188.70	5513.58	-1818.8	53.71	5513.58	-1818.8	53.71
100	190.70	5380.39	-3516.6	-297.00	5380.39	-3516.6	-297.00
101	192.70	5208.99	-3979.7	-328.61	5208.99	-3979.7	-328.61
102	194.45	5083.06	-3392.4	-320.67	5083.06	-3392.4	-320.67
103	196.20	5007.89	-1938.6	65.36	5007.89	-1938.6	65.36
104	197.95	4986.57	-435.4	65.09	4986.57	-435.4	65.09

ETAPA DE TESADO INICIAL

FUERZAS HORIZONTALES DE DESVIACION

I	S(m)	R(m)	Ti (T)	Uh(T/m)	Tf(T)	Uh(T/m)
84	158.70	1300.0	4711.15	-3.76	4711.15	-3.76
85	160.70	1300.0	5073.67	-3.91	5073.67	-3.91
86	162.70	1300.0	5083.37	-3.91	5083.37	-3.91
87	164.70	1300.0	5085.32	-3.91	5085.32	-3.91
88	166.70	1300.0	5086.75	-3.92	5086.75	-3.92
89	168.70	1300.0	5093.29	-3.92	5093.29	-3.92
90	170.70	1300.0	5109.11	-3.94	5109.11	-3.94
91	172.70	1300.0	5136.70	-3.97	5136.70	-3.97
92	174.70	1300.0	5177.11	-4.00	5177.11	-4.00
93	176.70	1300.0	5230.08	-4.05	5230.08	-4.05
94	178.70	1300.0	5293.01	-4.10	5293.01	-4.10
95	180.70	1300.0	5362.16	-4.15	5362.16	-4.15
96	182.70	1300.0	5431.62	-4.20	5431.62	-4.20
97	184.70	1300.0	5493.51	-4.24	5493.51	-4.24
98	186.70	1300.0	5538.64	-4.25	5538.64	-4.25
99	188.70	1300.0	5513.58	-4.19	5513.58	-4.19
100	190.70	1300.0	5380.39	-4.07	5380.39	-4.07
101	192.70	1300.0	5208.99	-3.96	5208.99	-3.96
102	194.45	1300.0	5083.06	-3.88	5083.06	-3.88
103	196.20	1300.0	5007.89	-3.84	5007.89	-3.84
104	197.95	1300.0	4986.57	-1.92	4986.57	-1.92

TESADO DEFINITIVO

PRETENSADO EN EL NERVIO = 1

NUMERO DE CABLES = 18

TENSION EN ANCLAJE IZQUIERDO (Kp/mm2) = 144.00
TESAMOS POR LA IZQUIERDA (SI=1) = 0
TENSION EN ANCLAJE DERECHO (Kp/mm2) = 144.00
TESAMOS POR LA DERECHA (SI=1) = 1

PROPORCION DE TESADO EN LA PRIMERA FASE 0.65
AREA DE PRETENSADO (cm2) = 663.60
PENETRACION DE CUNA EN EXTREMO 1 (mm) = 5.000
PENETRACION DE CUNA EN EXTREMO 2 (mm) = 5.000

LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-1 (m) = 15.62
LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-2 (m) = 8.09

TENSION EN LOS CABLES. PERDIDAS INSTANT. (Kp/mm2)

I	X	To	P_ROZ	P_CUNA	P_ELAS	Ti
84	158.70	144.00	25.37	0.00	1.10	117.53
85	160.70	144.00	24.58	0.00	1.79	117.63
86	162.70	144.00	23.79	0.00	2.36	117.85
87	164.70	144.00	22.99	0.00	3.11	117.90
88	166.70	144.00	22.19	0.00	3.89	117.93
89	168.70	144.00	21.37	0.00	4.54	118.08
90	170.70	144.00	20.56	0.00	5.00	118.45
91	172.70	144.00	19.74	0.00	5.18	119.09
92	174.70	144.00	18.91	0.00	5.06	120.02
93	176.70	144.00	18.08	0.00	4.67	121.25
94	178.70	144.00	17.25	0.00	4.04	122.71
95	180.70	144.00	16.40	0.00	3.28	124.31
96	182.70	144.00	15.55	0.00	2.52	125.92
97	184.70	144.00	14.70	0.00	1.94	127.36
98	186.70	144.00	13.84	0.00	1.76	128.41
99	188.70	144.00	12.97	0.00	1.91	129.12
100	190.70	144.00	10.84	1.80	2.94	128.42
101	192.70	144.00	7.37	8.74	3.47	124.43
102	194.45	144.00	3.86	15.76	2.86	121.52
103	196.20	144.00	1.01	21.47	1.71	119.81
104	197.95	144.00	0.00	23.48	1.19	119.34

ALARGAMIENTO DE LOS CABLES (sobre embolo)= 258.1 mm

PROGRAMA DE CALCULO DE PRETENSADO EN NERVIOS DE UN EMPARRILLADO

DATOS GENERALES DE PRETENSADO

NUMERO DE NERVIOS = 1
NUMERO DE VANOS = 7
NUMERO DE SECCIONES POR VANO = 21
NUMERO DE MATERIALES = 3

LUZ DEL VANO =	1	L (m) =	32.70
LUZ DEL VANO =	2	L (m) =	40.00
LUZ DEL VANO =	3	L (m) =	40.00
LUZ DEL VANO =	4	L (m) =	40.00
LUZ DEL VANO =	5	L (m) =	40.00
LUZ DEL VANO =	6	L (m) =	35.00
LUZ DEL VANO =	7	L (m) =	35.00

COEFICIENTE DE ROZAMIENTO EN CURVA = 0.21
COEFICIENTE DE DESV. PARASITAS = 0.0060
RELAJACION = 0.04
RETRACCION mm/m = 0.177
COEF. FLUENCIA = 1.978

ACERO DE PRETENSADO (Kp/mm2)

LIMITE DE PROPORCIONALIDAD AL 0,2% = 170.00
TENSION DE ROTURA = 190.00
MODULO DE DEFORMACION = 19000.00

HORMIGON

MODULO DE DEFORMACION DURANTE TESADO (Kp/cm2) = 309000.00
MODULO DE DEFORMACION A 28 DIAS (Kp/cm2) = 320000.00

CARACTERISTICAS MECANICAS DE LA SECCION 1

AREA DE LA SECCION (m2) = 14.323
INERCIA DE LA SECCION (m2) = 5.7458
V_SUP. DE LA SECCION (m2) = 1.01
V_INF. DE LA SECCION (m2) = 1.09
CANTO DE LA SECCION (m2) = 2.10

CARACTERISTICAS MECANICAS DE LA SECCION 2

AREA DE LA SECCION (m2) = 20.048
INERCIA DE LA SECCION (m2) = 6.4312
V_SUP. DE LA SECCION (m2) = 1.04
V_INF. DE LA SECCION (m2) = 1.06
CANTO DE LA SECCION (m2) = 2.10

CARACTERISTICAS MECANICAS DE LA SECCION 3

AREA DE LA SECCION (m2) = 4.410
INERCIA DE LA SECCION (m2) = 1.6200
V_SUP. DE LA SECCION (m2) = 1.05
V_INF. DE LA SECCION (m2) = 1.05
CANTO DE LA SECCION (m2) = 2.10

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 1

Parametros de la parabola = 1
A = 0.00000 B = -0.08940 C = -1.13400
Origen = 0.00 Final = 1.40
Parametros de la parabola = 2
A = 0.00369 B = -0.09974 C = -1.12676
Origen = 1.40 Final = 13.50
Parametros de la parabola = 4
A = 0.00491 B = -0.13264 C = -0.90469
Origen = 13.50 Final = 29.70
Parametros de la parabola = 5
A = -0.02653 B = 1.73492 C = -28.63789
Origen = 29.70 Final = 32.70
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 2

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 20.00 Final = 37.00
Parametros de la parabola = 6
A = -0.02760 B = 2.20800 C = -44.43199
Origen = 37.00 Final = 40.00
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 3

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024

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Origen =    20.00      Final =   37.00
Parametros de la parabola =     6
A = -0.02760      B =   2.20800      C = -44.43199
Origen =    37.00      Final =   40.00
                                        (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =    4

Parametros de la parabola =     2
A = -0.02760      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    3.00
Parametros de la parabola =     3
A =  0.00487      B =  -0.19482      C =   0.02024
Origen =     3.00      Final =   20.00
Parametros de la parabola =     5
A =  0.00487      B =  -0.19482      C =   0.02024
Origen =    20.00      Final =   37.00
Parametros de la parabola =     6
A = -0.02760      B =   2.20800      C = -44.43199
Origen =    37.00      Final =   40.00
                                        (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =    5

Parametros de la parabola =     2
A = -0.02760      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    3.00
Parametros de la parabola =     3
A =  0.00487      B =  -0.19482      C =   0.02024
Origen =     3.00      Final =   20.00
Parametros de la parabola =     5
A =  0.00487      B =  -0.19482      C =   0.02024
Origen =    20.00      Final =   37.00
Parametros de la parabola =     6
A = -0.02760      B =   2.20800      C = -44.43199
Origen =    37.00      Final =   40.00
                                        (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =    6

Parametros de la parabola =     2
A = -0.03154      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    3.00
Parametros de la parabola =     3
A =  0.00653      B =  -0.22841      C =   0.07062
Origen =     3.00      Final =   17.50
Parametros de la parabola =     5
A =  0.00653      B =  -0.22841      C =   0.07062
Origen =    17.50      Final =   32.00
Parametros de la parabola =     6
A = -0.03154      B =   2.20800      C = -38.91200
Origen =    32.00      Final =   35.00
                                        (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =    7

Parametros de la parabola =     2
A = -0.03154      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    3.00
Parametros de la parabola =     3
A =  0.00653      B =  -0.22841      C =   0.07062
Origen =     3.00      Final =   17.50
Parametros de la parabola =     5
A =  0.00653      B =  -0.22841      C =   0.07062
Origen =    17.50      Final =   32.00
Parametros de la parabola =     6
A = -0.03154      B =   2.20800      C = -38.91200
Origen =    32.00      Final =   35.00
                                        (origen en inicio vano)
```

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
104	197.950	-0.949	1.151	0.087	0.0000	0.7579	0.0131
105	199.700	-1.208	0.892	-0.197	0.0229	0.7351	0.0131
106	201.450	-1.428	0.672	-0.417	0.0458	0.7122	0.0131
107	203.200	-1.608	0.492	-0.597	0.0687	0.6892	0.0131
108	204.950	-1.748	0.352	-0.737	0.0915	0.6664	0.0131
109	206.700	-1.848	0.252	-0.837	0.1144	0.6436	0.0131
110	208.450	-1.908	0.192	-0.897	0.1374	0.6206	0.0131
111	210.200	-1.928	0.172	-0.917	0.1602	0.5978	0.0131
112	211.950	-1.908	0.192	-0.897	0.1830	0.5749	0.0131
113	213.700	-1.848	0.252	-0.837	0.2060	0.5519	0.0131
114	215.450	-1.748	0.352	-0.737	0.2288	0.5291	0.0131
115	217.200	-1.608	0.492	-0.597	0.2518	0.5062	0.0131
116	218.950	-1.428	0.672	-0.417	0.2747	0.4832	0.0131
117	220.700	-1.208	0.892	-0.197	0.2976	0.4604	0.0131
118	222.450	-0.949	1.151	0.062	0.3204	0.4376	0.0131
119	224.200	-0.649	1.451	0.362	0.3435	0.4145	0.0131
120	225.950	-0.369	1.731	0.667	0.4289	0.3290	-0.0631
121	227.700	-0.272	1.828	0.764	0.5392	0.2187	-0.0631
122	229.450	-0.369	1.731	0.667	0.6497	0.1083	-0.0631
123	231.200	-0.649	1.451	0.387	0.7351	0.0229	0.0131
124	232.950	-0.949	1.151	0.087	0.7579	0.0000	0.0131

SECCIONES INICIAL Y FINAL DEL TRAZADO = 104 124
NUMERO DE VANOS INICIAL Y FINAL DEL TRAZADO = 6 7
PENDIENTE INICIAL DEL TRAZADO = -0.15989
PENDIENTE FINAL DEL TRAZADO = -0.15989

TENSION EN LOS CABLES. PERDIDAS INSTANT. (Kp/mm2)

I	X	To	P_ROZ	P_CUNA	P_ELAS	Ti
104	197.95	93.60	0.00	23.48	0.61	69.52
105	199.70	93.60	16.68	0.00	1.14	75.78
106	201.45	93.60	16.14	0.00	1.49	75.97
107	203.20	93.60	15.59	0.00	1.98	76.02
108	204.95	93.60	15.04	0.00	2.49	76.07
109	206.70	93.60	14.49	0.00	2.92	76.18
110	208.45	93.60	13.93	0.00	3.22	76.44
111	210.20	93.60	13.38	0.00	3.34	76.88
112	211.95	93.60	12.81	0.00	3.27	77.52
113	213.70	93.60	12.24	0.00	3.01	78.35
114	215.45	93.60	11.67	0.00	2.60	79.34
115	217.20	93.60	11.09	0.00	2.10	80.41
116	218.95	93.60	10.51	0.00	1.60	81.49
117	220.70	93.60	9.93	0.00	1.24	82.44
118	222.45	93.60	9.34	0.00	1.14	83.12
119	224.20	93.60	8.74	1.04	1.29	82.53
120	225.95	93.60	7.02	4.50	1.88	80.20
121	227.70	93.60	4.79	8.95	2.16	77.70
122	229.45	93.60	2.51	13.51	1.78	75.80
123	231.20	93.60	0.65	17.22	1.07	74.66
124	232.95	93.60	0.00	18.53	0.74	74.33

ALARGAMIENTO DE LOS CABLES (sobre embolo)= 151.5 mm

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

NUMERO DE CABLES = 18

TENSION EN ANCLAJE IZQUIERDO (Kp/mm2) = 144.00
TESAMOS POR LA IZQUIERDA (SI=1) = 0
TENSION EN ANCLAJE DERECHO (Kp/mm2) = 144.00
TESAMOS POR LA DERECHA (SI=1) = 1

PROPORCION DE TESADO EN LA PRIMERA FASE 0.65
AREA DE PRETENSADO (cm2) = 663.60
PENETRACION DE CUNA EN EXTREMO 1 (mm) = 5.000
PENETRACION DE CUNA EN EXTREMO 2 (mm) = 5.000

LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-1 (m) = 15.62
LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-2 (m) = 10.28

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

TENSION EN LOS CABLES. PERDIDAS DIFERIDAS (Kp/mm2)

I	S	Ti	P_RETRA	P_FLUE	P_RELAJ.
104	197.95	69.52	0.00	0.00	0.00
105	199.70	75.78	0.00	0.00	0.00
106	201.45	75.97	0.00	0.00	0.00
107	203.20	76.02	0.00	0.00	0.00
108	204.95	76.07	0.00	0.00	0.00
109	206.70	76.18	0.00	0.00	0.00
110	208.45	76.44	0.00	0.00	0.00
111	210.20	76.88	0.00	0.00	0.00
112	211.95	77.52	0.00	0.00	0.00
113	213.70	78.35	0.00	0.00	0.00
114	215.45	79.34	0.00	0.00	0.00
115	217.20	80.41	0.00	0.00	0.00
116	218.95	81.49	0.00	0.00	0.00
117	220.70	82.44	0.00	0.00	0.00
118	222.45	83.12	0.00	0.00	0.00
119	224.20	82.53	0.00	0.00	0.00
120	225.95	80.20	0.00	0.00	0.00
121	227.70	77.70	0.00	0.00	0.00
122	229.45	75.80	0.00	0.00	0.00
123	231.20	74.66	0.00	0.00	0.00
124	232.95	74.33	0.00	0.00	0.00

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

TENSION EN LOS CABLES (Kp/mm2)

I	S	To	APi	Ti	APf	Tf
104	197.95	93.60	24.08	69.52	0.00	69.52
105	199.70	93.60	17.82	75.78	0.00	75.78
106	201.45	93.60	17.63	75.97	0.00	75.97
107	203.20	93.60	17.58	76.02	0.00	76.02
108	204.95	93.60	17.53	76.07	0.00	76.07
109	206.70	93.60	17.42	76.18	0.00	76.18
110	208.45	93.60	17.16	76.44	0.00	76.44
111	210.20	93.60	16.72	76.88	0.00	76.88
112	211.95	93.60	16.08	77.52	0.00	77.52
113	213.70	93.60	15.25	78.35	0.00	78.35
114	215.45	93.60	14.26	79.34	0.00	79.34
115	217.20	93.60	13.19	80.41	0.00	80.41
116	218.95	93.60	12.11	81.49	0.00	81.49
117	220.70	93.60	11.16	82.44	0.00	82.44
118	222.45	93.60	10.48	83.12	0.00	83.12
119	224.20	93.60	11.07	82.53	0.00	82.53
120	225.95	93.60	13.40	80.20	0.00	80.20
121	227.70	93.60	15.90	77.70	0.00	77.70
122	229.45	93.60	17.80	75.80	0.00	75.80
123	231.20	93.60	18.94	74.66	0.00	74.66
124	232.95	93.60	19.27	74.33	0.00	74.33

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

FUERZAS EN LOS CABLES (T, m)

I	S(m)	Pi (T)	Mpi (mT)	Upi (T/m)	Pf (T)	Mpf (mT)	Upf (T/m)
104	197.95	4613.03	-402.8	60.21	4613.03	-402.8	60.21
105	199.70	5029.07	993.2	65.64	5029.07	993.2	65.64
106	201.45	5041.18	2103.9	65.80	5041.18	2103.9	65.80
107	203.20	5045.01	3013.0	65.85	5045.01	3013.0	65.85
108	204.95	5047.84	3720.9	65.89	5047.84	3720.9	65.89
109	206.70	5055.59	4231.8	65.99	5055.59	4231.8	65.99
110	208.45	5072.87	4550.4	66.21	5072.87	4550.4	66.21
111	210.20	5101.97	4678.5	66.59	5101.97	4678.5	66.59
112	211.95	5144.37	4614.6	67.15	5144.37	4614.6	67.15
113	213.70	5199.48	4352.2	67.86	5199.48	4352.2	67.86
114	215.45	5264.68	3880.7	68.72	5264.68	3880.7	68.72
115	217.20	5336.06	3186.8	69.65	5336.06	3186.8	69.65
116	218.95	5407.40	2256.8	70.58	5407.40	2256.8	70.58
117	220.70	5470.60	1080.4	71.40	5470.60	1080.4	71.40
118	222.45	5515.55	-343.8	71.99	5515.55	-343.8	71.99
119	224.20	5476.46	-1983.1	71.48	5476.46	-1983.1	71.48
120	225.95	5322.22	-3552.0	-335.76	5322.22	-3552.0	-335.76
121	227.70	5156.05	-3939.2	-325.27	5156.05	-3939.2	-325.27
122	229.45	5029.90	-3357.0	-317.32	5029.90	-3357.0	-317.32
123	231.20	4954.25	-1917.9	64.66	4954.25	-1917.9	64.66
124	232.95	4932.70	-430.7	64.38	4932.70	-430.7	64.38

ETAPA DE TESADO INICIAL

FUERZAS HORIZONTALES DE DESVIACION

I	S(m)	R(m)	Ti (T)	Uh(T/m)	Tf(T)	Uh(T/m)
104	197.95	1300.0	4613.03	-3.71	4613.03	-3.71
105	199.70	1300.0	5029.07	-3.87	5029.07	-3.87
106	201.45	1300.0	5041.18	-3.88	5041.18	-3.88
107	203.20	1300.0	5045.01	-3.88	5045.01	-3.88
108	204.95	1300.0	5047.84	-3.89	5047.84	-3.89
109	206.70	1300.0	5055.59	-3.90	5055.59	-3.90
110	208.45	1300.0	5072.87	-3.91	5072.87	-3.91
111	210.20	1300.0	5101.97	-3.94	5101.97	-3.94
112	211.95	1300.0	5144.37	-3.98	5144.37	-3.98
113	213.70	1300.0	5199.48	-4.02	5199.48	-4.02
114	215.45	1300.0	5264.68	-4.08	5264.68	-4.08
115	217.20	1300.0	5336.06	-4.13	5336.06	-4.13
116	218.95	1300.0	5407.40	-4.18	5407.40	-4.18
117	220.70	1300.0	5470.60	-4.23	5470.60	-4.23
118	222.45	1300.0	5515.55	-4.23	5515.55	-4.23
119	224.20	1300.0	5476.46	-4.15	5476.46	-4.15
120	225.95	1300.0	5322.22	-4.03	5322.22	-4.03
121	227.70	1300.0	5156.05	-3.92	5156.05	-3.92
122	229.45	1300.0	5029.90	-3.84	5029.90	-3.84
123	231.20	1300.0	4954.25	-3.80	4954.25	-3.80
124	232.95	1300.0	4932.70	-1.90	4932.70	-1.90

TENSION EN LOS CABLES. PERDIDAS INSTANT. (Kp/mm2)

I	X	To	P_ROZ	P_CUNA	P_ELAS	Ti
104	197.95	144.00	26.49	0.00	1.08	116.44
105	199.70	144.00	25.66	0.00	1.75	116.59
106	201.45	144.00	24.83	0.00	2.30	116.87
107	203.20	144.00	23.99	0.00	3.05	116.96
108	204.95	144.00	23.15	0.00	3.83	117.03
109	206.70	144.00	22.30	0.00	4.50	117.21
110	208.45	144.00	21.44	0.00	4.96	117.61
111	210.20	144.00	20.58	0.00	5.14	118.28
112	211.95	144.00	19.71	0.00	5.03	119.26
113	213.70	144.00	18.83	0.00	4.62	120.54
114	215.45	144.00	17.95	0.00	3.99	122.05
115	217.20	144.00	17.07	0.00	3.23	123.71
116	218.95	144.00	16.17	0.00	2.47	125.36
117	220.70	144.00	15.27	0.00	1.90	126.83
118	222.45	144.00	14.37	0.00	1.76	127.87
119	224.20	144.00	13.45	0.00	1.99	128.56
120	225.95	144.00	10.79	2.63	3.00	127.58
121	227.70	144.00	7.37	9.47	3.45	123.71
122	229.45	144.00	3.86	16.50	2.84	120.80
123	231.20	144.00	1.01	22.20	1.70	119.09
124	232.95	144.00	0.00	24.22	1.18	118.60

ALARGAMIENTO DE LOS CABLES (sobre embolo)= 228.7 mm

TESADO DEFINITIVO

PRETENSADO EN EL NERVIO = 1

NUMERO DE CABLES = 18

TENSION EN ANCLAJE IZQUIERDO (Kp/mm2) = 144.00
TESAMOS POR LA IZQUIERDA (SI=1) = 0
TENSION EN ANCLAJE DERECHO (Kp/mm2) = 144.00
TESAMOS POR LA DERECHA (SI=1) = 1

PROPORCION DE TESADO EN LA PRIMERA FASE 0.65
AREA DE PRETENSADO (cm2) = 663.60
PENETRACION DE CUNA EN EXTREMO 1 (mm) = 5.000
PENETRACION DE CUNA EN EXTREMO 2 (mm) = 5.000

LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-1 (m) = 15.62
LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-2 (m) = 7.87

PROGRAMA DE CALCULO DE PRETENSADO EN NERVIOS DE UN EMPARRILLADO

DATOS GENERALES DE PRETENSADO

NUMERO DE NERVIOS = 1
NUMERO DE VANOS = 8
NUMERO DE SECCIONES POR VANO = 21
NUMERO DE MATERIALES = 3

LUZ DEL VANO =	1	L (m) =	32.70
LUZ DEL VANO =	2	L (m) =	40.00
LUZ DEL VANO =	3	L (m) =	40.00
LUZ DEL VANO =	4	L (m) =	40.00
LUZ DEL VANO =	5	L (m) =	40.00
LUZ DEL VANO =	6	L (m) =	35.00
LUZ DEL VANO =	7	L (m) =	35.00
LUZ DEL VANO =	8	L (m) =	36.00

COEFICIENTE DE ROZAMIENTO EN CURVA = 0.21
COEFICIENTE DE DESV. PARASITAS = 0.0060
RELAJACION = 0.04
RETRACCION mm/m = 0.177
COEF. FLUENCIA = 1.978

ACERO DE PRETENSADO (Kp/mm2)

LIMITE DE PROPORCIONALIDAD AL 0,2% = 170.00
TENSION DE ROTURA = 190.00
MODULO DE DEFORMACION = 19000.00

HORMIGON

MODULO DE DEFORMACION DURANTE TESADO (Kp/cm2) = 309000.00
MODULO DE DEFORMACION A 28 DIAS (Kp/cm2) = 320000.00

CARACTERISTICAS MECANICAS DE LA SECCION 1

AREA DE LA SECCION (m2) = 14.323
INERCIA DE LA SECCION (m2) = 5.7458
V_SUP. DE LA SECCION (m2) = 1.01
V_INF. DE LA SECCION (m2) = 1.09
CANTO DE LA SECCION (m2) = 2.10

CARACTERISTICAS MECANICAS DE LA SECCION 2

AREA DE LA SECCION (m2) = 20.048
INERCIA DE LA SECCION (m2) = 6.4312
V_SUP. DE LA SECCION (m2) = 1.04
V_INF. DE LA SECCION (m2) = 1.06
CANTO DE LA SECCION (m2) = 2.10

CARACTERISTICAS MECANICAS DE LA SECCION 3

AREA DE LA SECCION (m2) = 4.410
INERCIA DE LA SECCION (m2) = 1.6200
V_SUP. DE LA SECCION (m2) = 1.05
V_INF. DE LA SECCION (m2) = 1.05
CANTO DE LA SECCION (m2) = 2.10

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 1

Parametros de la parabola = 1
A = 0.00000 B = -0.08940 C = -1.13400
Origen = 0.00 Final = 1.40
Parametros de la parabola = 2
A = 0.00369 B = -0.09974 C = -1.12676
Origen = 1.40 Final = 13.50
Parametros de la parabola = 4
A = 0.00491 B = -0.13264 C = -0.90469
Origen = 13.50 Final = 29.70
Parametros de la parabola = 5
A = -0.02653 B = 1.73492 C = -28.63789
Origen = 29.70 Final = 32.70
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 2

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 20.00 Final = 37.00
Parametros de la parabola = 6
A = -0.02760 B = 2.20800 C = -44.43199
Origen = 37.00 Final = 40.00
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 3

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00

```
Parametros de la parabola =     5
A =  0.00487      B =  -0.19482      C =   0.02024
Origen =    20.00      Final =   37.00
Parametros de la parabola =     6
A = -0.02760      B =   2.20800      C = -44.43199
Origen =    37.00      Final =   40.00
                                          (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =    4

Parametros de la parabola =     2
A = -0.02760      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    3.00
Parametros de la parabola =     3
A =  0.00487      B =  -0.19482      C =   0.02024
Origen =     3.00      Final =   20.00
Parametros de la parabola =     5
A =  0.00487      B =  -0.19482      C =   0.02024
Origen =    20.00      Final =   37.00
Parametros de la parabola =     6
A = -0.02760      B =   2.20800      C = -44.43199
Origen =    37.00      Final =   40.00
                                          (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =    5

Parametros de la parabola =     2
A = -0.02760      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    3.00
Parametros de la parabola =     3
A =  0.00487      B =  -0.19482      C =   0.02024
Origen =     3.00      Final =   20.00
Parametros de la parabola =     5
A =  0.00487      B =  -0.19482      C =   0.02024
Origen =    20.00      Final =   37.00
Parametros de la parabola =     6
A = -0.02760      B =   2.20800      C = -44.43199
Origen =    37.00      Final =   40.00
                                          (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =    6

Parametros de la parabola =     2
A = -0.03154      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    3.00
Parametros de la parabola =     3
A =  0.00653      B =  -0.22841      C =   0.07062
Origen =     3.00      Final =   17.50
Parametros de la parabola =     5
A =  0.00653      B =  -0.22841      C =   0.07062
Origen =    17.50      Final =   32.00
Parametros de la parabola =     6
A = -0.03154      B =   2.20800      C = -38.91200
Origen =    32.00      Final =   35.00
                                          (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =    7

Parametros de la parabola =     2
A = -0.03154      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    3.00
Parametros de la parabola =     3
A =  0.00653      B =  -0.22841      C =   0.07062
Origen =     3.00      Final =   17.50
Parametros de la parabola =     5
A =  0.00653      B =  -0.22841      C =   0.07062
Origen =    17.50      Final =   32.00
Parametros de la parabola =     6
A = -0.03154      B =   2.20800      C = -38.91200
Origen =    32.00      Final =   35.00
                                          (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =    8

Parametros de la parabola =     2
A = -0.03067      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    3.00
Parametros de la parabola =     3
A =  0.00613      B =  -0.22080      C =   0.05920
Origen =     3.00      Final =   18.00
Parametros de la parabola =     5
A =  0.00613      B =  -0.22080      C =   0.05920
Origen =    18.00      Final =   33.00
Parametros de la parabola =     6
A = -0.03067      B =   2.20800      C = -40.01600
Origen =    33.00      Final =   36.00
                                          (origen en inicio vano)
```

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
124	232.950	-0.949	1.151	0.087	0.0000	0.7528	0.0131
125	234.700	-1.208	0.892	-0.197	0.0229	0.7299	0.0131
126	236.450	-1.428	0.672	-0.417	0.0458	0.7070	0.0131
127	238.200	-1.608	0.492	-0.597	0.0687	0.6841	0.0131
128	239.950	-1.748	0.352	-0.737	0.0915	0.6612	0.0131
129	241.700	-1.848	0.252	-0.837	0.1144	0.6384	0.0131
130	243.450	-1.908	0.192	-0.897	0.1374	0.6154	0.0131
131	245.200	-1.928	0.172	-0.917	0.1602	0.5926	0.0131
132	246.950	-1.908	0.192	-0.897	0.1830	0.5697	0.0131
133	248.700	-1.848	0.252	-0.837	0.2060	0.5468	0.0131
134	250.450	-1.748	0.352	-0.737	0.2288	0.5239	0.0131
135	252.200	-1.608	0.492	-0.597	0.2518	0.5010	0.0131
136	253.950	-1.428	0.672	-0.417	0.2747	0.4781	0.0131
137	255.700	-1.208	0.892	-0.197	0.2976	0.4552	0.0131
138	257.450	-0.949	1.151	0.062	0.3204	0.4324	0.0131
139	259.200	-0.649	1.451	0.362	0.3435	0.4093	0.0131
140	260.950	-0.369	1.731	0.667	0.4289	0.3238	-0.0631
141	262.700	-0.272	1.828	0.764	0.5392	0.2136	-0.0613
142	264.500	-0.371	1.729	0.665	0.6497	0.1031	-0.0613
143	266.300	-0.656	1.444	0.380	0.7307	0.0221	0.0123
144	268.100	-0.954	1.146	0.082	0.7528	0.0000	0.0123

SECCIONES INICIAL Y FINAL DEL TRAZADO = 124 144
NUMERO DE VANOS INICIAL Y FINAL DEL TRAZADO = 7 8
PENDIENTE INICIAL DEL TRAZADO = -0.15989
PENDIENTE FINAL DEL TRAZADO = -0.15456

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

NUMERO DE CABLES = 18

TENSION EN ANCLAJE IZQUIERDO (Kp/mm2) = 144.00
TESAMOS POR LA IZQUIERDA (SI=1) = 0
TENSION EN ANCLAJE DERECHO (Kp/mm2) = 144.00
TESAMOS POR LA DERECHA (SI=1) = 1

PROPORCION DE TESADO EN LA PRIMERA FASE 0.65
AREA DE PRETENSADO (cm2) = 663.60
PENETRACION DE CUNA EN EXTREMO 1 (mm) = 5.000
PENETRACION DE CUNA EN EXTREMO 2 (mm) = 5.000

LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-1 (m) = 15.62
LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-2 (m) = 10.37

TENSION EN LOS CABLES. PERDIDAS INSTANT. (Kp/mm2)

I	X	To	P_ROZ	P_CUNA	P_ELAS	Ti
124	232.95	93.60	0.00	24.22	0.60	68.79
125	234.70	93.60	16.61	0.00	1.14	75.85
126	236.45	93.60	16.07	0.00	1.50	76.04
127	238.20	93.60	15.52	0.00	1.98	76.09
128	239.95	93.60	14.97	0.00	2.49	76.14
129	241.70	93.60	14.42	0.00	2.93	76.25
130	243.45	93.60	13.86	0.00	3.22	76.51
131	245.20	93.60	13.30	0.00	3.34	76.95
132	246.95	93.60	12.74	0.00	3.27	77.59
133	248.70	93.60	12.17	0.00	3.01	78.42
134	250.45	93.60	11.60	0.00	2.60	79.41
135	252.20	93.60	11.02	0.00	2.10	80.48
136	253.95	93.60	10.44	0.00	1.60	81.56
137	255.70	93.60	9.85	0.00	1.24	82.51
138	257.45	93.60	9.26	0.00	1.15	83.19
139	259.20	93.60	8.67	1.01	1.29	82.64
140	260.95	93.60	6.94	4.46	1.89	80.31
141	262.70	93.60	4.71	8.92	2.17	77.80
142	264.50	93.60	2.42	13.50	1.77	75.90
143	266.30	93.60	0.65	17.05	1.06	74.85
144	268.10	93.60	0.00	18.34	0.74	74.52

ALARGAMIENTO DE LOS CABLES (sobre embolo)= 152.3 mm

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

TENSION EN LOS CABLES. PERDIDAS DIFERIDAS (Kp/mm2)

I	S	Ti	P_RETRA	P_FLUE	P_RELAJ.
124	232.95	68.79	0.00	0.00	0.00
125	234.70	75.85	0.00	0.00	0.00
126	236.45	76.04	0.00	0.00	0.00
127	238.20	76.09	0.00	0.00	0.00
128	239.95	76.14	0.00	0.00	0.00
129	241.70	76.25	0.00	0.00	0.00
130	243.45	76.51	0.00	0.00	0.00
131	245.20	76.95	0.00	0.00	0.00
132	246.95	77.59	0.00	0.00	0.00
133	248.70	78.42	0.00	0.00	0.00
134	250.45	79.41	0.00	0.00	0.00
135	252.20	80.48	0.00	0.00	0.00
136	253.95	81.56	0.00	0.00	0.00
137	255.70	82.51	0.00	0.00	0.00
138	257.45	83.19	0.00	0.00	0.00
139	259.20	82.64	0.00	0.00	0.00
140	260.95	80.31	0.00	0.00	0.00
141	262.70	77.80	0.00	0.00	0.00
142	264.50	75.90	0.00	0.00	0.00
143	266.30	74.85	0.00	0.00	0.00
144	268.10	74.52	0.00	0.00	0.00

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

TENSION EN LOS CABLES (Kp/mm2)

I	S	To	APi	Ti	APf	Tf
124	232.95	93.60	24.81	68.79	0.00	68.79
125	234.70	93.60	17.75	75.85	0.00	75.85
126	236.45	93.60	17.56	76.04	0.00	76.04
127	238.20	93.60	17.51	76.09	0.00	76.09
128	239.95	93.60	17.46	76.14	0.00	76.14
129	241.70	93.60	17.35	76.25	0.00	76.25
130	243.45	93.60	17.09	76.51	0.00	76.51
131	245.20	93.60	16.65	76.95	0.00	76.95
132	246.95	93.60	16.01	77.59	0.00	77.59
133	248.70	93.60	15.18	78.42	0.00	78.42
134	250.45	93.60	14.19	79.41	0.00	79.41
135	252.20	93.60	13.12	80.48	0.00	80.48
136	253.95	93.60	12.04	81.56	0.00	81.56
137	255.70	93.60	11.09	82.51	0.00	82.51
138	257.45	93.60	10.41	83.19	0.00	83.19
139	259.20	93.60	10.96	82.64	0.00	82.64
140	260.95	93.60	13.29	80.31	0.00	80.31
141	262.70	93.60	15.80	77.80	0.00	77.80
142	264.50	93.60	17.70	75.90	0.00	75.90
143	266.30	93.60	18.75	74.85	0.00	74.85
144	268.10	93.60	19.08	74.52	0.00	74.52

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

FUERZAS EN LOS CABLES (T, m)

I	S(m)	Pi (T)	Mpi (mT)	Upi (T/m)	Pf (T)	Mpf (mT)	Upf (T/m)
124	232.95	4564.58	-398.6	59.58	4564.58	-398.6	59.58
125	234.70	5033.57	994.1	65.70	5033.57	994.1	65.70
126	236.45	5045.69	2105.8	65.86	5045.69	2105.8	65.86
127	238.20	5049.52	3015.7	65.91	5049.52	3015.7	65.91
128	239.95	5052.35	3724.2	65.94	5052.35	3724.2	65.94
129	241.70	5060.12	4235.6	66.05	5060.12	4235.6	66.05
130	243.45	5077.41	4554.5	66.27	5077.41	4554.5	66.27
131	245.20	5106.53	4682.7	66.65	5106.53	4682.7	66.65
132	246.95	5148.97	4618.7	67.21	5148.97	4618.7	67.21
133	248.70	5204.12	4356.1	67.93	5204.12	4356.1	67.93
134	250.45	5269.39	3884.2	68.78	5269.39	3884.2	68.78
135	252.20	5340.84	3189.7	69.71	5340.84	3189.7	69.71
136	253.95	5412.24	2258.8	70.64	5412.24	2258.8	70.64
137	255.70	5475.49	1081.4	71.47	5475.49	1081.4	71.47
138	257.45	5520.48	-344.1	72.05	5520.48	-344.1	72.05
139	259.20	5483.81	-1985.8	71.58	5483.81	-1985.8	71.58
140	260.95	5329.41	-3556.8	-336.21	5329.41	-3556.8	-336.21
141	262.70	5163.08	-3944.6	-316.67	5163.08	-3944.6	-316.67
142	264.50	5037.03	-3347.8	-308.94	5037.03	-3347.8	-308.94
143	266.30	4966.84	-1886.4	60.93	4966.84	-1886.4	60.93
144	268.10	4945.22	-404.2	60.66	4945.22	-404.2	60.66

ETAPA DE TESADO INICIAL

FUERZAS HORIZONTALES DE DESVIACION

I	S(m)	R(m)	Ti (T)	Uh(T/m)	Tf(T)	Uh(T/m)
124	232.95	1300.0	4564.58	-3.69	4564.58	-3.69
125	234.70	1300.0	5033.57	-3.88	5033.57	-3.88
126	236.45	1300.0	5045.69	-3.88	5045.69	-3.88
127	238.20	1300.0	5049.52	-3.89	5049.52	-3.89
128	239.95	1300.0	5052.35	-3.89	5052.35	-3.89
129	241.70	1300.0	5060.12	-3.90	5060.12	-3.90
130	243.45	1300.0	5077.41	-3.92	5077.41	-3.92
131	245.20	1300.0	5106.53	-3.94	5106.53	-3.94
132	246.95	1300.0	5148.97	-3.98	5148.97	-3.98
133	248.70	1300.0	5204.12	-4.03	5204.12	-4.03
134	250.45	1300.0	5269.39	-4.08	5269.39	-4.08
135	252.20	1300.0	5340.84	-4.14	5340.84	-4.14
136	253.95	1300.0	5412.24	-4.19	5412.24	-4.19
137	255.70	1300.0	5475.49	-4.23	5475.49	-4.23
138	257.45	1300.0	5520.48	-4.23	5520.48	-4.23
139	259.20	1300.0	5483.81	-4.16	5483.81	-4.16
140	260.95	1300.0	5329.41	-4.04	5329.41	-4.04
141	262.70	1300.0	5163.08	-3.92	5163.08	-3.92
142	264.50	1300.0	5037.03	-3.85	5037.03	-3.85
143	266.30	1300.0	4966.84	-3.81	4966.84	-3.81
144	268.10	1300.0	4945.22	-1.90	4945.22	-1.90

TESADO DEFINITIVO

PRETENSADO EN EL NERVIO = 1

NUMERO DE CABLES = 18

TENSION EN ANCLAJE IZQUIERDO (Kp/mm2) = 144.00
TESAMOS POR LA IZQUIERDA (SI=1) = 0
TENSION EN ANCLAJE DERECHO (Kp/mm2) = 144.00
TESAMOS POR LA DERECHA (SI=1) = 1

PROPORCION DE TESADO EN LA PRIMERA FASE 0.65
AREA DE PRETENSADO (cm2) = 663.60
PENETRACION DE CUNA EN EXTREMO 1 (mm) = 5.000
PENETRACION DE CUNA EN EXTREMO 2 (mm) = 5.000

LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-1 (m) = 15.62
LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-2 (m) = 7.98

TENSION EN LOS CABLES. PERDIDAS INSTANT. (Kp/mm2)

I	X	To	P_ROZ	P_CUNA	P_ELAS	Ti
124	232.95	144.00	26.38	0.00	1.07	116.55
125	234.70	144.00	25.56	0.00	1.75	116.70
126	236.45	144.00	24.72	0.00	2.30	116.98
127	238.20	144.00	23.88	0.00	3.05	117.07
128	239.95	144.00	23.04	0.00	3.83	117.13
129	241.70	144.00	22.19	0.00	4.50	117.31
130	243.45	144.00	21.33	0.00	4.96	117.71
131	245.20	144.00	20.47	0.00	5.15	118.39
132	246.95	144.00	19.60	0.00	5.03	119.37
133	248.70	144.00	18.72	0.00	4.63	120.65
134	250.45	144.00	17.84	0.00	4.00	122.16
135	252.20	144.00	16.95	0.00	3.23	123.82
136	253.95	144.00	16.06	0.00	2.47	125.47
137	255.70	144.00	15.16	0.00	1.90	126.94
138	257.45	144.00	14.25	0.00	1.76	127.98
139	259.20	144.00	13.33	0.00	1.99	128.67
140	260.95	144.00	10.67	2.52	3.00	127.80
141	262.70	144.00	7.25	9.37	3.45	123.93
142	264.50	144.00	3.72	16.43	2.83	121.02
143	266.30	144.00	0.99	21.89	1.69	119.43
144	268.10	144.00	0.00	23.87	1.18	118.95

ALARGAMIENTO DE LOS CABLES (sobre embolo)= 229.9 mm

PROGRAMA DE CALCULO DE PRETENSADO EN NERVIOS DE UN EMPARRILLADO

DATOS GENERALES DE PRETENSADO

NUMERO DE NERVIOS = 1
NUMERO DE VANOS = 9
NUMERO DE SECCIONES POR VANO = 21
NUMERO DE MATERIALES = 3
LUZ DEL VANO = 1 L (m) = 32.70
LUZ DEL VANO = 2 L (m) = 40.00
LUZ DEL VANO = 3 L (m) = 40.00
LUZ DEL VANO = 4 L (m) = 40.00
LUZ DEL VANO = 5 L (m) = 40.00
LUZ DEL VANO = 6 L (m) = 35.00
LUZ DEL VANO = 7 L (m) = 35.00
LUZ DEL VANO = 8 L (m) = 36.00
LUZ DEL VANO = 9 L (m) = 40.00

COEFICIENTE DE ROZAMIENTO EN CURVA = 0.21
COEFICIENTE DE DESV. PARASITAS = 0.0060
RELAJACION = 0.04
RETRACCION mm/m = 0.177
COEF. FLUENCIA = 1.978

ACERO DE PRETENSADO (Kp/mm2)

LIMITE DE PROPORCIONALIDAD AL 0,2% = 170.00
TENSION DE ROTURA = 190.00
MODULO DE DEFORMACION = 19000.00

HORMIGON

MODULO DE DEFORMACION DURANTE TESADO (Kp/cm2) = 309000.00
MODULO DE DEFORMACION A 28 DIAS (Kp/cm2) = 320000.00

CARACTERISTICAS MECANICAS DE LA SECCION 1

AREA DE LA SECCION (m2)	=	14.323
INERCIA DE LA SECCION (m2)	=	5.7458
V_SUP. DE LA SECCION (m2)	=	1.01
V_INF. DE LA SECCION (m2)	=	1.09
CANTO DE LA SECCION (m2)	=	2.10

CARACTERISTICAS MECANICAS DE LA SECCION 2

AREA DE LA SECCION (m2)	=	20.048
INERCIA DE LA SECCION (m2)	=	6.4312
V_SUP. DE LA SECCION (m2)	=	1.04
V_INF. DE LA SECCION (m2)	=	1.06
CANTO DE LA SECCION (m2)	=	2.10

CARACTERISTICAS MECANICAS DE LA SECCION 3

AREA DE LA SECCION (m2)	=	4.410
INERCIA DE LA SECCION (m2)	=	1.6200
V_SUP. DE LA SECCION (m2)	=	1.05
V_INF. DE LA SECCION (m2)	=	1.05
CANTO DE LA SECCION (m2)	=	2.10

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 1

Parametros de la parabola = 1
A = 0.00000 B = -0.08940 C = -1.13400
Origen = 0.00 Final = 1.40
Parametros de la parabola = 2
A = 0.00369 B = -0.09974 C = -1.12676
Origen = 1.40 Final = 13.50
Parametros de la parabola = 4
A = 0.00491 B = -0.13264 C = -0.90469
Origen = 13.50 Final = 29.70
Parametros de la parabola = 5
A = -0.02653 B = 1.73492 C = -28.63789
Origen = 29.70 Final = 32.70
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 2

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 20.00 Final = 37.00
Parametros de la parabola = 6
A = -0.02760 B = 2.20800 C = -44.43199
Origen = 37.00 Final = 40.00
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 3

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 20.00 Final = 37.00
Parametros de la parabola = 6
A = -0.02760 B = 2.20800 C = -44.43199
Origen = 37.00 Final = 40.00
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 4

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 20.00 Final = 37.00
Parametros de la parabola = 6
A = -0.02760 B = 2.20800 C = -44.43199
Origen = 37.00 Final = 40.00
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 5

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 20.00 Final = 37.00
Parametros de la parabola = 6
A = -0.02760 B = 2.20800 C = -44.43199
Origen = 37.00 Final = 40.00
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 6

Parametros de la parabola = 2
A = -0.03154 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00653 B = -0.22841 C = 0.07062
Origen = 3.00 Final = 17.50

```
Parametros de la parabola =     5
A =  0.00653      B =  -0.22841      C =   0.07062
Origen =    17.50      Final =   32.00
Parametros de la parabola =     6
A = -0.03154      B =   2.20800      C = -38.91200
Origen =    32.00      Final =   35.00
                                        (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =    7

Parametros de la parabola =     2
A = -0.03154      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    3.00
Parametros de la parabola =     3
A =  0.00653      B =  -0.22841      C =   0.07062
Origen =     3.00      Final =   17.50
Parametros de la parabola =     5
A =  0.00653      B =  -0.22841      C =   0.07062
Origen =    17.50      Final =   32.00
Parametros de la parabola =     6
A = -0.03154      B =   2.20800      C = -38.91200
Origen =    32.00      Final =   35.00
                                        (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =    8

Parametros de la parabola =     2
A = -0.03067      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    3.00
Parametros de la parabola =     3
A =  0.00613      B =  -0.22080      C =   0.05920
Origen =     3.00      Final =   18.00
Parametros de la parabola =     5
A =  0.00613      B =  -0.22080      C =   0.05920
Origen =    18.00      Final =   33.00
Parametros de la parabola =     6
A = -0.03067      B =   2.20800      C = -40.01600
Origen =    33.00      Final =   36.00
                                        (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =    9

Parametros de la parabola =     2
A = -0.02760      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    3.00
Parametros de la parabola =     3
A =  0.00487      B =  -0.19482      C =   0.02024
Origen =     3.00      Final =   20.00
Parametros de la parabola =     5
A =  0.00487      B =  -0.19482      C =   0.02024
Origen =    20.00      Final =   37.00
Parametros de la parabola =     6
A = -0.02760      B =   2.20800      C = -44.43199
Origen =    37.00      Final =   40.00
                                        (origen en inicio vano)
```



```
DEFINICION DEL TRAZADO DEL NERVIO=     1
```

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
144	268.100	-0.954	1.146	0.082	0.0000	0.7184	0.0123
145	269.900	-1.213	0.887	-0.202	0.0221	0.6963	0.0123
146	271.700	-1.431	0.669	-0.420	0.0443	0.6742	0.0123
147	273.500	-1.610	0.490	-0.599	0.0664	0.6520	0.0123
148	275.300	-1.749	0.351	-0.738	0.0885	0.6300	0.0123
149	277.100	-1.849	0.251	-0.838	0.1107	0.6077	0.0123
150	278.900	-1.908	0.192	-0.897	0.1327	0.5857	0.0123
151	280.700	-1.928	0.172	-0.917	0.1550	0.5635	0.0123
152	282.500	-1.908	0.192	-0.897	0.1770	0.5415	0.0123
153	284.300	-1.849	0.251	-0.838	0.1993	0.5192	0.0123
154	286.100	-1.749	0.351	-0.738	0.2212	0.4972	0.0123
155	287.900	-1.610	0.490	-0.599	0.2434	0.4750	0.0123
156	289.700	-1.431	0.669	-0.420	0.2656	0.4529	0.0123
157	291.500	-1.213	0.887	-0.202	0.2877	0.4307	0.0123
158	293.300	-0.954	1.146	0.057	0.3098	0.4087	0.0123
159	295.100	-0.656	1.444	0.355	0.3320	0.3865	0.0123
160	296.900	-0.371	1.729	0.665	0.4130	0.3055	-0.0613
161	298.700	-0.272	1.828	0.764	0.5235	0.1950	-0.0552
162	300.700	-0.382	1.718	0.654	0.6339	0.0845	-0.0552
163	302.700	-0.681	1.419	0.355	0.6989	0.0196	0.0097
164	304.700	-0.973	1.127	0.063	0.7184	0.0000	0.0097

```
SECCIONES INICIAL Y FINAL DEL TRAZADO       =  144  164
NUMERO DE VANOS INICIAL Y FINAL DEL TRAZADO =    8    9
PENDIENTE INICIAL DEL TRAZADO = -0.15456
PENDIENTE FINAL DEL TRAZADO   = -0.13638
```



```
ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO =    1
-------------------------

NUMERO DE CABLES =   18

TENSION EN ANCLAJE IZQUIERDO (Kp/mm2) =    144.00
TESAMOS POR LA IZQUIERDA (SI=1)       =    0
TENSION EN ANCLAJE DERECHO (Kp/mm2)   =    144.00
TESAMOS POR LA DERECHA (SI=1)         =    1


PROPORCION DE TESADO EN LA PRIMERA FASE   0.65
AREA DE PRETENSADO (cm2)              =    663.60
PENETRACION DE CUNA EN EXTREMO 1 (mm) =     5.000
PENETRACION DE CUNA EN EXTREMO 2 (mm) =     5.000


LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-1 (m) =     15.62
LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-2 (m) =     10.87


TENSION EN LOS CABLES. PERDIDAS INSTANT.  (Kp/mm2)
```

I	X	To	P_ROZ	P_CUNA	P_ELAS	Ti
144	268.10	93.60	0.00	23.87	0.61	69.12
145	269.90	93.60	16.20	0.00	1.15	76.25
146	271.70	93.60	15.67	0.00	1.51	76.42
147	273.50	93.60	15.12	0.00	2.00	76.48
148	275.30	93.60	14.58	0.00	2.51	76.51
149	277.10	93.60	14.03	0.00	2.94	76.63
150	278.90	93.60	13.48	0.00	3.24	76.88
151	280.70	93.60	12.92	0.00	3.36	77.32
152	282.50	93.60	12.36	0.00	3.29	77.95
153	284.30	93.60	11.80	0.00	3.02	78.78
154	286.10	93.60	11.23	0.00	2.61	79.75
155	287.90	93.60	10.66	0.00	2.11	80.83
156	289.70	93.60	10.09	0.00	1.62	81.90
157	291.50	93.60	9.51	0.00	1.25	82.85
158	293.30	93.60	8.92	0.00	1.15	83.53
159	295.10	93.60	8.33	0.83	1.28	83.15
160	296.90	93.60	6.67	4.15	1.89	80.89
161	298.70	93.60	4.43	8.63	2.18	78.35
162	300.70	93.60	2.11	13.28	1.75	76.46
163	302.70	93.60	0.62	16.26	1.03	75.69
164	304.70	93.60	0.00	17.50	0.74	75.36

ALARGAMIENTO DE LOS CABLES (sobre embolo)= 159.5 mm

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

TENSION EN LOS CABLES. PERDIDAS DIFERIDAS (Kp/mm2)

I	S	Ti	P_RETRA	P_FLUE	P_RELAJ.
144	268.10	69.12	0.00	0.00	0.00
145	269.90	76.25	0.00	0.00	0.00
146	271.70	76.42	0.00	0.00	0.00
147	273.50	76.48	0.00	0.00	0.00
148	275.30	76.51	0.00	0.00	0.00
149	277.10	76.63	0.00	0.00	0.00
150	278.90	76.88	0.00	0.00	0.00
151	280.70	77.32	0.00	0.00	0.00
152	282.50	77.95	0.00	0.00	0.00
153	284.30	78.78	0.00	0.00	0.00
154	286.10	79.75	0.00	0.00	0.00
155	287.90	80.83	0.00	0.00	0.00
156	289.70	81.90	0.00	0.00	0.00
157	291.50	82.85	0.00	0.00	0.00
158	293.30	83.53	0.00	0.00	0.00
159	295.10	83.15	0.00	0.00	0.00
160	296.90	80.89	0.00	0.00	0.00
161	298.70	78.35	0.00	0.00	0.00
162	300.70	76.46	0.00	0.00	0.00
163	302.70	75.69	0.00	0.00	0.00
164	304.70	75.36	0.00	0.00	0.00

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

TENSION EN LOS CABLES (Kp/mm2)

I	S	To	APi	Ti	APf	Tf
144	268.10	93.60	24.48	69.12	0.00	69.12
145	269.90	93.60	17.35	76.25	0.00	76.25
146	271.70	93.60	17.18	76.42	0.00	76.42
147	273.50	93.60	17.12	76.48	0.00	76.48
148	275.30	93.60	17.09	76.51	0.00	76.51
149	277.10	93.60	16.97	76.63	0.00	76.63
150	278.90	93.60	16.72	76.88	0.00	76.88
151	280.70	93.60	16.28	77.32	0.00	77.32
152	282.50	93.60	15.65	77.95	0.00	77.95
153	284.30	93.60	14.82	78.78	0.00	78.78
154	286.10	93.60	13.85	79.75	0.00	79.75
155	287.90	93.60	12.77	80.83	0.00	80.83
156	289.70	93.60	11.70	81.90	0.00	81.90
157	291.50	93.60	10.75	82.85	0.00	82.85
158	293.30	93.60	10.07	83.53	0.00	83.53
159	295.10	93.60	10.45	83.15	0.00	83.15
160	296.90	93.60	12.71	80.89	0.00	80.89
161	298.70	93.60	15.25	78.35	0.00	78.35
162	300.70	93.60	17.14	76.46	0.00	76.46
163	302.70	93.60	17.91	75.69	0.00	75.69
164	304.70	93.60	18.24	75.36	0.00	75.36

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

FUERZAS EN LOS CABLES (T, m)

I	S(m)	Pi (T)	Mpi (mT)	Upi (T/m)	Pf (T)	Mpf (mT)	Upf (T/m)
144	268.10	4587.02	-374.9	56.27	4587.02	-374.9	56.27
145	269.90	5060.01	1020.1	62.07	5060.01	1020.1	62.07
146	271.70	5071.56	2131.1	62.21	5071.56	2131.1	62.21
147	273.50	5074.94	3040.1	62.25	5074.94	3040.1	62.25
148	275.30	5077.35	3747.9	62.28	5077.35	3747.9	62.28
149	277.10	5084.98	4258.7	62.38	5084.98	4258.7	62.38
150	278.90	5101.70	4576.9	62.58	5101.70	4576.9	62.58
151	280.70	5130.78	4704.9	62.94	5130.78	4704.9	62.94
152	282.50	5172.75	4640.6	63.45	5172.75	4640.6	63.45
153	284.30	5227.64	4378.2	64.13	5227.64	4378.2	64.13
154	286.10	5292.41	3906.6	64.92	5292.41	3906.6	64.92
155	287.90	5363.60	3213.1	65.79	5363.60	3213.1	65.79
156	289.70	5434.68	2283.7	66.67	5434.68	2283.7	66.67
157	291.50	5497.86	1108.4	67.44	5497.86	1108.4	67.44
158	293.30	5542.99	-314.4	67.99	5542.99	-314.4	67.99
159	295.10	5518.06	-1957.8	67.69	5518.06	-1957.8	67.69
160	296.90	5367.59	-3567.5	-329.21	5367.59	-3567.5	-329.21
161	298.70	5199.43	-3972.4	-287.01	5199.43	-3972.4	-287.01
162	300.70	5073.83	-3316.3	-280.08	5073.83	-3316.3	-280.08
163	302.70	5023.06	-1782.5	48.93	5023.06	-1782.5	48.93
164	304.70	5001.05	-313.2	48.72	5001.05	-313.2	48.72

ETAPA DE TESADO INICIAL

FUERZAS HORIZONTALES DE DESVIACION

I	S(m)	R(m)	Ti (T)	Uh(T/m)	Tf(T)	Uh(T/m)
144	268.10	1300.0	4587.02	-3.71	4587.02	-3.71
145	269.90	1300.0	5060.01	-3.90	5060.01	-3.90
146	271.70	1300.0	5071.56	-3.90	5071.56	-3.90
147	273.50	1300.0	5074.94	-3.90	5074.94	-3.90
148	275.30	1300.0	5077.35	-3.91	5077.35	-3.91
149	277.10	1300.0	5084.98	-3.92	5084.98	-3.92
150	278.90	1300.0	5101.70	-3.94	5101.70	-3.94
151	280.70	1300.0	5130.78	-3.96	5130.78	-3.96
152	282.50	1300.0	5172.75	-4.00	5172.75	-4.00
153	284.30	1300.0	5227.64	-4.05	5227.64	-4.05
154	286.10	1300.0	5292.41	-4.10	5292.41	-4.10
155	287.90	1300.0	5363.60	-4.15	5363.60	-4.15
156	289.70	1300.0	5434.68	-4.20	5434.68	-4.20
157	291.50	1300.0	5497.86	-4.25	5497.86	-4.25
158	293.30	1300.0	5542.99	-4.25	5542.99	-4.25
159	295.10	1300.0	5518.06	-4.19	5518.06	-4.19
160	296.90	1300.0	5367.59	-4.06	5367.59	-4.06
161	298.70	1300.0	5199.43	-3.95	5199.43	-3.95
162	300.70	1300.0	5073.83	-3.88	5073.83	-3.88
163	302.70	1300.0	5023.06	-3.86	5023.06	-3.86
164	304.70	1300.0	5001.05	-1.92	5001.05	-1.92

TESADO DEFINITIVO

PRETENSADO EN EL NERVIO = 1

NUMERO DE CABLES = 18

TENSION EN ANCLAJE IZQUIERDO (Kp/mm2) = 144.00
TESAMOS POR LA IZQUIERDA (SI=1) = 0
TENSION EN ANCLAJE DERECHO (Kp/mm2) = 144.00
TESAMOS POR LA DERECHA (SI=1) = 1

PROPORCION DE TESADO EN LA PRIMERA FASE 0.65
AREA DE PRETENSADO (cm2) = 663.60
PENETRACION DE CUNA EN EXTREMO 1 (mm) = 5.000
PENETRACION DE CUNA EN EXTREMO 2 (mm) = 5.000

LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-1 (m) = 15.62
LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-2 (m) = 8.47

TENSION EN LOS CABLES. PERDIDAS INSTANT. (Kp/mm2)

I	X	To	P_ROZ	P_CUNA	P_ELAS	Ti
144	268.10	144.00	25.75	0.00	1.08	117.17
145	269.90	144.00	24.93	0.00	1.76	117.31
146	271.70	144.00	24.10	0.00	2.32	117.58
147	273.50	144.00	23.27	0.00	3.08	117.66
148	275.30	144.00	22.43	0.00	3.86	117.71
149	277.10	144.00	21.59	0.00	4.53	117.89
150	278.90	144.00	20.74	0.00	4.99	118.28
151	280.70	144.00	19.88	0.00	5.17	118.95
152	282.50	144.00	19.02	0.00	5.05	119.92
153	284.30	144.00	18.15	0.00	4.65	121.20
154	286.10	144.00	17.28	0.00	4.02	122.70
155	287.90	144.00	16.40	0.00	3.25	124.35
156	289.70	144.00	15.52	0.00	2.49	126.00
157	291.50	144.00	14.62	0.00	1.92	127.46
158	293.30	144.00	13.73	0.00	1.77	128.51
159	295.10	144.00	12.82	0.00	1.98	129.20
160	296.90	144.00	10.27	1.91	3.01	128.81
161	298.70	144.00	6.82	8.81	3.48	124.89
162	300.70	144.00	3.24	15.96	2.80	122.00
163	302.70	144.00	0.95	20.55	1.64	120.86
164	304.70	144.00	0.00	22.45	1.18	120.37

ALARGAMIENTO DE LOS CABLES (sobre embolo)= 240.6 mm

PROGRAMA DE CALCULO DE PRETENSADO EN NERVIOS DE UN EMPARRILLADO

DATOS GENERALES DE PRETENSADO

NUMERO DE NERVIOS = 1
NUMERO DE VANOS = 10
NUMERO DE SECCIONES POR VANO = 21
NUMERO DE MATERIALES = 3

LUZ DEL VANO =	1	L (m) =	32.70
LUZ DEL VANO =	2	L (m) =	40.00
LUZ DEL VANO =	3	L (m) =	40.00
LUZ DEL VANO =	4	L (m) =	40.00
LUZ DEL VANO =	5	L (m) =	40.00
LUZ DEL VANO =	6	L (m) =	35.00
LUZ DEL VANO =	7	L (m) =	35.00
LUZ DEL VANO =	8	L (m) =	36.00
LUZ DEL VANO =	9	L (m) =	40.00
LUZ DEL VANO =	10	L (m) =	39.00

COEFICIENTE DE ROZAMIENTO EN CURVA = 0.21
COEFICIENTE DE DESV. PARASITAS = 0.0060
RELAJACION = 0.04
RETRACCION mm/m = 0.177
COEF. FLUENCIA = 1.978

ACERO DE PRETENSADO (Kp/mm2)

LIMITE DE PROPORCIONALIDAD AL 0,2% = 170.00
TENSION DE ROTURA = 190.00
MODULO DE DEFORMACION = 19000.00

HORMIGON

MODULO DE DEFORMACION DURANTE TESADO (Kp/cm2) = 309000.00
MODULO DE DEFORMACION A 28 DIAS (Kp/cm2) = 320000.00

CARACTERISTICAS MECANICAS DE LA SECCION 1

AREA DE LA SECCION (m2) = 14.323
INERCIA DE LA SECCION (m2) = 5.7458
V_SUP. DE LA SECCION (m2) = 1.01
V_INF. DE LA SECCION (m2) = 1.09
CANTO DE LA SECCION (m2) = 2.10

CARACTERISTICAS MECANICAS DE LA SECCION 2

AREA DE LA SECCION (m2) = 20.048
INERCIA DE LA SECCION (m2) = 6.4312
V_SUP. DE LA SECCION (m2) = 1.04
V_INF. DE LA SECCION (m2) = 1.06
CANTO DE LA SECCION (m2) = 2.10

CARACTERISTICAS MECANICAS DE LA SECCION 3

AREA DE LA SECCION (m2) = 4.410
INERCIA DE LA SECCION (m2) = 1.6200
V_SUP. DE LA SECCION (m2) = 1.05
V_INF. DE LA SECCION (m2) = 1.05
CANTO DE LA SECCION (m2) = 2.10

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 1

Parametros de la parabola = 1
A = 0.00000 B = -0.08940 C = -1.13400
Origen = 0.00 Final = 1.40
Parametros de la parabola = 2
A = 0.00369 B = -0.09974 C = -1.12676
Origen = 1.40 Final = 13.50
Parametros de la parabola = 4
A = 0.00491 B = -0.13264 C = -0.90469
Origen = 13.50 Final = 29.70
Parametros de la parabola = 5
A = -0.02653 B = 1.73492 C = -28.63789
Origen = 29.70 Final = 32.70
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 2

Parametros de la parabola = 2
A = -0.02463 B = 0.00000 C = -0.45000
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00435 B = -0.17388 C = -0.18918
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 20.00 Final = 37.00
Parametros de la parabola = 6
A = -0.02760 B = 2.20800 C = -44.43199
Origen = 37.00 Final = 40.00
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 3

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024

```
Origen =     3.00      Final =   20.00
Parametros de la parabola =     5
A =  0.00487      B =  -0.19482      C =   0.02024
Origen =    20.00      Final =   37.00
Parametros de la parabola =     6
A = -0.02760      B =   2.20800      C = -44.43199
Origen =    37.00      Final =   40.00
                                          (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =    4

Parametros de la parabola =     2
A = -0.02760      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    3.00
Parametros de la parabola =     3
A =  0.00487      B =  -0.19482      C =   0.02024
Origen =     3.00      Final =   20.00
Parametros de la parabola =     5
A =  0.00487      B =  -0.19482      C =   0.02024
Origen =    20.00      Final =   37.00
Parametros de la parabola =     6
A = -0.02760      B =   2.20800      C = -44.43199
Origen =    37.00      Final =   40.00
                                          (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =    5

Parametros de la parabola =     2
A = -0.02760      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    3.00
Parametros de la parabola =     3
A =  0.00487      B =  -0.19482      C =   0.02024
Origen =     3.00      Final =   20.00
Parametros de la parabola =     5
A =  0.00487      B =  -0.19482      C =   0.02024
Origen =    20.00      Final =   37.00
Parametros de la parabola =     6
A = -0.02760      B =   2.20800      C = -44.43199
Origen =    37.00      Final =   40.00
                                          (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =    6

Parametros de la parabola =     2
A = -0.03154      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    3.00
Parametros de la parabola =     3
A =  0.00653      B =  -0.22841      C =   0.07062
Origen =     3.00      Final =   17.50
Parametros de la parabola =     5
A =  0.00653      B =  -0.22841      C =   0.07062
Origen =    17.50      Final =   32.00
Parametros de la parabola =     6
A = -0.03154      B =   2.20800      C = -38.91200
Origen =    32.00      Final =   35.00
                                          (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =    7

Parametros de la parabola =     2
A = -0.03154      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    3.00
Parametros de la parabola =     3
A =  0.00653      B =  -0.22841      C =   0.07062
Origen =     3.00      Final =   17.50
Parametros de la parabola =     5
A =  0.00653      B =  -0.22841      C =   0.07062
Origen =    17.50      Final =   32.00
Parametros de la parabola =     6
A = -0.03154      B =   2.20800      C = -38.91200
Origen =    32.00      Final =   35.00
                                          (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =    8

Parametros de la parabola =     2
A = -0.03067      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    3.00
Parametros de la parabola =     3
A =  0.00613      B =  -0.22080      C =   0.05920
Origen =     3.00      Final =   18.00
Parametros de la parabola =     5
A =  0.00613      B =  -0.22080      C =   0.05920
Origen =    18.00      Final =   33.00
Parametros de la parabola =     6
A = -0.03067      B =   2.20800      C = -40.01600
Origen =    33.00      Final =   36.00
                                          (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =    9

Parametros de la parabola =     2
A = -0.02760      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    3.00
Parametros de la parabola =     3
A =  0.00487      B =  -0.19482      C =   0.02024
Origen =     3.00      Final =   20.00
Parametros de la parabola =     5
A =  0.00487      B =  -0.19482      C =   0.02024
Origen =    20.00      Final =   37.00
Parametros de la parabola =     6
A = -0.02760      B =   2.20800      C = -44.43199
Origen =    37.00      Final =   40.00
                                          (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =   10

Parametros de la parabola =     2
A = -0.02831      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    3.00
Parametros de la parabola =     3
A =  0.00515      B =  -0.20073      C =   0.02909
Origen =     3.00      Final =   19.50
Parametros de la parabola =     5
A =  0.00515      B =  -0.20073      C =   0.02909
Origen =    19.50      Final =   36.00
Parametros de la parabola =     6
A = -0.02831      B =   2.20800      C = -43.32800
Origen =    36.00      Final =   39.00
                                          (origen en inicio vano)
```

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
164	304.700	-0.973	1.127	0.063	0.0000	0.6680	0.0097
165	306.700	-1.227	0.873	-0.216	0.0196	0.6484	0.0097
166	308.700	-1.441	0.659	-0.430	0.0392	0.6288	0.0097
167	310.700	-1.616	0.484	-0.605	0.0586	0.6093	0.0097
168	312.700	-1.753	0.347	-0.742	0.0782	0.5898	0.0097
169	314.700	-1.850	0.250	-0.839	0.0978	0.5702	0.0097
170	316.700	-1.909	0.191	-0.898	0.1174	0.5506	0.0097
171	318.700	-1.928	0.172	-0.917	0.1369	0.5310	0.0097
172	320.700	-1.909	0.191	-0.898	0.1564	0.5116	0.0097
173	322.700	-1.850	0.250	-0.839	0.1760	0.4920	0.0097
174	324.700	-1.753	0.347	-0.742	0.1955	0.4725	0.0097
175	326.700	-1.616	0.484	-0.605	0.2151	0.4529	0.0097
176	328.700	-1.441	0.659	-0.430	0.2347	0.4333	0.0097
177	330.700	-1.227	0.873	-0.216	0.2542	0.4138	0.0097
178	332.700	-0.973	1.127	0.038	0.2738	0.3942	0.0097
179	334.700	-0.681	1.419	0.330	0.2934	0.3745	0.0097
180	336.700	-0.382	1.718	0.654	0.3582	0.3098	-0.0552
181	338.700	-0.272	1.828	0.764	0.4687	0.1993	-0.0566
182	340.650	-0.380	1.720	0.656	0.5791	0.0889	-0.0566
183	342.600	-0.675	1.425	0.361	0.6479	0.0201	0.0103
184	344.550	-0.969	1.131	0.067	0.6680	0.0000	0.0103

SECCIONES INICIAL Y FINAL DEL TRAZADO = 164 184
NUMERO DE VANOS INICIAL Y FINAL DEL TRAZADO = 9 10
PENDIENTE INICIAL DEL TRAZADO = -0.13638
PENDIENTE FINAL DEL TRAZADO = -0.14051

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

NUMERO DE CABLES = 18

TENSION EN ANCLAJE IZQUIERDO (Kp/mm2) = 144.00
TESAMOS POR LA IZQUIERDA (SI=1) = 0
TENSION EN ANCLAJE DERECHO (Kp/mm2) = 144.00
TESAMOS POR LA DERECHA (SI=1) = 1

PROPORCION DE TESADO EN LA PRIMERA FASE 0.65
AREA DE PRETENSADO (cm2) = 663.60
PENETRACION DE CUNA EN EXTREMO 1 (mm) = 5.000
PENETRACION DE CUNA EN EXTREMO 2 (mm) = 5.000

LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-1 (m) = 15.62
LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-2 (m) = 11.17

TENSION EN LOS CABLES. PERDIDAS INSTANT. (Kp/mm2)

I	X	To	P_ROZ	P_CUNA	P_ELAS	Ti
164	304.70	93.60	0.00	22.45	0.62	70.53
165	306.70	93.60	15.72	0.00	1.17	76.71
166	308.70	93.60	15.20	0.00	1.54	76.86
167	310.70	93.60	14.68	0.00	2.03	76.89
168	312.70	93.60	14.16	0.00	2.53	76.91
169	314.70	93.60	13.63	0.00	2.96	77.01
170	316.70	93.60	13.10	0.00	3.26	77.25
171	318.70	93.60	12.56	0.00	3.38	77.66
172	320.70	93.60	12.02	0.00	3.30	78.28
173	322.70	93.60	11.48	0.00	3.04	79.08
174	324.70	93.60	10.94	0.00	2.64	80.03
175	326.70	93.60	10.39	0.00	2.14	81.07
176	328.70	93.60	9.83	0.00	1.65	82.12
177	330.70	93.60	9.28	0.00	1.27	83.06
178	332.70	93.60	8.71	0.00	1.15	83.74
179	334.70	93.60	8.15	0.75	1.24	83.46
180	336.70	93.60	6.76	3.53	1.87	81.45
181	338.70	93.60	4.50	8.05	2.20	78.86
182	340.65	93.60	2.18	12.68	1.77	76.97
183	342.60	93.60	0.62	15.80	1.04	76.14
184	344.55	93.60	0.00	17.04	0.75	75.81

ALARGAMIENTO DE LOS CABLES (sobre embolo)= 173.9 mm

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

TENSION EN LOS CABLES. PERDIDAS DIFERIDAS (Kp/mm2)

I	S	Ti	P_RETRA	P_FLUE	P_RELAJ.
164	304.70	70.53	0.00	0.00	0.00
165	306.70	76.71	0.00	0.00	0.00
166	308.70	76.86	0.00	0.00	0.00
167	310.70	76.89	0.00	0.00	0.00
168	312.70	76.91	0.00	0.00	0.00
169	314.70	77.01	0.00	0.00	0.00
170	316.70	77.25	0.00	0.00	0.00
171	318.70	77.66	0.00	0.00	0.00
172	320.70	78.28	0.00	0.00	0.00
173	322.70	79.08	0.00	0.00	0.00
174	324.70	80.03	0.00	0.00	0.00
175	326.70	81.07	0.00	0.00	0.00
176	328.70	82.12	0.00	0.00	0.00
177	330.70	83.06	0.00	0.00	0.00
178	332.70	83.74	0.00	0.00	0.00
179	334.70	83.46	0.00	0.00	0.00
180	336.70	81.45	0.00	0.00	0.00
181	338.70	78.86	0.00	0.00	0.00
182	340.65	76.97	0.00	0.00	0.00
183	342.60	76.14	0.00	0.00	0.00
184	344.55	75.81	0.00	0.00	0.00

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

TENSION EN LOS CABLES (Kp/mm2)

I	S	To	APi	Ti	APf	Tf
164	304.70	93.60	23.07	70.53	0.00	70.53
165	306.70	93.60	16.89	76.71	0.00	76.71
166	308.70	93.60	16.74	76.86	0.00	76.86
167	310.70	93.60	16.71	76.89	0.00	76.89
168	312.70	93.60	16.69	76.91	0.00	76.91
169	314.70	93.60	16.59	77.01	0.00	77.01
170	316.70	93.60	16.35	77.25	0.00	77.25
171	318.70	93.60	15.94	77.66	0.00	77.66
172	320.70	93.60	15.32	78.28	0.00	78.28
173	322.70	93.60	14.52	79.08	0.00	79.08
174	324.70	93.60	13.57	80.03	0.00	80.03
175	326.70	93.60	12.53	81.07	0.00	81.07
176	328.70	93.60	11.48	82.12	0.00	82.12
177	330.70	93.60	10.54	83.06	0.00	83.06
178	332.70	93.60	9.86	83.74	0.00	83.74
179	334.70	93.60	10.14	83.46	0.00	83.46
180	336.70	93.60	12.15	81.45	0.00	81.45
181	338.70	93.60	14.74	78.86	0.00	78.86
182	340.65	93.60	16.63	76.97	0.00	76.97
183	342.60	93.60	17.46	76.14	0.00	76.14
184	344.55	93.60	17.79	75.81	0.00	75.81

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

FUERZAS EN LOS CABLES (T, m)

I	S(m)	Pi (T)	Mpi (mT)	Upi (T/m)	Pf (T)	Mpf (mT)	Upf (T/m)
164	304.70	4680.32	-293.2	45.59	4680.32	-293.2	45.59
165	306.70	5090.56	1097.7	49.59	5090.56	1097.7	49.59
166	308.70	5100.29	2192.8	49.68	5100.29	2192.8	49.68
167	310.70	5102.25	3088.3	49.70	5102.25	3088.3	49.70
168	312.70	5103.69	3785.2	49.72	5103.69	3785.2	49.72
169	314.70	5110.25	4287.9	49.78	5110.25	4287.9	49.78
170	316.70	5126.12	4600.8	49.93	5126.12	4600.8	49.93
171	318.70	5153.80	4726.0	50.20	5153.80	4726.0	50.20
172	320.70	5194.35	4662.0	50.60	5194.35	4662.0	50.60
173	322.70	5247.50	4403.0	51.12	5247.50	4403.0	51.12
174	324.70	5310.63	3938.7	51.73	5310.63	3938.7	51.73
175	326.70	5380.01	3256.4	52.41	5380.01	3256.4	52.41
176	328.70	5449.70	2343.1	53.09	5449.70	2343.1	53.09
177	330.70	5511.80	1188.5	53.69	5511.80	1188.5	53.69
178	332.70	5557.08	-209.1	54.13	5557.08	-209.1	54.13
179	334.70	5538.67	-1827.0	53.95	5538.67	-1827.0	53.95
180	336.70	5404.97	-3532.7	-298.35	5404.97	-3532.7	-298.35
181	338.70	5232.97	-3998.0	-296.27	5232.97	-3998.0	-296.27
182	340.65	5107.45	-3352.3	-289.16	5107.45	-3352.3	-289.16
183	342.60	5052.59	-1821.7	52.01	5052.59	-1821.7	52.01
184	344.55	5030.89	-336.9	51.79	5030.89	-336.9	51.79

ETAPA DE TESADO INICIAL

FUERZAS HORIZONTALES DE DESVIACION

I	S(m)	R(m)	Ti (T)	Uh(T/m)	Tf(T)	Uh(T/m)
164	304.70	1300.0	4680.32	-3.76	4680.32	-3.76
165	306.70	1300.0	5090.56	-3.92	5090.56	-3.92
166	308.70	1300.0	5100.29	-3.92	5100.29	-3.92
167	310.70	1300.0	5102.25	-3.93	5102.25	-3.93
168	312.70	1300.0	5103.69	-3.93	5103.69	-3.93
169	314.70	1300.0	5110.25	-3.94	5110.25	-3.94
170	316.70	1300.0	5126.12	-3.95	5126.12	-3.95
171	318.70	1300.0	5153.80	-3.98	5153.80	-3.98
172	320.70	1300.0	5194.35	-4.02	5194.35	-4.02
173	322.70	1300.0	5247.50	-4.06	5247.50	-4.06
174	324.70	1300.0	5310.63	-4.11	5310.63	-4.11
175	326.70	1300.0	5380.01	-4.17	5380.01	-4.17
176	328.70	1300.0	5449.70	-4.22	5449.70	-4.22
177	330.70	1300.0	5511.80	-4.26	5511.80	-4.26
178	332.70	1300.0	5557.08	-4.27	5557.08	-4.27
179	334.70	1300.0	5538.67	-4.21	5538.67	-4.21
180	336.70	1300.0	5404.97	-4.09	5404.97	-4.09
181	338.70	1300.0	5232.97	-3.98	5232.97	-3.98
182	340.65	1300.0	5107.45	-3.91	5107.45	-3.91
183	342.60	1300.0	5052.59	-3.88	5052.59	-3.88
184	344.55	1300.0	5030.89	-1.93	5030.89	-1.93

TESADO DEFINITIVO

PRETENSADO EN EL NERVIO = 1

NUMERO DE CABLES = 18

TENSION EN ANCLAJE IZQUIERDO (Kp/mm2) = 144.00
TESAMOS POR LA IZQUIERDA (SI=1) = 0
TENSION EN ANCLAJE DERECHO (Kp/mm2) = 144.00
TESAMOS POR LA DERECHA (SI=1) = 1

PROPORCION DE TESADO EN LA PRIMERA FASE 0.65
AREA DE PRETENSADO (cm2) = 663.60
PENETRACION DE CUNA EN EXTREMO 1 (mm) = 5.000
PENETRACION DE CUNA EN EXTREMO 2 (mm) = 5.000

LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-1 (m) = 15.62
LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-2 (m) = 8.55

TENSION EN LOS CABLES. PERDIDAS INSTANT. (Kp/mm2)

I	X	To	P_ROZ	P_CUNA	P_ELAS	Ti
164	304.70	144.00	24.98	0.00	1.09	117.93
165	306.70	144.00	24.18	0.00	1.80	118.02
166	308.70	144.00	23.39	0.00	2.37	118.24
167	310.70	144.00	22.59	0.00	3.13	118.29
168	312.70	144.00	21.78	0.00	3.90	118.32
169	314.70	144.00	20.97	0.00	4.56	118.47
170	316.70	144.00	20.15	0.00	5.01	118.84
171	318.70	144.00	19.32	0.00	5.19	119.48
172	320.70	144.00	18.50	0.00	5.08	120.42
173	322.70	144.00	17.66	0.00	4.68	121.66
174	324.70	144.00	16.82	0.00	4.06	123.12
175	326.70	144.00	15.98	0.00	3.30	124.73
176	328.70	144.00	15.12	0.00	2.53	126.34
177	330.70	144.00	14.27	0.00	1.95	127.78
178	332.70	144.00	13.40	0.00	1.76	128.83
179	334.70	144.00	12.53	0.00	1.92	129.55
180	336.70	144.00	10.40	1.50	2.96	129.15
181	338.70	144.00	6.92	8.46	3.49	125.14
182	340.65	144.00	3.36	15.58	2.82	122.25
183	342.60	144.00	0.96	20.37	1.66	121.01
184	344.55	144.00	0.00	22.29	1.19	120.52

ALARGAMIENTO DE LOS CABLES (sobre embolo)= 263.1 mm

PROGRAMA DE CALCULO DE PRETENSADO EN NERVIOS DE UN EMPARRILLADO

DATOS GENERALES DE PRETENSADO

NUMERO DE NERVIOS = 1
NUMERO DE VANOS = 11
NUMERO DE SECCIONES POR VANO = 21
NUMERO DE MATERIALES = 3
LUZ DEL VANO = 1 L (m) = 32.70
LUZ DEL VANO = 2 L (m) = 40.00
LUZ DEL VANO = 3 L (m) = 40.00
LUZ DEL VANO = 4 L (m) = 40.00
LUZ DEL VANO = 5 L (m) = 40.00
LUZ DEL VANO = 6 L (m) = 35.00
LUZ DEL VANO = 7 L (m) = 35.00
LUZ DEL VANO = 8 L (m) = 36.00
LUZ DEL VANO = 9 L (m) = 40.00
LUZ DEL VANO = 10 L (m) = 39.00
LUZ DEL VANO = 11 L (m) = 28.20

COEFICIENTE DE ROZAMIENTO EN CURVA = 0.21
COEFICIENTE DE DESV. PARASITAS = 0.0060
RELAJACION = 0.04
RETRACCION mm/m = 0.177
COEF. FLUENCIA = 1.978

ACERO DE PRETENSADO (Kp/mm2)

LIMITE DE PROPORCIONALIDAD AL 0,2% = 170.00
TENSION DE ROTURA = 190.00
MODULO DE DEFORMACION = 19000.00

HORMIGON

MODULO DE DEFORMACION DURANTE TESADO (Kp/cm2) = 309000.00
MODULO DE DEFORMACION A 28 DIAS (Kp/cm2) = 320000.00

CARACTERISTICAS MECANICAS DE LA SECCION 1

AREA DE LA SECCION (m2)	=	14.323
INERCIA DE LA SECCION (m2)	=	5.7458
V_SUP. DE LA SECCION (m2)	=	1.01
V_INF. DE LA SECCION (m2)	=	1.09
CANTO DE LA SECCION (m2)	=	2.10

CARACTERISTICAS MECANICAS DE LA SECCION 2

AREA DE LA SECCION (m2)	=	20.048
INERCIA DE LA SECCION (m2)	=	6.4312
V_SUP. DE LA SECCION (m2)	=	1.04
V_INF. DE LA SECCION (m2)	=	1.06
CANTO DE LA SECCION (m2)	=	2.10

CARACTERISTICAS MECANICAS DE LA SECCION 3

AREA DE LA SECCION (m2)	=	4.410
INERCIA DE LA SECCION (m2)	=	1.6200
V_SUP. DE LA SECCION (m2)	=	1.05
V_INF. DE LA SECCION (m2)	=	1.05
CANTO DE LA SECCION (m2)	=	2.10

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 1

Parametros de la parabola = 1
A = 0.00000 B = -0.08940 C = -1.13400
Origen = 0.00 Final = 1.40
Parametros de la parabola = 2
A = 0.00369 B = -0.09974 C = -1.12676
Origen = 1.40 Final = 13.50
Parametros de la parabola = 4
A = 0.00491 B = -0.13264 C = -0.90469
Origen = 13.50 Final = 29.70
Parametros de la parabola = 5
A = -0.02653 B = 1.73492 C = -28.63789
Origen = 29.70 Final = 32.70
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 2

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 20.00 Final = 37.00
Parametros de la parabola = 6
A = -0.02760 B = 2.20800 C = -44.43199
Origen = 37.00 Final = 40.00
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 3

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 20.00 Final = 37.00
Parametros de la parabola = 6
A = -0.02760 B = 2.20800 C = -44.43199
Origen = 37.00 Final = 40.00
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 4

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 20.00 Final = 37.00
Parametros de la parabola = 6
A = -0.02760 B = 2.20800 C = -44.43199
Origen = 37.00 Final = 40.00
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 5

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 20.00 Final = 37.00
Parametros de la parabola = 6
A = -0.02760 B = 2.20800 C = -44.43199
Origen = 37.00 Final = 40.00
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 6

Parametros de la parabola = 2
A = -0.03154 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00653 B = -0.22841 C = 0.07062
Origen = 3.00 Final = 17.50

```
Parametros de la parabola =     5
A =  0.00653      B =  -0.22841      C =   0.07062
Origen =    17.50      Final =   32.00
Parametros de la parabola =     6
A = -0.03154      B =   2.20800      C = -38.91200
Origen =    32.00      Final =   35.00
                                        (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =    7

Parametros de la parabola =     2
A = -0.03154      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    3.00
Parametros de la parabola =     3
A =  0.00653      B =  -0.22841      C =   0.07062
Origen =     3.00      Final =   17.50
Parametros de la parabola =     5
A =  0.00653      B =  -0.22841      C =   0.07062
Origen =    17.50      Final =   32.00
Parametros de la parabola =     6
A = -0.03154      B =   2.20800      C = -38.91200
Origen =    32.00      Final =   35.00
                                        (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =    8

Parametros de la parabola =     2
A = -0.03067      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    3.00
Parametros de la parabola =     3
A =  0.00613      B =  -0.22080      C =   0.05920
Origen =     3.00      Final =   18.00
Parametros de la parabola =     5
A =  0.00613      B =  -0.22080      C =   0.05920
Origen =    18.00      Final =   33.00
Parametros de la parabola =     6
A = -0.03067      B =   2.20800      C = -40.01600
Origen =    33.00      Final =   36.00
                                        (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =    9

Parametros de la parabola =     2
A = -0.02760      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    3.00
Parametros de la parabola =     3
A =  0.00487      B =  -0.19482      C =   0.02024
Origen =     3.00      Final =   20.00
Parametros de la parabola =     5
A =  0.00487      B =  -0.19482      C =   0.02024
Origen =    20.00      Final =   37.00
Parametros de la parabola =     6
A = -0.02760      B =   2.20800      C = -44.43199
Origen =    37.00      Final =   40.00
                                        (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =   10

Parametros de la parabola =     2
A = -0.02831      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    3.00
Parametros de la parabola =     3
A =  0.00515      B =  -0.20073      C =   0.02909
Origen =     3.00      Final =   19.50
Parametros de la parabola =     5
A =  0.00515      B =  -0.20073      C =   0.02909
Origen =    19.50      Final =   36.00
Parametros de la parabola =     6
A = -0.02831      B =   2.20800      C = -43.32800
Origen =    36.00      Final =   39.00
                                        (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =   11

Parametros de la parabola =     2
A = -0.03617      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    2.50
Parametros de la parabola =     3
A =  0.00628      B =  -0.21222      C =  -0.00672
Origen =     2.50      Final =   16.90
Parametros de la parabola =     5
A =  0.00530      B =  -0.17904      C =  -0.28711
Origen =    16.90      Final =   26.80
Parametros de la parabola =     6
A =  0.00000      B =   0.10488      C =  -4.09167
Origen =    26.80      Final =   28.20
                                        (origen en inicio vano)
```

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
184	344.550	-0.969	1.131	0.067	0.0000	0.6840	0.0103
185	346.500	-1.223	0.877	-0.212	0.0201	0.6639	0.0103
186	348.450	-1.439	0.661	-0.428	0.0402	0.6438	0.0103
187	350.400	-1.615	0.485	-0.604	0.0604	0.6236	0.0103
188	352.350	-1.752	0.348	-0.741	0.0806	0.6034	0.0103
189	354.300	-1.850	0.250	-0.839	0.1007	0.5834	0.0103
190	356.250	-1.908	0.192	-0.897	0.1208	0.5632	0.0103
191	358.200	-1.928	0.172	-0.917	0.1409	0.5431	0.0103
192	360.150	-1.908	0.192	-0.897	0.1610	0.5230	0.0103
193	362.100	-1.850	0.250	-0.839	0.1813	0.5028	0.0103
194	364.050	-1.752	0.348	-0.741	0.2015	0.4826	0.0103
195	366.000	-1.615	0.485	-0.604	0.2216	0.4624	0.0103
196	367.950	-1.439	0.661	-0.428	0.2417	0.4423	0.0103
197	369.900	-1.223	0.877	-0.212	0.2618	0.4222	0.0103
198	371.850	-0.969	1.131	0.042	0.2820	0.4021	0.0103
199	373.800	-0.675	1.425	0.336	0.3021	0.3819	0.0103
200	375.750	-0.380	1.720	0.656	0.3710	0.3131	-0.0566
201	377.700	-0.272	1.828	0.764	0.4814	0.2027	-0.0723
202	379.110	-0.344	1.756	0.692	0.5834	0.1006	-0.0723
203	380.520	-0.555	1.545	0.481	0.6663	0.0178	0.0126
204	381.930	-0.792	1.308	0.244	0.6840	0.0000	0.0126

SECCIONES INICIAL Y FINAL DEL TRAZADO = 184 204
NUMERO DE VANOS INICIAL Y FINAL DEL TRAZADO = 10 11
PENDIENTE INICIAL DEL TRAZADO = -0.14051
PENDIENTE FINAL DEL TRAZADO = -0.15910

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

NUMERO DE CABLES = 18

TENSION EN ANCLAJE IZQUIERDO (Kp/mm2) = 144.00
TESAMOS POR LA IZQUIERDA (SI=1) = 0
TENSION EN ANCLAJE DERECHO (Kp/mm2) = 144.00
TESAMOS POR LA DERECHA (SI=1) = 1

PROPORCION DE TESADO EN LA PRIMERA FASE 0.65
AREA DE PRETENSADO (cm2) = 663.60
PENETRACION DE CUNA EN EXTREMO 1 (mm) = 5.000
PENETRACION DE CUNA EN EXTREMO 2 (mm) = 5.000

LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-1 (m) = 15.62
LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-2 (m) = 10.73

TENSION EN LOS CABLES. PERDIDAS INSTANT. (Kp/mm2)

I	X	To	P_ROZ	P_CUNA	P_ELAS	Ti
184	344.55	93.60	0.00	22.29	0.63	70.68
185	346.50	93.60	15.74	0.00	1.17	76.70
186	348.45	93.60	15.21	0.00	1.54	76.85
187	350.40	93.60	14.69	0.00	2.03	76.89
188	352.35	93.60	14.16	0.00	2.53	76.91
189	354.30	93.60	13.63	0.00	2.96	77.01
190	356.25	93.60	13.09	0.00	3.26	77.25
191	358.20	93.60	12.55	0.00	3.38	77.67
192	360.15	93.60	12.01	0.00	3.30	78.29
193	362.10	93.60	11.46	0.00	3.04	79.10
194	364.05	93.60	10.90	0.00	2.63	80.06
195	366.00	93.60	10.35	0.00	2.14	81.11
196	367.95	93.60	9.79	0.00	1.64	82.17
197	369.90	93.60	9.23	0.00	1.26	83.11
198	371.85	93.60	8.66	0.38	1.14	83.41
199	373.80	93.60	8.09	1.52	1.24	82.74
200	375.75	93.60	6.64	4.44	1.86	80.67
201	377.70	93.60	4.38	8.96	2.18	78.09
202	379.11	93.60	2.28	13.14	1.87	76.30
203	380.52	93.60	0.51	16.68	1.26	75.14
204	381.93	93.60	0.00	17.71	0.86	75.03

ALARGAMIENTO DE LOS CABLES (sobre embolo)= 162.5 mm

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

TENSION EN LOS CABLES. PERDIDAS DIFERIDAS (Kp/mm2)

I	S	Ti	P_RETRA	P_FLUE	P_RELAJ.
184	344.55	70.68	0.00	0.00	0.00
185	346.50	76.70	0.00	0.00	0.00
186	348.45	76.85	0.00	0.00	0.00
187	350.40	76.89	0.00	0.00	0.00
188	352.35	76.91	0.00	0.00	0.00
189	354.30	77.01	0.00	0.00	0.00
190	356.25	77.25	0.00	0.00	0.00
191	358.20	77.67	0.00	0.00	0.00
192	360.15	78.29	0.00	0.00	0.00
193	362.10	79.10	0.00	0.00	0.00
194	364.05	80.06	0.00	0.00	0.00
195	366.00	81.11	0.00	0.00	0.00
196	367.95	82.17	0.00	0.00	0.00
197	369.90	83.11	0.00	0.00	0.00
198	371.85	83.41	0.00	0.00	0.00
199	373.80	82.74	0.00	0.00	0.00
200	375.75	80.67	0.00	0.00	0.00
201	377.70	78.09	0.00	0.00	0.00
202	379.11	76.30	0.00	0.00	0.00
203	380.52	75.14	0.00	0.00	0.00
204	381.93	75.03	0.00	0.00	0.00

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

TENSION EN LOS CABLES (Kp/mm2)

I	S	To	APi	Ti	APf	Tf
184	344.55	93.60	22.92	70.68	0.00	70.68
185	346.50	93.60	16.90	76.70	0.00	76.70
186	348.45	93.60	16.75	76.85	0.00	76.85
187	350.40	93.60	16.71	76.89	0.00	76.89
188	352.35	93.60	16.69	76.91	0.00	76.91
189	354.30	93.60	16.59	77.01	0.00	77.01
190	356.25	93.60	16.35	77.25	0.00	77.25
191	358.20	93.60	15.93	77.67	0.00	77.67
192	360.15	93.60	15.31	78.29	0.00	78.29
193	362.10	93.60	14.50	79.10	0.00	79.10
194	364.05	93.60	13.54	80.06	0.00	80.06
195	366.00	93.60	12.49	81.11	0.00	81.11
196	367.95	93.60	11.43	82.17	0.00	82.17
197	369.90	93.60	10.49	83.11	0.00	83.11
198	371.85	93.60	10.19	83.41	0.00	83.41
199	373.80	93.60	10.86	82.74	0.00	82.74
200	375.75	93.60	12.93	80.67	0.00	80.67
201	377.70	93.60	15.51	78.09	0.00	78.09
202	379.11	93.60	17.30	76.30	0.00	76.30
203	380.52	93.60	18.46	75.14	0.00	75.14
204	381.93	93.60	18.57	75.03	0.00	75.03

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

FUERZAS EN LOS CABLES (T, m)

I	S(m)	Pi (T)	Mpi (mT)	Upi (T/m)	Pf (T)	Mpf (mT)	Upf (T/m)
184	344.55	4690.62	-314.2	48.28	4690.62	-314.2	48.28
185	346.50	5089.71	1081.3	52.39	5089.71	1081.3	52.39
186	348.45	5099.82	2181.3	52.50	5099.82	2181.3	52.50
187	350.40	5102.18	3081.0	52.52	5102.18	3081.0	52.52
188	352.35	5103.86	3781.3	52.54	5103.86	3781.3	52.54
189	354.30	5110.50	4286.3	52.61	5110.50	4286.3	52.61
190	356.25	5126.53	4600.7	52.77	5126.53	4600.7	52.77
191	358.20	5154.47	4726.7	53.06	5154.47	4726.7	53.06
192	360.15	5195.46	4662.6	53.48	5195.46	4662.6	53.48
193	362.10	5249.07	4402.5	54.03	5249.07	4402.5	54.03
194	364.05	5312.83	3936.1	54.69	5312.83	3936.1	54.69
195	366.00	5382.60	3250.4	55.41	5382.60	3250.4	55.41
196	367.95	5452.58	2332.2	56.13	5452.58	2332.2	56.13
197	369.90	5514.97	1171.6	56.77	5514.97	1171.6	56.77
198	371.85	5535.28	-232.3	56.98	5535.28	-232.3	56.98
199	373.80	5490.90	-1842.4	56.52	5490.90	-1842.4	56.52
200	375.75	5353.15	-3513.6	-303.07	5353.15	-3513.6	-303.07
201	377.70	5182.22	-3959.2	-374.84	5182.22	-3959.2	-374.84
202	379.11	5063.30	-3504.3	-366.24	5063.30	-3504.3	-366.24
203	380.52	4986.42	-2397.2	62.62	4986.42	-2397.2	62.62
204	381.93	4978.75	-1214.4	62.52	4978.75	-1214.4	62.52

ETAPA DE TESADO INICIAL

FUERZAS HORIZONTALES DE DESVIACION

I	S(m)	R(m)	Ti (T)	Uh(T/m)	Tf(T)	Uh(T/m)
184	344.55	1300.0	4690.62	-3.76	4690.62	-3.76
185	346.50	1300.0	5089.71	-3.92	5089.71	-3.92
186	348.45	1300.0	5099.82	-3.92	5099.82	-3.92
187	350.40	1300.0	5102.18	-3.93	5102.18	-3.93
188	352.35	1300.0	5103.86	-3.93	5103.86	-3.93
189	354.30	1300.0	5110.50	-3.94	5110.50	-3.94
190	356.25	1300.0	5126.53	-3.95	5126.53	-3.95
191	358.20	1300.0	5154.47	-3.98	5154.47	-3.98
192	360.15	1300.0	5195.46	-4.02	5195.46	-4.02
193	362.10	1300.0	5249.07	-4.06	5249.07	-4.06
194	364.05	1300.0	5312.83	-4.11	5312.83	-4.11
195	366.00	1300.0	5382.60	-4.17	5382.60	-4.17
196	367.95	1300.0	5452.58	-4.22	5452.58	-4.22
197	369.90	1300.0	5514.97	-4.25	5514.97	-4.25
198	371.85	1300.0	5535.28	-4.24	5535.28	-4.24
199	373.80	1300.0	5490.90	-4.17	5490.90	-4.17
200	375.75	1300.0	5353.15	-4.05	5353.15	-4.05
201	377.70	1300.0	5182.22	-3.94	5182.22	-3.94
202	379.11	1300.0	5063.30	-3.87	5063.30	-3.87
203	380.52	1300.0	4986.42	-3.83	4986.42	-3.83
204	381.93	1300.0	4978.75	-1.91	4978.75	-1.91

TESADO DEFINITIVO

PRETENSADO EN EL NERVIO = 1

NUMERO DE CABLES = 18

TENSION EN ANCLAJE IZQUIERDO (Kp/mm2) = 144.00
TESAMOS POR LA IZQUIERDA (SI=1) = 0
TENSION EN ANCLAJE DERECHO (Kp/mm2) = 144.00
TESAMOS POR LA DERECHA (SI=1) = 1

PROPORCION DE TESADO EN LA PRIMERA FASE 0.65
AREA DE PRETENSADO (cm2) = 663.60
PENETRACION DE CUNA EN EXTREMO 1 (mm) = 5.000
PENETRACION DE CUNA EN EXTREMO 2 (mm) = 5.000

LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-1 (m) = 15.62
LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-2 (m) = 7.85

TENSION EN LOS CABLES. PERDIDAS INSTANT. (Kp/mm2)

I	X	To	P_ROZ	P_CUNA	P_ELAS	Ti
184	344.55	144.00	25.01	0.00	1.10	117.90
185	346.50	144.00	24.21	0.00	1.79	118.00
186	348.45	144.00	23.41	0.00	2.36	118.23
187	350.40	144.00	22.60	0.00	3.12	118.29
188	352.35	144.00	21.78	0.00	3.89	118.33
189	354.30	144.00	20.96	0.00	4.56	118.48
190	356.25	144.00	20.14	0.00	5.01	118.85
191	358.20	144.00	19.31	0.00	5.19	119.50
192	360.15	144.00	18.47	0.00	5.08	120.45
193	362.10	144.00	17.63	0.00	4.68	121.69
194	364.05	144.00	16.78	0.00	4.05	123.17
195	366.00	144.00	15.92	0.00	3.29	124.79
196	367.95	144.00	15.06	0.00	2.53	126.41
197	369.90	144.00	14.20	0.00	1.94	127.86
198	371.85	144.00	13.33	0.00	1.76	128.91
199	373.80	144.00	12.45	0.00	1.92	129.63
200	375.75	144.00	10.21	3.84	2.93	127.03
201	377.70	144.00	6.73	10.79	3.43	123.05
202	379.11	144.00	3.51	17.23	2.95	120.30
203	380.52	144.00	0.79	22.67	1.99	118.54
204	381.93	144.00	0.00	24.25	1.36	118.38

ALARGAMIENTO DE LOS CABLES (sobre embolo)= 246.2 mm

PROGRAMA DE CALCULO DE PRETENSADO EN NERVIOS DE UN EMPARRILLADO

DATOS GENERALES DE PRETENSADO

NUMERO DE NERVIOS = 1
NUMERO DE VANOS = 11
NUMERO DE SECCIONES POR VANO = 21
NUMERO DE MATERIALES = 3
LUZ DEL VANO = 1 L (m) = 32.70
LUZ DEL VANO = 2 L (m) = 40.00
LUZ DEL VANO = 3 L (m) = 40.00
LUZ DEL VANO = 4 L (m) = 40.00
LUZ DEL VANO = 5 L (m) = 40.00
LUZ DEL VANO = 6 L (m) = 35.00
LUZ DEL VANO = 7 L (m) = 35.00
LUZ DEL VANO = 8 L (m) = 36.00
LUZ DEL VANO = 9 L (m) = 40.00
LUZ DEL VANO = 10 L (m) = 39.00
LUZ DEL VANO = 11 L (m) = 28.20

COEFICIENTE DE ROZAMIENTO EN CURVA = 0.21
COEFICIENTE DE DESV. PARASITAS = 0.0060
RELAJACION = 0.04
RETRACCION mm/m = 0.177
COEF. FLUENCIA = 1.978

ACERO DE PRETENSADO (Kp/mm2)

LIMITE DE PROPORCIONALIDAD AL 0,2% = 170.00
TENSION DE ROTURA = 190.00
MODULO DE DEFORMACION = 19000.00

HORMIGON

MODULO DE DEFORMACION DURANTE TESADO (Kp/cm2) = 309000.00
MODULO DE DEFORMACION A 28 DIAS (Kp/cm2) = 320000.00

CARACTERISTICAS MECANICAS DE LA SECCION 1

AREA DE LA SECCION (m2) = 14.323
INERCIA DE LA SECCION (m2) = 5.7458
V_SUP. DE LA SECCION (m2) = 1.01
V_INF. DE LA SECCION (m2) = 1.09
CANTO DE LA SECCION (m2) = 2.10

CARACTERISTICAS MECANICAS DE LA SECCION 2

AREA DE LA SECCION (m2) = 20.048
INERCIA DE LA SECCION (m2) = 6.4312
V_SUP. DE LA SECCION (m2) = 1.04
V_INF. DE LA SECCION (m2) = 1.06
CANTO DE LA SECCION (m2) = 2.10

CARACTERISTICAS MECANICAS DE LA SECCION 3

AREA DE LA SECCION (m2) = 4.410
INERCIA DE LA SECCION (m2) = 1.6200
V_SUP. DE LA SECCION (m2) = 1.05
V_INF. DE LA SECCION (m2) = 1.05
CANTO DE LA SECCION (m2) = 2.10

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 1

Parametros de la parabola = 1
A = 0.00000 B = -0.08940 C = -1.13400
Origen = 0.00 Final = 1.40
Parametros de la parabola = 2
A = 0.00369 B = -0.09974 C = -1.12676
Origen = 1.40 Final = 13.50
Parametros de la parabola = 4
A = 0.00491 B = -0.13264 C = -0.90469
Origen = 13.50 Final = 29.70
Parametros de la parabola = 5
A = -0.02653 B = 1.73492 C = -28.63789
Origen = 29.70 Final = 32.70
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 2

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 20.00 Final = 37.00
Parametros de la parabola = 6
A = -0.02760 B = 2.20800 C = -44.43199
Origen = 37.00 Final = 40.00
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 3

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 20.00 Final = 37.00
Parametros de la parabola = 6
A = -0.02760 B = 2.20800 C = -44.43199
Origen = 37.00 Final = 40.00
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 4

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 20.00 Final = 37.00
Parametros de la parabola = 6
A = -0.02760 B = 2.20800 C = -44.43199
Origen = 37.00 Final = 40.00
(origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO = 1 VANO = 5

Parametros de la parabola = 2
A = -0.02760 B = 0.00000 C = -0.27200
Origen = 0.00 Final = 3.00
Parametros de la parabola = 3
A = 0.00487 B = -0.19482 C = 0.02024
Origen = 3.00 Final = 20.00
Parametros de la parabola = 5

```
A =  0.00487      B =  -0.19482      C =   0.02024
Origen =    20.00      Final =   37.00
Parametros de la parabola =     6
A = -0.02760      B =   2.20800      C = -44.43199
Origen =    37.00      Final =   40.00
                                        (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =    6

Parametros de la parabola =     2
A = -0.03154      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    3.00
Parametros de la parabola =     3
A =  0.00653      B =  -0.22841      C =   0.07062
Origen =     3.00      Final =   17.50
Parametros de la parabola =     5
A =  0.00653      B =  -0.22841      C =   0.07062
Origen =    17.50      Final =   32.00
Parametros de la parabola =     6
A = -0.03154      B =   2.20800      C = -38.91200
Origen =    32.00      Final =   35.00
                                        (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =    7

Parametros de la parabola =     2
A = -0.03154      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    3.00
Parametros de la parabola =     3
A =  0.00653      B =  -0.22841      C =   0.07062
Origen =     3.00      Final =   17.50
Parametros de la parabola =     5
A =  0.00653      B =  -0.22841      C =   0.07062
Origen =    17.50      Final =   32.00
Parametros de la parabola =     6
A = -0.03154      B =   2.20800      C = -38.91200
Origen =    32.00      Final =   35.00
                                        (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =    8

Parametros de la parabola =     2
A = -0.03067      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    3.00
Parametros de la parabola =     3
A =  0.00613      B =  -0.22080      C =   0.05920
Origen =     3.00      Final =   18.00
Parametros de la parabola =     5
A =  0.00613      B =  -0.22080      C =   0.05920
Origen =    18.00      Final =   33.00
Parametros de la parabola =     6
A = -0.03067      B =   2.20800      C = -40.01600
Origen =    33.00      Final =   36.00
                                        (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =    9

Parametros de la parabola =     2
A = -0.02760      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    3.00
Parametros de la parabola =     3
A =  0.00487      B =  -0.19482      C =   0.02024
Origen =     3.00      Final =   20.00
Parametros de la parabola =     5
A =  0.00487      B =  -0.19482      C =   0.02024
Origen =    20.00      Final =   37.00
Parametros de la parabola =     6
A = -0.02760      B =   2.20800      C = -44.43199
Origen =    37.00      Final =   40.00
                                        (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =   10

Parametros de la parabola =     2
A = -0.02831      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    3.00
Parametros de la parabola =     3
A =  0.00515      B =  -0.20073      C =   0.02909
Origen =     3.00      Final =   19.50
Parametros de la parabola =     5
A =  0.00515      B =  -0.20073      C =   0.02909
Origen =    19.50      Final =   36.00
Parametros de la parabola =     6
A = -0.02831      B =   2.20800      C = -43.32800
Origen =    36.00      Final =   39.00
                                        (origen en inicio vano)

DEFINICION DEL TRAZADO DEL NERVIO =    1   VANO =   11

Parametros de la parabola =     2
A = -0.03617      B =   0.00000      C =  -0.27200
Origen =     0.00      Final =    2.50
Parametros de la parabola =     3
A =  0.00628      B =  -0.21222      C =  -0.00672
Origen =     2.50      Final =   16.90
Parametros de la parabola =     5
A =  0.00530      B =  -0.17904      C =  -0.28711
Origen =    16.90      Final =   26.80
Parametros de la parabola =     6
A =  0.00000      B =   0.10488      C =  -4.09167
Origen =    26.80      Final =   28.20
                                        (origen en inicio vano)
```

DEFINICION DEL TRAZADO DEL NERVIO= 1

I	S	Ysup	Yinf	EXC	ALPHA_IZ	ALPHA_DE	CURV
204	381.930	-0.792	1.308	0.244	0.0000	0.2657	0.0126
205	383.340	-1.004	1.096	0.007	0.0177	0.2480	0.0126
206	384.750	-1.191	0.909	-0.180	0.0354	0.2302	0.0126
207	386.160	-1.353	0.747	-0.342	0.0532	0.2124	0.0126
208	387.570	-1.490	0.610	-0.479	0.0710	0.1947	0.0126
209	388.980	-1.602	0.498	-0.591	0.0887	0.1770	0.0126
210	390.390	-1.689	0.411	-0.678	0.1064	0.1592	0.0126
211	391.800	-1.751	0.349	-0.740	0.1241	0.1415	0.0126
212	393.210	-1.788	0.312	-0.777	0.1420	0.1237	0.0126
213	394.620	-1.800	0.300	-0.789	0.1596	0.1060	0.0106
214	396.030	-1.789	0.311	-0.778	0.1747	0.0910	0.0106
215	397.440	-1.757	0.343	-0.746	0.1896	0.0761	0.0106
216	398.850	-1.704	0.396	-0.693	0.2046	0.0611	0.0106
217	400.260	-1.630	0.470	-0.619	0.2195	0.0461	0.0106
218	401.670	-1.535	0.565	-0.524	0.2345	0.0312	0.0106
219	403.080	-1.419	0.681	-0.408	0.2495	0.0162	0.0106
220	404.490	-1.282	0.818	-0.246	0.2645	0.0012	0.0106
221	405.900	-1.134	0.966	-0.098	0.2657	0.0000	0.0000

SECCIONES INICIAL Y FINAL DEL TRAZADO = 204 221
NUMERO DE VANOS INICIAL Y FINAL DEL TRAZADO = 11 11
PENDIENTE INICIAL DEL TRAZADO = -0.15910
PENDIENTE FINAL DEL TRAZADO = 0.10488

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

NUMERO DE CABLES = 18

TENSION EN ANCLAJE IZQUIERDO (Kp/mm2) = 144.00
TESAMOS POR LA IZQUIERDA (SI=1) = 0
TENSION EN ANCLAJE DERECHO (Kp/mm2) = 144.00
TESAMOS POR LA DERECHA (SI=1) = 1

PROPORCION DE TESADO EN LA PRIMERA FASE 0.65
AREA DE PRETENSADO (cm2) = 663.60
PENETRACION DE CUNA EN EXTREMO 1 (mm) = 5.000
PENETRACION DE CUNA EN EXTREMO 2 (mm) = 5.000

LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-1 (m) = 15.62
LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-2 (m) = 17.37

TENSION EN LOS CABLES. PERDIDAS INSTANT. (Kp/mm2)

I	X	To	P_ROZ	P_CUNA	P_ELAS	Ti
204	381.93	93.60	0.00	24.25	0.81	68.54
205	383.34	93.60	7.24	0.00	1.16	85.20
206	384.75	93.60	6.76	0.00	1.26	85.57
207	386.16	93.60	6.28	0.00	1.52	85.80
208	387.57	93.60	5.80	0.00	1.86	85.94
209	388.98	93.60	5.32	0.31	2.21	85.76
210	390.39	93.60	4.83	1.28	2.52	84.96
211	391.80	93.60	4.34	2.26	2.77	84.23
212	393.21	93.60	3.85	3.25	2.91	83.59
213	394.62	93.60	3.35	4.24	2.95	83.06
214	396.03	93.60	2.91	5.13	2.89	82.68
215	397.44	93.60	2.46	6.02	2.73	82.38
216	398.85	93.60	2.01	6.92	2.50	82.17
217	400.26	93.60	1.56	7.82	2.22	82.00
218	401.67	93.60	1.11	8.73	1.90	81.86
219	403.08	93.60	0.65	9.64	1.37	81.93
220	404.49	93.60	0.19	10.56	0.95	81.90

ALARGAMIENTO DE LOS CABLES (sobre embolo)= 112.5 mm

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

TENSION EN LOS CABLES. PERDIDAS DIFERIDAS (Kp/mm2)

I	S	Ti	P_RETRA	P_FLUE	P_RELAJ.
204	381.93	68.54	0.00	0.00	0.00
205	383.34	85.20	0.00	0.00	0.00
206	384.75	85.57	0.00	0.00	0.00
207	386.16	85.80	0.00	0.00	0.00
208	387.57	85.94	0.00	0.00	0.00
209	388.98	85.76	0.00	0.00	0.00
210	390.39	84.96	0.00	0.00	0.00
211	391.80	84.23	0.00	0.00	0.00
212	393.21	83.59	0.00	0.00	0.00
213	394.62	83.06	0.00	0.00	0.00
214	396.03	82.68	0.00	0.00	0.00
215	397.44	82.38	0.00	0.00	0.00
216	398.85	82.17	0.00	0.00	0.00
217	400.26	82.00	0.00	0.00	0.00
218	401.67	81.86	0.00	0.00	0.00
219	403.08	81.93	0.00	0.00	0.00
220	404.49	81.90	0.00	0.00	0.00
221	405.90	81.84	0.00	0.00	0.00

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

TENSION EN LOS CABLES (Kp/mm2)

I	S	To	APi	Ti	APf	Tf
204	381.93	93.60	25.06	68.54	0.00	68.54
205	383.34	93.60	8.40	85.20	0.00	85.20
206	384.75	93.60	8.03	85.57	0.00	85.57
207	386.16	93.60	7.80	85.80	0.00	85.80
208	387.57	93.60	7.66	85.94	0.00	85.94
209	388.98	93.60	7.84	85.76	0.00	85.76
210	390.39	93.60	8.64	84.96	0.00	84.96
211	391.80	93.60	9.37	84.23	0.00	84.23
212	393.21	93.60	10.01	83.59	0.00	83.59
213	394.62	93.60	10.54	83.06	0.00	83.06
214	396.03	93.60	10.92	82.68	0.00	82.68
215	397.44	93.60	11.22	82.38	0.00	82.38
216	398.85	93.60	11.43	82.17	0.00	82.17
217	400.26	93.60	11.60	82.00	0.00	82.00
218	401.67	93.60	11.74	81.86	0.00	81.86
219	403.08	93.60	11.67	81.93	0.00	81.93
220	404.49	93.60	11.70	81.90	0.00	81.90
221	405.90	93.60	11.76	81.84	0.00	81.84

ETAPA DE TESADO INICIAL

PRETENSADO EN EL NERVIO = 1

FUERZAS EN LOS CABLES (T, m)

I	S(m)	Pi (T)	Mpi (mT)	Upi (T/m)	Pf (T)	Mpf (mT)	Upf (T/m)
204	381.93	4548.29	-1109.4	57.12	4548.29	-1109.4	57.12
205	383.34	5653.79	-40.0	71.00	5653.79	-40.0	71.00
206	384.75	5678.72	1021.1	71.31	5678.72	1021.1	71.31
207	386.16	5693.71	1945.8	71.50	5693.71	1945.8	71.50
208	387.57	5703.15	2730.1	71.62	5703.15	2730.1	71.62
209	388.98	5691.25	3361.8	71.47	5691.25	3361.8	71.47
210	390.39	5638.21	3821.1	70.80	5638.21	3821.1	70.80
211	391.80	5589.66	4135.1	70.19	5589.66	4135.1	70.19
212	393.21	5547.06	4309.3	69.66	5547.06	4309.3	69.66
213	394.62	5511.77	4348.8	58.39	5511.77	4348.8	58.39
214	396.03	5486.41	4269.3	58.12	5486.41	4269.3	58.12
215	397.44	5466.99	4079.9	57.92	5466.99	4079.9	57.92
216	398.85	5452.49	3780.3	57.76	5452.49	3780.3	57.76
217	400.26	5441.59	3370.0	57.65	5441.59	3370.0	57.65
218	401.67	5432.55	2847.9	57.55	5432.55	2847.9	57.55
219	403.08	5437.13	2218.8	57.60	5437.13	2218.8	57.60
220	404.49	5434.97	1336.4	57.58	5434.97	1336.4	57.58
221	405.90	5430.92	532.2	0.00	5430.92	532.2	0.00

ETAPA DE TESADO INICIAL

FUERZAS HORIZONTALES DE DESVIACION

I	S(m)	R(m)	Ti (T)	Uh(T/m)	Tf(T)	Uh(T/m)
204	381.93	1300.0	4548.29	-3.92	4548.29	-3.92
205	383.34	1300.0	5653.79	-4.36	5653.79	-4.36
206	384.75	1300.0	5678.72	-4.37	5678.72	-4.37
207	386.16	1300.0	5693.71	-4.38	5693.71	-4.38
208	387.57	1300.0	5703.15	-4.38	5703.15	-4.38
209	388.98	1300.0	5691.25	-4.36	5691.25	-4.36
210	390.39	1300.0	5638.21	-4.32	5638.21	-4.32
211	391.80	1300.0	5589.66	-4.28	5589.66	-4.28
212	393.21	1300.0	5547.06	-4.25	5547.06	-4.25
213	394.62	1300.0	5511.77	-4.23	5511.77	-4.23
214	396.03	1300.0	5486.41	-4.21	5486.41	-4.21
215	397.44	1300.0	5466.99	-4.20	5466.99	-4.20
216	398.85	1300.0	5452.49	-4.19	5452.49	-4.19
217	400.26	1300.0	5441.59	-4.18	5441.59	-4.18
218	401.67	1300.0	5432.55	-4.18	5432.55	-4.18
219	403.08	1300.0	5437.13	-4.18	5437.13	-4.18
220	404.49	1300.0	5434.97	-4.18	5434.97	-4.18
221	405.90	1300.0	5430.92	-2.09	5430.92	-2.09

TESADO DEFINITIVO

PRETENSADO EN EL NERVIO = 1

NUMERO DE CABLES = 18

TENSION EN ANCLAJE IZQUIERDO (Kp/mm2) = 144.00
TESAMOS POR LA IZQUIERDA (SI=1) = 0
TENSION EN ANCLAJE DERECHO (Kp/mm2) = 144.00
TESAMOS POR LA DERECHA (SI=1) = 1

PROPORCION DE TESADO EN LA PRIMERA FASE 0.65
AREA DE PRETENSADO (cm2) = 663.60
PENETRACION DE CUNA EN EXTREMO 1 (mm) = 5.000
PENETRACION DE CUNA EN EXTREMO 2 (mm) = 5.000

LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-1 (m) = 15.62
LONGITUD AFECT. POR PENETRAC. DE CUNA EXTR-2 (m) = 14.17

TENSION EN LOS CABLES. PERDIDAS INSTANT. (Kp/mm2)

I	X	To	P_ROZ	P_CUNA	P_ELAS	Ti
204	381.93	144.00	0.00	24.25	1.41	118.33
205	383.34	144.00	11.14	0.00	1.79	131.07
206	384.75	144.00	10.40	0.00	1.94	131.65
207	386.16	144.00	9.67	0.00	2.33	132.00
208	387.57	144.00	8.93	0.00	2.86	132.22
209	388.98	144.00	8.18	0.00	3.41	132.41
210	390.39	144.00	7.43	0.00	3.90	132.67
211	391.80	144.00	6.68	0.08	4.37	132.88
212	393.21	144.00	5.92	1.60	4.60	131.88
213	394.62	144.00	5.16	3.12	4.66	131.06
214	396.03	144.00	4.47	4.49	4.56	130.48
215	397.44	144.00	3.78	5.87	4.32	130.03
216	398.85	144.00	3.09	7.25	3.95	129.70
217	400.26	144.00	2.40	8.64	3.50	129.46
218	401.67	144.00	1.70	10.04	3.00	129.27
219	403.08	144.00	1.00	11.44	2.17	129.39
220	404.49	144.00	0.29	12.85	1.49	129.36
221	405.90	144.00	0.00	13.44	1.29	129.27

ALARGAMIENTO DE LOS CABLES (sobre embolo)= 168.3 mm

5. VERIFICACIÓN DE LOS ESTADOS LÍMITES DE SERVICIO

5.1 TENSIONES NORMALES (ESTADO LÍMITE DE FISURACIÓN)

En el tablero se han comprobado las siguientes condiciones, de acuerdo con la EHE (artículo 49) y el Model Code del CEB de 1990:

a. Hipótesis de carga de construcción:

Considerando peso propio y el 100 % del pretensado inicial (con su valor característico superior):

$$\sigma_{t,max} < f_{ctm} = 35{,}1 \text{ Kp/cm}^2$$
$$\sigma_{c,max} < 0{,}60\ f_{ck} = 240 \text{ Kp/cm}^2$$

b. Hipótesis de carga permanente, considerando peso propio, carga permanente y pretensado final (con su valor característico superior e inferior):

$$\sigma_{t,max} < 0 \text{ Kp/cm}^2$$
$$\sigma_{c,max} < 0{,}40\ f_{ck} = 160 \text{ Kp/cm}^2$$

c. Hipótesis de combinación frecuente:

La normativa EHE exige que se verifique:

$$\sigma_{c,max} < 0{,}60\ f_{ck} = 240 \text{ Kp/cm}^2$$

y se compruebe el ELS de fisuración , de modo que el máximo ancho de fisura w_{max} verifique:

$$w_{max} < w_k = 0{,}2 \text{ mm}$$

En realidad, se ha verificado que la tensión máxima de tracción en el hormigón no supere $f_{ctm} = 35{,}1$ Kp/cm^2, con lo cual el anterior criterio de limitación de ancho de fisura se cumple automáticamente.

d. Hipótesis de combinación casipermanente:

La normativa EHE exige que se verifique que el pretensado se encuentre en la zona comprimida de la sección. En las secciones sobre pilas esto no es restrictivo para tracciones en su fibra inferior, ya que el pretensado discurre cerca de la fibra superior de la sección en esta zona. Sin embargo, y para no tener que disponer una armadura inferior por criterios de fisuración, se ha comprobado que la máxima tracción en la fibra inferior en estas zonas del puente no supera el valor $f_{ctm} = 35{,}1$ Kp/cm^2.

Se ha realizado así la verificación de descompresión en la fibra superior sobre pilas y en la fibra inferior en centro de vano en las hipótesis de combinación casipermanente.

En los siguientes listados se han incluido, además de aquellas combinaciones requeridas por la Normativa, otras combinaciones adicionales con el valor del pretensado característico (sin minorar) para estimar los valores medios en la sección bajo las combinaciones de carga cuasi-permanentes, frecuentes y características.

Los valores representativos de las acciones se han obtenido de acuerdo con las especificaciones de las normativas vigentes, tomándose los siguientes valores de los coeficientes ψ:

Acción	ψ_o	ψ_1	ψ_2
Sobrecargas de uso	0.8	0.8 (a) 0.6 (b) 0.4 (c)	0
Viento	0.6	0.5	0.0
Temperatura	0.6	0.5	0.5

(a) Una vía cargada (b) dos vías cargadas (c) 0.4 tres o más vías cargadas

COMBINACION 1 G1 + PRETII
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-137.693	-413.319	-29.380	-524.559
2	-115.677	-669.905	-32.725	-759.257
3	-33.536	-760.013	36.468	-835.418
4	35.891	-835.976	92.945	-897.431
5	92.402	-897.943	136.795	-945.761
6	136.106	-946.335	168.158	-980.860
7	167.277	-981.698	187.046	-1002.993
8	185.917	-1004.227	193.648	-1012.553
9	192.111	-1014.128	170.118	-990.438
10	167.906	-992.728	135.529	-957.853
11	132.688	-960.748	82.638	-906.837
12	76.418	-913.096	-9.807	-820.219
13	-9.137	-819.580	-118.416	-701.870
14	-117.903	-701.393	-250.534	-558.529
15	-249.961	-557.954	-405.958	-389.922
16	-404.972	-389.017	-583.258	-196.976
17	-581.563	-195.351	-778.102	16.352
18	-772.145	22.221	-990.191	257.089
19	-990.181	257.052	-1171.457	452.313
20	-987.369	463.325	-889.627	362.942
21	-882.938	369.501	-962.245	450.952
22	-956.018	457.199	-776.043	272.360
23	-773.575	274.850	-577.309	73.280
24	-574.450	72.526	-373.675	-133.674
25	-485.022	-216.355	-322.491	-391.425
26	-323.197	-392.077	-189.541	-536.045
27	-189.695	-536.163	-84.681	-649.279
28	-84.782	-649.380	-7.170	-732.979
29	-7.614	-733.452	43.788	-788.820
30	42.680	-789.929	68.423	-817.658
31	66.512	-819.618	66.196	-819.277
32	63.370	-822.118	35.419	-792.010
33	31.693	-795.711	-26.623	-732.895
34	-31.048	-737.292	-123.237	-637.991
35	-128.073	-642.850	-257.635	-503.293
36	-262.504	-508.162	-432.188	-325.387
37	-436.522	-329.731	-646.910	-103.111
38	-650.059	-106.290	-899.280	162.159
39	-898.127	163.294	-1167.309	453.243
40	-984.163	463.663	-876.275	352.859
41	-867.765	361.523	-948.084	444.013
42	-941.842	450.282	-762.575	266.171
43	-760.070	268.694	-564.506	67.845
44	-561.563	67.033	-361.788	-138.141
45	-476.205	-225.852	-314.752	-399.761
46	-315.445	-400.427	-182.906	-543.191
47	-183.042	-543.330	-79.104	-655.286
48	-79.191	-655.401	-2.649	-737.848
49	-3.113	-738.301	47.245	-792.544
50	46.144	-793.660	70.847	-820.270
51	68.915	-822.205	67.558	-820.744
52	64.760	-823.615	35.727	-792.342
53	32.070	-796.117	-27.418	-732.039
54	-31.807	-736.474	-125.044	-636.044

COMBINACION 1 G1 + PRETII
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-129.883	-640.902	-260.575	-500.126
56	-265.442	-504.998	-436.241	-321.022
57	-440.586	-325.353	-652.048	-97.577
58	-655.214	-100.737	-905.550	168.913
59	-904.402	170.053	-1174.716	461.222
60	-990.941	470.624	-883.937	360.728
61	-875.350	369.313	-953.866	449.952
62	-947.622	456.219	-766.665	270.371
63	-764.167	272.902	-566.922	70.326
64	-563.982	69.518	-362.517	-137.392
65	-477.001	-224.994	-313.744	-400.846
66	-314.443	-401.506	-180.052	-546.265
67	-180.177	-546.415	-74.417	-660.335
68	-74.494	-660.461	3.880	-744.882
69	3.430	-745.349	55.605	-801.548
70	54.500	-802.661	81.029	-831.237
71	79.086	-833.162	79.555	-833.667
72	76.711	-836.488	49.585	-807.270
73	45.876	-810.988	-11.727	-748.941
74	-16.104	-753.389	-107.527	-654.913
75	-112.342	-659.796	-241.208	-520.987
76	-246.047	-525.889	-414.997	-343.905
77	-419.329	-348.250	-628.937	-122.470
78	-632.112	-125.622	-880.549	141.983
79	-879.412	143.135	-1147.846	432.279
80	-966.345	445.363	-857.773	333.858
81	-849.211	342.468	-933.922	429.469
82	-927.676	435.733	-752.794	256.125
83	-750.282	258.641	-559.105	62.297
84	-555.834	61.149	-361.854	-138.074
85	-474.842	-224.338	-319.381	-391.794
86	-320.085	-392.441	-193.251	-529.061
87	-193.416	-529.166	-94.998	-635.178
88	-95.088	-635.288	-23.917	-711.950
89	-24.346	-712.436	20.876	-761.147
90	19.792	-762.274	39.561	-783.567
91	37.646	-785.507	31.571	-778.962
92	28.743	-781.777	-4.702	-745.752
93	-8.415	-749.434	-72.045	-680.895
94	-76.443	-685.284	-173.693	-580.531
95	-178.504	-585.378	-312.927	-440.583
96	-317.746	-445.466	-492.024	-257.743
97	-496.310	-262.101	-711.034	-30.811
98	-714.146	-34.004	-967.442	238.833
99	-965.667	240.556	-1235.556	531.267
100	-1047.104	531.389	-943.460	424.944
101	-938.331	437.007	-984.585	484.511
102	-978.320	490.809	-777.850	284.922
103	-774.117	288.688	-535.673	43.799
104	-531.964	42.146	-298.353	-197.779
105	-405.348	-292.725	-213.970	-498.868
106	-214.821	-499.708	-58.738	-667.833
107	-59.024	-668.080	61.897	-798.330
108	61.690	-798.518	148.577	-892.109
109	148.019	-892.632	202.144	-950.932

COMBINACION 1 G1 + PRETII
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
110	200.917	-952.117	222.730	-975.613
111	220.682	-977.627	209.814	-965.920
112	206.818	-968.842	161.571	-920.104
113	157.697	-923.924	75.128	-834.985
114	70.541	-839.499	-52.940	-706.491
115	-57.939	-711.459	-226.100	-530.324
116	-231.076	-535.311	-446.608	-303.150
117	-451.012	-307.572	-714.324	-23.945
118	-717.471	-27.075	-1026.477	305.772
119	-1023.748	308.502	-1313.562	620.676
120	-1118.011	610.094	-1049.697	539.933
121	-1042.536	549.381	-1082.674	590.604
122	-1076.396	596.911	-871.216	386.185
123	-867.460	389.978	-624.497	140.449
124	-621.549	139.598	-380.796	-107.661
125	-498.640	-192.888	-299.524	-407.367
126	-300.389	-408.193	-136.598	-584.620
127	-136.888	-584.863	-8.315	-723.356
128	-8.524	-723.541	85.937	-825.290
129	85.361	-825.796	147.044	-892.238
130	145.840	-893.449	175.130	-924.998
131	173.099	-927.034	169.676	-923.347
132	166.695	-926.291	128.872	-885.549
133	125.008	-889.385	49.766	-808.338
134	45.210	-812.897	-70.995	-687.727
135	-75.993	-692.706	-236.874	-519.413
136	-241.873	-524.383	-450.195	-299.988
137	-454.616	-304.399	-710.802	-28.448
138	-713.951	-31.581	-1015.902	293.666
139	-1013.345	296.230	-1296.951	601.717
140	-1102.688	593.629	-1024.955	513.796
141	-1019.297	524.803	-1063.783	570.491
142	-1057.516	576.800	-853.197	366.959
143	-849.716	370.481	-613.185	127.557
144	-610.597	127.085	-373.724	-116.190
145	-492.086	-203.783	-296.086	-414.905
146	-296.916	-415.685	-135.168	-589.912
147	-135.396	-590.157	-7.753	-727.647
148	-7.958	-727.776	86.869	-829.920
149	86.312	-830.426	149.316	-898.291
150	148.151	-899.461	180.134	-933.911
151	178.094	-935.931	178.413	-936.275
152	175.464	-939.186	142.603	-903.789
153	138.760	-907.610	69.663	-833.182
154	65.113	-837.674	-43.649	-720.521
155	-48.614	-725.497	-200.839	-561.528
156	-205.806	-566.486	-404.149	-352.841
157	-408.556	-357.256	-653.503	-93.412
158	-656.662	-96.555	-946.146	215.264
159	-944.417	217.017	-1227.734	522.193
160	-1039.042	524.403	-945.238	428.064
161	-936.849	436.451	-1011.664	513.288
162	-1005.405	519.559	-821.584	330.771
163	-819.067	333.318	-618.933	127.776
164	-616.231	127.226	-410.706	-83.854

COMBINACION 1 G1 + PRETII
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-531.551	-165.702	-363.780	-346.417
166	-364.462	-347.095	-225.523	-496.753
167	-225.687	-496.861	-115.270	-615.796
168	-115.376	-615.891	-32.367	-705.304
169	-32.840	-705.747	24.030	-767.004
170	22.903	-768.091	54.172	-801.773
171	52.231	-803.696	57.451	-809.319
172	54.638	-812.170	32.300	-788.108
173	28.580	-791.810	-24.129	-735.034
174	-28.548	-739.429	-115.072	-646.230
175	-119.914	-651.077	-243.798	-517.635
176	-248.662	-522.503	-412.648	-345.865
177	-416.967	-350.219	-621.571	-129.829
178	-624.720	-133.004	-868.130	129.186
179	-866.844	130.470	-1129.299	413.174
180	-949.455	428.616	-839.283	315.466
181	-830.540	323.878	-915.294	410.923
182	-909.040	417.191	-735.948	239.420
183	-733.213	242.158	-540.655	44.397
184	-541.301	47.254	-338.082	-161.458
185	-450.558	-252.822	-286.980	-429.020
186	-287.699	-429.712	-154.413	-573.281
187	-154.585	-573.438	-51.335	-684.654
188	-51.454	-684.769	22.853	-764.809
189	22.417	-765.302	69.129	-815.618
190	67.993	-816.720	87.658	-837.901
191	85.669	-839.811	77.849	-831.388
192	74.972	-834.233	38.042	-794.455
193	34.294	-798.192	-34.551	-724.035
194	-39.002	-728.489	-143.221	-616.229
195	-148.103	-621.088	-291.327	-466.815
196	-296.205	-471.709	-481.110	-272.539
197	-485.441	-276.922	-712.586	-32.252
198	-713.972	-33.705	-981.478	254.440
199	-978.370	257.528	-1242.904	542.472
200	-1053.929	541.153	-1000.605	486.388
201	-992.183	495.020	-1014.143	517.574
202	-1008.216	523.511	-848.162	359.132
203	-844.327	362.966	-648.565	161.913
204	-648.056	162.166	-438.090	-53.475
205	-601.999	-171.503	-396.587	-392.763
206	-398.343	-394.487	-217.353	-589.441
207	-218.426	-590.459	-62.887	-757.998
208	-63.573	-758.628	66.398	-898.627
209	67.193	-897.757	172.027	-1010.679
210	175.689	-1006.932	254.419	-1091.735
211	257.747	-1088.279	299.675	-1133.442
212	302.568	-1130.380	319.514	-1148.633
213	321.957	-1146.147	318.368	-1142.282
214	320.112	-1140.482	298.556	-1117.263
215	299.897	-1115.891	260.192	-1073.123
216	261.240	-1072.149	203.273	-1009.709
217	204.074	-1008.991	127.534	-926.546
218	128.186	-925.937	34.420	-824.937
219	34.107	-825.265	-117.548	-661.909
220	-31.181	-517.510	-136.420	-409.427

COMBINACION 2 G1 + PRETII + 0.4 TEMP + SCMAX* 0.05
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-137.693	-413.319	-32.876	-520.968
2	-119.733	-665.536	-40.808	-750.550
3	-41.621	-751.305	24.384	-822.402
4	23.806	-822.959	76.886	-880.133
5	76.341	-880.643	116.788	-924.211
6	116.098	-924.783	144.229	-955.084
7	143.346	-955.922	159.223	-973.023
8	158.093	-974.256	161.958	-978.418
9	160.421	-979.993	134.589	-952.168
10	132.378	-954.459	96.189	-915.478
11	93.348	-918.373	39.514	-860.385
12	33.293	-866.644	-56.690	-769.718
13	-56.020	-769.080	-169.033	-647.347
14	-168.520	-646.871	-304.856	-500.017
15	-304.283	-499.441	-463.958	-327.447
16	-462.972	-326.542	-644.910	-130.568
17	-643.214	-128.943	-843.382	86.669
18	-837.474	92.589	-1059.216	331.439
19	-1059.246	331.445	-1244.271	530.746
20	-1054.062	531.821	-959.794	435.006
21	-953.117	441.576	-1031.479	522.056
22	-1025.273	528.326	-844.369	342.532
23	-841.953	345.077	-644.817	142.612
24	-642.004	141.906	-440.422	-65.124
25	-557.970	-137.778	-394.600	-313.752
26	-395.379	-314.326	-260.948	-459.128
27	-261.103	-459.246	-155.273	-573.241
28	-155.374	-573.341	-76.906	-657.863
29	-77.350	-658.336	-25.051	-714.670
30	-26.159	-715.779	0.521	-744.518
31	-1.389	-746.477	-0.727	-747.191
32	-3.552	-750.032	-30.485	-721.022
33	-34.211	-724.723	-91.467	-663.049
34	-95.890	-667.447	-186.980	-569.330
35	-191.816	-574.190	-320.237	-435.861
36	-325.106	-440.730	-493.609	-259.227
37	-497.958	-263.555	-707.188	-38.182
38	-710.384	-41.310	-958.501	225.949
39	-957.404	227.145	-1225.550	515.977
40	-1037.527	518.469	-928.749	406.751
41	-920.283	415.461	-1000.780	498.134
42	-994.560	504.426	-815.489	320.515
43	-813.038	323.094	-617.728	122.505
44	-614.836	121.746	-415.377	-83.104
45	-534.787	-162.750	-373.732	-336.231
46	-374.493	-336.824	-242.404	-479.103
47	-242.540	-479.241	-139.012	-590.756
48	-139.099	-590.871	-62.926	-672.921
49	-63.390	-673.373	-13.360	-727.262
50	-14.462	-728.378	9.953	-754.677
51	8.021	-756.613	6.416	-754.885
52	3.619	-757.757	-25.622	-726.260
53	-29.278	-730.036	-88.933	-665.779
54	-93.321	-670.214	-186.684	-569.648

COMBINACION 2 G1 + PRETII + 0.4 TEMP + SCMAX* 0.05
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-191.522	-574.507	-322.299	-433.639
56	-327.166	-438.512	-498.009	-254.487
57	-502.377	-258.794	-713.932	-30.918
58	-717.146	-34.027	-967.628	235.780
59	-966.537	236.982	-1237.065	528.381
60	-1048.067	529.294	-941.319	419.661
61	-932.765	428.280	-1011.152	508.785
62	-1004.929	515.075	-823.859	329.111
63	-821.416	331.698	-624.116	129.065
64	-621.228	128.311	-419.770	-78.592
65	-539.586	-157.580	-376.390	-333.368
66	-377.154	-333.957	-242.871	-478.600
67	-242.997	-478.749	-137.303	-592.597
68	-137.381	-592.722	-59.034	-677.114
69	-59.484	-677.581	-7.296	-733.795
70	-8.401	-734.907	18.183	-763.542
71	16.240	-765.467	16.804	-766.074
72	13.959	-768.895	-13.031	-739.823
73	-16.740	-743.542	-74.167	-681.683
74	-78.544	-686.132	-169.751	-587.888
75	-174.565	-592.772	-303.174	-454.240
76	-308.013	-459.143	-476.665	-277.479
77	-481.023	-281.796	-690.390	-56.277
78	-693.613	-59.375	-941.862	208.026
79	-940.783	209.241	-1209.097	498.255
80	-1022.466	503.002	-913.844	391.443
81	-905.318	400.092	-989.983	487.044
82	-983.759	493.332	-808.845	313.691
83	-806.390	316.265	-615.239	119.948
84	-612.021	118.855	-418.129	-80.277
85	-536.360	-158.073	-381.045	-325.371
86	-381.804	-325.960	-255.149	-462.387
87	-255.315	-462.492	-157.035	-568.354
88	-157.125	-568.464	-86.052	-645.020
89	-86.482	-645.506	-41.317	-694.155
90	-42.401	-695.282	-22.650	-716.557
91	-24.564	-718.496	-30.617	-711.977
92	-33.444	-714.792	-66.825	-678.836
93	-70.538	-682.518	-134.063	-614.092
94	-138.461	-618.481	-235.567	-513.884
95	-240.377	-518.731	-374.615	-374.136
96	-379.433	-379.020	-553.485	-191.539
97	-557.821	-195.845	-772.400	35.290
98	-775.557	32.145	-1028.765	304.888
99	-1027.038	306.663	-1296.885	597.328
100	-1103.306	589.110	-999.683	482.686
101	-994.840	495.042	-1041.027	542.478
102	-1034.780	548.795	-834.255	342.851
103	-830.569	346.666	-592.114	101.766
104	-588.455	100.164	-354.894	-139.709
105	-467.140	-226.166	-275.850	-432.214
106	-276.757	-432.994	-120.795	-600.988
107	-121.082	-601.235	-0.251	-731.387
108	-0.458	-731.576	86.370	-825.102
109	85.812	-825.625	139.908	-883.895

COMBINACION 2 G1 + PRETII + 0.4 TEMP + SCMAX* 0.05
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
110	138.681	-885.079	160.498	-908.579
111	158.449	-910.593	147.615	-898.923
112	144.619	-901.845	99.437	-853.177
113	95.564	-856.997	13.090	-768.161
114	8.504	-772.676	-114.851	-639.804
115	-119.849	-644.772	-287.852	-463.808
116	-292.827	-468.795	-508.171	-236.837
117	-512.607	-241.225	-775.805	42.280
118	-778.985	39.186	-1087.912	371.947
119	-1085.230	374.727	-1375.019	686.874
120	-1174.312	667.916	-1106.018	597.777
121	-1099.153	607.528	-1139.196	648.653
122	-1132.933	654.977	-927.669	444.165
123	-923.955	448.000	-680.954	198.431
124	-678.043	197.620	-437.299	-49.631
125	-560.393	-126.371	-361.327	-340.795
126	-362.247	-341.562	-198.558	-517.880
127	-198.848	-518.123	-70.345	-656.540
128	-70.555	-656.725	23.868	-758.432
129	23.292	-758.939	84.967	-825.372
130	83.763	-826.583	113.076	-858.157
131	111.045	-860.193	107.677	-856.565
132	104.696	-859.509	66.958	-818.859
133	63.094	-822.695	-12.032	-741.773
134	-16.587	-746.333	-132.645	-621.320
135	-137.642	-626.300	-298.345	-453.199
136	-303.343	-458.170	-511.457	-234.000
137	-515.899	-238.388	-771.927	37.393
138	-775.110	34.297	-1076.943	359.416
139	-1074.428	362.026	-1357.968	667.441
140	-1158.583	651.036	-1080.835	571.186
141	-1075.523	582.549	-1120.000	628.228
142	-1113.750	634.554	-909.436	424.718
143	-905.996	428.282	-669.517	185.412
144	-666.966	184.977	-430.196	-58.191
145	-553.803	-137.304	-357.952	-348.265
146	-358.850	-348.973	-197.318	-522.968
147	-197.546	-523.212	-70.086	-660.505
148	-70.292	-660.633	24.386	-762.615
149	23.828	-763.121	86.715	-830.860
150	85.550	-832.030	117.448	-866.389
151	115.408	-868.409	115.675	-868.697
152	112.727	-871.608	79.846	-836.190
153	76.003	-840.012	6.921	-765.599
154	2.371	-770.091	-106.345	-652.989
155	-111.309	-657.965	-263.454	-494.082
156	-268.421	-499.041	-466.652	-285.516
157	-471.068	-289.922	-715.937	-26.160
158	-719.129	-29.268	-1008.584	282.520
159	-1006.892	284.312	-1290.235	589.515
160	-1096.292	583.201	-1002.559	486.935
161	-994.188	495.340	-1068.721	571.887
162	-1062.483	578.180	-878.396	389.118
163	-875.927	391.716	-675.586	185.960
164	-672.926	185.454	-467.235	-25.797

COMBINACION 2 G1 + PRETII + 0.4 TEMP + SCMAX* 0.05
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-593.357	-99.127	-425.471	-279.966
166	-426.208	-280.585	-287.203	-430.314
167	-287.367	-430.421	-176.845	-549.471
168	-176.950	-549.566	-93.795	-639.137
169	-94.268	-639.579	-37.211	-701.038
170	-38.338	-702.126	-6.841	-736.052
171	-8.782	-737.976	-3.294	-743.888
172	-6.107	-746.739	-28.136	-723.009
173	-31.856	-726.711	-84.215	-670.312
174	-88.635	-674.707	-174.769	-581.928
175	-179.610	-586.775	-303.064	-453.797
176	-307.927	-458.665	-471.442	-282.534
177	-475.785	-286.863	-679.966	-66.928
178	-683.157	-70.058	-926.186	191.721
179	-924.960	193.070	-1187.103	475.438
180	-1002.422	483.014	-892.023	369.631
181	-883.288	378.052	-968.816	465.891
182	-962.584	472.182	-790.281	295.222
183	-787.601	298.017	-595.888	101.122
184	-596.586	104.033	-394.270	-103.751
185	-511.980	-186.662	-349.435	-361.746
186	-350.193	-362.396	-217.950	-504.842
187	-218.122	-504.999	-115.876	-615.134
188	-115.995	-615.249	-42.654	-694.249
189	-43.089	-694.742	2.695	-744.059
190	1.560	-745.161	20.336	-765.386
191	18.348	-767.297	9.678	-757.958
192	6.802	-760.804	-30.939	-720.151
193	-34.687	-723.889	-104.305	-648.900
194	-108.755	-653.353	-213.708	-540.303
195	-218.590	-545.164	-362.509	-390.141
196	-367.387	-395.036	-552.948	-195.158
197	-557.330	-199.486	-785.209	45.974
198	-786.640	44.570	-1054.935	333.564
199	-1051.873	336.703	-1317.240	622.543
200	-1122.037	611.102	-1069.531	557.177
201	-1061.158	565.860	-1079.670	584.872
202	-1073.755	590.822	-910.277	422.926
203	-906.459	426.778	-707.302	222.238
204	-706.816	222.514	-493.487	3.420
205	-662.545	-106.286	-453.498	-331.461
206	-455.255	-333.185	-270.609	-532.076
207	-271.683	-533.093	-112.470	-704.590
208	-113.157	-705.219	20.512	-849.201
209	21.305	-848.329	129.852	-965.251
210	133.514	-961.503	215.978	-1050.329
211	219.304	-1046.871	264.987	-1096.078
212	267.880	-1093.016	288.600	-1115.334
213	291.042	-1112.847	291.246	-1113.067
214	292.988	-1111.266	275.247	-1092.156
215	276.589	-1090.785	240.718	-1052.146
216	241.767	-1051.173	187.653	-992.885
217	188.454	-992.167	115.790	-913.896
218	116.441	-913.287	26.568	-816.480
219	26.257	-816.808	-121.485	-657.668
220	-34.784	-513.809	-136.420	-409.427

COMBINACION 3 G1 + PRETII + SCMIN* 0.05
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-137.693	-413.319	-29.552	-524.382
2	-115.630	-669.956	-32.630	-759.359
3	-33.441	-760.116	36.611	-835.572
4	36.034	-836.130	93.135	-897.637
5	92.592	-898.148	137.033	-946.018
6	136.345	-946.591	168.444	-981.168
7	167.563	-982.006	187.380	-1003.353
8	186.251	-1004.586	194.029	-1012.964
9	192.492	-1014.538	170.547	-990.900
10	168.335	-993.190	136.005	-958.366
11	133.165	-961.261	83.163	-907.401
12	76.942	-913.661	-9.235	-820.835
13	-8.565	-820.196	-117.797	-702.537
14	-117.284	-702.060	-249.867	-559.247
15	-249.294	-558.673	-405.243	-390.692
16	-404.258	-389.787	-582.496	-197.797
17	-580.800	-196.172	-777.289	15.476
18	-771.283	21.292	-989.181	256.001
19	-989.132	255.922	-1170.180	450.938
20	-986.170	462.094	-888.154	361.429
21	-881.444	367.966	-961.157	449.834
22	-954.910	456.061	-775.288	271.584
23	-772.769	274.022	-576.761	72.717
24	-573.855	71.916	-373.239	-134.122
25	-484.504	-216.913	-322.062	-391.887
26	-322.696	-392.617	-189.023	-536.602
27	-189.177	-536.721	-84.147	-649.854
28	-84.248	-649.955	-6.620	-733.571
29	-7.064	-734.045	44.354	-789.430
30	43.246	-790.539	69.005	-818.286
31	67.095	-820.245	66.795	-819.922
32	63.968	-822.762	36.033	-792.672
33	32.307	-796.372	-25.993	-733.575
34	-30.417	-737.972	-122.590	-638.687
35	-127.427	-643.547	-256.972	-504.007
36	-261.841	-508.876	-431.509	-326.118
37	-435.827	-330.479	-646.136	-103.945
38	-649.236	-107.176	-898.286	161.088
39	-897.075	162.160	-1165.975	451.806
40	-982.896	462.362	-874.655	351.196
41	-866.112	359.826	-946.847	442.743
42	-940.584	448.991	-761.682	265.253
43	-759.122	267.720	-563.826	67.146
44	-560.832	66.283	-361.226	-138.718
45	-475.544	-226.564	-314.182	-400.375
46	-314.806	-401.115	-182.266	-543.881
47	-182.401	-544.020	-78.462	-655.978
48	-78.549	-656.093	-2.005	-738.543
49	-2.468	-738.995	47.892	-793.241
50	46.790	-794.357	71.496	-820.968
51	69.563	-822.904	68.209	-821.445
52	65.411	-824.316	36.380	-793.045
53	32.723	-796.821	-26.764	-732.744
54	-31.153	-737.180	-124.387	-636.752

COMBINACION 3 G1 + PRETII + SCMIN* 0.05
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-129.226	-641.609	-259.916	-500.836
56	-264.783	-505.708	-435.580	-321.733
57	-439.902	-326.090	-651.274	-98.410
58	-654.391	-101.624	-904.544	167.828
59	-903.337	168.906	-1173.357	459.758
60	-989.651	469.299	-882.283	359.030
61	-873.663	367.581	-952.595	448.646
62	-946.329	454.891	-765.735	269.416
63	-763.183	271.891	-566.206	69.590
64	-563.215	68.729	-361.917	-138.008
65	-476.298	-225.751	-313.132	-401.505
66	-313.766	-402.236	-179.378	-546.992
67	-179.503	-547.141	-73.745	-661.059
68	-73.822	-661.184	4.549	-745.602
69	4.099	-746.069	56.271	-802.266
70	55.165	-803.378	81.692	-831.951
71	79.750	-833.876	80.216	-834.378
72	77.371	-837.199	50.243	-807.978
73	46.534	-811.697	-11.072	-749.646
74	-15.450	-754.094	-106.875	-655.615
75	-111.690	-660.498	-240.559	-521.687
76	-245.398	-526.588	-414.350	-344.601
77	-418.656	-348.975	-628.172	-123.294
78	-631.296	-126.501	-879.547	140.904
79	-878.350	141.991	-1146.488	430.816
80	-965.056	444.039	-856.118	332.157
81	-847.521	340.733	-932.648	428.159
82	-926.379	434.402	-751.859	255.165
83	-749.292	257.625	-558.381	61.554
84	-555.058	60.352	-361.246	-138.698
85	-474.129	-225.106	-318.759	-392.463
86	-319.410	-393.169	-192.595	-529.768
87	-192.760	-529.873	-94.361	-635.863
88	-94.451	-635.974	-23.299	-712.615
89	-23.729	-713.101	21.474	-761.791
90	20.390	-762.918	40.139	-784.191
91	38.225	-786.130	32.130	-779.564
92	29.302	-782.379	-4.162	-746.333
93	-7.875	-750.015	-71.524	-681.456
94	-75.922	-685.845	-173.192	-581.071
95	-178.002	-585.918	-312.445	-441.102
96	-317.264	-445.985	-491.561	-258.241
97	-495.797	-262.654	-710.419	-31.474
98	-713.484	-34.717	-966.581	237.906
99	-964.757	239.576	-1234.360	529.980
100	-1045.954	530.208	-941.952	423.395
101	-936.785	435.419	-983.377	483.270
102	-977.095	489.551	-776.923	283.969
103	-773.142	287.687	-534.923	43.029
104	-531.166	41.326	-297.688	-198.462
105	-404.591	-293.541	-213.295	-499.595
106	-214.091	-500.494	-58.028	-668.598
107	-58.314	-668.845	62.587	-799.074
108	62.381	-799.263	149.249	-892.832
109	148.691	-893.355	202.796	-951.635

COMBINACION 3 G1 + PRETII + SCMIN* 0.05
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
110	201.569	-952.819	223.363	-976.295
111	221.315	-978.309	210.427	-966.581
112	207.431	-969.503	162.165	-920.745
113	158.292	-924.564	75.703	-835.604
114	71.116	-840.119	-52.385	-707.090
115	-57.384	-712.057	-225.564	-530.902
116	-230.539	-535.888	-446.091	-303.706
117	-450.462	-308.164	-713.687	-24.631
118	-716.800	-27.796	-1025.654	304.886
119	-1022.878	307.564	-1312.455	619.483
120	-1116.961	609.016	-1048.356	538.556
121	-1041.168	547.975	-1081.635	589.536
122	-1075.341	595.827	-870.449	385.398
123	-866.652	389.149	-623.905	139.841
124	-620.919	138.951	-380.305	-108.166
125	-498.069	-193.504	-299.032	-407.897
126	-299.842	-408.782	-136.049	-585.211
127	-136.340	-585.454	-7.765	-723.948
128	-7.974	-724.133	86.488	-825.884
129	85.913	-826.391	147.597	-892.834
130	146.393	-894.045	175.685	-925.596
131	173.654	-927.631	170.233	-923.946
132	167.252	-926.891	129.430	-886.151
133	125.566	-889.986	50.325	-808.941
134	45.770	-813.500	-70.434	-688.331
135	-75.431	-693.310	-236.311	-520.019
136	-241.310	-524.989	-449.631	-300.596
137	-454.028	-305.032	-710.132	-29.170
138	-713.244	-32.342	-1015.041	292.739
139	-1012.441	295.256	-1295.809	600.487
140	-1101.608	592.521	-1023.584	512.388
141	-1017.905	523.373	-1062.733	569.413
142	-1056.450	575.706	-852.432	366.173
143	-848.910	369.653	-612.602	126.958
144	-609.978	126.449	-373.246	-116.681
145	-491.531	-204.381	-295.616	-415.410
146	-296.380	-416.263	-134.617	-590.506
147	-134.845	-590.751	-7.188	-728.256
148	-7.394	-728.384	87.449	-830.544
149	86.891	-831.049	149.909	-898.930
150	148.744	-900.100	180.741	-934.565
151	178.701	-936.585	179.035	-936.944
152	176.086	-939.855	143.238	-904.473
153	139.395	-908.294	70.313	-833.882
154	65.763	-838.374	-42.985	-721.236
155	-47.950	-726.212	-200.161	-562.258
156	-205.128	-567.216	-403.457	-353.586
157	-407.855	-358.012	-652.719	-94.256
158	-655.844	-97.435	-945.165	214.207
159	-943.400	215.922	-1226.467	520.827
160	-1037.850	523.179	-943.740	426.525
161	-935.325	434.886	-1010.543	512.136
162	-1004.264	518.388	-820.794	329.959
163	-818.228	332.457	-618.348	127.175
164	-615.605	126.583	-410.256	-84.316

COMBINACION 3 G1 + PRETII + SCMIN* 0.05
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-531.000	-166.295	-363.313	-346.919
166	-363.941	-347.656	-224.997	-497.319
167	-225.161	-497.427	-114.740	-616.367
168	-114.846	-616.462	-31.832	-705.880
169	-32.305	-706.323	24.570	-767.585
170	23.443	-768.672	54.716	-802.359
171	52.775	-804.282	58.000	-809.910
172	55.187	-812.761	32.853	-788.705
173	29.134	-792.406	-23.570	-735.636
174	-27.990	-740.030	-114.509	-646.837
175	-119.351	-651.683	-243.230	-518.246
176	-248.094	-523.114	-412.076	-346.481
177	-416.369	-350.862	-620.881	-130.572
178	-623.988	-133.792	-867.223	128.208
179	-865.874	129.426	-1128.045	411.824
180	-948.260	427.388	-837.732	313.873
181	-828.955	322.250	-914.094	409.690
182	-907.820	415.937	-735.062	238.510
183	-732.273	241.194	-539.961	43.683
184	-540.555	46.487	-337.486	-162.069
185	-449.859	-253.575	-286.360	-429.688
186	-287.041	-430.420	-153.787	-573.956
187	-153.959	-574.113	-50.740	-685.295
188	-50.859	-685.410	23.416	-765.416
189	22.981	-765.910	69.661	-816.191
190	68.526	-817.293	88.158	-838.441
191	86.170	-840.351	78.318	-831.893
192	75.441	-834.739	38.480	-794.926
193	34.732	-798.664	-34.145	-724.473
194	-38.595	-728.927	-142.846	-616.633
195	-147.728	-621.492	-290.983	-467.185
196	-295.861	-472.079	-480.797	-272.875
197	-485.077	-277.313	-712.139	-32.734
198	-713.478	-34.237	-980.808	253.718
199	-977.651	256.754	-1241.927	541.419
200	-1052.980	540.178	-999.328	485.076
201	-990.871	493.673	-1013.072	516.474
202	-1007.132	522.398	-847.276	358.221
203	-843.424	362.039	-647.812	161.140
204	-647.280	161.369	-437.414	-54.169
205	-601.223	-172.340	-395.859	-393.547
206	-397.615	-395.271	-216.674	-590.172
207	-217.746	-591.191	-62.256	-758.678
208	-62.942	-759.308	66.981	-899.254
209	67.775	-898.384	172.560	-1011.254
210	176.223	-1007.507	254.904	-1092.258
211	258.232	-1088.802	300.111	-1133.912
212	303.005	-1130.851	319.902	-1149.051
213	322.345	-1146.565	318.708	-1142.647
214	320.451	-1140.848	298.848	-1117.577
215	300.188	-1116.205	260.435	-1073.384
216	261.483	-1072.410	203.467	-1009.918
217	204.268	-1009.200	127.680	-926.703
218	128.331	-926.094	34.517	-825.042
219	34.204	-825.369	-117.500	-661.961
220	-31.137	-517.556	-136.420	-409.427

COMBINACION 4 G1 + PRETI
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-295.384	-571.015	-189.425	-679.837
2	-338.599	-887.509	-258.228	-974.081
3	-259.410	-975.222	-191.967	-1047.868
4	-192.803	-1048.676	-138.320	-1107.362
5	-139.088	-1108.114	-97.282	-1153.145
6	-98.243	-1154.035	-68.792	-1185.758
7	-70.108	-1187.014	-52.835	-1205.620
8	-54.606	-1207.427	-49.431	-1213.000
9	-51.806	-1215.386	-76.362	-1188.935
10	-83.967	-1196.505	-118.842	-1158.940
11	-116.391	-1156.471	-168.997	-1099.807
12	-167.188	-1098.040	-255.979	-1002.398
13	-254.971	-1001.391	-366.788	-880.947
14	-366.016	-880.195	-501.240	-734.539
15	-500.360	-733.652	-658.871	-562.912
16	-657.409	-561.460	-838.250	-366.667
17	-835.686	-364.120	-1034.748	-149.699
18	-1030.522	-145.505	-1251.113	92.105
19	-1247.581	95.616	-1431.410	293.628
20	-1185.124	356.060	-1089.732	258.090
21	-1079.445	268.226	-1157.607	348.501
22	-1148.054	358.074	-966.936	172.062
23	-963.195	175.823	-765.794	-26.914
24	-753.346	-18.108	-551.442	-225.468
25	-722.879	-357.959	-559.080	-534.395
26	-560.146	-535.421	-425.270	-680.703
27	-425.491	-680.903	-319.181	-795.415
28	-319.340	-795.564	-240.514	-880.471
29	-241.202	-881.195	-188.524	-937.937
30	-190.236	-939.636	-163.207	-968.751
31	-166.190	-971.719	-165.220	-972.763
32	-169.585	-977.115	-196.266	-948.375
33	-201.967	-954.102	-259.060	-892.604
34	-265.846	-899.391	-356.765	-801.457
35	-364.199	-808.941	-492.526	-670.713
36	-500.001	-678.222	-668.455	-496.772
37	-675.088	-503.491	-884.228	-278.216
38	-889.069	-283.112	-1137.039	-16.011
39	-1140.351	-19.345	-1408.270	269.244
40	-1167.546	331.171	-1058.504	219.182
41	-1045.311	232.535	-1126.207	315.617
42	-1116.657	325.191	-937.970	141.675
43	-934.233	145.434	-739.242	-54.827
44	-726.411	-45.762	-527.217	-250.340
45	-696.410	-386.470	-535.583	-559.706
46	-536.668	-560.710	-404.719	-702.840
47	-404.962	-703.016	-301.620	-814.331
48	-301.765	-814.495	-225.889	-896.225
49	-226.567	-896.959	-176.869	-950.492
50	-178.562	-952.211	-154.467	-978.165
51	-157.446	-981.137	-159.429	-979.001
52	-163.770	-983.379	-193.402	-951.461
53	-199.099	-957.190	-259.160	-892.495
54	-265.935	-899.294	-359.844	-798.140

COMBINACION 4 G1 + PRETI
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-367.275	-805.628	-498.580	-664.192
56	-506.075	-671.679	-677.482	-487.048
57	-684.153	-493.727	-896.263	-265.252
58	-901.117	-270.134	-1152.085	0.196
59	-1155.400	-3.135	-1426.320	288.686
60	-1184.072	348.143	-1077.640	238.835
61	-1064.365	252.103	-1142.381	332.228
62	-1132.828	341.799	-951.375	155.442
63	-947.643	159.206	-749.899	-43.882
64	-737.069	-34.816	-535.135	-242.207
65	-705.052	-377.161	-541.240	-553.612
66	-542.304	-554.639	-407.372	-699.982
67	-407.602	-700.172	-301.248	-814.731
68	-301.413	-814.874	-222.500	-899.875
69	-223.198	-900.589	-170.469	-957.385
70	-172.186	-959.079	-145.117	-988.236
71	-148.097	-991.207	-147.087	-992.295
72	-151.425	-996.677	-178.063	-967.983
73	-183.749	-973.725	-240.803	-912.268
74	-247.570	-919.077	-338.432	-821.204
75	-345.879	-828.675	-474.176	-690.479
76	-481.640	-697.999	-650.048	-516.598
77	-656.716	-523.280	-865.783	-298.083
78	-870.642	-302.961	-1118.571	-35.903
79	-1121.882	-39.239	-1389.772	249.319
80	-1150.608	313.775	-1041.538	201.757
81	-1028.280	215.044	-1114.303	303.392
82	-1104.745	312.957	-931.176	134.697
83	-927.429	138.446	-737.562	-56.553
84	-722.831	-46.250	-530.170	-244.118
85	-699.129	-378.954	-545.112	-544.854
86	-546.146	-545.905	-420.796	-680.926
87	-421.018	-681.122	-324.013	-785.611
88	-324.146	-785.787	-254.441	-860.869
89	-255.092	-861.628	-211.315	-908.782
90	-212.983	-910.515	-194.665	-930.246
91	-197.602	-933.238	-205.120	-925.139
92	-209.455	-929.488	-244.346	-891.905
93	-250.029	-897.601	-315.144	-827.463
94	-321.855	-834.274	-420.594	-727.918
95	-427.968	-735.404	-563.851	-589.038
96	-571.271	-596.541	-746.998	-407.256
97	-753.606	-413.948	-969.762	-181.115
98	-974.572	-186.004	-1229.316	88.395
99	-1232.607	85.047	-1503.942	377.315
100	-1254.231	426.482	-1151.912	321.397
101	-1140.873	336.841	-1185.587	382.764
102	-1175.979	392.379	-973.971	184.911
103	-968.311	190.569	-728.333	-55.895
104	-714.487	-47.451	-479.351	-288.941
105	-642.822	-429.655	-449.757	-637.615
106	-451.073	-638.899	-293.290	-808.856
107	-293.713	-809.255	-171.123	-941.303
108	-171.423	-941.610	-82.843	-1037.024
109	-83.720	-1037.811	-27.866	-1097.974

COMBINACION 4 G1 + PRETI
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
110	-29.748	-1099.801	-6.269	-1125.093
111	-9.376	-1128.237	-18.579	-1118.324
112	-23.141	-1122.870	-66.717	-1075.932
113	-72.627	-1081.861	-153.552	-994.693
114	-160.536	-1001.719	-282.384	-870.470
115	-290.032	-878.159	-456.521	-698.825
116	-464.175	-706.497	-677.992	-476.184
117	-684.796	-482.954	-946.388	-201.180
118	-951.218	-206.008	-1258.565	125.052
119	-1261.743	121.838	-1549.880	432.206
120	-1295.909	474.917	-1226.063	403.182
121	-1214.436	417.208	-1254.539	458.395
122	-1244.916	468.016	-1039.708	257.261
123	-1034.024	262.938	-791.039	13.386
124	-780.739	19.838	-539.957	-227.452
125	-709.065	-359.305	-509.936	-573.797
126	-511.231	-575.105	-347.404	-751.572
127	-347.809	-751.993	-219.221	-890.502
128	-219.522	-890.808	-125.006	-992.616
129	-125.857	-993.431	-64.140	-1059.910
130	-65.986	-1061.779	-36.633	-1093.396
131	-39.761	-1096.526	-43.138	-1092.889
132	-47.697	-1097.446	-85.500	-1056.727
133	-91.404	-1062.674	-166.614	-981.661
134	-173.616	-988.680	-289.770	-863.564
135	-297.442	-871.242	-458.294	-697.980
136	-465.950	-705.664	-674.240	-481.305
137	-681.015	-488.119	-937.167	-212.204
138	-941.988	-217.051	-1243.907	108.162
139	-1247.089	104.951	-1530.646	410.385
140	-1278.540	455.595	-1200.773	375.727
141	-1190.852	391.531	-1234.811	436.679
142	-1225.201	446.293	-1020.352	235.908
143	-1015.099	241.170	-778.052	-2.284
144	-769.044	3.621	-531.644	-240.195
145	-700.575	-374.351	-503.998	-586.094
146	-505.249	-587.321	-342.915	-762.179
147	-343.282	-762.539	-215.043	-900.672
148	-215.297	-900.935	-119.928	-1003.662
149	-120.733	-1004.498	-57.145	-1072.992
150	-58.928	-1074.803	-26.386	-1109.854
151	-29.500	-1112.989	-28.597	-1113.961
152	-33.103	-1118.473	-65.397	-1083.688
153	-71.284	-1089.593	-139.811	-1015.780
154	-146.763	-1022.741	-254.948	-906.209
155	-262.602	-913.850	-414.215	-750.540
156	-421.845	-758.179	-619.597	-545.170
157	-626.367	-551.974	-870.747	-288.740
158	-875.579	-293.604	-1164.495	17.602
159	-1167.685	14.379	-1450.428	318.936
160	-1206.223	374.558	-1111.891	277.676
161	-1098.851	290.571	-1174.249	368.006
162	-1164.689	377.585	-981.448	189.392
163	-977.700	193.166	-778.156	-11.770
164	-766.841	-3.706	-561.898	-214.188

COMBINACION 4 G1 + PRETI
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-734.183	-344.963	-567.040	-525.002
166	-568.099	-526.034	-429.791	-675.013
167	-430.020	-675.203	-320.251	-793.442
168	-320.419	-793.580	-238.036	-882.318
169	-238.749	-883.015	-182.543	-943.557
170	-184.240	-945.271	-153.662	-978.208
171	-156.629	-981.188	-152.008	-986.165
172	-156.402	-990.479	-179.348	-965.762
173	-185.078	-971.449	-238.428	-913.983
174	-245.242	-920.728	-332.382	-826.865
175	-339.849	-834.304	-464.370	-700.176
176	-471.860	-707.657	-636.472	-530.344
177	-643.136	-537.021	-848.385	-315.938
178	-853.230	-320.821	-1097.295	-57.926
179	-1100.606	-61.261	-1363.707	222.138
180	-1126.454	290.365	-1016.866	177.815
181	-1003.431	190.896	-1092.083	281.944
182	-1082.519	291.526	-913.324	117.758
183	-909.242	121.862	-720.574	-71.904
184	-711.990	-59.808	-512.673	-264.512
185	-680.445	-402.661	-521.128	-574.269
186	-522.218	-575.350	-393.201	-714.320
187	-393.457	-714.570	-294.457	-821.208
188	-294.656	-821.369	-224.551	-896.883
189	-225.255	-897.605	-182.788	-943.349
190	-184.515	-945.064	-169.110	-961.658
191	-172.118	-964.654	-184.213	-951.626
192	-188.618	-956.027	-229.815	-911.651
193	-235.566	-917.417	-308.646	-838.698
194	-315.487	-845.555	-423.979	-728.694
195	-431.467	-736.196	-578.933	-577.353
196	-586.432	-584.887	-775.593	-381.132
197	-782.271	-387.860	-1013.647	-138.633
198	-1018.509	-143.530	-1290.254	149.180
199	-1293.568	145.851	-1562.343	435.362
200	-1300.974	483.807	-1251.535	433.032
201	-1238.478	446.305	-1255.562	463.850
202	-1246.469	472.947	-1081.543	303.564
203	-1075.718	309.390	-875.072	103.322
204	-874.251	103.892	-659.423	-116.741
205	-899.727	-292.315	-689.010	-519.288
206	-691.687	-521.969	-505.395	-722.634
207	-507.009	-724.240	-346.163	-897.495
208	-347.200	-898.484	-211.918	-1044.203
209	-212.833	-1045.054	-102.666	-1163.720
210	-103.903	-1164.843	-19.843	-1255.389
211	-20.830	-1256.367	26.271	-1307.102
212	30.895	-1302.515	53.172	-1326.511
213	56.945	-1322.680	58.677	-1324.546
214	61.391	-1321.829	45.088	-1304.268
215	47.159	-1302.221	12.828	-1265.241
216	14.349	-1263.727	-38.276	-1207.042
217	-37.131	-1205.949	-108.351	-1129.235
218	-107.418	-1128.342	-195.831	-1033.107
219	-196.427	-1033.689	-342.774	-876.052
220	-193.153	-669.596	-293.516	-566.521

COMBINACION 5 G1 + PRETI + 0.5 TEMP
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-295.384	-571.014	-193.796	-675.348
2	-343.373	-882.366	-267.775	-963.797
3	-268.959	-964.936	-206.288	-1032.442
4	-207.126	-1033.248	-157.417	-1086.792
5	-158.186	-1087.542	-121.154	-1127.431
6	-122.116	-1128.320	-97.441	-1154.900
7	-98.758	-1156.154	-86.259	-1169.616
8	-88.031	-1171.422	-87.630	-1171.854
9	-90.005	-1174.240	-119.335	-1142.647
10	-126.940	-1150.217	-166.588	-1107.510
11	-164.137	-1105.042	-221.518	-1043.234
12	-219.709	-1041.467	-313.276	-940.681
13	-312.266	-939.674	-428.862	-814.083
14	-428.090	-813.333	-568.089	-662.533
15	-567.210	-661.645	-730.497	-485.760
16	-729.035	-484.308	-914.653	-284.370
17	-912.087	-281.824	-1115.928	-62.256
18	-1111.702	-58.062	-1337.069	184.693
19	-1333.536	188.203	-1522.143	391.360
20	-1268.190	441.371	-1177.172	347.893
21	-1166.870	358.015	-1243.920	437.146
22	-1234.368	446.721	-1052.137	259.566
23	-1048.397	263.328	-849.883	59.448
24	-837.436	68.255	-634.419	-140.248
25	-813.514	-260.331	-648.499	-438.077
26	-649.566	-439.102	-513.473	-585.695
27	-513.695	-585.894	-406.168	-701.717
28	-406.327	-701.866	-326.284	-788.084
29	-326.973	-788.807	-273.077	-846.861
30	-274.789	-848.560	-246.543	-878.985
31	-249.525	-881.954	-247.338	-884.310
32	-251.702	-888.663	-277.165	-861.235
33	-282.865	-866.962	-338.740	-806.776
34	-345.525	-813.564	-435.227	-716.941
35	-442.660	-724.427	-569.769	-587.511
36	-577.243	-595.020	-744.479	-414.882
37	-751.111	-421.602	-959.033	-197.639
38	-963.873	-202.537	-1210.625	63.253
39	-1213.936	59.917	-1480.637	347.195
40	-1233.798	399.214	-1123.641	286.080
41	-1110.461	299.446	-1191.661	382.840
42	-1182.113	392.416	-1003.728	209.210
43	-999.992	212.971	-805.305	13.021
44	-792.475	22.088	-593.584	-182.179
45	-768.903	-308.385	-608.407	-481.263
46	-609.493	-482.267	-477.875	-624.039
47	-478.118	-624.215	-375.108	-735.173
48	-375.253	-735.337	-299.709	-816.709
49	-300.388	-817.443	-251.020	-870.619
50	-252.714	-872.338	-228.950	-897.935
51	-231.929	-900.907	-234.244	-898.414
52	-238.584	-902.793	-268.547	-870.518
53	-274.244	-876.248	-334.637	-811.196
54	-341.411	-817.995	-435.651	-716.484

COMBINACION 5 G1 + PRETI + 0.5 TEMP
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-443.081	-723.973	-574.718	-582.180
56	-582.212	-589.668	-753.950	-404.680
57	-760.620	-411.360	-973.061	-182.529
58	-977.915	-187.412	-1229.213	83.275
59	-1232.527	79.942	-1503.778	372.120
60	-1254.985	420.973	-1148.856	311.976
61	-1135.580	325.244	-1213.517	405.287
62	-1203.966	414.859	-1022.433	228.421
63	-1018.703	232.187	-820.880	29.017
64	-808.051	38.084	-606.038	-169.389
65	-782.499	-293.740	-618.600	-470.284
66	-619.665	-471.310	-484.645	-616.746
67	-484.876	-616.936	-378.436	-731.588
68	-378.601	-731.731	-299.602	-816.825
69	-300.300	-817.538	-247.485	-874.427
70	-249.202	-876.121	-222.047	-905.371
71	-225.027	-908.342	-223.930	-909.524
72	-228.267	-913.906	-254.819	-885.306
73	-260.505	-891.047	-317.472	-829.685
74	-324.238	-836.494	-415.014	-738.714
75	-422.460	-746.185	-550.670	-608.084
76	-558.133	-615.604	-726.454	-434.297
77	-733.121	-440.980	-942.101	-215.877
78	-946.959	-220.756	-1194.801	46.208
79	-1198.111	42.871	-1465.914	331.335
80	-1220.315	385.367	-1111.166	273.267
81	-1097.914	286.559	-1183.945	374.915
82	-1174.387	384.482	-1000.827	206.230
83	-997.081	209.980	-807.222	14.990
84	-792.492	25.294	-599.840	-172.565
85	-775.228	-296.984	-621.220	-462.874
86	-622.255	-463.924	-496.914	-598.935
87	-497.137	-599.131	-400.141	-703.610
88	-400.274	-703.785	-330.578	-778.858
89	-331.229	-779.616	-287.461	-826.761
90	-289.129	-828.494	-270.820	-848.216
91	-273.757	-851.207	-281.284	-843.099
92	-285.618	-847.448	-320.519	-809.856
93	-326.202	-815.552	-391.325	-745.404
94	-398.036	-752.216	-496.784	-645.850
95	-504.157	-653.337	-640.049	-506.961
96	-647.468	-514.465	-823.204	-325.171
97	-829.811	-331.863	-1045.976	-99.021
98	-1050.785	-103.911	-1305.538	170.497
99	-1308.828	167.148	-1580.172	459.426
100	-1324.019	498.156	-1221.708	393.080
101	-1210.978	408.841	-1255.681	454.752
102	-1246.073	464.368	-1044.054	256.888
103	-1038.395	262.547	-798.406	16.071
104	-784.560	24.516	-549.413	-216.986
105	-719.349	-347.223	-526.272	-555.197
106	-527.589	-556.480	-369.793	-726.450
107	-370.216	-726.850	-247.614	-858.911
108	-247.914	-859.218	-159.321	-954.645
109	-160.199	-955.432	-104.332	-1015.609

COMBINACION 5 G1 + PRETI + 0.5 TEMP
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
110	-106.215	-1017.436	-82.722	-1042.741
111	-85.829	-1045.885	-95.019	-1035.986
112	-99.581	-1040.532	-143.145	-993.608
113	-149.054	-999.538	-229.967	-912.383
114	-236.950	-919.410	-358.785	-788.174
115	-366.433	-795.864	-532.909	-616.544
116	-540.562	-624.217	-754.366	-393.917
117	-761.170	-400.688	-1022.750	-118.927
118	-1027.578	-123.756	-1334.913	207.289
119	-1338.089	204.075	-1626.214	514.429
120	-1365.793	546.689	-1295.935	474.943
121	-1284.645	489.315	-1324.705	530.457
122	-1315.083	540.079	-1109.832	329.280
123	-1104.149	334.958	-861.121	85.362
124	-850.822	91.815	-609.997	-155.519
125	-785.569	-276.899	-586.393	-491.441
126	-587.689	-492.749	-423.814	-669.266
127	-424.220	-669.686	-295.585	-808.246
128	-295.887	-808.552	-201.323	-910.411
129	-202.175	-911.225	-140.411	-977.754
130	-142.257	-979.624	-112.857	-1011.292
131	-115.985	-1014.421	-119.314	-1010.835
132	-123.874	-1015.392	-161.630	-974.724
133	-167.534	-980.671	-242.697	-899.709
134	-249.698	-906.728	-365.805	-781.663
135	-373.476	-789.341	-534.281	-616.130
136	-541.937	-623.815	-750.179	-399.506
137	-756.954	-406.321	-1013.060	-130.457
138	-1017.879	-135.305	-1319.751	189.857
139	-1322.932	186.645	-1606.441	492.028
140	-1347.931	526.862	-1270.121	446.949
141	-1260.605	463.169	-1304.637	508.391
142	-1295.028	518.007	-1090.251	307.697
143	-1084.999	312.959	-848.025	69.580
144	-839.018	75.487	-601.690	-168.255
145	-777.086	-291.937	-580.589	-503.595
146	-581.841	-504.820	-419.586	-679.593
147	-419.954	-679.952	-291.793	-818.000
148	-292.048	-818.263	-196.758	-920.904
149	-197.564	-921.739	-134.055	-990.148
150	-135.838	-991.959	-103.376	-1026.925
151	-106.490	-1030.059	-105.666	-1030.947
152	-110.172	-1035.458	-142.544	-1000.588
153	-148.432	-1006.494	-217.037	-932.595
154	-223.990	-939.556	-332.254	-822.940
155	-339.907	-830.581	-491.599	-667.185
156	-499.228	-674.825	-697.060	-461.731
157	-703.829	-468.535	-948.288	-205.216
158	-953.119	-210.082	-1242.114	101.210
159	-1245.304	97.986	-1528.126	402.629
160	-1277.355	447.612	-1183.096	350.806
161	-1170.046	363.690	-1245.164	440.838
162	-1235.606	450.419	-1052.085	261.938
163	-1048.337	265.713	-848.514	60.489
164	-837.200	68.554	-631.976	-142.215

COMBINACION 5 G1 + PRETI + 0.5 TEMP
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-810.730	-262.511	-643.280	-442.879
166	-644.340	-443.910	-505.726	-593.218
167	-505.957	-593.408	-395.881	-711.976
168	-396.050	-712.114	-313.362	-801.181
169	-314.074	-801.878	-257.563	-862.750
170	-259.260	-864.463	-228.376	-897.730
171	-231.342	-900.710	-226.416	-906.017
172	-230.809	-910.331	-253.450	-885.944
173	-259.180	-891.630	-312.224	-834.494
174	-319.037	-841.240	-405.871	-747.706
175	-413.337	-755.146	-537.552	-621.348
176	-545.041	-628.829	-709.347	-451.846
177	-716.011	-458.524	-920.953	-237.770
178	-925.797	-242.655	-1169.556	19.910
179	-1172.866	16.573	-1435.661	299.643
180	-1192.328	358.019	-1082.460	245.182
181	-1068.993	258.230	-1158.662	350.322
182	-1149.099	359.905	-980.921	187.181
183	-976.840	191.287	-789.189	-1.435
184	-780.606	10.662	-582.305	-192.998
185	-756.504	-320.733	-598.297	-491.146
186	-599.388	-492.226	-471.482	-630.001
187	-471.738	-630.250	-373.848	-735.692
188	-374.047	-735.853	-305.052	-810.171
189	-305.757	-810.893	-264.399	-855.441
190	-266.127	-857.157	-251.832	-872.554
191	-254.839	-875.551	-268.044	-861.328
192	-272.448	-865.729	-314.755	-820.158
193	-320.505	-825.924	-394.696	-746.010
194	-401.536	-752.867	-511.137	-634.810
195	-518.625	-642.314	-667.201	-482.275
196	-674.699	-489.811	-864.969	-284.860
197	-871.646	-291.590	-1104.132	-41.167
198	-1108.993	-46.066	-1381.847	247.840
199	-1385.160	244.509	-1655.045	535.216
200	-1385.842	570.970	-1337.420	521.238
201	-1324.382	534.530	-1337.170	547.664
202	-1328.078	556.761	-1158.857	382.967
203	-1153.032	388.794	-948.091	178.315
204	-947.270	178.885	-728.147	-46.161
205	-974.791	-211.458	-759.380	-443.489
206	-762.059	-446.168	-571.073	-651.889
207	-572.687	-653.494	-407.149	-831.804
208	-408.187	-832.792	-268.208	-983.570
209	-269.125	-984.419	-154.267	-1108.138
210	-155.505	-1109.259	-66.753	-1204.859
211	-67.742	-1205.836	-15.949	-1261.625
212	-11.325	-1257.038	15.643	-1286.087
213	19.415	-1282.255	25.837	-1289.172
214	28.549	-1286.453	16.937	-1273.945
215	19.011	-1271.901	-10.630	-1239.973
216	-9.108	-1238.460	-57.042	-1186.827
217	-55.898	-1185.735	-122.425	-1114.076
218	-121.492	-1113.182	-205.216	-1022.998
219	-205.811	-1023.581	-347.468	-870.996
220	-197.449	-665.184	-293.516	-566.521

COMBINACION 6 G1 + G2 + 1.1 PRETI + 0.5 TEMP
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-281.791	-584.975	-205.917	-662.900
2	-356.633	-868.083	-307.227	-921.301
3	-308.430	-922.420	-267.477	-966.532
4	-268.330	-967.322	-235.864	-1002.293
5	-236.646	-1003.028	-212.360	-1029.188
6	-213.337	-1030.062	-196.863	-1047.807
7	-198.197	-1049.042	-189.351	-1058.572
8	-191.130	-1060.369	-189.838	-1061.761
9	-192.219	-1064.140	-217.860	-1036.521
10	-225.461	-1044.094	-256.695	-1010.451
11	-254.245	-1007.983	-299.193	-959.566
12	-297.390	-957.792	-376.380	-872.709
13	-375.363	-871.710	-473.923	-765.546
14	-473.137	-764.810	-591.671	-637.132
15	-590.776	-636.261	-729.161	-487.199
16	-727.687	-485.760	-884.859	-316.463
17	-882.283	-313.928	-1053.729	-129.254
18	-1049.487	-125.077	-1238.848	78.893
19	-1235.298	82.385	-1378.457	236.589
20	-1136.626	306.251	-972.656	137.850
21	-962.113	147.723	-1119.188	309.043
22	-1109.662	318.645	-974.552	179.884
23	-970.837	183.672	-810.838	19.348
24	-798.232	27.992	-626.306	-148.581
25	-804.673	-269.854	-671.169	-413.658
26	-672.250	-414.668	-561.934	-533.495
27	-562.165	-533.684	-474.644	-627.957
28	-474.813	-628.096	-408.885	-699.111
29	-409.585	-699.821	-363.795	-749.144
30	-365.513	-750.836	-339.308	-779.063
31	-342.297	-782.024	-336.124	-788.674
32	-340.493	-793.022	-356.105	-776.206
33	-361.801	-781.936	-402.246	-738.370
34	-409.026	-745.164	-478.055	-670.809
35	-485.478	-678.305	-587.033	-568.915
36	-594.489	-576.443	-731.562	-428.796
37	-738.171	-435.541	-911.366	-248.984
38	-916.182	-253.907	-1123.468	-30.629
39	-1126.752	-33.993	-1347.355	203.629
40	-1111.750	273.867	-916.519	73.359
41	-903.572	86.965	-1065.135	252.895
42	-1055.614	262.498	-924.654	127.999
43	-920.942	131.784	-765.070	-28.301
44	-752.072	-19.407	-584.597	-191.409
45	-759.105	-318.938	-630.465	-457.503
46	-631.569	-458.487	-526.058	-572.139
47	-526.319	-572.295	-443.648	-661.345
48	-443.807	-661.494	-382.713	-727.301
49	-383.393	-728.034	-342.472	-772.112
50	-344.169	-773.827	-322.771	-796.876
51	-325.753	-799.845	-324.409	-801.292
52	-328.747	-805.673	-349.181	-783.664
53	-354.871	-789.400	-400.140	-740.639
54	-406.899	-747.454	-480.769	-667.886

COMBINACION 6 G1 + G2 + 1.1 PRETI + 0.5 TEMP
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-488.185	-675.389	-594.549	-560.819
56	-602.026	-568.325	-743.876	-415.531
57	-750.526	-422.233	-928.511	-230.516
58	-933.342	-235.424	-1145.438	-6.964
59	-1148.726	-10.324	-1374.135	232.476
60	-1136.269	299.048	-945.284	102.902
61	-932.000	116.161	-1089.505	277.923
62	-1079.979	287.522	-945.090	148.988
63	-941.384	152.778	-781.602	-11.322
64	-768.606	-2.427	-597.241	-178.423
65	-772.910	-304.068	-640.033	-447.196
66	-641.118	-448.202	-531.386	-566.400
67	-531.633	-566.572	-444.710	-660.201
68	-444.888	-660.329	-379.529	-730.731
69	-380.234	-731.437	-335.052	-780.104
70	-336.771	-781.795	-311.182	-809.359
71	-314.167	-812.325	-308.604	-818.317
72	-312.941	-822.699	-329.178	-805.210
73	-334.859	-810.956	-375.920	-766.728
74	-382.675	-773.548	-452.307	-698.543
75	-459.745	-706.024	-561.916	-595.970
76	-569.365	-603.507	-707.034	-455.216
77	-713.680	-461.921	-887.456	-274.738
78	-892.288	-279.645	-1100.182	-55.711
79	-1103.465	-59.077	-1324.689	179.215
80	-1090.995	252.551	-896.332	52.627
81	-883.167	66.009	-1051.507	238.899
82	-1041.973	248.489	-917.782	120.941
83	-914.058	124.714	-764.956	-28.418
84	-750.025	-18.321	-590.870	-181.778
85	-765.444	-307.523	-645.545	-436.672
86	-646.590	-437.712	-549.581	-542.205
87	-549.814	-542.389	-475.354	-622.593
88	-475.493	-622.763	-422.428	-679.922
89	-423.075	-680.684	-389.909	-716.409
90	-391.569	-718.151	-377.773	-733.011
91	-380.696	-736.018	-386.686	-729.566
92	-391.002	-733.935	-418.483	-704.333
93	-424.146	-710.052	-476.234	-653.945
94	-482.929	-660.773	-563.349	-574.149
95	-570.715	-581.644	-683.366	-460.301
96	-690.771	-467.822	-838.622	-308.563
97	-845.206	-315.281	-1028.902	-117.413
98	-1033.681	-122.334	-1251.190	111.956
99	-1254.450	108.574	-1481.574	353.222
100	-1233.722	405.418	-1048.410	215.098
101	-1043.287	236.618	-1149.792	346.001
102	-1140.206	355.640	-969.972	180.804
103	-964.333	186.483	-746.988	-36.736
104	-732.893	-28.547	-515.531	-251.784
105	-682.360	-387.066	-508.864	-573.948
106	-510.196	-575.215	-368.902	-727.410
107	-369.338	-727.796	-260.146	-845.412
108	-260.455	-845.709	-182.068	-930.144
109	-182.955	-930.920	-133.955	-983.700

COMBINACION 6 G1 + G2 + 1.1 PRETI + 0.5 TEMP
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
110	-135.843	-985.521	-115.849	-1007.057
111	-118.954	-1010.204	-128.302	-1000.136
112	-132.862	-1004.683	-173.410	-961.008
113	-179.317	-966.940	-254.341	-886.128
114	-261.317	-893.162	-374.750	-770.978
115	-382.388	-778.678	-538.313	-610.722
116	-545.957	-618.405	-747.338	-401.487
117	-754.131	-408.271	-1001.459	-141.861
118	-1006.273	-146.705	-1297.320	166.797
119	-1300.480	163.564	-1563.789	447.187
120	-1308.624	487.975	-1176.987	352.780
121	-1171.036	372.635	-1269.469	473.729
122	-1259.867	483.371	-1083.113	301.839
123	-1077.447	307.535	-853.797	77.840
124	-843.322	84.112	-616.750	-148.583
125	-792.960	-268.938	-609.515	-466.535
126	-610.821	-467.832	-459.606	-630.713
127	-460.017	-631.127	-340.960	-759.370
128	-341.263	-759.674	-253.067	-854.675
129	-253.923	-855.484	-195.191	-918.747
130	-197.043	-920.611	-167.300	-952.648
131	-170.434	-955.771	-170.080	-956.152
132	-174.644	-960.705	-205.561	-927.402
133	-211.460	-933.355	-276.919	-862.846
134	-283.913	-869.874	-387.805	-757.966
135	-395.464	-765.657	-541.915	-607.907
136	-549.558	-615.606	-741.577	-408.772
137	-748.336	-415.605	-986.400	-159.173
138	-991.201	-164.041	-1272.994	139.493
139	-1276.155	136.260	-1531.143	410.921
140	-1278.974	456.041	-1135.617	308.810
141	-1133.032	332.148	-1237.922	439.874
142	-1228.335	449.512	-1053.886	270.348
143	-1048.653	275.631	-833.135	54.288
144	-823.993	60.055	-602.433	-167.493
145	-777.913	-291.046	-598.334	-484.479
146	-599.601	-485.690	-450.697	-646.082
147	-451.076	-646.429	-332.690	-773.949
148	-332.944	-774.212	-243.734	-870.304
149	-244.540	-871.138	-183.288	-937.117
150	-185.075	-938.923	-150.987	-975.640
151	-154.105	-978.771	-147.823	-985.538
152	-152.333	-990.044	-175.582	-965.001
153	-181.469	-970.907	-237.588	-910.459
154	-244.537	-917.424	-337.290	-817.516
155	-344.934	-825.166	-478.473	-681.324
156	-486.089	-688.978	-663.393	-497.994
157	-670.146	-504.817	-891.751	-266.115
158	-896.563	-271.000	-1160.169	12.943
159	-1163.340	9.698	-1413.168	278.801
160	-1172.089	339.501	-1006.279	169.210
161	-993.058	181.918	-1146.502	339.509
162	-1136.970	349.117	-998.929	207.345
163	-995.207	211.147	-832.253	43.789
164	-820.799	51.711	-644.926	-128.916

COMBINACION 6 G1 + G2 + 1.1 PRETI + 0.5 TEMP
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-824.895	-247.253	-687.048	-395.735
166	-688.123	-396.749	-573.368	-520.358
167	-573.612	-520.534	-481.621	-619.621
168	-481.796	-619.752	-411.306	-695.680
169	-412.027	-696.369	-361.680	-750.600
170	-363.386	-752.304	-332.600	-785.465
171	-335.574	-788.437	-324.712	-800.136
172	-329.109	-804.447	-339.966	-792.753
173	-345.688	-798.447	-381.339	-760.046
174	-388.145	-766.800	-452.334	-697.658
175	-459.788	-705.112	-556.464	-600.977
176	-563.937	-608.476	-696.080	-466.138
177	-702.722	-472.839	-870.935	-291.648
178	-875.753	-296.561	-1078.036	-78.671
179	-1081.318	-82.038	-1295.906	149.106
180	-1064.353	226.585	-867.861	24.782
181	-853.843	37.265	-1022.462	210.441
182	-1012.924	220.050	-891.276	95.114
183	-887.217	99.243	-737.513	-54.508
184	-728.764	-42.581	-561.471	-214.396
185	-733.768	-345.224	-607.537	-481.194
186	-608.643	-482.256	-507.537	-591.163
187	-507.805	-591.400	-431.504	-673.587
188	-431.714	-673.737	-378.990	-730.528
189	-379.705	-731.240	-349.168	-764.132
190	-350.901	-765.842	-341.928	-775.507
191	-344.933	-778.506	-358.003	-764.428
192	-362.405	-768.832	-399.273	-729.119
193	-405.019	-734.890	-468.760	-666.232
194	-475.589	-673.101	-570.070	-571.331
195	-577.545	-578.848	-706.684	-439.745
196	-714.172	-447.292	-880.966	-267.630
197	-887.625	-274.378	-1092.655	-53.530
198	-1097.491	-58.454	-1338.720	201.386
199	-1342.008	198.028	-1571.762	445.507
200	-1309.566	492.632	-1187.773	367.547
201	-1175.066	381.179	-1237.061	444.849
202	-1227.985	453.964	-1086.300	308.449
203	-1080.484	314.286	-896.040	124.857
204	-895.213	125.421	-691.701	-83.591
205	-934.992	-254.328	-734.985	-469.766
206	-737.668	-472.441	-560.241	-663.556
207	-561.859	-665.157	-408.130	-830.747
208	-409.183	-831.719	-279.283	-971.641
209	-280.203	-972.486	-173.646	-1087.263
210	-174.891	-1088.378	-92.754	-1176.852
211	-93.748	-1177.824	-47.975	-1227.128
212	-43.352	-1222.540	-20.602	-1247.046
213	-16.824	-1243.220	-12.393	-1247.992
214	-9.672	-1245.283	-20.785	-1233.313
215	-18.700	-1231.280	-45.358	-1202.565
216	-43.830	-1201.058	-86.311	-1155.301
217	-85.159	-1154.216	-143.811	-1091.039
218	-142.860	-1090.165	-216.138	-1011.233
219	-216.720	-1011.831	-349.431	-868.881
220	-199.243	-663.342	-280.064	-580.336

COMBINACION 7 G1 + 1.1 PRETI + 0.5 TEMP
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-324.926	-628.113	-203.353	-752.971
2	-366.723	-982.438	-274.584	-1081.686
3	-275.392	-1083.471	-198.908	-1165.857
4	-199.138	-1167.488	-138.362	-1232.953
5	-138.355	-1234.696	-92.993	-1283.557
6	-93.073	-1285.590	-62.793	-1318.206
7	-63.170	-1320.740	-47.789	-1337.308
8	-48.608	-1340.512	-48.056	-1341.106
9	-49.510	-1344.978	-83.199	-1308.689
10	-90.407	-1318.263	-137.003	-1268.073
11	-133.181	-1266.571	-200.854	-1193.677
12	-197.789	-1192.891	-306.857	-1075.408
13	-304.725	-1075.401	-440.725	-928.908
14	-438.864	-929.172	-602.216	-753.218
15	-599.978	-753.611	-790.538	-548.348
16	-786.993	-548.837	-1003.674	-315.439
17	-999.844	-313.725	-1238.193	-56.987
18	-1233.009	-52.949	-1496.690	231.075
19	-1492.460	234.566	-1717.369	476.826
20	-1434.313	525.874	-1352.006	441.344
21	-1343.066	454.933	-1406.442	520.022
22	-1395.836	530.453	-1176.847	305.545
23	-1172.423	309.365	-938.381	68.998
24	-924.177	78.159	-688.060	-164.340
25	-883.396	-298.719	-690.561	-506.432
26	-690.788	-508.578	-531.951	-679.670
27	-531.092	-681.077	-405.884	-815.944
28	-404.833	-817.429	-312.087	-917.330
29	-311.527	-919.545	-249.799	-986.035
30	-250.308	-989.384	-219.076	-1023.026
31	-220.935	-1027.823	-220.674	-1028.104
32	-224.032	-1034.446	-256.506	-999.467
33	-261.248	-1007.412	-329.509	-933.885
34	-334.743	-943.752	-442.479	-827.705
35	-449.355	-837.339	-600.628	-674.396
36	-607.816	-683.768	-805.651	-470.670
37	-812.124	-478.948	-1057.161	-215.007
38	-1061.892	-221.033	-1352.117	91.583
39	-1355.438	87.568	-1670.103	426.510
40	-1394.986	477.965	-1296.068	376.374
41	-1285.944	395.569	-1353.507	464.958
42	-1342.894	475.378	-1127.760	254.430
43	-1123.258	258.163	-893.059	21.742
44	-878.337	31.089	-646.401	-207.115
45	-837.543	-348.109	-649.321	-550.853
46	-648.614	-554.006	-494.431	-720.084
47	-493.580	-721.483	-373.072	-851.288
48	-371.993	-852.803	-283.927	-947.663
49	-283.348	-949.898	-226.337	-1011.307
50	-226.816	-1014.689	-200.255	-1043.299
51	-202.124	-1048.085	-206.557	-1043.310
52	-209.933	-1049.633	-247.116	-1009.581
53	-251.847	-1017.538	-324.840	-938.914
54	-331.046	-947.735	-443.658	-826.434

COMBINACION 7 G1 + 1.1 PRETI + 0.5 TEMP
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-449.555	-837.124	-605.593	-669.047
56	-612.679	-678.530	-815.244	-460.337
57	-821.754	-468.576	-1071.545	-199.513
58	-1076.349	-205.461	-1371.362	112.313
59	-1374.618	108.228	-1694.071	452.327
60	-1416.926	500.498	-1322.243	403.256
61	-1312.395	422.735	-1376.618	488.693
62	-1366.003	499.112	-1147.652	274.859
63	-1143.161	278.604	-909.756	38.890
64	-895.117	48.323	-659.981	-193.168
65	-852.596	-331.895	-660.863	-538.420
66	-660.687	-541.001	-502.941	-710.918
67	-500.942	-713.553	-376.956	-847.104
68	-375.902	-848.593	-284.331	-947.228
69	-283.529	-949.704	-223.051	-1014.847
70	-223.539	-1018.218	-193.578	-1050.491
71	-195.467	-1055.255	-196.481	-1054.163
72	-199.889	-1060.452	-233.654	-1024.082
73	-238.604	-1031.803	-308.189	-956.849
74	-314.346	-965.723	-423.497	-848.151
75	-429.154	-859.099	-581.746	-694.733
76	-588.921	-704.121	-788.061	-489.617
77	-794.655	-497.766	-1040.978	-232.438
78	-1045.771	-238.398	-1337.319	75.643
79	-1340.636	71.625	-1656.636	412.004
80	-1382.650	465.295	-1284.953	364.958
81	-1272.979	382.254	-1345.243	456.471
82	-1334.025	466.269	-1123.625	250.183
83	-1119.100	253.892	-893.642	22.342
84	-876.903	33.124	-651.255	-198.622
85	-842.609	-337.607	-660.870	-533.367
86	-661.048	-535.557	-513.035	-694.990
87	-512.167	-696.403	-397.545	-819.869
88	-396.465	-821.383	-314.108	-910.094
89	-313.516	-912.336	-261.947	-967.883
90	-262.431	-971.246	-241.157	-994.160
91	-243.034	-998.909	-252.500	-988.713
92	-255.948	-994.918	-297.868	-949.764
93	-302.872	-957.374	-380.407	-873.857
94	-386.650	-882.576	-503.568	-756.638
95	-510.680	-765.949	-670.879	-593.391
96	-678.208	-602.542	-884.681	-380.140
97	-891.306	-388.194	-1144.715	-115.234
98	-1149.565	-121.085	-1447.911	200.278
99	-1451.302	196.348	-1770.402	540.067
100	-1485.897	578.245	-1395.003	484.894
101	-1377.730	496.613	-1410.212	529.973
102	-1399.476	540.379	-1162.747	297.252
103	-1156.194	303.139	-879.897	19.373
104	-864.187	28.170	-595.427	-247.853
105	-780.861	-393.173	-559.493	-631.620
106	-560.139	-633.896	-379.263	-828.728
107	-378.818	-830.147	-238.353	-981.450
108	-237.690	-982.856	-136.354	-1092.011
109	-136.270	-1094.006	-72.672	-1162.510

COMBINACION 7 G1 + 1.1 PRETI + 0.5 TEMP
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
110	-73.669	-1165.676	-47.440	-1193.929
111	-49.787	-1198.542	-61.290	-1186.151
112	-65.269	-1192.271	-116.379	-1137.218
113	-121.902	-1144.794	-215.910	-1043.533
114	-222.702	-1052.221	-363.566	-900.489
115	-371.200	-909.785	-563.024	-703.162
116	-570.798	-712.297	-816.557	-447.577
117	-823.545	-455.560	-1123.745	-132.198
118	-1128.725	-137.868	-1481.159	241.758
119	-1484.493	238.049	-1817.715	596.980
120	-1528.822	628.523	-1469.009	567.093
121	-1451.944	578.131	-1479.717	606.654
122	-1468.971	617.071	-1229.084	370.701
123	-1222.516	376.621	-943.273	89.831
124	-931.479	96.452	-656.870	-185.579
125	-848.043	-321.913	-620.399	-567.119
126	-621.042	-569.400	-433.907	-770.973
127	-433.462	-772.395	-286.787	-930.386
128	-286.144	-931.772	-178.669	-1047.540
129	-178.573	-1049.547	-108.913	-1124.582
130	-109.882	-1127.782	-77.578	-1162.578
131	-79.958	-1167.163	-85.435	-1161.264
132	-89.419	-1167.388	-134.558	-1118.766
133	-140.080	-1126.355	-228.183	-1031.455
134	-234.999	-1040.130	-369.976	-894.740
135	-377.639	-904.020	-563.640	-703.669
136	-571.420	-712.813	-811.473	-454.240
137	-818.437	-462.262	-1113.029	-144.942
138	-1118.007	-150.623	-1464.849	222.979
139	-1468.198	219.284	-1796.762	573.197
140	-1509.917	607.476	-1441.741	537.457
141	-1428.089	552.030	-1459.736	584.532
142	-1448.977	594.916	-1209.248	348.707
143	-1203.136	354.153	-930.311	73.954
144	-919.915	79.949	-649.038	-198.249
145	-840.101	-336.958	-615.392	-579.004
146	-615.942	-581.242	-430.672	-780.807
147	-430.131	-782.220	-284.155	-939.458
148	-283.396	-940.866	-175.388	-1057.207
149	-175.151	-1059.336	-103.928	-1136.054
150	-104.745	-1139.279	-69.524	-1177.217
151	-71.797	-1181.905	-73.252	-1180.339
152	-77.078	-1186.518	-116.941	-1143.580
153	-122.338	-1151.238	-203.972	-1063.306
154	-210.622	-1072.039	-337.816	-935.031
155	-345.342	-944.398	-522.261	-753.829
156	-529.893	-763.052	-759.536	-515.691
157	-766.371	-523.835	-1049.296	-219.082
158	-1054.164	-224.914	-1388.084	134.768
159	-1391.321	130.929	-1720.473	485.475
160	-1441.199	529.458	-1356.272	442.236
161	-1344.233	458.787	-1405.782	521.999
162	-1395.175	532.442	-1175.066	306.384
163	-1170.640	310.226	-935.459	68.688
164	-922.508	77.041	-684.265	-167.641

COMBINACION 7 G1 + 1.1 PRETI + 0.5 TEMP
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-879.134	-302.409	-683.951	-512.649
166	-684.185	-514.788	-522.902	-688.514
167	-522.067	-689.895	-394.381	-827.432
168	-393.353	-828.890	-298.022	-931.576
169	-297.503	-933.746	-233.225	-1002.983
170	-233.736	-1006.329	-199.931	-1042.742
171	-201.820	-1047.500	-198.878	-1050.669
172	-202.355	-1056.875	-232.073	-1024.864
173	-237.084	-1032.512	-302.609	-961.931
174	-308.906	-970.642	-413.992	-857.449
175	-421.135	-866.784	-569.751	-706.702
176	-577.077	-715.913	-772.232	-505.703
177	-778.832	-513.835	-1021.141	-252.831
178	-1025.177	-259.597	-1312.602	50.004
179	-1315.669	45.715	-1626.511	380.540
180	-1354.682	438.108	-1256.514	337.287
181	-1245.383	355.422	-1321.628	433.728
182	-1311.007	444.164	-1106.325	233.950
183	-1101.527	238.150	-878.148	8.733
184	-867.801	21.110	-636.218	-216.733
185	-826.695	-358.687	-640.509	-559.237
186	-640.726	-561.484	-489.957	-723.886
187	-489.103	-725.383	-373.464	-849.943
188	-372.337	-851.570	-290.628	-939.583
189	-289.387	-942.549	-240.335	-995.386
190	-240.911	-998.699	-223.812	-1017.118
191	-225.819	-1021.815	-241.174	-1005.276
192	-244.629	-1011.614	-294.247	-958.168
193	-299.358	-965.819	-386.301	-872.168
194	-392.714	-880.909	-520.889	-742.844
195	-528.141	-752.159	-701.488	-565.438
196	-708.906	-574.621	-930.437	-335.998
197	-937.124	-344.109	-1207.434	-52.944
198	-1212.308	-58.842	-1529.382	282.695
199	-1532.743	278.727	-1848.928	619.305
200	-1550.314	654.654	-1517.353	620.801
201	-1505.583	638.064	-1506.713	639.224
202	-1496.311	648.820	-1298.660	445.827
203	-1291.081	451.034	-1055.612	209.202
204	-1053.547	208.636	-803.954	-47.703
205	-1075.032	-229.630	-830.053	-493.509
206	-832.457	-497.040	-615.421	-730.822
207	-616.171	-733.692	-428.239	-936.123
208	-428.623	-938.026	-269.906	-1108.988
209	-270.128	-1110.769	-140.149	-1250.776
210	-140.678	-1252.907	-40.536	-1360.775
211	-40.747	-1362.793	17.611	-1425.654
212	23.577	-1421.556	53.487	-1453.774
213	58.504	-1450.494	64.658	-1457.122
214	68.475	-1455.030	53.629	-1439.038
215	56.687	-1437.625	20.831	-1399.004
216	23.199	-1398.086	-33.972	-1336.505
217	-32.126	-1335.936	-110.954	-1251.026
218	-109.476	-1250.530	-208.440	-1143.931
219	-208.803	-1144.886	-372.724	-968.318
220	-208.410	-740.724	-322.867	-623.173

COMBINACION 8 G1 + G2 + 1.1 PRETI + 0.60 TEMP
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-324.928	-628.111	-249.927	-705.139
2	-417.874	-927.341	-369.423	-979.530
3	-370.742	-980.765	-330.744	-1023.849
4	-331.679	-1024.721	-300.168	-1058.664
5	-301.026	-1059.474	-277.695	-1084.606
6	-278.765	-1085.572	-263.245	-1102.289
7	-264.709	-1103.652	-256.817	-1112.153
8	-258.776	-1114.129	-258.438	-1114.492
9	-261.057	-1117.109	-287.653	-1088.462
10	-296.013	-1096.794	-328.202	-1062.123
11	-325.505	-1059.408	-371.409	-1009.963
12	-369.427	-1008.010	-449.372	-921.898
13	-448.254	-920.799	-547.770	-813.605
14	-546.908	-812.793	-666.396	-684.086
15	-665.413	-683.127	-804.754	-533.036
16	-803.134	-531.451	-961.261	-361.125
17	-958.429	-358.335	-1130.831	-172.631
18	-1126.167	-168.034	-1316.484	36.966
19	-1312.582	40.810	-1456.696	196.042
20	-1195.720	280.833	-1032.625	113.330
21	-1021.057	124.221	-1177.909	285.313
22	-1167.428	295.871	-1032.095	156.881
23	-1028.005	161.045	-867.784	-3.508
24	-854.113	6.202	-681.964	-170.600
25	-877.520	-305.048	-743.773	-449.114
26	-744.958	-450.229	-634.399	-569.318
27	-634.651	-569.527	-546.887	-664.063
28	-547.071	-664.217	-480.900	-735.494
29	-481.670	-736.275	-435.637	-785.860
30	-437.525	-787.723	-411.077	-816.212
31	-414.364	-819.471	-407.946	-826.383
32	-412.751	-831.167	-428.120	-814.613
33	-434.387	-820.914	-474.589	-777.611
34	-482.047	-785.084	-550.833	-710.991
35	-559.001	-719.233	-660.313	-610.106
36	-668.518	-618.383	-805.347	-470.998
37	-812.623	-478.411	-985.574	-292.116
38	-990.877	-297.526	-1197.920	-74.511
39	-1201.536	-78.207	-1421.895	159.152
40	-1167.818	244.657	-972.364	43.921
41	-958.093	58.857	-1119.717	224.849
42	-1109.240	235.409	-978.341	100.972
43	-974.254	105.132	-818.442	-54.891
44	-804.348	-44.900	-636.933	-216.839
45	-828.323	-358.041	-699.749	-496.534
46	-700.959	-497.623	-595.513	-611.203
47	-595.796	-611.380	-513.191	-700.359
48	-513.365	-700.523	-452.338	-766.259
49	-453.088	-767.062	-412.234	-811.068
50	-414.101	-812.955	-392.769	-835.932
51	-396.049	-839.199	-394.772	-840.574
52	-399.546	-845.391	-420.045	-823.310
53	-426.307	-829.618	-471.642	-780.786
54	-479.080	-788.280	-553.016	-708.640

COMBINACION 8 G1 + G2 + 1.1 PRETI + 0.60 TEMP
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-561.177	-716.889	-667.608	-602.247
56	-675.834	-610.503	-817.750	-457.638
57	-825.067	-465.007	-1003.118	-273.219
58	-1008.436	-278.613	-1220.598	-50.083
59	-1224.218	-53.776	-1449.693	189.096
60	-1193.269	270.796	-1002.346	74.713
61	-987.734	89.299	-1145.223	251.044
62	-1134.742	261.600	-999.837	123.049
63	-995.755	127.215	-835.958	-36.902
64	-821.864	-26.910	-650.484	-202.922
65	-843.119	-342.103	-710.225	-485.250
66	-711.414	-486.360	-601.665	-604.577
67	-601.933	-604.770	-514.993	-698.417
68	-515.187	-698.561	-449.810	-768.982
69	-450.586	-769.758	-405.387	-818.444
70	-407.277	-820.306	-381.669	-847.888
71	-384.952	-851.152	-379.372	-857.162
72	-384.145	-861.981	-400.364	-844.510
73	-406.617	-850.828	-447.660	-806.618
74	-455.094	-814.116	-524.709	-739.131
75	-532.892	-747.357	-635.046	-637.322
76	-643.243	-645.608	-780.896	-497.336
77	-788.209	-504.709	-961.967	-317.545
78	-967.286	-322.938	-1175.162	-99.023
79	-1178.778	-102.722	-1399.984	135.551
80	-1147.754	224.052	-953.075	24.111
81	-938.584	38.821	-1106.926	211.713
82	-1096.437	222.259	-972.247	94.713
83	-968.148	98.861	-819.047	-54.269
84	-802.862	-42.917	-643.709	-206.372
85	-835.163	-345.627	-715.266	-474.775
86	-716.415	-475.919	-619.408	-580.410
87	-619.662	-580.614	-545.204	-660.817
88	-545.358	-661.002	-492.295	-718.159
89	-493.012	-718.992	-459.848	-754.714
90	-461.678	-756.626	-447.884	-771.484
91	-451.103	-774.787	-457.095	-768.333
92	-461.844	-773.137	-489.327	-743.533
93	-495.559	-749.821	-547.649	-693.712
94	-555.020	-701.216	-635.442	-614.590
95	-643.551	-622.828	-756.204	-501.483
96	-764.354	-509.750	-912.207	-350.490
97	-919.455	-357.873	-1103.153	-160.002
98	-1108.417	-165.409	-1325.928	68.883
99	-1329.519	65.169	-1556.645	309.819
100	-1290.188	377.245	-1104.877	186.926
101	-1098.495	209.831	-1204.997	319.212
102	-1194.451	329.812	-1024.214	154.974
103	-1018.010	161.219	-800.662	-62.003
104	-785.449	-52.695	-568.085	-275.934
105	-751.685	-424.600	-578.187	-611.484
106	-579.649	-612.881	-438.352	-765.079
107	-438.830	-765.506	-329.635	-883.125
108	-329.975	-883.452	-251.585	-967.889
109	-252.556	-968.748	-203.553	-1021.532

COMBINACION 8 G1 + G2 + 1.1 PRETI + 0.60 TEMP
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
110	-205.627	-1023.538	-185.630	-1045.077
111	-189.048	-1048.537	-198.393	-1038.471
112	-203.409	-1043.474	-243.954	-999.801
113	-250.452	-1006.326	-325.474	-925.516
114	-333.151	-933.251	-446.581	-811.069
115	-454.985	-819.536	-610.908	-651.583
116	-619.318	-660.033	-820.697	-443.118
117	-828.168	-450.580	-1075.494	-184.173
118	-1080.791	-189.500	-1371.835	123.999
119	-1375.314	120.446	-1638.620	404.067
120	-1364.831	460.099	-1233.191	324.902
121	-1226.027	346.107	-1324.451	447.192
122	-1313.887	457.796	-1137.125	276.256
123	-1130.891	282.520	-907.232	52.817
124	-895.918	59.929	-669.337	-172.775
125	-862.328	-306.524	-678.875	-504.132
126	-680.310	-505.559	-529.087	-668.450
127	-529.539	-668.905	-410.472	-797.159
128	-410.806	-797.493	-322.600	-892.504
129	-323.540	-893.396	-264.799	-956.670
130	-266.836	-958.719	-237.084	-990.766
131	-240.531	-994.202	-240.168	-994.593
132	-245.187	-999.602	-276.095	-966.310
133	-282.586	-972.855	-348.035	-902.356
134	-355.730	-910.084	-459.613	-798.187
135	-468.040	-806.646	-614.481	-648.906
136	-622.891	-657.371	-814.901	-450.548
137	-822.339	-458.060	-1060.394	-201.639
138	-1065.677	-206.990	-1347.461	96.534
139	-1350.941	92.981	-1605.920	367.632
140	-1335.155	427.991	-1191.790	280.751
141	-1188.004	305.455	-1292.908	413.195
142	-1282.360	423.795	-1107.926	244.646
143	-1102.167	250.455	-886.664	29.127
144	-876.774	35.642	-655.228	-191.891
145	-847.568	-328.915	-668.005	-522.332
146	-669.395	-523.666	-520.507	-684.041
147	-520.923	-684.424	-402.552	-811.927
148	-402.832	-812.215	-313.638	-908.291
149	-314.527	-909.207	-253.290	-975.168
150	-255.257	-977.154	-221.185	-1013.854
151	-224.615	-1017.297	-218.349	-1024.047
152	-223.309	-1029.004	-246.575	-1003.944
153	-253.051	-1010.440	-309.186	-949.975
154	-316.831	-957.636	-409.599	-857.710
155	-418.009	-866.125	-551.563	-722.266
156	-559.942	-730.684	-737.262	-539.683
157	-744.693	-547.185	-966.315	-308.465
158	-971.611	-313.836	-1235.233	-29.876
159	-1238.724	-33.441	-1488.568	235.679
160	-1228.953	311.475	-1063.157	141.199
161	-1048.637	155.201	-1202.025	312.735
162	-1191.537	323.300	-1053.440	181.471
163	-1049.342	185.649	-886.332	18.233
164	-873.907	27.127	-697.978	-153.557

COMBINACION 8 G1 + G2 + 1.1 PRETI + 0.60 TEMP
TENSIONES CON AXIL INICIAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-894.885	-285.442	-756.976	-433.991
166	-758.156	-435.109	-643.340	-558.784
167	-643.604	-558.981	-551.553	-658.134
168	-551.743	-658.280	-481.192	-734.274
169	-481.984	-735.033	-431.575	-789.330
170	-433.452	-791.205	-402.605	-824.432
171	-405.876	-827.701	-394.953	-839.466
172	-399.785	-844.213	-410.581	-832.584
173	-416.875	-838.850	-452.464	-800.514
174	-459.948	-807.946	-524.076	-738.871
175	-532.275	-747.070	-628.889	-643.001
176	-637.111	-651.248	-769.193	-508.976
177	-776.502	-516.344	-944.653	-335.220
178	-949.958	-340.619	-1152.180	-122.795
179	-1155.793	-126.495	-1370.320	104.583
180	-1120.277	197.367	-923.729	-4.493
181	-908.378	9.309	-1077.201	182.694
182	-1066.706	193.260	-945.261	68.533
183	-940.793	73.071	-791.292	-80.470
184	-781.512	-67.512	-614.422	-239.117
185	-803.651	-383.509	-677.642	-519.240
186	-678.857	-520.411	-577.973	-629.079
187	-578.266	-629.341	-502.187	-711.289
188	-502.415	-711.457	-449.914	-768.009
189	-450.699	-768.791	-420.385	-801.445
190	-422.289	-803.327	-413.539	-812.753
191	-416.844	-816.052	-430.136	-801.735
192	-434.978	-806.579	-472.068	-766.627
193	-478.390	-772.975	-542.353	-704.077
194	-549.867	-711.631	-644.570	-609.622
195	-652.794	-617.889	-782.155	-478.547
196	-790.394	-486.846	-957.410	-306.944
197	-964.739	-314.363	-1169.991	-93.276
198	-1175.315	-98.689	-1416.766	161.391
199	-1420.385	157.700	-1650.361	405.419
200	-1368.588	468.016	-1246.999	343.141
201	-1232.979	358.092	-1294.114	420.880
202	-1284.129	430.904	-1141.585	284.508
203	-1135.186	290.927	-949.884	100.616
204	-948.986	101.249	-744.616	-108.645
205	-1010.735	-298.887	-809.789	-515.336
206	-812.741	-518.278	-634.374	-710.406
207	-636.154	-712.167	-481.486	-878.768
208	-482.640	-879.841	-351.801	-1020.775
209	-352.810	-1021.708	-245.315	-1137.496
210	-246.678	-1138.729	-163.603	-1228.213
211	-164.695	-1229.283	-117.984	-1279.598
212	-112.901	-1274.549	-89.212	-1300.066
213	-85.054	-1295.859	-79.686	-1301.642
214	-76.694	-1298.661	-86.868	-1287.702
215	-84.577	-1285.463	-110.297	-1257.759
216	-108.617	-1256.100	-150.159	-1211.353
217	-148.896	-1210.156	-206.610	-1147.990
218	-205.567	-1147.025	-277.907	-1069.104
219	-278.548	-1069.760	-410.321	-927.821
220	-242.922	-705.279	-322.884	-623.156

COMBINACION 9 G1 + G2 + PRETD
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-267.599	-517.287	-233.933	-551.863
2	-366.267	-722.075	-350.445	-739.117
3	-350.356	-738.952	-337.321	-752.993
4	-337.018	-752.641	-326.487	-763.984
5	-326.265	-763.721	-317.719	-772.927
6	-317.837	-772.938	-310.754	-780.569
7	-311.344	-781.070	-305.467	-787.400
8	-306.612	-788.577	-301.733	-793.832
9	-303.584	-795.692	-316.316	-781.978
10	-323.773	-789.456	-333.158	-779.347
11	-331.382	-777.587	-345.998	-761.842
12	-345.152	-761.029	-383.083	-720.171
13	-383.763	-720.873	-433.452	-667.350
14	-434.486	-668.427	-496.998	-601.093
15	-497.756	-601.887	-573.375	-520.433
16	-572.990	-520.105	-660.237	-426.127
17	-657.692	-423.637	-750.703	-323.450
18	-744.962	-317.787	-848.808	-205.930
19	-846.192	-203.373	-906.166	-138.772
20	-717.008	-31.445	-538.409	-214.871
21	-532.905	-209.975	-715.876	-22.059
22	-702.901	-9.016	-656.026	-57.158
23	-655.900	-56.963	-574.379	-140.687
24	-563.339	-133.240	-464.865	-234.376
25	-613.940	-355.863	-543.228	-432.031
26	-544.162	-432.895	-486.937	-494.534
27	-486.206	-493.757	-442.020	-541.351
28	-440.904	-540.208	-407.941	-575.715
29	-407.338	-575.120	-383.604	-600.686
30	-384.146	-601.209	-368.503	-618.060
31	-370.532	-620.081	-362.899	-628.303
32	-366.610	-632.011	-368.250	-630.244
33	-373.690	-635.702	-387.310	-621.032
34	-394.293	-628.022	-423.766	-596.274
35	-431.839	-604.405	-481.628	-550.776
36	-489.942	-559.148	-563.615	-479.791
37	-570.710	-486.995	-668.259	-381.920
38	-672.205	-385.958	-791.682	-257.263
39	-796.050	-261.702	-915.177	-133.384
40	-726.730	-28.322	-518.759	-241.914
41	-511.417	-233.973	-696.067	-44.332
42	-682.962	-31.151	-637.214	-78.135
43	-636.838	-77.694	-556.913	-159.779
44	-545.281	-151.875	-449.071	-250.685
45	-596.417	-374.298	-528.337	-447.630
46	-529.130	-448.328	-474.491	-507.182
47	-473.710	-506.317	-432.019	-551.226
48	-430.887	-550.089	-400.282	-583.056
49	-399.706	-582.515	-378.216	-605.663
50	-378.812	-606.272	-365.286	-620.841
51	-367.404	-622.946	-361.857	-628.921
52	-365.633	-632.750	-369.357	-628.739
53	-374.873	-634.305	-390.632	-617.330
54	-397.676	-624.427	-429.346	-590.313

COMBINACION 9 G1 + G2 + PRETD
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-437.474	-598.510	-489.539	-542.429
56	-497.892	-550.811	-573.875	-468.966
57	-580.973	-476.107	-680.790	-368.589
58	-684.652	-372.512	-806.222	-241.563
59	-810.426	-245.833	-931.292	-115.642
60	-741.367	-12.712	-535.005	-224.652
61	-527.272	-216.940	-709.061	-30.238
62	-696.062	-17.171	-647.610	-66.933
63	-647.386	-66.631	-564.491	-151.766
64	-552.959	-143.959	-453.649	-245.953
65	-601.476	-368.942	-530.053	-445.876
66	-530.816	-446.571	-472.948	-508.903
67	-472.079	-507.986	-427.263	-556.260
68	-426.032	-555.012	-392.384	-591.256
69	-391.698	-590.576	-367.204	-616.960
70	-367.683	-617.430	-351.166	-635.222
71	-353.160	-637.209	-344.516	-646.521
72	-348.204	-650.232	-348.700	-649.698
73	-354.146	-655.184	-366.507	-641.869
74	-373.513	-648.944	-401.609	-618.681
75	-409.780	-626.907	-458.161	-574.793
76	-466.612	-583.332	-538.923	-505.443
77	-546.259	-512.836	-642.659	-408.999
78	-646.902	-413.303	-765.672	-285.369
79	-770.361	-290.127	-889.307	-162.004
80	-703.190	-53.471	-494.689	-267.607
81	-487.233	-259.951	-678.252	-63.770
82	-664.936	-50.400	-625.555	-90.845
83	-624.940	-90.183	-551.871	-165.227
84	-538.332	-156.079	-450.386	-246.401
85	-597.411	-369.063	-537.876	-433.191
86	-538.814	-434.104	-492.176	-484.340
87	-491.670	-483.774	-457.481	-520.601
88	-456.674	-519.818	-433.277	-545.021
89	-433.022	-544.859	-418.533	-560.465
90	-419.429	-561.431	-412.944	-568.416
91	-415.299	-570.848	-416.904	-569.119
92	-420.892	-573.158	-431.976	-561.219
93	-437.607	-566.888	-461.044	-541.642
94	-468.039	-548.732	-507.667	-506.047
95	-515.573	-514.049	-575.678	-449.307
96	-583.551	-457.280	-667.241	-367.133
97	-673.570	-373.586	-780.090	-258.847
98	-782.879	-261.769	-909.276	-125.620
99	-912.199	-128.654	-1032.802	1.254
100	-832.886	90.865	-630.754	-116.730
101	-630.310	-100.675	-760.843	33.386
102	-749.057	45.227	-662.667	-43.497
103	-661.401	-42.184	-522.830	-184.501
104	-510.637	-177.668	-366.796	-325.397
105	-504.308	-457.890	-395.955	-574.603
106	-395.122	-573.714	-310.949	-664.381
107	-308.333	-661.714	-246.846	-727.944
108	-244.121	-725.201	-202.115	-770.447
109	-200.492	-768.735	-174.951	-796.247

COMBINACION 9 G1 + G2 + PRETD

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
110	-175.124	-796.362	-164.524	-807.780
111	-166.840	-810.114	-171.019	-805.612
112	-175.737	-810.310	-196.544	-787.898
113	-203.588	-794.950	-244.888	-750.464
114	-253.922	-759.524	-321.001	-687.270
115	-331.333	-697.646	-430.102	-591.257
116	-440.416	-601.609	-574.974	-456.670
117	-583.181	-464.881	-752.038	-282.998
118	-755.235	-286.219	-952.277	-73.975
119	-953.409	-75.166	-1112.155	95.827
120	-903.995	175.201	-755.120	22.303
121	-751.785	38.175	-876.903	166.675
122	-865.900	177.720	-777.889	87.330
123	-778.286	86.969	-635.209	-59.975
124	-628.108	-56.683	-474.125	-214.828
125	-623.700	-333.452	-502.641	-463.852
126	-503.188	-464.377	-406.158	-568.893
127	-404.302	-567.024	-330.653	-646.356
128	-328.216	-643.915	-275.057	-701.176
129	-273.361	-699.429	-237.700	-737.841
130	-237.546	-737.685	-217.643	-759.123
131	-219.510	-760.974	-214.981	-765.853
132	-219.133	-769.980	-231.559	-756.596
133	-237.969	-763.034	-270.912	-727.550
134	-279.316	-735.978	-337.755	-673.031
135	-347.510	-682.809	-437.162	-586.240
136	-447.003	-596.120	-571.975	-461.506
137	-579.882	-469.474	-738.946	-298.138
138	-742.150	-301.397	-929.769	-99.303
139	-931.275	-100.867	-1082.375	61.890
140	-877.314	144.940	-717.986	-18.695
141	-718.147	-0.061	-849.468	134.809
142	-838.193	146.140	-752.365	57.992
143	-752.840	57.568	-616.816	-82.133
144	-610.529	-78.905	-461.476	-231.986
145	-610.082	-353.169	-492.986	-479.300
146	-493.332	-479.590	-398.700	-581.523
147	-396.732	-579.531	-323.832	-658.055
148	-321.303	-655.518	-267.262	-713.728
149	-265.444	-711.913	-227.472	-752.814
150	-227.132	-752.483	-203.224	-778.236
151	-204.895	-779.909	-194.793	-790.790
152	-198.674	-794.661	-203.701	-789.246
153	-209.862	-795.417	-233.443	-770.016
154	-241.621	-778.191	-288.484	-727.713
155	-298.150	-737.390	-374.019	-655.668
156	-384.004	-665.688	-493.257	-548.005
157	-501.736	-556.545	-644.083	-403.216
158	-648.451	-407.640	-819.859	-223.008
159	-823.127	-226.330	-970.852	-67.208
160	-776.954	30.339	-598.273	-153.171
161	-589.756	-145.091	-768.934	38.929
162	-756.321	51.611	-707.313	1.279
163	-707.979	0.687	-622.732	-86.865
164	-613.523	-80.863	-509.113	-188.095

COMBINACION 9 G1 + G2 + PRETD

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-663.116	-303.737	-585.180	-387.686
166	-586.720	-389.171	-522.143	-458.729
167	-521.772	-458.286	-470.482	-513.533
168	-469.505	-512.523	-429.816	-555.275
169	-429.216	-554.637	-399.165	-587.007
170	-399.575	-587.402	-377.961	-610.684
171	-379.783	-612.494	-366.375	-626.938
172	-369.850	-630.358	-365.794	-634.727
173	-370.965	-639.870	-378.853	-631.374
174	-385.559	-638.040	-409.107	-612.674
175	-416.923	-620.493	-460.529	-573.523
176	-468.621	-581.642	-535.804	-509.276
177	-542.775	-516.306	-633.626	-418.446
178	-637.565	-422.467	-750.447	-300.876
179	-754.966	-305.469	-867.173	-184.604
180	-682.707	-72.949	-471.976	-289.375
181	-463.789	-282.579	-652.981	-88.273
182	-639.910	-75.138	-600.291	-115.828
183	-599.375	-114.852	-523.799	-192.470
184	-516.116	-181.237	-418.850	-281.131
185	-562.834	-408.618	-496.300	-480.285
186	-496.661	-480.600	-445.673	-535.522
187	-444.588	-534.406	-408.306	-573.488
188	-407.064	-572.199	-383.445	-597.640
189	-382.905	-597.108	-369.860	-611.160
190	-370.665	-611.939	-367.085	-615.795
191	-369.548	-618.231	-375.563	-611.751
192	-379.833	-616.009	-397.006	-597.510
193	-403.066	-603.587	-434.485	-569.744
194	-442.076	-577.373	-491.976	-523.622
195	-500.543	-532.215	-573.596	-453.527
196	-582.097	-462.080	-681.645	-354.852
197	-688.441	-361.731	-813.510	-227.013
198	-816.401	-229.995	-963.289	-71.776
199	-965.785	-74.338	-1088.852	58.224
200	-877.760	146.992	-727.252	-7.584
201	-718.154	2.358	-809.287	95.954
202	-798.960	106.318	-732.642	38.207
203	-730.619	40.249	-619.406	-73.970
204	-619.750	-74.558	-487.379	-210.507
205	-692.927	-383.009	-562.799	-523.178
206	-565.051	-525.414	-451.559	-647.662
207	-451.125	-647.203	-355.963	-749.707
208	-354.095	-747.769	-276.814	-831.011
209	-274.562	-828.705	-213.595	-894.376
210	-211.846	-892.528	-166.743	-941.111
211	-165.347	-939.663	-144.287	-962.348
212	-138.855	-956.882	-130.719	-965.645
213	-126.885	-961.771	-127.995	-960.576
214	-125.850	-958.437	-134.351	-949.279
215	-133.394	-948.341	-149.685	-930.793
216	-149.777	-930.911	-174.631	-904.140
217	-175.556	-905.130	-210.004	-868.023
218	-211.484	-869.576	-250.423	-827.633
219	-258.012	-835.239	-347.285	-739.078
220	-214.593	-564.635	-265.243	-512.616

COMBINACION 10 G1 + G2 + PRETD + TEMP + 0.80 SCMAX-IPF
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-267.611	-517.275	-287.213	-497.143
2	-465.769	-614.896	-539.148	-535.856
3	-539.028	-535.724	-604.753	-464.928
4	-604.417	-464.611	-662.039	-402.544
5	-661.793	-402.307	-711.052	-349.247
6	-711.150	-349.282	-751.325	-306.007
7	-751.905	-306.519	-782.774	-273.269
8	-783.907	-274.458	-805.497	-251.203
9	-807.338	-253.073	-835.964	-222.238
10	-843.406	-229.733	-858.267	-213.725
11	-856.482	-211.975	-866.192	-201.515
12	-865.346	-200.701	-887.680	-176.643
13	-888.361	-177.345	-912.090	-151.785
14	-913.138	-152.847	-939.322	-124.642
15	-940.094	-125.421	-968.810	-94.489
16	-968.439	-94.146	-998.440	-61.831
17	-995.975	-59.256	-1025.307	-27.660
18	-1033.809	-6.655	-1096.872	61.273
19	-1105.942	76.418	-1154.592	128.821
20	-953.289	211.222	-776.434	29.587
21	-777.353	41.080	-942.172	210.354
22	-935.168	229.528	-874.791	167.520
23	-889.723	183.180	-815.392	106.840
24	-817.836	128.135	-759.472	68.194
25	-948.114	4.092	-936.214	-8.726
26	-956.926	11.715	-972.765	28.776
27	-972.011	29.529	-985.561	44.124
28	-984.427	45.247	-993.810	55.355
29	-993.208	55.950	-996.447	59.439
30	-996.979	58.904	-992.872	54.481
31	-994.895	52.452	-983.277	39.938
32	-986.987	36.229	-969.173	17.041
33	-974.624	11.594	-953.365	-11.305
34	-960.359	-18.283	-939.454	-40.800
35	-947.551	-48.906	-931.465	-66.233
36	-939.807	-74.576	-932.203	-82.766
37	-943.928	-84.983	-965.895	-61.321
38	-983.827	-50.294	-1051.105	22.175
39	-1072.319	35.882	-1174.763	146.229
40	-977.578	229.306	-771.425	17.581
41	-773.808	35.510	-939.405	205.583
42	-932.442	225.072	-872.281	163.285
43	-887.767	180.016	-810.474	100.635
44	-813.704	123.803	-749.190	57.545
45	-938.226	-6.117	-930.184	-14.780
46	-950.909	5.992	-968.428	24.863
47	-967.621	25.699	-982.758	42.004
48	-981.605	43.117	-992.456	54.805
49	-991.866	55.331	-996.451	60.270
50	-997.045	59.659	-994.149	56.539
51	-996.274	54.442	-985.840	43.203
52	-989.622	39.381	-972.965	21.439
53	-978.499	15.892	-958.409	-5.749
54	-965.469	-12.828	-945.759	-34.058

COMBINACION 10 G1 + G2 + PRETD + TEMP + 0.80 SCMAX-IPF
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-953.916	-42.224	-939.078	-58.206
56	-947.457	-66.561	-941.132	-73.374
57	-955.061	-73.157	-985.551	-40.315
58	-1003.719	-28.829	-1081.004	54.419
59	-1102.354	68.618	-1213.710	188.566
60	-1013.291	266.561	-815.365	63.285
61	-817.399	81.028	-978.551	246.536
62	-971.738	265.956	-907.280	199.756
63	-923.030	216.464	-841.148	132.368
64	-844.654	155.620	-773.760	82.810
65	-965.314	22.966	-952.170	8.808
66	-972.013	28.665	-983.056	40.560
67	-982.166	41.454	-990.928	50.893
68	-989.673	52.115	-994.260	57.056
69	-993.562	57.722	-991.926	55.960
70	-992.393	55.477	-983.242	45.620
71	-985.232	43.627	-968.463	25.565
72	-972.165	21.868	-949.064	-3.014
73	-954.531	-8.478	-927.883	-37.182
74	-934.905	-44.239	-908.499	-72.683
75	-916.694	-80.884	-895.032	-104.216
76	-903.510	-112.727	-890.372	-126.878
77	-905.613	-125.758	-931.783	-97.569
78	-950.738	-86.025	-1024.595	-6.470
79	-1046.786	7.625	-1155.311	124.523
80	-960.269	210.557	-759.373	4.231
81	-761.745	21.980	-935.956	200.899
82	-928.871	220.668	-877.308	167.711
83	-892.858	184.976	-824.563	114.835
84	-826.377	139.751	-770.454	82.318
85	-961.464	23.077	-963.471	25.239
86	-980.170	41.303	-1001.099	63.847
87	-1000.561	64.378	-1018.596	83.804
88	-1017.757	84.553	-1031.211	99.045
89	-1030.933	99.182	-1037.897	106.684
90	-1038.774	105.697	-1038.285	105.171
91	-1040.616	102.713	-1032.720	94.208
92	-1036.692	90.152	-1022.837	75.228
93	-1028.467	69.558	-1011.534	51.319
94	-1018.529	44.229	-1002.294	26.741
95	-1010.207	18.746	-998.965	6.637
96	-1006.856	-1.317	-1003.784	-4.625
97	-1024.720	4.656	-1066.763	49.943
98	-1084.123	62.716	-1176.096	161.785
99	-1192.959	173.767	-1308.540	298.265
100	-1096.635	361.742	-902.793	162.662
101	-913.698	190.372	-1026.071	305.782
102	-1018.942	322.407	-921.658	222.493
103	-929.928	233.600	-792.844	92.811
104	-791.196	110.474	-663.067	-21.118
105	-838.962	-97.417	-775.269	-166.025
106	-790.510	-147.821	-759.370	-181.363
107	-756.707	-178.748	-736.346	-200.679
108	-733.580	-197.980	-720.626	-211.933
109	-718.966	-210.260	-710.589	-219.283

COMBINACION 10 G1 + G2 + PRETD + TEMP + 0.80 SCMAX-IPF
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
110	-710.726	-219.438	-705.396	-225.179
111	-707.687	-227.539	-705.191	-230.227
112	-709.887	-234.950	-711.952	-232.725
113	-718.984	-239.790	-729.660	-228.291
114	-738.684	-237.363	-763.249	-210.903
115	-773.574	-221.286	-817.858	-173.584
116	-828.172	-183.937	-896.204	-110.656
117	-914.061	-108.474	-1036.921	23.865
118	-1050.983	32.346	-1225.852	220.707
119	-1237.472	230.812	-1396.910	402.551
120	-1174.714	453.236	-1039.315	314.178
121	-1043.627	337.904	-1149.258	446.391
122	-1142.270	461.559	-1038.672	355.161
123	-1050.276	366.309	-904.747	216.848
124	-908.083	230.859	-766.074	85.011
125	-954.903	23.303	-875.435	-62.296
126	-892.823	-44.682	-850.693	-90.062
127	-848.800	-88.234	-818.134	-121.265
128	-815.659	-118.866	-793.396	-142.846
129	-791.657	-141.146	-775.013	-159.074
130	-774.829	-158.950	-762.057	-172.707
131	-763.896	-174.588	-754.564	-184.641
132	-758.695	-188.790	-754.256	-193.572
133	-760.650	-200.028	-764.846	-195.508
134	-773.238	-203.950	-791.031	-184.784
135	-800.771	-194.579	-837.818	-154.674
136	-847.651	-164.561	-907.958	-99.601
137	-922.625	-100.288	-1031.284	16.754
138	-1044.304	24.069	-1197.779	189.384
139	-1213.277	202.892	-1356.613	357.286
140	-1140.684	415.428	-986.415	256.989
141	-996.471	285.784	-1107.260	399.568
142	-1099.989	415.011	-997.737	309.995
143	-1009.307	320.966	-870.832	178.749
144	-874.541	192.242	-741.723	55.835
145	-927.853	-10.883	-853.668	-90.790
146	-873.657	-69.922	-838.882	-107.381
147	-836.884	-105.421	-811.312	-132.966
148	-808.748	-130.465	-789.521	-151.176
149	-787.678	-149.388	-771.812	-166.478
150	-771.457	-166.163	-757.021	-181.713
151	-758.677	-183.402	-745.449	-197.651
152	-749.318	-201.534	-738.639	-213.037
153	-744.794	-219.214	-740.108	-224.262
154	-748.284	-232.439	-754.120	-226.153
155	-763.788	-235.828	-785.998	-211.904
156	-795.990	-221.916	-838.968	-175.623
157	-850.234	-181.160	-935.417	-89.405
158	-949.988	-82.839	-1084.054	61.570
159	-1098.004	69.754	-1238.771	221.381
160	-1031.312	291.572	-859.988	115.617
161	-858.943	131.371	-1019.690	296.463
162	-1012.818	315.041	-950.038	250.564
163	-964.819	264.468	-882.948	180.385
164	-885.720	198.690	-809.971	120.894

COMBINACION 10 G1 + G2 + PRETD + TEMP + 0.80 SCMAX-IPF
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-1009.197	69.044	-989.211	47.517
166	-1006.588	63.091	-1010.798	67.626
167	-1010.409	68.049	-1012.639	70.452
168	-1011.644	71.442	-1010.101	69.780
169	-1009.496	70.412	-1002.202	62.555
170	-1002.601	62.148	-988.284	46.726
171	-990.107	44.917	-968.531	21.676
172	-972.024	18.274	-944.332	-11.554
173	-949.522	-16.677	-918.325	-50.281
174	-925.050	-56.926	-893.973	-90.401
175	-901.815	-98.191	-875.287	-126.766
176	-883.412	-134.850	-865.024	-154.657
177	-879.310	-153.807	-897.860	-133.826
178	-914.147	-124.547	-975.493	-58.468
179	-998.031	-43.650	-1093.445	59.125
180	-903.759	154.077	-694.778	-60.552
181	-696.478	-43.601	-875.436	140.194
182	-868.436	159.565	-822.967	112.866
183	-837.814	130.031	-772.467	62.919
184	-779.964	89.743	-719.772	27.924
185	-905.843	-39.145	-904.856	-40.208
186	-915.238	-29.729	-928.070	-15.907
187	-926.962	-14.816	-939.868	-0.914
188	-938.614	0.361	-949.505	12.092
189	-948.953	12.611	-955.687	19.865
190	-956.487	19.080	-957.975	20.682
191	-960.436	18.245	-956.799	14.328
192	-961.070	10.072	-953.825	2.268
193	-959.896	-3.798	-952.201	-12.085
194	-959.809	-19.696	-955.860	-23.950
195	-964.450	-32.518	-968.835	-27.795
196	-977.356	-36.326	-993.505	-18.931
197	-1015.270	-9.687	-1080.466	60.539
198	-1096.943	72.191	-1211.998	196.122
199	-1228.673	208.832	-1342.349	331.278
200	-1125.536	401.465	-982.939	255.014
201	-983.874	275.260	-1061.719	355.209
202	-1054.934	369.210	-982.667	294.990
203	-985.521	302.040	-876.631	190.207
204	-883.872	196.702	-763.263	72.834
205	-1005.232	-46.610	-904.132	-155.510
206	-906.377	-157.754	-824.633	-245.805
207	-824.189	-245.356	-752.910	-322.134
208	-751.026	-320.213	-689.990	-385.959
209	-687.733	-383.657	-635.008	-440.451
210	-633.254	-438.608	-588.724	-486.574
211	-587.330	-485.123	-559.018	-515.620
212	-553.596	-510.142	-530.382	-535.147
213	-526.557	-531.263	-504.920	-554.570
214	-502.786	-552.420	-480.562	-576.358
215	-479.624	-575.399	-457.569	-599.155
216	-457.673	-599.260	-436.298	-622.285
217	-437.238	-623.258	-417.683	-644.321
218	-419.189	-645.846	-396.423	-670.369
219	-404.032	-677.954	-423.658	-656.813
220	-284.521	-492.817	-265.262	-512.596

COMBINACION 11 G1 + G2 + PRETD + TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-267.599	-517.287	-242.674	-542.886
2	-375.816	-711.789	-369.539	-718.550
3	-369.454	-718.381	-365.964	-722.140
4	-365.663	-721.786	-364.681	-722.844
5	-364.462	-722.578	-365.462	-721.500
6	-365.583	-721.509	-368.051	-718.851
7	-368.644	-719.349	-372.316	-715.393
8	-373.463	-716.569	-378.131	-711.540
9	-379.983	-713.399	-402.262	-689.401
10	-409.718	-696.880	-428.650	-676.488
11	-426.874	-674.727	-451.040	-648.697
12	-450.194	-647.882	-497.676	-596.737
13	-498.354	-597.440	-557.601	-533.623
14	-558.634	-534.701	-630.696	-457.080
15	-631.456	-457.871	-716.628	-366.128
16	-716.242	-365.801	-813.042	-261.533
17	-810.495	-259.045	-913.063	-148.564
18	-907.321	-142.902	-1020.720	-20.754
19	-1018.103	-18.199	-1087.630	56.693
20	-883.141	139.178	-713.288	-35.265
21	-707.757	-30.398	-888.501	155.231
22	-875.529	168.278	-826.428	117.850
23	-826.305	118.048	-742.557	32.036
24	-731.520	39.486	-630.819	-63.936
25	-795.211	-160.607	-722.066	-239.396
26	-723.001	-240.258	-663.344	-304.518
27	-662.614	-303.739	-615.994	-353.955
28	-614.879	-352.811	-579.480	-390.941
29	-578.880	-390.344	-552.709	-418.533
30	-553.252	-419.057	-535.174	-438.529
31	-537.203	-440.551	-527.133	-451.398
32	-530.843	-455.107	-530.048	-455.964
33	-535.487	-461.423	-546.670	-449.377
34	-553.651	-456.369	-580.690	-427.244
35	-588.761	-435.378	-636.114	-384.371
36	-644.426	-392.745	-715.663	-316.012
37	-722.757	-323.218	-817.870	-220.767
38	-821.813	-224.807	-938.855	-98.736
39	-943.220	-103.178	-1059.912	22.517
40	-859.234	107.763	-649.033	-108.119
41	-641.718	-100.150	-826.975	90.114
42	-813.872	103.297	-768.731	56.936
43	-768.358	57.380	-689.039	-24.082
44	-677.409	-16.176	-581.806	-114.363
45	-741.402	-218.127	-673.985	-290.745
46	-674.780	-291.441	-620.803	-349.582
47	-620.024	-348.715	-578.995	-392.910
48	-577.865	-391.772	-547.922	-424.025
49	-547.347	-423.483	-526.519	-445.918
50	-527.116	-446.526	-514.252	-460.383
51	-516.370	-462.487	-511.485	-467.748
52	-515.261	-471.578	-519.648	-466.853
53	-525.163	-472.420	-541.585	-454.731
54	-548.627	-461.829	-580.960	-427.002

COMBINACION 11 G1 + G2 + PRETD + TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-589.087	-435.200	-641.814	-378.405
56	-650.166	-386.789	-726.811	-304.230
57	-733.907	-311.373	-834.387	-203.142
58	-838.247	-207.068	-960.479	-75.405
59	-964.680	-79.678	-1086.208	51.226
60	-883.193	132.947	-677.438	-78.370
61	-669.703	-70.660	-851.334	115.880
62	-838.338	128.951	-789.727	79.026
63	-789.506	79.330	-706.452	-5.968
64	-694.923	1.841	-595.454	-100.315
65	-756.369	-202.100	-684.772	-279.220
66	-685.537	-279.913	-627.496	-342.432
67	-626.628	-341.513	-581.639	-389.974
68	-580.409	-388.724	-546.588	-425.155
69	-545.903	-424.474	-521.236	-451.044
70	-521.716	-451.514	-505.025	-469.492
71	-507.019	-471.480	-498.201	-480.978
72	-501.889	-484.690	-502.211	-484.342
73	-507.657	-489.829	-519.844	-476.702
74	-526.849	-483.778	-554.772	-453.701
75	-562.942	-461.928	-611.149	-410.002
76	-619.598	-418.543	-691.735	-340.841
77	-699.070	-348.236	-795.295	-244.587
78	-799.536	-248.893	-918.132	-121.147
79	-922.819	-125.907	-1041.590	2.028
80	-842.605	89.712	-633.945	-124.587
81	-626.500	-116.920	-817.535	79.278
82	-804.222	92.650	-764.857	52.222
83	-764.245	52.887	-691.191	-22.141
84	-677.655	-12.990	-589.726	-103.296
85	-749.610	-205.122	-690.093	-269.231
86	-691.032	-270.142	-644.412	-320.359
87	-643.907	-319.792	-609.736	-356.599
88	-608.930	-355.816	-585.551	-380.999
89	-585.296	-380.836	-570.825	-396.424
90	-571.721	-397.389	-565.255	-404.355
91	-567.609	-406.787	-569.232	-405.039
92	-573.220	-409.078	-584.321	-397.120
93	-589.951	-402.790	-613.407	-377.524
94	-620.401	-384.615	-660.047	-341.911
95	-667.951	-349.915	-728.074	-285.153
96	-735.945	-293.129	-819.653	-202.962
97	-825.980	-209.417	-932.519	-94.659
98	-935.305	-97.584	-1061.720	38.585
99	-1064.640	35.548	-1185.261	165.475
100	-972.462	234.213	-770.347	26.636
101	-770.520	43.325	-901.030	177.362
102	-889.246	189.205	-802.833	100.458
103	-801.569	101.772	-662.975	-40.568
104	-650.784	-33.733	-506.919	-181.486
105	-657.363	-293.027	-548.985	-409.767
106	-548.153	-408.876	-463.955	-499.571
107	-461.340	-496.902	-399.828	-563.160
108	-397.103	-560.416	-355.072	-605.689
109	-353.450	-603.977	-327.883	-631.516

COMBINACION 11 G1 + G2 + PRETD + TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
110	-328.056	-631.631	-317.431	-643.076
111	-319.746	-645.410	-323.899	-640.937
112	-328.617	-645.635	-349.399	-623.250
113	-356.442	-630.303	-397.716	-585.844
114	-406.750	-594.906	-473.804	-522.679
115	-484.135	-533.055	-582.877	-426.695
116	-593.191	-437.048	-727.723	-292.136
117	-735.929	-300.350	-904.759	-118.493
118	-907.955	-121.716	-1104.972	90.500
119	-1106.101	89.307	-1264.822	260.273
120	-1043.762	318.745	-894.864	165.824
121	-892.202	182.388	-1017.235	310.799
122	-1006.234	321.847	-918.137	231.368
123	-918.536	231.009	-775.373	83.977
124	-768.274	87.271	-614.205	-70.962
125	-776.708	-168.640	-655.555	-299.140
126	-656.103	-299.665	-558.980	-404.281
127	-557.125	-402.412	-483.381	-481.844
128	-480.945	-479.403	-427.692	-536.765
129	-425.997	-535.017	-390.242	-573.530
130	-390.088	-573.375	-370.091	-594.914
131	-371.958	-596.765	-367.335	-601.745
132	-371.487	-605.873	-383.818	-592.590
133	-390.228	-599.028	-423.077	-563.645
134	-431.480	-572.074	-489.825	-509.228
135	-499.579	-519.008	-589.138	-422.540
136	-598.977	-432.421	-723.855	-297.909
137	-731.760	-305.878	-890.730	-134.643
138	-893.932	-137.904	-1081.457	64.088
139	-1082.960	62.521	-1233.966	225.177
140	-1016.097	287.473	-856.682	123.750
141	-857.653	143.215	-989.119	278.234
142	-977.847	289.568	-892.163	201.568
143	-892.641	201.148	-756.762	61.596
144	-750.477	64.826	-601.570	-88.106
145	-763.105	-188.341	-646.167	-314.301
146	-646.515	-314.589	-552.041	-416.351
147	-550.075	-414.358	-477.334	-492.711
148	-474.806	-490.172	-420.923	-548.212
149	-419.105	-546.397	-381.292	-587.127
150	-380.953	-586.795	-357.203	-612.377
151	-358.875	-614.050	-348.931	-624.761
152	-352.811	-628.631	-357.997	-623.046
153	-364.157	-629.218	-387.897	-603.646
154	-396.074	-611.822	-443.095	-561.173
155	-452.761	-570.851	-528.787	-488.959
156	-538.771	-498.980	-648.183	-381.127
157	-656.660	-389.669	-799.165	-236.169
158	-803.531	-240.595	-975.098	-55.792
159	-978.364	-59.116	-1126.247	100.176
160	-919.219	176.449	-740.683	-6.912
161	-732.147	1.148	-910.764	184.593
162	-898.154	197.278	-848.586	146.370
163	-849.255	145.781	-763.447	57.654
164	-754.241	63.658	-649.271	-44.149

COMBINACION 11 G1 + G2 + PRETD + TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-816.209	-138.833	-737.662	-223.441
166	-739.203	-224.923	-674.015	-295.141
167	-673.645	-294.696	-621.743	-350.602
168	-620.767	-349.591	-580.466	-393.002
169	-579.867	-392.363	-549.204	-425.392
170	-549.614	-425.787	-527.389	-449.728
171	-529.211	-451.538	-515.190	-466.641
172	-518.665	-470.062	-513.997	-475.090
173	-519.168	-480.234	-526.443	-472.397
174	-533.148	-479.064	-556.085	-454.357
175	-563.899	-462.178	-606.894	-415.866
176	-614.984	-423.988	-681.555	-352.280
177	-688.524	-359.313	-778.763	-262.111
178	-782.700	-266.135	-894.970	-145.203
179	-899.485	-149.799	-1011.081	-29.593
180	-814.455	62.359	-603.164	-154.642
181	-594.913	-147.911	-786.138	48.483
182	-773.070	61.621	-735.484	23.020
183	-734.570	23.998	-661.029	-51.531
184	-653.348	-40.296	-558.115	-138.103
185	-714.952	-244.764	-650.639	-314.039
186	-651.001	-314.352	-602.233	-366.882
187	-601.149	-365.766	-567.087	-402.456
188	-565.846	-401.166	-544.448	-424.216
189	-543.908	-423.684	-533.083	-435.344
190	-533.888	-436.123	-532.528	-437.588
191	-534.989	-440.025	-543.224	-431.155
192	-547.493	-435.413	-566.886	-414.524
193	-572.946	-420.601	-606.585	-384.367
194	-614.175	-391.996	-666.294	-335.856
195	-674.859	-344.451	-750.131	-263.371
196	-758.631	-271.927	-860.398	-162.308
197	-867.191	-169.190	-994.480	-32.081
198	-997.369	-35.066	-1146.476	125.545
199	-1148.970	122.980	-1274.256	257.932
200	-1047.497	321.317	-899.022	168.828
201	-889.961	178.809	-972.503	263.582
202	-962.178	273.947	-887.269	197.013
203	-885.247	199.055	-765.444	76.015
204	-765.788	75.427	-624.825	-69.346
205	-843.057	-221.297	-703.540	-371.578
206	-705.794	-373.812	-582.914	-506.173
207	-582.481	-505.712	-477.935	-618.324
208	-476.070	-616.383	-389.395	-709.745
209	-387.147	-707.434	-316.798	-783.211
210	-315.051	-781.361	-260.564	-840.051
211	-259.171	-838.601	-228.727	-871.393
212	-223.295	-865.927	-205.776	-884.797
213	-201.945	-880.920	-193.675	-889.828
214	-191.533	-887.685	-190.651	-888.635
215	-189.692	-887.700	-196.600	-880.258
216	-196.692	-880.377	-212.164	-863.711
217	-213.088	-864.702	-238.151	-837.704
218	-239.632	-839.256	-269.193	-807.415
219	-276.779	-815.024	-356.673	-728.966
220	-223.185	-555.810	-265.244	-512.615

COMBINACION 12 G1 + G2 + PRETD + SCMAX-IPF + 0.6 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-267.614	-517.272	-294.851	-489.299
2	-485.264	-593.897	-575.470	-496.731
3	-575.340	-496.611	-655.187	-410.603
4	-654.842	-410.296	-723.837	-335.978
5	-723.583	-335.750	-781.535	-273.326
6	-781.626	-273.368	-827.760	-223.674
7	-828.336	-224.192	-862.442	-187.454
8	-863.572	-188.647	-885.735	-164.774
9	-887.574	-166.647	-914.036	-138.143
10	-921.475	-145.641	-931.474	-134.870
11	-929.686	-133.123	-931.842	-130.800
12	-930.995	-129.987	-943.007	-117.048
13	-943.688	-117.748	-954.405	-106.205
14	-955.458	-107.262	-965.947	-95.964
15	-966.721	-96.740	-977.003	-85.665
16	-976.636	-85.318	-985.521	-75.747
17	-983.077	-73.148	-989.601	-66.121
18	-1001.835	-41.096	-1048.057	8.691
19	-1060.189	27.134	-1099.548	69.530
20	-905.212	161.846	-723.025	-25.266
21	-725.644	-12.026	-887.182	153.877
22	-881.739	174.656	-819.299	110.528
23	-838.172	130.236	-767.156	57.301
24	-773.129	82.221	-726.531	34.362
25	-915.373	-31.175	-920.225	-25.948
26	-946.134	0.090	-982.514	39.277
27	-981.753	40.023	-1011.871	72.464
28	-1010.732	73.582	-1032.696	97.241
29	-1032.093	97.835	-1043.928	110.584
30	-1044.456	110.044	-1044.944	110.570
31	-1046.966	108.541	-1035.921	96.643
32	-1039.630	92.934	-1018.382	70.046
33	-1023.835	64.602	-995.143	33.697
34	-1002.141	26.723	-969.785	-8.129
35	-977.890	-16.227	-946.337	-50.213
36	-954.687	-58.548	-927.625	-87.697
37	-940.564	-88.607	-944.578	-84.283
38	-966.176	-69.307	-1021.529	-9.683
39	-1047.159	8.780	-1146.796	116.105
40	-955.433	206.562	-751.187	-3.203
41	-756.102	17.325	-916.318	181.871
42	-910.962	203.011	-846.635	136.946
43	-866.274	157.943	-789.282	78.869
44	-796.403	106.034	-739.673	47.771
45	-931.496	-13.367	-938.495	-5.828
46	-964.440	20.567	-1000.215	59.102
47	-999.400	59.930	-1028.818	91.618
48	-1027.659	92.724	-1048.807	115.504
49	-1048.214	116.026	-1059.109	127.763
50	-1059.702	127.150	-1059.113	126.515
51	-1061.240	124.421	-1049.093	111.336
52	-1052.877	107.515	-1030.491	83.402
53	-1036.030	77.861	-1006.201	45.731
54	-1013.265	38.656	-979.793	2.602

COMBINACION 12 G1 + G2 + PRETD + SCMAX-IPF + 0.6 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-987.958	-5.556	-955.335	-40.695
56	-963.722	-49.042	-935.618	-79.314
57	-951.338	-77.168	-963.461	-64.110
58	-985.379	-48.584	-1050.744	21.824
59	-1076.588	40.865	-1184.959	157.597
60	-990.472	243.125	-794.304	41.655
61	-798.898	62.027	-954.762	222.104
62	-949.568	243.186	-881.036	172.803
63	-900.969	193.806	-819.471	110.105
64	-826.914	137.400	-763.473	72.245
65	-957.793	14.865	-959.784	17.009
66	-984.624	42.249	-1013.626	73.489
67	-1012.729	74.376	-1035.477	98.879
68	-1034.214	100.093	-1048.809	115.814
69	-1048.108	116.476	-1052.493	121.200
70	-1052.957	120.714	-1045.813	113.018
71	-1047.802	111.024	-1029.026	90.800
72	-1032.731	87.107	-1003.613	55.744
73	-1009.086	50.286	-972.427	10.798
74	-979.453	3.745	-939.020	-39.807
75	-947.222	-48.000	-907.507	-90.779
76	-915.993	-99.281	-880.809	-137.180
77	-898.121	-133.828	-906.242	-125.081
78	-929.053	-109.383	-991.376	-42.252
79	-1018.155	-23.216	-1124.010	90.807
80	-935.164	184.772	-736.314	-19.451
81	-741.254	0.935	-911.064	175.335
82	-905.610	196.778	-850.857	140.546
83	-870.640	162.157	-803.597	93.303
84	-809.431	122.348	-761.790	73.419
85	-955.783	16.958	-973.652	36.205
86	-994.479	56.717	-1032.890	98.091
87	-1032.343	98.612	-1063.882	132.585
88	-1063.035	133.324	-1086.009	158.070
89	-1085.724	158.200	-1098.217	171.657
90	-1099.088	170.665	-1100.121	171.778
91	-1102.446	169.314	-1092.057	158.123
92	-1096.025	154.062	-1075.675	132.143
93	-1081.306	126.473	-1053.879	96.930
94	-1060.874	89.841	-1030.129	56.724
95	-1038.046	48.733	-1008.282	16.673
96	-1016.178	8.725	-990.590	-18.838
97	-1015.355	-5.431	-1040.735	21.907
98	-1061.901	38.780	-1144.922	128.206
99	-1165.445	144.130	-1279.585	267.076
100	-1073.150	337.623	-881.419	140.709
101	-894.895	171.061	-1002.540	281.616
102	-996.634	299.496	-896.482	196.637
103	-907.299	210.359	-770.596	69.961
104	-771.753	90.505	-647.779	-36.820
105	-825.134	-112.313	-772.967	-168.504
106	-792.418	-145.766	-775.014	-164.513
107	-772.337	-161.911	-762.626	-172.371
108	-759.848	-169.684	-754.417	-175.534
109	-752.747	-173.873	-748.813	-178.111

COMBINACION 12 G1 + G2 + PRETD + SCMAX-IPF + 0.6 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
110	-748.940	-178.276	-744.970	-182.551
111	-747.255	-184.918	-743.024	-189.475
112	-747.714	-194.204	-744.919	-197.215
113	-751.948	-204.283	-754.685	-201.335
114	-763.707	-210.409	-777.252	-195.819
115	-787.576	-206.204	-817.739	-173.712
116	-828.054	-184.065	-878.846	-129.354
117	-899.232	-124.448	-1010.248	-4.866
118	-1027.144	6.668	-1196.245	188.815
119	-1210.656	201.927	-1370.229	373.812
120	-1152.922	430.856	-1021.015	295.384
121	-1026.892	320.718	-1127.492	424.037
122	-1121.561	440.290	-1013.949	329.770
123	-1028.495	343.940	-882.392	193.889
124	-888.468	210.713	-749.659	68.153
125	-940.174	7.438	-871.472	-66.565
126	-893.261	-44.210	-865.402	-74.218
127	-863.498	-72.401	-844.016	-93.386
128	-841.529	-90.999	-827.319	-106.305
129	-825.569	-104.618	-813.899	-117.188
130	-813.707	-117.072	-802.830	-128.789
131	-804.661	-130.678	-794.131	-142.021
132	-798.257	-146.176	-789.497	-155.613
133	-795.886	-162.073	-792.682	-165.525
134	-801.070	-173.970	-808.380	-166.097
135	-818.116	-175.895	-841.581	-150.620
136	-851.414	-160.508	-895.015	-113.543
137	-911.453	-112.322	-1007.147	-9.245
138	-1022.748	0.850	-1167.464	156.731
139	-1186.615	174.172	-1327.971	326.434
140	-1117.659	391.780	-964.775	234.765
141	-976.857	265.640	-1082.186	373.817
142	-1075.969	390.342	-969.329	280.820
143	-983.813	294.783	-844.609	151.818
144	-850.941	168.005	-722.247	35.833
145	-909.610	-30.533	-846.349	-98.674
146	-871.483	-72.264	-852.101	-93.141
147	-850.095	-91.190	-836.670	-105.651
148	-834.097	-103.161	-823.774	-114.281
149	-821.924	-112.500	-811.671	-123.544
150	-811.311	-123.234	-799.214	-136.264
151	-800.866	-137.958	-786.712	-153.204
152	-790.578	-157.090	-775.714	-173.101
153	-781.868	-179.279	-769.742	-192.341
154	-777.918	-200.519	-773.010	-205.806
155	-782.679	-215.479	-790.872	-206.654
156	-800.866	-216.664	-826.558	-188.990
157	-838.555	-193.740	-908.853	-118.018
158	-926.094	-108.576	-1050.398	25.318
159	-1067.149	36.519	-1205.943	186.020
160	-1003.637	263.149	-834.101	89.031
161	-835.026	106.808	-991.328	267.334
162	-985.957	287.454	-919.951	219.664
163	-938.427	237.363	-857.823	154.581
164	-863.731	176.107	-795.714	106.252

COMBINACION 12 G1 + G2 + PRETD + SCMAX-IPF + 0.6 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-998.196	57.194	-993.552	52.192
166	-1015.075	72.233	-1037.506	96.394
167	-1037.112	96.812	-1053.604	114.577
168	-1052.603	115.561	-1061.338	124.969
169	-1060.731	125.599	-1059.724	124.515
170	-1060.120	124.105	-1048.085	111.141
171	-1049.908	109.332	-1026.605	84.230
172	-1030.103	80.834	-996.677	44.829
173	-1001.872	39.712	-960.936	-4.383
174	-967.666	-11.022	-922.823	-59.325
175	-930.672	-67.107	-886.359	-114.839
176	-894.493	-122.914	-854.320	-166.187
177	-870.524	-163.271	-870.771	-163.005
178	-890.294	-150.239	-938.678	-98.122
179	-965.939	-78.218	-1057.316	20.209
180	-874.323	123.846	-666.133	-89.971
181	-670.464	-70.318	-845.407	109.353
182	-839.994	130.354	-791.657	80.710
183	-810.630	102.113	-746.628	36.381
184	-758.099	67.287	-706.168	13.952
185	-894.731	-51.115	-909.196	-35.533
186	-922.214	-22.215	-950.098	7.821
187	-948.984	8.904	-973.149	34.934
188	-971.891	36.205	-990.236	55.966
189	-989.682	56.483	-1000.053	67.654
190	-1000.852	66.867	-1002.165	68.281
191	-1004.626	65.844	-996.999	57.630
192	-1001.272	53.375	-986.211	37.152
193	-992.284	31.090	-972.965	10.280
194	-980.577	2.674	-961.185	-18.213
195	-969.782	-26.774	-954.885	-42.821
196	-963.413	-51.345	-956.462	-58.832
197	-982.150	-45.362	-1030.396	6.606
198	-1050.434	22.094	-1155.738	135.521
199	-1176.130	152.235	-1285.819	270.387
200	-1077.897	352.539	-935.974	206.780
201	-939.513	229.700	-1019.576	311.927
202	-1013.718	326.880	-945.592	256.913
203	-949.722	265.274	-847.140	159.919
204	-856.187	168.269	-744.358	53.418
205	-987.454	-65.759	-900.134	-159.816
206	-902.376	-162.064	-835.021	-234.616
207	-834.574	-234.170	-775.645	-297.646
208	-773.755	-295.731	-723.095	-350.300
209	-720.834	-348.003	-676.406	-395.859
210	-674.650	-394.019	-636.430	-435.188
211	-635.035	-433.739	-611.007	-459.620
212	-605.588	-454.140	-584.630	-476.715
213	-580.805	-472.830	-559.435	-495.849
214	-557.300	-493.699	-533.281	-519.571
215	-532.349	-518.605	-506.522	-546.425
216	-506.630	-546.527	-479.441	-575.814
217	-480.385	-576.782	-453.005	-606.275
218	-454.517	-607.793	-421.924	-642.900
219	-429.540	-650.478	-437.285	-642.134
220	-297.000	-480.000	-265.267	-512.592

COMBINACION 13 G1 + G2 + PRETD + 0.60 SCMAX-IPF + 0.5 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-267.606	-517.280	-263.517	-521.479
2	-422.923	-661.048	-457.488	-623.815
3	-457.379	-623.673	-488.375	-590.285
4	-488.051	-589.956	-515.090	-560.830
5	-514.851	-560.586	-537.577	-536.106
6	-537.682	-536.133	-555.446	-516.998
7	-556.029	-517.508	-568.599	-503.967
8	-569.736	-505.153	-577.051	-497.274
9	-578.896	-499.140	-597.380	-479.229
10	-604.829	-486.716	-613.625	-477.241
11	-611.843	-475.487	-619.551	-467.185
12	-618.704	-466.371	-643.213	-439.972
13	-643.894	-440.672	-673.851	-408.404
14	-674.894	-409.472	-711.366	-370.186
15	-712.131	-370.972	-755.269	-324.506
16	-754.893	-324.168	-803.362	-271.959
17	-800.866	-269.417	-851.227	-215.171
18	-854.084	-200.247	-929.158	-119.380
19	-933.597	-109.224	-982.878	-56.141
20	-792.578	46.167	-611.501	-139.804
21	-609.886	-130.913	-782.799	46.672
22	-773.427	63.416	-719.301	7.827
23	-728.264	17.358	-652.060	-60.906
24	-649.161	-45.099	-576.184	-120.047
25	-743.007	-216.839	-709.251	-253.199
26	-722.094	-241.235	-710.328	-253.908
27	-709.582	-253.147	-701.529	-261.821
28	-700.401	-260.691	-694.206	-267.364
29	-693.602	-266.770	-687.281	-273.579
30	-687.817	-274.110	-680.191	-282.324
31	-682.217	-284.349	-673.154	-294.112
32	-676.865	-297.820	-667.660	-307.734
33	-673.107	-313.185	-666.495	-320.308
34	-673.485	-327.289	-673.291	-327.498
35	-681.380	-335.613	-692.068	-324.100
36	-700.400	-332.452	-725.600	-305.309
37	-735.491	-309.501	-787.982	-252.960
38	-800.370	-247.904	-889.076	-152.355
39	-903.613	-145.840	-1013.738	-27.219
40	-824.928	72.530	-619.032	-138.930
41	-617.549	-124.972	-790.432	52.583
42	-781.033	69.571	-726.319	13.378
43	-735.517	23.652	-656.916	-57.074
44	-654.255	-39.956	-577.141	-119.153
45	-744.754	-214.516	-713.091	-248.622
46	-725.915	-236.360	-714.938	-248.184
47	-714.140	-247.338	-706.783	-255.263
48	-705.637	-254.142	-700.011	-260.202
49	-699.426	-259.671	-693.555	-265.995
50	-694.150	-266.606	-686.842	-274.477
51	-688.964	-276.577	-680.191	-286.027
52	-683.971	-289.852	-675.039	-299.473
53	-680.566	-305.028	-674.254	-311.826
54	-681.308	-318.912	-681.454	-318.755

COMBINACION 13 G1 + G2 + PRETD + 0.60 SCMAX-IPF + 0.5 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-689.601	-326.931	-700.693	-314.984
56	-709.063	-323.347	-734.698	-295.735
57	-745.921	-298.433	-803.206	-236.729
58	-815.703	-231.351	-910.060	-129.714
59	-924.614	-122.834	-1039.570	0.991
60	-848.567	97.384	-647.142	-109.484
61	-645.305	-95.717	-814.676	78.231
62	-805.410	95.132	-747.335	35.488
63	-756.753	45.693	-674.509	-38.775
64	-672.055	-21.644	-590.131	-105.782
65	-759.118	-199.138	-723.385	-237.628
66	-735.665	-225.917	-719.835	-242.969
67	-718.951	-242.067	-706.843	-255.110
68	-705.596	-253.879	-695.318	-264.950
69	-694.624	-264.279	-684.142	-275.569
70	-684.614	-276.047	-672.680	-288.902
71	-674.672	-290.893	-661.183	-305.423
72	-664.879	-309.125	-651.113	-323.953
73	-656.572	-329.425	-645.291	-341.577
74	-652.307	-348.640	-647.330	-354.002
75	-655.517	-362.211	-661.365	-355.911
76	-669.834	-364.432	-690.237	-342.455
77	-702.345	-344.708	-756.006	-286.907
78	-769.130	-281.644	-860.652	-183.062
79	-875.906	-176.439	-988.729	-54.912
80	-802.391	48.411	-598.634	-160.852
81	-597.106	-147.108	-777.950	38.623
82	-768.395	55.854	-721.631	7.827
83	-730.773	18.510	-660.557	-53.603
84	-656.286	-34.937	-587.838	-105.235
85	-756.269	-197.949	-734.318	-221.594
86	-744.767	-212.261	-739.278	-218.174
87	-738.751	-217.631	-736.373	-220.192
88	-735.546	-219.431	-734.605	-220.444
89	-734.336	-220.298	-732.932	-221.810
90	-733.816	-222.788	-731.009	-225.812
91	-733.349	-228.260	-729.200	-232.730
92	-733.178	-236.778	-729.111	-241.160
93	-734.742	-246.828	-733.636	-248.019
94	-740.632	-255.108	-746.287	-249.017
95	-754.198	-257.014	-770.906	-239.017
96	-778.791	-246.977	-809.703	-213.681
97	-824.846	-210.639	-892.011	-138.292
98	-903.618	-131.715	-1009.090	-18.106
99	-1020.418	-12.086	-1138.184	114.765
100	-936.084	196.852	-739.040	-5.517
101	-745.183	17.303	-864.738	140.089
102	-855.754	154.808	-762.851	59.395
103	-767.252	66.527	-629.630	-74.814
104	-623.723	-61.525	-489.335	-199.545
105	-644.857	-306.498	-563.811	-393.797
106	-572.680	-382.456	-520.842	-438.294
107	-518.197	-435.659	-481.797	-474.867
108	-479.046	-472.151	-454.775	-498.295
109	-453.129	-496.607	-438.086	-512.810

COMBINACION 13 G1 + G2 + PRETD + 0.60 SCMAX-IPF + 0.5 TEMP

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
110	-438.237	-512.949	-430.896	-520.857
111	-433.197	-523.207	-433.363	-523.028
112	-438.068	-527.740	-447.513	-517.566
113	-454.550	-524.626	-477.255	-500.169
114	-486.284	-509.236	-527.531	-464.806
115	-537.859	-475.186	-603.509	-404.471
116	-613.824	-414.822	-707.930	-313.456
117	-721.963	-315.393	-862.727	-163.769
118	-872.508	-159.898	-1056.134	37.895
119	-1063.521	43.442	-1222.808	215.017
120	-1011.333	285.440	-870.699	141.005
121	-871.694	161.325	-985.055	277.750
122	-976.462	291.271	-879.055	191.231
123	-886.202	197.801	-741.660	49.353
124	-740.846	59.102	-594.112	-91.597
125	-762.235	-184.229	-666.663	-287.175
126	-677.391	-276.734	-613.849	-345.179
127	-611.969	-343.336	-564.554	-394.410
128	-562.092	-391.995	-527.806	-428.926
129	-526.084	-427.208	-502.065	-453.080
130	-501.893	-452.944	-486.397	-469.634
131	-488.247	-471.504	-480.860	-479.461
132	-485.000	-483.601	-487.223	-481.208
133	-493.623	-487.656	-509.130	-470.952
134	-517.528	-479.389	-551.287	-443.024
135	-561.034	-452.812	-618.726	-390.669
136	-628.564	-400.551	-714.232	-308.274
137	-726.221	-311.845	-854.580	-173.583
138	-863.696	-170.474	-1030.521	9.222
139	-1040.502	16.787	-1186.968	174.553
140	-980.545	250.960	-824.298	90.491
141	-830.160	114.979	-949.003	237.034
142	-940.130	250.832	-844.311	152.423
143	-851.466	158.860	-713.887	17.562
144	-713.623	26.975	-574.371	-116.040
145	-740.477	-212.715	-649.598	-310.604
146	-661.802	-298.123	-603.560	-360.857
147	-601.574	-358.886	-557.440	-406.425
148	-554.889	-403.910	-521.997	-439.340
149	-520.163	-437.542	-495.604	-463.996
150	-495.254	-463.675	-477.067	-483.266
151	-478.729	-484.948	-466.678	-497.929
152	-470.552	-501.807	-465.973	-506.740
153	-472.130	-512.914	-478.460	-506.096
154	-486.637	-514.272	-508.478	-490.746
155	-518.146	-500.421	-561.303	-453.934
156	-571.294	-463.948	-640.154	-389.775
157	-650.318	-396.500	-757.744	-280.786
158	-768.281	-278.565	-916.859	-118.524
159	-926.574	-114.902	-1070.117	39.716
160	-873.310	129.300	-699.086	-49.633
161	-695.088	-36.912	-863.346	135.893
162	-854.198	152.134	-797.083	93.475
163	-806.270	101.634	-723.267	16.388
164	-721.291	29.817	-634.669	-59.146

COMBINACION 13 G1 + G2 + PRETD + 0.60 SCMAX-IPF + 0.5 TEMP

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-810.800	-144.659	-768.527	-190.193
166	-779.626	-181.381	-757.184	-205.554
167	-756.801	-205.124	-738.357	-224.992
168	-737.368	-223.995	-721.168	-241.444
169	-720.565	-240.811	-704.638	-257.967
170	-705.041	-258.369	-688.142	-276.572
171	-689.965	-278.382	-671.858	-297.885
172	-675.345	-301.294	-657.176	-320.865
173	-662.359	-325.995	-646.732	-342.828
174	-653.450	-349.480	-644.024	-359.634
175	-651.856	-367.434	-653.048	-366.151
176	-661.161	-374.248	-676.535	-357.688
177	-687.923	-359.960	-734.960	-309.294
178	-746.354	-305.284	-828.136	-217.193
179	-843.534	-210.067	-945.927	-99.775
180	-763.197	9.717	-553.819	-205.321
181	-551.627	-192.367	-733.802	-5.269
182	-724.395	11.631	-680.404	-33.549
183	-689.005	-22.800	-618.764	-94.939
184	-620.246	-74.292	-544.727	-151.852
185	-708.972	-251.205	-681.552	-280.741
186	-687.939	-274.564	-674.931	-288.576
187	-673.831	-287.477	-666.625	-295.239
188	-665.374	-293.959	-661.898	-297.704
189	-661.350	-297.180	-659.481	-299.194
190	-660.284	-299.977	-658.926	-301.439
191	-661.388	-303.875	-660.667	-304.651
192	-664.938	-308.907	-666.386	-307.348
193	-672.453	-313.417	-679.202	-306.147
194	-686.804	-313.764	-703.066	-296.247
195	-711.648	-304.824	-742.042	-272.085
196	-750.557	-280.624	-798.479	-229.004
197	-814.311	-226.150	-901.979	-131.718
198	-913.071	-125.868	-1039.744	10.578
199	-1050.799	17.235	-1167.403	142.835
200	-959.150	230.582	-812.690	80.164
201	-809.633	96.309	-896.191	185.207
202	-888.000	197.764	-821.538	129.506
203	-822.458	134.570	-716.094	25.332
204	-720.601	29.019	-598.777	-96.098
205	-821.223	-244.816	-712.477	-361.951
206	-714.724	-364.194	-624.440	-461.443
207	-623.999	-460.991	-547.254	-543.657
208	-545.374	-541.732	-481.866	-610.139
209	-479.609	-607.838	-427.534	-663.931
210	-425.781	-662.088	-384.903	-706.120
211	-383.507	-704.672	-361.908	-727.938
212	-356.482	-722.465	-343.040	-736.943
213	-339.211	-733.064	-330.346	-742.612
214	-328.207	-740.468	-321.875	-747.288
215	-320.930	-746.336	-317.751	-749.761
216	-317.850	-749.871	-318.431	-749.246
217	-319.366	-750.224	-324.810	-744.360
218	-326.306	-745.896	-331.549	-740.248
219	-339.151	-747.839	-389.892	-693.184
220	-253.606	-524.567	-265.255	-512.604

COMBINACION 14 G1 + G2 + PRETD + 0.80 SCMIN-IPF
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-267.566	-517.321	-230.950	-554.927
2	-348.661	-741.039	-315.235	-777.044
3	-315.143	-776.882	-284.505	-809.884
4	-284.200	-809.533	-256.071	-839.832
5	-255.845	-839.574	-229.698	-867.738
6	-229.815	-867.752	-205.139	-894.332
7	-205.725	-894.838	-182.254	-920.119
8	-183.395	-921.301	-160.910	-945.521
9	-162.757	-947.384	-154.408	-956.377
10	-161.869	-963.851	-147.940	-978.854
11	-146.169	-977.089	-136.470	-987.536
12	-135.625	-986.721	-148.101	-973.282
13	-148.782	-973.983	-172.018	-948.954
14	-173.049	-950.035	-208.057	-912.326
15	-208.817	-913.117	-255.814	-862.494
16	-255.432	-862.163	-313.045	-800.105
17	-310.429	-797.692	-371.482	-731.928
18	-347.804	-745.587	-383.124	-707.541
19	-365.806	-720.821	-326.532	-763.125
20	-175.227	-587.869	119.643	-890.708
21	132.623	-893.490	-237.751	-513.106
22	-217.176	-507.868	-314.250	-408.171
23	-295.065	-427.550	-313.561	-408.554
24	-285.455	-418.634	-249.995	-455.053
25	-363.573	-625.547	-329.052	-662.731
26	-304.967	-690.544	-246.819	-753.178
27	-246.084	-752.404	-200.983	-800.985
28	-199.869	-799.840	-165.995	-836.328
29	-165.389	-835.736	-140.749	-862.277
30	-141.297	-862.795	-124.745	-880.624
31	-126.778	-882.641	-118.263	-891.813
32	-121.981	-895.513	-122.732	-894.705
33	-128.174	-900.160	-135.209	-892.582
34	-142.201	-899.563	-155.763	-884.954
35	-163.838	-893.083	-196.115	-858.316
36	-204.434	-866.683	-259.010	-807.897
37	-260.306	-821.347	-313.759	-763.770
38	-300.107	-786.763	-339.546	-744.281
39	-322.717	-771.553	-319.906	-774.581
40	-165.163	-605.067	191.234	-971.095
41	211.453	-976.380	-161.593	-593.251
42	-140.670	-588.099	-234.623	-491.607
43	-214.175	-511.781	-238.735	-486.557
44	-208.297	-497.967	-179.692	-527.345
45	-284.469	-710.313	-255.881	-741.106
46	-231.480	-768.942	-181.886	-822.362
47	-181.105	-821.497	-144.458	-860.972
48	-143.327	-859.835	-117.747	-887.388
49	-117.172	-886.846	-100.710	-904.578
50	-101.307	-905.187	-92.794	-914.356
51	-94.910	-916.463	-94.391	-917.022
52	-98.171	-920.847	-106.938	-911.404
53	-112.450	-916.974	-129.538	-898.568
54	-136.587	-905.659	-157.614	-883.009

COMBINACION 14 G1 + G2 + PRETD + 0.80 SCMIN-IPF
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-165.746	-891.203	-205.586	-848.288
56	-213.951	-856.658	-276.123	-789.690
57	-274.650	-806.063	-326.551	-750.158
58	-312.414	-773.469	-349.856	-733.139
59	-332.485	-760.648	-327.166	-766.376
60	-171.479	-598.003	187.203	-966.379
61	207.243	-971.307	-161.857	-592.231
62	-140.989	-587.246	-231.912	-493.866
63	-211.473	-514.326	-232.787	-492.435
64	-202.228	-504.170	-170.309	-536.951
65	-274.037	-721.643	-241.979	-756.175
66	-218.624	-782.849	-167.558	-837.855
67	-166.685	-836.942	-128.673	-877.887
68	-127.447	-876.633	-100.574	-905.579
69	-99.888	-904.899	-82.179	-923.975
70	-82.666	-924.437	-72.960	-934.891
71	-74.959	-936.874	-73.132	-938.842
72	-76.814	-942.560	-84.136	-934.672
73	-89.572	-940.170	-105.817	-922.671
74	-112.822	-929.747	-132.072	-909.012
75	-140.244	-917.237	-178.214	-876.338
76	-186.670	-884.872	-246.990	-819.899
77	-244.403	-837.981	-292.038	-786.671
78	-277.768	-810.915	-311.531	-774.548
79	-294.193	-803.032	-286.062	-811.790
80	-133.876	-638.172	227.787	-1009.609
81	247.882	-1014.934	-128.482	-628.399
82	-107.238	-623.171	-207.060	-520.651
83	-185.990	-540.996	-217.017	-509.131
84	-184.055	-519.930	-163.624	-540.913
85	-265.908	-726.142	-246.419	-747.135
86	-227.429	-769.512	-194.034	-805.484
87	-193.541	-804.904	-172.585	-827.477
88	-171.794	-826.677	-161.629	-837.626
89	-161.387	-837.451	-160.125	-838.810
90	-161.037	-839.758	-167.770	-832.506
91	-170.149	-834.912	-184.977	-818.939
92	-188.989	-822.953	-213.280	-796.787
93	-218.927	-802.439	-255.561	-762.979
94	-262.576	-770.047	-309.559	-719.439
95	-317.482	-727.424	-374.847	-665.632
96	-382.735	-673.589	-462.088	-588.114
97	-450.025	-614.378	-508.031	-551.896
98	-492.497	-574.555	-530.809	-533.287
99	-516.197	-555.208	-509.305	-562.632
100	-339.352	-416.007	12.899	-777.779
101	40.696	-789.816	-222.929	-519.066
102	-205.212	-513.316	-230.538	-487.305
103	-217.144	-498.449	-164.168	-552.856
104	-138.589	-559.771	-53.221	-647.446
105	-147.852	-841.847	-77.018	-918.146
106	-55.873	-939.136	14.461	-1014.897
107	17.039	-1012.188	64.682	-1063.507
108	67.374	-1060.728	95.528	-1091.054
109	97.117	-1089.305	108.798	-1101.887

COMBINACION 14 G1 + G2 + PRETD + 0.80 SCMIN-IPF
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
110	108.585	-1101.960	105.309	-1098.431
111	102.961	-1100.729	84.896	-1081.271
112	80.139	-1085.927	45.468	-1048.582
113	38.392	-1055.599	-15.251	-997.817
114	-24.320	-1006.841	-92.704	-933.181
115	-103.072	-943.517	-201.063	-837.967
116	-211.411	-848.282	-343.898	-705.573
117	-339.969	-726.859	-468.526	-588.383
118	-458.072	-606.309	-583.992	-470.674
119	-571.899	-486.110	-630.484	-423.005
120	-450.415	-290.637	-179.396	-568.981
121	-151.166	-578.677	-424.074	-298.393
122	-407.947	-292.610	-431.324	-268.602
123	-417.527	-283.541	-358.771	-343.884
124	-338.453	-354.167	-243.401	-451.787
125	-356.130	-621.666	-270.965	-713.402
126	-250.240	-736.841	-157.684	-836.538
127	-155.856	-834.639	-86.689	-909.142
128	-84.285	-906.666	-35.636	-959.068
129	-33.979	-957.279	-2.827	-990.835
130	-2.703	-990.646	12.687	-1007.224
131	10.786	-1009.038	10.792	-1009.045
132	6.608	-1013.138	-10.311	-994.914
133	-16.752	-1001.318	-48.110	-967.541
134	-56.548	-975.934	-106.768	-921.839
135	-116.562	-931.576	-196.786	-845.162
136	-206.664	-855.001	-320.939	-731.909
137	-320.351	-749.028	-437.830	-622.485
138	-428.679	-639.052	-549.752	-508.638
139	-533.663	-529.155	-587.471	-471.196
140	-408.774	-336.264	-130.634	-621.921
141	-100.909	-633.981	-389.275	-337.822
142	-372.885	-331.744	-405.724	-298.018
143	-392.142	-312.879	-342.976	-363.374
144	-324.025	-373.152	-234.771	-464.819
145	-347.721	-635.772	-267.359	-722.334
146	-242.882	-749.363	-147.836	-851.741
147	-145.878	-849.739	-72.576	-928.696
148	-70.068	-926.136	-15.605	-984.801
149	-13.803	-982.969	24.566	-1024.298
150	24.894	-1023.953	49.205	-1050.141
151	47.518	-1051.796	58.019	-1063.107
152	54.121	-1066.959	51.534	-1064.173
153	45.357	-1070.326	34.854	-1059.013
154	26.658	-1067.168	-5.817	-1032.188
155	-15.505	-1041.841	-75.684	-977.019
156	-85.689	-987.017	-177.970	-887.617
157	-182.967	-899.908	-282.364	-792.842
158	-273.901	-811.087	-370.733	-706.784
159	-360.570	-724.574	-400.081	-682.014
160	-243.003	-518.043	64.320	-833.672
161	81.819	-834.817	-283.002	-460.135
162	-263.081	-454.959	-359.632	-355.799
163	-342.431	-374.741	-355.138	-361.690
164	-330.763	-371.265	-295.314	-407.672

COMBINACION 14 G1 + G2 + PRETD + 0.80 SCMIN-IPF
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-407.509	-579.065	-365.120	-624.724
166	-346.640	-647.773	-284.813	-714.369
167	-284.437	-713.932	-235.879	-766.237
168	-234.902	-765.227	-197.943	-805.038
169	-197.339	-804.405	-170.022	-833.829
170	-170.436	-834.220	-151.560	-854.552
171	-153.380	-856.365	-142.692	-867.878
172	-146.159	-871.307	-144.813	-872.757
173	-149.979	-877.906	-157.783	-869.500
174	-164.488	-876.167	-176.285	-863.460
175	-184.097	-871.281	-214.360	-838.684
176	-222.449	-846.807	-274.708	-790.516
177	-272.493	-807.441	-314.312	-762.396
178	-302.720	-783.146	-334.312	-749.117
179	-316.151	-778.138	-305.148	-789.990
180	-150.693	-619.342	209.466	-989.235
181	228.690	-993.774	-130.654	-624.718
182	-109.861	-619.513	-199.499	-527.452
183	-178.637	-546.961	-198.995	-526.052
184	-172.110	-534.540	-136.106	-571.517
185	-235.890	-760.787	-203.170	-796.031
186	-190.837	-810.019	-157.464	-845.966
187	-156.379	-844.851	-137.724	-864.945
188	-136.477	-863.662	-130.485	-870.116
189	-129.944	-869.585	-134.526	-864.650
190	-135.328	-865.433	-149.388	-850.289
191	-151.851	-852.723	-175.509	-827.240
192	-179.782	-831.494	-214.587	-794.004
193	-220.647	-800.080	-269.686	-747.258
194	-277.279	-754.884	-344.810	-682.142
195	-353.380	-690.733	-432.598	-605.402
196	-441.103	-613.952	-542.264	-504.987
197	-530.209	-532.171	-612.885	-443.117
198	-598.682	-464.512	-667.405	-390.487
199	-652.063	-412.264	-664.379	-398.997
200	-469.409	-272.396	-169.815	-580.087
201	-147.208	-584.019	-331.507	-394.738
202	-316.670	-389.008	-327.519	-377.865
203	-319.318	-382.169	-268.029	-434.844
204	-259.650	-444.390	-168.477	-538.027
205	-330.740	-773.140	-223.220	-888.955
206	-225.474	-891.190	-134.602	-989.073
207	-134.170	-988.612	-61.629	-1066.749
208	-59.763	-1064.808	-5.100	-1123.688
209	-2.855	-1121.375	35.485	-1162.673
210	37.228	-1160.818	59.687	-1185.010
211	61.079	-1183.559	59.499	-1181.857
212	64.933	-1176.392	50.428	-1160.768
213	54.259	-1156.890	30.494	-1131.292
214	32.636	-1129.150	1.495	-1095.607
215	2.451	-1094.667	-36.477	-1052.735
216	-36.571	-1052.851	-84.062	-1001.697
217	-84.987	-1002.686	-142.075	-941.193
218	-143.559	-942.742	-205.143	-876.407
219	-212.735	-884.009	-324.647	-763.463
220	-193.868	-585.920	-265.196	-512.664

COMBINACION 15 G1 + G2 + PRETD + 0.60 SCMIN-IPF
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-267.579	-517.308	-230.488	-555.401
2	-356.161	-732.961	-330.234	-760.888
3	-330.143	-760.724	-307.004	-785.649
4	-306.700	-785.298	-286.068	-807.522
5	-285.843	-807.262	-267.194	-827.350
6	-267.311	-827.362	-250.129	-845.870
7	-250.717	-846.374	-234.741	-863.583
8	-235.884	-864.762	-220.899	-880.903
9	-222.748	-882.765	-223.288	-882.183
10	-230.748	-889.658	-226.602	-894.124
11	-224.829	-892.360	-225.314	-891.838
12	-224.468	-891.023	-247.583	-866.125
13	-248.264	-866.826	-282.538	-829.907
14	-283.570	-830.987	-330.037	-780.935
15	-330.796	-781.728	-389.699	-718.280
16	-389.316	-717.950	-459.240	-642.632
17	-456.653	-640.186	-530.979	-560.126
18	-514.944	-565.552	-579.085	-496.462
19	-568.031	-502.994	-570.638	-500.185
20	-403.447	-353.481	-157.718	-605.851
21	-147.940	-605.345	-439.451	-305.955
22	-422.110	-297.395	-458.211	-260.319
23	-447.141	-271.364	-423.152	-296.001
24	-402.312	-298.619	-340.129	-362.482
25	-468.695	-512.314	-418.844	-566.012
26	-405.460	-582.298	-347.837	-644.366
27	-347.103	-643.591	-302.524	-691.610
28	-301.409	-690.466	-268.054	-726.395
29	-267.449	-725.801	-243.326	-751.786
30	-243.872	-752.306	-227.838	-769.576
31	-229.870	-771.595	-221.862	-780.221
32	-225.577	-783.924	-226.838	-782.566
33	-232.280	-788.022	-242.103	-777.441
34	-249.091	-784.426	-269.173	-762.795
35	-277.247	-770.925	-316.684	-728.446
36	-325.000	-736.815	-387.370	-669.634
37	-391.138	-680.422	-462.992	-603.023
38	-456.841	-617.937	-529.950	-539.188
39	-522.155	-556.728	-570.821	-504.307
40	-401.949	-361.881	-108.312	-663.453
41	-93.563	-663.120	-387.253	-361.492
42	-369.659	-352.922	-404.241	-317.405
43	-392.342	-328.798	-372.532	-349.143
44	-350.103	-352.328	-292.838	-411.141
45	-415.597	-569.068	-370.337	-617.819
46	-356.668	-634.096	-305.076	-689.668
47	-304.295	-688.803	-265.650	-730.430
48	-264.518	-729.294	-236.948	-758.991
49	-236.373	-758.448	-217.920	-778.325
50	-218.517	-778.934	-208.019	-790.242
51	-210.136	-792.348	-207.625	-795.052
52	-211.404	-798.878	-218.174	-791.586
53	-223.687	-797.155	-240.262	-779.301
54	-247.309	-786.395	-272.613	-759.138

COMBINACION 15 G1 + G2 + PRETD + 0.60 SCMIN-IPF
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-280.743	-767.333	-325.492	-719.132
56	-333.853	-727.506	-401.568	-654.567
57	-403.747	-667.006	-475.678	-589.525
58	-469.212	-604.574	-542.068	-526.098
59	-533.890	-543.703	-581.859	-492.033
60	-411.815	-351.172	-117.554	-653.385
61	-102.758	-652.928	-392.943	-354.899
62	-375.425	-346.474	-407.116	-313.927
63	-395.285	-325.546	-372.346	-349.104
64	-349.889	-352.518	-289.400	-414.641
65	-411.762	-573.293	-363.084	-625.726
66	-350.003	-641.334	-296.189	-699.300
67	-295.317	-698.385	-254.556	-742.291
68	-253.328	-741.040	-223.719	-772.933
69	-223.033	-772.253	-202.583	-794.281
70	-203.067	-794.746	-190.610	-808.165
71	-192.607	-810.150	-188.025	-815.085
72	-191.710	-818.799	-196.274	-813.883
73	-201.714	-819.376	-216.378	-803.580
74	-223.384	-810.656	-246.145	-786.139
75	-254.317	-794.364	-296.423	-749.009
76	-304.877	-757.545	-369.965	-687.435
77	-371.607	-700.963	-439.634	-627.687
78	-433.255	-643.433	-502.807	-568.515
79	-494.855	-586.888	-540.393	-537.838
80	-373.979	-391.579	-77.096	-696.486
81	-62.379	-696.287	-360.628	-389.978
82	-342.760	-381.284	-383.431	-339.513
83	-371.073	-350.911	-357.903	-364.437
84	-333.213	-366.741	-284.168	-417.112
85	-405.359	-575.933	-368.966	-615.133
86	-358.466	-628.366	-319.588	-670.244
87	-319.090	-669.669	-292.655	-698.144
88	-291.857	-697.351	-276.214	-714.201
89	-275.966	-714.031	-269.228	-721.290
90	-270.134	-722.244	-271.394	-720.887
91	-273.763	-723.304	-283.116	-713.229
92	-287.118	-717.253	-305.941	-696.978
93	-311.581	-702.637	-342.752	-669.061
94	-349.759	-676.138	-393.615	-628.898
95	-401.530	-636.890	-459.807	-574.118
96	-467.688	-582.081	-548.592	-494.937
97	-544.370	-512.753	-622.762	-428.314
98	-615.001	-442.599	-690.458	-361.321
99	-683.334	-375.176	-730.181	-324.715
100	-547.808	-201.918	-259.038	-498.492
101	-242.543	-498.922	-449.690	-286.176
102	-434.511	-277.819	-412.298	-300.633
103	-404.204	-306.333	-314.833	-398.119
104	-295.076	-399.054	-185.029	-512.076
105	-297.707	-680.431	-211.069	-773.753
106	-198.576	-785.424	-122.522	-867.346
107	-119.928	-864.655	-66.563	-922.136
108	-63.856	-919.373	-29.977	-955.866
109	-28.374	-954.132	-10.965	-972.885

COMBINACION 15 G1 + G2 + PRETD + 0.60 SCMIN-IPF
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
110	-11.160	-972.976	-8.701	-975.625
111	-11.035	-977.938	-23.361	-964.662
112	-28.101	-969.336	-57.042	-938.163
113	-64.104	-945.195	-112.625	-892.930
114	-121.680	-901.970	-189.357	-829.071
115	-199.710	-839.424	-297.826	-733.737
116	-308.160	-744.069	-441.291	-600.667
117	-442.533	-616.381	-588.046	-459.642
118	-583.371	-471.342	-739.202	-303.489
119	-732.860	-312.731	-833.782	-204.023
120	-641.931	-93.945	-422.555	-319.250
121	-404.546	-318.448	-615.183	-102.118
122	-601.256	-94.076	-577.311	-118.668
123	-569.582	-127.376	-475.033	-224.481
124	-460.363	-228.962	-340.408	-352.159
125	-468.648	-500.467	-368.357	-608.496
126	-356.668	-622.201	-262.340	-723.808
127	-260.499	-721.922	-189.556	-798.338
128	-187.138	-795.877	-136.702	-850.205
129	-135.028	-848.435	-102.088	-883.916
130	-101.952	-883.741	-84.772	-902.246
131	-86.659	-904.075	-84.859	-906.014
132	-89.030	-910.121	-104.168	-893.815
133	-110.596	-900.234	-142.604	-865.756
134	-151.028	-874.164	-204.552	-816.511
135	-214.329	-826.265	-298.341	-735.772
136	-308.203	-745.628	-426.774	-617.910
137	-429.805	-631.130	-564.713	-485.814
138	-560.848	-496.686	-710.020	-336.006
139	-701.385	-348.493	-796.393	-246.155
140	-606.554	-133.139	-378.730	-367.120
141	-361.171	-366.685	-583.426	-138.424
142	-569.234	-130.088	-551.725	-148.071
143	-544.155	-156.757	-458.108	-245.129
144	-444.567	-249.352	-330.040	-366.975
145	-457.994	-516.992	-362.118	-620.264
146	-348.214	-635.904	-253.470	-737.957
147	-251.508	-735.960	-178.503	-814.597
148	-175.986	-812.047	-121.828	-870.383
149	-120.019	-868.558	-81.945	-909.570
150	-81.612	-909.231	-57.597	-935.098
151	-59.278	-936.761	-49.072	-947.754
152	-52.963	-951.614	-56.662	-947.629
153	-62.832	-953.791	-78.702	-936.696
154	-86.891	-944.859	-125.257	-903.533
155	-134.936	-913.197	-201.526	-841.469
156	-211.522	-851.476	-310.728	-744.617
157	-317.207	-755.310	-434.577	-628.886
158	-431.567	-641.257	-559.794	-503.137
159	-555.357	-514.758	-640.559	-422.983
160	-468.024	-286.940	-215.098	-546.702
161	-201.438	-543.905	-488.137	-249.457
162	-471.326	-241.086	-506.298	-205.170
163	-496.703	-216.299	-467.791	-245.993
164	-449.873	-248.936	-385.155	-315.404

COMBINACION 15 G1 + G2 + PRETD + 0.60 SCMIN-IPF
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-515.040	-463.238	-457.625	-525.083
166	-447.671	-538.947	-384.789	-606.680
167	-384.415	-606.241	-334.809	-659.674
168	-333.832	-658.664	-295.826	-699.602
169	-295.224	-698.967	-266.858	-729.522
170	-267.270	-729.914	-247.344	-751.378
171	-249.165	-753.190	-237.434	-765.827
172	-240.905	-769.252	-238.520	-771.821
173	-243.688	-776.967	-251.570	-768.476
174	-258.276	-775.143	-274.818	-757.324
175	-282.632	-765.144	-318.277	-726.750
176	-326.367	-734.871	-384.641	-672.102
177	-386.340	-684.811	-448.661	-617.681
178	-443.686	-631.304	-509.480	-560.434
179	-500.981	-579.048	-541.995	-534.870
180	-374.973	-389.000	-78.005	-693.995
181	-63.519	-693.667	-351.106	-398.307
182	-333.599	-389.728	-368.320	-354.068
183	-355.950	-364.855	-335.586	-385.769
184	-316.876	-385.861	-254.919	-449.493
185	-373.375	-612.694	-326.374	-663.321
186	-319.481	-671.449	-278.761	-715.311
187	-277.676	-714.196	-251.669	-742.210
188	-250.424	-740.924	-237.080	-755.297
189	-236.539	-754.766	-233.769	-757.750
190	-234.572	-758.532	-241.275	-751.313
191	-243.737	-753.748	-260.036	-736.191
192	-264.308	-740.446	-291.759	-710.878
193	-297.819	-716.954	-339.509	-672.048
194	-347.101	-679.675	-407.278	-614.855
195	-415.847	-623.446	-492.297	-541.098
196	-500.801	-549.649	-601.015	-441.703
197	-596.993	-460.235	-697.429	-352.050
198	-690.512	-365.597	-792.194	-256.071
199	-784.454	-269.659	-843.555	-205.998
200	-641.859	-95.284	-405.054	-338.490
201	-388.180	-336.534	-532.903	-187.900
202	-519.987	-180.195	-498.077	-202.697
203	-492.508	-204.298	-415.805	-283.074
204	-411.142	-288.804	-302.531	-400.350
205	-483.067	-609.060	-366.039	-735.118
206	-368.292	-737.353	-267.906	-845.484
207	-267.473	-845.023	-185.419	-933.409
208	-183.552	-931.469	-119.377	-1000.595
209	-117.128	-998.285	-69.272	-1049.833
210	-67.527	-1047.982	-35.544	-1082.432
211	-34.150	-1080.982	-26.208	-1089.537
212	-20.775	-1084.071	-25.758	-1078.704
213	-21.926	-1074.828	-36.163	-1059.493
214	-34.019	-1057.352	-55.638	-1034.065
215	-54.682	-1033.126	-84.090	-1001.449
216	-84.183	-1001.566	-122.153	-960.667
217	-123.078	-961.656	-170.644	-910.420
218	-172.127	-911.970	-224.186	-855.894
219	-231.777	-863.498	-334.168	-753.207
220	-202.584	-576.968	-265.215	-512.645

COMBINACION 16 G1 + G2 + PRETD + SCMAX-EC1 + 0.6 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-267.612	-517.273	-327.904	-455.352
2	-479.581	-600.018	-564.552	-508.492
3	-564.500	-508.287	-638.465	-428.615
4	-638.192	-428.231	-701.734	-359.787
5	-701.539	-359.495	-754.781	-302.145
6	-754.922	-302.132	-796.952	-256.859
7	-797.563	-257.338	-826.837	-225.806
8	-827.996	-226.967	-846.740	-206.777
9	-848.601	-208.626	-871.652	-183.797
10	-879.108	-191.276	-886.490	-183.325
11	-884.708	-181.570	-885.232	-181.006
12	-884.379	-180.199	-895.189	-168.555
13	-895.856	-169.272	-906.961	-157.309
14	-907.982	-158.400	-919.261	-146.252
15	-919.999	-147.067	-933.362	-132.672
16	-932.952	-132.372	-959.077	-104.231
17	-956.611	-101.656	-982.032	-74.274
18	-991.007	-52.759	-1048.585	9.260
19	-1058.041	24.821	-1101.952	72.119
20	-903.805	160.400	-726.338	-21.863
21	-725.132	-12.553	-886.790	153.475
22	-879.975	172.844	-829.790	121.303
23	-845.206	137.460	-786.946	77.625
24	-787.032	96.499	-752.381	60.911
25	-934.601	-10.463	-933.020	-12.166
26	-945.484	-0.610	-956.376	11.123
27	-955.675	11.932	-961.150	17.829
28	-960.055	18.996	-958.680	17.514
29	-958.098	18.132	-951.243	10.747
30	-951.778	10.216	-947.139	5.219
31	-949.166	3.195	-940.894	-5.715
32	-944.594	-9.434	-932.850	-22.085
33	-938.278	-27.556	-920.424	-46.787
34	-927.382	-53.803	-907.140	-75.607
35	-915.185	-83.769	-897.146	-103.200
36	-905.425	-111.610	-893.253	-124.721
37	-905.130	-126.774	-929.581	-100.437
38	-947.987	-88.898	-1008.961	-23.221
39	-1030.743	-8.902	-1122.279	89.696
40	-929.973	180.414	-721.985	-33.195
41	-724.684	-14.942	-888.327	153.124
42	-881.567	172.822	-830.951	120.838
43	-846.956	138.102	-786.466	75.978
44	-790.181	99.644	-740.183	48.295
45	-921.948	-23.651	-924.356	-21.057
46	-936.039	-10.025	-948.949	3.881
47	-948.193	4.772	-955.578	12.727
48	-954.464	13.882	-958.899	18.660
49	-958.313	19.189	-960.433	21.473
50	-961.028	20.863	-956.224	15.688
51	-958.352	13.594	-946.357	0.674
52	-950.138	-3.150	-932.903	-21.714
53	-938.410	-27.290	-922.863	-44.037
54	-929.885	-51.157	-911.989	-70.433

COMBINACION 16 G1 + G2 + PRETD + SCMAX-EC1 + 0.6 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-920.091	-78.658	-904.256	-95.716
56	-912.572	-104.138	-902.398	-115.097
57	-915.935	-115.303	-947.744	-81.039
58	-966.396	-69.032	-1034.791	4.639
59	-1056.715	19.458	-1155.306	125.655
60	-960.267	212.103	-759.438	5.847
61	-761.796	23.923	-922.562	189.033
62	-915.950	208.659	-860.167	151.369
63	-876.436	168.610	-811.795	102.222
64	-815.788	125.973	-756.376	64.955
65	-942.417	-1.698	-937.865	-6.601
66	-949.044	3.924	-956.962	12.453
67	-956.121	13.400	-958.634	16.108
68	-957.419	17.372	-958.218	18.234
69	-957.523	18.903	-953.681	14.765
70	-954.148	14.281	-943.367	2.669
71	-945.350	0.668	-927.294	-18.781
72	-930.985	-22.488	-910.661	-44.381
73	-916.096	-49.879	-895.424	-72.146
74	-902.408	-79.245	-879.236	-104.204
75	-887.382	-112.457	-866.139	-135.339
76	-874.556	-143.915	-859.003	-160.668
77	-870.631	-163.438	-893.964	-138.306
78	-913.415	-126.228	-978.427	-56.200
79	-1001.206	-41.472	-1095.285	59.865
80	-905.766	154.580	-704.382	-52.247
81	-707.075	-34.167	-880.932	144.389
82	-874.052	164.368	-831.204	120.362
83	-847.285	138.171	-796.273	85.781
84	-798.591	111.215	-753.098	64.492
85	-939.700	-0.366	-948.443	9.051
86	-958.069	17.497	-977.431	38.353
87	-976.947	38.942	-990.617	53.668
88	-989.823	54.464	-996.149	61.278
89	-995.901	61.447	-1000.333	66.221
90	-1001.208	65.233	-998.964	62.816
91	-1001.295	60.358	-991.940	50.281
92	-995.912	46.225	-984.312	33.730
93	-989.919	28.036	-978.989	16.263
94	-985.949	9.135	-973.096	-4.709
95	-980.962	-12.755	-970.162	-24.388
96	-977.991	-32.409	-972.830	-37.967
97	-987.476	-35.461	-1028.619	8.856
98	-1046.533	22.227	-1127.277	109.199
99	-1144.702	121.787	-1248.235	233.308
100	-1041.974	305.604	-847.594	105.970
101	-858.708	133.896	-970.731	248.947
102	-963.848	265.824	-870.387	169.837
103	-879.137	181.436	-758.051	57.077
104	-756.902	75.253	-642.612	-42.126
105	-817.023	-121.049	-751.092	-192.067
106	-766.501	-173.682	-732.981	-209.788
107	-730.319	-207.171	-708.329	-230.857
108	-705.566	-228.154	-690.629	-244.244
109	-688.970	-242.570	-678.590	-253.752

COMBINACION 16 G1 + G2 + PRETD + SCMAX-EC1 + 0.6 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
110	-678.726	-253.906	-671.697	-261.478
111	-673.990	-263.836	-669.814	-268.334
112	-674.507	-273.059	-674.809	-272.734
113	-681.834	-279.807	-691.815	-269.055
114	-700.836	-278.130	-724.017	-253.161
115	-734.338	-263.549	-778.355	-216.135
116	-788.631	-226.529	-857.887	-151.930
117	-874.329	-151.272	-996.882	-19.263
118	-1011.399	-10.292	-1175.242	166.192
119	-1187.382	176.858	-1336.968	337.985
120	-1120.284	397.336	-984.225	257.600
121	-988.599	281.390	-1093.898	389.534
122	-1087.129	404.928	-985.871	300.934
123	-997.951	312.571	-867.865	178.969
124	-871.637	193.428	-741.610	59.887
125	-928.635	-4.992	-845.431	-94.615
126	-863.396	-76.379	-819.354	-123.819
127	-817.461	-121.990	-785.666	-156.238
128	-783.190	-153.839	-759.526	-179.329
129	-757.786	-177.630	-739.725	-197.084
130	-739.541	-196.960	-725.695	-211.875
131	-727.533	-213.757	-717.129	-224.964
132	-721.260	-229.114	-715.685	-235.119
133	-722.076	-241.577	-726.116	-237.225
134	-734.506	-245.670	-751.470	-227.397
135	-761.208	-237.194	-797.523	-198.078
136	-807.353	-207.968	-868.468	-142.138
137	-883.372	-142.570	-992.276	-25.264
138	-1005.751	-17.459	-1151.472	139.505
139	-1167.538	153.624	-1303.405	299.974
140	-1092.450	365.890	-936.372	205.594
141	-946.497	234.461	-1054.328	345.206
142	-1047.290	360.888	-949.489	260.444
143	-961.546	271.914	-838.364	145.404
144	-842.503	159.338	-718.510	31.994
145	-902.885	-37.776	-833.518	-112.495
146	-845.300	-100.467	-807.657	-141.014
147	-805.661	-139.052	-778.184	-168.649
148	-775.623	-166.146	-755.086	-188.268
149	-753.243	-186.479	-736.113	-204.932
150	-735.757	-204.617	-719.774	-221.833
151	-721.430	-223.523	-707.112	-238.946
152	-710.980	-242.830	-699.736	-254.941
153	-705.891	-261.119	-700.021	-267.441
154	-708.196	-275.620	-713.054	-270.387
155	-722.718	-280.066	-745.037	-256.025
156	-755.026	-266.041	-799.004	-218.669
157	-810.356	-224.114	-895.587	-132.308
158	-910.511	-125.362	-1038.151	12.126
159	-1052.469	20.706	-1183.666	162.025
160	-981.169	240.074	-807.505	61.716
161	-806.714	77.731	-964.962	240.256
162	-958.272	259.020	-905.108	204.420
163	-920.342	218.789	-855.389	152.080
164	-858.544	170.780	-793.101	103.568

COMBINACION 16 G1 + G2 + PRETD + SCMAX-EC1 + 0.6 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-983.360	41.214	-974.810	32.004
166	-984.954	39.788	-986.887	41.870
167	-986.545	42.344	-983.460	39.021
168	-982.503	40.053	-972.875	29.682
169	-972.291	30.337	-963.155	20.496
170	-963.551	20.085	-948.106	3.449
171	-949.929	1.639	-932.189	-17.470
172	-935.663	-20.892	-915.799	-42.288
173	-920.958	-47.445	-894.912	-75.500
174	-901.598	-82.187	-872.983	-113.010
175	-880.772	-120.857	-854.211	-149.468
176	-862.270	-157.623	-841.033	-180.499
177	-851.969	-183.258	-862.861	-171.525
178	-879.556	-161.806	-933.539	-103.658
179	-956.669	-88.203	-1037.110	-1.557
180	-852.635	101.571	-643.541	-113.174
181	-645.584	-95.871	-823.438	86.791
182	-816.627	106.355	-780.393	69.142
183	-795.742	86.823	-746.293	36.037
184	-754.272	63.356	-707.963	15.795
185	-886.233	-60.269	-891.451	-54.647
186	-897.796	-48.517	-909.305	-36.120
187	-908.245	-34.977	-917.533	-24.972
188	-916.313	-23.661	-921.279	-18.311
189	-920.751	-17.766	-919.490	-19.125
190	-920.303	-19.896	-914.323	-26.338
191	-916.782	-28.777	-913.677	-32.121
192	-917.938	-36.388	-919.596	-34.602
193	-925.646	-40.690	-924.071	-42.386
194	-931.641	-50.037	-931.187	-50.526
195	-939.725	-59.150	-944.836	-53.645
196	-953.309	-62.229	-967.823	-46.595
197	-982.846	-44.612	-1029.011	5.115
198	-1045.952	17.265	-1147.714	126.879
199	-1164.868	140.105	-1274.845	258.566
200	-1057.020	331.097	-920.398	190.782
201	-916.844	206.419	-998.034	289.803
202	-989.684	302.196	-920.288	230.925
203	-923.305	238.142	-831.238	143.588
204	-838.708	150.317	-734.411	43.202
205	-974.080	-80.165	-886.998	-173.965
206	-889.244	-176.209	-810.051	-261.512
207	-809.609	-261.061	-742.309	-333.553
208	-740.428	-331.629	-683.118	-393.361
209	-680.862	-391.058	-631.295	-444.449
210	-629.544	-442.604	-588.729	-486.569
211	-587.337	-485.117	-561.799	-512.625
212	-556.375	-507.150	-535.517	-529.617
213	-531.688	-525.737	-512.264	-546.660
214	-510.124	-544.515	-490.005	-566.186
215	-489.066	-565.228	-467.068	-588.923
216	-467.171	-589.030	-445.649	-612.213
217	-446.588	-613.187	-426.530	-634.792
218	-428.033	-636.320	-403.942	-662.270
219	-411.551	-669.854	-428.143	-651.982
220	-288.628	-488.599	-265.286	-512.571

COMBINACION 17 G1 + G2 + PRETD + TEMP + 0.80 SCMAX-EC1

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-267.610	-517.276	-313.655	-469.986
2	-461.223	-619.793	-530.414	-545.264
3	-530.356	-545.065	-591.375	-479.338
4	-591.097	-478.958	-644.356	-421.591
5	-644.158	-421.303	-689.648	-372.302
6	-689.787	-372.293	-726.679	-332.555
7	-727.287	-333.036	-754.290	-303.950
8	-755.447	-305.114	-774.300	-284.806
9	-776.160	-286.657	-802.057	-258.762
10	-809.513	-266.241	-822.280	-252.489
11	-820.500	-250.733	-828.904	-241.680
12	-828.053	-240.871	-849.426	-217.849
13	-850.094	-218.563	-874.135	-192.668
14	-875.158	-193.757	-901.973	-164.873
15	-902.716	-165.683	-933.898	-132.095
16	-933.492	-131.790	-977.285	-84.619
17	-974.802	-82.062	-1019.252	-34.183
18	-1025.147	-15.986	-1097.295	61.729
19	-1104.224	74.567	-1156.515	130.892
20	-952.163	210.065	-779.085	32.310
21	-776.943	40.659	-941.859	210.031
22	-933.756	228.079	-883.184	176.140
23	-895.349	188.958	-831.224	123.100
24	-828.958	139.559	-780.152	89.433
25	-963.497	20.662	-946.450	2.301
26	-956.406	11.155	-951.855	6.253
27	-951.148	7.056	-944.983	0.416
28	-943.885	1.578	-934.597	-8.427
29	-934.012	-7.813	-922.299	-20.430
30	-922.836	-20.959	-914.628	-29.800
31	-916.655	-31.824	-907.256	-41.949
32	-910.958	-45.666	-900.748	-56.664
33	-906.179	-62.132	-893.590	-75.692
34	-900.552	-82.704	-889.338	-94.783
35	-897.388	-102.939	-892.112	-108.622
36	-900.397	-117.026	-904.705	-112.385
37	-915.581	-115.517	-953.898	-74.244
38	-969.276	-65.967	-1041.050	11.345
39	-1059.187	21.736	-1155.149	125.102
40	-957.210	208.388	-748.062	-6.413
41	-748.674	9.697	-917.013	182.585
42	-908.926	200.920	-859.733	150.398
43	-872.312	164.144	-808.222	98.322
44	-808.727	118.691	-749.598	57.964
45	-930.588	-14.345	-918.874	-26.963
46	-928.189	-18.481	-927.415	-19.314
47	-926.656	-18.427	-924.166	-21.109
48	-923.048	-19.957	-920.529	-22.671
49	-919.945	-22.138	-917.510	-24.761
50	-918.106	-25.371	-911.838	-32.123
51	-913.963	-34.219	-903.651	-45.326
52	-907.431	-49.151	-894.895	-62.654
53	-900.404	-68.229	-891.738	-77.563
54	-898.765	-84.678	-891.516	-92.486

COMBINACION 17 G1 + G2 + PRETD + TEMP + 0.80 SCMAX-EC1

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-899.623	-100.706	-898.215	-102.223
56	-906.537	-110.638	-914.556	-102.001
57	-926.739	-103.665	-972.978	-53.858
58	-988.533	-45.187	-1068.241	40.671
59	-1086.456	51.493	-1189.987	163.012
60	-989.127	241.743	-787.472	34.639
61	-787.718	50.545	-952.791	220.079
62	-944.844	238.334	-890.585	182.609
63	-903.405	196.307	-835.008	126.062
64	-835.753	146.478	-768.082	76.978
65	-953.013	9.716	-934.635	-10.080
66	-943.550	-1.994	-937.725	-8.268
67	-936.879	-7.327	-929.454	-15.324
68	-928.236	-14.062	-921.787	-21.008
69	-921.094	-20.337	-912.877	-29.188
70	-913.346	-29.669	-901.286	-42.659
71	-903.270	-44.658	-887.078	-62.100
72	-890.768	-65.808	-874.702	-83.113
73	-880.139	-88.610	-866.281	-103.537
74	-873.269	-110.632	-860.671	-124.201
75	-868.821	-132.450	-861.937	-139.865
76	-870.360	-148.434	-872.927	-145.669
77	-883.621	-149.447	-921.961	-108.149
78	-938.228	-99.501	-1014.236	-17.629
79	-1033.227	-6.980	-1132.331	99.769
80	-936.751	186.403	-733.827	-22.006
81	-734.402	-6.102	-911.850	176.142
82	-903.625	194.740	-861.585	151.564
83	-874.174	165.787	-818.704	108.818
84	-817.705	130.845	-763.501	75.176
85	-948.598	9.218	-943.304	3.516
86	-951.041	9.927	-956.731	16.056
87	-956.244	16.642	-959.984	20.670
88	-959.188	21.465	-959.324	21.611
89	-959.074	21.779	-959.590	22.335
90	-960.469	21.352	-957.359	18.001
91	-959.695	15.549	-952.626	7.935
92	-956.601	3.882	-949.746	-3.503
93	-955.358	-9.192	-951.623	-13.215
94	-958.589	-20.336	-956.667	-22.406
95	-964.540	-30.444	-968.469	-26.212
96	-976.306	-34.224	-989.577	-19.929
97	-1002.416	-19.368	-1057.070	39.502
98	-1071.828	49.473	-1161.979	146.579
99	-1176.365	155.892	-1283.460	271.250
100	-1071.694	336.128	-875.734	134.871
101	-884.748	160.640	-1000.623	279.647
102	-992.712	295.468	-900.782	201.054
103	-907.399	210.462	-782.808	82.504
104	-779.315	98.272	-658.934	-25.363
105	-832.473	-104.407	-757.768	-184.875
106	-769.776	-170.155	-725.744	-217.584
107	-723.092	-214.955	-692.909	-247.467
108	-690.154	-244.756	-669.595	-266.901
109	-667.944	-265.218	-654.411	-279.796

COMBINACION 17 G1 + G2 + PRETD + TEMP + 0.80 SCMAX-EC1

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
110	-654.555	-279.942	-646.777	-288.320
111	-649.075	-290.673	-646.623	-293.314
112	-651.321	-298.034	-655.864	-293.141
113	-662.892	-300.210	-679.364	-282.467
114	-688.387	-291.540	-720.661	-256.776
115	-730.984	-267.162	-786.351	-207.523
116	-796.634	-217.909	-879.437	-128.717
117	-894.139	-129.934	-1026.229	12.347
118	-1038.387	18.778	-1209.050	202.608
119	-1218.853	210.757	-1370.301	373.890
120	-1148.604	426.421	-1009.883	283.951
121	-1012.992	306.442	-1122.383	418.789
122	-1114.725	433.270	-1016.210	332.093
123	-1025.841	341.214	-893.126	204.912
124	-894.618	217.030	-759.634	78.398
125	-945.671	13.359	-854.602	-84.736
126	-868.930	-70.418	-813.855	-129.742
127	-811.970	-127.905	-771.454	-171.546
128	-768.987	-169.138	-739.161	-201.265
129	-737.430	-199.556	-715.674	-222.991
130	-715.496	-222.861	-700.349	-239.176
131	-702.194	-241.051	-692.962	-250.995
132	-697.098	-255.140	-695.207	-257.177
133	-701.602	-263.631	-711.594	-252.868
134	-719.986	-261.310	-745.503	-233.825
135	-755.244	-243.618	-802.571	-192.640
136	-812.403	-202.528	-886.721	-122.477
137	-900.160	-124.486	-1019.387	3.939
138	-1030.706	9.422	-1184.985	175.603
139	-1198.016	186.454	-1336.961	336.118
140	-1120.518	394.716	-963.693	233.653
141	-972.183	260.841	-1084.974	376.680
142	-1077.045	391.447	-981.865	293.695
143	-991.493	302.671	-865.836	173.618
144	-867.790	185.309	-738.733	52.764
145	-922.473	-16.677	-843.403	-101.847
146	-852.711	-92.484	-803.326	-145.679
147	-801.337	-143.711	-764.523	-183.364
148	-761.969	-180.854	-734.570	-210.366
149	-732.734	-208.571	-711.366	-231.588
150	-711.014	-231.269	-693.469	-250.168
151	-695.128	-251.854	-681.768	-266.245
152	-685.639	-270.125	-677.856	-278.509
153	-684.012	-284.686	-684.331	-284.342
154	-692.506	-292.520	-706.155	-277.818
155	-715.820	-287.497	-749.331	-251.400
156	-759.318	-261.418	-816.925	-199.366
157	-827.676	-205.459	-924.803	-100.838
158	-937.521	-96.268	-1074.256	51.016
159	-1086.260	57.104	-1220.949	202.184
160	-1013.339	273.113	-838.711	93.765
161	-836.293	108.109	-998.598	274.800
162	-990.670	292.294	-938.163	238.368
163	-950.351	249.609	-881.001	178.385
164	-881.570	194.429	-807.880	118.747

COMBINACION 17 G1 + G2 + PRETD + TEMP + 0.80 SCMAX-EC1

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-997.329	56.260	-974.218	31.366
166	-982.491	37.134	-970.303	24.006
167	-969.956	24.475	-956.524	10.007
168	-955.564	11.035	-939.331	-6.450
169	-938.745	-5.798	-924.947	-20.661
170	-925.345	-21.068	-908.301	-39.427
171	-910.124	-41.237	-892.997	-59.685
172	-896.472	-63.107	-879.630	-81.248
173	-884.791	-86.402	-865.507	-107.174
174	-872.196	-113.858	-854.101	-133.349
175	-861.895	-141.191	-849.568	-154.469
176	-857.633	-162.618	-854.394	-166.106
177	-864.466	-169.796	-891.532	-140.643
178	-905.556	-133.800	-971.381	-62.896
179	-990.616	-51.638	-1077.280	41.713
180	-886.408	136.257	-676.704	-79.114
181	-676.573	-64.044	-857.861	122.144
182	-849.742	140.365	-813.955	103.611
183	-825.903	117.799	-772.199	62.644
184	-776.903	86.599	-721.209	29.399
185	-899.045	-46.468	-890.660	-55.499
186	-895.703	-50.771	-895.435	-51.060
187	-894.371	-49.921	-895.376	-48.839
188	-894.151	-47.532	-894.339	-47.330
189	-893.809	-46.787	-891.236	-49.558
190	-892.048	-50.331	-887.702	-55.013
191	-890.161	-57.452	-890.141	-57.473
192	-894.404	-61.738	-900.533	-55.136
193	-906.585	-61.221	-913.086	-54.218
194	-920.660	-61.865	-931.861	-49.800
195	-940.404	-58.419	-960.795	-36.454
196	-969.273	-45.033	-1002.594	-9.141
197	-1015.827	-9.087	-1079.359	59.346
198	-1093.357	68.328	-1205.579	189.208
199	-1219.663	199.127	-1333.569	321.821
200	-1108.834	384.312	-970.478	242.216
201	-965.739	256.635	-1044.486	337.510
202	-1035.707	349.463	-962.424	274.200
203	-964.387	280.334	-863.910	177.142
204	-869.888	182.341	-755.305	64.661
205	-994.533	-58.135	-893.623	-166.829
206	-895.871	-169.071	-804.657	-267.322
207	-804.217	-266.869	-726.242	-350.860
208	-724.365	-348.931	-658.009	-420.407
209	-655.756	-418.102	-598.919	-479.323
210	-597.169	-477.477	-550.563	-527.679
211	-549.172	-526.226	-519.652	-558.023
212	-514.226	-552.550	-491.092	-577.469
213	-487.263	-573.589	-467.183	-595.218
214	-465.045	-593.072	-445.941	-613.649
215	-444.997	-612.697	-426.006	-633.154
216	-426.106	-633.263	-409.265	-651.404
217	-410.200	-652.382	-396.503	-667.135
218	-398.003	-668.667	-382.037	-685.864
219	-389.640	-693.455	-416.344	-664.692
220	-277.823	-499.695	-265.278	-512.580

COMBINACION 18 G1 + G2 + PRETD + 0.60 SCMAX-EC1 + 0.5 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-267.607	-517.279	-291.539	-492.700
2	-433.327	-649.841	-477.311	-602.463
3	-477.244	-602.274	-516.000	-560.529
4	-515.715	-560.157	-549.478	-523.789
5	-549.273	-523.508	-577.909	-492.663
6	-578.042	-492.659	-600.797	-468.148
7	-601.400	-468.636	-617.244	-451.570
8	-618.397	-452.737	-628.580	-441.768
9	-630.438	-443.621	-650.509	-422.001
10	-657.966	-429.480	-667.556	-419.150
11	-665.777	-417.392	-673.606	-408.959
12	-672.756	-408.150	-696.342	-382.743
13	-697.014	-383.454	-725.743	-352.509
14	-726.769	-353.594	-760.989	-316.735
15	-761.735	-317.541	-802.709	-273.406
16	-802.309	-273.094	-855.850	-215.422
17	-853.351	-212.883	-909.003	-152.937
18	-911.624	-138.267	-990.242	-53.583
19	-994.486	-43.638	-1046.843	12.759
20	-850.042	105.184	-673.576	-76.051
21	-670.436	-68.727	-840.830	106.273
22	-831.357	122.912	-782.555	72.791
23	-791.263	82.059	-723.197	12.153
24	-718.394	26.006	-657.106	-36.938
25	-827.487	-125.841	-796.631	-159.078
26	-803.789	-153.237	-785.190	-173.271
27	-784.476	-172.475	-768.231	-189.974
28	-767.128	-188.816	-751.650	-205.489
29	-751.059	-204.880	-736.373	-220.700
30	-736.912	-221.228	-727.180	-231.710
31	-729.208	-233.733	-720.890	-242.693
32	-724.595	-246.407	-718.290	-253.198
33	-723.724	-258.663	-718.934	-263.823
34	-725.902	-270.828	-726.409	-270.282
35	-734.465	-278.432	-744.808	-267.291
36	-753.101	-275.686	-776.906	-250.044
37	-786.719	-254.321	-841.828	-194.960
38	-853.988	-190.149	-939.279	-98.279
39	-953.540	-92.061	-1056.370	18.702
40	-863.742	112.394	-655.436	-101.542
41	-653.804	-87.738	-826.547	89.674
42	-817.047	106.558	-768.924	57.134
43	-777.857	67.136	-709.581	-2.986
44	-706.670	13.876	-637.573	-57.089
45	-806.389	-148.125	-779.428	-177.167
46	-786.100	-171.532	-770.309	-188.541
47	-769.544	-187.660	-756.005	-202.243
48	-754.884	-201.096	-744.398	-212.390
49	-743.816	-211.856	-735.976	-220.301
50	-736.571	-220.911	-728.151	-229.981
51	-730.274	-232.080	-721.120	-241.941
52	-724.899	-245.767	-716.698	-254.600
53	-722.208	-260.172	-720.223	-262.311
54	-727.255	-269.421	-730.614	-265.802

COMBINACION 18 G1 + G2 + PRETD + 0.60 SCMAX-EC1 + 0.5 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-738.726	-274.016	-751.868	-259.861
56	-760.199	-268.267	-786.694	-239.728
57	-797.431	-242.948	-858.194	-177.498
58	-870.458	-172.371	-961.362	-74.454
59	-975.634	-67.878	-1083.712	48.538
60	-888.758	138.662	-685.683	-69.902
61	-683.684	-56.301	-853.469	118.073
62	-844.101	134.868	-791.709	81.061
63	-800.859	90.990	-728.817	17.001
64	-726.109	33.871	-650.038	-44.256
65	-821.693	-131.736	-789.127	-166.814
66	-795.515	-161.450	-775.396	-183.121
67	-774.543	-182.186	-756.791	-201.308
68	-755.570	-200.050	-741.643	-215.050
69	-740.952	-214.377	-728.291	-228.014
70	-728.763	-228.492	-715.519	-242.758
71	-717.507	-244.753	-703.435	-259.911
72	-707.125	-263.620	-695.737	-275.886
73	-701.176	-281.380	-694.714	-288.341
74	-701.706	-295.430	-700.426	-296.810
75	-708.582	-305.052	-716.962	-296.026
76	-725.392	-304.587	-747.147	-281.154
77	-756.800	-286.052	-810.995	-227.676
78	-823.878	-222.673	-911.518	-128.272
79	-926.484	-121.959	-1030.971	-9.410
80	-840.840	87.900	-636.470	-121.994
81	-634.783	-108.413	-816.024	77.726
82	-806.366	94.852	-765.273	52.648
83	-774.146	63.055	-714.123	1.411
84	-709.596	19.814	-646.341	-45.151
85	-817.962	-131.496	-798.057	-152.937
86	-803.689	-148.794	-795.004	-158.149
87	-794.511	-157.568	-787.779	-164.820
88	-786.980	-164.028	-780.547	-170.959
89	-780.296	-170.792	-776.678	-174.690
90	-777.562	-175.668	-773.528	-180.013
91	-775.869	-182.459	-771.193	-187.496
92	-775.173	-191.544	-773.329	-193.530
93	-778.946	-199.214	-782.835	-195.024
94	-789.809	-202.137	-799.409	-191.796
95	-807.292	-199.824	-826.702	-178.916
96	-834.549	-186.917	-867.167	-151.783
97	-878.000	-153.384	-946.757	-79.323
98	-958.176	-72.948	-1058.100	34.686
99	-1069.250	40.513	-1180.089	159.904
100	-974.308	236.109	-776.696	33.157
101	-782.900	56.039	-902.879	179.262
102	-893.870	193.955	-803.675	101.322
103	-807.969	108.344	-679.901	-23.184
104	-673.868	-10.025	-547.175	-140.142
105	-707.895	-238.596	-624.045	-328.916
106	-632.430	-318.097	-577.383	-377.391
107	-574.740	-374.753	-535.984	-416.499
108	-533.237	-413.779	-506.802	-442.253
109	-505.159	-440.562	-488.342	-458.677

COMBINACION 18 G1 + G2 + PRETD + 0.60 SCMAX-EC1 + 0.5 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
110	-488.494	-458.815	-479.962	-468.005
111	-482.265	-470.353	-481.654	-471.010
112	-486.358	-475.724	-495.383	-466.004
113	-502.415	-473.067	-525.742	-447.941
114	-534.769	-457.010	-576.625	-411.925
115	-586.951	-422.307	-654.281	-349.781
116	-664.574	-360.158	-761.660	-255.580
117	-774.491	-258.812	-916.553	-105.790
118	-926.223	-102.039	-1104.004	89.458
119	-1111.280	94.884	-1264.676	260.115
120	-1049.558	324.698	-908.074	179.390
121	-909.208	199.853	-1023.015	316.736
122	-1014.403	330.236	-918.907	232.159
123	-925.924	238.597	-790.677	99.694
124	-789.738	109.315	-649.701	-34.506
125	-822.801	-118.991	-723.600	-225.845
126	-734.071	-215.682	-667.492	-287.397
127	-665.615	-285.552	-616.033	-338.959
128	-613.574	-336.542	-577.365	-375.544
129	-575.644	-373.824	-550.095	-401.344
130	-549.923	-401.207	-533.504	-418.894
131	-535.354	-420.762	-527.447	-429.280
132	-531.587	-433.420	-533.656	-431.192
133	-540.055	-437.641	-556.398	-420.038
134	-564.794	-428.475	-599.386	-391.215
135	-609.132	-401.003	-668.117	-337.467
136	-677.953	-347.352	-766.244	-252.249
137	-778.128	-255.933	-908.248	-115.774
138	-917.270	-112.766	-1080.515	63.074
139	-1090.340	70.470	-1232.560	223.663
140	-1022.149	293.689	-864.580	131.861
141	-870.618	156.531	-988.505	277.604
142	-979.620	291.389	-887.144	196.414
143	-894.179	202.727	-765.940	71.022
144	-765.565	80.321	-631.132	-57.745
145	-802.307	-146.114	-713.049	-242.258
146	-719.613	-235.851	-657.735	-302.503
147	-655.751	-300.529	-608.980	-350.907
148	-606.433	-348.390	-571.683	-385.821
149	-569.851	-384.021	-543.889	-411.986
150	-543.540	-411.664	-524.206	-432.490
151	-525.868	-434.172	-513.371	-447.634
152	-517.244	-451.512	-512.957	-456.130
153	-519.114	-462.305	-525.789	-455.116
154	-533.965	-463.293	-556.703	-438.801
155	-566.368	-448.478	-611.499	-399.865
156	-621.487	-409.882	-693.282	-332.548
157	-703.395	-339.327	-812.838	-221.441
158	-823.218	-219.390	-969.273	-62.066
159	-978.817	-58.628	-1117.007	90.223
160	-916.090	173.236	-740.318	-7.287
161	-736.189	5.299	-903.285	176.912
162	-894.039	193.052	-842.862	140.491
163	-851.808	148.403	-778.499	73.113
164	-776.319	86.332	-694.654	2.460

COMBINACION 18 G1 + G2 + PRETD + 0.60 SCMAX-EC1 + 0.5 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-871.240	-79.557	-833.597	-120.104
166	-839.781	-116.586	-813.308	-145.101
167	-812.954	-144.639	-789.173	-170.255
168	-788.208	-169.232	-765.530	-193.660
169	-764.940	-193.012	-746.801	-212.550
170	-747.203	-212.954	-729.042	-232.516
171	-730.865	-234.326	-714.997	-251.418
172	-718.471	-254.840	-705.459	-268.857
173	-710.622	-274.008	-699.067	-286.455
174	-705.761	-293.134	-699.318	-300.074
175	-707.117	-307.910	-710.317	-304.463
176	-718.389	-312.605	-734.604	-295.139
177	-743.714	-299.865	-788.217	-251.928
178	-799.404	-248.142	-878.166	-163.303
179	-893.261	-156.503	-986.969	-55.565
180	-800.537	48.065	-590.741	-167.401
181	-588.358	-154.643	-771.405	33.351
182	-761.893	50.142	-724.819	12.066
183	-733.148	22.537	-673.236	-38.995
184	-674.456	-18.617	-607.188	-87.703
185	-772.652	-182.613	-748.083	-209.076
186	-751.672	-205.914	-737.012	-221.705
187	-735.943	-220.573	-726.202	-231.065
188	-724.973	-229.762	-718.075	-237.193
189	-717.542	-236.653	-711.505	-243.155
190	-712.316	-243.930	-707.604	-249.005
191	-710.064	-251.443	-711.286	-250.127
192	-715.551	-254.390	-724.462	-244.791
193	-730.516	-250.874	-743.555	-236.829
194	-751.133	-244.471	-772.607	-221.340
195	-781.157	-229.952	-815.601	-192.851
196	-824.085	-201.423	-875.138	-146.431
197	-886.377	-148.524	-965.895	-62.872
198	-976.767	-57.258	-1097.850	73.167
199	-1108.673	79.574	-1224.734	204.589
200	-1007.033	279.759	-865.092	133.982
201	-858.997	147.008	-943.082	233.366
202	-933.825	244.827	-864.338	173.463
203	-865.178	178.445	-763.861	74.389
204	-768.254	77.959	-650.825	-42.644
205	-877.891	-183.776	-771.123	-298.780
206	-773.372	-301.021	-678.186	-403.550
207	-677.747	-403.096	-597.223	-489.833
208	-595.348	-487.903	-528.161	-560.272
209	-525.908	-557.968	-470.088	-618.094
210	-468.338	-616.248	-424.308	-663.675
211	-422.915	-662.224	-397.861	-689.210
212	-392.434	-683.739	-375.552	-701.923
213	-371.721	-698.045	-359.591	-711.111
214	-357.450	-708.968	-348.052	-719.091
215	-347.105	-718.142	-339.889	-725.915
216	-339.987	-726.026	-336.675	-729.594
217	-337.608	-730.575	-339.204	-728.855
218	-340.699	-730.393	-341.865	-729.136
219	-349.466	-736.729	-395.369	-687.284
220	-258.620	-519.418	-265.269	-512.589

COMBINACION 19 G1 + G2 + PRETD + 0.80 SCMIN-EC1
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-267.569	-517.318	-227.790	-558.172
2	-348.774	-740.917	-315.461	-776.801
3	-315.370	-776.638	-284.844	-809.519
4	-284.539	-809.168	-256.523	-839.346
5	-256.298	-839.087	-230.263	-867.130
6	-230.380	-867.143	-205.815	-893.603
7	-206.402	-894.108	-183.044	-919.268
8	-184.186	-920.449	-161.813	-944.547
9	-163.661	-946.410	-158.898	-951.540
10	-166.358	-959.016	-158.242	-967.758
11	-156.470	-965.993	-153.598	-969.087
12	-152.751	-968.273	-173.203	-946.243
13	-173.884	-946.944	-206.101	-912.242
14	-207.133	-913.321	-252.178	-864.801
15	-252.937	-865.593	-311.081	-802.963
16	-310.698	-802.633	-380.468	-727.480
17	-377.865	-725.053	-434.853	-663.668
18	-421.287	-666.434	-434.436	-652.271
19	-425.412	-656.616	-377.326	-708.412
20	-228.003	-533.666	63.151	-832.689
21	72.639	-831.885	-263.293	-486.874
22	-247.177	-477.057	-335.583	-386.261
23	-327.404	-394.336	-338.657	-382.780
24	-320.442	-382.702	-258.778	-446.032
25	-382.262	-605.416	-338.448	-652.610
26	-327.885	-665.858	-280.769	-716.609
27	-280.037	-715.832	-245.969	-752.529
28	-244.853	-751.385	-214.713	-783.851
29	-214.107	-783.260	-189.004	-810.299
30	-189.550	-810.818	-170.958	-830.845
31	-172.991	-832.863	-156.650	-850.464
32	-160.368	-854.165	-153.295	-861.784
33	-158.737	-867.240	-163.647	-861.951
34	-170.637	-868.932	-191.390	-846.578
35	-199.465	-854.708	-240.526	-810.479
36	-248.843	-818.848	-313.791	-748.889
37	-316.135	-761.211	-385.702	-686.277
38	-375.319	-705.749	-392.691	-687.037
39	-387.713	-701.542	-374.592	-715.676
40	-224.491	-544.135	125.218	-903.295
41	137.422	-900.348	-201.300	-552.472
42	-184.887	-542.687	-280.049	-444.954
43	-271.097	-453.320	-298.323	-425.359
44	-278.680	-425.681	-221.124	-484.793
45	-339.919	-650.585	-299.260	-694.380
46	-289.194	-706.775	-243.155	-756.366
47	-242.375	-755.501	-203.963	-796.876
48	-202.834	-795.737	-175.498	-825.182
49	-174.923	-824.639	-156.704	-844.265
50	-157.301	-844.873	-147.035	-855.931
51	-149.151	-858.037	-139.606	-868.319
52	-143.385	-872.144	-142.692	-872.891
53	-148.206	-878.459	-159.566	-866.223
54	-166.616	-873.313	-193.888	-843.937

COMBINACION 19 G1 + G2 + PRETD + 0.80 SCMIN-EC1
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-202.019	-852.131	-249.693	-800.779
56	-258.054	-809.152	-327.287	-734.578
57	-329.726	-746.738	-397.747	-673.469
58	-387.652	-692.427	-404.645	-674.123
59	-399.376	-688.596	-385.963	-703.043
60	-234.731	-533.042	114.994	-892.219
61	128.079	-890.003	-208.304	-544.529
62	-192.010	-534.846	-284.393	-439.967
63	-275.571	-448.494	-301.015	-422.363
64	-275.674	-428.738	-220.654	-485.245
65	-339.398	-651.241	-295.332	-698.706
66	-284.317	-712.087	-231.177	-769.328
67	-230.305	-768.414	-190.215	-811.596
68	-188.989	-810.342	-160.047	-841.518
69	-159.362	-840.837	-139.580	-862.145
70	-140.065	-862.609	-128.283	-875.299
71	-130.284	-877.281	-119.508	-888.889
72	-123.193	-892.602	-120.759	-895.224
73	-126.199	-900.718	-135.623	-890.566
74	-142.629	-897.641	-167.778	-870.552
75	-175.950	-878.777	-221.401	-829.819
76	-229.858	-838.352	-292.553	-770.821
77	-295.558	-782.879	-362.739	-710.515
78	-352.214	-730.727	-366.922	-714.883
79	-361.935	-730.063	-346.465	-746.727
80	-198.720	-571.575	154.110	-933.941
81	166.753	-931.613	-178.228	-577.308
82	-161.564	-567.376	-262.495	-463.718
83	-253.126	-472.046	-287.192	-437.060
84	-258.211	-443.770	-215.978	-487.145
85	-333.596	-653.232	-301.779	-687.503
86	-292.964	-698.922	-256.281	-738.435
87	-255.786	-737.857	-231.548	-763.965
88	-230.753	-763.170	-217.303	-777.657
89	-217.059	-777.484	-212.514	-782.380
90	-213.423	-783.330	-216.874	-779.613
91	-219.250	-782.023	-228.130	-772.457
92	-232.137	-776.475	-246.095	-761.440
93	-251.740	-767.095	-278.040	-738.766
94	-285.052	-745.837	-327.542	-700.068
95	-335.463	-708.055	-398.435	-640.224
96	-406.320	-648.184	-492.870	-554.957
97	-484.106	-577.667	-551.322	-505.265
98	-546.072	-516.846	-564.487	-497.010
99	-558.895	-509.217	-547.407	-521.590
100	-383.353	-370.817	-24.399	-739.473
101	-28.174	-719.085	-275.773	-464.794
102	-260.663	-456.366	-288.596	-427.678
103	-282.930	-430.884	-238.639	-476.373
104	-217.443	-478.786	-111.551	-587.540
105	-219.983	-764.152	-138.520	-851.899
106	-127.754	-861.710	-53.915	-941.245
107	-51.331	-938.544	-0.181	-993.640
108	2.518	-990.868	34.176	-1024.969
109	35.771	-1023.226	50.962	-1039.589

COMBINACION 19 G1 + G2 + PRETD + 0.80 SCMIN-EC1
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
110	50.756	-1039.669	50.993	-1039.924
111	48.649	-1042.227	36.787	-1029.451
112	32.038	-1034.115	8.335	-1008.584
113	1.266	-1015.608	-42.923	-968.010
114	-51.985	-977.041	-121.959	-901.669
115	-132.319	-912.014	-233.996	-802.493
116	-244.338	-812.815	-381.786	-664.763
117	-380.038	-683.698	-512.516	-540.999
118	-509.630	-550.773	-616.956	-435.167
119	-612.368	-442.518	-665.218	-385.592
120	-488.205	-251.827	-211.539	-535.970
121	-215.019	-513.098	-449.358	-272.426
122	-435.367	-264.449	-458.757	-240.427
123	-452.060	-248.075	-403.423	-298.026
124	-389.714	-301.521	-288.742	-405.221
125	-408.416	-565.346	-316.387	-664.475
126	-299.498	-683.783	-205.774	-784.737
127	-203.941	-782.844	-133.603	-858.608
128	-131.193	-856.138	-81.369	-909.807
129	-79.705	-908.025	-47.380	-942.845
130	-47.250	-942.663	-29.980	-961.266
131	-31.875	-963.086	-24.529	-970.999
132	-28.708	-975.097	-37.507	-965.619
133	-43.943	-972.029	-73.263	-940.448
134	-81.694	-948.847	-136.505	-889.807
135	-146.292	-899.551	-232.319	-806.887
136	-242.191	-816.733	-363.539	-686.022
137	-364.475	-701.499	-488.819	-567.562
138	-486.548	-576.719	-586.135	-469.448
139	-579.745	-479.518	-624.384	-431.435
140	-451.668	-292.211	-162.682	-589.007
141	-172.576	-560.377	-417.344	-308.994
142	-402.965	-300.851	-433.229	-269.769
143	-426.549	-277.542	-388.346	-316.778
144	-375.673	-320.108	-280.750	-417.597
145	-400.548	-578.870	-312.884	-673.297
146	-293.076	-695.295	-197.667	-798.066
147	-195.708	-796.065	-122.038	-875.418
148	-119.525	-872.863	-64.699	-931.919
149	-62.894	-930.089	-24.159	-971.814
150	-23.828	-971.472	4.127	-1001.584
151	2.442	-1003.242	20.667	-1022.874
152	16.772	-1026.729	19.885	-1030.082
153	13.711	-1036.238	-1.743	-1019.593
154	-9.936	-1027.751	-48.675	-986.024
155	-58.357	-995.684	-126.109	-922.705
156	-136.110	-932.707	-233.948	-827.320
157	-240.947	-837.454	-349.473	-720.555
158	-348.325	-730.921	-423.614	-649.823
159	-420.878	-659.613	-452.400	-625.659
160	-297.249	-462.331	4.241	-771.969
161	17.195	-768.446	-315.954	-426.293
162	-300.320	-416.714	-385.491	-329.241
163	-378.616	-337.578	-406.789	-308.644
164	-386.919	-313.592	-334.700	-367.222

COMBINACION 19 G1 + G2 + PRETD + 0.80 SCMIN-EC1
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-458.785	-523.833	-408.399	-578.106
166	-394.687	-596.019	-331.944	-663.603
167	-331.569	-663.164	-282.097	-716.452
168	-281.121	-715.442	-243.247	-756.238
169	-242.643	-755.605	-214.414	-786.012
170	-214.827	-786.404	-193.423	-809.459
171	-195.243	-811.272	-176.667	-831.281
172	-180.135	-834.710	-170.900	-844.657
173	-176.066	-849.806	-178.787	-846.875
174	-185.491	-853.543	-203.884	-833.732
175	-211.697	-841.552	-246.663	-803.889
176	-254.754	-812.010	-309.577	-752.957
177	-312.543	-764.301	-370.279	-702.110
178	-367.458	-713.413	-372.949	-707.499
179	-367.631	-722.686	-348.536	-743.255
180	-200.320	-568.374	151.368	-929.567
181	166.024	-929.413	-170.969	-583.312
182	-154.739	-573.422	-247.806	-477.839
183	-238.496	-485.484	-260.798	-462.579
184	-245.054	-459.624	-183.997	-522.332
185	-298.741	-693.086	-258.017	-736.952
186	-252.428	-743.676	-218.637	-780.073
187	-217.552	-778.958	-194.758	-803.511
188	-193.514	-802.224	-183.381	-813.139
189	-182.841	-812.607	-183.284	-812.130
190	-184.088	-812.911	-194.006	-802.228
191	-196.468	-804.663	-215.228	-784.456
192	-219.500	-788.712	-243.415	-762.951
193	-249.475	-769.028	-287.626	-727.934
194	-295.219	-735.560	-351.859	-674.550
195	-360.428	-683.140	-440.225	-597.187
196	-448.729	-605.737	-555.020	-491.246
197	-546.374	-514.759	-619.978	-435.476
198	-615.293	-446.619	-664.595	-393.514
199	-659.222	-404.553	-664.735	-398.614
200	-480.766	-260.731	-196.629	-552.548
201	-182.688	-547.579	-373.996	-351.101
202	-361.728	-342.731	-384.879	-318.955
203	-380.191	-319.651	-338.801	-362.159
204	-334.454	-367.565	-228.365	-476.521
205	-404.047	-694.177	-291.954	-814.919
206	-294.205	-817.156	-198.757	-919.968
207	-198.324	-919.508	-121.207	-1002.574
208	-119.337	-1000.639	-60.098	-1064.447
209	-57.847	-1062.140	-14.932	-1108.366
210	-13.184	-1106.517	13.850	-1135.637
211	15.247	-1134.190	18.249	-1137.424
212	23.683	-1131.960	13.761	-1121.272
213	17.595	-1117.398	-1.585	-1096.738
214	0.560	-1094.599	-26.003	-1065.986
215	-25.044	-1065.050	-59.394	-1028.051
216	-59.484	-1028.170	-102.393	-981.951
217	-103.316	-982.942	-155.827	-926.380
218	-157.307	-927.934	-214.309	-866.534
219	-221.897	-874.140	-329.229	-758.527
220	-198.062	-581.613	-265.153	-512.709

COMBINACION 20 G1 + G2 + PRETD + 0.60 SCMIN-EC1 + 0.2 TEMP

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-267.581	-517.306	-230.340	-555.553
2	-358.138	-730.830	-334.188	-756.628
3	-334.099	-756.464	-312.936	-779.259
4	-312.632	-778.908	-293.977	-799.002
5	-293.754	-798.741	-277.081	-816.700
6	-277.200	-816.711	-261.995	-833.089
7	-262.584	-833.592	-248.585	-848.671
8	-249.728	-849.849	-236.721	-863.861
9	-238.570	-865.722	-243.172	-860.765
10	-250.630	-868.242	-251.882	-866.894
11	-250.108	-865.131	-256.599	-858.140
12	-255.752	-857.325	-285.563	-825.214
13	-286.243	-825.916	-327.817	-781.135
14	-328.851	-782.213	-383.249	-723.618
15	-384.008	-724.410	-451.509	-651.701
16	-451.125	-651.372	-530.254	-566.138
17	-527.676	-563.684	-601.474	-484.193
18	-591.505	-483.083	-644.254	-426.265
19	-638.177	-427.436	-637.408	-428.265
20	-468.340	-286.834	-226.589	-535.118
21	-218.900	-532.467	-489.301	-254.758
22	-474.636	-243.450	-505.091	-212.172
23	-500.625	-216.434	-471.845	-245.992
24	-456.940	-242.514	-378.590	-322.982
25	-516.163	-461.184	-460.248	-521.413
26	-454.978	-528.959	-403.488	-584.422
27	-402.757	-583.645	-364.310	-625.058
28	-363.194	-623.914	-331.592	-657.954
29	-330.988	-657.361	-306.101	-684.168
30	-306.645	-684.690	-288.901	-703.803
31	-290.932	-705.822	-277.741	-720.031
32	-281.456	-723.735	-277.536	-727.957
33	-282.977	-733.414	-291.038	-724.732
34	-298.025	-731.717	-321.933	-705.964
35	-330.007	-714.094	-374.227	-666.462
36	-382.543	-674.833	-450.648	-601.473
37	-455.044	-611.585	-536.080	-524.297
38	-531.890	-537.099	-591.271	-473.135
39	-590.587	-483.017	-632.580	-437.784
40	-464.047	-298.104	-173.977	-596.014
41	-164.042	-590.737	-437.259	-310.135
42	-422.371	-298.785	-457.800	-262.398
43	-452.799	-266.707	-434.710	-285.285
44	-418.758	-281.817	-344.244	-358.345
45	-477.864	-501.997	-425.495	-558.407
46	-420.426	-565.418	-371.100	-618.550
47	-370.319	-617.685	-330.748	-660.310
48	-329.618	-659.171	-301.127	-689.860
49	-300.552	-689.318	-281.177	-710.188
50	-281.774	-710.797	-270.356	-723.095
51	-272.473	-725.200	-264.680	-733.595
52	-268.458	-737.422	-269.684	-736.101
53	-275.199	-741.669	-288.470	-727.374
54	-295.517	-734.467	-324.700	-703.032

COMBINACION 20 G1 + G2 + PRETD + 0.60 SCMIN-EC1 + 0.2 TEMP

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-332.830	-711.228	-382.411	-657.821
56	-390.769	-666.198	-462.853	-588.553
57	-467.379	-598.465	-549.115	-510.423
58	-545.074	-522.860	-605.793	-457.456
59	-604.876	-467.241	-648.121	-420.660
60	-478.131	-283.063	-189.366	-579.632
61	-178.742	-574.890	-449.266	-297.055
62	-434.493	-285.809	-467.027	-252.396
63	-462.168	-256.855	-441.675	-277.902
64	-422.349	-278.099	-347.968	-354.490
65	-481.956	-497.683	-426.039	-557.914
66	-420.363	-565.546	-365.270	-624.890
67	-364.399	-623.974	-322.357	-669.259
68	-321.129	-668.008	-290.243	-701.276
69	-289.558	-700.596	-267.831	-724.000
70	-268.313	-724.466	-254.575	-739.264
71	-256.573	-741.248	-246.588	-752.004
72	-250.274	-755.717	-248.950	-757.143
73	-254.392	-762.634	-264.929	-751.284
74	-271.935	-758.359	-298.201	-730.067
75	-306.372	-738.292	-352.933	-688.139
76	-361.387	-696.675	-427.866	-625.068
77	-432.862	-634.982	-512.582	-549.111
78	-508.449	-562.438	-566.533	-499.872
79	-565.992	-510.263	-607.091	-465.993
80	-440.768	-322.985	-149.153	-622.481
81	-138.910	-617.689	-418.332	-330.714
82	-403.213	-319.197	-444.553	-276.740
83	-439.216	-280.927	-427.872	-292.577
84	-405.571	-292.427	-343.447	-356.230
85	-476.411	-499.398	-432.626	-546.562
86	-428.230	-553.219	-387.384	-597.217
87	-386.884	-596.644	-358.484	-627.236
88	-357.684	-626.446	-340.073	-645.415
89	-339.824	-645.247	-331.120	-654.623
90	-332.023	-655.580	-331.318	-656.339
91	-333.685	-658.759	-339.474	-652.523
92	-343.473	-656.550	-356.099	-642.950
93	-361.738	-648.610	-386.712	-621.709
94	-393.717	-628.789	-434.881	-584.449
95	-442.795	-592.443	-504.439	-526.042
96	-512.318	-534.008	-597.543	-442.208
97	-595.301	-457.893	-679.222	-367.498
98	-677.631	-375.137	-741.154	-306.714
99	-739.441	-314.741	-783.534	-267.246
100	-602.124	-146.134	-309.335	-446.836
101	-311.907	-427.683	-509.434	-224.817
102	-495.819	-214.854	-475.166	-236.066
103	-471.710	-237.003	-387.545	-323.442
104	-370.418	-321.677	-248.052	-447.350
105	-371.596	-600.841	-278.576	-701.038
106	-272.310	-706.001	-194.149	-790.193
107	-191.551	-787.506	-136.077	-847.259
108	-133.367	-844.499	-97.380	-883.263
109	-95.773	-881.533	-76.253	-902.560

COMBINACION 20 G1 + G2 + PRETD + 0.60 SCMIN-EC1 + 0.2 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
110	-76.444	-902.655	-71.872	-907.580
111	-74.204	-909.896	-82.802	-900.635
112	-87.538	-905.314	-109.893	-881.235
113	-116.951	-888.271	-159.794	-842.122
114	-168.844	-851.166	-237.470	-777.246
115	-247.818	-787.604	-348.141	-679.541
116	-358.471	-689.876	-494.574	-543.273
117	-497.124	-557.578	-644.984	-398.311
118	-644.850	-405.120	-789.519	-249.290
119	-787.680	-253.681	-885.156	-148.686
120	-692.558	-41.950	-469.790	-270.740
121	-470.942	-250.258	-658.420	-57.713
122	-645.775	-48.355	-621.821	-72.956
123	-618.352	-77.288	-529.857	-168.175
124	-519.152	-168.584	-395.628	-295.446
125	-530.621	-433.713	-426.193	-546.197
126	-416.806	-557.424	-321.758	-659.805
127	-319.915	-657.922	-248.251	-735.116
128	-245.829	-732.658	-194.668	-787.766
129	-192.991	-786.000	-159.329	-822.259
130	-159.188	-822.089	-140.862	-841.828
131	-142.745	-843.662	-136.523	-850.365
132	-140.690	-854.475	-150.938	-843.437
133	-157.362	-849.860	-188.129	-816.719
134	-196.549	-825.131	-252.808	-764.531
135	-262.581	-774.290	-350.056	-680.067
136	-359.914	-689.927	-482.710	-557.658
137	-486.655	-569.894	-625.663	-420.161
138	-625.926	-426.588	-762.187	-279.814
139	-759.372	-286.033	-848.859	-189.642
140	-660.047	-78.200	-425.698	-318.882
141	-432.072	-293.868	-628.197	-92.442
142	-615.213	-82.867	-596.188	-102.406
143	-592.760	-106.839	-513.319	-188.426
144	-503.546	-188.780	-385.646	-309.866
145	-520.294	-449.885	-420.070	-557.842
146	-408.968	-570.463	-314.037	-672.718
147	-312.074	-670.721	-238.880	-749.561
148	-236.361	-747.014	-182.017	-805.550
149	-180.206	-803.727	-141.943	-844.942
150	-141.609	-844.605	-115.440	-872.792
151	-117.120	-874.457	-102.311	-890.408
152	-106.199	-894.270	-106.511	-893.935
153	-112.679	-900.098	-131.551	-879.769
154	-139.738	-887.935	-181.894	-842.527
155	-191.569	-852.194	-262.734	-775.538
156	-272.728	-785.548	-375.300	-675.063
157	-382.981	-684.463	-505.859	-552.104
158	-507.238	-559.748	-622.571	-435.517
159	-622.590	-442.339	-703.029	-355.693
160	-529.024	-224.291	-279.627	-480.429
161	-268.690	-474.835	-536.274	-200.019
162	-522.036	-189.006	-550.067	-160.217
163	-546.670	-164.982	-526.924	-185.261
164	-511.710	-185.428	-436.818	-262.344

COMBINACION 20 G1 + G2 + PRETD + 0.60 SCMIN-EC1 + 0.2 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-576.424	-397.117	-514.089	-464.263
166	-506.996	-475.045	-443.442	-543.503
167	-443.069	-543.062	-392.792	-597.217
168	-391.816	-596.207	-353.139	-637.868
169	-352.536	-637.233	-323.501	-668.508
170	-323.913	-668.902	-302.347	-692.131
171	-304.169	-693.943	-287.582	-711.809
172	-291.053	-715.234	-283.813	-723.033
173	-288.981	-728.180	-293.691	-723.106
174	-300.396	-729.773	-320.773	-707.824
175	-328.587	-715.644	-366.932	-674.341
176	-375.023	-682.462	-434.713	-618.167
177	-439.519	-627.528	-511.269	-550.243
178	-511.556	-558.197	-561.567	-504.328
179	-560.773	-514.643	-596.810	-475.826
180	-431.099	-331.357	-139.101	-631.247
181	-127.344	-628.117	-401.927	-346.113
182	-387.158	-334.722	-424.344	-296.531
183	-418.904	-300.200	-400.114	-319.498
184	-388.089	-312.724	-311.507	-391.376
185	-441.510	-539.303	-390.150	-594.624
186	-387.304	-598.394	-346.777	-642.048
187	-345.692	-640.932	-317.645	-671.143
188	-316.403	-669.855	-301.018	-686.427
189	-300.478	-685.895	-295.668	-691.075
190	-296.473	-691.856	-301.134	-686.835
191	-303.596	-689.271	-317.400	-674.401
192	-321.671	-678.658	-343.032	-655.649
193	-349.092	-661.726	-384.693	-623.378
194	-392.285	-631.005	-446.371	-572.746
195	-454.939	-581.338	-532.180	-498.137
196	-540.683	-506.689	-644.419	-394.950
197	-642.442	-411.279	-737.879	-308.479
198	-736.672	-315.876	-827.145	-218.423
199	-825.386	-225.568	-880.849	-165.827
200	-682.622	-53.420	-455.496	-286.685
201	-443.829	-279.381	-591.040	-128.192
202	-579.666	-118.904	-563.419	-135.590
203	-559.957	-135.026	-487.476	-209.466
204	-485.232	-212.712	-365.953	-335.214
205	-557.078	-529.340	-435.427	-660.376
206	-437.679	-662.613	-332.671	-775.723
207	-332.237	-775.263	-245.560	-868.627
208	-243.691	-866.690	-174.891	-940.798
209	-172.641	-938.490	-120.163	-995.016
210	-118.415	-993.168	-81.810	-1032.597
211	-80.414	-1031.149	-67.846	-1044.686
212	-62.413	-1039.221	-62.770	-1038.837
213	-58.936	-1034.962	-68.546	-1024.611
214	-66.402	-1022.471	-83.398	-1004.164
215	-82.438	-1003.228	-107.223	-976.531
216	-107.314	-976.651	-140.658	-940.734
217	-141.582	-941.724	-184.525	-895.468
218	-186.005	-897.021	-233.440	-845.926
219	-241.028	-853.533	-338.795	-748.224
220	-206.819	-572.619	-265.189	-512.671

COMBINACION 21 G1 + G2 + 0.9 PRETD

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-240.839	-465.558	-226.478	-480.308
2	-347.052	-631.112	-347.454	-630.679
3	-347.377	-630.527	-347.858	-630.009
4	-347.586	-629.691	-347.891	-629.362
5	-347.692	-629.125	-347.354	-629.490
6	-347.462	-629.498	-346.007	-631.065
7	-346.540	-631.515	-343.743	-634.528
8	-344.774	-635.587	-340.449	-640.245
9	-342.115	-641.919	-351.212	-632.119
10	-357.920	-638.853	-361.577	-634.914
11	-359.976	-633.333	-365.908	-626.943
12	-365.144	-626.212	-389.627	-599.841
13	-390.238	-600.474	-422.872	-565.322
14	-423.803	-566.292	-465.547	-521.327
15	-466.226	-522.044	-517.340	-466.987
16	-516.991	-466.694	-576.138	-402.984
17	-573.846	-400.745	-635.751	-334.064
18	-630.581	-328.970	-699.807	-254.403
19	-697.451	-252.104	-724.764	-222.684
20	-562.190	-113.665	-374.507	-306.420
21	-369.529	-302.038	-568.663	-97.522
22	-556.988	-85.781	-545.012	-98.080
23	-544.901	-97.902	-497.495	-146.590
24	-487.561	-139.885	-420.649	-208.606
25	-555.029	-317.603	-510.969	-365.062
26	-511.810	-365.838	-476.253	-404.139
27	-475.597	-403.437	-448.138	-433.014
28	-447.136	-431.983	-426.143	-454.596
29	-425.603	-454.058	-409.282	-471.638
30	-409.771	-472.108	-397.098	-485.759
31	-398.925	-487.577	-389.824	-497.381
32	-393.162	-500.719	-388.776	-505.444
33	-393.671	-510.357	-396.431	-507.385
34	-402.713	-513.678	-416.111	-499.246
35	-423.375	-506.566	-451.422	-476.356
36	-458.903	-483.893	-504.813	-434.441
37	-511.194	-440.929	-574.960	-372.243
38	-578.509	-375.880	-658.374	-289.854
39	-662.303	-293.851	-738.220	-212.077
40	-575.832	-105.828	-356.217	-331.379
41	-349.633	-324.209	-550.401	-118.014
42	-538.609	-106.149	-527.767	-117.283
43	-527.432	-116.883	-481.578	-163.976
44	-471.111	-156.860	-406.351	-223.371
45	-539.165	-334.293	-497.594	-379.072
46	-498.310	-379.697	-465.197	-415.365
47	-464.497	-414.584	-439.402	-441.615
48	-438.384	-440.592	-419.635	-460.788
49	-419.116	-460.302	-404.933	-475.578
50	-405.470	-476.126	-394.818	-487.600
51	-396.725	-489.493	-389.618	-497.148
52	-393.015	-500.597	-390.612	-503.185
53	-395.576	-508.194	-400.366	-503.036
54	-406.704	-509.423	-422.176	-492.758

COMBINACION 21 G1 + G2 + 0.9 PRETD

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-429.490	-500.136	-459.680	-467.618
56	-467.196	-475.164	-515.275	-423.375
57	-521.662	-429.804	-587.554	-358.828
58	-591.028	-362.361	-672.862	-274.214
59	-676.643	-278.059	-754.206	-194.512
60	-590.364	-90.385	-372.270	-314.374
61	-365.309	-307.434	-563.173	-104.223
62	-551.477	-92.459	-537.875	-106.429
63	-537.676	-106.154	-488.827	-156.323
64	-478.451	-149.295	-410.581	-218.999
65	-543.839	-329.344	-498.914	-377.735
66	-499.603	-378.358	-463.245	-417.521
67	-462.464	-416.694	-434.219	-447.119
68	-433.111	-445.995	-411.287	-469.503
69	-410.670	-468.891	-393.450	-487.439
70	-393.880	-487.864	-380.202	-502.597
71	-381.996	-504.387	-371.769	-515.403
72	-375.087	-518.744	-369.453	-524.813
73	-374.353	-529.752	-375.764	-528.232
74	-382.068	-534.602	-394.008	-521.740
75	-401.360	-529.146	-427.920	-500.537
76	-435.524	-508.224	-479.986	-460.332
77	-486.587	-466.988	-549.095	-399.658
78	-552.911	-403.534	-631.918	-318.431
79	-636.136	-322.716	-711.668	-241.356
80	-551.654	-131.536	-331.359	-357.784
81	-324.656	-350.887	-531.959	-137.981
82	-519.977	-125.947	-515.668	-130.372
83	-515.116	-129.774	-476.234	-169.706
84	-464.052	-161.471	-407.530	-219.519
85	-540.054	-329.588	-507.052	-365.137
86	-507.897	-365.957	-482.861	-392.925
87	-482.409	-392.412	-464.941	-411.227
88	-464.215	-410.523	-452.827	-422.789
89	-452.597	-422.645	-445.590	-430.192
90	-446.395	-431.062	-442.957	-434.766
91	-445.073	-436.958	-445.278	-436.738
92	-448.863	-440.376	-453.966	-434.881
93	-459.030	-439.986	-471.616	-426.429
94	-477.908	-432.814	-501.428	-407.479
95	-508.540	-414.685	-546.853	-373.416
96	-553.935	-380.596	-609.839	-320.379
97	-615.530	-326.192	-688.346	-247.757
98	-690.851	-250.392	-777.918	-156.608
99	-780.544	-159.344	-858.759	-75.094
100	-684.809	15.239	-471.333	-204.006
101	-471.545	-188.928	-616.162	-40.403
102	-605.556	-29.744	-551.688	-85.068
103	-550.550	-83.886	-446.462	-190.786
104	-435.491	-184.634	-323.407	-299.748
105	-446.551	-419.993	-364.840	-508.008
106	-364.093	-507.205	-301.359	-574.779
107	-299.006	-572.376	-253.908	-620.954
108	-251.455	-618.485	-221.107	-651.175
109	-219.647	-649.632	-201.330	-669.363

COMBINACION 21 G1 + G2 + 0.9 PRETD

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
110	-201.485	-669.467	-193.834	-677.709
111	-195.917	-679.810	-198.780	-676.726
112	-203.027	-680.955	-218.073	-664.748
113	-224.411	-671.096	-255.121	-638.017
114	-263.250	-646.174	-314.375	-591.104
115	-323.671	-600.445	-400.533	-517.652
116	-409.815	-526.971	-516.103	-412.483
117	-523.488	-419.874	-657.861	-275.134
118	-660.738	-278.035	-817.696	-108.967
119	-818.712	-110.042	-938.420	18.902
120	-756.356	98.894	-598.260	-63.474
121	-595.719	-48.716	-734.501	93.817
122	-724.600	103.759	-668.311	45.949
123	-668.669	45.625	-559.567	-66.427
124	-553.176	-63.464	-431.003	-188.938
125	-566.018	-295.058	-471.821	-396.522
126	-472.314	-396.995	-396.961	-478.161
127	-395.291	-476.479	-338.197	-537.978
128	-336.004	-535.781	-294.563	-580.419
129	-293.037	-578.847	-264.560	-609.520
130	-264.422	-609.380	-247.344	-627.775
131	-249.024	-629.441	-242.997	-635.934
132	-246.735	-639.648	-253.186	-632.698
133	-258.954	-638.493	-281.089	-614.651
134	-288.652	-622.237	-330.950	-576.676
135	-339.727	-585.479	-407.333	-512.658
136	-416.188	-521.551	-512.797	-417.488
137	-519.911	-424.663	-644.420	-290.547
138	-647.301	-293.484	-794.723	-134.687
139	-796.076	-136.098	-907.848	-15.702
140	-728.891	68.114	-560.422	-104.909
141	-561.321	-87.364	-706.631	61.874
142	-696.486	72.073	-642.919	17.059
143	-643.349	16.680	-541.165	-88.266
144	-535.508	-85.360	-418.157	-205.883
145	-552.164	-314.524	-461.772	-411.890
146	-462.084	-412.150	-388.965	-490.910
147	-387.195	-489.117	-330.691	-549.980
148	-328.414	-547.698	-285.940	-593.448
149	-284.302	-591.816	-253.346	-625.161
150	-253.040	-624.863	-231.796	-647.745
151	-233.300	-649.252	-221.537	-661.922
152	-225.029	-665.406	-223.940	-666.579
153	-229.483	-672.135	-242.150	-658.491
154	-249.509	-665.850	-280.182	-632.810
155	-288.881	-641.520	-342.716	-583.532
156	-351.699	-592.553	-432.639	-505.369
157	-440.267	-513.057	-548.046	-396.963
158	-551.975	-400.948	-682.965	-259.851
159	-685.904	-262.844	-792.636	-147.877
160	-624.980	-48.981	-437.093	-241.946
161	-429.409	-234.693	-624.433	-34.398
162	-613.085	-22.981	-598.490	-37.971
163	-599.092	-38.500	-547.630	-91.353
164	-539.346	-85.948	-466.388	-160.878

COMBINACION 21 G1 + G2 + 0.9 PRETD

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-605.748	-263.730	-554.414	-319.025
166	-555.802	-320.358	-512.857	-366.616
167	-512.526	-366.215	-477.905	-403.506
168	-477.026	-402.597	-449.213	-432.556
169	-448.675	-431.981	-425.896	-456.517
170	-426.265	-456.873	-407.445	-477.145
171	-409.086	-478.773	-394.016	-495.006
172	-397.146	-498.083	-386.860	-509.162
173	-391.515	-513.790	-388.340	-517.209
174	-394.376	-523.208	-401.658	-515.364
175	-408.691	-522.402	-430.391	-499.027
176	-437.673	-506.336	-476.955	-464.024
177	-483.226	-470.354	-540.176	-409.010
178	-543.718	-412.633	-616.859	-333.848
179	-620.922	-337.985	-689.821	-263.771
180	-531.455	-150.878	-308.630	-379.726
181	-301.207	-373.665	-506.307	-163.022
182	-494.545	-151.197	-489.673	-156.201
183	-488.851	-155.320	-447.575	-197.712
184	-441.020	-187.232	-375.413	-254.612
185	-504.859	-369.578	-464.997	-412.516
186	-465.324	-412.797	-435.995	-444.388
187	-435.020	-443.383	-415.467	-464.445
188	-414.351	-463.283	-402.739	-475.791
189	-402.253	-475.312	-396.699	-481.294
190	-397.425	-481.995	-396.930	-482.529
191	-399.145	-484.721	-403.827	-479.677
192	-407.670	-483.509	-418.938	-471.372
193	-424.392	-476.841	-445.026	-454.615
194	-451.857	-461.481	-485.664	-425.066
195	-493.373	-432.801	-544.560	-377.665
196	-552.209	-385.365	-623.784	-308.268
197	-629.898	-314.462	-720.985	-216.347
198	-723.585	-219.034	-830.852	-103.492
199	-833.096	-105.801	-915.466	-17.076
200	-730.929	71.642	-565.877	-97.871
201	-557.722	-88.889	-661.321	17.510
202	-652.029	26.839	-611.809	-14.468
203	-609.989	-12.630	-527.251	-97.604
204	-527.561	-98.133	-423.669	-204.833
205	-607.282	-362.322	-504.758	-472.757
206	-506.785	-474.769	-417.427	-571.021
207	-417.036	-570.608	-342.368	-651.038
208	-340.688	-649.292	-280.306	-714.332
209	-278.279	-712.257	-230.771	-763.429
210	-229.197	-761.767	-194.156	-799.511
211	-192.902	-798.206	-177.694	-814.587
212	-172.806	-809.666	-167.423	-815.464
213	-163.973	-811.977	-165.103	-810.760
214	-163.173	-808.835	-169.151	-802.395
215	-168.289	-801.551	-179.473	-789.504
216	-179.555	-789.612	-196.637	-771.212
217	-197.468	-772.103	-221.380	-746.347
218	-222.710	-747.747	-248.854	-719.585
219	-255.682	-726.433	-325.322	-651.420
220	-204.820	-496.169	-238.721	-461.352

COMBINACION 22 G1 + G2 + 0.9 PRETD + 0.5 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-240.839	-465.558	-230.848	-475.819
2	-351.826	-625.969	-357.001	-620.395
3	-356.926	-620.242	-362.179	-614.583
4	-361.908	-614.264	-366.988	-608.793
5	-366.791	-608.553	-371.226	-603.776
6	-371.335	-603.783	-374.656	-600.207
7	-375.190	-600.655	-377.168	-598.524
8	-378.199	-599.583	-378.648	-599.099
9	-380.314	-600.772	-394.185	-585.831
10	-400.893	-592.566	-409.323	-583.485
11	-407.722	-581.903	-418.429	-570.371
12	-417.666	-569.639	-446.924	-538.124
13	-447.534	-538.758	-484.947	-498.458
14	-485.876	-499.429	-532.396	-449.320
15	-533.076	-450.036	-588.966	-389.835
16	-588.617	-389.542	-652.541	-320.687
17	-650.248	-318.448	-716.930	-246.621
18	-711.761	-241.528	-785.764	-161.815
19	-783.407	-159.517	-815.496	-124.952
20	-645.256	-28.353	-461.947	-216.617
21	-456.955	-212.250	-654.975	-8.877
22	-643.302	2.866	-630.213	-10.577
23	-630.104	-10.397	-581.584	-60.228
24	-571.652	-53.522	-503.626	-123.386
25	-645.664	-219.975	-600.388	-268.745
26	-601.230	-269.520	-564.456	-309.131
27	-563.801	-308.428	-535.125	-339.316
28	-534.124	-338.284	-511.913	-362.209
29	-511.373	-361.670	-493.835	-380.562
30	-494.324	-381.032	-480.434	-395.994
31	-482.261	-397.812	-471.941	-408.928
32	-475.279	-412.267	-469.675	-418.304
33	-474.570	-423.217	-476.111	-421.558
34	-482.392	-427.852	-494.573	-414.731
35	-501.836	-422.052	-528.665	-393.153
36	-536.145	-400.691	-580.837	-352.552
37	-587.217	-359.040	-649.766	-291.667
38	-653.313	-295.305	-731.960	-210.590
39	-735.887	-214.589	-810.587	-134.127
40	-642.084	-37.786	-421.354	-264.482
41	-414.783	-257.297	-615.855	-50.791
42	-604.064	-38.924	-593.525	-49.748
43	-593.191	-49.346	-547.641	-96.128
44	-537.176	-89.010	-472.718	-155.210
45	-611.658	-256.208	-570.418	-300.629
46	-571.135	-301.254	-538.353	-336.565
47	-537.654	-335.783	-512.891	-362.457
48	-511.873	-361.433	-493.455	-381.272
49	-492.936	-380.786	-479.085	-395.706
50	-479.622	-396.253	-469.301	-407.370
51	-471.208	-409.264	-464.433	-416.562
52	-467.829	-420.011	-465.758	-422.242
53	-470.721	-427.252	-475.842	-421.736
54	-482.180	-428.125	-497.983	-411.103

COMBINACION 22 G1 + G2 + 0.9 PRETD + 0.5 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-505.297	-418.481	-535.817	-385.606
56	-543.333	-393.153	-591.743	-341.008
57	-598.129	-347.437	-664.353	-276.104
58	-667.825	-279.639	-749.990	-191.135
59	-753.769	-194.982	-831.664	-111.077
60	-661.277	-17.555	-443.486	-241.233
61	-436.525	-234.294	-634.309	-31.164
62	-622.615	-19.398	-608.934	-33.450
63	-608.736	-33.174	-559.808	-83.424
64	-549.433	-76.394	-481.484	-146.180
65	-621.286	-245.922	-576.274	-294.407
66	-576.963	-295.029	-540.518	-334.286
67	-539.738	-333.458	-511.407	-363.975
68	-510.299	-362.852	-488.389	-386.453
69	-487.772	-385.840	-470.466	-404.481
70	-470.896	-404.906	-457.132	-419.732
71	-458.925	-421.523	-448.612	-432.632
72	-451.929	-435.973	-446.209	-442.136
73	-451.109	-447.075	-452.433	-445.649
74	-458.736	-452.018	-470.590	-439.250
75	-477.941	-446.656	-504.414	-418.141
76	-512.017	-425.830	-556.393	-378.030
77	-562.992	-384.688	-625.413	-317.452
78	-629.228	-321.329	-708.148	-236.320
79	-712.364	-240.606	-787.809	-159.340
80	-621.361	-59.944	-400.987	-286.274
81	-394.289	-279.371	-601.600	-66.458
82	-589.619	-54.422	-585.319	-58.839
83	-584.768	-58.239	-545.895	-98.163
84	-533.713	-89.927	-477.200	-147.967
85	-616.154	-247.618	-583.161	-283.156
86	-584.006	-283.976	-558.979	-310.934
87	-558.527	-310.421	-541.069	-329.227
88	-540.343	-328.522	-528.964	-340.778
89	-528.734	-340.633	-521.736	-348.171
90	-522.541	-349.041	-519.112	-352.735
91	-521.228	-354.928	-521.442	-354.697
92	-525.027	-358.337	-530.138	-352.831
93	-535.203	-357.937	-547.798	-344.370
94	-554.089	-350.755	-577.618	-325.411
95	-584.729	-332.618	-623.051	-291.340
96	-630.132	-298.520	-686.045	-238.293
97	-691.735	-244.107	-764.561	-165.663
98	-767.064	-168.300	-854.140	-74.506
99	-856.765	-77.243	-934.989	7.017
100	-754.596	86.913	-541.129	-132.324
101	-541.650	-116.928	-686.255	31.585
102	-675.650	42.245	-621.771	-13.091
103	-620.634	-11.908	-516.535	-118.820
104	-505.564	-112.667	-393.468	-227.793
105	-523.078	-337.561	-441.355	-425.590
106	-440.608	-424.786	-377.862	-492.374
107	-375.510	-489.971	-330.399	-538.562
108	-327.946	-536.092	-297.585	-568.796
109	-296.126	-567.253	-277.796	-586.998

COMBINACION 22 G1 + G2 + 0.9 PRETD + 0.5 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
110	-277.951	-587.102	-270.287	-595.358
111	-272.371	-597.458	-275.220	-594.388
112	-279.467	-598.617	-294.500	-582.424
113	-300.838	-588.772	-331.535	-555.707
114	-339.663	-563.864	-390.776	-508.808
115	-400.072	-518.150	-476.921	-435.371
116	-486.202	-444.691	-592.477	-330.216
117	-599.862	-337.608	-734.222	-192.882
118	-737.098	-195.783	-894.043	-26.729
119	-895.058	-27.806	-1014.754	101.125
120	-826.239	170.666	-668.132	8.286
121	-665.928	23.390	-804.667	165.879
122	-794.767	175.823	-738.435	117.968
123	-738.794	117.645	-629.649	5.549
124	-623.259	8.513	-501.043	-117.005
125	-642.521	-212.652	-548.277	-314.167
126	-548.771	-314.638	-473.372	-395.855
127	-471.703	-394.172	-414.562	-455.722
128	-412.369	-453.525	-370.881	-498.213
129	-369.355	-496.641	-340.831	-527.365
130	-340.693	-527.224	-323.568	-545.670
131	-325.248	-547.336	-319.173	-553.880
132	-322.911	-557.594	-329.316	-550.695
133	-335.084	-556.490	-357.172	-532.698
134	-364.734	-540.286	-406.985	-494.775
135	-415.762	-503.579	-483.321	-430.808
136	-492.175	-439.702	-588.737	-335.689
137	-595.850	-342.865	-720.312	-208.800
138	-723.192	-211.738	-870.567	-52.992
139	-871.919	-54.404	-983.644	65.942
140	-798.282	139.380	-629.770	-33.686
141	-631.074	-15.726	-776.457	133.586
142	-766.312	143.787	-712.819	88.848
143	-713.250	88.470	-611.138	-16.402
144	-605.482	-13.494	-488.203	-133.943
145	-628.675	-232.110	-538.362	-329.390
146	-538.676	-329.650	-465.636	-408.324
147	-463.866	-406.530	-407.441	-467.308
148	-405.165	-465.025	-362.770	-510.690
149	-361.133	-509.057	-330.255	-542.318
150	-329.950	-542.019	-308.786	-564.816
151	-310.289	-566.322	-298.606	-578.907
152	-302.097	-582.392	-301.087	-583.480
153	-306.631	-589.035	-319.377	-575.306
154	-326.735	-582.665	-357.487	-549.540
155	-366.186	-558.251	-420.100	-500.177
156	-429.083	-509.199	-510.101	-421.930
157	-517.729	-429.619	-625.587	-313.439
158	-629.515	-317.425	-760.585	-176.243
159	-763.523	-179.237	-870.334	-64.185
160	-696.112	24.074	-508.298	-168.816
161	-500.604	-161.574	-695.348	38.434
162	-684.001	49.852	-669.126	34.575
163	-669.730	34.047	-617.988	-19.094
164	-609.705	-13.688	-536.467	-88.905

COMBINACION 22 G1 + G2 + 0.9 PRETD + 0.5 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-682.294	-181.278	-630.654	-236.902
166	-632.043	-238.235	-588.793	-284.822
167	-588.462	-284.420	-553.536	-322.041
168	-552.657	-321.131	-524.538	-351.420
169	-524.000	-350.844	-500.915	-375.710
170	-501.284	-376.065	-482.159	-396.667
171	-483.800	-398.295	-468.423	-414.858
172	-471.553	-417.934	-460.962	-429.343
173	-465.616	-433.971	-462.136	-437.720
174	-468.171	-443.720	-475.147	-436.206
175	-482.179	-443.244	-503.573	-420.199
176	-510.854	-427.509	-549.830	-385.526
177	-556.100	-391.857	-612.745	-330.843
178	-616.285	-334.467	-689.120	-256.012
179	-693.182	-260.150	-761.775	-186.266
180	-597.329	-83.224	-374.223	-312.359
181	-366.769	-306.331	-572.885	-94.644
182	-561.125	-82.818	-557.270	-86.778
183	-556.448	-85.896	-516.189	-127.243
184	-509.636	-116.761	-445.046	-183.097
185	-580.918	-287.651	-542.166	-329.393
186	-542.494	-329.673	-514.276	-360.068
187	-513.301	-359.062	-494.858	-378.929
188	-493.742	-377.766	-483.240	-389.078
189	-482.754	-388.600	-478.310	-393.386
190	-479.036	-394.087	-479.651	-393.425
191	-481.866	-395.618	-487.658	-389.379
192	-491.500	-393.212	-503.878	-379.879
193	-509.331	-385.349	-531.076	-361.926
194	-537.907	-368.793	-572.823	-331.183
195	-580.531	-338.918	-632.827	-282.588
196	-640.476	-290.289	-713.161	-211.996
197	-719.274	-218.191	-811.471	-118.881
198	-814.068	-121.570	-922.446	-4.831
199	-924.688	-7.142	-1008.168	82.779
200	-815.798	158.805	-651.762	-9.665
201	-643.626	-0.663	-742.929	101.324
202	-733.638	110.653	-689.122	64.935
203	-687.303	66.773	-600.270	-22.612
204	-600.580	-23.140	-492.392	-134.253
205	-682.347	-281.466	-575.128	-396.957
206	-577.156	-398.969	-483.104	-500.277
207	-482.714	-499.863	-403.353	-585.347
208	-401.675	-583.599	-336.596	-653.699
209	-334.571	-651.622	-282.373	-707.847
210	-280.799	-706.183	-241.067	-748.981
211	-239.814	-747.675	-219.914	-769.110
212	-215.026	-764.189	-204.952	-775.040
213	-201.503	-771.552	-197.943	-775.386
214	-196.014	-773.459	-197.301	-772.073
215	-196.438	-771.231	-202.931	-764.237
216	-203.012	-764.344	-215.403	-750.998
217	-216.234	-751.889	-235.453	-731.188
218	-236.784	-732.587	-258.239	-709.476
219	-265.066	-716.325	-330.016	-646.364
220	-209.116	-491.757	-238.721	-461.351

COMBINACION 23 G1 + G2 + 0.9 PRETD + SCMAX-IPF + 0.6 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-240.854	-465.543	-287.396	-417.744
2	-466.049	-502.934	-572.479	-388.293
3	-572.361	-388.186	-665.724	-287.620
4	-665.410	-287.347	-745.241	-201.357
5	-745.010	-201.153	-811.171	-129.889
6	-811.251	-129.928	-863.013	-74.171
7	-863.531	-74.637	-900.718	-34.582
8	-901.733	-35.657	-924.451	-11.187
9	-926.105	-12.873	-948.933	11.716
10	-955.622	4.962	-959.893	9.563
11	-958.280	11.131	-951.751	4.099
12	-950.988	4.830	-949.551	3.282
13	-950.164	2.651	-943.826	-4.176
14	-944.774	-5.127	-934.496	-16.198
15	-935.191	-16.898	-920.967	-32.219
16	-920.637	-31.906	-901.422	-52.604
17	-899.231	-50.256	-874.648	-76.735
18	-887.454	-52.279	-899.056	-39.782
19	-911.448	-21.596	-918.146	-14.382
20	-750.394	79.626	-559.123	-116.815
21	-562.268	-104.090	-739.969	78.414
22	-735.826	97.891	-708.285	69.605
23	-727.174	89.297	-690.273	51.398
24	-697.352	75.576	-682.315	60.132
25	-856.461	7.086	-887.966	41.020
26	-913.782	67.146	-971.830	129.673
27	-971.145	130.343	-1017.989	180.802
28	-1016.964	181.808	-1050.899	218.361
29	-1050.357	218.897	-1069.606	239.631
30	-1070.081	239.145	-1073.540	242.871
31	-1075.359	241.044	-1062.845	227.565
32	-1066.183	224.225	-1038.908	194.846
33	-1043.816	189.947	-1004.264	147.344
34	-1010.561	141.066	-962.130	88.899
35	-969.425	81.612	-916.131	24.206
36	-923.647	16.707	-868.823	-42.347
37	-881.048	-42.540	-851.279	-74.606
38	-872.479	-59.230	-888.221	-42.274
39	-913.411	-23.369	-969.838	37.412
40	-804.535	129.056	-588.646	-92.669
41	-594.317	-72.911	-770.651	108.189
42	-766.609	128.014	-737.188	97.798
43	-756.867	118.753	-713.946	74.673
44	-722.233	101.049	-696.953	75.086
45	-874.244	26.638	-907.752	62.730
46	-933.620	89.198	-990.921	150.919
47	-990.187	151.663	-1036.202	201.229
48	-1035.156	202.222	-1068.161	237.773
49	-1067.623	238.239	-1085.827	257.847
50	-1086.361	257.296	-1088.646	259.757
51	-1090.562	257.874	-1076.854	243.109
52	-1080.258	239.669	-1051.746	208.956
53	-1056.733	203.972	-1015.934	160.025
54	-1022.294	153.660	-972.623	100.156

COMBINACION 23 G1 + G2 + 0.9 PRETD + SCMAX-IPF + 0.6 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-979.974	92.818	-925.476	34.116
56	-933.025	26.605	-877.018	-33.723
57	-892.026	-30.865	-870.225	-54.349
58	-891.755	-38.433	-917.384	-10.827
59	-942.805	8.638	-1007.874	78.727
60	-839.469	165.453	-631.568	-48.067
61	-636.935	-28.467	-808.875	148.120
62	-804.983	167.898	-771.301	133.306
63	-791.259	154.282	-743.808	105.548
64	-752.406	132.065	-720.405	99.199
65	-900.156	54.463	-928.646	85.151
66	-953.411	110.461	-1003.923	164.870
67	-1003.114	165.668	-1042.433	208.020
68	-1041.293	209.109	-1067.712	237.566
69	-1067.079	238.161	-1078.739	250.721
70	-1079.154	250.280	-1074.849	245.643
71	-1076.637	243.846	-1056.279	221.918
72	-1059.614	218.595	-1024.367	180.628
73	-1029.294	175.718	-981.684	124.435
74	-988.008	118.088	-931.420	57.134
75	-938.802	49.761	-877.267	-16.522
76	-884.905	-24.174	-821.873	-92.068
77	-838.448	-87.980	-812.677	-115.739
78	-835.062	-99.614	-857.622	-75.314
79	-883.929	-55.805	-946.371	11.455
80	-783.628	106.708	-572.984	-109.629
81	-578.677	-90.001	-764.771	101.123
82	-760.650	121.231	-740.969	101.018
83	-760.815	122.566	-727.961	88.824
84	-735.151	116.956	-718.934	100.300
85	-898.426	56.432	-942.828	104.260
86	-963.563	124.864	-1023.575	189.506
87	-1023.081	189.974	-1071.343	241.959
88	-1070.576	242.619	-1105.560	280.302
89	-1105.299	280.414	-1125.274	301.930
90	-1126.054	301.033	-1130.134	305.428
91	-1132.220	303.203	-1120.431	290.504
92	-1123.996	286.843	-1097.665	258.481
93	-1102.730	253.376	-1064.451	212.144
94	-1070.742	205.759	-1023.890	155.292
95	-1031.013	148.097	-979.457	92.564
96	-986.562	85.410	-933.188	27.917
97	-957.315	41.963	-948.991	32.997
98	-969.873	50.157	-1013.564	97.218
99	-1033.790	113.441	-1105.542	190.729
100	-925.072	261.996	-721.997	53.433
101	-736.130	82.808	-857.859	207.827
102	-853.134	224.525	-785.502	155.065
103	-796.448	168.658	-694.228	63.676
104	-696.606	83.538	-604.389	-11.171
105	-767.377	-74.415	-741.852	-101.909
106	-761.389	-79.257	-765.424	-74.910
107	-763.010	-72.574	-769.687	-65.382
108	-767.183	-62.968	-773.408	-56.262
109	-771.902	-54.770	-775.192	-51.227

COMBINACION 23 G1 + G2 + 0.9 PRETD + SCMAX-IPF + 0.6 TEMP

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
110	-775.301	-51.381	-774.280	-52.481
111	-776.333	-54.615	-770.786	-60.589
112	-775.004	-64.849	-766.448	-74.065
113	-772.771	-80.429	-764.918	-88.888
114	-773.034	-97.058	-770.626	-99.653
115	-779.913	-109.003	-788.171	-100.108
116	-797.452	-109.427	-819.975	-85.167
117	-839.539	-79.440	-916.072	2.997
118	-932.646	14.852	-1061.664	153.823
119	-1075.959	167.051	-1196.494	296.886
120	-1005.283	354.549	-864.155	209.607
121	-870.826	233.826	-985.090	351.179
122	-980.260	366.329	-904.371	288.389
123	-918.878	302.595	-806.750	187.437
124	-813.536	203.933	-706.537	94.043
125	-882.491	45.832	-840.652	0.765
126	-862.387	23.173	-856.205	16.514
127	-854.487	18.145	-851.561	14.992
128	-849.318	17.135	-846.826	14.451
129	-845.245	15.965	-840.759	11.132
130	-840.583	11.233	-832.530	2.559
131	-834.176	0.855	-822.147	-12.101
132	-825.859	-15.843	-811.124	-31.715
133	-816.872	-37.532	-802.859	-52.625
134	-810.406	-60.229	-801.575	-69.743
135	-810.334	-78.565	-811.752	-77.038
136	-820.598	-85.940	-835.837	-69.525
137	-851.482	-67.511	-912.620	-1.655
138	-927.898	8.763	-1032.419	121.347
139	-1051.416	138.942	-1153.444	248.842
140	-969.235	314.954	-807.211	148.551
141	-820.030	178.337	-939.349	300.881
142	-934.262	316.276	-859.884	239.888
143	-874.322	253.895	-768.959	145.684
144	-775.920	161.550	-678.928	61.936
145	-851.691	8.112	-815.136	-31.264
146	-840.235	-4.824	-842.367	-2.528
147	-840.558	-0.776	-843.528	2.423
148	-841.208	4.659	-842.451	5.999
149	-840.783	7.598	-837.544	4.109
150	-837.218	4.386	-827.786	-5.774
151	-829.270	-7.301	-813.456	-24.336
152	-816.933	-27.836	-795.953	-50.434
153	-801.490	-55.997	-778.448	-80.816
154	-785.805	-88.178	-764.707	-110.903
155	-773.409	-119.610	-759.569	-134.518
156	-768.561	-143.529	-765.940	-146.353
157	-777.086	-150.252	-812.816	-111.765
158	-829.618	-101.884	-913.505	-11.525
159	-929.926	0.005	-1027.727	105.351
160	-851.662	183.828	-672.921	0.256
161	-674.678	17.205	-846.827	194.006
162	-842.720	212.861	-811.128	180.415
163	-829.540	198.176	-782.722	150.093
164	-789.554	171.022	-752.989	133.468

COMBINACION 23 G1 + G2 + 0.9 PRETD + SCMAX-IPF + 0.6 TEMP

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-940.827	97.201	-962.786	120.854
166	-984.158	141.046	-1028.220	188.507
167	-1027.865	188.884	-1061.027	224.604
168	-1060.124	225.487	-1080.734	247.688
169	-1080.189	248.255	-1086.455	255.005
170	-1086.810	254.634	-1077.569	244.680
171	-1079.211	243.053	-1054.246	216.162
172	-1057.399	213.110	-1017.743	170.395
173	-1022.422	165.793	-970.424	109.783
174	-976.483	103.810	-915.373	37.985
175	-922.441	30.984	-856.221	-40.344
176	-863.545	-47.607	-795.470	-120.935
177	-810.974	-117.319	-777.321	-153.570
178	-796.447	-140.405	-805.090	-131.095
179	-831.896	-110.735	-879.964	-58.958
180	-723.072	45.917	-502.786	-180.322
181	-507.882	-161.404	-698.732	34.604
182	-694.630	54.295	-681.039	40.337
183	-700.106	61.645	-670.403	31.139
184	-683.004	61.292	-662.731	40.471
185	-836.755	-12.076	-877.893	32.236
186	-890.877	45.588	-940.421	98.955
187	-939.416	99.928	-980.310	143.977
188	-979.178	145.121	-1009.531	177.816
189	-1009.029	178.278	-1026.892	197.519
190	-1027.612	196.811	-1032.009	201.548
191	-1034.223	199.355	-1025.264	189.704
192	-1029.109	185.874	-1008.143	163.291
193	-1013.609	157.835	-983.506	125.410
194	-990.358	118.566	-954.873	80.343
195	-962.612	72.640	-925.849	33.041
196	-933.525	25.369	-898.602	-12.248
197	-923.607	1.907	-937.871	17.271
198	-957.618	33.054	-1023.301	103.805
199	-1043.441	120.772	-1112.433	195.088
200	-931.067	277.189	-774.599	116.492
201	-779.082	138.453	-871.611	233.483
202	-866.786	247.401	-824.758	204.237
203	-829.092	212.395	-754.984	136.284
204	-763.998	144.694	-680.648	59.092
205	-901.809	-45.072	-842.093	-109.395
206	-844.110	-111.419	-800.889	-157.975
207	-800.486	-157.575	-762.050	-198.977
208	-760.348	-197.254	-726.586	-233.621
209	-724.550	-231.555	-693.582	-264.912
210	-692.000	-263.257	-663.843	-293.587
211	-662.589	-292.281	-644.413	-311.860
212	-639.539	-306.924	-621.334	-326.533
213	-617.893	-323.037	-596.544	-346.033
214	-594.623	-344.097	-568.081	-372.687
215	-567.244	-371.816	-536.310	-405.137
216	-536.407	-405.228	-501.446	-442.886
217	-502.298	-443.755	-464.380	-484.599
218	-465.742	-485.964	-420.356	-534.852
219	-427.210	-541.671	-415.322	-554.477
220	-287.227	-411.534	-238.744	-461.328

COMBINACION 24 G1 + G2 + 0.9 PRETD + TEMP + 0.80 SCMAX-IPF

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-240.852	-465.546	-279.758	-425.588
2	-446.554	-523.933	-536.158	-427.417
3	-536.049	-427.299	-615.289	-341.945
4	-614.986	-341.661	-683.443	-267.923
5	-683.220	-267.710	-740.688	-205.810
6	-740.774	-205.841	-786.578	-156.504
7	-787.101	-156.964	-821.050	-120.396
8	-822.069	-121.467	-844.212	-97.616
9	-845.869	-99.300	-870.860	-72.380
10	-877.553	-79.130	-886.687	-69.292
11	-885.076	-67.721	-886.101	-66.617
12	-885.339	-65.885	-894.225	-56.313
13	-894.836	-56.945	-901.510	-49.756
14	-902.454	-50.711	-907.871	-44.877
15	-908.564	-45.579	-912.775	-41.044
16	-912.441	-40.735	-914.341	-38.688
17	-912.129	-36.363	-910.354	-38.274
18	-919.428	-17.838	-947.872	12.800
19	-957.202	27.687	-973.190	44.908
20	-798.471	129.002	-612.532	-61.962
21	-613.977	-50.984	-794.959	134.890
22	-789.255	152.763	-763.777	126.597
23	-778.724	142.240	-738.508	100.937
24	-742.059	121.491	-715.256	93.964
25	-889.202	42.353	-903.955	58.243
26	-924.575	78.772	-962.081	119.172
27	-961.402	119.849	-991.679	152.461
28	-990.658	153.473	-1012.013	176.474
29	-1011.472	177.013	-1022.125	188.487
30	-1022.603	188.005	-1021.467	186.781
31	-1023.288	184.956	-1010.202	170.860
32	-1013.539	167.520	-989.700	141.841
33	-994.605	136.939	-962.486	102.342
34	-968.779	96.061	-931.799	56.227
35	-939.087	48.933	-901.259	8.187
36	-908.767	0.679	-873.401	-37.416
37	-884.412	-38.917	-872.597	-51.644
38	-890.131	-40.216	-917.797	-10.416
39	-938.572	3.733	-997.805	67.536
40	-826.680	151.799	-608.883	-71.885
41	-612.024	-54.725	-793.739	131.901
42	-788.089	150.075	-762.834	124.137
43	-778.360	140.827	-735.139	96.438
44	-739.534	118.818	-706.470	84.859
45	-880.975	33.887	-899.441	53.778
46	-920.089	74.623	-959.134	116.680
47	-958.408	117.433	-990.141	151.614
48	-989.102	152.615	-1011.809	177.073
49	-1011.276	177.544	-1023.169	190.355
50	-1023.703	189.805	-1023.681	189.781
51	-1025.595	187.895	-1013.602	174.976
52	-1017.004	171.534	-994.221	146.993
53	-999.203	142.003	-968.143	108.546
54	-974.498	102.176	-938.589	63.497

COMBINACION 24 G1 + G2 + 0.9 PRETD + TEMP + 0.80 SCMAX-IPF

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-945.932	56.150	-909.220	16.605
56	-916.761	9.086	-882.532	-27.784
57	-895.750	-26.855	-892.315	-30.554
58	-910.095	-18.678	-947.644	21.768
59	-968.571	36.392	-1036.625	109.696
60	-862.288	188.888	-652.630	-26.437
61	-655.437	-9.465	-832.663	172.551
62	-827.153	190.667	-797.545	160.260
63	-813.321	176.940	-765.485	127.811
64	-770.146	150.284	-730.692	109.764
65	-907.677	62.565	-921.032	76.950
66	-940.800	96.878	-973.353	131.942
67	-972.550	132.746	-997.885	160.035
68	-996.751	161.131	-1013.163	178.808
69	-1012.534	179.407	-1018.172	185.481
70	-1018.590	185.043	-1012.278	178.245
71	-1014.067	176.449	-995.717	156.683
72	-999.048	153.356	-969.817	121.870
73	-974.739	116.954	-937.141	76.455
74	-943.460	70.103	-900.899	24.257
75	-908.274	16.877	-864.792	-29.960
76	-872.422	-37.619	-831.436	-81.767
77	-845.940	-79.910	-838.219	-88.227
78	-856.747	-76.257	-890.841	-39.532
79	-912.561	-24.964	-977.672	45.171
80	-808.733	132.492	-596.043	-85.947
81	-599.167	-68.956	-789.663	126.688
82	-783.911	145.122	-767.420	128.184
83	-783.033	145.384	-748.927	110.356
84	-752.096	134.359	-727.598	109.199
85	-904.107	62.552	-932.647	93.293
86	-949.253	109.450	-991.784	155.262
87	-991.299	155.740	-1026.056	193.178
88	-1025.298	193.848	-1050.762	221.277
89	-1050.508	221.396	-1064.954	236.957
90	-1065.740	236.066	-1068.297	238.820
91	-1070.390	236.603	-1061.094	226.589
92	-1064.663	222.933	-1044.827	201.566
93	-1049.891	196.460	-1022.107	166.533
94	-1028.398	160.147	-996.055	125.309
95	-1003.174	118.111	-970.140	82.528
96	-977.240	75.368	-946.382	42.130
97	-966.680	52.050	-975.020	61.033
98	-992.095	74.093	-1044.738	130.797
99	-1061.304	143.077	-1134.497	221.917
100	-948.557	286.116	-743.372	75.385
101	-754.933	102.119	-881.389	231.993
102	-875.441	247.435	-810.678	180.921
103	-819.077	191.899	-716.476	86.525
104	-716.049	103.507	-619.678	4.531
105	-781.205	-59.520	-744.154	-99.430
106	-759.480	-81.313	-749.781	-91.761
107	-747.380	-89.410	-743.408	-93.689
108	-740.914	-91.263	-739.617	-92.661
109	-738.121	-91.158	-736.968	-92.400

COMBINACION 24 G1 + G2 + 0.9 PRETD + TEMP + 0.80 SCMAX-IPF

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
110	-737.087	-92.543	-734.706	-95.108
111	-736.765	-97.235	-732.953	-101.341
112	-737.176	-105.595	-733.481	-109.575
113	-739.807	-115.936	-739.893	-115.844
114	-748.011	-124.012	-756.622	-114.737
115	-765.911	-124.085	-788.290	-99.980
116	-797.570	-109.300	-837.333	-66.469
117	-854.368	-63.467	-942.745	31.728
118	-956.486	40.531	-1091.271	185.715
119	-1102.775	195.937	-1223.175	325.626
120	-1027.075	376.930	-882.455	228.401
121	-887.561	251.013	-1006.857	373.534
122	-1000.970	387.598	-929.094	313.780
123	-940.659	324.965	-829.105	210.396
124	-833.151	224.078	-722.952	110.901
125	-897.220	61.697	-844.615	5.033
126	-861.948	22.701	-841.496	0.670
127	-839.789	2.312	-825.679	-12.886
128	-823.447	-10.731	-812.902	-22.090
129	-811.333	-20.564	-801.873	-30.754
130	-801.705	-30.645	-791.758	-41.359
131	-793.411	-43.055	-782.580	-54.721
132	-786.297	-58.457	-775.883	-69.675
133	-781.636	-75.487	-775.023	-82.609
134	-782.574	-90.209	-784.226	-88.430
135	-792.988	-97.249	-807.988	-81.092
136	-816.836	-89.993	-848.780	-55.584
137	-862.653	-55.477	-936.757	24.344
138	-949.454	31.982	-1062.733	154.000
139	-1078.078	167.662	-1182.087	279.694
140	-992.261	338.602	-828.851	170.775
141	-839.644	198.481	-964.424	326.633
142	-958.281	340.945	-888.292	269.063
143	-899.816	280.078	-795.181	172.615
144	-799.520	185.787	-698.404	81.938
145	-869.934	27.763	-822.454	-23.380
146	-842.409	-2.482	-829.147	-16.768
147	-827.347	-15.007	-818.170	-24.891
148	-815.859	-22.645	-808.198	-30.897
149	-806.537	-29.290	-797.686	-38.825
150	-797.364	-38.543	-785.593	-51.222
151	-787.081	-52.745	-772.192	-68.783
152	-775.673	-72.279	-758.877	-90.371
153	-764.416	-95.931	-748.814	-112.737
154	-756.171	-120.098	-745.817	-131.250
155	-754.518	-139.958	-754.695	-139.768
156	-763.685	-148.781	-778.350	-132.986
157	-788.765	-137.672	-839.380	-83.153
158	-853.512	-76.147	-947.160	24.726
159	-960.781	33.240	-1060.555	140.712
160	-879.338	212.252	-698.807	26.842
161	-698.595	41.768	-875.190	223.135
162	-869.581	240.448	-841.215	211.315
163	-855.932	225.281	-807.847	175.897
164	-811.543	193.605	-767.245	148.111

COMBINACION 24 G1 + G2 + 0.9 PRETD + TEMP + 0.80 SCMAX-IPF

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-951.828	109.051	-958.445	116.178
166	-975.670	131.903	-1001.512	159.739
167	-1001.162	160.121	-1020.062	180.479
168	-1019.165	181.368	-1029.498	192.499
169	-1028.954	193.068	-1028.932	193.044
170	-1029.291	192.677	-1017.768	180.266
171	-1019.410	178.638	-996.172	153.607
172	-999.319	150.550	-965.399	114.012
173	-970.072	109.404	-927.813	63.885
174	-933.867	57.906	-886.524	6.909
175	-893.583	-0.100	-845.149	-52.271
176	-852.464	-59.544	-806.174	-109.405
177	-819.761	-107.855	-804.409	-124.391
178	-820.299	-114.712	-841.904	-91.440
179	-863.988	-76.167	-916.093	-20.042
180	-752.507	76.148	-531.431	-150.903
181	-533.896	-134.687	-728.762	65.446
182	-723.072	83.506	-712.348	72.492
183	-727.289	89.563	-696.242	57.676
184	-704.869	83.748	-676.336	54.444
185	-847.868	-0.106	-873.553	27.561
186	-883.901	38.074	-918.393	75.227
187	-917.394	76.207	-947.030	108.129
188	-945.901	109.277	-968.799	133.941
189	-968.301	134.407	-982.526	149.730
190	-983.247	149.024	-987.819	153.949
191	-990.033	151.755	-985.063	146.402
192	-988.907	142.571	-975.757	128.407
193	-981.221	122.948	-962.743	103.044
194	-969.590	96.195	-949.547	74.606
195	-957.280	66.897	-939.799	48.067
196	-947.468	40.389	-935.645	27.653
197	-956.727	37.582	-987.942	71.205
198	-1004.127	83.151	-1079.561	164.406
199	-1095.984	177.369	-1168.963	255.979
200	-978.706	326.115	-821.564	164.726
201	-823.443	184.013	-913.754	276.765
202	-908.002	289.731	-861.834	242.314
203	-864.890	249.161	-784.476	166.573
204	-791.683	173.128	-699.553	78.508
205	-919.587	-25.923	-846.091	-105.089
206	-848.111	-107.109	-790.501	-169.165
207	-790.101	-168.761	-739.315	-223.465
208	-737.620	-221.736	-693.481	-269.280
209	-691.450	-267.209	-652.184	-309.504
210	-650.605	-307.847	-616.137	-344.973
211	-614.885	-343.666	-592.425	-367.859
212	-587.548	-362.927	-567.087	-384.966
213	-563.645	-381.470	-542.029	-404.753
214	-540.108	-402.818	-515.362	-429.473
215	-514.519	-428.609	-487.357	-457.867
216	-487.451	-457.961	-458.304	-489.357
217	-459.151	-490.231	-429.059	-522.645
218	-430.415	-524.017	-394.854	-562.321
219	-401.702	-569.147	-401.694	-569.155
220	-274.748	-424.351	-238.740	-461.332

COMBINACION 25 G1 + G2 + 0.9 PRETD + 0.60 SCMAX-IPF + 0.5 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-240.848	-465.549	-264.252	-441.512
2	-417.522	-555.206	-480.871	-486.969
3	-480.769	-486.844	-536.570	-426.738
4	-536.273	-426.447	-584.144	-374.882
5	-583.927	-374.665	-623.597	-331.934
6	-623.689	-331.960	-654.535	-298.734
7	-655.059	-299.193	-676.882	-275.686
8	-677.904	-276.755	-690.693	-262.979
9	-692.352	-264.660	-710.836	-244.751
10	-717.533	-251.496	-722.966	-245.644
11	-721.357	-244.070	-721.481	-243.937
12	-720.718	-243.206	-731.577	-231.509
13	-732.189	-232.140	-743.630	-219.818
14	-744.571	-220.776	-757.550	-206.796
15	-758.239	-207.502	-772.858	-191.755
16	-772.521	-191.450	-787.618	-175.188
17	-785.384	-172.886	-798.592	-158.659
18	-803.740	-142.452	-840.925	-102.398
19	-847.034	-90.980	-863.999	-72.706
20	-696.068	23.832	-507.686	-169.642
21	-507.367	-160.475	-693.853	31.051
22	-686.503	47.234	-665.247	25.403
23	-676.044	36.785	-634.439	-5.944
24	-634.275	10.794	-597.380	-27.098
25	-757.039	-100.008	-756.694	-100.379
26	-771.827	-85.761	-790.188	-65.983
27	-789.514	-65.300	-804.782	-48.855
28	-803.766	-47.839	-814.262	-36.533
29	-813.721	-35.996	-817.663	-31.750
30	-818.143	-32.229	-814.459	-36.198
31	-816.281	-38.022	-804.831	-50.356
32	-808.169	-53.695	-790.136	-73.119
33	-795.039	-78.024	-772.886	-101.885
34	-779.177	-108.169	-756.341	-132.768
35	-763.623	-140.068	-744.117	-161.079
36	-751.619	-168.593	-738.727	-182.480
37	-748.463	-185.355	-757.527	-175.591
38	-771.205	-168.317	-813.512	-122.747
39	-829.642	-113.601	-894.123	-44.146
40	-728.121	50.576	-510.416	-173.012
41	-510.870	-158.614	-697.675	33.240
42	-690.331	49.675	-668.888	27.651
43	-680.042	39.851	-635.934	-5.448
44	-636.234	12.725	-594.546	-30.089
45	-754.867	-101.950	-757.168	-99.472
46	-772.321	-84.546	-791.775	-63.592
47	-791.055	-62.832	-807.333	-45.298
48	-806.298	-44.292	-817.696	-32.015
49	-817.166	-31.541	-821.899	-26.443
50	-822.434	-26.993	-819.417	-30.243
51	-821.329	-32.131	-810.523	-43.770
52	-813.924	-47.214	-796.506	-65.976
53	-801.484	-70.971	-779.960	-94.155
54	-786.311	-100.529	-764.125	-124.427

COMBINACION 25 G1 + G2 + 0.9 PRETD + 0.60 SCMAX-IPF + 0.5 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-771.462	-131.781	-752.656	-152.037
56	-760.192	-159.562	-748.026	-172.667
57	-759.362	-173.765	-774.388	-157.580
58	-788.224	-149.951	-837.574	-96.794
59	-853.775	-87.261	-924.419	-11.166
60	-755.878	79.602	-543.867	-138.139
61	-543.982	-123.933	-726.902	63.931
62	-719.686	80.296	-694.495	54.425
63	-705.868	66.584	-657.759	17.174
64	-658.277	35.391	-611.229	-12.928
65	-773.282	-82.200	-771.140	-84.506
66	-785.649	-70.243	-799.691	-55.118
67	-798.893	-54.309	-809.853	-42.504
68	-808.726	-41.401	-814.901	-34.750
69	-814.275	-34.148	-813.825	-34.632
70	-814.246	-35.067	-806.023	-43.923
71	-807.813	-45.717	-791.727	-63.044
72	-795.055	-66.375	-772.262	-90.927
73	-777.178	-95.849	-750.173	-124.938
74	-756.489	-131.294	-728.696	-161.231
75	-736.066	-168.617	-711.543	-195.032
76	-719.167	-202.698	-701.294	-221.949
77	-713.621	-222.438	-724.797	-210.399
78	-739.270	-202.797	-785.533	-152.965
79	-802.428	-143.594	-870.568	-70.197
80	-706.943	27.950	-492.300	-192.494
81	-492.713	-178.288	-687.810	22.082
82	-680.341	38.752	-667.176	25.232
83	-678.334	37.856	-642.882	1.445
84	-641.820	21.102	-608.700	-12.913
85	-770.255	-81.628	-782.358	-68.590
86	-794.619	-57.115	-818.965	-30.890
87	-818.488	-30.405	-839.198	-8.096
88	-838.448	-7.417	-854.013	9.348
89	-853.765	9.474	-862.465	18.846
90	-863.256	17.960	-864.235	19.014
91	-866.334	16.804	-859.637	9.590
92	-863.212	5.939	-850.137	-8.144
93	-855.202	-13.249	-838.341	-31.411
94	-844.633	-37.795	-827.390	-56.368
95	-834.509	-63.567	-820.750	-78.388
96	-827.846	-85.552	-820.420	-93.551
97	-836.687	-87.971	-862.282	-60.402
98	-875.368	-51.639	-937.330	15.102
99	-950.041	23.230	-1024.856	103.818
100	-844.936	179.694	-637.570	-33.277
101	-645.848	-9.915	-777.284	125.073
102	-770.041	139.187	-708.351	75.829
103	-714.014	83.997	-611.060	-21.740
104	-607.632	-7.841	-506.886	-111.310
105	-655.004	-195.457	-606.055	-248.183
106	-616.951	-234.839	-593.013	-260.623
107	-590.625	-258.259	-575.624	-274.417
108	-573.141	-271.981	-564.067	-281.755
109	-562.581	-280.242	-556.855	-286.409

COMBINACION 25 G1 + G2 + 0.9 PRETD + 0.60 SCMAX-IPF + 0.5 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
110	-556.983	-286.542	-553.236	-290.579
111	-555.302	-292.698	-553.342	-294.809
112	-557.572	-299.056	-558.977	-297.542
113	-565.307	-303.899	-573.697	-294.861
114	-581.819	-303.026	-601.939	-281.354
115	-611.231	-290.699	-648.344	-250.723
116	-657.625	-260.042	-715.364	-197.848
117	-729.740	-197.710	-830.396	-89.288
118	-841.173	-83.679	-982.025	68.040
119	-990.547	75.050	-1110.897	204.686
120	-921.502	268.503	-773.288	116.284
121	-776.118	136.559	-900.770	264.579
122	-893.761	277.493	-826.175	208.080
123	-834.633	216.074	-723.750	102.194
124	-724.904	112.906	-611.409	-3.657
125	-772.042	-73.139	-708.405	-141.686
126	-721.116	-128.998	-685.923	-166.905
127	-684.226	-165.253	-658.588	-192.869
128	-656.366	-190.703	-637.548	-210.973
129	-635.990	-209.434	-621.459	-225.087
130	-621.299	-224.969	-609.485	-237.694
131	-611.146	-239.382	-601.664	-249.595
132	-605.387	-253.325	-599.570	-259.591
133	-605.327	-265.398	-606.514	-264.119
134	-614.068	-271.715	-626.727	-258.080
135	-635.494	-266.894	-664.723	-235.410
136	-673.574	-244.308	-722.995	-191.074
137	-735.005	-192.973	-822.645	-98.572
138	-832.619	-93.868	-955.065	38.025
139	-966.587	47.568	-1072.773	161.947
140	-888.851	232.397	-724.057	63.149
141	-732.008	87.936	-862.383	221.835
142	-855.120	234.995	-789.602	167.707
143	-798.048	175.560	-694.037	68.737
144	-695.607	79.066	-590.055	-29.339
145	-748.423	-103.123	-689.534	-166.555
146	-704.075	-151.489	-674.667	-183.166
147	-672.874	-181.397	-650.930	-205.034
148	-648.628	-202.779	-631.574	-221.149
149	-629.918	-219.535	-615.097	-235.500
150	-614.779	-235.214	-600.442	-250.658
151	-601.934	-252.176	-587.875	-267.321
152	-591.358	-270.814	-578.783	-284.360
153	-584.323	-289.919	-576.327	-298.531
154	-583.685	-305.891	-584.374	-305.150
155	-593.075	-313.857	-607.697	-298.107
156	-616.687	-307.121	-649.196	-272.103
157	-658.846	-277.615	-724.761	-206.615
158	-736.092	-202.626	-839.727	-90.995
159	-850.402	-85.654	-952.157	23.951
160	-777.596	107.760	-595.096	-79.673
161	-592.828	-66.857	-774.604	119.831
162	-767.414	135.519	-742.945	110.388
163	-753.773	120.361	-704.859	70.125
164	-705.254	84.443	-653.496	31.287

COMBINACION 25 G1 + G2 + 0.9 PRETD + 0.60 SCMAX-IPF + 0.5 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-822.773	-29.962	-814.076	-39.329
166	-826.936	-28.306	-834.393	-20.273
167	-834.048	-19.887	-838.682	-14.895
168	-837.789	-14.000	-838.005	-13.768
169	-837.462	-13.198	-831.473	-19.649
170	-831.834	-20.013	-818.513	-34.362
171	-820.155	-35.989	-799.288	-58.467
172	-802.431	-61.529	-775.052	-91.021
173	-779.721	-95.633	-748.169	-129.619
174	-754.219	-135.603	-721.772	-170.553
175	-728.825	-177.569	-699.468	-209.191
176	-706.775	-216.473	-683.726	-241.300
177	-695.298	-241.921	-699.512	-237.381
178	-712.000	-231.367	-747.661	-192.954
179	-764.780	-183.029	-821.741	-121.673
180	-662.298	-16.499	-440.949	-243.830
181	-440.704	-230.397	-637.912	-27.860
182	-630.549	-11.517	-620.959	-21.367
183	-631.557	-8.757	-597.212	-44.031
184	-601.657	-22.254	-562.674	-62.290
185	-719.775	-138.081	-727.427	-129.839
186	-734.986	-122.330	-751.811	-104.207
187	-750.818	-103.221	-766.733	-86.078
188	-765.607	-84.927	-778.743	-70.777
189	-778.248	-70.308	-786.683	-61.223
190	-787.405	-61.928	-790.154	-58.967
191	-792.369	-61.160	-789.544	-64.203
192	-793.388	-68.033	-786.363	-75.600
193	-791.824	-81.061	-783.433	-90.100
194	-790.276	-96.953	-784.294	-103.397
195	-792.021	-111.112	-792.594	-110.495
196	-800.259	-118.178	-810.461	-107.189
197	-827.417	-101.704	-874.201	-51.311
198	-886.640	-43.400	-970.227	46.636
199	-982.741	55.389	-1057.933	136.382
200	-872.729	217.274	-713.063	53.293
201	-712.167	69.730	-808.042	168.196
202	-801.314	180.158	-758.687	136.380
203	-760.399	141.845	-681.246	60.553
204	-686.552	65.155	-593.083	-30.840
205	-800.270	-154.445	-720.964	-239.870
206	-722.986	-241.889	-659.036	-310.772
207	-658.638	-310.366	-603.629	-369.619
208	-601.937	-367.887	-555.639	-417.757
209	-553.607	-415.686	-514.330	-457.993
210	-512.752	-456.335	-480.342	-491.246
211	-479.088	-489.940	-460.793	-509.647
212	-455.913	-504.717	-441.724	-520.001
213	-438.279	-516.508	-425.003	-530.809
214	-423.078	-528.877	-408.817	-544.238
215	-407.970	-543.378	-393.349	-559.127
216	-393.440	-559.225	-378.955	-574.827
217	-379.799	-575.705	-366.465	-590.069
218	-367.814	-591.448	-351.086	-609.466
219	-357.930	-616.297	-378.891	-593.718
220	-253.870	-445.794	-238.735	-461.337

COMBINACION 26 G1 + G2 + 0.9 PRETD + SCMIN-IPF
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-240.806	-465.592	-223.495	-483.371
2	-329.445	-650.077	-312.244	-668.605
3	-312.164	-668.457	-295.042	-686.900
4	-294.768	-686.584	-277.475	-705.211
5	-277.273	-704.978	-259.333	-724.301
6	-259.440	-724.312	-240.392	-744.829
7	-240.921	-745.283	-220.530	-767.247
8	-221.557	-768.310	-199.625	-791.934
9	-201.288	-793.610	-189.304	-806.519
10	-196.016	-813.248	-176.360	-834.422
11	-174.763	-832.835	-156.380	-852.637
12	-155.617	-851.905	-154.645	-852.952
13	-155.257	-853.584	-161.439	-846.925
14	-162.365	-847.900	-176.606	-832.560
15	-177.287	-833.275	-199.779	-809.048
16	-199.433	-808.752	-228.947	-776.962
17	-226.583	-774.800	-256.530	-742.543
18	-233.423	-756.770	-234.124	-756.015
19	-217.065	-769.552	-145.130	-847.037
20	-20.409	-670.088	283.545	-982.257
21	295.999	-985.553	-90.538	-588.570
22	-71.264	-584.633	-203.237	-449.093
23	-184.067	-468.489	-236.677	-414.457
24	-209.678	-425.279	-205.779	-429.283
25	-304.662	-587.286	-296.793	-595.762
26	-272.616	-623.487	-236.135	-662.782
27	-235.475	-662.084	-207.101	-692.647
28	-206.101	-691.614	-184.197	-715.208
29	-183.654	-714.674	-166.427	-733.229
30	-166.922	-733.694	-153.340	-748.323
31	-155.171	-750.137	-145.188	-760.891
32	-148.534	-764.221	-143.258	-769.904
33	-148.156	-774.815	-144.330	-778.935
34	-150.621	-785.219	-148.108	-787.926
35	-155.374	-795.244	-165.909	-783.896
36	-173.395	-791.428	-200.208	-762.547
37	-200.791	-775.280	-220.460	-754.093
38	-206.411	-776.686	-206.238	-776.872
39	-188.970	-803.702	-142.948	-853.275
40	-14.265	-682.573	353.775	-1060.561
41	373.237	-1066.615	-15.927	-666.934
42	3.683	-663.097	-125.176	-530.755
43	-104.769	-550.970	-163.400	-490.753
44	-134.127	-502.952	-136.971	-500.031
45	-227.218	-670.308	-225.139	-672.548
46	-200.660	-700.312	-172.592	-730.545
47	-171.892	-729.764	-151.842	-751.361
48	-150.824	-750.337	-137.100	-765.120
49	-136.582	-764.633	-127.428	-774.493
50	-127.965	-775.041	-122.327	-781.114
51	-124.231	-783.010	-122.152	-785.249
52	-125.553	-788.693	-128.193	-785.849
53	-133.154	-790.863	-139.271	-784.273
54	-145.615	-790.656	-150.444	-785.454

COMBINACION 26 G1 + G2 + 0.9 PRETD + SCMIN-IPF
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-157.762	-792.829	-175.727	-773.477
56	-183.255	-781.011	-217.523	-744.099
57	-215.339	-759.760	-233.315	-740.397
58	-218.790	-763.318	-216.496	-765.789
59	-198.701	-792.874	-150.081	-845.246
60	-20.476	-675.676	349.938	-1056.101
61	369.206	-1061.801	-15.969	-666.215
62	3.597	-662.535	-122.177	-533.362
63	-101.763	-553.849	-157.124	-496.992
64	-127.719	-509.505	-127.241	-509.997
65	-216.400	-682.045	-210.841	-688.033
66	-187.411	-714.636	-157.854	-746.473
67	-157.070	-745.650	-135.629	-768.745
68	-134.525	-767.617	-119.477	-783.826
69	-118.860	-783.214	-108.425	-794.454
70	-108.862	-794.871	-101.997	-802.266
71	-103.795	-804.052	-100.385	-807.725
72	-103.697	-811.072	-104.889	-809.788
73	-109.780	-814.738	-115.075	-809.034
74	-121.377	-815.405	-124.472	-812.071
75	-131.825	-819.476	-147.974	-802.081
76	-155.582	-809.764	-188.054	-774.787
77	-184.730	-792.133	-198.474	-777.330
78	-183.777	-801.147	-177.777	-807.610
79	-159.967	-835.622	-108.423	-891.142
80	17.660	-716.236	391.117	-1099.787
81	410.459	-1105.870	17.812	-702.610
82	37.722	-698.718	-97.172	-560.178
83	-76.166	-580.587	-141.381	-513.610
84	-109.775	-525.322	-120.768	-514.032
85	-208.551	-686.668	-215.595	-679.080
86	-196.513	-701.365	-184.719	-714.069
87	-184.279	-713.543	-180.045	-718.104
88	-179.335	-717.382	-181.180	-715.395
89	-180.962	-715.236	-187.182	-708.537
90	-188.004	-709.389	-197.782	-698.856
91	-199.923	-701.022	-213.351	-686.558
92	-216.960	-690.172	-235.270	-670.449
93	-240.350	-675.537	-266.133	-647.765
94	-272.445	-654.129	-303.320	-620.872
95	-310.449	-628.059	-346.022	-589.741
96	-353.119	-596.904	-404.686	-541.359
97	-391.985	-566.983	-416.288	-540.806
98	-400.469	-563.178	-399.450	-564.275
99	-384.542	-585.897	-335.262	-638.980
100	-191.275	-491.634	172.320	-865.056
101	199.461	-878.070	-78.247	-592.856
102	-61.711	-588.287	-119.558	-528.878
103	-106.292	-540.150	-87.800	-559.142
104	-63.443	-566.738	-9.833	-621.797
105	-90.095	-803.950	-45.903	-851.551
106	-24.844	-872.627	24.051	-925.295
107	26.366	-922.851	57.620	-956.518
108	60.039	-954.012	76.537	-971.782
109	77.962	-970.203	82.419	-975.003

COMBINACION 26 G1 + G2 + 0.9 PRETD + SCMIN-IPF
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
110	82.224	-975.065	75.999	-968.360
111	73.883	-970.426	57.134	-952.385
112	52.849	-956.572	23.940	-925.432
113	17.569	-931.745	-25.484	-885.370
114	-33.648	-893.490	-86.077	-837.015
115	-95.410	-846.316	-171.494	-764.362
116	-180.809	-773.644	-285.026	-661.387
117	-280.275	-681.851	-374.349	-580.520
118	-363.575	-598.124	-449.411	-505.665
119	-437.202	-520.986	-456.749	-499.930
120	-302.776	-366.944	-22.536	-654.758
121	4.900	-665.568	-281.672	-371.251
122	-266.647	-366.571	-321.746	-309.983
123	-307.910	-324.885	-283.129	-350.336
124	-263.521	-360.947	-200.280	-425.898
125	-298.447	-583.272	-240.145	-646.072
126	-219.366	-669.458	-148.487	-745.806
127	-146.845	-744.094	-94.234	-800.763
128	-92.073	-798.531	-55.143	-838.311
129	-53.655	-836.697	-29.687	-862.515
130	-29.579	-862.341	-17.013	-875.877
131	-18.728	-877.505	-17.223	-879.126
132	-20.994	-882.805	-31.938	-871.017
133	-37.738	-876.777	-58.288	-854.641
134	-65.883	-862.193	-99.963	-825.484
135	-108.779	-834.246	-166.956	-771.580
136	-175.848	-780.433	-261.762	-687.892
137	-260.379	-704.217	-343.304	-614.895
138	-333.829	-631.140	-414.707	-544.022
139	-398.464	-564.386	-412.944	-548.788
140	-260.351	-413.090	26.930	-708.135
141	55.917	-721.284	-246.438	-410.757
142	-231.178	-405.811	-296.279	-338.950
143	-282.651	-353.767	-267.325	-369.507
144	-249.005	-379.607	-191.451	-438.716
145	-289.803	-597.127	-236.145	-654.924
146	-211.634	-681.923	-138.101	-761.129
147	-136.341	-759.325	-79.435	-820.621
148	-77.178	-818.316	-34.282	-864.522
149	-32.662	-862.871	-1.307	-896.645
150	-1.014	-896.333	20.633	-919.650
151	19.113	-921.139	31.275	-934.239
152	27.766	-937.704	31.296	-941.506
153	25.735	-947.044	26.148	-947.488
154	18.770	-954.827	2.485	-937.285
155	-6.236	-945.972	-44.381	-904.883
156	-53.385	-913.882	-117.351	-844.981
157	-121.498	-856.420	-186.327	-786.589
158	-177.425	-804.395	-233.840	-743.627
159	-223.347	-761.087	-221.865	-762.684
160	-91.029	-597.363	225.500	-922.447
161	242.166	-924.419	-138.502	-533.463
162	-119.845	-529.552	-250.809	-395.048
163	-233.544	-413.928	-280.037	-366.178
164	-256.586	-376.350	-252.589	-380.456

COMBINACION 26 G1 + G2 + 0.9 PRETD + SCMIN-IPF
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-350.141	-539.058	-334.354	-556.063
166	-315.722	-578.960	-275.528	-622.256
167	-275.191	-621.860	-243.302	-656.210
168	-242.423	-655.300	-217.340	-682.319
169	-216.797	-681.748	-196.752	-703.339
170	-197.126	-703.690	-181.043	-721.013
171	-182.683	-722.643	-170.332	-735.947
172	-173.455	-739.032	-165.879	-747.191
173	-170.529	-751.825	-167.270	-755.335
174	-173.305	-761.335	-168.835	-766.149
175	-175.866	-773.190	-184.222	-764.189
176	-191.501	-771.501	-215.858	-745.264
177	-212.943	-761.489	-220.861	-752.961
178	-208.872	-773.312	-200.723	-782.089
179	-182.108	-810.655	-127.796	-869.158
180	0.559	-697.271	372.813	-1079.585
181	391.273	-1084.860	16.021	-699.466
182	35.504	-695.572	-88.880	-567.826
183	-68.113	-587.429	-122.771	-531.295
184	-97.015	-540.535	-92.670	-544.997
185	-177.914	-721.747	-171.866	-728.262
186	-159.500	-742.216	-147.787	-754.832
187	-146.811	-753.828	-144.885	-755.902
188	-143.764	-754.745	-149.779	-748.266
189	-149.292	-747.789	-161.365	-734.785
190	-162.088	-735.489	-179.232	-717.022
191	-181.448	-719.213	-203.773	-695.166
192	-207.619	-698.994	-236.519	-667.865
193	-241.972	-673.335	-280.227	-632.128
194	-287.060	-638.992	-338.498	-583.587
195	-346.210	-591.318	-403.562	-529.541
196	-411.215	-537.237	-484.404	-458.402
197	-471.666	-484.902	-520.360	-432.451
198	-505.865	-453.552	-534.969	-422.203
199	-519.374	-443.727	-490.994	-474.297
200	-322.578	-347.746	-8.440	-670.374
201	13.224	-675.266	-183.542	-473.183
202	-169.738	-468.487	-206.686	-430.540
203	-198.688	-435.047	-175.874	-458.478
204	-167.461	-467.965	-104.767	-532.354
205	-245.094	-752.453	-165.179	-838.534
206	-167.208	-840.545	-100.470	-912.432
207	-100.081	-912.017	-48.033	-968.080
208	-46.356	-966.331	-8.592	-1007.009
209	-6.571	-1004.927	18.309	-1031.726
210	19.877	-1030.057	32.273	-1043.410
211	33.525	-1042.102	26.093	-1034.096
212	30.982	-1029.176	13.723	-1010.586
213	17.171	-1007.096	-6.615	-981.475
214	-4.687	-979.548	-33.304	-948.723
215	-32.444	-947.877	-66.265	-911.447
216	-66.349	-911.552	-106.068	-868.769
217	-106.900	-869.659	-153.450	-819.517
218	-154.785	-820.912	-203.574	-768.359
219	-210.405	-775.203	-302.683	-675.805
220	-184.095	-517.455	-238.674	-461.400

COMBINACION 27 G1 + G2 + 0.9 PRETD + 0.60 SCMIN-IPF + 0.5 TEMP

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-240.820	-465.578	-227.403	-479.357
2	-341.720	-636.856	-336.790	-642.166
3	-336.713	-642.014	-331.862	-647.239
4	-331.590	-646.921	-326.568	-652.331
5	-326.369	-652.094	-320.701	-658.199
6	-320.809	-658.208	-314.031	-665.508
7	-314.563	-665.959	-306.442	-674.707
8	-307.471	-675.768	-297.813	-686.170
9	-299.478	-687.845	-301.158	-686.036
10	-307.868	-692.767	-302.768	-698.261
11	-301.169	-696.677	-297.744	-700.366
12	-296.982	-699.634	-311.424	-684.077
13	-312.035	-684.711	-334.033	-661.015
14	-334.960	-661.989	-365.435	-629.163
15	-366.116	-629.878	-405.290	-587.682
16	-404.943	-587.387	-451.543	-537.192
17	-449.209	-534.997	-497.206	-483.297
18	-481.742	-489.293	-516.041	-452.347
19	-505.246	-459.138	-479.969	-486.365
20	-331.695	-350.389	-81.256	-607.596
21	-71.989	-607.620	-378.550	-292.774
22	-362.511	-285.514	-432.398	-213.738
23	-421.345	-224.798	-430.357	-215.542
24	-410.625	-218.901	-378.890	-251.493
25	-500.419	-376.426	-476.003	-402.726
26	-462.528	-418.922	-425.355	-458.963
27	-424.698	-458.263	-395.629	-489.575
28	-394.628	-488.542	-372.026	-512.888
29	-371.485	-512.351	-353.557	-531.662
30	-354.050	-532.128	-339.769	-547.511
31	-341.599	-549.327	-330.904	-560.846
32	-334.247	-564.181	-328.263	-570.626
33	-333.159	-575.538	-330.904	-577.967
34	-337.191	-584.256	-339.979	-581.252
35	-347.243	-588.572	-363.721	-570.823
36	-371.203	-578.359	-404.592	-542.394
37	-407.645	-552.467	-444.499	-512.770
38	-437.949	-527.285	-470.229	-492.514
39	-461.993	-509.615	-466.231	-505.050
40	-317.303	-371.345	-10.908	-686.021
41	3.070	-686.444	-307.041	-367.952
42	-290.761	-360.695	-360.553	-289.017
43	-348.695	-300.451	-363.260	-285.492
44	-341.997	-289.464	-316.484	-315.666
45	-430.839	-450.977	-412.419	-470.819
46	-398.673	-487.022	-368.938	-519.051
47	-368.239	-518.269	-346.522	-541.661
48	-345.504	-540.637	-330.122	-557.207
49	-329.603	-556.720	-318.789	-568.368
50	-319.327	-568.915	-312.034	-576.771
51	-313.940	-578.665	-310.201	-582.692
52	-313.600	-586.138	-314.574	-585.089
53	-319.536	-590.102	-325.472	-583.707
54	-331.814	-590.092	-341.250	-579.928

COMBINACION 27 G1 + G2 + 0.9 PRETD + 0.60 SCMIN-IPF + 0.5 TEMP

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-348.566	-587.304	-371.771	-562.309
56	-379.293	-569.849	-419.436	-526.609
57	-420.902	-538.337	-459.240	-497.041
58	-452.385	-511.701	-485.836	-475.669
59	-477.234	-492.852	-482.232	-487.469
60	-331.725	-356.015	-26.035	-669.966
61	-12.010	-670.281	-318.192	-355.825
62	-301.978	-348.702	-368.439	-280.444
63	-356.635	-292.089	-367.663	-280.762
64	-346.362	-284.953	-317.234	-314.868
65	-431.571	-450.273	-409.306	-474.257
66	-396.150	-489.793	-363.759	-524.683
67	-362.977	-523.857	-338.700	-550.006
68	-337.595	-548.880	-319.724	-568.130
69	-319.108	-567.517	-305.846	-581.802
70	-306.280	-582.223	-296.576	-592.675
71	-298.372	-594.463	-292.121	-601.196
72	-295.435	-604.541	-293.783	-606.321
73	-298.677	-611.267	-302.304	-607.360
74	-308.607	-613.731	-315.126	-606.708
75	-322.478	-614.114	-342.677	-592.357
76	-350.282	-600.043	-387.435	-560.023
77	-388.340	-572.816	-422.388	-536.140
78	-415.580	-551.460	-445.283	-519.466
79	-436.858	-537.368	-438.895	-535.173
80	-292.151	-398.053	16.606	-715.154
81	30.565	-715.708	-283.976	-392.666
82	-267.443	-385.305	-343.194	-307.507
83	-330.901	-318.968	-351.927	-297.373
84	-328.594	-300.589	-310.981	-318.678
85	-424.101	-454.488	-414.251	-465.098
86	-403.659	-478.238	-386.391	-496.837
87	-385.947	-496.316	-376.243	-506.769
88	-375.526	-506.054	-371.901	-509.959
89	-371.679	-509.806	-372.431	-508.995
90	-373.246	-509.855	-377.561	-505.206
91	-379.691	-507.384	-387.654	-498.807
92	-391.253	-502.432	-404.104	-488.589
93	-409.177	-493.685	-429.506	-471.788
94	-435.808	-478.162	-463.565	-448.263
95	-470.687	-455.459	-507.180	-416.150
96	-514.270	-423.321	-567.396	-366.096
97	-562.535	-383.275	-607.232	-335.130
98	-599.186	-349.130	-635.321	-310.206
99	-627.899	-323.765	-632.368	-318.952
100	-469.518	-205.870	-169.413	-514.086
101	-153.884	-515.175	-375.102	-287.978
102	-361.105	-280.802	-371.401	-270.228
103	-363.437	-276.056	-308.538	-332.438
104	-290.003	-334.054	-211.702	-414.471
105	-316.477	-560.102	-256.469	-624.740
106	-244.062	-636.496	-189.435	-695.338
107	-187.104	-692.912	-150.115	-732.755
108	-147.682	-730.264	-125.447	-754.215
109	-124.008	-752.651	-113.809	-763.636

COMBINACION 27 G1 + G2 + 0.9 PRETD + 0.60 SCMIN-IPF + 0.5 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
110	-113.987	-763.716	-114.464	-763.203
111	-116.566	-765.283	-127.563	-753.438
112	-131.831	-757.643	-154.998	-732.689
113	-161.354	-739.018	-199.273	-698.173
114	-207.421	-706.309	-259.132	-650.609
115	-268.448	-659.928	-344.646	-577.852
116	-353.946	-587.150	-458.794	-474.213
117	-459.214	-489.108	-570.230	-369.526
118	-565.234	-380.907	-680.968	-256.244
119	-674.509	-265.370	-736.381	-198.725
120	-564.176	-98.480	-335.567	-333.267
121	-318.689	-333.233	-542.947	-102.914
122	-530.123	-95.974	-537.857	-88.030
123	-530.090	-96.700	-469.472	-158.956
124	-455.513	-163.766	-367.326	-254.336
125	-487.469	-379.667	-413.994	-458.811
126	-402.252	-472.463	-329.553	-550.770
127	-327.899	-549.070	-273.465	-607.704
128	-271.291	-605.486	-232.525	-647.243
129	-231.022	-645.647	-205.219	-673.440
130	-205.099	-673.280	-190.697	-688.793
131	-192.397	-690.437	-189.052	-694.041
132	-192.808	-697.735	-201.924	-687.915
133	-207.711	-693.690	-228.865	-670.904
134	-236.446	-678.472	-273.782	-638.255
135	-282.581	-647.035	-344.499	-580.339
136	-353.375	-589.210	-443.536	-492.093
137	-445.772	-504.521	-546.079	-396.476
138	-541.890	-407.027	-650.819	-289.694
139	-642.029	-302.029	-697.662	-242.104
140	-527.522	-138.698	-290.514	-382.111
141	-274.098	-382.350	-510.414	-139.647
142	-497.353	-132.441	-512.179	-117.215
143	-504.565	-125.856	-452.431	-179.398
144	-439.521	-183.942	-356.767	-268.932
145	-476.587	-395.932	-407.495	-470.355
146	-393.558	-485.963	-320.406	-564.759
147	-318.642	-562.959	-262.112	-623.850
148	-259.847	-621.554	-217.336	-667.345
149	-215.708	-665.702	-184.728	-699.073
150	-184.429	-698.767	-163.159	-721.678
151	-164.672	-723.175	-152.884	-735.871
152	-156.386	-739.345	-154.048	-741.863
153	-159.601	-747.408	-164.636	-741.985
154	-172.005	-749.333	-194.260	-725.361
155	-202.971	-734.058	-247.607	-685.978
156	-256.602	-694.987	-327.572	-618.541
157	-333.201	-628.384	-416.081	-539.109
158	-412.631	-551.042	-500.520	-456.372
159	-495.753	-467.665	-540.041	-419.960
160	-387.182	-293.206	-125.123	-562.347
161	-112.285	-560.388	-414.551	-249.953
162	-399.006	-242.846	-468.111	-171.873
163	-458.455	-182.939	-463.048	-178.222
164	-446.055	-181.761	-412.508	-216.214

COMBINACION 27 G1 + G2 + 0.9 PRETD + 0.60 SCMIN-IPF + 0.5 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-534.219	-340.778	-503.099	-374.298
166	-492.995	-388.011	-451.439	-432.773
167	-451.105	-432.374	-417.863	-468.181
168	-416.984	-467.271	-390.548	-495.747
169	-390.008	-495.174	-368.608	-518.225
170	-368.980	-518.577	-351.542	-537.361
171	-353.182	-538.991	-339.482	-553.747
172	-342.608	-556.828	-333.688	-566.436
173	-338.339	-571.068	-334.853	-574.822
174	-340.888	-580.823	-340.858	-580.855
175	-347.889	-587.895	-361.322	-573.426
176	-368.601	-580.738	-398.667	-548.352
177	-399.665	-560.362	-427.779	-530.079
178	-422.406	-543.303	-448.153	-515.570
179	-439.198	-533.730	-436.597	-536.532
180	-289.596	-399.274	19.748	-716.979
181	33.501	-717.419	-271.010	-404.678
182	-254.814	-397.408	-325.299	-325.018
183	-313.024	-335.899	-327.976	-320.543
184	-310.396	-321.386	-281.115	-351.459
185	-391.459	-491.728	-372.240	-512.429
186	-365.314	-520.523	-347.364	-539.857
187	-346.389	-538.852	-338.220	-547.651
188	-337.102	-546.491	-336.875	-546.736
189	-336.388	-546.258	-342.219	-539.977
190	-342.943	-540.680	-353.840	-528.942
191	-356.055	-531.135	-372.131	-513.819
192	-375.975	-517.649	-398.631	-493.246
193	-404.084	-498.716	-436.100	-464.230
194	-442.932	-471.095	-488.124	-422.416
195	-495.835	-430.150	-551.529	-370.159
196	-559.179	-377.857	-632.531	-298.847
197	-627.825	-316.695	-695.389	-243.918
198	-688.179	-257.172	-751.351	-189.127
199	-743.357	-202.463	-762.871	-181.444
200	-579.898	-83.472	-329.564	-340.571
201	-313.652	-339.556	-466.546	-182.530
202	-454.664	-175.860	-454.557	-175.970
203	-449.191	-177.773	-396.669	-231.716
204	-391.972	-237.386	-307.544	-324.096
205	-472.487	-507.517	-378.368	-608.898
206	-380.397	-610.908	-299.452	-698.098
207	-299.063	-697.683	-232.809	-769.049
208	-231.133	-767.299	-179.158	-823.283
209	-177.137	-821.202	-138.050	-863.305
210	-136.480	-861.637	-109.868	-890.302
211	-108.617	-888.994	-101.835	-896.299
212	-96.946	-891.378	-99.991	-888.098
213	-96.544	-884.609	-106.112	-874.303
214	-104.184	-872.374	-118.588	-856.859
215	-117.726	-856.015	-137.335	-834.893
216	-137.418	-834.999	-162.925	-807.524
217	-163.757	-808.416	-196.093	-773.584
218	-197.426	-774.981	-232.003	-737.737
219	-238.831	-744.583	-316.898	-660.494
220	-197.107	-504.090	-238.693	-461.381

COMBINACION 28 G1 + G2 + 0.9 PRETD + SCMAX-EC1 + 0.6 TEMP

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-240.853	-465.544	-320.449	-383.797
2	-461.310	-508.039	-563.341	-398.136
3	-563.300	-397.945	-651.509	-302.931
4	-651.267	-302.581	-726.264	-221.798
5	-726.093	-221.530	-788.054	-154.789
6	-788.185	-154.773	-836.246	-103.004
7	-836.799	-103.431	-869.448	-68.264
8	-870.494	-69.307	-889.978	-48.320
9	-891.654	-49.982	-911.149	-28.983
10	-917.856	-35.718	-919.480	-33.969
11	-917.873	-32.394	-909.575	-41.332
12	-908.804	-40.609	-905.919	-43.716
13	-906.517	-44.363	-900.213	-51.153
14	-901.130	-52.138	-891.178	-62.858
15	-891.837	-63.596	-880.124	-76.213
16	-879.750	-75.948	-877.096	-78.806
17	-874.884	-76.481	-868.424	-83.440
18	-878.165	-62.284	-900.626	-38.091
19	-910.501	-22.616	-921.466	-10.806
20	-749.946	79.166	-563.300	-112.524
21	-562.707	-103.639	-740.311	78.765
22	-734.877	96.916	-719.437	81.059
23	-735.073	97.410	-711.007	72.692
24	-712.383	91.013	-709.624	88.179
25	-877.451	29.695	-903.057	57.276
26	-915.717	69.231	-949.070	105.157
27	-948.445	105.891	-971.277	130.486
28	-970.297	131.541	-981.362	143.459
29	-980.842	144.019	-981.708	144.951
30	-982.189	144.473	-980.667	142.833
31	-982.491	141.012	-972.735	130.502
32	-976.063	127.152	-958.114	107.819
33	-962.997	102.893	-933.943	71.597
34	-940.201	65.277	-903.381	25.617
35	-910.617	18.267	-870.173	-25.298
36	-877.619	-32.873	-836.859	-76.777
37	-848.085	-78.046	-838.020	-88.888
38	-856.221	-76.743	-877.058	-54.297
39	-898.633	-39.288	-946.709	12.498
40	-780.527	104.398	-560.900	-121.164
41	-564.489	-103.545	-743.996	80.813
42	-738.633	99.281	-722.731	82.950
43	-738.993	100.396	-712.616	73.306
44	-717.698	96.392	-699.442	77.641
45	-867.049	18.887	-896.494	50.603
46	-908.372	62.002	-943.546	99.889
47	-942.872	100.698	-967.431	127.152
48	-966.430	128.194	-983.137	146.190
49	-982.607	146.664	-992.289	157.092
50	-992.825	156.544	-990.987	154.564
51	-992.903	152.681	-979.279	138.006
52	-982.680	134.562	-959.086	109.148
53	-964.042	104.130	-937.130	75.141
54	-943.448	68.731	-908.796	31.405

COMBINACION 28 G1 + G2 + 0.9 PRETD + SCMAX-EC1 + 0.6 TEMP

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-916.085	23.999	-877.655	-17.395
56	-885.133	-24.982	-846.175	-66.945
57	-859.094	-66.339	-856.288	-69.360
58	-874.748	-56.752	-902.929	-26.397
59	-924.666	-10.901	-979.752	48.436
60	-810.849	136.059	-598.338	-82.196
61	-601.602	-64.755	-778.179	116.594
62	-772.953	135.003	-751.820	113.299
63	-768.333	130.736	-737.769	99.347
64	-743.122	122.530	-715.432	94.092
65	-887.294	40.609	-909.757	64.805
66	-921.122	75.682	-951.258	108.142
67	-950.504	108.999	-970.135	130.144
68	-969.042	131.284	-982.051	145.296
69	-981.424	145.897	-985.079	149.835
70	-985.496	149.396	-977.615	140.907
71	-979.397	139.104	-959.657	117.841
72	-962.978	114.503	-936.260	85.724
73	-941.150	80.774	-909.102	46.253
74	-915.383	39.860	-875.469	-3.134
75	-882.796	-10.567	-838.983	-57.760
76	-846.553	-65.484	-802.240	-113.215
77	-813.241	-115.133	-801.989	-127.252
78	-821.216	-114.529	-845.986	-87.847
79	-868.533	-72.388	-918.996	-18.032
80	-755.652	77.976	-542.523	-140.914
81	-546.103	-123.454	-736.029	71.604
82	-730.567	90.336	-722.639	82.193
83	-739.004	100.165	-722.260	82.968
84	-726.143	107.704	-712.400	93.590
85	-884.897	41.860	-920.731	80.458
86	-930.481	89.229	-972.132	134.094
87	-971.701	134.630	-1002.619	167.933
88	-1001.905	168.651	-1020.605	188.793
89	-1020.381	188.944	-1032.496	201.995
90	-1033.280	201.102	-1034.123	202.009
91	-1036.215	199.791	-1025.337	188.074
92	-1028.906	184.418	-1011.042	165.175
93	-1016.082	160.043	-993.856	136.102
94	-1000.111	129.678	-970.544	97.830
95	-977.616	90.581	-944.254	54.645
96	-951.292	47.418	-917.414	10.927
97	-931.624	14.290	-938.455	21.647
98	-956.270	35.504	-997.301	79.700
99	-1014.627	92.799	-1075.575	158.449
100	-895.385	231.506	-689.716	20.279
101	-701.642	47.387	-827.517	176.665
102	-821.884	192.430	-760.761	129.655
103	-769.826	141.317	-683.217	52.367
104	-683.484	70.062	-601.193	-14.454
105	-761.545	-80.697	-722.651	-122.592
106	-738.365	-104.057	-726.810	-116.503
107	-724.411	-114.151	-719.211	-119.752
108	-716.721	-117.323	-713.718	-120.558
109	-712.222	-119.055	-709.220	-122.289

COMBINACION 28 G1 + G2 + 0.9 PRETD + SCMAX-EC1 + 0.6 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
110	-709.338	-122.433	-705.287	-126.797
111	-707.347	-128.923	-701.761	-134.940
112	-705.982	-139.196	-700.304	-145.312
113	-706.623	-151.680	-705.673	-152.704
114	-713.787	-160.876	-720.549	-153.594
115	-729.833	-162.947	-751.353	-139.766
116	-760.596	-149.127	-800.868	-105.748
117	-816.620	-104.127	-904.278	-9.706
118	-918.606	-0.272	-1042.089	132.739
119	-1054.306	143.728	-1164.792	262.739
120	-974.219	322.646	-829.063	173.566
121	-834.335	196.349	-953.050	318.273
122	-947.446	332.628	-877.713	261.010
123	-889.916	272.851	-793.785	174.121
124	-798.418	188.407	-700.374	87.713
125	-873.152	35.773	-817.162	-24.537
126	-835.292	-6.012	-813.481	-29.506
127	-811.774	-27.863	-796.965	-43.816
128	-794.732	-41.662	-783.091	-54.201
129	-781.521	-52.676	-770.825	-64.196
130	-770.657	-64.088	-759.693	-75.898
131	-761.344	-77.595	-749.375	-90.488
132	-753.091	-94.225	-741.351	-106.871
133	-747.101	-112.685	-740.019	-120.314
134	-747.567	-127.917	-747.951	-127.503
135	-756.712	-136.324	-770.417	-121.561
136	-779.261	-130.466	-811.328	-95.925
137	-825.529	-95.465	-899.394	-15.902
138	-912.688	-7.621	-1017.890	105.697
139	-1033.976	120.157	-1130.402	224.022
140	-945.559	290.637	-780.415	121.030
141	-791.367	148.899	-912.921	273.738
142	-907.075	288.354	-841.323	220.825
143	-853.495	232.505	-764.129	140.724
144	-769.041	154.484	-676.930	59.885
145	-847.001	3.060	-804.680	-42.526
146	-816.697	-30.179	-801.176	-46.897
147	-799.377	-45.135	-788.774	-56.556
148	-786.464	-54.308	-777.841	-63.597
149	-776.180	-61.990	-766.279	-72.655
150	-765.957	-72.373	-752.724	-86.628
151	-754.211	-88.152	-738.186	-105.413
152	-741.665	-108.911	-724.128	-127.801
153	-729.665	-133.363	-712.572	-151.775
154	-719.927	-159.138	-708.155	-171.818
155	-716.852	-180.530	-716.567	-180.838
156	-725.553	-189.855	-740.516	-173.738
157	-751.055	-178.292	-801.158	-124.323
158	-815.776	-116.794	-902.630	-23.239
159	-916.766	-14.170	-1006.820	82.831
160	-830.574	162.170	-647.754	-25.591
161	-647.899	-10.298	-821.762	168.264
162	-816.414	185.843	-797.496	166.414
163	-812.858	181.043	-781.757	149.102
164	-785.999	167.371	-752.240	132.699

COMBINACION 28 G1 + G2 + 0.9 PRETD + SCMAX-EC1 + 0.6 TEMP
TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-928.265	83.670	-946.839	103.677
166	-957.048	111.844	-981.328	137.997
167	-981.025	138.430	-995.163	153.659
168	-994.304	154.589	-996.943	157.432
169	-996.421	158.025	-994.788	156.266
170	-995.142	155.894	-982.559	142.341
171	-984.201	140.713	-964.705	119.712
172	-967.833	116.635	-941.485	88.253
173	-946.128	83.612	-908.602	43.191
174	-914.617	37.170	-869.156	-11.798
175	-876.162	-18.864	-826.953	-71.871
176	-834.202	-79.215	-784.159	-133.118
177	-794.495	-135.070	-770.773	-160.622
178	-787.239	-150.323	-800.938	-135.567
179	-823.859	-119.392	-860.721	-79.686
180	-702.455	24.743	-481.252	-202.438
181	-484.195	-185.731	-677.802	13.109
182	-672.382	31.446	-670.800	29.821
183	-686.457	47.627	-671.432	32.195
184	-680.746	58.973	-666.454	44.295
185	-830.557	-18.752	-863.029	16.225
186	-869.491	22.552	-903.276	58.944
187	-902.327	59.978	-928.807	88.500
188	-927.712	89.685	-944.995	108.301
189	-944.520	108.792	-950.905	115.670
190	-951.639	114.977	-948.744	111.859
191	-950.957	109.664	-946.365	104.718
192	-950.200	100.877	-945.645	95.971
193	-951.088	90.491	-938.269	76.682
194	-945.079	69.793	-927.916	51.306
195	-935.596	43.540	-918.073	24.664
196	-925.693	16.933	-911.313	1.444
197	-925.858	4.332	-937.425	16.791
198	-954.260	29.438	-1016.003	95.944
199	-1033.099	109.633	-1102.155	184.016
200	-911.042	256.623	-759.895	101.391
201	-757.423	116.209	-851.028	212.344
202	-843.761	223.753	-800.513	179.336
203	-803.799	186.419	-740.370	121.275
204	-747.900	128.162	-672.374	50.594
205	-890.412	-57.348	-831.415	-120.898
206	-833.435	-122.917	-778.776	-181.794
207	-778.378	-181.389	-731.890	-231.463
208	-730.198	-229.730	-690.025	-273.003
209	-687.994	-270.932	-652.045	-309.654
210	-650.468	-307.994	-619.793	-341.036
211	-618.542	-339.727	-598.853	-360.935
212	-593.973	-356.005	-575.786	-375.596
213	-572.340	-372.104	-552.772	-393.181
214	-550.847	-391.250	-527.960	-415.903
215	-527.117	-415.039	-499.687	-444.585
216	-499.779	-444.682	-470.081	-476.672
217	-470.927	-477.547	-439.845	-511.026
218	-441.199	-512.401	-403.747	-552.742
219	-410.595	-559.568	-406.907	-563.541
220	-279.521	-419.449	-238.764	-461.308

COMBINACION 29 G1 + G2 + 0.9 PRETD + TEMP + 0.80 SCMAX-EC1

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-240.851	-465.547	-306.200	-398.431
2	-442.008	-528.830	-527.423	-436.825
3	-527.377	-436.640	-601.912	-356.354
4	-601.665	-356.009	-665.760	-286.970
5	-665.585	-286.706	-719.284	-228.865
6	-719.412	-228.852	-761.932	-183.051
7	-762.483	-183.482	-792.566	-151.077
8	-793.609	-152.123	-813.016	-131.219
9	-814.690	-132.883	-836.953	-108.903
10	-843.660	-115.638	-850.699	-108.056
11	-849.094	-106.479	-848.814	-106.781
12	-848.045	-106.055	-855.970	-97.519
13	-856.570	-98.164	-863.555	-90.639
14	-864.474	-91.622	-870.522	-85.107
15	-871.187	-85.840	-877.862	-78.649
16	-877.494	-78.379	-893.186	-61.476
17	-890.956	-59.169	-904.299	-44.797
18	-910.766	-27.169	-948.295	13.255
19	-955.483	25.836	-975.113	46.980
20	-797.344	127.846	-615.183	-59.239
21	-613.567	-51.405	-794.646	134.568
22	-787.843	151.314	-772.170	135.217
23	-784.351	148.019	-754.340	117.197
24	-753.181	132.914	-735.936	115.203
25	-904.585	58.922	-914.191	69.269
26	-924.055	78.212	-941.171	96.648
27	-940.539	97.376	-951.101	108.753
28	-950.117	109.804	-952.800	112.693
29	-952.277	113.250	-947.977	108.618
30	-948.460	108.142	-943.223	102.501
31	-945.048	100.680	-934.180	88.973
32	-937.510	85.625	-921.274	68.137
33	-926.160	63.213	-902.711	37.955
34	-908.973	31.640	-881.683	2.245
35	-888.924	-5.100	-861.906	-34.202
36	-869.358	-41.771	-845.903	-67.035
37	-856.065	-69.451	-860.599	-64.567
38	-875.580	-55.890	-907.742	-21.246
39	-925.439	-10.413	-978.191	46.409
40	-806.313	130.881	-585.521	-95.878
41	-586.890	-80.539	-771.347	108.903
42	-764.573	125.923	-750.286	111.250
43	-762.905	124.955	-732.887	94.125
44	-734.557	113.706	-706.877	85.278
45	-873.337	25.660	-888.131	41.595
46	-897.369	50.149	-918.121	72.503
47	-917.442	73.307	-931.549	88.502
48	-930.546	89.541	-939.882	99.598
49	-939.355	100.075	-944.227	105.323
50	-944.764	104.775	-941.370	101.119
51	-943.284	99.234	-931.413	86.447
52	-934.813	83.002	-916.151	62.900
53	-921.108	57.882	-901.472	36.732
54	-907.794	30.326	-884.346	5.069

COMBINACION 29 G1 + G2 + 0.9 PRETD + TEMP + 0.80 SCMAX-EC1

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-891.639	-2.332	-868.356	-27.412
56	-875.841	-34.991	-855.956	-56.410
57	-867.427	-57.362	-879.742	-44.098
58	-894.909	-35.036	-934.881	8.021
59	-952.672	19.267	-1012.902	84.143
60	-838.124	164.071	-624.737	-55.083
61	-625.756	-39.949	-806.903	146.094
62	-800.258	163.046	-780.850	143.113
63	-793.695	156.784	-759.344	121.505
64	-761.245	141.143	-725.013	103.932
65	-895.376	49.315	-903.496	58.062
66	-912.336	66.218	-928.021	83.113
67	-927.263	83.965	-936.410	93.818
68	-935.315	94.954	-940.690	100.745
69	-940.066	101.349	-939.123	100.333
70	-939.542	99.897	-930.322	89.965
71	-932.106	88.164	-914.331	69.018
72	-917.651	65.679	-895.455	41.771
73	-900.347	36.823	-875.538	10.100
74	-881.824	3.711	-853.071	-27.260
75	-860.402	-34.689	-831.697	-65.608
76	-839.272	-73.326	-813.991	-100.558
77	-823.949	-103.599	-828.397	-98.808
78	-844.237	-89.732	-880.482	-50.690
79	-899.002	-39.569	-954.692	20.418
80	-785.215	108.338	-570.497	-112.183
81	-571.824	-97.038	-765.557	101.931
82	-758.665	119.193	-751.698	112.037
83	-764.349	126.196	-743.068	104.339
84	-743.424	125.453	-720.645	102.058
85	-891.241	48.692	-912.480	71.570
86	-920.125	78.074	-947.417	107.472
87	-946.982	108.004	-967.444	130.044
88	-966.729	130.760	-978.875	143.843
89	-978.649	143.993	-986.647	152.608
90	-987.436	151.720	-987.371	151.651
91	-989.469	149.438	-981.000	140.316
92	-984.572	136.663	-971.736	122.836
93	-976.781	117.710	-962.195	101.999
94	-968.457	95.582	-950.428	76.162
95	-957.507	68.921	-939.644	49.679
96	-946.690	42.461	-932.175	26.826
97	-944.376	28.026	-965.326	50.592
98	-979.800	60.850	-1030.621	115.591
99	-1044.710	125.203	-1109.417	194.902
100	-923.617	260.501	-716.312	47.594
101	-725.983	72.386	-855.942	205.857
102	-849.212	220.497	-789.802	159.482
103	-796.547	168.760	-706.440	76.218
104	-704.169	91.305	-615.545	0.286
105	-774.716	-66.510	-726.654	-118.280
106	-738.747	-103.646	-716.154	-127.981
107	-713.765	-125.618	-699.970	-140.478
108	-697.488	-138.040	-688.587	-147.628
109	-687.099	-146.116	-680.790	-152.912

COMBINACION 29 G1 + G2 + 0.9 PRETD + TEMP + 0.80 SCMAX-EC1

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
110	-680.916	-153.048	-676.087	-158.249
111	-678.153	-160.370	-674.385	-164.428
112	-678.611	-168.678	-677.392	-169.991
113	-683.715	-176.356	-689.597	-170.020
114	-697.715	-178.189	-714.035	-160.610
115	-723.322	-169.961	-756.782	-133.918
116	-766.032	-143.271	-820.565	-84.531
117	-834.446	-84.926	-932.052	20.211
118	-943.890	26.963	-1074.469	167.616
119	-1084.156	175.881	-1196.567	296.965
120	-1000.965	350.114	-853.023	198.174
121	-856.926	219.551	-979.981	345.931
122	-973.425	359.309	-906.632	290.711
123	-916.224	299.870	-817.483	198.460
124	-819.687	210.250	-716.513	104.288
125	-887.989	51.754	-823.782	-17.406
126	-838.056	-3.035	-804.658	-39.010
127	-802.959	-37.359	-778.999	-63.168
128	-776.775	-61.004	-758.667	-80.509
129	-757.107	-78.974	-742.534	-94.671
130	-742.372	-94.555	-730.050	-107.828
131	-731.708	-109.518	-720.978	-121.076
132	-724.699	-124.808	-716.834	-133.280
133	-722.587	-139.090	-721.771	-139.969
134	-729.322	-147.569	-738.698	-137.470
135	-747.462	-146.288	-772.742	-119.058
136	-781.588	-127.960	-827.543	-78.459
137	-840.188	-79.676	-924.861	11.530
138	-935.856	17.335	-1049.940	140.220
139	-1062.818	151.223	-1162.434	258.525
140	-972.094	317.890	-806.128	147.439
141	-815.357	173.538	-942.137	303.745
142	-935.338	317.381	-872.420	252.763
143	-882.002	261.782	-790.185	167.484
144	-792.769	178.854	-695.413	78.867
145	-864.555	21.968	-812.189	-34.437
146	-821.463	-25.044	-793.592	-55.066
147	-791.800	-53.296	-771.382	-75.289
148	-769.080	-73.034	-753.248	-90.087
149	-751.593	-88.474	-737.239	-103.935
150	-736.921	-103.649	-722.041	-119.677
151	-723.532	-121.197	-708.512	-137.376
152	-711.994	-140.871	-698.095	-155.842
153	-703.633	-161.403	-693.037	-172.817
154	-700.393	-180.179	-697.853	-182.915
155	-706.550	-191.627	-718.027	-179.265
156	-727.013	-188.283	-756.307	-156.729
157	-766.207	-161.971	-828.766	-94.585
158	-841.045	-89.575	-937.362	14.173
159	-949.037	20.590	-1042.733	121.515
160	-861.364	193.792	-677.531	4.990
161	-675.946	18.507	-854.097	201.473
162	-847.433	217.701	-829.340	199.119
163	-841.464	210.422	-805.900	173.897
164	-807.393	189.344	-765.155	145.963

COMBINACION 29 G1 + G2 + 0.9 PRETD + TEMP + 0.80 SCMAX-EC1

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-939.960	96.267	-943.451	100.028
166	-951.573	105.947	-961.017	116.120
167	-960.709	116.547	-963.947	120.034
168	-963.084	120.961	-958.728	116.268
169	-958.203	116.858	-951.677	109.829
170	-952.035	109.461	-937.785	94.112
171	-939.427	92.484	-920.638	72.246
172	-923.767	69.168	-900.697	44.318
173	-905.341	39.679	-874.994	6.991
174	-881.013	0.974	-846.652	-36.038
175	-853.663	-43.099	-819.430	-79.974
176	-826.685	-87.312	-795.545	-120.855
177	-804.917	-123.844	-798.081	-131.207
178	-811.708	-123.966	-837.793	-95.869
179	-856.572	-84.155	-899.928	-37.454
180	-735.156	58.328	-513.357	-169.465
181	-513.991	-155.129	-711.187	47.396
182	-704.377	64.306	-703.337	63.238
183	-715.379	77.330	-695.975	57.402
184	-701.807	80.604	-677.772	55.919
185	-841.070	-7.429	-859.357	12.270
186	-864.366	17.032	-885.758	40.074
187	-884.804	41.102	-902.537	60.203
188	-901.439	61.384	-913.633	74.519
189	-913.156	75.008	-918.075	80.307
190	-918.807	79.613	-917.546	78.254
191	-919.758	76.058	-918.405	74.601
192	-922.241	70.761	-922.465	71.003
193	-927.910	65.525	-923.628	60.911
194	-930.441	54.026	-925.548	48.756
195	-933.234	40.995	-931.760	39.407
196	-939.385	31.681	-944.734	37.443
197	-957.284	38.182	-986.834	70.012
198	-1000.541	79.289	-1073.142	157.492
199	-1086.974	167.665	-1160.183	246.522
200	-962.004	308.962	-809.103	151.929
201	-805.308	165.388	-896.520	259.065
202	-888.775	269.984	-841.591	221.524
203	-843.756	227.456	-771.755	153.508
204	-777.700	158.766	-691.595	70.335
205	-908.887	-37.448	-835.582	-116.409
206	-837.605	-118.426	-770.525	-190.682
207	-770.129	-190.274	-712.646	-252.191
208	-710.958	-250.454	-661.500	-303.728
209	-659.472	-301.654	-616.096	-348.377
210	-614.520	-346.715	-577.976	-386.078
211	-576.727	-384.769	-553.058	-410.263
212	-548.177	-405.335	-527.797	-427.287
213	-524.351	-423.795	-504.292	-445.402
214	-502.368	-443.470	-480.741	-466.765
215	-479.892	-465.907	-455.794	-491.865
216	-455.884	-491.964	-431.270	-518.476
217	-432.113	-519.355	-407.879	-545.459
218	-409.228	-546.839	-380.469	-577.816
219	-387.311	-584.648	-394.381	-577.034
220	-268.050	-431.230	-238.756	-461.316

COMBINACION 30 G1 + G2 + 0.9 PRETD + 0.60 SCMAX-EC1 + 0.5 TEMP

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-240.848	-465.550	-284.084	-421.145
2	-414.112	-558.878	-474.320	-494.025
3	-474.265	-493.849	-526.536	-437.545
4	-526.283	-437.207	-570.882	-389.168
5	-570.700	-388.912	-607.545	-349.225
6	-607.667	-349.218	-636.051	-318.645
7	-636.596	-319.081	-655.520	-298.697
8	-656.559	-299.747	-667.296	-288.181
9	-668.968	-289.848	-685.405	-272.143
10	-692.113	-278.877	-695.975	-274.717
11	-694.371	-273.139	-693.516	-274.060
12	-692.748	-273.333	-702.887	-262.413
13	-703.490	-263.054	-715.163	-250.480
14	-716.085	-251.459	-729.538	-236.969
15	-730.206	-237.698	-746.674	-219.960
16	-746.310	-219.683	-771.751	-192.279
17	-769.505	-189.991	-794.051	-163.551
18	-797.243	-149.450	-841.242	-102.057
19	-845.745	-92.368	-865.441	-71.153
20	-695.223	22.965	-509.674	-167.600
21	-507.060	-160.790	-693.617	30.809
22	-685.444	46.147	-671.541	31.868
23	-680.265	41.120	-646.313	6.250
24	-642.617	19.361	-612.890	-11.169
25	-768.576	-87.580	-764.371	-92.109
26	-771.437	-86.181	-774.505	-82.876
27	-773.867	-82.155	-774.349	-81.636
28	-773.360	-80.591	-769.852	-84.369
29	-769.324	-83.818	-762.052	-91.652
30	-762.536	-92.127	-755.775	-99.409
31	-757.601	-101.229	-747.814	-111.771
32	-751.147	-115.116	-738.817	-128.397
33	-743.705	-133.318	-728.055	-150.176
34	-734.322	-156.485	-718.754	-173.254
35	-726.001	-180.593	-714.602	-192.871
36	-722.062	-200.431	-718.104	-204.694
37	-727.203	-208.255	-748.529	-185.283
38	-760.292	-180.072	-805.971	-130.869
39	-819.793	-124.210	-879.412	-59.991
40	-712.845	34.887	-492.895	-191.008
41	-492.019	-177.974	-680.881	15.992
42	-672.694	31.561	-659.477	17.986
43	-668.451	27.947	-634.245	-7.183
44	-632.501	8.891	-594.852	-29.775
45	-749.138	-108.121	-748.685	-108.609
46	-755.281	-102.901	-761.015	-96.724
47	-760.331	-95.926	-763.389	-92.632
48	-762.381	-91.598	-763.751	-90.122
49	-763.226	-89.643	-762.693	-90.217
50	-763.230	-90.765	-757.683	-96.739
51	-759.595	-98.627	-748.881	-110.167
52	-752.280	-113.613	-737.953	-129.046
53	-742.912	-134.061	-729.957	-148.016
54	-736.283	-154.417	-723.443	-168.247

COMBINACION 30 G1 + G2 + 0.9 PRETD + 0.60 SCMAX-EC1 + 0.5 TEMP

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-730.742	-175.643	-722.009	-185.050
56	-729.502	-192.620	-728.094	-194.137
57	-738.120	-196.646	-764.958	-167.737
58	-776.834	-162.220	-828.002	-107.104
59	-841.851	-100.104	-906.627	-30.331
60	-737.755	60.989	-522.948	-159.624
61	-521.721	-146.795	-707.581	44.089
62	-699.515	59.580	-681.974	41.565
63	-691.149	51.466	-653.153	12.444
64	-651.601	28.535	-606.970	-17.302
65	-764.056	-92.137	-757.989	-98.672
66	-764.301	-93.238	-765.692	-91.740
67	-764.928	-90.895	-763.747	-92.167
68	-762.648	-91.034	-760.546	-93.298
69	-759.924	-92.692	-754.538	-98.493
70	-754.960	-98.926	-744.556	-110.133
71	-746.342	-111.931	-730.688	-128.793
72	-734.008	-132.132	-716.490	-151.002
73	-721.384	-155.948	-703.971	-174.704
74	-710.261	-181.088	-692.825	-199.869
75	-700.162	-207.291	-686.721	-221.769
76	-694.304	-229.479	-688.211	-236.043
77	-697.127	-240.205	-717.431	-218.335
78	-729.887	-212.904	-777.764	-161.334
79	-792.258	-154.548	-853.332	-88.762
80	-689.305	9.835	-473.141	-212.171
81	-472.206	-199.349	-669.731	3.515
82	-661.406	19.305	-655.385	13.121
83	-664.321	23.464	-638.487	-3.068
84	-635.315	14.422	-603.485	-18.269
85	-760.605	-92.022	-767.233	-84.883
86	-772.772	-80.647	-785.689	-66.733
87	-785.250	-66.207	-795.240	-55.446
88	-794.521	-54.733	-800.097	-48.727
89	-799.871	-48.578	-803.735	-44.416
90	-804.528	-45.299	-803.540	-46.363
91	-805.643	-48.569	-799.567	-55.115
92	-803.144	-58.763	-795.319	-67.191
93	-800.370	-72.311	-793.407	-79.811
94	-799.678	-86.219	-793.170	-93.229
95	-800.259	-100.460	-797.877	-103.025
96	-804.933	-110.232	-809.764	-105.029
97	-819.960	-105.989	-855.013	-68.232
98	-866.148	-61.571	-926.742	3.698
99	-937.595	9.824	-1006.046	83.556
100	-826.231	160.483	-617.275	-54.120
101	-624.135	-32.214	-758.198	105.472
102	-750.369	118.983	-692.695	59.749
103	-697.117	66.643	-603.534	-29.470
104	-598.721	-16.992	-503.786	-114.493
105	-650.138	-200.699	-592.930	-262.321
106	-601.400	-251.589	-567.793	-287.789
107	-565.414	-285.415	-543.046	-309.509
108	-540.572	-307.063	-525.794	-322.981
109	-524.314	-321.460	-514.721	-331.794

COMBINACION 30 G1 + G2 + 0.9 PRETD + 0.60 SCMAX-EC1 + 0.5 TEMP

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
110	-514.855	-331.920	-509.272	-337.935
111	-511.342	-340.049	-509.416	-342.124
112	-513.648	-346.369	-516.911	-342.853
113	-523.238	-349.213	-535.975	-335.494
114	-544.096	-343.659	-569.998	-315.759
115	-579.288	-325.106	-624.713	-276.177
116	-633.972	-285.520	-702.789	-211.394
117	-714.798	-213.805	-822.377	-97.926
118	-831.725	-93.855	-969.423	54.466
119	-976.583	60.009	-1090.941	183.190
120	-901.919	248.391	-751.214	93.613
121	-753.142	112.962	-880.613	243.878
122	-873.103	256.275	-809.329	190.778
123	-816.307	197.252	-715.034	93.242
124	-714.806	102.535	-606.579	-8.617
125	-765.118	-80.597	-692.780	-158.516
126	-703.197	-148.299	-658.295	-196.665
127	-656.603	-195.006	-623.578	-230.580
128	-621.362	-228.407	-596.872	-254.787
129	-595.320	-253.242	-576.955	-273.024
130	-576.800	-272.902	-563.204	-287.546
131	-564.869	-289.229	-555.462	-299.361
132	-559.189	-303.087	-555.283	-307.294
133	-561.041	-313.100	-566.575	-307.139
134	-574.130	-314.735	-592.581	-294.860
135	-601.349	-303.673	-638.288	-263.884
136	-647.137	-272.784	-707.067	-208.231
137	-718.156	-211.122	-813.722	-108.183
138	-822.421	-104.853	-945.470	27.690
139	-955.141	35.240	-1058.034	146.071
140	-873.726	216.863	-707.016	45.647
141	-713.792	69.228	-845.668	204.668
142	-837.912	217.322	-777.699	155.481
143	-784.688	161.839	-690.290	64.889
144	-690.544	73.866	-587.812	-31.642
145	-744.389	-107.469	-681.836	-174.848
146	-688.366	-168.411	-648.001	-211.890
147	-646.214	-210.114	-615.839	-242.833
148	-613.543	-240.570	-590.361	-265.541
149	-588.710	-263.923	-569.762	-284.333
150	-569.447	-284.044	-552.778	-301.999
151	-554.272	-303.516	-540.114	-318.766
152	-543.599	-322.258	-533.196	-333.464
153	-538.736	-339.023	-534.495	-343.591
154	-541.852	-350.952	-548.400	-343.898
155	-557.099	-352.609	-580.196	-327.729
156	-589.182	-336.747	-632.664	-289.911
157	-641.927	-295.840	-716.801	-215.189
158	-726.742	-212.697	-832.379	-98.910
159	-841.594	-95.142	-938.791	9.553
160	-764.116	93.916	-579.138	-96.062
161	-575.841	-84.303	-758.784	103.584
162	-750.803	118.459	-734.039	101.242
163	-742.922	109.216	-703.398	68.625
164	-702.142	81.247	-651.928	29.677

COMBINACION 30 G1 + G2 + 0.9 PRETD + 0.60 SCMAX-EC1 + 0.5 TEMP

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-813.871	-39.550	-802.831	-51.442
166	-808.863	-47.773	-804.022	-52.987
167	-803.708	-52.568	-796.596	-60.228
168	-795.729	-59.306	-784.927	-70.941
169	-784.399	-70.355	-773.532	-82.060
170	-773.893	-82.425	-758.526	-98.977
171	-760.168	-100.605	-742.638	-119.487
172	-745.767	-122.565	-726.525	-143.291
173	-731.172	-147.927	-708.555	-172.290
174	-714.578	-178.302	-691.868	-202.764
175	-698.885	-209.819	-680.179	-229.968
176	-687.441	-237.298	-675.754	-249.887
177	-684.165	-253.913	-694.766	-242.493
178	-705.556	-238.308	-744.578	-196.275
179	-759.218	-189.020	-809.617	-134.732
180	-649.285	-29.864	-427.394	-257.752
181	-425.776	-245.729	-624.731	-41.397
182	-616.528	-25.917	-614.201	-28.308
183	-622.624	-17.931	-597.011	-44.237
184	-599.360	-24.612	-563.752	-61.183
185	-714.676	-143.573	-716.780	-141.307
186	-720.335	-138.111	-727.335	-130.571
187	-726.375	-129.549	-733.363	-122.022
188	-732.261	-120.846	-737.369	-115.344
189	-736.890	-114.857	-738.345	-113.290
190	-739.075	-113.986	-737.448	-115.738
191	-739.662	-117.933	-739.550	-118.053
192	-743.388	-121.890	-746.394	-118.653
193	-751.841	-124.129	-754.096	-121.699
194	-760.915	-128.580	-766.295	-122.785
195	-773.987	-130.538	-786.565	-116.990
196	-794.196	-124.708	-817.278	-99.846
197	-827.835	-101.254	-873.370	-52.206
198	-883.950	-46.297	-965.413	41.451
199	-975.984	48.111	-1051.348	129.290
200	-860.202	204.409	-703.717	43.695
201	-698.566	55.761	-795.117	154.922
202	-786.893	165.348	-743.505	120.787
203	-744.548	125.566	-671.706	50.755
204	-676.065	54.384	-587.114	-36.970
205	-792.246	-163.089	-713.082	-248.359
206	-715.106	-250.376	-644.054	-326.910
207	-643.659	-326.501	-583.628	-391.164
208	-581.941	-389.426	-531.653	-443.594
209	-529.624	-441.520	-487.264	-487.148
210	-485.689	-485.486	-451.721	-522.074
211	-450.470	-520.766	-431.268	-541.450
212	-426.385	-536.523	-412.256	-551.742
213	-408.809	-548.252	-396.700	-561.295
214	-394.773	-559.366	-382.852	-572.207
215	-382.000	-571.352	-369.677	-584.626
216	-369.765	-584.727	-358.681	-596.666
217	-359.521	-597.548	-350.580	-607.179
218	-351.924	-608.564	-340.297	-621.088
219	-347.136	-627.923	-373.406	-599.626
220	-248.846	-450.953	-238.747	-461.325

COMBINACION 31 G1 + G2 + 0.9 PRETD + 0.80 SCMIN-EC1

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-240.809	-465.589	-220.335	-486.616
2	-329.559	-649.955	-312.470	-668.362
3	-312.390	-668.213	-295.380	-686.535
4	-295.107	-686.218	-277.926	-704.725
5	-277.725	-704.490	-259.898	-723.692
6	-260.005	-723.703	-241.069	-744.100
7	-241.598	-744.553	-221.320	-766.396
8	-222.348	-767.458	-200.529	-790.960
9	-202.192	-792.636	-193.795	-801.682
10	-200.505	-808.413	-186.661	-823.325
11	-185.064	-821.740	-173.508	-834.188
12	-172.744	-833.457	-179.747	-825.913
13	-180.359	-826.545	-195.521	-810.213
14	-196.450	-811.185	-220.727	-785.035
15	-221.408	-785.751	-255.046	-749.517
16	-254.699	-749.222	-296.369	-704.337
17	-294.020	-702.160	-319.901	-674.283
18	-306.906	-677.618	-285.435	-700.744
19	-276.671	-705.347	-195.924	-792.325
20	-73.185	-615.885	227.053	-924.238
21	236.016	-923.949	-116.080	-562.337
22	-101.264	-553.822	-224.569	-427.184
23	-216.406	-435.276	-261.773	-388.682
24	-244.665	-389.347	-214.562	-420.263
25	-323.351	-567.155	-306.188	-585.642
26	-295.533	-598.801	-270.084	-626.214
27	-269.428	-625.512	-252.087	-644.191
28	-251.085	-643.160	-232.915	-662.731
29	-232.371	-662.198	-214.683	-681.251
30	-215.175	-681.717	-199.554	-698.544
31	-201.384	-700.359	-183.575	-719.542
32	-186.920	-722.873	-173.821	-736.983
33	-178.718	-741.895	-172.768	-748.304
34	-179.058	-754.589	-183.735	-749.551
35	-191.001	-756.869	-210.320	-736.059
36	-217.804	-743.593	-254.989	-703.539
37	-256.619	-715.145	-292.403	-676.600
38	-281.623	-695.672	-259.383	-719.627
39	-253.966	-733.691	-197.634	-794.369
40	-73.594	-621.641	287.759	-992.760
41	299.206	-990.584	-55.633	-626.154
42	-40.534	-617.684	-170.602	-484.101
43	-161.690	-492.510	-222.988	-429.555
44	-204.510	-430.666	-178.403	-457.479
45	-282.668	-610.580	-268.518	-625.822
46	-258.374	-638.144	-233.861	-664.549
47	-233.162	-663.767	-211.347	-687.265
48	-210.331	-686.239	-194.851	-702.914
49	-194.333	-702.427	-183.421	-714.180
50	-183.959	-714.727	-176.567	-722.689
51	-178.472	-724.584	-167.367	-736.546
52	-170.767	-739.991	-163.947	-747.337
53	-168.910	-752.348	-169.300	-751.929
54	-175.645	-758.309	-186.718	-746.382

COMBINACION 31 G1 + G2 + 0.9 PRETD + 0.80 SCMIN-EC1

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-194.035	-753.757	-219.834	-725.968
56	-227.358	-733.505	-268.687	-688.988
57	-270.414	-700.436	-304.511	-663.708
58	-294.028	-682.275	-271.285	-706.773
59	-265.593	-720.822	-208.877	-781.913
60	-83.728	-610.714	277.729	-981.941
61	290.041	-980.497	-62.416	-618.514
62	-47.425	-610.134	-174.658	-479.463
63	-165.862	-488.018	-225.351	-426.920
64	-201.166	-434.074	-177.586	-458.291
65	-281.761	-611.642	-264.193	-630.565
66	-253.104	-643.875	-221.473	-677.946
67	-220.689	-677.122	-197.171	-702.455
68	-196.068	-701.326	-178.950	-719.765
69	-178.334	-719.152	-165.827	-732.624
70	-166.262	-733.043	-157.320	-742.675
71	-159.120	-744.459	-146.761	-757.771
72	-150.076	-761.115	-141.512	-770.340
73	-146.406	-775.286	-144.881	-776.929
74	-151.184	-783.299	-160.177	-773.611
75	-167.530	-781.016	-191.161	-755.562
76	-198.770	-763.244	-233.616	-725.710
77	-235.886	-737.031	-269.175	-701.173
78	-258.222	-720.958	-233.168	-747.945
79	-227.709	-762.652	-168.826	-826.079
80	-47.184	-649.640	317.440	-1024.119
81	329.330	-1022.549	-31.935	-651.520
82	-16.604	-642.923	-152.607	-503.245
83	-143.302	-511.637	-211.556	-441.539
84	-183.931	-449.162	-173.122	-460.263
85	-276.239	-613.757	-270.955	-619.449
86	-262.047	-630.775	-246.966	-647.019
87	-246.525	-646.495	-239.009	-654.591
88	-238.294	-653.874	-236.854	-655.425
89	-236.634	-655.270	-239.571	-652.106
90	-240.389	-652.962	-246.886	-645.964
91	-249.023	-648.133	-256.504	-640.076
92	-260.108	-643.694	-268.085	-635.102
93	-273.163	-640.193	-288.612	-623.552
94	-294.921	-629.919	-321.303	-601.500
95	-328.430	-608.691	-369.610	-564.334
96	-376.704	-571.500	-435.468	-508.202
97	-426.066	-530.272	-459.579	-494.175
98	-454.044	-505.470	-433.129	-527.998
99	-427.239	-539.906	-373.364	-597.938
100	-235.276	-446.444	135.023	-826.750
101	130.591	-807.339	-131.092	-538.583
102	-117.162	-531.338	-177.616	-469.251
103	-172.078	-472.586	-162.271	-482.658
104	-142.296	-485.753	-68.162	-561.891
105	-162.225	-726.255	-107.406	-785.304
106	-96.724	-795.201	-44.325	-851.643
107	-42.004	-849.207	-7.243	-886.650
108	-4.817	-884.151	15.185	-905.697
109	16.616	-904.124	24.583	-912.706

COMBINACION 31 G1 + G2 + 0.9 PRETD + 0.80 SCMIN-EC1

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
110	24.395	-912.774	21.683	-909.853
111	19.571	-911.923	9.026	-900.565
112	4.748	-904.760	-13.193	-885.434
113	-19.557	-891.754	-53.156	-855.563
114	-61.313	-863.690	-115.332	-805.503
115	-124.657	-814.813	-204.427	-728.888
116	-213.736	-738.178	-322.914	-620.576
117	-320.345	-638.691	-418.339	-533.136
118	-415.133	-542.588	-482.375	-470.159
119	-477.671	-477.394	-491.483	-462.517
120	-340.566	-328.133	-54.679	-621.747
121	-58.953	-599.989	-306.956	-345.284
122	-294.066	-338.410	-349.179	-281.809
123	-342.443	-289.419	-327.781	-304.478
124	-314.782	-308.301	-245.620	-379.331
125	-350.733	-526.952	-285.567	-597.146
126	-268.623	-616.400	-196.577	-694.005
127	-194.930	-692.298	-141.148	-750.230
128	-138.981	-748.004	-100.875	-789.050
129	-99.381	-787.443	-74.240	-814.525
130	-74.126	-814.357	-59.680	-829.918
131	-61.389	-831.553	-52.544	-841.080
132	-56.309	-844.764	-59.135	-841.721
133	-64.929	-847.488	-83.440	-827.549
134	-91.030	-835.106	-129.700	-793.453
135	-138.510	-802.221	-202.490	-733.305
136	-211.375	-742.165	-304.362	-642.005
137	-304.504	-656.689	-394.294	-559.971
138	-391.698	-568.806	-451.090	-504.832
139	-444.546	-514.749	-449.857	-509.028
140	-303.244	-369.037	-5.118	-675.221
141	-15.750	-647.680	-274.507	-381.930
142	-261.257	-374.918	-323.784	-310.701
143	-317.058	-318.430	-312.695	-322.911
144	-300.652	-326.563	-237.430	-391.494
145	-342.630	-540.224	-281.670	-605.887
146	-261.829	-627.855	-187.932	-707.453
147	-186.170	-705.651	-128.897	-767.343
148	-126.636	-765.043	-83.377	-811.639
149	-81.753	-809.992	-50.032	-844.161
150	-49.735	-843.852	-24.446	-871.093
151	-25.963	-872.585	-6.077	-894.005
152	-9.582	-897.474	-0.354	-907.415
153	-5.911	-912.956	-10.449	-908.067
154	-17.824	-915.410	-40.372	-891.121
155	-49.087	-899.814	-94.805	-850.569
156	-103.805	-859.572	-173.330	-784.684
157	-179.478	-793.966	-253.436	-714.303
158	-251.849	-724.229	-286.720	-686.667
159	-283.655	-696.127	-274.184	-706.329
160	-145.274	-541.651	165.421	-860.744
161	177.543	-858.049	-171.453	-499.621
162	-157.084	-491.306	-276.667	-368.491
163	-269.729	-376.765	-331.688	-313.132
164	-312.742	-318.677	-291.975	-340.005

COMBINACION 31 G1 + G2 + 0.9 PRETD + 0.80 SCMIN-EC1

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-401.417	-483.826	-377.633	-509.445
166	-363.769	-527.207	-322.658	-571.490
167	-322.322	-571.093	-289.520	-606.425
168	-288.641	-605.516	-262.644	-633.519
169	-262.101	-632.949	-241.145	-655.522
170	-241.516	-655.875	-222.907	-675.920
171	-224.546	-677.550	-204.308	-699.350
172	-207.431	-702.434	-191.967	-719.091
173	-196.616	-723.725	-188.274	-732.710
174	-194.308	-738.711	-196.434	-736.421
175	-203.465	-743.461	-216.525	-729.394
176	-223.806	-736.703	-250.728	-707.705
177	-252.993	-718.349	-276.829	-692.675
178	-273.611	-703.579	-239.360	-740.471
179	-233.588	-755.203	-171.184	-822.422
180	-49.068	-646.303	314.715	-1019.918
181	328.606	-1020.499	-24.295	-658.061
182	-9.374	-649.482	-137.188	-518.213
183	-127.972	-525.953	-184.573	-467.821
184	-169.959	-465.619	-140.560	-495.812
185	-240.766	-654.047	-226.714	-669.183
186	-221.091	-675.873	-208.960	-688.940
187	-207.985	-687.934	-201.919	-694.468
188	-200.802	-693.308	-202.675	-691.289
189	-202.188	-690.812	-210.124	-682.264
190	-210.847	-682.967	-223.850	-668.961
191	-226.066	-671.153	-243.492	-652.383
192	-247.337	-656.212	-265.347	-636.813
193	-270.800	-642.282	-298.167	-612.804
194	-305.000	-619.668	-345.546	-575.994
195	-353.258	-583.726	-411.189	-521.326
196	-418.841	-529.023	-497.159	-444.662
197	-487.831	-467.489	-527.453	-424.810
198	-522.477	-435.659	-532.158	-425.230
199	-526.533	-436.015	-491.350	-473.913
200	-333.936	-336.081	-35.254	-642.835
201	-22.257	-638.826	-226.031	-429.545
202	-214.797	-422.210	-264.045	-371.631
203	-259.560	-372.529	-246.646	-385.793
204	-242.265	-391.140	-164.655	-470.847
205	-318.402	-673.490	-233.912	-764.498
206	-235.939	-766.511	-164.625	-843.327
207	-164.235	-842.913	-107.612	-903.905
208	-105.930	-902.161	-63.589	-947.768
209	-61.563	-945.692	-32.108	-977.420
210	-30.535	-975.756	-13.563	-994.037
211	-12.308	-992.733	-15.157	-989.664
212	-10.268	-984.744	-22.944	-971.091
213	-19.493	-967.604	-38.694	-946.922
214	-36.763	-944.997	-60.803	-919.102
215	-59.939	-918.261	-89.181	-886.762
216	-89.262	-886.871	-124.399	-849.023
217	-125.229	-849.915	-167.202	-804.704
218	-168.532	-806.104	-212.740	-758.486
219	-219.568	-765.333	-307.266	-670.869
220	-188.289	-513.147	-238.630	-461.445

COMBINACION 32 G1 + G2 + 0.9 PRETD + 0.60 SCMIN-EC1

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
1	-240.821	-465.577	-221.137	-485.793
2	-337.014	-641.925	-327.379	-652.303
3	-327.300	-652.153	-317.744	-662.446
4	-317.471	-662.129	-307.742	-672.609
5	-307.542	-672.373	-297.168	-683.547
6	-297.275	-683.557	-285.789	-695.930
7	-286.319	-696.382	-273.491	-710.200
8	-274.520	-711.260	-260.157	-726.732
9	-261.821	-728.407	-260.879	-729.422
10	-267.589	-736.154	-261.203	-743.033
11	-259.604	-741.449	-255.500	-745.870
12	-254.736	-745.139	-269.189	-729.571
13	-269.800	-730.204	-292.408	-705.852
14	-293.337	-706.823	-325.058	-672.655
15	-325.738	-673.371	-366.824	-629.116
16	-366.477	-628.821	-415.594	-575.914
17	-413.270	-573.710	-454.049	-529.784
18	-444.652	-529.244	-460.872	-511.773
19	-455.054	-513.202	-419.713	-551.270
20	-280.295	-403.178	-27.711	-662.588
21	-20.554	-660.445	-307.563	-365.679
22	-294.198	-355.674	-359.997	-288.096
23	-355.546	-292.375	-361.326	-286.439
24	-347.527	-283.704	-301.183	-331.301
25	-420.997	-461.975	-392.221	-492.971
26	-386.859	-500.430	-357.522	-532.030
27	-356.866	-531.328	-335.633	-554.199
28	-334.631	-553.168	-315.487	-573.789
29	-314.944	-573.254	-297.958	-591.551
30	-298.449	-592.019	-284.162	-607.408
31	-285.991	-609.224	-271.819	-624.490
32	-275.162	-627.824	-265.702	-638.013
33	-270.598	-642.925	-268.287	-645.415
34	-274.573	-651.704	-282.894	-642.742
35	-290.159	-650.061	-313.124	-625.323
36	-320.607	-632.859	-361.436	-588.879
37	-365.119	-598.274	-412.859	-546.851
38	-408.272	-559.251	-428.529	-537.431
39	-427.405	-546.871	-426.675	-547.657
40	-286.648	-402.828	14.620	-712.239
41	23.802	-707.737	-265.411	-410.707
42	-251.836	-400.672	-322.050	-328.560
43	-317.089	-332.911	-332.950	-316.621
44	-318.163	-313.942	-274.976	-358.296
45	-391.616	-493.226	-365.622	-521.226
46	-360.476	-528.165	-332.543	-558.253
47	-331.844	-557.472	-308.736	-582.362
48	-307.720	-581.337	-290.952	-599.398
49	-290.433	-598.912	-278.234	-612.053
50	-278.771	-612.600	-270.096	-621.945
51	-272.002	-623.839	-262.516	-634.056
52	-265.914	-637.503	-260.881	-642.924
53	-265.844	-647.935	-268.013	-645.599
54	-274.355	-651.983	-287.207	-638.140

COMBINACION 32 G1 + G2 + 0.9 PRETD + 0.60 SCMIN-EC1

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
55	-294.523	-645.516	-322.097	-615.815
56	-329.618	-623.356	-373.666	-575.910
57	-377.480	-585.109	-425.159	-533.751
58	-420.730	-545.797	-441.581	-523.338
59	-440.242	-532.698	-440.052	-532.903
60	-298.763	-389.867	1.855	-698.611
61	11.707	-694.639	-274.923	-400.263
62	-261.453	-390.322	-328.869	-321.084
63	-324.034	-325.570	-337.619	-311.618
64	-319.448	-312.595	-276.539	-356.663
65	-393.341	-491.453	-363.957	-523.104
66	-358.205	-530.665	-324.656	-566.802
67	-323.874	-565.977	-298.438	-593.375
68	-297.333	-592.249	-278.306	-612.744
69	-277.689	-612.131	-263.271	-627.662
70	-263.704	-628.083	-252.840	-639.785
71	-254.637	-641.572	-243.104	-653.995
72	-246.420	-657.338	-239.001	-665.330
73	-243.898	-670.273	-243.519	-670.680
74	-249.823	-677.050	-259.968	-666.122
75	-267.320	-673.527	-292.095	-646.841
76	-299.702	-654.525	-338.367	-612.877
77	-342.628	-622.054	-388.491	-572.652
78	-383.931	-585.551	-402.288	-565.778
79	-401.275	-575.696	-398.995	-578.152
80	-261.349	-429.687	42.028	-741.263
81	51.521	-737.230	-244.182	-433.535
82	-230.396	-423.354	-306.804	-344.880
83	-301.531	-349.132	-324.372	-325.673
84	-303.426	-326.437	-272.724	-357.970
85	-388.615	-492.712	-371.358	-511.299
86	-366.870	-517.865	-347.622	-538.598
87	-347.175	-538.079	-335.493	-550.663
88	-334.774	-549.951	-329.169	-555.988
89	-328.944	-555.837	-327.718	-557.158
90	-328.531	-558.020	-330.869	-555.502
91	-332.997	-557.681	-337.382	-552.958
92	-340.978	-556.585	-347.620	-549.431
93	-352.693	-554.528	-366.811	-539.320
94	-373.113	-545.694	-398.166	-518.708
95	-405.286	-525.905	-445.135	-482.982
96	-452.224	-490.154	-509.659	-428.288
97	-506.779	-443.332	-556.992	-389.245
98	-555.118	-396.597	-579.307	-370.543
99	-577.298	-378.271	-579.000	-376.438
100	-426.131	-250.430	-121.996	-562.785
101	-125.101	-544.736	-336.716	-327.402
102	-324.281	-318.622	-336.152	-306.429
103	-332.825	-307.495	-283.148	-358.514
104	-267.242	-357.431	-176.638	-450.483
105	-283.228	-595.917	-216.855	-667.410
106	-210.675	-672.459	-153.957	-733.552
107	-151.623	-731.131	-112.542	-773.226
108	-110.105	-770.740	-85.780	-796.942
109	-84.337	-795.383	-72.045	-808.622

COMBINACION 32 G1 + G2 + 0.9 PRETD + 0.60 SCMIN-EC1

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
110	-72.219	-808.707	-70.600	-810.450
111	-72.700	-812.533	-79.987	-804.684
112	-84.252	-808.893	-100.850	-791.014
113	-107.203	-797.346	-139.462	-762.599
114	-147.606	-770.739	-200.283	-713.998
115	-209.595	-723.322	-288.018	-638.849
116	-297.314	-648.151	-405.152	-531.993
117	-406.882	-545.478	-520.263	-423.348
118	-519.809	-429.837	-624.399	-317.177
119	-622.444	-321.452	-680.887	-258.500
120	-516.966	-146.965	-284.981	-385.220
121	-286.793	-365.992	-487.952	-159.396
122	-476.408	-151.141	-484.193	-143.145
123	-480.685	-147.441	-426.181	-203.417
124	-416.187	-204.155	-324.491	-298.330
125	-442.337	-428.281	-364.790	-511.810
126	-355.348	-522.984	-281.996	-601.996
127	-280.340	-600.299	-225.249	-659.640
128	-223.071	-657.427	-183.647	-699.892
129	-182.139	-698.300	-155.680	-726.801
130	-155.556	-726.645	-140.073	-743.322
131	-141.770	-744.971	-134.068	-753.267
132	-137.821	-756.964	-142.113	-752.341
133	-147.896	-758.120	-167.873	-736.601
134	-175.452	-744.172	-215.589	-700.937
135	-224.385	-709.721	-289.832	-639.224
136	-298.704	-648.099	-393.156	-546.360
137	-396.308	-557.802	-500.780	-445.269
138	-500.720	-451.373	-596.804	-347.876
139	-593.835	-353.942	-644.014	-299.892
140	-483.867	-183.533	-240.395	-433.585
141	-247.345	-409.826	-457.430	-194.063
142	-445.574	-185.619	-458.783	-172.054
143	-455.308	-176.443	-409.680	-223.305
144	-400.535	-223.981	-314.308	-312.539
145	-431.771	-444.205	-358.219	-523.432
146	-347.083	-536.023	-273.634	-615.140
147	-271.868	-613.341	-215.038	-674.555
148	-212.770	-672.263	-169.962	-718.374
149	-168.333	-716.733	-137.053	-750.426
150	-136.752	-750.122	-113.217	-775.473
151	-114.728	-776.972	-98.227	-794.746
152	-101.727	-798.221	-95.890	-804.508
153	-101.441	-810.055	-109.367	-801.518
154	-116.735	-808.867	-142.669	-780.932
155	-151.377	-789.633	-200.477	-736.744
156	-209.470	-745.755	-283.696	-665.802
157	-290.527	-674.350	-378.805	-579.261
158	-379.745	-586.465	-454.629	-505.803
159	-454.319	-512.296	-493.734	-469.840
160	-348.597	-332.833	-89.965	-598.455
161	-79.864	-593.685	-363.407	-302.479
162	-350.433	-292.732	-412.989	-228.485
163	-409.528	-233.188	-423.680	-218.653
164	-409.390	-219.417	-366.061	-263.917

COMBINACION 32 G1 + G2 + 0.9 PRETD + 0.60 SCMIN-EC1

TENSIONES CON AXIL FINAL

Barra	TS_1	TI_1	TS_2	T1_2
165	-488.438	-390.091	-452.826	-428.450
166	-445.581	-439.082	-403.782	-484.107
167	-403.448	-483.708	-369.963	-519.776
168	-369.084	-518.867	-342.405	-547.604
169	-341.865	-547.031	-320.224	-570.341
170	-320.594	-570.696	-301.946	-590.783
171	-303.586	-592.413	-285.460	-611.937
172	-288.586	-615.018	-275.238	-629.395
173	-279.890	-634.026	-273.661	-640.737
174	-279.695	-646.737	-283.928	-642.177
175	-290.960	-649.216	-307.521	-631.377
176	-314.802	-638.687	-346.713	-604.314
177	-350.820	-612.975	-388.791	-572.074
178	-388.682	-579.630	-399.074	-568.436
179	-397.826	-578.294	-390.676	-585.996
180	-253.498	-436.348	50.484	-748.545
181	61.463	-746.137	-228.621	-448.212
182	-215.161	-438.133	-286.687	-364.674
183	-281.341	-368.438	-296.443	-352.928
184	-285.547	-346.907	-240.217	-393.462
185	-353.111	-533.034	-327.979	-560.105
186	-325.099	-563.841	-305.788	-584.641
187	-304.812	-583.636	-293.050	-596.306
188	-291.933	-595.145	-288.111	-599.262
189	-287.625	-598.784	-289.863	-596.373
190	-290.588	-597.075	-297.889	-589.210
191	-300.106	-591.401	-312.132	-578.447
192	-315.976	-582.278	-330.988	-566.108
193	-336.441	-571.577	-360.814	-545.324
194	-367.646	-552.189	-405.195	-511.744
195	-412.906	-519.476	-467.837	-460.307
196	-475.488	-468.005	-550.808	-386.875
197	-548.149	-402.518	-609.160	-336.800
198	-607.662	-343.901	-658.070	-289.603
199	-656.060	-296.495	-670.383	-281.068
200	-501.844	-163.635	-259.767	-412.254
201	-249.036	-405.918	-410.431	-240.161
202	-400.091	-231.908	-411.660	-220.027
203	-408.401	-219.666	-366.113	-263.097
204	-363.835	-266.284	-274.754	-357.773
205	-441.406	-540.995	-349.238	-640.275
206	-351.265	-642.288	-272.268	-727.380
207	-271.877	-726.966	-207.570	-796.235
208	-205.889	-794.490	-155.867	-848.372
209	-153.840	-846.296	-116.699	-886.303
210	-115.125	-884.640	-90.459	-911.208
211	-89.204	-909.904	-84.365	-915.116
212	-79.476	-910.196	-84.463	-904.825
213	-81.012	-901.338	-92.519	-888.944
214	-90.588	-887.019	-106.937	-869.409
215	-106.074	-868.566	-127.627	-845.350
216	-127.709	-845.458	-155.157	-815.891
217	-155.989	-816.783	-190.271	-779.856
218	-191.601	-781.256	-228.117	-741.922
219	-234.945	-748.770	-314.954	-662.588
220	-195.328	-505.918	-238.667	-461.408

6. VERIFICACIÓN DEL E.L.U DE ROTURA POR TENSIONES NORMALES

6.1. FLEXIÓN LONGITUDINAL

En este apartado se comprueba el Estado Límite Último de rotura por flexión longitudinal de acuerdo con los criterios de la Normativa española vigente (EHE)

Los cálculos realizados han sido los siguientes:

1. Cálculo de la envolvente de esfuerzos flectores longitudinales para las distintas acciones consideradas en el proyecto del tablero. Los esfuerzos de cálculo se han combinado de acuerdo con los criterios del apartado 2 de este Anejo.

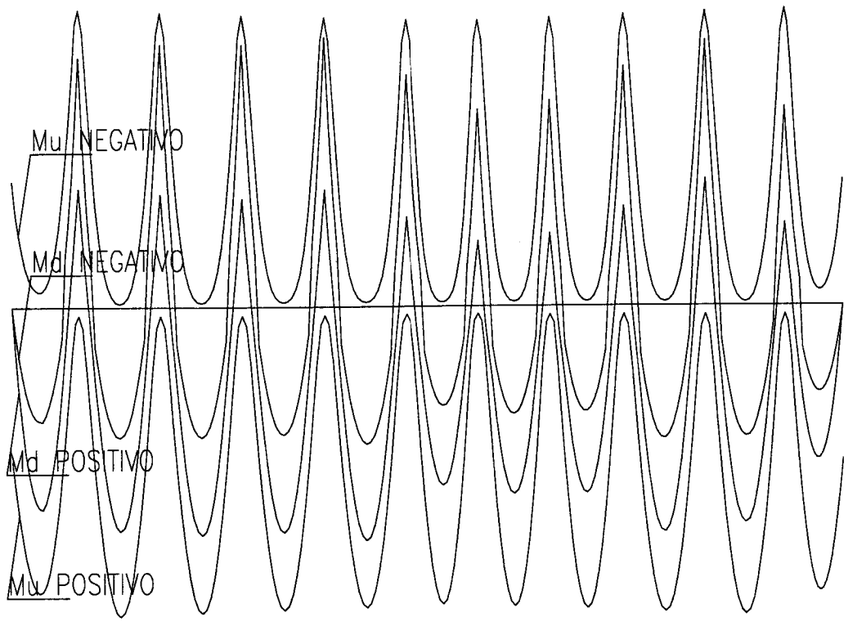
   La envolvente de esfuerzos flectores positivos se muestra en las tablas y gráficos adjuntos con la notación $\mathbf{M_{d,pos}}$. La envolvente de flectores negativos se denota como $\mathbf{M_{d,neg}}$.

2. Cálculo del momento último respuesta para cada una de las secciones (nudos de las barras) en las que se ha discretizado el tablero. El momento último respuesta se ha calculado considerando las distintas capas de armado y la posible tensión previa de las mismas. El cálculo se realiza con un programa de cálculo automático que permite obtener el momento último respuesta y los diagramas momento curvatura considerando las curvas tensión-deformación no lineales de los materiales (acero y hormigón).

Los momentos últimos de respuesta de cada sección se han calculado para un momento positivo ($\mathbf{M_{u,pos}}$) y para un momento negativo ($\mathbf{M_{u,neg}}$). De un modo análogo se calculan los momentos de descompresión y de fisuración de la sección (momentos totales sobre la sección).

Las unidades de trabajo para los momentos son (mT).

LEYES DE MOMENTOS FLECTORES MAYORADOS



COMBINACION 33 1.35(G1+G2)+1.5(SCMAX-IPF)+ MHIPER-PRETD

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	3.229	519.417	-635.690	-1961.831	-434.177	371.878
2	2409.208	694.463	254.270	-4492.341	-600.194	-216.368
3	4492.229	600.180	217.592	-6276.841	-516.463	-188.915
4	6276.626	516.493	191.079	-7761.100	-422.650	-155.802
5	7760.946	422.666	158.752	-8947.910	-328.729	-124.445
6	8947.979	328.303	128.008	-9834.935	-244.494	-102.254
7	9835.062	244.797	106.306	-10423.221	-151.014	-73.293
8	10423.004	151.220	77.655	-10714.560	-58.405	-45.775
9	10714.434	58.520	50.271	-10840.543	0.096	-25.422
10	10840.268	-0.257	30.046	-10479.520	61.465	2.812
11	10479.312	-61.619	1.730	-9794.544	113.056	23.752
12	9794.418	-112.980	-19.420	-8888.760	173.927	53.444
13	8888.703	-174.002	-49.345	-7685.428	234.277	85.125
14	7685.453	-234.415	-81.322	-6184.498	284.830	108.547
15	6184.466	-284.748	-105.090	-4383.626	347.609	143.208
16	4383.593	-347.604	-140.233	-2285.231	415.098	180.314
17	2285.917	-408.686	-172.784	77.872	436.403	184.693
18	75.107	-251.377	-77.553	2215.124	207.473	48.913
19	-2089.587	-52.578	45.918	4249.080	751.130	-14.446
20	-4145.343	-611.913	106.173	6380.539	1465.928	-73.403
21	-6307.130	1436.556	-175.319	3612.406	-465.251	168.208
22	-3542.032	524.464	-127.075	1148.494	36.865	164.423
23	-971.321	127.329	-52.936	-1320.186	-128.567	37.967
24	1467.642	300.873	75.394	-3776.948	-235.395	-71.861
25	3910.406	374.491	189.636	-6063.263	-286.164	-148.272
26	6276.382	444.434	152.141	-8304.265	-360.912	-115.039
27	8304.178	360.825	120.266	-9888.566	-275.716	-83.149
28	9888.479	275.743	89.142	-11029.043	-188.406	-51.628
29	11029.043	188.208	58.159	-11725.566	-102.224	-23.421
30	11725.503	102.317	30.258	-11977.496	-16.695	4.000
31	11977.471	16.499	2.951	-11783.836	67.608	31.289
32	11783.816	-67.527	-24.531	-11145.492	150.249	60.821
33	11145.536	-150.266	-54.406	-10062.631	227.508	89.925
34	10062.695	-227.377	-84.120	-8534.712	299.978	121.060
35	8534.796	-299.949	-116.005	-6561.586	368.409	154.903
36	6561.698	-368.394	-150.716	-4144.382	436.505	193.513
37	4193.825	-336.614	-172.642	-1559.157	365.107	187.502
38	1709.336	-218.779	-82.134	953.671	162.534	56.830
39	-772.641	9.303	57.262	3334.021	541.546	-19.896
40	-3179.213	-377.320	131.679	5856.825	1473.629	-92.833
41	-5740.514	1436.590	-178.224	3072.604	-449.699	170.040
42	-3000.167	508.847	-128.111	634.270	52.532	165.227
43	-447.658	111.402	-52.326	-1773.951	-32.605	86.165
44	1937.193	204.291	29.056	-4131.191	-226.176	-75.616
45	4281.963	372.474	182.688	-6430.597	-286.218	-143.229
46	6645.316	433.000	158.110	-8645.677	-347.390	-119.090
47	8645.666	347.572	124.847	-10202.642	-262.290	-87.705
48	10202.424	262.393	94.138	-11315.763	-174.858	-56.620
49	11315.486	174.948	63.605	-11984.687	-88.741	-28.833
50	11984.631	88.697	36.085	-12208.902	-2.916	-1.790
51	12209.033	2.744	9.092	-11987.816	81.441	25.194
52	11987.691	-81.477	-18.106	-11321.279	164.300	54.408
53	11321.346	-164.497	-47.740	-10209.840	241.761	83.293
54	10209.868	-241.829	-77.238	-8652.668	314.450	114.213

COMBINACION 1 1.35(G1+G2)+1.5(SCMAX-IPF)+ MHIPER-PRETD

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
55	8652.784	-314.490	-108.968	-6649.951	382.944	147.911
56	6650.120	-382.983	-143.600	-4202.882	451.211	186.409
57	4276.239	-312.594	-177.792	-1689.859	341.074	193.155
58	1843.595	-193.549	-89.545	753.302	134.437	66.144
59	-569.036	38.024	47.743	3072.264	513.118	-10.396
60	-2915.450	-348.606	122.573	5535.178	1446.346	-84.563
61	-5420.470	1420.443	-179.226	2789.339	-432.220	170.191
62	-2716.418	491.325	-127.999	386.681	70.182	165.060
63	-198.706	93.558	-52.341	-1986.648	-14.542	86.130
64	2151.960	186.034	28.554	-4290.553	-208.591	-75.043
65	4443.368	354.606	181.569	-6556.275	-268.432	-142.116
66	6761.733	407.258	155.543	-8710.521	-321.828	-116.527
67	8710.438	321.787	122.374	-10215.772	-236.657	-85.245
68	10215.537	236.958	91.731	-11277.555	-149.561	-54.222
69	11277.407	149.420	61.128	-11895.406	-63.244	-26.373
70	11895.266	63.134	33.485	-12068.114	22.715	0.810
71	12068.056	-22.864	6.253	-11795.623	107.180	28.027
72	11795.680	-107.217	-21.248	-11078.463	190.158	57.556
73	11078.568	-190.102	-51.201	-9917.053	267.472	86.739
74	9917.006	-267.300	-81.145	-8310.396	339.995	118.112
75	8310.469	-340.179	-113.382	-6258.195	408.609	152.313
76	6258.203	-408.717	-148.593	-3761.600	476.596	191.397
77	3846.447	-326.620	-180.229	-1234.742	354.291	195.294
78	1392.829	-206.530	-91.242	1226.422	146.004	66.930
79	-1038.342	26.604	46.627	3566.728	523.990	-9.285
80	-3407.777	-359.487	120.805	6051.813	1458.981	-83.146
81	-5935.681	1485.787	-191.312	3173.602	-495.956	181.939
82	-3100.211	555.010	-139.402	640.375	5.986	176.483
83	-450.262	157.408	-58.808	-1866.203	-82.933	92.610
84	2033.178	253.233	36.276	-4298.853	-274.194	-95.094
85	4454.367	417.832	230.490	-6687.111	-330.634	-192.277
86	6856.756	444.790	302.675	-8875.479	-358.321	-264.150
87	8875.336	358.348	270.311	-10450.371	-272.293	-233.568
88	10449.953	272.536	240.396	-11581.589	-184.471	-202.869
89	11581.055	184.459	210.291	-12268.147	-97.918	-175.827
90	12267.719	97.894	183.556	-12510.088	-11.955	-149.483
91	12509.564	11.957	157.219	-12306.475	72.283	-123.025
92	12306.094	-72.198	130.631	-11658.296	154.161	-97.221
93	11658.131	-154.064	104.402	-10565.800	232.090	-65.868
94	10565.469	-232.028	72.486	-9027.945	304.863	-35.331
95	9027.714	-304.901	41.206	-7045.010	374.728	-3.327
96	7044.876	-374.682	8.312	-4617.751	442.754	33.527
97	4774.494	-261.125	-61.559	-2308.511	292.163	85.563
98	2464.723	-130.483	23.777	-41.495	73.332	-33.124
99	191.157	87.831	75.357	2196.401	465.697	-38.088
100	-2063.357	-325.345	176.700	4617.029	1413.732	-145.198
101	-4429.746	1272.224	-228.430	2370.116	-313.826	213.868
102	-2315.163	389.564	-200.879	443.426	318.885	233.460
103	-330.739	-179.885	-109.489	-1430.576	205.268	139.293
104	1538.504	-61.009	5.761	-3177.848	53.707	81.976
105	3296.718	74.625	89.341	-4986.920	-95.074	-210.046
106	5160.030	210.418	360.311	-6726.882	-171.093	-324.390
107	6726.527	171.195	327.259	-7952.136	-141.346	-297.895
108	7951.754	141.205	301.001	-8834.180	-99.426	-267.644
109	8834.046	99.277	270.958	-9375.076	-56.277	-235.725

COMBINACION 1 1.35(G1+G2)+1.5(SCMAX-IPF)+ MHIPER-PRETD

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
110	9374.834	56.448	239.099	-9575.074	-13.347	-205.090
111	9574.760	13.297	208.480	-9433.174	16.888	-183.980
112	9432.979	-16.900	187.273	-8948.175	52.913	-152.222
113	8948.005	-52.842	155.339	-8122.250	82.790	-121.795
114	8122.032	-82.833	124.710	-6955.115	106.383	-88.658
115	6954.879	-106.403	91.357	-5446.023	113.740	-60.601
116	5445.884	-113.710	63.122	-3594.064	129.979	-24.563
117	3697.863	50.368	-153.535	-1853.406	-59.923	186.699
118	1970.101	204.353	-144.878	-167.179	-307.244	159.325
119	280.173	442.781	-64.615	1491.085	1101.112	97.389
120	-1373.414	-957.103	-11.707	3237.062	1188.217	26.708
121	-3106.647	1222.884	-215.425	1140.362	-275.313	189.264
122	-1092.996	327.416	-144.869	-646.216	378.399	177.370
123	778.083	-234.400	-56.593	-2410.770	275.451	86.365
124	2521.804	-140.333	7.957	-4039.336	138.232	76.822
125	4171.652	0.491	103.516	-5751.111	-18.951	-227.200
126	5932.260	171.953	447.362	-7441.449	-132.709	-411.566
127	7441.078	132.620	415.313	-8608.938	-103.816	-386.070
128	8608.519	103.704	389.980	-9432.945	-63.408	-356.775
129	9432.621	63.286	360.763	-9915.814	-21.822	-325.646
130	9915.518	21.873	329.660	-10057.766	19.440	-297.435
131	10057.515	-19.457	301.364	-9858.020	49.039	-275.286
132	9857.881	-48.947	279.163	-9315.338	84.355	-244.155
133	9315.085	-84.289	247.732	-8431.623	114.074	-214.249
134	8431.400	-114.023	217.543	-7206.627	137.745	-181.507
135	7206.370	-137.739	184.503	-5639.691	145.472	-153.735
136	5639.484	-145.558	156.490	-3729.837	162.139	-117.936
137	3802.339	-17.474	-64.481	-1832.660	8.546	99.554
138	1938.141	107.215	-61.451	70.678	-204.979	77.366
139	79.527	348.854	-30.070	1860.154	1197.343	62.919
140	-1716.096	-1057.959	6.081	3772.252	1283.650	12.811
141	-3591.838	1227.740	-167.697	1554.750	-277.793	145.241
142	-1507.452	331.518	-100.738	-289.558	341.622	134.218
143	420.176	-192.973	-15.156	-2102.590	245.959	45.805
144	2210.734	-105.981	38.125	-3814.248	48.352	-102.496
145	3939.643	87.064	227.323	-5555.291	-35.133	-188.195
146	5766.765	211.092	292.386	-7339.104	-162.596	-256.326
147	7338.846	162.512	259.971	-8550.838	-114.223	-221.889
148	8550.466	114.386	225.756	-9402.236	-65.177	-191.292
149	9401.946	64.983	195.223	-9891.488	-23.683	-168.220
150	9891.293	23.691	172.277	-10019.350	26.764	-138.929
151	10019.160	-26.831	142.839	-9785.967	76.521	-108.546
152	9785.853	-76.388	112.251	-9191.717	121.470	-78.413
153	9191.614	-121.501	81.826	-8236.813	162.197	-46.509
154	8236.778	-162.207	49.581	-6919.071	186.403	-20.879
155	6919.060	-186.501	23.500	-5239.924	214.329	14.081
156	5239.857	-214.227	-11.906	-3199.485	240.708	52.228
157	3229.264	-123.657	-173.613	-1061.139	120.309	201.088
158	1170.682	23.404	-131.149	1010.738	-116.606	129.767
159	-895.985	269.716	-44.627	2977.883	1248.057	78.432
160	-2871.414	-1101.059	16.507	5111.689	1332.087	8.534
161	-5025.409	1413.041	-192.764	2403.923	-434.666	174.697
162	-2336.230	493.956	-132.086	16.420	67.469	169.178
163	149.690	97.039	-56.760	-2324.848	-11.397	90.611
164	2455.838	146.398	-1.527	-4560.274	-164.408	-43.069

COMBINACION 1 1.35(G1+G2)+1.5(SCMAX-IPF)+ MHIPER-PRETD

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
165	4748.310	333.878	158.232	-6821.088	-244.755	-116.786
166	6991.638	384.529	134.408	-8902.418	-300.868	-97.131
167	8902.458	301.023	103.266	-10370.402	-216.143	-66.105
168	10370.289	216.260	72.752	-11394.461	-129.305	-35.287
169	11394.525	129.125	42.410	-11974.381	-43.512	-7.661
170	11974.303	43.627	14.810	-12109.430	41.695	19.449
171	12109.494	-41.688	-12.435	-11799.437	125.577	46.700
172	11799.826	-125.421	-39.861	-11044.936	208.123	76.153
173	11045.239	-208.239	-69.919	-9845.465	285.654	105.501
174	9845.787	-285.815	-99.954	-8200.237	358.750	136.891
175	8200.510	-358.704	-132.328	-6109.705	427.573	171.233
176	6109.979	-427.607	-167.749	-3574.562	496.099	210.581
177	3653.074	-357.417	-173.910	-981.686	386.205	187.774
178	1114.265	-255.489	-92.104	1613.525	199.600	64.349
179	-1419.902	-27.734	51.948	4054.407	1418.865	-14.558
180	-3891.363	-1254.489	127.092	6623.726	1508.929	-87.702
181	-6512.234	1518.320	-178.713	3744.820	-537.388	171.261
182	-3673.265	594.909	-131.678	1193.431	-8.328	167.934
183	-1008.001	167.373	-59.754	-1333.648	-98.005	92.819
184	1530.704	230.603	17.430	-3772.043	-258.395	-62.624
185	3926.290	403.057	186.234	-6134.096	-323.791	-145.374
186	6242.161	394.620	149.596	-8166.762	-317.915	-111.063
187	8166.611	317.744	116.021	-9668.728	-241.096	-79.296
188	9668.748	241.224	84.959	-10748.256	-163.857	-49.561
189	10748.100	163.731	55.672	-11404.201	-85.943	-21.217
190	11404.232	85.925	27.511	-11637.105	-7.297	8.010
191	11637.172	7.233	-0.837	-11446.812	68.042	34.752
192	11446.867	-67.942	-29.284	-10832.889	139.930	63.824
193	10832.942	-139.768	-59.009	-9796.135	208.667	95.789
194	9796.195	-208.890	-89.971	-8335.842	261.358	118.595
195	8336.022	-261.307	-113.244	-6451.465	319.813	151.711
196	6451.520	-319.794	-148.332	-4143.776	377.908	188.021
197	4304.559	-192.140	-141.732	-1984.646	214.414	159.163
198	2130.533	-64.692	-55.659	154.223	-0.082	30.175
199	-1.880	133.262	58.948	2311.492	1283.522	-22.627
200	-2127.300	-1121.849	134.042	4293.527	1375.060	-96.350
201	-4172.750	1247.342	-122.054	2526.903	-387.752	115.982
202	-2485.160	471.381	-57.144	930.154	205.230	83.753
203	-872.784	-91.323	-7.940	-603.186	144.041	32.907
204	683.492	-20.375	42.972	-2092.537	176.193	-19.819
205	2210.553	-40.895	103.386	-3635.377	-53.650	-134.182
206	3635.327	53.675	135.245	-4949.961	-26.488	-99.609
207	4949.918	26.416	100.857	-6041.355	-11.768	-74.680
208	6041.381	11.743	78.292	-6912.269	2.866	-53.252
209	6912.317	-3.039	54.551	-7558.577	28.826	-22.296
210	7558.771	-28.861	23.588	-7984.080	45.180	0.053
211	7984.250	-45.138	1.913	-8187.041	71.072	28.965
212	8187.271	-71.109	-27.175	-8167.294	89.808	50.292
213	8167.469	-89.773	-49.269	-7926.832	140.737	80.387
214	7926.879	-140.622	-79.447	-7461.972	181.875	102.719
215	7462.143	-181.833	-101.081	-6776.776	222.984	124.745
216	6776.818	-222.990	-124.104	-5868.280	273.760	156.337
217	5868.273	-273.752	-155.838	-4737.886	313.638	180.884
218	4737.912	-313.704	-180.391	-3385.942	355.698	214.123
219	3386.096	-355.711	-214.128	-1810.208	386.896	241.412

COMBINACION 34 1.35(G1+G2)+1.5(SCMIN-IPF)+ MHIPER-PRETD

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	2.787	521.665	773.236	-1415.652	-117.689	152.992
2	1293.516	43.993	-134.453	-2371.521	-22.206	118.895
3	2371.756	22.225	-119.805	-3263.311	-0.828	103.052
4	3263.452	0.933	-103.942	-3968.786	20.427	86.188
5	3968.891	-20.446	-87.097	-4487.744	41.892	68.530
6	4488.048	-42.182	-69.500	-4820.206	63.660	50.308
7	4820.439	-63.384	-51.399	-4966.603	84.713	31.762
8	4966.485	-84.722	-33.023	-4926.245	105.630	13.125
9	4926.199	-105.539	-14.599	-4804.381	128.022	-15.613
10	4804.290	-128.278	13.973	-4288.390	123.775	-28.421
11	4288.330	-123.733	26.537	-3551.342	116.228	-43.137
12	3551.233	-116.016	40.987	-2698.383	111.239	-54.246
13	2698.312	-111.173	51.956	-1650.653	106.041	-64.170
14	1650.484	-106.145	61.739	-407.403	97.965	-75.232
15	407.264	-97.998	72.672	1031.720	95.162	-81.966
16	-1031.890	-95.162	79.359	2665.986	96.945	-86.783
17	-2666.776	-103.412	79.037	4516.825	110.000	-86.941
18	-4670.005	-295.040	-21.154	7004.300	301.470	18.214
19	-7129.836	-456.426	-114.789	9910.800	1109.617	114.275
20	-10014.486	-1248.754	-209.403	13250.062	1918.918	122.455
21	-13322.070	2309.468	306.225	8695.194	-1387.154	-335.477
22	-8765.695	1327.961	291.045	4899.268	-691.258	-191.404
23	-5076.467	526.990	79.411	1963.900	-510.413	-91.268
24	-2133.756	338.082	-22.475	-266.823	-296.974	7.409
25	133.545	157.787	-123.212	-1938.305	-151.432	105.418
26	1725.239	-6.757	-106.301	-2934.831	10.015	86.334
27	2934.969	-10.009	-87.707	-3865.675	12.755	66.004
28	3865.808	-12.658	-67.473	-4517.897	15.864	44.463
29	4517.889	-16.017	-46.026	-4890.997	19.563	22.108
30	4891.108	-19.537	-23.797	-4985.380	22.633	-0.753
31	4985.453	-22.564	-1.113	-4800.926	24.062	-23.316
32	4800.973	-24.042	21.240	-4337.729	22.664	-45.645
33	4337.680	-22.655	43.320	-3546.875	77.220	-57.349
34	3546.883	-77.183	54.780	-2397.896	73.941	-71.887
35	2397.715	-74.004	69.098	-956.188	66.593	-84.398
36	956.029	-66.566	81.442	777.791	57.363	-94.410
37	-827.606	-157.089	73.714	3053.275	151.062	-83.803
38	-3203.607	-297.616	-22.408	6014.737	289.648	15.744
39	-6195.684	-461.537	-131.757	9642.890	955.399	128.946
40	-9797.589	-1119.594	-244.152	13904.422	2011.023	152.226
41	-14021.990	2335.254	303.156	9368.910	-1274.586	-229.093
42	-9441.410	1215.429	183.450	5598.297	-717.843	-191.810
43	-5784.938	553.923	78.015	2614.325	-538.918	-89.748
44	-2800.810	367.236	-26.203	341.543	-326.529	11.246
45	-492.296	180.036	-116.650	-1356.352	-173.789	98.955
46	1141.874	26.973	-111.085	-2417.868	-23.643	91.213
47	2418.153	23.782	-93.292	-3415.315	-20.851	71.675
48	3415.341	20.820	-73.739	-4133.715	-17.410	50.803
49	4133.606	17.505	-52.874	-4572.972	-13.772	29.028
50	4572.948	13.632	-31.141	-4733.062	-10.387	6.770
51	4733.095	10.378	-8.964	-4614.397	-8.789	-15.535
52	4614.241	8.880	13.222	-4216.795	-10.234	-37.465
53	4216.625	10.302	34.992	-3508.470	47.189	-51.356
54	3508.358	-47.274	48.727	-2419.158	44.005	-65.845

COMBINACION 2 1.35(G1+G2)+1.5(SCMIN-IPF)+ MHIPER-PRETD

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
55	2418.979	-43.985	63.068	-1037.279	36.561	-78.386
56	1037.256	-36.570	75.562	637.001	27.432	-88.538
57	-710.221	-165.985	80.400	2954.110	160.179	-90.497
58	-3107.753	-307.725	-13.609	5939.306	300.184	6.938
59	-6123.462	-472.652	-122.362	9592.498	966.782	119.542
60	-9749.201	-1131.245	-234.711	13878.795	2022.272	143.048
61	-13993.475	2320.452	305.624	9377.668	-1260.649	-232.598
62	-9450.680	1201.536	187.059	5637.055	-703.801	-195.415
63	-5824.990	540.002	82.099	2683.178	-524.745	-93.824
64	-2871.718	353.346	-21.411	440.494	-312.589	6.464
65	-593.328	166.584	-111.241	-1228.427	-160.425	93.556
66	1023.032	21.620	-104.224	-2288.354	-18.419	84.371
67	2288.485	18.382	-86.638	-3274.960	-15.585	65.034
68	3275.039	15.638	-67.320	-3982.670	-12.307	44.393
69	3982.659	12.237	-46.686	-4411.420	-8.527	22.849
70	4411.470	8.693	-25.206	-4561.601	-5.397	0.858
71	4561.629	5.276	-3.273	-4432.792	-3.568	-21.203
72	4432.652	3.630	18.622	-4025.192	-4.808	-42.844
73	4024.981	4.755	40.075	-3313.584	52.683	-55.824
74	3313.349	-52.639	52.876	-2214.647	49.479	-69.985
75	2214.456	-49.414	66.922	-823.550	41.949	-82.228
76	823.299	-41.974	79.074	860.032	32.529	-92.049
77	-944.833	-182.551	80.372	3220.569	176.042	-90.471
78	-3378.612	-323.787	-15.203	6242.223	315.104	8.524
79	-6430.253	-487.646	-124.819	9931.251	981.252	121.996
80	-10090.125	-1145.800	-237.780	14251.104	2039.334	138.260
81	-14368.023	2362.069	419.794	9682.519	-1301.739	-332.973
82	-9756.133	1242.678	286.076	5856.868	-745.479	-294.420
83	-6047.144	582.047	175.408	2817.412	-571.366	-187.132
84	-3011.674	401.079	57.296	492.531	-359.782	-72.250
85	-648.278	216.207	-61.460	-1266.088	-209.152	43.783
86	1096.302	94.865	-151.096	-2502.973	-90.702	131.251
87	2503.299	90.647	-133.168	-3630.905	-87.020	111.587
88	3630.975	87.223	-113.314	-4480.196	-83.288	90.374
89	4480.031	83.230	-91.906	-5049.951	-79.154	68.075
90	5049.877	79.072	-69.476	-5340.921	-75.679	45.088
91	5340.855	75.705	-46.327	-5352.838	-74.101	21.822
92	5352.824	74.047	-23.008	-5085.682	-75.426	-1.251
93	5085.649	75.389	0.112	-4539.532	-80.762	-23.701
94	4539.362	80.812	22.593	-3664.550	-26.755	-23.364
95	3664.367	26.761	22.319	-2424.523	-33.514	-37.831
96	2424.311	33.491	36.934	-891.895	-41.241	-50.122
97	734.663	-140.114	81.468	1453.086	136.686	-91.800
98	-1609.758	-298.713	-14.961	4414.036	294.594	8.011
99	-4563.908	-455.784	-48.551	7983.163	952.300	45.393
100	-8116.372	-1092.643	-183.675	12164.645	1980.886	71.798
101	-12358.237	2118.871	336.676	8846.319	-1104.954	-233.876
102	-8901.327	1029.167	219.430	5861.319	-376.531	-226.509
103	-5974.068	237.575	102.207	3433.244	-268.006	-112.156
104	-3574.260	123.701	-35.108	1575.557	-126.912	22.304
105	-1694.187	-1.463	-194.529	163.252	-31.908	179.310
106	-336.212	-83.455	-330.501	-779.284	47.115	313.366
107	779.780	-46.997	-317.159	-1681.890	11.320	298.499
108	1682.239	-11.362	-302.375	-2370.825	-22.570	282.584
109	2371.385	22.478	-286.454	-2846.250	-55.220	265.886

COMBINACION 2 1.35(G1+G2)+1.5(SCMIN-IPF)+ MHIPER-PRETD

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
110	2846.737	55.556	-269.812	-3108.616	-88.628	248.765
111	3108.843	88.676	-252.576	-3157.192	-124.038	231.408
112	3157.569	123.832	-235.102	-2992.028	-163.552	214.117
113	2992.255	163.522	-217.750	-2600.342	-177.415	180.875
114	2600.523	177.451	-184.235	-1900.971	-192.392	189.712
115	1901.113	192.504	-192.718	-970.340	-247.355	177.452
116	970.489	247.169	-179.943	185.025	-299.846	169.317
117	-288.518	119.422	9.429	1983.569	-164.475	-17.536
118	-2100.037	20.234	-22.843	4271.204	-60.255	17.720
119	-4384.165	-75.294	-109.968	7016.468	1566.766	105.418
120	-7133.990	-1710.828	-188.503	10293.123	1750.885	72.332
121	-10476.539	2059.574	414.410	6906.277	-1048.233	-311.933
122	-6953.829	996.126	269.829	3995.388	-346.123	-277.261
123	-4127.429	202.106	159.788	1681.881	-216.868	-170.020
124	-1816.607	81.797	76.874	-107.895	-80.581	-89.922
125	-24.653	-58.111	-88.183	-1413.980	26.375	72.720
126	1232.709	-179.408	-290.972	-2189.878	142.992	273.615
127	2190.156	-143.010	-275.719	-2933.981	106.252	256.831
128	2934.271	-106.080	-259.236	-3464.630	70.664	239.214
129	3465.104	-70.829	-241.847	-3781.731	36.561	221.076
130	3782.012	-36.445	-223.927	-3885.307	2.026	202.680
131	3885.649	-1.947	-205.637	-3775.388	-34.425	184.330
132	3775.746	34.191	-187.347	-3451.635	-74.505	166.257
133	3451.823	74.613	-169.362	-2862.526	-61.369	158.424
134	2862.710	61.363	-161.465	-2003.272	-107.017	147.297
135	2003.496	107.069	-150.101	-920.205	-161.555	134.863
136	920.379	161.494	-137.394	387.256	-213.893	126.803
137	-459.912	69.279	56.160	2244.352	-114.543	-64.226
138	-2349.895	-1.254	27.266	4560.749	-39.892	-32.322
139	-4710.971	-103.960	-13.097	7397.476	1597.734	8.637
140	-7541.565	-1737.172	-75.849	10764.539	1771.913	-33.491
141	-10968.879	2084.754	301.546	7226.624	-1198.151	-364.526
142	-7274.042	1144.435	321.497	4177.452	-393.167	-175.321
143	-4308.154	244.575	58.873	1786.542	-248.988	-69.432
144	-1913.803	108.985	-13.739	-57.764	-100.238	0.276
145	-67.710	-35.131	-123.276	-1402.956	10.652	107.336
146	1191.509	-186.598	-209.930	-2119.629	157.930	192.039
147	2119.791	-157.899	-194.323	-2822.150	129.069	174.875
148	2822.331	-129.104	-177.574	-3298.625	101.659	156.965
149	3298.744	-101.594	-159.928	-3549.414	75.314	138.509
150	3549.495	-75.379	-141.791	-3574.231	49.102	119.929
151	3574.348	-49.128	-123.417	-3373.099	21.094	101.461
152	3373.260	-21.141	-105.118	-2928.698	47.204	70.904
153	2928.792	-47.096	-74.817	-2167.713	16.823	58.999
154	2167.855	-16.799	-62.969	-1169.647	-23.194	45.718
155	1169.788	23.185	-49.728	65.362	-65.425	36.695
156	-65.341	65.414	-40.558	1537.245	-109.893	29.627
157	-1567.144	-7.117	90.032	3486.400	-32.201	-98.342
158	-3595.985	-111.607	26.839	6010.792	73.979	-32.055
159	-6125.488	-227.121	-54.334	9052.955	1690.888	49.897
160	-9159.292	-1837.862	-146.469	12681.770	1872.283	57.584
161	-12767.158	2277.740	288.590	8207.156	-1359.178	-321.607
162	-8274.932	1299.886	277.905	4444.593	-662.534	-181.343
163	-4610.676	497.979	70.537	1569.772	-476.122	-82.495
164	-1720.751	341.155	-5.045	-683.814	-298.199	-10.099

COMBINACION 2 1.35(G1+G2)+1.5(SCMIN-IPF)+ MHIPER-PRETD

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
165	495.818	128.633	-101.348	-2243.687	-121.493	83.472
166	2073.221	-18.285	-96.577	-3262.588	21.701	76.540
167	3262.789	-21.753	-77.480	-4173.051	24.281	55.693
168	4173.148	-24.206	-56.771	-4804.652	27.025	33.658
169	4804.745	-27.134	-34.859	-5157.177	30.276	10.841
170	5157.256	-30.148	-12.219	-5230.936	32.915	-12.322
171	5230.974	-33.057	10.782	-5025.326	34.360	-35.397
172	5025.453	-34.313	33.600	-4540.915	32.885	-57.921
173	4540.963	-32.880	55.883	-3753.564	85.304	-71.480
174	3753.666	-85.355	69.207	-2587.840	82.382	-86.386
175	2587.792	-82.335	83.790	-1129.608	75.286	-99.142
176	1129.489	-75.241	96.412	621.073	66.389	-109.440
177	-699.598	-204.919	72.287	3019.721	199.063	-82.442
178	-3152.407	-329.752	-14.950	6026.478	321.594	8.222
179	-6220.082	-493.507	-127.527	9730.502	1827.630	124.656
180	-9893.439	-1992.028	-241.914	14043.994	2042.985	150.999
181	-14152.201	2338.312	309.822	9656.358	-1285.796	-237.627
182	-9728.010	1228.307	193.102	5952.044	-703.927	-201.187
183	-6137.524	544.819	90.931	2998.983	-537.654	-102.300
184	-3159.072	339.211	-9.701	758.065	-307.615	-4.807
185	-912.203	162.941	-118.184	-904.705	-164.382	100.997
186	796.667	93.622	-103.508	-2210.417	-97.749	84.171
187	2210.519	97.689	-86.439	-3358.949	-101.998	65.424
188	3359.075	102.088	-67.486	-4242.462	-105.742	45.200
189	4242.424	105.638	-46.985	-4860.525	-108.940	23.753
190	4860.584	109.042	-25.375	-5213.479	-112.977	1.648
191	5213.553	112.938	-3.212	-5301.242	-118.799	-20.665
192	5301.303	118.798	19.588	-5123.781	-127.964	-43.288
193	5123.722	127.997	42.388	-4681.017	-141.633	-65.418
194	4680.915	141.532	64.514	-3972.916	-160.111	-86.416
195	3972.857	160.188	85.716	-2901.981	-117.699	-87.795
196	2901.828	117.717	87.533	-1527.078	-134.660	-100.418
197	1366.094	-51.031	57.254	648.947	39.085	-67.343
198	-794.985	-188.839	-32.991	3380.225	177.415	26.203
199	-3532.534	-310.662	-112.654	6660.884	1678.804	114.727
200	-6844.979	-1840.456	-224.145	10468.014	2011.239	231.515
201	-10590.486	1809.025	140.340	8022.032	-1020.046	-175.304
202	-8063.891	936.414	116.121	5821.493	-304.772	-121.350
203	-5878.948	190.882	46.005	3973.348	-183.113	-53.244
204	-4055.300	59.509	-25.211	2501.923	51.371	16.222
205	-2619.984	-186.814	-99.568	1415.384	154.754	88.773
206	-1415.321	-154.613	-89.958	349.184	116.502	77.503
207	-349.094	-116.585	-79.021	-578.302	76.091	65.629
208	578.553	-76.144	-70.715	-1367.263	35.593	56.270
209	1367.460	-35.630	-58.236	-2017.636	-3.917	42.646
210	2017.958	4.092	-44.683	-2529.631	-42.927	28.547
211	2529.833	42.909	-31.855	-2902.931	-82.281	15.346
212	2903.043	82.317	-18.363	-3137.394	-118.775	1.618
213	3137.524	118.952	-3.442	-3233.687	-133.300	-13.365
214	3233.686	133.232	11.837	-3191.015	-147.087	-28.451
215	3190.969	147.058	25.390	-3009.645	-161.046	-41.665
216	3009.573	161.084	40.313	-2689.685	-175.627	-56.178
217	2689.504	175.647	54.818	-2231.203	-190.895	-69.990
218	2230.998	190.853	67.912	-1633.902	-214.165	-82.247
219	1633.846	214.089	80.792	-897.989	-238.029	-94.085

COMBINACION 35 1.35(G1+G2)+1.5(SCMAX-EC1)+ MHIPER-PRETD

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	3.217	486.088	-580.414	-2269.609	-617.173	-226.522
2	2360.763	671.454	225.101	-4399.265	-559.159	-190.983
3	4399.820	559.162	191.208	-6134.288	-489.253	-186.723
4	6134.686	489.318	187.473	-7572.669	-393.563	-132.621
5	7573.021	393.561	133.806	-8719.828	-303.977	-90.341
6	8720.332	303.594	91.862	-9572.301	-214.889	-118.275
7	9572.728	215.204	120.048	-10119.695	-138.619	-41.171
8	10119.729	138.719	43.089	-10382.128	-31.421	-28.920
9	10382.192	31.531	30.877	-10479.225	12.900	-31.439
10	10479.096	-13.105	33.469	-10096.031	73.234	21.043
11	10095.883	-73.283	-19.078	-9397.201	108.711	3.040
12	9397.016	-108.601	-1.210	-8481.113	187.175	30.005
13	8480.930	-187.186	-28.254	-7280.973	225.150	96.327
14	7280.731	-225.289	-94.677	-5786.499	275.260	58.381
15	5786.164	-275.216	-56.835	-4011.595	338.511	114.514
16	4011.190	-338.512	-113.108	-2059.796	281.475	66.352
17	2060.296	-276.227	-60.773	142.401	363.339	104.168
18	-17.202	-211.886	-29.958	2210.621	260.753	54.062
19	-2107.899	-133.994	12.040	4228.587	644.273	-234.294
20	-4158.451	-603.116	115.934	6349.687	1441.318	-206.755
21	-6311.903	1447.515	-177.430	3616.057	-465.811	169.751
22	-3558.458	514.277	-140.731	1050.802	-79.773	107.742
23	-905.825	214.154	-29.723	-1504.456	-346.066	-391.180
24	1597.101	279.662	23.470	-4017.652	-301.736	-244.801
25	4074.328	358.449	166.651	-6172.342	-274.348	-117.988
26	6270.844	345.965	86.891	-8081.440	-267.204	-53.468
27	8081.861	267.157	56.359	-9456.168	-189.049	-26.385
28	9456.466	189.107	29.600	-10398.061	-107.682	12.654
29	10398.244	107.501	-9.220	-10935.430	-100.107	-24.471
30	10935.426	100.192	30.259	-11143.715	-2.736	3.934
31	11143.732	2.581	1.928	-10973.740	24.408	-18.740
32	10973.641	-24.363	22.110	-10416.340	101.216	18.867
33	10416.172	-101.217	-15.732	-9425.654	187.695	18.810
34	9425.387	-187.582	-16.040	-8000.670	253.037	46.538
35	8000.248	-253.035	-44.169	-6142.233	316.796	89.719
36	6141.746	-316.792	-87.770	-3851.365	349.442	83.192
37	3891.757	-267.659	-69.017	-1431.308	314.454	90.755
38	1554.282	-194.710	-17.833	1060.815	239.021	43.121
39	-912.585	-98.390	36.129	3543.029	534.950	-71.730
40	-3416.286	-400.534	149.875	6128.749	1481.915	-124.540
41	-6033.065	1442.721	-177.234	3333.238	-471.354	172.855
42	-3273.882	519.762	-143.224	780.318	-72.683	106.778
43	-627.541	206.855	-27.642	-1747.738	-132.826	52.975
44	1879.261	273.339	27.167	-4135.940	-301.331	-250.299
45	4200.572	364.300	162.038	-6310.068	-280.292	-113.448
46	6403.202	343.701	92.383	-8208.636	-264.856	-59.081
47	8209.131	265.014	62.148	-9578.276	-186.789	-32.238
48	9578.439	186.856	35.598	-10549.304	-155.237	-35.964
49	10549.088	155.312	41.873	-11143.475	-90.529	-29.460
50	11143.437	90.493	35.581	-11331.782	7.124	-1.340
51	11331.914	-7.273	7.489	-11112.002	69.981	4.392
52	11111.851	-70.015	1.560	-10489.354	98.174	2.920
53	10489.149	-98.291	0.345	-9499.391	187.794	16.945
54	9499.062	-187.835	-14.029	-8074.649	253.644	44.312

COMBINACION 3 1.35(G1+G2)+1.5(SCMAX-EC1)+ MHIPER-PRETD

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
55	8074.228	-253.670	-41.821	-6214.502	317.404	87.405
56	6214.070	-317.431	-85.345	-3919.684	377.357	121.906
57	3974.428	-246.498	-72.880	-1555.876	293.502	94.694
58	1681.763	-172.760	-23.190	889.304	217.460	48.527
59	-738.451	-76.311	30.578	3325.061	513.136	-66.128
60	-3196.711	-378.486	144.625	5859.828	1447.312	-115.415
61	-5765.942	1438.136	-180.686	3089.174	-455.044	172.605
62	-3029.456	503.418	-142.728	581.009	-56.603	106.307
63	-427.142	190.601	-27.291	-1915.172	-116.332	52.691
64	2048.354	256.699	27.032	-4224.459	-286.557	-249.950
65	4312.291	275.882	79.086	-6369.414	-265.554	-112.907
66	6458.419	325.530	91.242	-8227.466	-246.841	-57.902
67	8227.854	246.821	60.988	-9560.695	-168.800	-31.075
68	9560.861	169.004	34.425	-10505.277	-132.308	-34.261
69	10505.180	132.168	40.081	-11053.046	-67.398	-27.704
70	11052.924	67.355	33.681	-11194.774	30.310	0.555
71	11194.661	-30.471	5.367	-10928.363	93.291	6.485
72	10928.304	-93.296	-0.828	-10286.047	116.615	3.477
73	10285.832	-116.613	-0.483	-9260.606	206.211	17.791
74	9260.195	-206.096	-15.243	-7800.735	272.034	45.612
75	7800.331	-272.124	-43.516	-5905.527	335.852	89.123
76	5904.957	-335.927	-87.520	-3575.703	395.525	124.150
77	3612.101	-330.712	-147.373	-1130.073	306.489	96.587
78	1259.515	-185.569	-24.795	1336.812	229.088	50.091
79	-1182.829	-87.802	28.658	3811.611	511.716	-60.527
80	-3681.513	-377.081	138.402	6349.155	1459.813	-113.701
81	-6253.938	1499.437	-180.688	3454.178	-514.792	172.386
82	-3394.063	563.120	-142.291	823.374	-116.696	104.048
83	-667.733	250.417	-20.977	-1798.006	-180.582	45.109
84	1932.238	319.930	46.348	-4217.916	-344.795	-280.057
85	4317.259	336.485	123.673	-6472.208	-324.357	-170.754
86	6546.360	374.153	185.395	-8402.693	-291.999	-140.268
87	8403.088	292.010	143.639	-9825.793	-213.610	-112.917
88	9825.828	213.818	116.617	-10815.544	-135.466	-88.826
89	10815.319	135.451	92.836	-11433.691	-103.708	-157.605
90	11433.297	103.688	164.201	-11647.728	-5.912	-130.298
91	11647.257	5.893	136.908	-11452.980	56.848	-125.504
92	11452.634	-56.772	131.999	-10879.427	79.237	-121.266
93	10879.062	-79.179	125.157	-9927.373	168.672	-107.863
94	9926.736	-168.607	111.476	-8541.742	234.512	-80.589
95	8541.080	-234.533	83.870	-6720.035	298.967	-38.028
96	6719.331	-298.964	40.950	-4466.354	360.148	-3.122
97	4536.825	-277.526	-59.978	-2205.219	248.767	-2.612
98	2333.712	-116.520	77.942	108.936	129.827	-71.387
99	14.323	1.902	93.333	2463.658	458.786	-95.015
100	-2353.653	-343.686	196.866	4931.990	1415.020	-176.343
101	-4766.708	1289.796	-216.046	2666.312	-336.868	204.535
102	-2620.458	398.619	-199.724	686.407	232.052	178.021
103	-592.972	-118.300	-87.994	-1313.764	141.453	107.733
104	1400.222	-23.159	-1.165	-3129.741	36.470	-6.525
105	3227.573	68.331	134.420	-4800.436	-85.068	-147.746
106	4939.088	141.450	240.764	-6368.557	-89.692	-203.851
107	6368.326	89.811	206.065	-7489.261	-70.096	-193.352
108	7489.001	69.939	195.735	-8290.389	-85.918	-208.525
109	8290.349	85.797	211.051	-8776.430	-30.099	-176.816

COMBINACION 3 1.35(G1+G2)+1.5(SCMAX-EC1)+ MHIPER-PRETD

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
110	8776.268	30.277	179.373	-8950.424	-12.604	-170.382
111	8950.176	12.560	172.952	-8809.062	7.861	-160.650
112	8808.895	-7.873	163.142	-8350.488	23.817	-149.838
113	8350.285	-23.753	152.188	-7586.291	66.246	-116.396
114	7586.062	-66.285	118.612	-6501.292	31.259	-127.350
115	6501.032	-31.282	129.437	-5110.272	12.291	-4.386
116	5109.809	-12.331	5.317	-3415.386	44.291	26.248
117	3485.567	91.475	-77.207	-1739.467	-89.343	101.601
118	1835.874	207.422	-79.909	11.872	-238.680	83.129
119	81.767	349.795	-16.690	1774.627	1109.173	19.751
120	-1677.322	-991.271	38.950	3579.635	1198.166	-16.179
121	-3463.216	1240.795	-197.615	1453.181	-299.657	178.027
122	-1413.605	342.268	-145.526	-384.772	319.857	205.748
123	493.674	-202.047	-118.356	-2275.498	205.900	55.303
124	2365.084	-95.248	11.229	-3964.386	112.800	-19.422
125	4073.279	0.550	154.746	-5529.116	22.328	-139.846
126	5677.659	102.958	316.471	-7048.893	-51.323	-279.753
127	7048.616	51.244	282.864	-8111.508	-32.655	-270.520
128	8111.179	32.581	273.708	-8855.012	-50.056	-286.813
129	8854.777	49.911	290.022	-9283.492	4.238	-255.927
130	9283.254	-4.171	259.124	-9400.196	23.047	-244.319
131	9400.002	-23.077	247.425	-9201.580	39.990	-241.208
132	9201.486	-39.910	244.254	-8686.099	55.334	-230.954
133	8685.860	-55.269	233.745	-7864.161	97.643	-197.940
134	7863.945	-97.592	200.504	-6721.475	62.855	-209.065
135	6721.233	-62.841	211.426	-5264.097	59.957	-192.552
136	5263.871	-60.040	194.774	-3503.532	88.710	-153.087
137	3562.946	29.628	1.611	-1705.887	-27.521	23.255
138	1793.239	122.459	-2.728	207.010	-154.656	6.576
139	-83.096	272.532	20.520	2069.573	1196.633	-31.327
140	-1950.826	-1082.472	76.771	4036.727	1296.273	-49.017
141	-3874.528	1235.693	-156.420	1814.148	-294.810	154.242
142	-1774.506	338.748	-121.835	-104.821	248.673	95.800
143	212.832	-127.052	-10.242	-2044.438	176.891	31.253
144	2132.157	-62.239	26.320	-3779.441	-26.034	-361.429
145	3882.321	-15.241	97.808	-5445.905	-51.081	-213.334
146	5543.560	135.419	187.162	-6960.224	-108.063	-171.780
147	6960.051	108.007	174.790	-8052.255	-47.488	-138.394
148	8051.979	47.619	141.532	-8816.678	-18.509	-128.148
149	8816.450	18.336	131.290	-9247.363	12.159	-118.246
150	9247.201	-12.148	121.456	-9342.130	37.777	-111.895
151	9341.969	-37.847	114.948	-9107.377	99.418	-80.318
152	9107.281	-99.305	83.178	-8544.008	86.733	-94.466
153	8543.908	-86.754	97.059	-7642.449	106.404	-82.335
154	7642.406	-106.407	84.647	-6407.954	119.475	-68.505
155	6407.903	-119.559	70.446	-4849.189	159.801	-31.525
156	4849.072	-159.708	33.142	-2964.591	164.284	-12.995
157	2988.875	-68.554	-87.795	-948.043	40.039	85.698
158	1037.833	77.629	-41.805	1115.142	-67.426	67.831
159	-1021.130	192.756	-10.689	3167.795	1247.909	-1.405
160	-3080.621	-1127.589	67.272	5359.340	1345.132	-44.750
161	-5289.035	1417.654	-180.603	2649.431	-448.204	177.284
162	-2594.021	496.730	-146.911	154.636	-55.664	111.386
163	-18.710	190.306	-32.474	-2302.180	-109.533	58.099
164	2407.539	220.030	3.974	-4535.940	-258.564	-262.288

COMBINACION 3 1.35(G1+G2)+1.5(SCMAX-EC1)+ MHIPER-PRETD

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
165	4621.840	256.298	61.384	-6661.313	-249.339	-125.816
166	6734.856	309.656	90.274	-8470.897	-228.383	-44.219
167	8471.383	228.455	47.760	-9772.432	-150.801	-17.874
168	9772.689	150.889	21.560	-10640.321	-69.827	20.747
169	10640.588	69.685	-16.894	-11151.141	-48.613	-12.061
170	11151.059	48.730	18.127	-11257.123	48.402	16.093
171	11257.180	-48.426	-10.156	-10994.543	68.206	8.371
172	10994.729	-68.072	-4.932	-10355.461	141.377	30.538
173	10355.454	-141.449	-27.494	-9282.619	228.026	30.655
174	9282.563	-228.173	-28.011	-7775.358	293.848	58.514
175	7775.118	-293.798	-56.465	-5835.641	357.974	102.002
176	5835.273	-357.971	-100.494	-3461.293	417.741	137.228
177	3494.894	-357.799	-166.384	-914.254	335.393	92.619
178	1022.720	-228.416	-26.143	1657.335	272.546	51.149
179	-1498.924	-131.885	29.809	4226.667	1399.010	-63.964
180	-4093.317	-1264.482	142.618	6834.093	1503.887	-116.763
181	-6743.908	1528.768	-178.942	3949.382	-551.292	171.985
182	-3890.856	598.373	-144.253	1298.318	-124.897	108.081
183	-1146.635	255.068	-32.567	-1330.534	-189.789	57.753
184	1495.069	292.340	18.603	-3788.759	-310.926	-230.876
185	3853.847	371.001	144.624	-5982.821	-295.155	-94.652
186	6033.997	328.030	75.042	-7818.997	-241.472	-64.800
187	7819.322	241.341	67.315	-9194.606	-172.033	-35.870
188	9194.951	172.150	38.742	-10160.398	-102.511	-10.144
189	10160.473	102.378	13.271	-10717.404	-32.800	12.996
190	10717.555	32.847	-9.784	-10888.260	-11.885	1.682
191	10888.309	11.808	4.387	-10736.493	-0.750	18.781
192	10736.458	0.818	-15.930	-10265.002	65.036	44.494
193	10264.858	-64.930	-41.966	-9379.318	128.906	85.671
194	9379.021	-129.085	-82.512	-8080.107	162.553	59.103
195	8079.786	-162.499	-56.064	-6365.798	217.068	103.190
196	6365.380	-217.030	-101.113	-4240.628	268.375	139.327
197	4310.494	-188.064	-178.865	-1972.847	138.823	49.700
198	2092.319	-16.278	22.560	222.622	55.426	2.416
199	-97.888	53.567	60.160	2405.048	1182.318	-286.862
200	-2321.703	-1137.968	150.272	4438.569	1351.289	-254.077
201	-4383.832	1275.686	-128.129	2727.494	-395.240	114.897
202	-2708.953	431.258	-155.423	1165.771	203.878	89.919
203	-1118.772	-110.653	-36.531	-455.119	91.934	21.773
204	520.733	9.282	30.935	-1999.910	109.135	-35.564
205	2096.537	1.580	93.987	-3523.392	7.672	-78.958
206	3523.373	-7.625	79.834	-4737.094	48.728	-41.227
207	4737.093	-48.836	42.224	-5757.170	17.410	-51.853
208	5757.273	-17.411	54.577	-6571.471	56.602	-18.907
209	6571.561	-56.781	19.858	-7174.015	59.458	-9.648
210	7174.249	-59.459	10.566	-7577.433	68.636	2.343
211	7577.627	-68.584	-1.005	-7767.544	66.023	6.263
212	7767.735	-66.026	-5.068	-7748.611	109.878	38.947
213	7748.747	-109.833	-38.284	-7524.701	106.525	25.998
214	7524.708	-106.428	-25.379	-7093.047	173.159	59.485
215	7093.154	-173.158	-58.460	-6440.434	202.147	68.000
216	6440.434	-202.120	-67.638	-5580.210	230.684	78.001
217	5580.152	-230.696	-77.756	-4512.190	258.612	88.768
218	4512.143	-258.682	-88.631	-3232.646	316.268	125.599
219	3232.743	-316.289	-125.807	-1732.269	335.593	139.223

COMBINACION 36 1.35(G1+G2)+1.5(SCMIN-EC1)+ MHIPER-PRETD

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	3.092	273.016	-176.534	-1469.114	-150.384	162.441
2	1437.110	131.802	-161.757	-2658.685	-110.015	146.199
3	2658.941	110.026	-146.749	-3694.063	-88.629	129.996
4	3694.216	88.709	-130.344	-4543.080	-67.348	112.590
5	4543.214	67.342	-112.776	-5205.611	-45.896	94.209
6	5205.933	45.565	-94.278	-5681.568	-24.087	75.086
7	5681.837	24.374	-75.092	-5971.487	-3.044	55.456
8	5971.406	3.097	-55.451	-6074.761	17.812	35.552
9	6074.739	-17.714	-35.587	-6126.137	14.014	15.668
10	6126.010	-14.236	-15.680	-5802.355	2.954	-4.036
11	5802.255	-2.965	3.962	-5266.054	-7.927	-23.296
12	5265.936	8.077	23.137	-4623.591	-19.632	-41.808
13	4623.514	19.661	41.678	-3794.869	-31.567	-59.393
14	3794.734	31.444	59.302	-2779.620	-43.008	-75.799
15	2779.469	43.021	75.783	-1577.988	-52.641	-90.793
16	1577.795	52.645	90.884	-189.828	-57.646	-104.145
17	189.621	57.356	104.384	1394.941	-54.155	-115.664
18	-1401.849	46.151	116.411	3172.023	-46.503	-125.473
19	-3177.667	39.757	126.133	5143.562	606.653	-132.923
20	-5148.242	-612.646	133.180	7342.012	1414.523	-138.580
21	-7347.672	1561.797	-189.853	4405.267	-587.730	182.836
22	-4408.020	585.179	-182.297	1829.315	-87.618	172.851
23	-1836.669	80.473	-171.513	-383.031	-63.891	158.781
24	365.268	56.417	-157.888	-2202.634	-15.306	142.011
25	2197.217	9.566	-140.523	-3705.589	-3.209	121.984
26	3695.944	-3.924	-120.386	-4911.201	7.186	99.743
27	4911.372	-7.205	-98.721	-5847.674	9.955	76.408
28	5847.792	-9.870	-75.401	-6505.440	13.082	51.846
29	6505.456	-13.254	-50.863	-6884.089	16.805	26.467
30	6884.151	-16.762	-25.541	-6983.968	19.861	0.700
31	6984.011	-19.892	0.134	-6804.804	21.391	-25.030
32	6804.793	-21.349	25.714	-6346.939	19.966	-50.278
33	6346.869	-19.965	50.804	-5610.002	14.581	-74.616
34	5609.940	-14.508	74.962	-4594.392	4.483	-97.587
35	4594.198	-4.504	97.789	-3299.754	-9.690	-118.752
36	3299.560	9.702	118.872	-1726.334	-25.687	-137.663
37	1723.797	21.438	138.110	136.803	-34.244	-154.204
38	-143.671	27.806	154.893	2296.004	-42.551	-167.766
39	-2304.130	35.087	168.530	4750.207	451.995	-177.773
40	-4757.212	-459.089	178.366	7534.575	1477.909	-185.155
41	-7537.193	1570.698	-187.673	4576.332	-594.767	180.671
42	-4579.169	592.203	-180.389	1982.723	-94.616	170.951
43	-1990.525	87.531	-169.877	-247.137	-72.525	157.144
44	228.223	65.091	-156.514	-2083.093	-24.386	140.632
45	2076.823	17.964	-139.317	-3601.244	-11.711	120.773
46	3592.251	5.337	-119.309	-4824.955	-2.001	98.663
47	4825.243	2.146	-97.768	-5779.122	0.772	75.454
48	5779.143	-0.742	-74.553	-6454.388	4.148	50.997
49	6454.269	-4.057	-50.077	-6850.485	7.790	25.686
50	6850.460	-7.882	-24.802	-6967.543	11.124	-0.039
51	6967.592	-11.187	0.855	-6805.747	12.779	-25.749
52	6805.557	-12.748	26.447	-6364.841	11.407	-51.009
53	6364.703	-11.448	51.564	-5644.952	6.061	-75.390
54	5644.796	-6.116	75.797	-4646.050	-3.930	-98.436

COMBINACION 4 1.35(G1+G2)+1.5(SCMIN-EC1)+ MHIPER-PRETD

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
55	4645.847	3.923	98.709	-3368.083	-18.124	-119.686
56	3367.966	18.105	119.910	-1811.180	-34.022	-138.708
57	1807.849	28.042	139.755	39.832	-40.629	-155.854
58	-46.732	34.238	156.777	2186.143	-48.559	-169.656
59	-2194.389	41.089	170.611	4627.694	446.262	-179.863
60	-4634.773	-453.360	180.637	7400.248	1471.618	-187.435
61	-7405.309	1557.380	-186.164	4471.747	-582.088	179.159
62	-4474.611	579.528	-178.716	1904.748	-81.790	169.278
63	-1912.553	74.662	-168.064	-298.779	-59.413	155.334
64	279.795	52.042	-154.597	-2108.542	-11.286	138.718
65	2102.175	4.968	-137.338	-3600.745	1.197	118.800
66	3592.071	-7.190	-117.262	-4799.793	10.386	96.632
67	4799.953	-10.426	-95.775	-5728.809	13.214	73.471
68	5728.851	-13.065	-72.641	-6379.092	16.391	49.090
69	6379.080	-16.488	-48.287	-6750.379	20.208	23.902
70	6750.375	-20.140	-23.175	-6842.815	23.440	-1.643
71	6842.809	-23.591	2.286	-6656.245	25.304	-27.158
72	6656.154	-25.271	27.627	-6190.890	24.093	-52.170
73	6190.762	-24.115	52.474	-5446.643	18.895	-76.279
74	5446.418	-18.797	76.373	-4423.508	8.857	-98.990
75	4423.313	-8.881	98.948	-3121.551	-5.357	-119.902
76	3121.262	5.301	119.755	-1540.548	-21.522	-138.541
77	1536.667	15.002	139.052	335.956	-28.290	-155.141
78	-343.065	21.893	155.559	2507.374	-37.357	-168.430
79	-2515.804	29.923	168.868	4973.805	456.905	-178.104
80	-4980.999	-464.040	178.362	7770.350	1483.912	-185.139
81	-7774.584	1600.928	-133.517	4753.215	-624.193	126.526
82	-4756.181	621.630	-126.549	2099.270	-124.428	117.114
83	-2107.302	117.346	-116.448	-192.832	-106.665	103.714
84	171.624	99.308	-103.817	-2087.071	-58.010	87.934
85	2080.447	51.843	-87.966	-3665.998	-44.786	69.433
86	3658.713	39.765	-71.748	-4955.136	-35.602	51.125
87	4955.357	35.575	-49.996	-5972.788	-31.944	27.715
88	5972.727	32.154	-26.510	-6711.778	-28.215	2.949
89	6711.510	28.176	-1.626	-7171.307	-24.111	-22.749
90	7171.096	24.064	24.122	-7352.099	-20.672	-48.976
91	7351.835	20.678	50.384	-7253.723	-19.071	-75.277
92	7253.518	19.069	76.660	-6876.406	-20.457	-101.228
93	6876.244	20.460	102.561	-6220.251	-25.839	-126.379
94	6219.920	25.895	127.660	-5285.029	-35.718	-150.301
95	5284.708	35.716	151.563	-4070.843	-49.248	-172.532
96	4070.506	49.244	173.848	-2577.690	-63.776	-192.637
97	2570.351	55.646	196.608	-782.273	-65.853	-212.701
98	775.485	59.072	215.869	1305.015	-69.969	-228.763
99	-1312.147	64.064	231.605	3683.460	425.673	-240.913
100	-3692.160	-432.843	243.547	6395.869	1440.704	-250.455
101	-6340.363	1406.449	-160.687	4017.445	-462.366	154.534
102	-4019.798	460.108	-153.630	1975.753	192.528	145.531
103	-1982.551	-198.683	-145.046	205.282	168.251	134.149
104	-228.905	-175.955	-136.123	-1245.330	172.739	122.439
105	1241.247	-177.738	-124.765	-2463.651	144.366	108.741
106	2456.356	-149.340	-114.529	-3456.495	113.007	96.662
107	3456.682	-112.899	-97.537	-4243.395	77.222	78.218
108	4243.468	-77.315	-79.267	-4816.595	43.390	58.889
109	4816.876	-43.504	-60.023	-5176.203	10.775	38.938

COMBINACION 4 1.35(G1+G2)+1.5(SCMIN-EC1)+ MHIPER-PRETD

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
110	5176.367	-10.510	-40.199	-5322.583	-22.557	18.709
111	5322.542	22.566	-19.955	-5255.146	-57.932	-1.585
112	5255.208	57.810	0.356	-4974.107	-97.536	-21.641
113	4974.071	97.550	20.424	-4479.553	-143.334	-41.089
114	4479.450	143.343	40.047	-3771.403	-195.951	-59.671
115	3771.244	195.999	58.902	-2849.735	-254.243	-77.096
116	2849.608	254.147	76.766	-1714.372	-313.608	-93.026
117	1709.844	305.290	101.384	-346.463	-357.124	-115.242
118	341.841	352.134	118.637	1243.787	-398.933	-129.639
119	-1250.557	392.349	133.445	3061.282	1095.733	-141.419
120	-3066.950	-1102.011	144.852	5131.948	1257.856	-150.947
121	-5087.641	1360.812	-121.765	2844.564	-430.282	115.485
122	-2846.736	428.037	-113.142	882.567	221.966	104.964
123	-888.487	-228.182	-103.138	-803.943	213.418	92.210
124	786.683	-219.920	-92.690	-2183.092	221.134	79.000
125	2178.364	-226.695	-80.292	-3321.912	194.953	64.238
126	3314.495	-201.327	-70.917	-4233.286	164.916	53.024
127	4233.341	-164.963	-52.889	-4938.710	128.222	33.516
128	4938.729	-128.161	-33.680	-5430.411	92.746	13.226
129	5430.568	-92.897	-13.627	-5708.538	58.627	-7.522
130	5708.565	-58.533	6.922	-5773.169	24.121	-28.497
131	5773.229	-24.083	27.774	-5624.183	-12.292	-49.355
132	5624.281	12.185	48.597	-5261.637	-52.511	-69.908
133	5261.562	52.594	69.060	-4685.543	-98.558	-89.759
134	4685.462	98.580	88.963	-3895.850	-151.014	-108.587
135	3895.756	151.050	108.001	-2892.608	-208.925	-126.195
136	2892.476	208.856	125.913	-1675.795	-268.030	-142.178
137	1672.421	261.737	149.767	-231.193	-313.778	-163.634
138	226.082	308.202	167.567	1438.512	-356.124	-178.563
139	-1444.654	349.627	182.337	3334.183	1140.761	-190.295
140	-3339.553	-1147.012	193.501	5499.524	1302.860	-199.565
141	-5428.862	1376.486	-164.807	3097.831	-438.085	158.369
142	-3099.986	435.781	-156.271	1063.663	179.962	147.837
143	-1069.504	-186.352	-146.053	-676.487	181.941	134.773
144	661.807	-188.715	-134.749	-2097.564	197.462	120.623
145	2093.198	-202.636	-120.505	-3262.349	178.161	103.957
146	3253.373	-185.695	-104.844	-4183.085	157.034	86.398
147	4183.166	-157.043	-86.363	-4887.021	128.214	66.412
148	4887.034	-128.171	-66.715	-5364.989	100.723	45.655
149	5364.974	-100.767	-46.210	-5617.102	74.493	24.394
150	5617.083	-74.527	-25.154	-5643.328	48.245	2.949
151	5643.311	-48.288	-3.897	-5443.537	20.249	-18.342
152	5443.555	-20.221	17.267	-5017.860	-11.487	-39.207
153	5017.821	11.532	37.965	-4366.307	-48.582	-59.261
154	4366.297	48.597	58.017	-3488.811	-91.978	-78.251
155	3488.778	91.935	77.024	-2385.452	-140.957	-95.757
156	2385.308	140.995	94.721	-1056.166	-192.252	-111.492
157	1054.675	187.088	116.363	509.690	-233.187	-130.659
158	-514.459	227.044	132.807	2315.743	-271.457	-144.171
159	-2320.960	264.803	145.797	4360.084	1195.576	-153.966
160	-4364.912	-1201.930	155.347	6735.159	1362.197	-161.474
161	-6740.718	1535.999	-195.550	3849.380	-568.229	188.465
162	-3852.006	565.665	-187.130	1324.972	-68.027	177.640
163	-1331.826	60.882	-175.510	-834.797	-39.027	162.763
164	818.981	33.205	-161.219	-2607.566	9.753	145.347

COMBINACION 4 1.35(G1+G2)+1.5(SCMIN-EC1)+ MHIPER-PRETD

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
165	2599.711	-17.131	-142.956	-4056.019	24.267	124.410
166	4048.848	-30.325	-121.767	-5214.144	33.733	101.121
167	5214.384	-33.717	-99.631	-6100.722	36.243	77.294
168	6100.821	-36.156	-75.937	-6708.413	38.979	52.335
169	6708.541	-39.109	-51.046	-7037.025	42.250	26.597
170	7037.067	-42.125	-25.493	-7086.772	44.886	0.586
171	7086.825	-44.984	0.358	-6857.346	46.279	-25.281
172	6857.536	-46.181	26.043	-6349.250	44.754	-50.613
173	6349.342	-44.798	51.136	-5562.014	39.540	-74.926
174	5562.125	-39.638	75.247	-4495.845	29.890	-97.889
175	4495.820	-29.845	97.917	-3150.754	16.016	-118.873
176	3150.658	-15.991	118.765	-1526.688	0.355	-137.556
177	1523.073	-6.299	137.534	391.694	-6.340	-153.635
178	-397.737	0.698	153.737	2602.767	-15.635	-166.612
179	-2611.420	8.178	166.767	5110.306	1319.168	-176.013
180	-5117.626	-1326.290	175.973	7929.827	1504.405	-182.770
181	-7940.288	1610.385	-178.521	4971.470	-639.301	171.706
182	-4974.271	636.823	-171.982	2352.015	-112.445	162.821
183	-2359.745	105.534	-162.226	78.048	-98.368	149.857
184	-67.007	58.279	-149.586	-1786.028	-26.685	134.157
185	1779.672	20.665	-133.248	-3319.050	-22.108	115.210
186	3314.080	18.845	-114.518	-4581.935	-22.959	94.409
187	4582.041	22.853	-93.867	-5584.483	-27.149	72.159
188	5584.648	27.250	-71.513	-6322.048	-30.908	48.612
189	6322.018	30.795	-47.853	-6794.136	-34.100	24.085
190	6794.219	34.165	-23.307	-7001.026	-38.093	-0.906
191	7001.097	38.039	1.879	-6942.673	-43.898	-26.151
192	6942.704	43.940	26.935	-6619.158	-53.113	-50.896
193	6619.096	53.190	51.624	-6030.462	-66.823	-74.863
194	6030.340	66.679	75.932	-5176.325	-85.252	-98.000
195	5176.244	85.316	99.209	-4057.088	-107.993	-119.638
196	4056.907	108.017	120.684	-2672.690	-131.739	-138.987
197	2665.415	123.725	140.757	-1000.358	-142.452	-156.418
198	993.678	135.951	158.767	949.271	-154.156	-171.274
199	-956.140	148.359	173.797	3175.650	1206.222	-182.876
200	-3183.967	-1213.206	185.955	5467.720	1386.897	-192.799
201	-5469.517	1295.468	-116.135	3732.751	-451.250	111.180
202	-3734.421	447.628	-109.463	2181.214	184.018	103.337
203	-2183.630	-188.943	-102.156	813.599	196.699	94.304
204	-817.847	-202.016	-94.964	-366.781	312.876	85.315
205	361.752	-318.816	-84.608	-1380.224	286.750	73.262
206	1380.272	-286.663	-73.276	-2260.189	248.549	60.484
207	2260.260	-248.638	-60.710	-3001.431	208.153	46.637
208	3001.657	-208.180	-48.041	-3604.170	167.636	32.915
209	3604.316	-167.726	-33.613	-4068.209	128.186	17.691
210	4068.476	-128.080	-18.536	-4393.733	89.254	1.997
211	4393.909	-89.258	-3.550	-4580.619	49.890	-13.402
212	4580.738	-49.870	11.872	-4628.697	13.430	-28.934
213	4628.806	-13.310	27.939	-4538.454	-1.037	-44.950
214	4538.431	1.047	44.097	-4309.383	-14.916	-60.968
215	4309.322	14.897	59.124	-3941.640	-28.887	-75.633
216	3941.551	28.917	74.765	-3435.305	-43.458	-90.756
217	3435.120	43.465	89.831	-2790.439	-58.708	-105.143
218	2790.198	58.652	103.636	-2006.675	-81.961	-118.091
219	2006.593	81.908	116.942	-1084.363	-105.856	-130.282

7. ESTUDIO DEL EFECTO DE LA AUTOCIMBRA SOBRE EL TABLERO

En este apartado se comprueba el Estado Límite Último de rotura por flexión longitudinal durante las fases de construcción en que la autocimbra apoya sobre el voladizo de la parte de tablero ya construida. En dicha etapa de construcción la cimbra transmite una carga vertical sobre el voladizo del tablero que produce flexiones temporales que la estructura debe resistir.

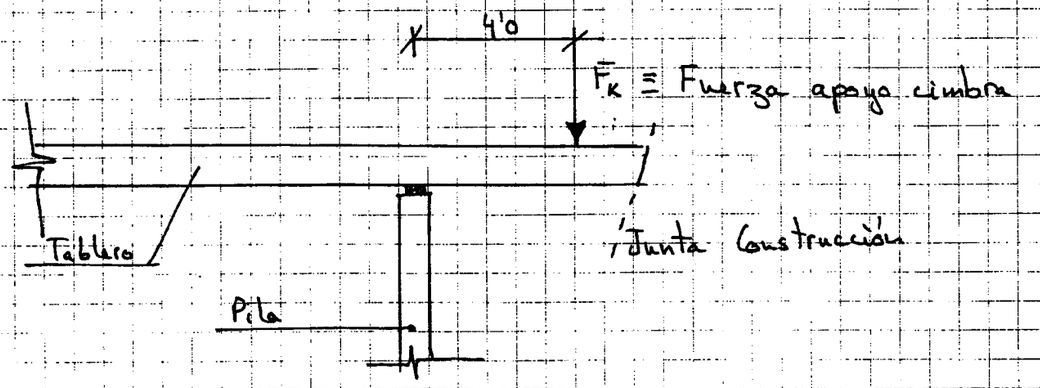
En segundo lugar se calcula la armadura necesaria por introducción de la carga puntual transmitida por la autocimbra al tablero. Este cálculo se realiza de acuerdo con la formulación prescrita en el artículo 60.3 de la EHE.

PEDELTA
INGENIERIA Y VIS

FECHA HOJA

COMPROBACIÓN ELU CONSTRUCCIÓN EN SECCIÓN SOBRE PILA

En la situación más desfavorable la cimbra apoya a 4'0 m del eje de pila.



Por lo tanto el momento producido por la cimbra en la sección sobre pila es:

$$M_K = 4 \cdot 4 \cdot 159 = -2544 \text{ mT}$$

Por otra parte en esta fase solamente actúa el peso propio que produce un momento:

$$M_{pp} = -902 \text{ mT}$$

En consecuencia;

$$M_d = 1'35 \cdot M_{pp} + 1'5 \cdot M_K = -5034 \text{ mT}$$

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No se tiene en cuenta el momento producido por el pretensado por ser favorable.

Por otra parte sabemos que el momento último en las secciones sobre pila es:

$$M_u = -15900 \text{ mT}$$

Lo que nos da un coef. de seguridad de:

$$FS_{flexión} = 3'16$$

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FECHA

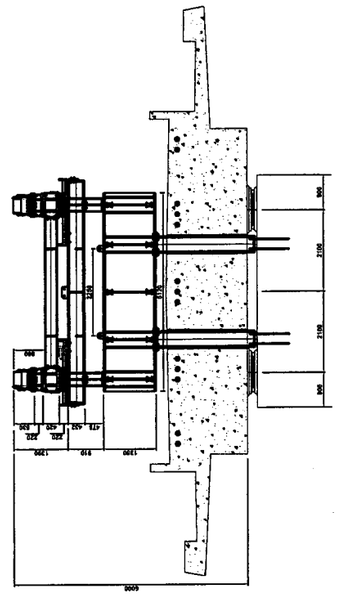
HOJA

ARMADURA LOCAL BAJO APOYO DE CIMBRA

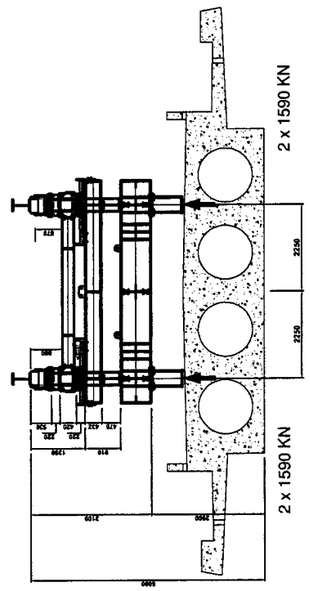
F_k = 159 T/apoyo

$F_d = 1'5 \cdot F_k = 238'5$ T/apoyo

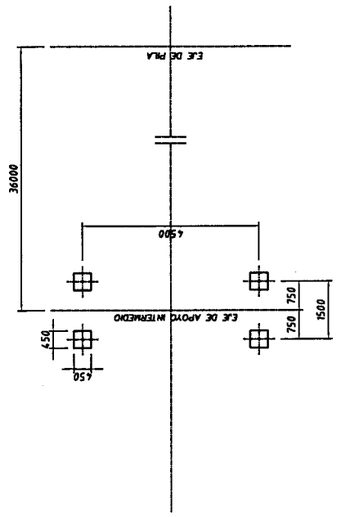
$A_s = \underbrace{\frac{0'25 \cdot F_d}{4}}_{\text{Art. 60.3 EHE}} = 14'9 \text{ cm}^2 \Rightarrow \# 5+5\phi 20$

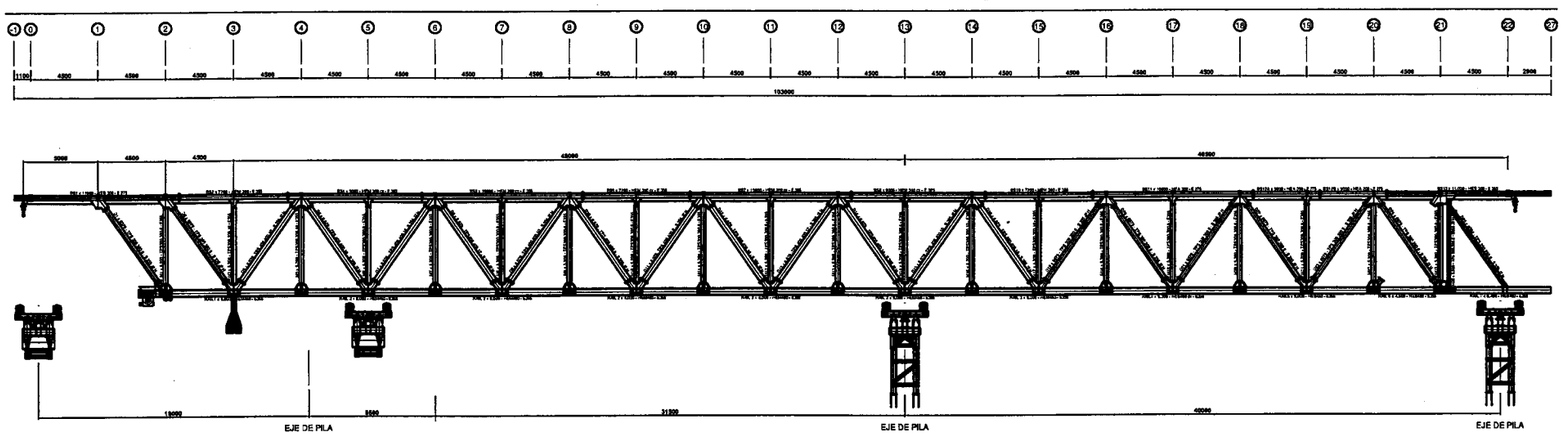


Pórtico principal - 2 conjuntos

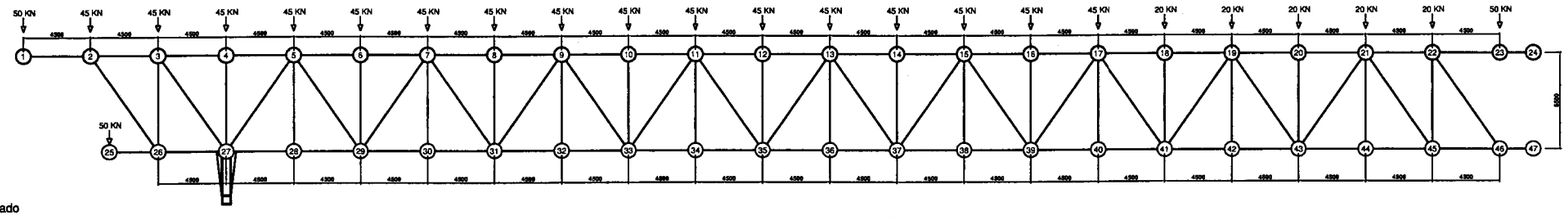


Apoyo intermedio - 1 conjuntos

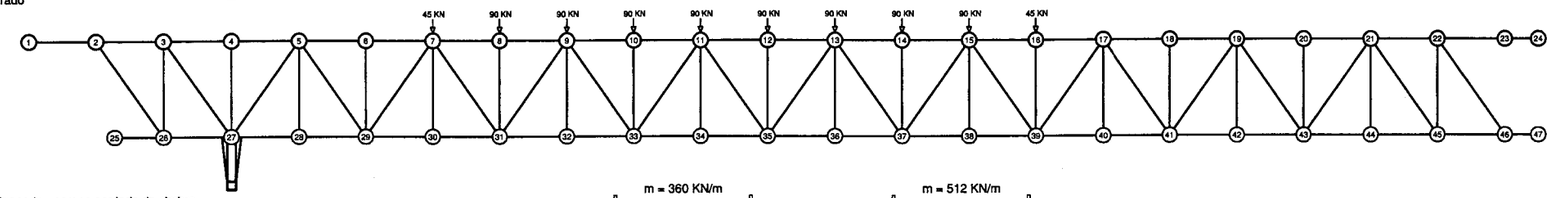




1 - Peso próprio

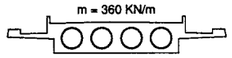


2 - Encofrado

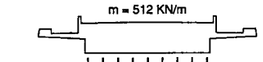


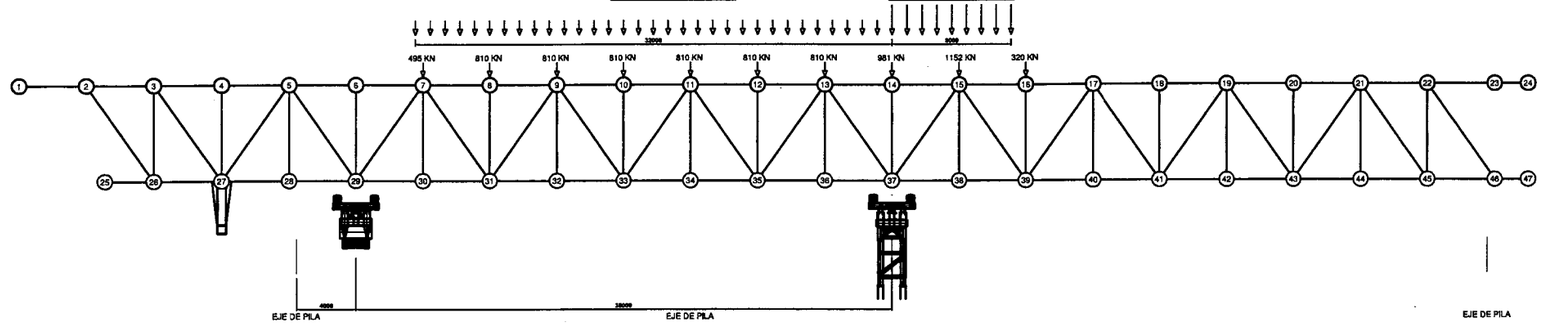
3 - Hormigonado - cargas por lado de cimbra

Area = 14.308 m2 ==> m = 357.7 KN/m



Area = 20.464 m2 ==> m = 511.6 KN/m



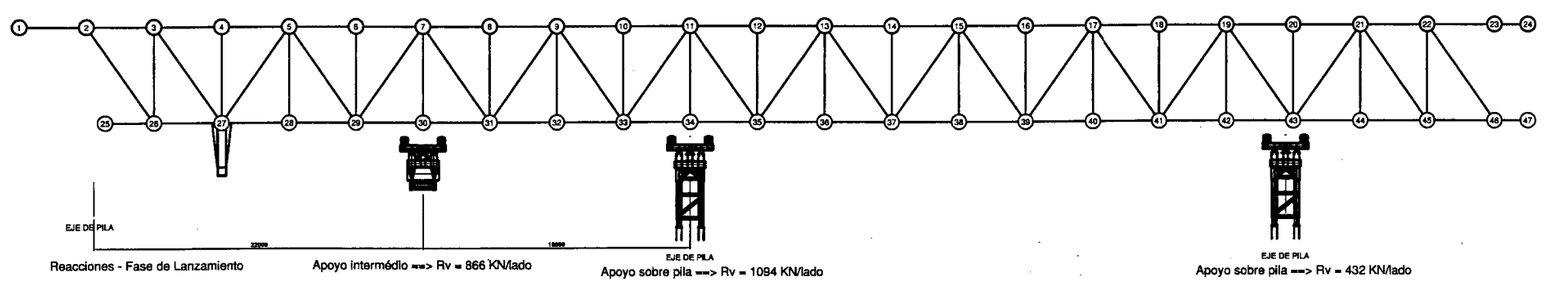


Reacciones - Fase de Hormigonado

Apoyo intermédio ==> Rv = 3180 KN/lado

Apoyo sobre pila ==> Rv = 7020 KN/lado

4 - Lanzamiento



Reacciones - Fase de Lanzamiento

Apoyo intermédio ==> Rv = 866 KN/lado

Apoyo sobre pila ==> Rv = 1094 KN/lado

Apoyo sobre pila ==> Rv = 432 KN/lado

APOYO A 36 m DE EJE DE PILA SEGUINTE

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ULMA Construcción

CIMBRA AUTOLANZABLE

VIADUCTO DE CORNELLA

CARGAS Y REACCIONES

Des.:	Esc.: 1:400	Data: 25/04/04	Des.: 404.001

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CÁLCULO DEL PRETENSADO DEL TABLERO

PEDELTA
ENGINYERIA CIVIL



1. Antecedentes

Toda la documentación facilitada por la Asistencia Técnica al Control de Obra acerca del Cálculo del pretensado del tablero del Viaducto de Cornelllá está recogida en los epígrafes adjuntos.

2. ACCIONES, MATERIALES, COEFICIENTES DE SEGURIDAD Y NORMATIVAS

2.1. ACCIONES

En el cálculo de los elementos estructurales se han considerado las siguientes acciones:

Acciones permanentes (G):

g1, PESO PROPIO.

El peso propio de los distintos elementos se ha calculado a partir de su geometría (secciones transversales) adoptando una densidad de valor γ =2,5 T/m^3 para la losa de hormigón.

El peso del tablero es: Sección aligerada, g1= 35,81 T/m

Sección maciza, g1= 50,12 T/m

g2, PESO DEL BALASTO Y CARGAS MUERTAS

Las cargas permanentes distintas del propio peso del tablero son las siguientes:

- Balasto
- Vías y traviesas
- Conductos de cableado y paseos
- Soportes de catenarias
- Impostas y barandillas

El peso de balasto sobre el tablero se calcula a partir de la plataforma en la estructura de vía tomando como densidad γ = 1,8 t/m^3.

Para la plataforma sobre el puente se obtiene $g_{2,\ balasto}$ = 8,377 T/m.

De acuerdo a las Bases de Cálculo se adoptarán para esta carga los siguientes valores característicos superior e inferior:

valor inferior (0.70 x peso medio) $g_{2,\ bal\ inf}$ = 10,89 T/m de tablero
valor superior (1.3 x peso medio) $g_{2,\ bal,\ sup}$ = 5,86 T/m de tablero

Se consideran dos hipótesis de desbalastado.

- 50% de una vía en toda su longitud.
- 100% de una vía sobre 15 metros.

El peso de vía y traviesas para la plataforma es:

$g_{\ 2,vías+traviesas}$ = (0,5 + 0,12) = 0,62 T/m
(trav) + (carril)

El peso de los conductos para cableados y zona de paseos es:

$g_{2,conductos}$ =0,60 T/ml

$q_{\ paseos}$ = 0,50 T/m^2 (esta carga en paseos se ha tratado como sobrecarga y no como carga permanente pudiendo actuar en las dos zonas extremas de paseo).

El peso de la impostas y barandillas es:

Se toma $g_{2,imposta+barandilla}$ = 2,00 T/m, de acuerdo a la sección tipo de plataforma.

El peso de los soportes de catenarias se tienen en cuenta sólo para efectos locales de anclaje de la catenaria y armado local de losa, pero no para el cálculo general del tablero.

También se ha tenido en cuenta el peso de la impermeabilización bituminosa del tablero:

$g_{2,impermeabilización}$ = Ancho x Espesor x Densidad = 8,93 x 0,05 x 2,4 = 1,07 T/m.

	g2, med (T/m)	**g2, inf (T/m)**	**g2, sup (T/m)**
Balasto	8,38	5,86	10,89
Vías y traviesas	0,62	0,62	0,62
Conductos cableado	0,60	0,60	0,60
Imposta y barandillas	2,00	2,00	2,00
Impermeabilización	1,07	1,07	1,07
TOTAL	**12,67**	**13,329**	**15,842**

Tabla 1. Carga permanente, g2

Acciones permanentes de valor no constante (G*):

PRETENSADO

Las fuerzas del pretensado se calculan para cada fase de construcción de acuerdo con las especificaciones de la normativa vigente para el proyecto con hormigón estructural (EHE).

Para la determinación de las pérdidas de pretensado se han utilizado los siguientes valores de los parámetros de cálculo:

El efecto de la relajación del acero de pretensado a 1000 horas es: $\rho_{1000horas}$= 2 % y la relajación a tiempo infinito ($\rho f=\rho_{1000000horas}$).

Tensión inicial	0.60 fmax	0.70 fmax	0.80 fmax
ρ1000horas (%)	1.0	2.0	5.5
ρf (1000000horas) (%)	2.9	5.8	16

Coeficiente de envejecimiento para el hormigón a tiempo infinito χ = 0.80

ACCIONES REOLÓGICAS.

Las acciones reolológicas se han determinado de acuerdo con las especificaciones de la normativa vigente para hormigón (EHE) diferenciando la retracción y la fluencia del hormigón.

RETRACCIÓN

$\varepsilon cs(t,ts)= \varepsilon cso\ \beta s\ (t-ts)$

$\varepsilon cso = \beta_{HR}\ (570-5\ fck)\ 10^{-6}$ (fck en MPa)

$\beta_{HR} = -1.55\ (1-(HR/100)^3)$

$$\beta s = \sqrt{\frac{t-ts}{0.035\,e^2+(t-ts)}} \qquad e = \frac{2\,Ac}{u}$$

t = edad del hormigón en el instante de evaluación (en días)
ts = edad del hormigón al comienzo de la retracción (en días)
εcso = coeficiente básico de retracción
HR = humedad relativa
βs = coeficiente que define la evolución de la retracción en el tiempo
e = espesor medio en mm
Ac = área de la sección transversal
u = perímetro en contacto con la atmósfera

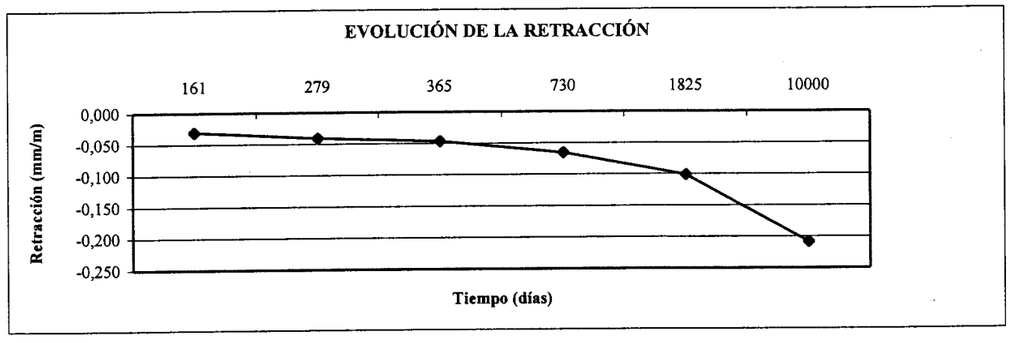
Los valores de la sección transversal tipo del tablero son los siguientes:

En la zona de construcción de las estructuras HR= 68 %

Sección transversal tipo: Ac=14,095 m^2 u=33 m e=854 mm

Cálculo del valor de la retracción en el tablero:

$\beta_{H\,R}$=-1,063 $\varepsilon cso=3{,}93x10^{-4}$ β_s(10.000 días) = 0,53 $\varepsilon cs(t,ts)= 1{,}77x10^{-4}$



FLUENCIA

$$\varepsilon c(t,to) = \sigma(to)\left[\frac{1}{Eo\,,to} + \frac{\varphi(t,to)}{Eo\,,28}\right]$$

$$\varphi(t,to) = \varphi o \beta c(t-to)$$

$$\varphi o = \varphi_{HR}\beta(fcm)\beta(to)$$

$$\varphi_{HR} = 1 + \frac{100-HR}{9.9e^{1/3}}$$

$$\beta(fcm) = \frac{16.8}{\sqrt{fck+8}}$$

$$\beta to = \frac{1}{0.1+to^{0.2}}$$

$$\beta c(t-to) = \left[\frac{t-to}{\beta_H + (t-to)}\right]^{0.3}$$

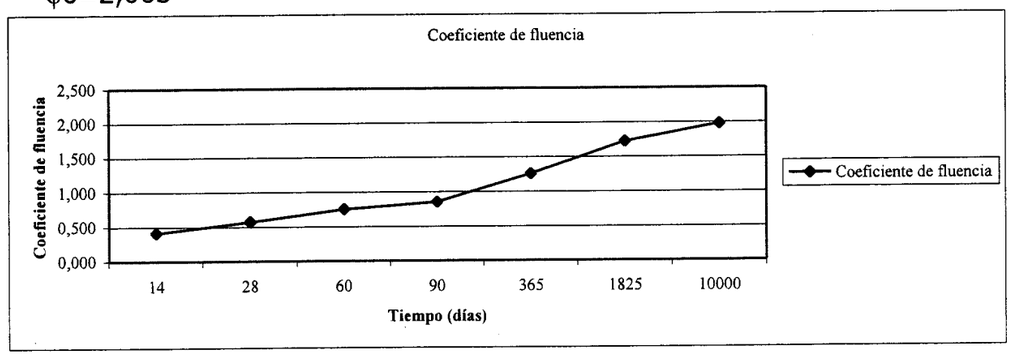
$$\beta_H = 1.5e\left[1+(0.012HR)^{18}\right] + 250 > /1500$$

σc = tensión media en el hormigón aplicada en el tiempo to
Eo,to = módulo de deformación en el tiempo to
φ(t,to) = coeficiente de fluencia
φo = coeficiente básico de fluencia

En el caso del tablero, adoptando un valor de aplicación de la fuerza de postesado to= 7 días tenemos

un coeficiente de fluencia a tiempo infinito (10000 días) φf=1,978

φ_{HR}=1,341
β_H = 1,500 $\beta_{c(}$(10000-10)= 0,959 βto=0,635 β(fcm)=2,425
φo=2,063



ASIENTOS DIFERENCIALES

Al estar cimentada la estructura sobre un terreno granular y mediante cimentación profunda no se prevée la existencia de asientos diferenciales significativos, por lo cual no se han tenido en cuenta en los cálculos.

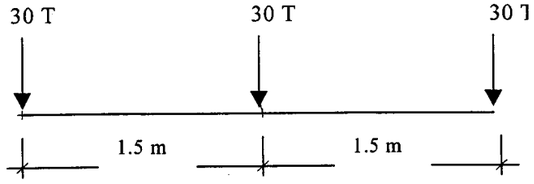
SOBRECARGAS DE USO. COMPONENTES VERTICALES.

En el cálculo de esfuerzos se ha empleado la envolvente de esfuerzos debidos a los trenes de carga de IPF-75 y del Eurocódigo 1 (parte 3, acciones en puentes), tomando como coeficiente de impacto correspondiente en cada caso.

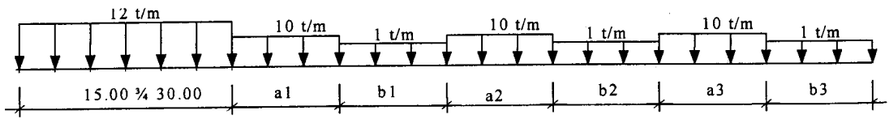
Los coeficientes de impacto no afectan al cálculo de apoyos, pilas y estribos, salvo aquellos casos en que la unión tablero-estructura fuera rígida. Esto conduciría a que el coeficiente de impacto afectaría a la subestructura para las fuerzas de frenado, transmitida al estribo a través del tope rígido longitudinal, y fuerza centrífuga, transmitida a través de apoyos tipo POT guiados. No obstante, la presencia del balasto supone una liberación en la rigidez de la transmisión de las fuerzas horizontales a los apoyos y topes, por lo que no se considera el coeficiente de impacto para estas acciones.

De acuerdo con la normativa IPF-75 Existen dos trenes de carga

Tipo A Por cada vía: Q_A = 3 ejes de 30 T separados 1.50 m



Tipo B Por cada vía: Sobrecarga uniforme de 12 T/m sobre 15 ó 30 metros, más un conjunto de cuchillos de carga de 10 T/m y 1 T/m de longitud arbitraria.

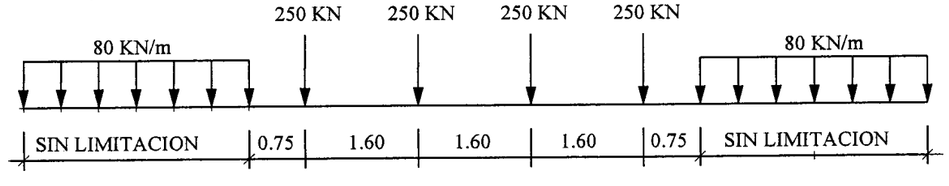


El tren tipo A suele condicionar el trabajo local de reparto de la losa y el tren tipo B condiciona el dimensionamiento general de la mayor parte de los Estados Límites Últimos o de Servicio.

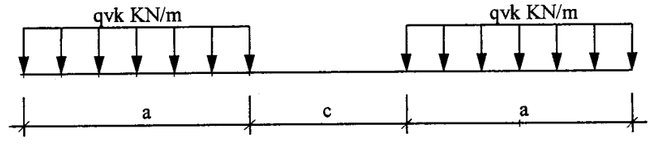
De acuerdo con las especificaciones de la IPF, no se admite reducción de cargas por simultaneidad entre ambas vías. En cualquier caso se debe contemplar la posibilidad de un ripado de la vía respecto al eje teórico de 0.30 m.

Los trenes de cargas del Eurocódigo 1 (parte 3, acciones en puentes) EC1-3 se definen de acuerdo con las configuraciones indicadas en las 2 figuras siguientes. En ambos casos, a efectos de cálculo se contemplará un eventual ripado de la vía de 0.30 m.

Tren tipo 71



Modelo de carga SW



Se considera adicionalmente un tren pesado equivalente al siguiente esquema de cargas (SW/0) ó (SW2) en una de las vías y el tren tipo 71 en la otra vía.

	SW0	SW2
q_{vk} (kN)	133	150
a (m)	15	25
c (m)	5,3	7

De acuerdo con la IPF-75, para algunas comprobaciones específicas asociadas a combinaciones de carga con viento transversal se considerará un tren sin carga de 12.5 KN/m.

Coeficientes de mayoración por impacto

De acuerdo con la normativa IPF75, se aplica la formulación siguiente:

$$I = 65\frac{\mu}{1-\mu+\mu^2}$$

El valor del coeficiente μ depende de la velocidad, la luz y el periodo de vibración de la estructura. En este viaducto se ha obtenido una primera frecuencia de flexión de valor f=3,26 Hz. Para una velocidad máxima de 160 Km/h se obtiene: I = 13,0 %.

De acuerdo con el Eurocódigo EC-1, para vías de mantenimiento normal.

$$\phi_2 = \frac{2{,}16}{\sqrt{L\phi}-0{,}20}+0{,}73 = 1{,}03$$

$L\phi = K * L_m = 55{,}35$ m

Este valor se debe emplear en el cálculo longitudinal del tablero. Los coeficientes a aplicar en el cálculo local se estudiarán en el apartado correspondiente.

En las zonas del tablero destinadas a mantenimiento (zonas de paseo) se considera una sobrecarga de 0,5 T/m^2, considerándose concomitante con las sobrecargas ferroviario un 50 % de dicha carga.

SOBRECARGAS DE USO. COMPONENTES HORIZONTALES.

EFECTO LAZO

En la estructura se considerará una única fuerza transversal concomitante con la sobrecarga vertical para contemplar el efecto lazo. El valor de dicha carga (que no debe ser mayorada con el coeficiente de impacto) es el siguiente:

Según IPF-75 H_T = 5 T aplicada a cota superior del carril.

Según EC1 H_T = 10,0 T aplicada a cota superior del carril.

FUERZA CENTRÍFUGA

En puentes de trazado curvo en planta se debe considerar la fuerza centrífuga, cuyo valor se puede obtener mediante la expresión siguiente:

IPF 75: $Fc = Q \times \frac{V^2}{127R}$

La expresión del Eurocódigo 1 es prácticamente igual a la de la IPF-75. La única diferencia es que la sobrecarga ferroviaria Q viene afectada de un coeficiente reductor f cuyo valor depende de la velocidad de circulación y la longitud sobre la que se aplica la carga.

Además el Eurocódigo propone el cálculo bajo dos supuestos:

1) Con V=120 km/h y f = 1.
2) Con V=Vmax de proyecto y f según la siguiente expresión.

$$f = \left[1-\frac{V-120}{1000}\cdot\left(\frac{814}{V}+1{,}75\right)\cdot\left(1-\sqrt{\frac{2{,}88}{Lf}}\right)\right]$$

Tanto para el EC-1 como para la IPF-75 se supondrá que la carga actua 1,80 m por encima del carril.

El cálculo de la fuerza centrífuga según las normativas referidas se presenta en las hojas siguientes.

ACCIONES CLIMÁTICAS

NIEVE

Según el borrador de la IAPF se debe aplicar una carga de nieve sobre la superficie de tablero en la que no se considere sobrecarga de uso. Para el cálculo del tablero se considera la posibilidad de tener sobrecarga en toda su superficie, por lo tanto no es necesario aplicar la sobrecarga de nieve.

VARIACIÓN UNIFORME DE TEMPERATURA

El puente está emplazado en la región climática III.

Por ser una losa aligerada de hormigón, la variación uniforme de temperatura viene dada por:

$\Delta T = K \cdot z^a \cdot h^b \cdot s^c = 24{,}91 \cdot 3^{0{,}292} \cdot 1.5^{-0{,}172} \cdot 10 = 32.00^o$

Adoptamos un valor de ± 20,0 ºC para tener en cuenta que el puente no se construye en el momento de temperatura extrema.

GRADIENTE TÉRMICO

$\nabla Tsi,ref$ = 12,0 ºC
K1= 0,83
K2= 1,00

Vertical positivo $\nabla TSI = (K1\ K2) \cdot \nabla TSI,ref$ = 10 ºC

Vertical negativo ∇TSI = 0ºC

Transversal ∇TT = 2.5 ºC si la estructura tiene dirección Este-Oeste (+/- 25 g)

ACCIÓN SÍSMICA

La aceleración sísmica básica de la zona, según la normativa vigente, es:

a_b= 0,04g.

La categoría de la estructura puede considerarse de especial importancia, lo que es equivalente a un factor de nivel de daño γ_1=1,3.

La aceleración de cálculo es: $a_c = \gamma_1\ a_b$ =0,052 g

Las acciones sísmicas en puentes sólo se consideran, de acuerdo con la IAP, para aceleraciones de cálculo superiores a 0.06g, por lo tanto no es preciso realizar el análisis sísmico del puente.

2.2. COEFICIENTES DE SEGURIDAD, MATERIALES, NIVELES DE CONTROL Y NORMATIVAS

HORMIGONES

- Tablero HP-40 / P / 20 / IIb

Control del hormigón ESTADÍSTICO

γc= 1,50 (Situación persistente o transitoria)
γc= 1,30 (Situación accidental)

El módulo de elasticidad se ha evaluado en todos los casos de acuerdo a la expresión de EHE:

$E_c = 8500 \sqrt[3]{f_{ck} + 8}$ (Nw/mm^2)

Los límites establecidos para la consistencia en la puesta en obra podrán superarse con el empleo de aditivos superfluidificantes, siempre que el valor de la relación agua-cemento cumpla los requisitos prefijados en EHE.

ACEROS

- Acero corrugado para la armadura pasiva B500S, con f_{yk} > 500 MPa (5100 Kp/cm^2)

- Acero de pretensado tipo 170/190 con tendones de 0,6 " (Y 1860 S7 15.2).

Control de los aceros NORMAL

γs= 1,15 (Situación persistente o transitoria)
γs= 1,00 (Situación accidental)

CONTROL DE EJECUCIÓN

El control de ejecución será INTENSO (γ_g= 1,35 y γ_{fq}= 1,50) en tablero de acuerdo con las especificaciones de la normativa EHE.

NORMAS UTILIZADAS

Para el establecimiento de acciones y las combinaciones necesarias para la obtención de las solicitaciones de cálculo que se emplearán en la comprobación de los diferentes Estados Límite se realizarán los cálculos empleando la normativa IPF-75 y los criterios especificados en los Eurocódigos, adoptándose el más desfavorable de ambos.

Cálculo según IPF-75

Para el cálculo de las acciones se utilizarán las siguientes instrucciones.

- Instrucción relativa a las acciones a considerar en el Proyecto de Puentes de Ferrocarril", correspondiente a la O.M. 25 de Junio de 1.975 (IPF-75).
- Norma de construcción Sismorresistente: Parte general y edificación (NCSE-94)" R.D. 29 de Diciembre de 1.994.

Para el cálculo de las acciones ambientales se utilizará la siguiente instrucción.

- Instrucción relativa a las acciones a considerar en el proyecto de Puentes de Carreteras I.A.P. 12 de Febrero de 1998.

Para establecer las hipótesis y combinaciones de cálculo y sus correspondientes coeficientes de ponderación se utilizarán las siguientes Instrucciones:

- Instrucción de Hormigón Estructural (EHE) R.D. 2661/1998 de 11 de Diciembre.

Cálculo según Eurocódigos y EHE

- Eurocódigo 1*: Bases de proyecto y acciones. Parte 3. Cargas de tráfico en puentes*. UNE-ENV 1991-3. Octubre 1997. (EC1.1.3.)

Para establecer las hipótesis y combinaciones de cálculo y sus correspondientes coeficientes de ponderación se utilizarán las siguientes Instrucciones:

- Eurocódigo 1: *Bases de proyecto y acciones en estructuras. Parte 1; Bases de proyecto*. UNE-ENV 1991-1, Octubre 1997 (EC1.1)

Para dimensionamiento y comprobación de secciones se actuará, en todo momento, de acuerdo con la normativa española;

- Instrucción de Hormigón Estructural EHE. R.D. 2661/1998 de 11 de Diciembre

El estudio de la fatiga de los materiales se hará de acuerdo con la siguiente norma:

- Eurocódigo 2: *Proyecto de estructuras de hormigón. Parte 2: Puentes de hormigón.* ENV 1992.2: Septiembre 1996. (EC2.2).

La comprobación de flechas, deformaciones y vibraciones se hará de acuerdo con la norma:

- Eurocódigo 1: *Bases de proyecto y acciones en estructuras. Parte 3: Cargas de tráfico en puentes* UNE-ENV 1991-3. Octubre 1997. (EC1.1.3).

Para el análisis de la interacción vía-estructura se empleará la siguiente norma:

- Norma U.I.C. Ficha 774.3 R. 1ª edición. Febrero 1999 (U.I.C. 774.3).

Subsidiariamente, y en lo no contemplado en las normas anterioriores se emplearán las siguientes:

- Norma UIC. Ficha 776.1. 3ª edición. 1 de Julio de 1.979. (U.I.C. 776.1)
- Norma UIC. Ficha 774-2. 1ª Edición. 1 de Julio de 1.974. (U.I.C. 774.2)
- Norma UIC. Ficha 702.0. 2ª Edición. 1 de Enero de 1.974. (U.I.C. 702.0)

2.3. AMBIENTES, RECUBRIMIENTOS, FISURACIÓN Y CUANTÍAS MÍNIMAS

De acuerdo con la normativa EHE se consideran los ambientes indicados en la tabla siguiente.

Elemento	Ambiente	Recubrimiento de Armadura pasiva (mm)	Límite de abertura de fisura Wmax (mm)	
			Hormigón armado	Hormigón postesado
Tablero	IIb	30	-	0,2

Se comprobará en ELS de fisuración que las armaduras activas se encuentran en la zona comprimida de la sección bajo la combinación de acciones cuasipermanentes.

Para las armaduras postesas el recubrimiento es el máximo de los siguientes valores: 4 cm o el diámetro de la vaina.

2.4. HIPÓTESIS DE COMBINACIÓN DE ESFUERZOS

Se han considerado las combinaciones de hipótesis de las acciones recogidas en la Normativas IAP y EHE, basados en la teoría de Estados Límites, para las distintas situaciones de cálculo de la estructura.

2.4.1. ESTADOS LÍMITES ÚLTIMOS

Las hipótesis de cálculo consideradas son:

- Situaciones persistentes o transitorias

$$\sum_{j \geq 1} \gamma_{Gj} G_{kj} + \sum \gamma_{Gj} G^*_{kj} + \gamma_{Q1} Q_{k1} + \sum_{i > 1} \gamma_{Qi} \Psi_{0i} Q_{ki}$$

- Situaciones accidentales

$$\sum_{j \geq 1} \gamma_{Gaj} G_{kj} + \sum \gamma_{Gj} G^*_{kj} + \gamma_A A_k + \Psi_{11} Q_{k1} + \sum_{i > 1} \gamma_{Qi} \Psi_{2i} Q_{ki}$$

- Situaciones accidentales de sismo

$$\sum G_{kj} + \sum \gamma_{Gj} G^*_{kj} + \gamma_i A_{Ed} + \sum_{i > 1} \gamma_{Qi} \Psi_{2i} Q_{ki}$$

$$j \geq 1$$

donde:

G = Valor característico de las cargas permanentes.
G* = Valor característico de las cargas permanentes de valor no constante.
Q_{k1} = Valor característico de la carga variable dominante.
A_k = Valor característico de la acción accidental
A_{eq} = Valor característico de la acción sísmica, calculado según la Norma Sismorresistente.

Los coeficientes de seguridad y de combinación de acciones empleados se definen en la EHE para control de ejecución intenso.

2.4.2. ESTADOS LÍMITES DE SERVICIO

Las hipótesis de cálculo consideradas son:

- Combinación característica

$$\sum_{j \geq 1} \gamma_{Gj} G_{kj} + \sum \gamma_{Gj} G^*_{kj} + \gamma_{Q1} Q_{k1} + \sum_{i > 1} \gamma_{Qi} \Psi_{0i} Q_{ki}$$

- Combinación frecuente

$$\sum_{j \geq 1} \gamma_{Gaj} G_{kj} + \sum \gamma_{Gj} G^*_{kj} + \Psi_{11} Q_{k1} + \sum_{i > 1} \gamma_{Qi} \Psi_{2i} Q_{ki}$$

- Combinación casi permanente

$$\sum_{j \geq 1} G_{kj} + \sum \gamma_{Gj} G^*_{kj} + \sum_{i > 1} \gamma_{Qi} \Psi_{2i} Q_{ki}$$

Se han adoptado los siguientes valores para los coeficientes de combinación:

Acción	Ψ_0	Ψ_1	Ψ_2
Sobrecarge de uso en las vías	0,80	0,80 para 1 vía cargada 0,60 para 2 vías cargadas	0,00
Viento	0,6	0,5	0,00
Temperatura	0,6	0,5	0,5

HOJAS DE CÁLCULO DE LAS ACCIONES

Proyecto: L.A.V. Madrid - Zaragoza - Barcelona - Frontera Francesa
Estructura: Viaducto de Cornellà

CÁLCULO DE LAS CARGAS MUERTAS EN LOS PUENTES DE L.A.V. DE VÍA DOBLE

Impermeabilización del tablero.

Ancho con impermeabilización bituminosa	8,93	Para ancho de puente de 14,00 m, distancia entre muretes guardabalasto = 10,10 m
Espesor	0,05 m	0,034 m para impermeabilización tipo 1.
Densidad	2,40 T/m3	
Valor de la carga	**1,07 T/m**	

Cableado y paseos

Valor de la carga	**0,6 T/m**	Según especificaciones de las bases de cálculo del GIF.

Traviesas y carriles

Número de vías	2
Carga por vía	0,64 T/m
Valor de la carga	**1,28 T/m**

Impostas, barandillas, canalizaciones y guardabalasto

Número	2
Carga total	1,00 T/m
Valor de la carga	**2,00 T/m**

Soportes de catenarias.

Valor de la carga	5,00 T	Dos cargas de este valor a 5,70 m a cada lado del eje del tablero sobre cada pila.

VALOR TOTAL DE LAS CARGAS MUERTAS (VALORES MEDIOS)

CARGA VERTICAL	[illegible] T	
MONENTO TORSOR	[illegible] T*m	Positivo hacia el exterior de la curva

VALOR TOTAL DE LAS CARGAS MUERTAS (VALORES MÁXIMOS)

CARGA VERTICAL	[illegible] T	
MONENTO TORSOR	5,576 T*m	Positivo hacia el exterior de la curva

Carga de balasto

Peralte	140 mm	
Espesor de balasto bajo traviesa	0,3 m	Mínimo 0,30 m.
Espesor de traviesa	0,242 m	0,242 m para monobloque .
Altura de carril	0,172 m	0,172 m para UIC-60.
Separación entre carriles	1,435 m	1,435 m para vía UIC.
Distancia entre eje de vía y centro de tablero (dv)	2,1 m	Normalmente 2,35 m
Distancia entre eje de vía exterior y borde superior de balasto (hombro)	1,82 m	Normalmente 1.82 m
Distancia entre eje de tablero e interior de guardabalasto (dg)	4,45 m	Normalmente 5.05 m

Resultados para la vía exterior

Distancia de eje de tablero a hombro	3,92 m
Altura de balasto en centro de tablero	0,379 m
Altura de balasto en extremo de hombro	0,840 m
Area 1-1	1,488 m2
Area 1-2	0,903 m2
Area 2	0,2227 m2
Excentricidad 1-1	1,9600 m
Excentricidad 1-2	2,6133 m
Excentricidad 2	4,097 m
Area total	2,613 m2
Excentricidad total	2,368 m
Peso total	**4,704 T**
Momento torsor	**11,139 T*m**

Resultados para la vía interior

Distancia de eje de tablero a hombro	3,92 m
Altura de balasto en centro de tablero	0,649 m
Altura de balasto en extremo de hombro	0,345 m2
Area 1-1	2,545 m2
Area 1-2	-0,596 m2
Area 2	0,091 m2
Excentricidad 1-1	1,960 m
Excentricidad 1-2	2,613 m
Excentricidad 2	4,097 m
Area total	2,041 m2
Excentricidad total	1,865 m
Peso total	**3,673 T**
Momento torsor	**6,850 T*m**

Valores totales para el conjunto de ambas vías. Valores máximos (=1,30*valores nominales)

Peso total	**10,890 T**	
Momento torsor	**5,576 T*m**	Positivo hacia el exterior de la curva

Valores totales para el conjunto de ambas vías. Valores mínimos (=0,70*valores nominales)

Peso total	**5,864 T**	
Momento torsor	**3,002 T*m**	Positivo hacia el exterior de la curva

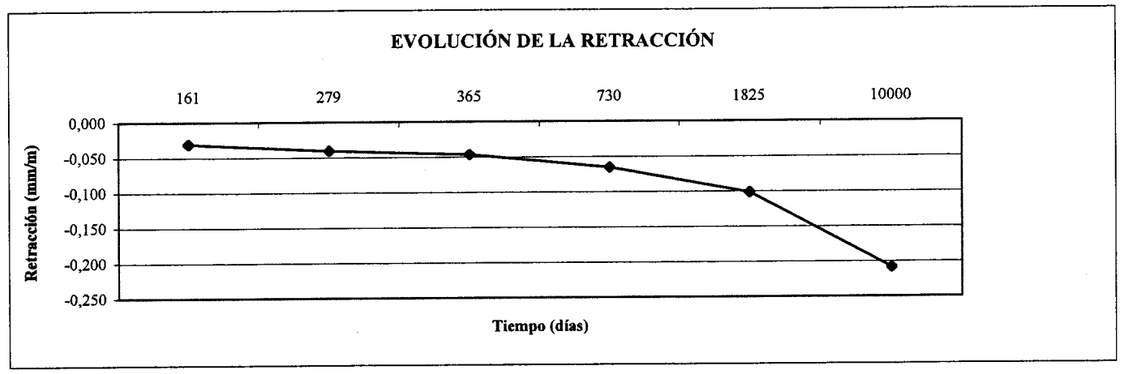
Proyecto: L.A.V. Madrid - Zaragoza - Barcelona - Frontera Francesa
Estructura: Viaducto de Cornellà

CALCULO DE RETRACCIÓN DEL HORMIGÓN PRETENSADO EN ALMAS. VALORES MÍNIMOS

Area de la sección	14,095	m2
Perímetro de la sección	33	m
fck	40	MPa
Humedad Relativa	68	%
Módulo de deformación (Ec,28)	30891	MPa
Módulo de deformación (Ec,7)	24713	MPa
Módulo de deformación cargas rápidas (Ec,28)	36342	MPa
fctk	2,46	MPa
fctm	3,51	MPa
Espesor equivalente	854	mm
Comienzo retracción	0	días
Final de retracción	10.000	días
BetaHR	-1,063	
Coef. básico de retracción	-0,00039317	

Evolución de la retracción del hormigón

Tiempo (días)	beta,s	Eps,cs	Eps,cs (mm/m)
161	0,07915	-3,11184E-05	-0,031
279	0,10395	-4,08707E-05	-0,041
365	0,11870	-4,66696E-05	-0,047
730	0,16670	-6,55407E-05	-0,066
1825	0,25824	-0,000101534	-0,102
10000	0,53044	-0,000208556	-0,209
		Valor acumulado	**-0,177**

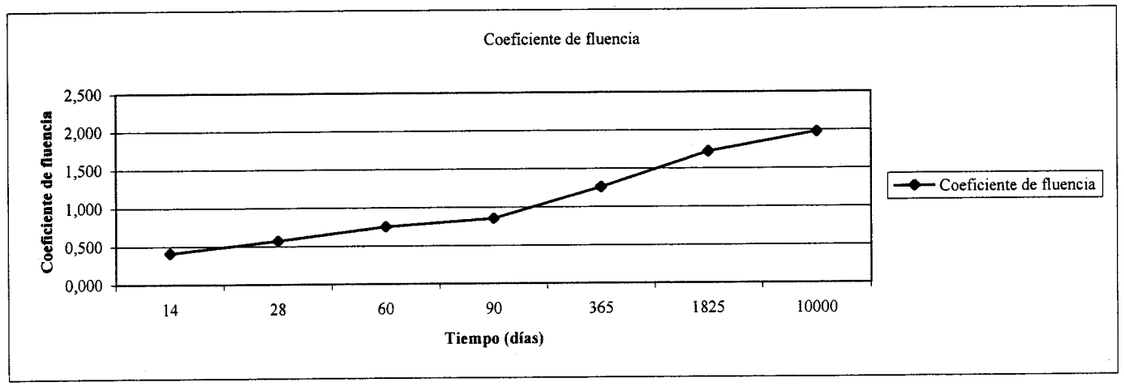


CÁLCULO DE LA FLUENCIA DEL HORMIGÓN

Phi,HR	1,341
beta(fcm)	2,425
Puesta en carga, to, en días	7
beta(to)	0,635
betaH	1500
betac (10000)	0,959
Phi (t=10000)	**1,978**
Coeficiente de relajación	0,726

Evolución de la fluencia del hormigón

Tiempo (días)	beta,c	Phio	Phi (t=10000)
14	0,200	2,063	0,412
28	0,277	2,063	0,571
60	0,363	2,063	0,749
90	0,413	2,063	0,852
365	0,610	2,063	1,259
1825	0,835	2,063	1,722
10000	0,959	2,063	1,978



CÁLCULO DE LA FUERZA CENTRÍFUGA SEGÚN LAS ESPECIFICACIONES DEL EUROCÓDIGO 1.

Proyecto: L.A.V. Madrid - Zaragoza - Barcelona - Frontera Francesa
Estructura: Viaducto de Cornellà

DATOS BÁSICOS

RADIO MEDIO DEL PUENTE (m) =	R =	1.300
VELOCIDAD DE DISEÑO (km/h) =	V =	160
PUENTE CONTÍNUO (SÍ = 1) =		1

DATOS COMPLEMENTARIOS

COEFICIENTE DE CLASIFICACIÓN	α =	1,00
COEFICIENTE DE IMPACTO =	ϕ =	1,00
LONGITUD CARGADA EN PILAS (en m) =	L_{fp} =	80,00
LONGITUD CARGADA EN ESTRIBO (en m) =	L_{fe} =	32,70

VALORES DE LAS CARGAS

TREN LM71	qk =	80	kN/m
	Qk =	250	kN
	c =	6,4	m
TREN SW/0	qk =	133	kN/m
	a =	15	m
	c =	5,3	m
TREN SW/2	qk =	150	kN/m
	a =	25	m
	c =	7,0	m

RESULTADOS

FUERZA CENTRÍFUGA SEGÚN EL TREN DE CARGA TIPO

	TREN LM71				TREN SW/0		TREN SW/2
	Caso a		Caso b		Caso a	Caso b	
	qk	Qk	qk	Qk	qk	qk	qk
	kN/m	kN	kN/m	kN	kN/m	kN/m	kN/m
PILA	6,98	21,80	9,66	30,17	11,60	16,05	5,81
ESTRIBO	6,98	21,80	10,02	31,31	11,60	16,66	5,81

Caso a v=120 km/h
Caso b v=350 km/h

FUERZA CENTRÍFUGA. VALOR DE LA RESULTANTE MÁXIMA EN KN.

	LM71	SW/0	SW/2
PILA	831,35	481,58	290,73
ESTRIBO	388,73	456,38	149,44

Hipótesis de cálculo:
De acuerdo con el EC1 la expresión utilizada para el cálculo de la fuerza centrífuga es la siguiente.

$$Q_{centrifuga} = \frac{V^2}{127 \cdot R} \cdot (f \cdot Q_{trafico})$$

Para los trenes LM71 y SW/0 se han considerado dos casos de carga:

Caso a: V = 120 km/h y f (factor de reducción) = 1
Caso b: V igual a la de diseño y f según la expresión del EC.

$$f = \left[1 - \frac{V - 120}{1000} \cdot \left(\frac{814}{V} + 1{,}75\right) \cdot \left(1 - \sqrt{\frac{2{,}88}{Lf}}\right)\right]$$

Si V<= 120 km/h ==> f = 1.
Si Lf <= 2,88 m ==> f = 1.
f >= 0,35

En el cálculo del factor de reducción f se ha tomado como velocidad máxima 300 km/h.

Los valores obtenidos son válidos para el caso de tráfico en una sola vía.
La velocidad de diseño de la vía se ha supuesto mayor o igual a 80 km/h.
La longitud de aplicación de las cargas se ha supuesto mayor que 2,88 m.

CÁLCULO DE LA FUERZA CENTRÍFUGA SEGÚN LAS ESPECIFICACIONES DE LA IPF-75

Proyecto: L.A.V. Madrid - Zaragoza - Barcelona - Frontera Francesa
Estructura: Viaducto de Cornellà

DATOS BÁSICOS

RADIO MEDIO DEL PUENTE (m) =	R =	1.300
VELOCIDAD DE DISEÑO (km/h) =	V =	160
COEFICIENTE DE IMPACTO =	ϕ =	1,13
LONGITUD CARGADA (m) =	L =	80,00

VALORES DE LAS CARGAS

TREN TIPO A	Qk =	300	kN
	c =	1,5	m
TREN TIPO B	qk1 =	120	kN/m
	a =	30	m
	qk2 =	100	kN/m

CÁLCULOS INTERMEDIOS

COCIENTE V2/127R	0,15506
Longitud aplicación qk1	30,00
Longitud aplicación qk2	50,00
Número de cargas Qk	3

RESULTADOS

FUERZA CENTRÍFUGA SEGÚN EL TREN DE CARGA

TREN A	TREN B	
Qk	qk1	qk2
kN	kN/m	kN/m
52,56	21,03	17,52

FUERZA CENTRÍFUGA. VALOR TOTAL RESULTANTE

TREN TIPO A	TREN TIPO B
157,69	1506,85

Hipótesis de cálculo:
De acuerdo con la instrucción IPF-75 la expresión utilizada para el cálculo de la fuerza centrífuga es la siguiente:

$$Q_{centrifuga} = \frac{V^2}{127 \cdot R} \cdot Q_{trafico}$$

Los valores obtenidos son válidos para el caso de tráfico en una sola vía.

CÁLCULO DE EXCENTRICIDADES - LÍNEA DE ALTA VELOCIDAD

Proyecto: **L.A.V. Madrid - Zaragoza - Barcelona - Frontera Francesa**
Estructura: **Viaducto de Cornellà**

REFERENCIA
V= 160 km/h
R = 1 300

EC-1 LM71	Carga vertical	8	T/m
	Fuerza centrífuga	1	T/m
EC-1 SW/0	Carga vertical	13,3	T/m
	Fuerza centrífuga	1,6	T/m
EC-1 SW/2	Carga vertical	15	T/m
	Fuerza centrífuga	0,58	T/m
IPF-75 TIPO A	Carga vertical	30	T
	Fuerza centrífuga	5,26	T
IPF-75 TIPO B	Carga vertical	12	T/m
	Fuerza centrífuga	2,1	T/m
Distancia fib. sup. al c.d.g. del tablero		1,148	m
Peralte		140	mm
Altura del c.d.g. del tren sobre carril		1,8	m
Distancia entre carriles		1,435	m
Distancia eje vía-eje tablero		2,1	m
Dif de cotas carril director-centro tablero		0,658	m

Excentricidades respecto eje de vía

Ripado	0,3	m
Peralte	0,175	m
L.M. 71 y SW/0 (EC1)	0,080	m

Fuerza centrífuga respecto eje de vía

b= 3,667 m

Momento debido a la Fuerza Centrífuga

LM-71	3,667
SW/0	5,868
SW/2	2,127
TIPO A	19,291
TIPO B	7,702

[mT/m]

Excentricidad debida a la Fuerza Centrífuga (m)

LM-71	0,458
SW/0	0,441
SW/2	0,142
TIPO A	0,643
TIPO B	0,642

[m]

Excentricidad total respecto eje de vía

	LM-71	SW/0	SW/2	TIPO A	TIPO B
Peralte-f.centr+ripado	0,096	0,113	0,333	-0,168	-0,167
Peralte-f.centr-ripado	-0,663	-0,646	-0,267	-0,768	-0,767
Peralte+ripado	0,555	0,555	0,475	0,475	0,475

[m]

Excentricidad total respecto eje de tablero

VÍA INTERIOR

	LM-71	SW/0	SW/2	TIPO A	TIPO B
Peralte-f.centr+ripado	**2,196**	**2,213**	**2,433**	**1,932**	**1,933**
Peralte-f.centr-ripado	**1,437**	**1,454**	**1,833**	**1,332**	**1,333**
Peralte+ripado	**2,655**	**2,655**	**2,575**	**2,575**	**2,575**

[m]

VÍA EXTERIOR

	LM-71	SW/0	SW/2	TIPO A	TIPO B
Peralte-f.centr+ripado	**-2,004**	**-1,987**	**-1,767**	**-2,268**	**-2,267**
Peralte-f.centr-ripado	**-2,763**	**-2,746**	**-2,367**	**-2,868**	**-2,867**
Peralte+ripado	**-1,545**	**-1,545**	**-1,625**	**-1,625**	**-1,625**

[m]

PROYECTO: L.A.V. Madrid - Zaragoza - Barcelona - Frontera Francesa
OBRA DE FÁBRICA: Viaducto de Cornellà

CÁLCULO DE LA VARIACIÓN UNIFORME DE TEMPERATURA EN EL TABLERO

Datos	
Zona	3
Tipo de tablero (ver tabla adjunta)	2
Canto, m	2,09
Separación entre ejes de vigas (sólo puentes de vigas), m	0,00

Cálculos intermedios	
k	24,91
a	0,292
b	-0,172
c	0,000
Canto de cálculo, m	1,500
Separación de cálculo entre vigas, m	1,000

Resultados	
Valor total de la variación uniforme de temperatura, ºC	**32,0**
Valor de cálculo de la variación de temperatura, Δtd= Δt/2+4	**20,0**

Valores de k, a, b, c y h

Tipología de tablero	Tipo de tablero	k	a	b	c	Canto mínimo	Canto máximo
Losa maciza de hormigón	1	23,89	0,292	-0,139	0	0,3	1,2
Losa aligerada de hormigón	2	24,91	0,292	-0,172	0	0,6	1,5
Cajón de hormigón	3	29,13	0,301	-0,148	0	1,7	4
Vigas de hormigón	4	26,9	0,3	-0,088	0,057	0,6	2,5
Cajón metálico	5	39,77	0,234	-0,069	0	1,5	4,5
Vigas metálicas	6	40,11	0,228	-0,072	0	2	6

CÁLCULO DEL GRADIENTE TÉRMICO EN EL TABLERO

Datos		
Gradiente de referencia	12,0	
Factor de corrección relativo al canto del tablero, K1	0,830	
Factor de corrección relativo a existencia de balasto, K2	1,000	(se podría reducir a 0.6, según IAPF)

Resultados	
Valor del gradiente térmico positivo, ºC	**10,0**

Proyecto: **L.A.V. Madrid - Zaragoza - Barcelona - Frontera Francesa**

Estructura: **Viaducto de Cornellà**

Características de la sección transversal del tablero

Canto tablero	2 m
Distancia de fibra neutra a base inferior	1 m
Número de vigas o cajones	1 ud
Canto viga o cajón	2 m
Distancia libre entre vigas	0 m
Ancho tablero	14 m
Altura de barrera	1 m
Relación de solidez barrera	1
Altura de balasto	0,73 m
Distancia entre barrera y balasto	1,64 m
Número de vías	2 ud

Valores sin tráfico

Espaciamiento relativo entre barreras	13
Espaciamiento relativo balasto	1,64
Espaciamiento relativo entre vigas	0,00
Coeficiente de ocultamiento barreras	1
Coeficiente de ocultamiento balasto	0,1
Coeficiente de ocultamiento vigas	0
Altura equivalente sin trafico	3 m
Area transversal sin tráfico	4,793 m
CD sin trafico	1,30

Valores con tráfico en 1 vía

Separación entre ejes de vías	4,7 m
Distancia de eje de vía a barrera	4,57 m
Espaciamiento relativo entre barrera y tren	1,82
Espaciamiento relativo balasto	1,64
Espaciamiento relativo entre vigas	0,00
Coeficiente de ocultamiento barreras	0,1
Coeficiente de ocultamiento balasto	0,1
Coeficiente de ocultamiento vigas	0
Altura equivalente con trafico	6 m
CD con trafico	1,800
Area transversal con tráfico en 1 vía	7,893 m2

Inclinación media del tablero+barrera	0 °
Coeficiente reductor de CD	1
Altura de tablero	10 m
Altura equivalente con trafico	6 m
CD con trafico	1,80
Longitud del tablero	362 m

Tabla de valores del coeficiente de ocultamiento

Espaciamiento relativo	Relación de solidez					
	0,1	0,2	0,3	0,4	0,5	0,6
0	0,75	0,4	0,31	0,22	0,13	0,06
1	1	0,82	0,64	0,46	0,28	0,1
2	1	0,84	0,68	0,52	0,36	0,2
3	1	0,86	0,72	0,59	0,45	0,31
4	1	0,89	0,78	0,68	0,57	0,46
5	1	1	0,92	0,85	0,77	0,69
6	1	1	1	1	1	1
	1	2	3	4	5	6

Valores con tráfico en ambas vías

Espaciamiento relativo entre barrera y tren	0,64 m
Espaciamiento relativo balasto	1,64 m
Espaciamiento relativo entre vigas	0,00
Espaciamiento relativo entre trenes	0,6
Coeficiente de ocultamiento barreras	0,06
Coeficiente de ocultamiento balasto	0,1
Coeficiente de ocultamiento vigas	0
Coeficiente de ocultamiento de trenes	0,06
Altura equivalente con trafico	6 m
CD con trafico	1,80
Area transversal con tráfico en ambas vías	8,09 m2

Notación :

Fh= Componente horizontal del empuje de viento
Fv= Componente vertical del empuje de viento
Mv= Momento de vuelco debido al empuje de viento

El viento longitudinal equivale a un 25 % del viento transversa

Empuje de viento máximo sobre el tablero

Esfuerzos totales en tablero

Altura media del tablero+barrera	Cz	Cg	Vc (m/s)	Pw (T/m2)	Fh (T/m)	Fv (T/m)	Mv(mT/m)	Fh (T)	Fv (T)	Mv(mT)
10	1,007	1,524	44,66	0,162	0,777	0,873	3,676	281,20	315,91	1330,64

Empuje de viento concomitante con sobrecarga sobre el tablero en una vía

Esfuerzos totales en tablero

Altura media del tablero+barrera	Cz	Cg	Vc (m/s)	Pw (T/m2)	Fh (T/m)	Fv (T/m)	Mv(mT/m)	Fh (T)	Fv (T)	Mv(mT)
11,5	1,033	1,512	45,50	0,116	0,919	0,453	3,975	332,78	163,96	1439,11

Empuje de viento concomitante con sobrecarga sobre el tablero en las dos vías

Esfuerzos totales en tablero

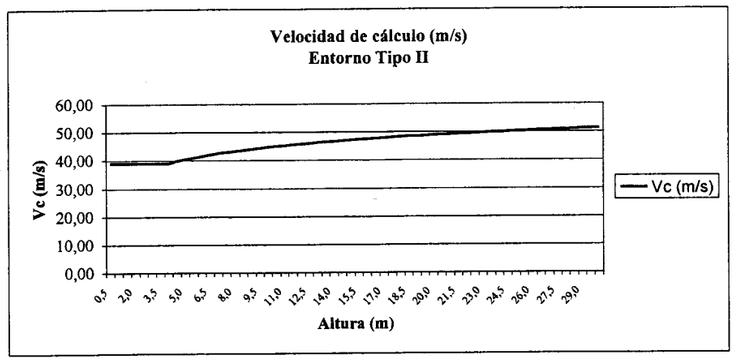
Altura media del tablero+barrera	Cz	Cg	Vc (m/s)	Pw (T/m2)	Fh (T/m)	Fv (T/m)	Mv(mT/m)	Fh (T)	Fv (T)	Mv(mT)
11,5	1,033	1,512	45,50	0,116	0,943	0,453	4,036	341,22	163,96	1461,03

VIADUCTO DE CORNELLÀ

CÁLCULO DE EMPUJES DE VIENTO

Vref	28 m/s
Ct	1
Periodo de retorno	100
Cr	1,04
Entorno Tipo	2
Kz	0,19
zo	0,05 m
Zmin	4 m

Altura (m)	Cr	Cz	Vc (m/s)
0,5	0,833	1,612	39,07
1,0	0,833	1,612	39,07
1,5	0,833	1,612	39,07
2,0	0,833	1,612	39,07
2,5	0,833	1,612	39,07
3,0	0,833	1,612	39,07
3,5	0,833	1,612	39,07
4,0	0,833	1,612	39,07
4,5	0,855	1,599	39,80
5,0	0,875	1,587	40,45
5,5	0,893	1,578	41,03
6,0	0,910	1,569	41,56
6,5	0,925	1,561	42,05
7,0	0,939	1,555	42,50
7,5	0,952	1,548	42,92
8,0	0,964	1,542	43,31
8,5	0,976	1,537	43,68
9,0	0,987	1,532	44,03
9,5	0,997	1,528	44,35
10,0	1,007	1,524	44,66
10,5	1,016	1,520	44,96
11,0	1,025	1,516	45,24
11,5	1,033	1,512	45,50
12,0	1,041	1,509	45,76
12,5	1,049	1,506	46,00
13,0	1,057	1,503	46,24
13,5	1,064	1,500	46,47
14,0	1,071	1,497	46,68
14,5	1,077	1,495	46,89
15,0	1,084	1,492	47,10
15,5	1,090	1,490	47,29
16,0	1,096	1,488	47,48
16,5	1,102	1,486	47,67
17,0	1,107	1,484	47,84
17,5	1,113	1,482	48,02
18,0	1,118	1,480	48,19
18,5	1,124	1,478	48,35
19,0	1,129	1,476	48,51
19,5	1,134	1,474	48,66
20,0	1,138	1,473	48,81
20,5	1,143	1,471	48,96
21,0	1,148	1,469	49,10
21,5	1,152	1,468	49,24
22,0	1,156	1,466	49,38
22,5	1,161	1,465	49,51
23,0	1,165	1,463	49,64
23,5	1,169	1,462	49,77
24,0	1,173	1,461	49,90
24,5	1,177	1,459	50,02
25,0	1,181	1,458	50,14
25,5	1,185	1,457	50,26
26,0	1,188	1,456	50,37
26,5	1,192	1,455	50,48
27,0	1,195	1,453	50,60
27,5	1,199	1,452	50,70
28,0	1,202	1,451	50,81
28,5	1,206	1,450	50,92
29,0	1,209	1,449	51,02
29,5	1,212	1,448	51,12
30,0	1,215	1,447	51,22



3. CÁLCULO ESTRUCTURAL DEL TABLERO

3.1. CÁLCULO DEL TABLERO CON ESQUEMA ESTRUCTURAL DEFINITIVO

3.1.1. CÁLCULO ESTRUCTURAL CON MODELO DE VIGA CONTINUA

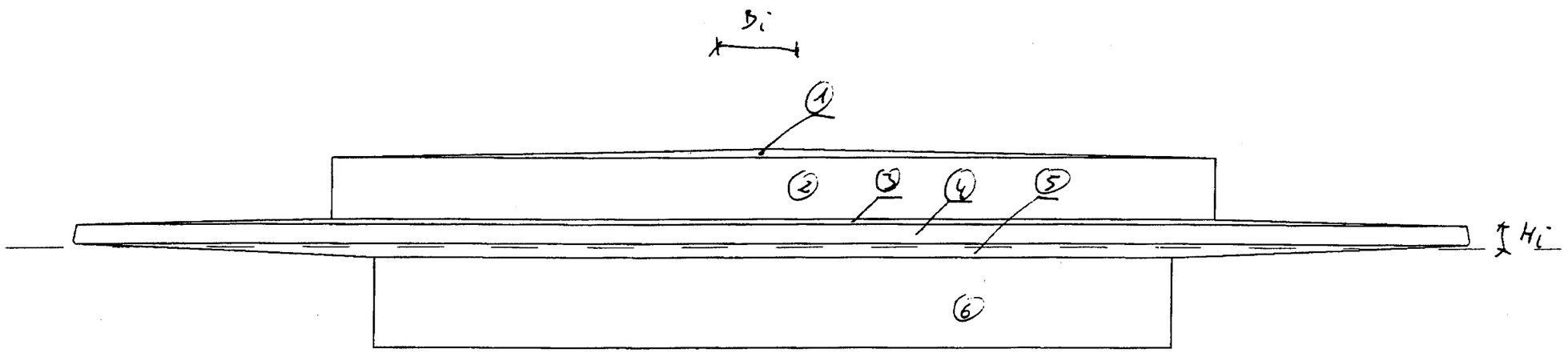
3.1.1.1. DISCRETIZACIÓN Y CARACTERÍSTICAS MECÁNICAS

Se modela el tablero mediante un emparrillado plano constituido por un nervio longitudinal, coincidente con el eje de viga en planta, considerándose 3 grados de libertad por nudo (desplazamiento vertical, giro de flexión longitudinal de la barra y giro a torsión). El nervio longitudinal se ha dividido para cada uno de los vanos del tablero en 20 barras de igual longitud asignando las características mecánicas en cada uno de los extremos de la barra. Las propiedades mecánicas de la barra se obtienen como media de las características de sus secciones extremas. En la zona de estribos se ha simulado la riostra de apoyo mediante 2 barras transversales, una a cada lado del nervio longitudinal, con su extremo final coincidente con la posición real de los apoyos tipo POT. En las barras transversales de las riostras de apoyo se ha despreciado su rigidez a torsión. En los apoyos se han prescrito únicamente los movimientos verticales del nudo. En los apoyos empotrados en las pilas se ha despreciado la rigidez de las mismas.

La numeración de nudos y barras es correlativa, tomando como origen el extremo izquierdo del nervio longitudinal, en último lugar se numeran las barras y nudos que permiten simular las riostras de apoyo en los dos estribos. La discretización adoptada aparece en las hojas y esquemas adjuntos.

PROPIEDADES DE LAS SECCIONES

SECCIÓN MACIZA.
DIVISIÓN EN TRAPECIOS



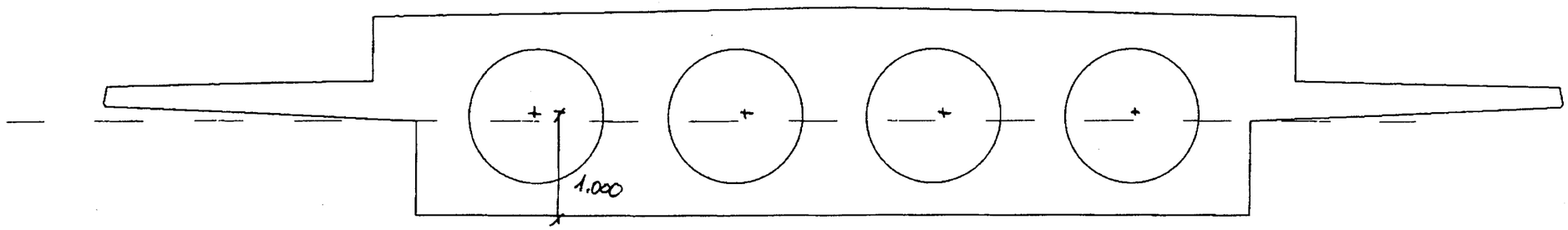
TRAPECIO	H	BSUP	BINF
1	0,093	0	9.33
2	0,65	9,33	9.33
3	0,053	9,33	14,672
4	0,202	14,672	14,695
5	0,149	14,695	8.427
6	0,952	8,427	8,427

$\Sigma = (2,10)$

Valores en m

SECCIÓN ALIGERADA.

POSICIÓN DE ALIGERAMIENTOS



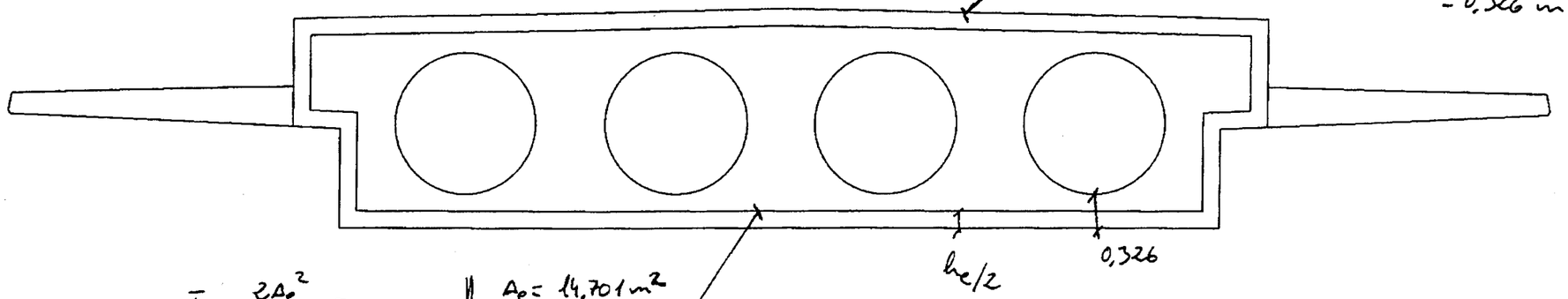
TODOS A IGUAL COTA

TODOS ϕ 1,350

PROPIEDADES A TORSIÓN

$A = 18,284\ m^2$
$u = 22,632\ m$ $\Rightarrow h_e = \min\left(0,326;\ \frac{A}{u}\right) = \min\left(0,326;\ \frac{18,284}{22,632}\right) =$

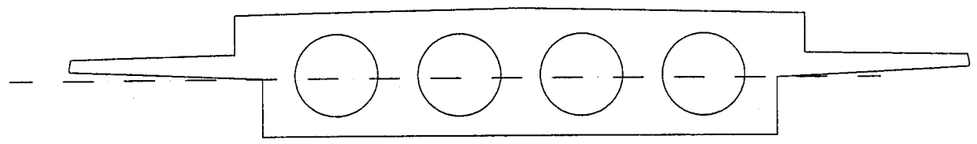
$= 0,326\ m$



$A_e = 14,701\ m^2$
$u_e = 21,334\ m$ $\Leftarrow$

$$I_T = \frac{2A_e^2}{\left(\frac{u_e}{h_e}\right)} = \frac{2 \cdot 14,701^2}{\left(\frac{21,334}{0,326}\right)} = 6,60\ m^4$$

SECCIÓN ALIGERADA (SEC-01)



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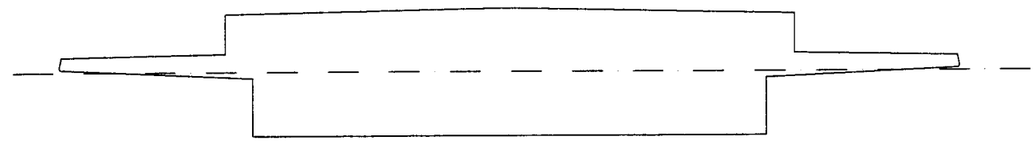
PROGRAMA DE CALCULO DE LA RESPUESTA A FLEXION
DE SECCIONES DE HORMIGON ARMADO O PRETENSADO

Referencia de la seccion: SEC-01

CARACTERISTICAS DE LA SECCION

AREA	(m2)	=	14.32263
PESO	(T/ml	=	35.80632
INERCIA	(m4)	=	5.74581
CANTO	(m)	=	2.099
V_SUP	(m)	=	1.010
V_INF	(m)	=	1.089
fc	(T/m2)	=	4000.000
No de Trapecios		=	906

SECCIÓN MACIZA (SEC-02)



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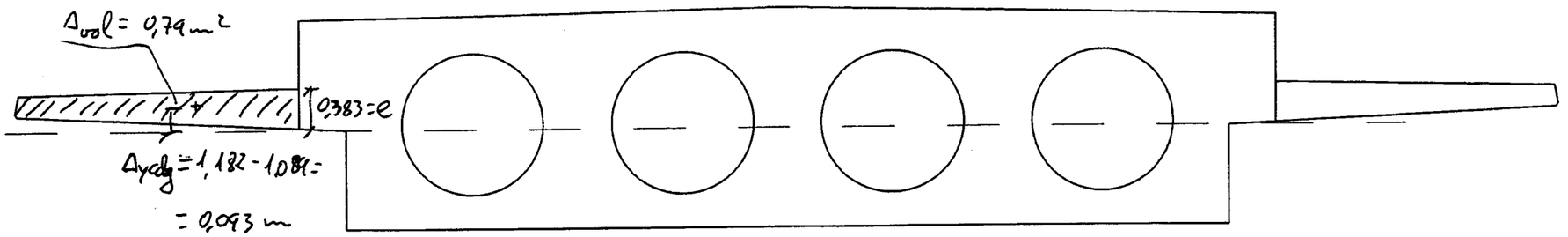
PROGRAMA DE CALCULO DE LA RESPUESTA A FLEXION
DE SECCIONES DE HORMIGON ARMADO O PRETENSADO

Referencia de la seccion: SEC-02

CARACTERISTICAS DE LA SECCION

AREA	(m2)	=	20.04765
PESO	(T/ml	=	50.11912
INERCIA	(m4)	=	6.43116
CANTO	(m)	=	2.099
V_SUP	(m)	=	1.035
V_INF	(m)	=	1.064
fc	(T/m2)	=	4000.000
No de Trapecios		=	906

SECCIÓN ALIGERADA. PROPIEDADES A RASANTE.

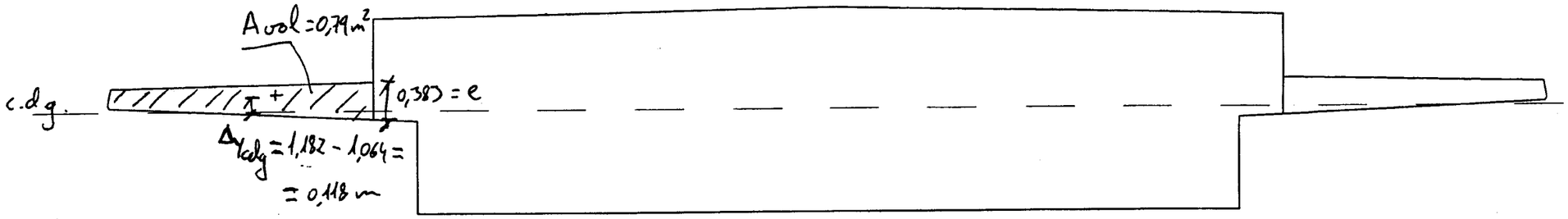


$$\alpha_v = \frac{me}{I \cdot e} = \frac{A_{vol} \cdot \Delta_{yddg}}{I \cdot e} = \frac{0{,}79 \cdot 0{,}093}{6{,}43 \cdot 0{,}383} = 0{,}030$$

$$\beta_v = \alpha_v \cdot e = 0{,}030 \cdot 0{,}383 = 0{,}011$$

$$p = 2 \cdot \left(1 - \frac{h_e}{b}\right) = 2 \cdot \left(1 - \frac{0.326}{(8{,}427 - 4 \cdot 1.35)}\right) = 1{,}784$$ (Parámetro de interacción cortante-torsión).

SECCIÓN MACIZA. PROPIEDADES A RASANTE

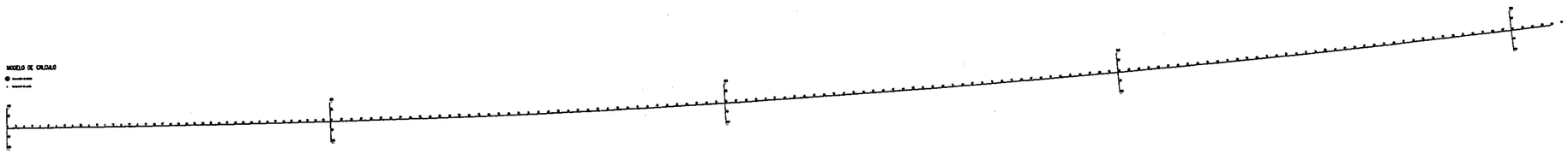


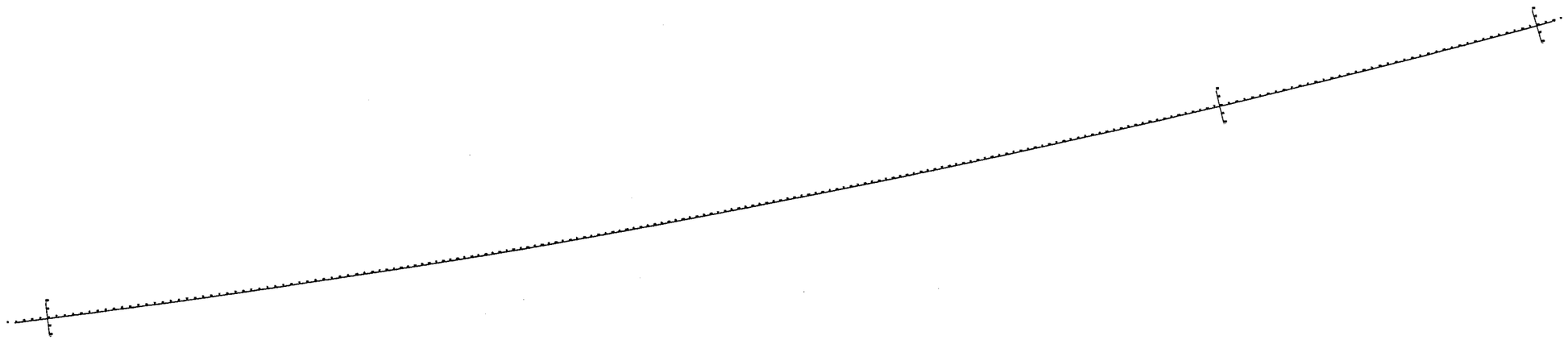
$$\alpha_v = \frac{me}{I \cdot e} = \frac{A_{vol} \cdot \Delta_{ycdg}}{I \cdot e} = \frac{0,79 \cdot 0,118}{6,43 \cdot 0,383} = 0,038$$

$$\beta_v = \alpha_v \cdot e = 0,03 \cdot 0,383 = 0,014$$

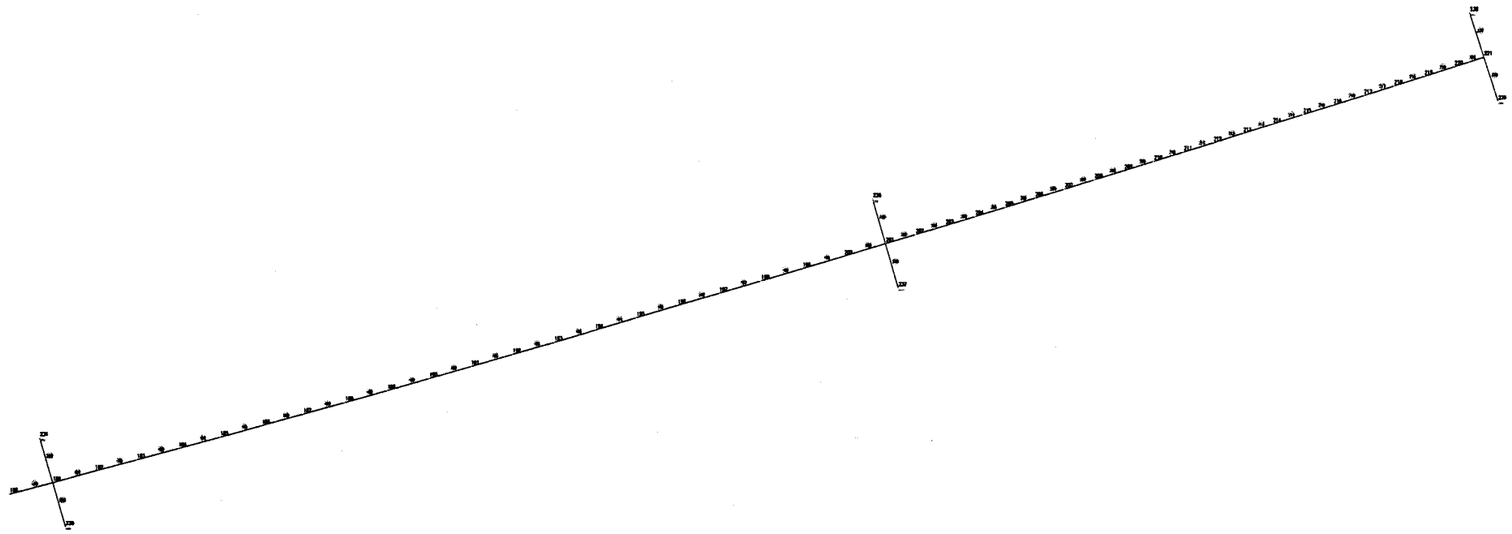
MODELO DE CÁLCULO

Vanos 1 a 4





Vanos 4 a 9



Vanos 9 a 11

3.1.2. CÁLCULO DE ESFUERZOS LONGITUDINALES

El cálculo de esfuerzos longitudinales con el modelo de análisis estructural expuesto se detalla a continuación.

La notación adoptada para cada una de las hipótesis de carga es la siguiente:

g1	Peso propio de la estructura.
g2	Carga permanente.
q	Sobrecarga uniforme de ferrocarril.
ΔT	Gradiente de temperatura.
Pii	Pretensado inicial de descimbrado (pretensado parcial con pérdidas iniciales).
Pi	Pretensado inicial (con pérdidas iniciales).
P∞	Pretensado final (con pérdidas iniciales y diferidas).

En los listados aparece la siguiente información:

1. Datos generales.
2. Discretización: numeración de barras y nudos, coordenadas de los nudos condiciones de vinculación.
3. Cargas en los nudos para cada hipótesis de carga.
4. Reacciones para cada hipótesis de carga.
5. Esfuerzos en extremo de barra para cada hipótesis de carga.

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                                                                    Pag.    1


------------------------------------------------

  Referencia del Proyecto:


  Viaducto Cornellà

------------------------------------------------

                        DATOS GENERALES DEL EMPARRILLADO
    ==================================

        No. de Barras =  238
        No. de Nudos  =  239
        No. de Nudos con condiciones impuestas =   21
        No. de Materiales =    3
        No. de Hipotesis de carga =    1


        Propiedades de barras =1, de secciones =0

        TIPO DE PROPIEDADES   =  0
```

```
PROPIEDADES DE LOS MATERIALES
==============================


   MATERIAL/SECCION     1


   Inercia a Flexion       (m4)    =      5.7458100
   Modulo de Torsion       (m4)    =      6.5999999
   Area a Cortante         (m2)    =      0.0000000
   Modulo de elasticidad (T/m2)    =   3089100.00
   Coeficiente de Poisson          =         0.16
   Canto  (m)    =      2.10000
   Vsup   (m)    =      1.01100
   Vinf   (m)    =      1.08900

   MATERIAL/SECCION     2


   Inercia a Flexion       (m4)    =      6.4311600
   Modulo de Torsion       (m4)    =      6.5999999
   Area a Cortante         (m2)    =      0.0000000
   Modulo de elasticidad (T/m2)    =   3089100.00
   Coeficiente de Poisson          =         0.16
   Canto  (m)    =      2.10000
   Vsup   (m)    =      1.03600
   Vinf   (m)    =      1.06400
```

PROPIEDADES DE LOS MATERIALES
==========

MATERIAL/SECCION 3

Inercia a Flexion	(m4)	=	1.6200000
Modulo de Torsion	(m4)	=	0.0001000
Area a Cortante	(m2)	=	0.0000000
Modulo de elasticidad	(T/m2)	=	3089100.00
Coeficiente de Poisson		=	0.16
Canto (m)	=	2.10000	
Vsup (m)	=	1.05000	
Vinf (m)	=	1.05000	

DISCRETIZACION. DATOS DE LAS BARRAS
==========

Barra	Nudo 1	Nudo 2	No.de Secc Nud.1	No.de Secc Nud.2	No. MAT
1	1	2	2	2	1
2	2	3	1	1	2
3	3	4	1	1	2
4	4	5	1	1	2
5	5	6	1	1	2
6	6	7	1	1	2
7	7	8	1	1	2
8	8	9	1	1	2
9	9	10	1	1	2
10	10	11	1	1	2
11	11	12	1	1	2
12	12	13	1	1	2
13	13	14	1	1	2
14	14	15	1	1	2
15	15	16	1	1	2
16	16	17	1	1	2
17	17	18	1	1	2
18	18	19	1	1	2
19	19	20	1	1	2
20	20	21	2	2	1
21	21	22	2	2	1
22	22	23	2	2	1
23	23	24	2	2	1
24	24	25	2	2	1
25	25	26	1	1	2
26	26	27	1	1	2
27	27	28	1	1	2
28	28	29	1	1	2
29	29	30	1	1	2
30	30	31	1	1	2
31	31	32	1	1	2
32	32	33	1	1	2
33	33	34	1	1	2
34	34	35	1	1	2
35	35	36	1	1	2
36	36	37	1	1	2
37	37	38	1	1	2
38	38	39	1	1	2
39	39	40	1	1	2
40	40	41	2	2	1
41	41	42	2	2	1
42	42	43	2	2	1
43	43	44	2	2	1
44	44	45	2	2	1
45	45	46	1	1	2
46	46	47	1	1	2
47	47	48	1	1	2

DISCRETIZACION. DATOS DE LAS BARRAS

Barra	Nudo 1	Nudo 2	No.de Secc Nud.1	No.de Secc Nud.2	No. MAT
48	48	49	1	1	2
49	49	50	1	1	2
50	50	51	1	1	2
51	51	52	1	1	2
52	52	53	1	1	2
53	53	54	1	1	2
54	54	55	1	1	2
55	55	56	1	1	2
56	56	57	1	1	2
57	57	58	1	1	2
58	58	59	1	1	2
59	59	60	1	1	2
60	60	61	2	2	1
61	61	62	2	2	1
62	62	63	2	2	1
63	63	64	2	2	1
64	64	65	2	2	1
65	65	66	1	1	2
66	66	67	1	1	2
67	67	68	1	1	2
68	68	69	1	1	2
69	69	70	1	1	2
70	70	71	1	1	2
71	71	72	1	1	2
72	72	73	1	1	2
73	73	74	1	1	2
74	74	75	1	1	2
75	75	76	1	1	2
76	76	77	1	1	2
77	77	78	1	1	2
78	78	79	1	1	2
79	79	80	1	1	2
80	80	81	2	2	1
81	81	82	2	2	1
82	82	83	2	2	1
83	83	84	2	2	1
84	84	85	2	2	1
85	85	86	1	1	2
86	86	87	1	1	2
87	87	88	1	1	2
88	88	89	1	1	2
89	89	90	1	1	2
90	90	91	1	1	2
91	91	92	1	1	2
92	92	93	1	1	2
93	93	94	1	1	2
94	94	95	1	1	2

DISCRETIZACION. DATOS DE LAS BARRAS

Barra	Nudo 1	Nudo 2	No.de Secc Nud.1	No.de Secc Nud.2	No. MAT
95	95	96	1	1	2
96	96	97	1	1	2
97	97	98	1	1	2
98	98	99	1	1	2
99	99	100	1	1	2
100	100	101	2	2	1
101	101	102	2	2	1
102	102	103	2	2	1
103	103	104	2	2	1
104	104	105	2	2	1
105	105	106	1	1	2
106	106	107	1	1	2
107	107	108	1	1	2
108	108	109	1	1	2
109	109	110	1	1	2
110	110	111	1	1	2
111	111	112	1	1	2
112	112	113	1	1	2
113	113	114	1	1	2
114	114	115	1	1	2
115	115	116	1	1	2
116	116	117	1	1	2
117	117	118	1	1	2
118	118	119	1	1	2
119	119	120	1	1	2
120	120	121	2	2	1
121	121	122	2	2	1
122	122	123	2	2	1
123	123	124	2	2	1
124	124	125	2	2	1
125	125	126	1	1	2
126	126	127	1	1	2
127	127	128	1	1	2
128	128	129	1	1	2
129	129	130	1	1	2
130	130	131	1	1	2
131	131	132	1	1	2
132	132	133	1	1	2
133	133	134	1	1	2
134	134	135	1	1	2
135	135	136	1	1	2
136	136	137	1	1	2
137	137	138	1	1	2
138	138	139	1	1	2
139	139	140	1	1	2
140	140	141	2	2	1
141	141	142	2	2	1

DISCRETIZACION. DATOS DE LAS BARRAS

Barra	Nudo 1	Nudo 2	No.de Secc Nud.1	No.de Secc Nud.2	No. MAT
142	142	143	2	2	1
143	143	144	2	2	1
144	144	145	2	2	1
145	145	146	1	1	2
146	146	147	1	1	2
147	147	148	1	1	2
148	148	149	1	1	2
149	149	150	1	1	2
150	150	151	1	1	2
151	151	152	1	1	2
152	152	153	1	1	2
153	153	154	1	1	2
154	154	155	1	1	2
155	155	156	1	1	2
156	156	157	1	1	2
157	157	158	1	1	2
158	158	159	1	1	2
159	159	160	1	1	2
160	160	161	2	2	1
161	161	162	2	2	1
162	162	163	2	2	1
163	163	164	2	2	1
164	164	165	2	2	1
165	165	166	1	1	2
166	166	167	1	1	2
167	167	168	1	1	2
168	168	169	1	1	2
169	169	170	1	1	2
170	170	171	1	1	2
171	171	172	1	1	2
172	172	173	1	1	2
173	173	174	1	1	2
174	174	175	1	1	2
175	175	176	1	1	2
176	176	177	1	1	2
177	177	178	1	1	2
178	178	179	1	1	2
179	179	180	1	1	2
180	180	181	2	2	1
181	181	182	2	2	1
182	182	183	2	2	1
183	183	184	2	2	1
184	184	185	2	2	1
185	185	186	1	1	2
186	186	187	1	1	2
187	187	188	1	1	2
188	188	189	1	1	2

DISCRETIZACION. DATOS DE LAS BARRAS

Barra	Nudo 1	Nudo 2	No.de Secc Nud.1	No.de Secc Nud.2	No. MAT
189	189	190	1	1	2
190	190	191	1	1	2
191	191	192	1	1	2
192	192	193	1	1	2
193	193	194	1	1	2
194	194	195	1	1	2
195	195	196	1	1	2
196	196	197	1	1	2
197	197	198	1	1	2
198	198	199	1	1	2
199	199	200	1	1	2
200	200	201	2	2	1
201	201	202	2	2	1
202	202	203	2	2	1
203	203	204	2	2	1
204	204	205	2	2	1
205	205	206	1	1	2
206	206	207	1	1	2
207	207	208	1	1	2
208	208	209	1	1	2
209	209	210	1	1	2
210	210	211	1	1	2
211	211	212	1	1	2
212	212	213	1	1	2
213	213	214	1	1	2
214	214	215	1	1	2
215	215	216	1	1	2
216	216	217	1	1	2
217	217	218	1	1	2
218	218	219	1	1	2
219	219	220	1	1	2
220	220	221	2	2	1
221	1	222	3	3	3
222	1	223	3	3	3
223	21	224	3	3	3
224	21	225	3	3	3
225	41	226	3	3	3
226	41	227	3	3	3
227	61	228	3	3	3
228	61	229	3	3	3
229	81	230	3	3	3
230	81	231	3	3	3
231	161	232	3	3	3
232	161	233	3	3	3
233	181	234	3	3	3
234	181	235	3	3	3
235	201	236	3	3	3

DISCRETIZACION. DATOS DE LAS BARRAS

Barra	Nudo 1	Nudo 2	No.de Secc Nud.1	Nud.2	No. MAT
236	201	237	3	3	3
237	221	238	3	3	3
238	221	239	3	3	3

PROPIEDADES DE LAS BARRAS

MATERIAL 1

Inercia a Flexion	(m4)	=	6.4311600
Modulo de Torsion	(m4)	=	6.5999999
Area a Cortante	(m2)	=	0.0000000
Modulo de elasticidad	(T/m2)	=	3089100.00
Modulo de deformacion G	(T/m2)	=	1791678.00
Canto	(m)	=	2.10000
Vsup	(m)	=	1.03600
Vinf	(m)	=	1.06400

MATERIAL 2

Inercia a Flexion	(m4)	=	5.7458100
Modulo de Torsion	(m4)	=	6.5999999
Area a Cortante	(m2)	=	0.0000000
Modulo de elasticidad	(T/m2)	=	3089100.00
Modulo de deformacion G	(T/m2)	=	1791678.00
Canto	(m)	=	2.10000
Vsup	(m)	=	1.01100
Vinf	(m)	=	1.08900

MATERIAL 3

Inercia a Flexion	(m4)	=	1.6200000
Modulo de Torsion	(m4)	=	0.0001000
Area a Cortante	(m2)	=	0.0000000
Modulo de elasticidad	(T/m2)	=	3089100.00
Modulo de deformacion G	(T/m2)	=	1791678.00
Canto	(m)	=	2.10000
Vsup	(m)	=	1.05000
Vinf	(m)	=	1.05000

COORDENADAS DE LOS NUDOS

Nudo	X	Y
1	0.000	0.000
2	1.635	0.000
3	3.270	0.002
4	4.905	0.006
5	6.540	0.012
6	8.175	0.021
7	9.810	0.031
8	11.445	0.043
9	13.080	0.058
10	14.715	0.074
11	16.350	0.093
12	17.985	0.113
13	19.620	0.136
14	21.255	0.160
15	22.890	0.187
16	24.524	0.216
17	26.159	0.247
18	27.794	0.280
19	29.428	0.315
20	31.063	0.352
21	32.698	0.391
22	34.697	0.441
23	36.696	0.495
24	38.694	0.552
25	40.693	0.612
26	42.692	0.674
27	44.690	0.740
28	46.689	0.809
29	48.687	0.882
30	50.685	0.957
31	52.683	1.035
32	54.681	1.116
33	56.679	1.201
34	58.677	1.288
35	60.674	1.379
36	62.672	1.472
37	64.669	1.569
38	66.666	1.669
39	68.663	1.772
40	70.660	1.878
41	72.657	1.987
42	74.654	2.099
43	76.651	2.214
44	78.648	2.332
45	80.645	2.453
46	82.641	2.578
47	84.637	2.705
48	86.633	2.836

COORDENADAS DE LOS NUDOS

Nudo	X	Y
49	88.629	2.969
50	90.625	3.106
51	92.620	3.246
52	94.616	3.389
53	96.611	3.535
54	98.605	3.683
55	100.600	3.836
56	102.594	3.991
57	104.588	4.149
58	106.582	4.310
59	108.576	4.474
60	110.569	4.642
61	112.562	4.812
62	114.554	4.986
63	116.546	5.162
64	118.538	5.342
65	120.529	5.524
66	122.520	5.710
67	124.511	5.899
68	126.501	6.091
69	128.491	6.285
70	130.481	6.483
71	132.470	6.684
72	134.459	6.888
73	136.448	7.096
74	138.437	7.306
75	140.425	7.519
76	142.413	7.735
77	144.400	7.955
78	146.388	8.177
79	148.374	8.403
80	150.361	8.631
81	152.347	8.863
82	154.334	9.097
83	156.320	9.335
84	158.306	9.576
85	160.291	9.820
86	162.276	10.067
87	164.261	10.317
88	166.245	10.570
89	168.229	10.826
90	170.213	11.085
91	172.196	11.348
92	174.179	11.613
93	176.161	11.881
94	178.143	12.153
95	180.125	12.427
96	182.106	12.705

COORDENADAS DE LOS NUDOS

Nudo	X	Y
97	184.086	12.985
98	186.066	13.269
99	188.046	13.555
100	190.026	13.845
101	192.004	14.138
102	193.735	14.396
103	195.466	14.657
104	197.196	14.920
105	198.926	15.186
106	200.656	15.454
107	202.385	15.724
108	204.114	15.997
109	205.842	16.272
110	207.570	16.549
111	209.298	16.828
112	211.025	17.110
113	212.752	17.395
114	214.478	17.681
115	216.204	17.970
116	217.930	18.261
117	219.656	18.555
118	221.381	18.850
119	223.105	19.149
120	224.829	19.449
121	226.553	19.752
122	228.276	20.057
123	229.999	20.364
124	231.722	20.674
125	233.444	20.986
126	235.166	21.301
127	236.887	21.617
128	238.608	21.936
129	240.328	22.258
130	242.048	22.581
131	243.768	22.907
132	245.487	23.236
133	247.205	23.566
134	248.924	23.899
135	250.641	24.234
136	252.359	24.572
137	254.076	24.912
138	255.792	25.254
139	257.508	25.598
140	259.223	25.945
141	260.938	26.294
142	262.702	26.656
143	264.464	27.020
144	266.226	27.386

COORDENADAS DE LOS NUDOS

Nudo	X	Y
145	267.988	27.755
146	269.749	28.126
147	271.510	28.499
148	273.270	28.875
149	275.029	29.254
150	276.788	29.635
151	278.547	30.018
152	280.305	30.404
153	282.062	30.792
154	283.819	31.183
155	285.575	31.576
156	287.331	31.972
157	289.086	32.369
158	290.841	32.770
159	292.595	33.173
160	294.349	33.578
161	296.102	33.986
162	298.049	34.441
163	299.996	34.900
164	301.942	35.362
165	303.888	35.827
166	305.833	36.295
167	307.777	36.766
168	309.720	37.240
169	311.662	37.717
170	313.604	38.196
171	315.545	38.679
172	317.486	39.165
173	319.425	39.654
174	321.364	40.146
175	323.302	40.641
176	325.239	41.138
177	327.176	41.639
178	329.111	42.143
179	331.046	42.649
180	332.981	43.159
181	334.914	43.672
182	336.799	44.175
183	338.682	44.680
184	340.566	45.189
185	342.448	45.700
186	344.330	46.214
187	346.210	46.731
188	348.090	47.251
189	349.970	47.773
190	351.848	48.299
191	353.726	48.827
192	355.603	49.358

COORDENADAS DE LOS NUDOS

Nudo	X	Y
193	357.479	49.892
194	359.354	50.428
195	361.229	50.967
196	363.102	51.510
197	364.975	52.054
198	366.847	52.602
199	368.719	53.152
200	370.589	53.704
201	372.459	54.260
202	373.810	54.663
203	375.161	55.068
204	376.511	55.474
205	377.861	55.881
206	379.211	56.290
207	380.560	56.700
208	381.909	57.110
209	383.257	57.523
210	384.605	57.937
211	385.952	58.352
212	387.299	58.769
213	388.646	59.187
214	389.992	59.606
215	391.338	60.026
216	392.684	60.448
217	394.029	60.871
218	395.374	61.294
219	396.718	61.720
220	398.062	62.147
221	399.406	62.574
222	0.001	2.100
223	-0.001	-2.100
224	32.630	2.490
225	32.765	-1.708
226	72.554	4.084
227	72.760	-0.111
228	112.381	6.904
229	112.743	2.720
230	152.107	10.949
231	152.587	6.776
232	295.614	36.028
233	296.589	31.943
234	334.343	45.693
235	335.485	41.651
236	371.882	56.279
237	373.036	52.241
238	398.767	64.575
239	400.045	60.574

CONDICIONES DE VINCULACION

Nudo	Codigo	RX	RZ	RY
101	1 1 0	0.000	0.000	0.000
121	1 1 0	0.000	0.000	0.000
141	1 1 0	0.000	0.000	0.000
222	0 1 0	0.000	0.000	0.000
223	0 1 0	0.000	0.000	0.000
224	0 1 0	0.000	0.000	0.000
225	0 1 0	0.000	0.000	0.000
226	0 1 0	0.000	0.000	0.000
227	0 1 0	0.000	0.000	0.000
228	0 1 0	0.000	0.000	0.000
229	0 1 0	0.000	0.000	0.000
230	0 1 0	0.000	0.000	0.000
231	0 1 0	0.000	0.000	0.000
232	0 1 0	0.000	0.000	0.000
233	0 1 0	0.000	0.000	0.000
234	0 1 0	0.000	0.000	0.000
235	0 1 0	0.000	0.000	0.000
236	0 1 0	0.000	0.000	0.000
237	0 1 0	0.000	0.000	0.000
238	0 1 0	0.000	0.000	0.000
239	0 1 0	0.000	0.000	0.000

Ancho de banda = 669

HIPOTESIS 1 PESO PROPIO

REACCIONES

Nudo	Flector	Reac_vert	Torsor
101	0.00000	1478.99915	-33.48496
121	0.00000	1349.74036	32.72787
141	0.00000	1385.23206	-3.68331
222	0.00000	247.09691	0.00000
223	0.00000	255.94542	0.00000
224	0.00000	790.61383	0.00000
225	0.00000	790.03186	0.00000
226	0.00000	790.01147	0.00000
227	0.00000	788.53650	0.00000
228	0.00000	785.29895	0.00000
229	0.00000	784.04474	0.00000
230	0.00000	802.09381	0.00000
231	0.00000	795.00842	0.00000
232	0.00000	752.35480	0.00000
233	0.00000	752.43750	0.00000
234	0.00000	797.85059	0.00000
235	0.00000	796.04865	0.00000
236	0.00000	720.62061	0.00000
237	0.00000	720.88940	0.00000
238	0.00000	212.75130	0.00000
239	0.00000	216.72035	0.00000

SUMA DE REACCIONES

Suma Momentos Flectores	=	0.000
Suma Reacciones Vertic.	=	16012.328
Suma Momentos Torsores	=	-4.440

HIPOTESIS 1 PESO PROPIO

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.00	455.44	-18.58	-677.66	-373.50	18.58
2	677.69	373.49	-17.73	-1240.49	-314.94	17.73
3	1240.52	314.95	-16.17	-1707.60	-256.40	16.17
4	1707.58	256.39	-14.02	-2078.93	-197.85	14.02
5	2078.92	197.89	-11.40	-2354.53	-139.34	11.40
6	2354.57	139.17	-8.45	-2534.32	-80.63	8.45
7	2534.31	80.73	-5.25	-2618.48	-22.19	5.25
8	2618.45	22.15	-1.96	-2606.89	36.39	1.95
9	2606.88	-36.24	1.31	-2499.75	94.78	-1.31
10	2499.64	-94.82	4.46	-2296.77	153.36	-4.46
11	2296.68	-153.40	7.35	-1998.01	211.95	-7.35

HIPOTESIS 1 PESO PROPIO

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
12	1997.93	-212.05	9.87	-1603.45	270.60	-9.87
13	1603.43	-270.62	11.88	-1113.06	329.16	-11.88
14	1113.10	-329.17	13.28	-527.05	387.71	-13.28
15	526.97	-387.65	13.95	154.68	446.20	-13.95
16	-154.79	-446.19	13.75	932.20	504.73	-13.75
17	-932.24	-504.81	12.58	1805.52	563.36	-12.58
18	-1805.54	-563.35	10.30	2774.49	621.89	-10.30
19	-2774.49	-621.89	6.82	3839.16	680.43	-6.82
20	-3839.17	-680.42	2.00	5018.69	762.37	-2.00
21	-5018.69	818.27	-3.80	3482.65	-718.05	3.80
22	-3482.65	718.06	-9.17	2147.01	-617.84	9.17
23	-2146.98	617.82	-12.48	1011.77	-517.60	12.48
24	-1011.75	517.59	-14.02	76.94	-417.37	14.02
25	-76.92	417.39	-14.14	-686.12	-345.79	14.14
26	686.12	345.75	-13.09	-1305.92	-274.15	13.09
27	1305.97	274.12	-11.08	-1782.48	-202.52	11.08
28	1782.52	202.55	-8.34	-2115.93	-130.95	8.34
29	2115.89	130.90	-5.09	-2306.15	-59.30	5.08
30	2306.08	59.30	-1.54	-2353.10	12.30	1.54
31	2353.09	-12.37	2.08	-2256.84	83.97	-2.08
32	2256.77	-83.92	5.55	-2017.42	155.52	-5.55
33	2017.36	-155.53	8.66	-1634.77	227.13	-8.66
34	1634.69	-227.11	11.17	-1109.02	298.70	-11.17
35	1109.01	-298.71	12.88	-440.12	370.31	-12.88
36	440.13	-370.31	13.56	371.93	441.91	-13.56
37	-371.99	-441.86	12.98	1327.13	513.46	-12.98
38	-1327.17	-513.51	10.94	2425.57	585.11	-10.94
39	-2425.57	-585.10	7.21	3667.13	656.70	-7.21
40	-3667.14	-656.69	1.57	5080.47	756.91	-1.57
41	-5080.50	821.64	-3.16	3537.21	-721.38	3.16
42	-3537.21	721.39	-8.60	2194.45	-621.13	8.60
43	-2194.42	621.11	-11.98	1052.27	-520.85	11.98
44	-1052.23	520.85	-13.59	110.60	-420.59	13.59
45	-110.59	420.61	-13.76	-659.14	-348.98	13.76
46	659.15	348.93	-12.75	-1285.49	-277.31	12.75
47	1285.58	277.33	-10.77	-1768.65	-205.71	10.77
48	1768.67	205.76	-8.06	-2108.68	-134.13	8.06
49	2108.61	134.14	-4.81	-2305.34	-62.52	4.81
50	2305.32	62.54	-1.26	-2358.76	9.08	1.26
51	2358.81	-9.14	2.37	-2268.91	80.76	-2.37
52	2268.92	-80.86	5.86	-2035.56	152.48	-5.86
53	2035.64	-152.49	8.99	-1659.02	224.11	-8.99
54	1659.03	-224.15	11.55	-1139.08	295.77	-11.55
55	1139.06	-295.73	13.30	-475.89	367.36	-13.31
56	475.85	-367.38	14.04	330.69	439.00	-14.04

HIPOTESIS 1 PESO PROPIO

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
57	-330.67	-439.01	13.53	1280.50	510.64	-13.53
58	-1280.50	-510.63	11.56	2373.58	582.26	-11.56
59	-2373.61	-582.25	7.89	3609.96	653.88	-7.89
60	-3609.98	-653.88	2.35	5018.24	754.13	-2.35
61	-5018.25	815.20	-2.74	3488.38	-714.98	2.74
62	-3488.36	714.98	-8.12	2158.90	-614.76	8.12
63	-2158.87	614.74	-11.43	1029.81	-514.53	11.44
64	-1029.79	514.54	-13.02	101.09	-414.32	13.02
65	-101.09	414.34	-13.18	-655.83	-342.74	13.18
66	655.83	342.74	-12.17	-1269.57	-271.14	12.17
67	1269.60	271.14	-10.22	-1740.20	-199.54	10.22
68	1740.13	199.64	-7.54	-2067.71	-128.04	7.54
69	2067.69	127.96	-4.37	-2252.02	-56.36	4.37
70	2251.94	56.35	-0.90	-2293.08	15.25	0.90
71	2292.99	-15.25	2.62	-2190.89	86.85	-2.61
72	2190.88	-86.91	5.98	-1945.47	158.50	-5.97
73	1945.51	-158.51	8.99	-1557.02	230.11	-8.99
74	1557.01	-230.04	11.38	-1025.44	301.64	-11.38
75	1025.41	-301.71	12.96	-350.55	373.30	-12.96
76	350.53	-373.30	13.50	467.51	444.90	-13.50
77	-467.53	-444.93	12.78	1428.79	516.53	-12.78
78	-1428.80	-516.51	10.58	2533.21	588.11	-10.58
79	-2533.22	-588.11	6.69	3780.79	659.71	-6.69
80	-3780.79	-659.71	0.87	5200.15	759.93	-0.87
81	-5200.19	837.17	7.74	3625.79	-736.92	-7.74
82	-3625.80	736.92	2.17	2251.93	-636.66	-2.17
83	-2251.92	636.64	-1.31	1078.67	-536.38	1.31
84	-1078.62	536.36	-2.96	105.93	-436.10	2.96
85	-105.92	436.14	-3.12	-694.88	-364.51	3.12
86	694.91	364.46	-2.05	-1352.33	-292.84	2.05
87	1352.41	292.85	0.04	-1866.58	-221.22	-0.04
88	1866.58	221.27	2.90	-2237.61	-149.65	-2.90
89	2237.57	149.65	6.35	-2465.28	-78.02	-6.35
90	2465.27	78.01	10.16	-2549.73	-6.39	-10.16
91	2549.68	6.36	14.06	-2490.82	65.26	-14.06
92	2490.73	-65.18	17.88	-2288.72	136.81	-17.88
93	2288.70	-136.76	21.39	-1943.44	208.38	-21.39
94	1943.31	-208.35	24.38	-1454.87	279.98	-24.38
95	1454.76	-280.00	26.62	-822.96	351.63	-26.62
96	822.90	-351.64	27.89	-47.83	423.27	-27.89
97	47.77	-423.25	27.96	870.56	494.88	-27.96
98	-870.61	-494.91	26.64	1932.28	566.54	-26.63
99	-1932.32	-566.54	23.66	3137.25	638.17	-23.66
100	-3137.29	-638.17	18.84	4514.19	738.43	-18.84
101	-4509.26	740.57	-20.81	3289.92	-652.86	20.81

HIPOTESIS 1 PESO PROPIO

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
102	-3289.89	652.86	-25.24	2224.06	-565.14	25.24
103	-2224.02	565.14	-28.24	1311.72	-477.42	28.24
104	-1311.67	477.42	-30.00	552.89	-389.70	30.00
105	-552.83	389.72	-30.74	-74.38	-327.05	30.74
106	74.44	327.03	-30.64	-591.94	-264.36	30.64
107	592.00	264.36	-29.85	-999.83	-201.70	29.84
108	999.90	201.68	-28.49	-1298.00	-139.01	28.50
109	1298.10	139.00	-26.75	-1486.51	-76.33	26.75
110	1486.56	76.34	-24.75	-1565.32	-13.68	24.75
111	1565.39	13.63	-22.64	-1534.39	49.04	22.64
112	1534.44	-48.98	-20.59	-1393.87	111.65	20.58
113	1393.90	-111.63	-18.71	-1143.72	174.29	18.71
114	1143.73	-174.31	-17.17	-783.86	236.98	17.17
115	783.84	-236.98	-16.11	-314.26	299.65	16.11
116	314.28	-299.65	-15.68	265.00	362.32	15.69
117	-264.94	-362.32	-16.04	953.87	424.98	16.04
118	-953.83	-424.96	-17.33	1752.41	487.63	17.33
119	-1752.39	-487.63	-19.69	2660.64	550.30	19.69
120	-2660.61	-550.29	-23.27	3700.45	638.01	23.27
121	-3706.12	711.73	3.97	2537.23	-624.02	-3.97
122	-2537.23	624.02	0.56	1521.85	-536.30	-0.57
123	-1521.86	536.30	-1.49	659.99	-448.58	1.49
124	-660.00	448.59	-2.38	-48.35	-360.87	2.38
125	48.35	360.84	-2.31	-625.06	-298.17	2.31
126	625.08	298.21	-1.48	-1092.16	-235.54	1.48
127	1092.20	235.52	-0.01	-1449.56	-172.85	0.01
128	1449.61	172.79	1.95	-1697.18	-110.12	-1.95
129	1697.22	110.12	4.24	-1835.06	-47.45	-4.23
130	1835.10	47.44	6.70	-1863.32	15.23	-6.71
131	1863.35	-15.28	9.21	-1781.79	77.94	-9.20
132	1781.88	-77.88	11.63	-1590.74	140.54	-11.62
133	1590.81	-140.54	13.77	-1290.06	203.20	-13.77
134	1290.08	-203.17	15.51	-879.65	265.84	-15.51
135	879.65	-265.83	16.68	-359.54	328.50	-16.67
136	359.55	-328.49	17.17	270.23	391.16	-17.16
137	-270.26	-391.16	16.80	1009.69	453.83	-16.80
138	-1009.72	-453.86	15.45	1858.89	516.52	-15.45
139	-1858.91	-516.53	12.94	2817.75	579.20	-12.94
140	-2817.77	-579.20	9.15	3908.22	666.92	-9.15
141	-3907.49	718.32	0.19	2695.85	-628.11	-0.19
142	-2695.85	628.11	-3.54	1646.55	-537.90	3.54
143	-1646.55	537.90	-5.81	759.61	-447.69	5.81
144	-759.60	447.70	-6.87	35.03	-357.49	6.87
145	-35.02	357.49	-6.92	-550.39	-293.04	6.92
146	550.40	293.06	-6.16	-1019.85	-228.61	6.16

HIPOTESIS 1 PESO PROPIO

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
147	1019.82	228.60	-4.75	-1373.26	-164.16	4.75
148	1373.22	164.17	-2.84	-1610.69	-99.73	2.84
149	1610.65	99.72	-0.63	-1732.10	-35.28	0.63
150	1732.06	35.24	1.78	-1737.54	29.21	-1.79
151	1737.50	-29.18	4.19	-1626.99	93.62	-4.19
152	1626.92	-93.59	6.42	-1400.46	158.04	-6.43
153	1400.41	-158.06	8.37	-1057.93	222.51	-8.37
154	1057.91	-222.55	9.84	-599.35	286.99	-9.84
155	599.35	-286.99	10.67	-24.82	351.43	-10.67
156	24.79	-351.41	10.70	665.66	415.85	-10.70
157	-665.71	-415.86	9.78	1472.18	480.31	-9.78
158	-1472.21	-480.31	7.74	2394.67	544.75	-7.74
159	-2394.67	-544.76	4.44	3433.11	609.20	-4.44
160	-3433.11	-609.20	-0.33	4610.73	699.41	0.33
161	-4610.72	805.38	-7.24	3100.04	-705.13	7.24
162	-3100.02	705.14	-12.01	1789.87	-604.89	12.01
163	-1789.85	604.88	-14.76	680.25	-504.63	14.76
164	-680.21	504.64	-15.81	-228.92	-404.40	15.81
165	228.92	404.36	-15.46	-966.10	-332.74	15.46
166	966.12	332.76	-13.97	-1560.12	-261.14	13.98
167	1560.18	261.14	-11.56	-2010.93	-189.52	11.56
168	2010.95	189.57	-8.49	-2318.55	-117.95	8.49
169	2318.57	117.93	-4.90	-2482.87	-46.31	4.88
170	2482.81	46.34	-1.08	-2503.89	25.28	1.07
171	2503.92	-25.29	2.75	-2381.70	96.91	-2.75
172	2381.84	-96.89	6.44	-2116.40	168.51	-6.43
173	2116.51	-168.48	9.68	-1707.81	240.10	-9.66
174	1707.87	-240.17	12.32	-1155.80	311.79	-12.33
175	1155.85	-311.79	14.10	-460.63	383.41	-14.10
176	460.67	-383.41	14.80	377.89	455.03	-14.80
177	-377.90	-454.98	14.21	1359.55	526.60	-14.21
178	-1359.61	-526.60	12.14	2484.56	598.22	-12.13
179	-2484.58	-598.23	8.31	3752.79	669.85	-8.31
180	-3752.80	-669.85	2.52	5192.92	770.10	-2.52
181	-5192.84	823.80	-1.60	3681.33	-726.04	1.60
182	-3681.33	726.04	-7.10	2360.48	-628.28	7.10
183	-2360.46	628.27	-10.64	1230.31	-530.52	10.64
184	-1230.27	530.51	-12.48	290.84	-432.75	12.48
185	-290.80	432.74	-12.92	-485.16	-362.89	12.92
186	485.20	362.90	-12.18	-1124.91	-293.06	12.18
187	1124.91	293.04	-10.51	-1628.32	-223.20	10.51
188	1628.39	223.17	-8.04	-1995.57	-153.32	8.05
189	1995.52	153.36	-5.06	-2226.59	-83.52	5.06
190	2226.59	83.49	-1.72	-2321.28	-13.64	1.72
191	2321.24	13.59	2.20	-2279.65	56.25	-2.19

HIPOTESIS 1 PESO PROPIO

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
192	2279.69	-56.22	5.21	-2101.89	126.06	-5.19
193	2101.89	-125.99	7.80	-1788.02	195.84	-7.79
194	1787.99	-195.88	10.69	-1337.79	265.72	-10.69
195	1337.79	-265.75	12.97	-751.34	335.59	-12.96
196	751.31	-335.56	13.91	-28.63	405.41	-13.90
197	28.60	-405.41	13.94	830.28	475.25	-13.93
198	-830.31	-475.24	12.70	1825.41	545.09	-12.70
199	-1825.42	-545.09	10.14	2956.77	614.93	-10.14
200	-2956.78	-614.93	5.13	4251.57	712.69	-5.13
201	-4251.57	728.82	1.27	3273.73	-658.15	-1.27
202	-3273.73	658.15	-3.53	2395.54	-587.48	3.53
203	-2395.54	587.48	-5.78	1616.99	-516.81	5.78
204	-1617.00	516.84	-7.08	938.08	-446.17	7.08
205	-938.06	446.17	-8.20	344.55	-395.68	8.21
206	-344.56	395.70	-8.40	-177.76	-345.21	8.40
207	177.75	345.19	-8.28	-628.88	-294.70	8.29
208	628.87	294.70	-7.08	-1008.84	-244.22	7.07
209	1008.80	244.18	-6.34	-1317.55	-193.69	6.35
210	1317.53	193.64	-5.34	-1554.91	-143.15	5.37
211	1554.99	143.12	-3.50	-1721.20	-92.63	3.49
212	1721.26	92.63	-1.55	-1816.30	-42.14	1.55
213	1816.31	42.13	-0.27	-1840.12	8.35	0.27
214	1840.13	-8.27	0.94	-1792.87	58.76	-0.95
215	1792.85	-58.73	3.40	-1674.46	109.22	-3.40
216	1674.41	-109.27	4.53	-1484.77	159.76	-4.54
217	1484.77	-159.73	5.61	-1223.93	210.22	-5.62
218	1223.93	-210.28	7.20	-891.83	260.77	-7.20
219	891.83	-260.71	8.13	-488.62	311.20	-8.13
220	488.61	-311.19	8.33	-0.03	381.86	-8.33
221	518.91	-247.10	0.00	0.00	247.10	0.00
222	537.49	-255.95	0.00	0.00	255.95	0.00
223	1660.28	-790.61	0.00	0.00	790.61	0.00
224	1659.06	-790.03	0.00	0.00	790.03	0.00
225	1659.03	-790.01	0.00	0.00	790.01	0.00
226	1655.92	-788.54	0.00	0.00	788.54	0.00
227	1649.12	-785.30	0.00	0.00	785.30	0.00
228	1646.50	-784.05	0.00	0.00	784.05	0.00
229	1684.40	-802.10	0.00	0.00	802.10	0.00
230	1669.53	-795.01	0.00	0.00	795.01	0.00
231	1579.94	-752.35	0.00	0.00	752.35	0.00
232	1580.12	-752.44	0.00	0.00	752.44	0.00
233	1675.49	-797.85	0.00	0.00	797.85	0.00
234	1671.70	-796.05	0.00	0.00	796.05	0.00
235	1513.31	-720.62	0.00	0.00	720.62	0.00
236	1513.87	-720.89	0.00	0.00	720.89	0.00

HIPOTESIS 1 PESO PROPIO

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
237	446.78	-212.75	0.00	0.00	212.75	0.00
238	455.11	-216.72	0.00	0.00	216.72	0.00

HIPOTESIS 1 CARGA PERMANENTE

REACCIONES

Nudo	Flector	Reac_vert	Torsor
101	0.00000	596.38593	-230.46678
121	0.00000	541.84766	-184.58496
141	0.00000	557.33307	-208.50520
222	0.00000	72.26807	0.00000
223	0.00000	121.01667	0.00000
224	0.00000	273.30737	0.00000
225	0.00000	368.38925	0.00000
226	0.00000	264.31454	0.00000
227	0.00000	369.71487	0.00000
228	0.00000	263.00607	0.00000
229	0.00000	368.57999	0.00000
230	0.00000	270.62054	0.00000
231	0.00000	371.51633	0.00000
232	0.00000	253.05231	0.00000
233	0.00000	351.69006	0.00000
234	0.00000	269.16669	0.00000
235	0.00000	372.72397	0.00000
236	0.00000	249.18045	0.00000
237	0.00000	337.50204	0.00000
238	0.00000	59.27888	0.00000
239	0.00000	99.84804	0.00000

SUMA DE REACCIONES

Suma Momentos Flectores	=	0.000
Suma Reacciones Vertic.	=	6430.743
Suma Momentos Torsores	=	-623.557

HIPOTESIS 1 CARGA PERMANENTE

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.03	193.29	-102.37	-294.88	-167.38	93.25
2	295.00	167.38	-92.88	-547.50	-141.48	83.76
3	547.60	141.48	-83.08	-757.75	-115.58	73.96
4	757.83	115.56	-73.01	-925.61	-89.66	63.89
5	925.68	89.66	-62.72	-1051.13	-63.76	53.61
6	1051.19	63.72	-52.29	-1134.20	-37.81	43.17
7	1134.28	37.83	-41.74	-1174.95	-11.93	32.63
8	1175.00	11.97	-31.15	-1173.42	13.93	22.03
9	1173.45	-13.93	-20.56	-1129.50	39.83	11.44
10	1129.46	-39.81	-10.02	-1043.22	65.71	0.90
11	1043.20	-65.77	0.41	-914.48	91.67	-9.53

HIPOTESIS 1 CARGA PERMANENTE

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
12	914.51	-91.66	10.68	-743.43	117.56	-19.80
13	743.39	-117.57	20.73	-529.99	143.48	-29.85
14	529.92	-143.48	30.51	-274.15	169.38	-39.63
15	274.05	-169.37	39.98	24.04	195.27	-49.10
16	-24.11	-195.30	49.07	364.62	221.21	-58.18
17	-364.68	-221.20	57.73	747.56	247.11	-66.84
18	-747.65	-247.11	65.90	1172.86	273.01	-75.01
19	-1172.95	-273.01	73.54	1640.50	298.91	-82.66
20	-1640.61	-298.91	80.60	2150.52	324.82	-89.72
21	-2151.98	316.88	-112.96	1550.01	-285.21	101.81
22	-1549.85	285.21	-104.20	1011.22	-253.53	93.05
23	-1011.07	253.52	-94.61	535.79	-221.84	83.46
24	-535.66	221.84	-84.28	123.73	-190.17	73.13
25	-123.62	190.17	-73.32	-224.98	-158.49	62.17
26	225.05	158.49	-61.82	-510.29	-126.81	50.67
27	510.35	126.80	-49.89	-732.23	-95.12	38.74
28	732.29	95.09	-37.61	-890.76	-63.41	26.46
29	890.84	63.41	-25.09	-985.97	-31.73	13.94
30	986.00	31.73	-12.43	-1017.78	-0.05	1.28
31	1017.82	0.03	0.29	-986.19	31.65	-11.44
32	986.21	-31.64	12.96	-891.24	63.32	-24.11
33	891.22	-63.33	25.48	-732.93	95.01	-36.63
34	732.89	-94.98	37.76	-511.28	126.66	-48.91
35	511.23	-126.66	49.69	-226.29	158.33	-60.84
36	226.20	-158.32	61.19	122.05	190.00	-72.34
37	-122.17	-190.01	72.15	533.79	221.69	-83.30
38	-533.92	-221.68	82.48	1008.87	253.36	-93.63
39	-1009.01	-253.37	92.08	1547.31	285.04	-103.23
40	-1547.47	-285.04	100.85	2149.12	316.72	-112.00
41	-2147.72	317.31	-112.65	1544.68	-285.62	101.49
42	-1544.52	285.62	-103.87	1004.87	-253.93	92.71
43	-1004.73	253.93	-94.26	528.46	-222.24	83.11
44	-528.35	222.25	-83.92	115.46	-190.56	72.76
45	-115.36	190.54	-72.94	-234.10	-158.85	61.79
46	234.19	158.84	-61.43	-520.23	-127.15	50.28
47	520.32	127.17	-49.47	-743.01	-95.48	38.32
48	743.08	95.50	-37.18	-902.39	-63.81	26.03
49	902.40	63.82	-24.64	-998.37	-32.13	13.48
50	998.40	32.12	-11.95	-1030.93	-0.43	0.79
51	1030.95	0.44	0.80	-1000.10	31.25	-11.95
52	1000.08	-31.29	13.49	-905.81	62.98	-24.64
53	905.78	-63.01	26.04	-748.08	94.70	-37.19
54	748.01	-94.68	38.34	-526.91	126.37	-49.50
55	526.85	-126.40	50.31	-242.31	158.09	-61.46
56	242.21	-158.07	61.83	105.68	189.76	-72.99

HIPOTESIS 1 CARGA PERMANENTE

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
57	-105.79	-189.77	72.82	517.11	221.46	-83.98
58	-517.23	-221.46	83.19	991.93	253.15	-94.34
59	-992.07	-253.16	92.81	1530.17	284.84	-103.96
60	-1530.33	-284.84	101.61	2131.80	316.53	-112.76
61	-2131.85	315.05	-112.22	1533.54	-283.38	101.07
62	-1533.38	283.37	-103.44	998.43	-251.69	92.29
63	-998.28	251.70	-93.82	526.65	-220.02	82.67
64	-526.54	220.03	-83.48	118.23	-188.35	72.33
65	-118.13	188.33	-72.51	-226.80	-156.66	61.36
66	226.90	156.66	-61.02	-508.49	-124.99	49.86
67	508.57	124.99	-49.08	-726.82	-93.31	37.93
68	726.88	93.34	-36.81	-881.84	-61.66	25.67
69	881.88	61.66	-24.31	-973.49	-29.99	13.16
70	973.48	29.96	-11.66	-1001.70	1.72	0.51
71	1001.71	-1.76	1.03	-966.52	33.43	-12.17
72	966.52	-33.41	13.65	-868.05	65.09	-24.81
73	868.04	-65.11	26.15	-706.18	96.79	-37.30
74	706.13	-96.75	38.38	-480.99	128.43	-49.54
75	480.94	-128.47	50.28	-192.38	160.14	-61.43
76	192.30	-160.14	61.72	159.59	191.82	-72.87
77	-159.71	-191.81	72.62	574.91	223.49	-83.77
78	-575.06	-223.49	82.89	1053.62	255.17	-94.04
79	-1053.77	-255.17	92.42	1595.68	286.85	-103.57
80	-1595.84	-286.85	101.11	2201.09	318.53	-112.26
81	-2200.57	323.61	-103.01	1584.92	-291.92	91.85
82	-1584.78	291.92	-94.29	1032.51	-260.23	83.13
83	-1032.38	260.22	-84.73	543.53	-228.53	73.57
84	-543.41	228.53	-74.41	117.94	-196.84	63.25
85	-117.87	196.87	-63.44	-244.26	-165.18	52.28
86	244.32	165.15	-51.90	-542.98	-133.45	40.75
87	543.04	133.47	-39.91	-778.33	-101.77	28.76
88	778.36	101.77	-27.56	-950.26	-70.08	16.41
89	950.26	70.10	-14.95	-1058.83	-38.41	3.79
90	1058.80	38.41	-2.16	-1103.97	-6.72	-9.00
91	1103.89	6.73	10.69	-1085.66	24.96	-21.84
92	1085.55	-24.91	23.51	-1004.01	56.60	-34.67
93	1003.90	-56.62	36.20	-858.95	88.31	-47.36
94	858.88	-88.37	48.68	-650.42	120.06	-59.84
95	650.39	-120.03	60.84	-378.57	151.72	-72.00
96	378.50	-151.72	72.58	-43.32	183.41	-83.73
97	43.19	-183.38	83.80	355.35	215.07	-94.95
98	-355.50	-215.08	94.41	817.45	246.77	-105.56
99	-817.61	-246.78	104.31	1342.96	278.47	-115.46
100	-1343.13	-278.47	113.39	1931.88	310.16	-124.55
101	-1898.01	286.23	-106.19	1421.33	-258.50	96.43

HIPOTESIS 1 CARGA PERMANENTE

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
102	-1421.20	258.50	-98.34	993.05	-230.78	88.58
103	-992.93	230.78	-89.92	613.30	-203.05	80.16
104	-613.19	203.06	-80.98	282.08	-175.33	71.22
105	-281.99	175.33	-71.60	-0.60	-147.61	61.85
106	0.68	147.60	-61.85	-234.74	-119.88	52.09
107	234.81	119.88	-51.77	-420.34	-92.15	42.01
108	420.39	92.15	-41.45	-557.41	-64.42	31.69
109	557.44	64.40	-30.94	-645.91	-36.68	21.18
110	645.92	36.68	-20.31	-685.88	-8.96	10.55
111	685.88	8.96	-9.63	-677.30	18.77	-0.13
112	677.28	-18.78	1.04	-620.17	46.50	-10.80
113	620.16	-46.49	11.64	-514.55	74.22	-21.39
114	514.51	-74.21	22.09	-360.38	101.94	-31.85
115	360.32	-101.94	32.33	-157.64	129.67	-42.09
116	157.59	-129.66	42.30	93.61	157.39	-52.06
117	-93.68	-157.38	51.94	393.38	185.11	-61.69
118	-393.47	-185.11	61.16	741.70	212.84	-70.92
119	-741.80	-212.84	69.92	1138.56	240.56	-79.68
120	-1138.66	-240.56	78.15	1583.94	268.29	-87.91
121	-1551.88	273.56	-95.98	1097.37	-245.83	86.23
122	-1097.25	245.83	-87.70	691.27	-218.11	77.94
123	-691.17	218.11	-78.87	333.70	-190.38	69.11
124	-333.61	190.38	-69.56	24.68	-162.66	59.80
125	-24.59	162.66	-59.84	-235.81	-134.93	50.08
126	235.86	134.95	-49.76	-447.78	-107.22	40.01
127	447.82	107.22	-39.40	-611.22	-79.49	29.64
128	611.23	79.46	-28.82	-726.04	-51.73	19.06
129	726.05	51.70	-18.08	-792.30	-23.97	8.32
130	792.34	23.98	-7.26	-810.04	3.74	-2.50
131	810.08	-3.77	3.59	-779.22	31.49	-13.35
132	779.24	-31.45	14.41	-699.93	59.17	-24.16
133	699.91	-59.17	25.11	-572.10	86.90	-34.87
134	572.06	-86.88	35.64	-395.73	114.61	-45.39
135	395.66	-114.61	45.92	-170.81	142.34	-55.68
136	170.74	-142.35	55.92	102.66	170.08	-65.67
137	-102.76	-170.07	65.53	424.66	197.79	-75.29
138	-424.77	-197.81	74.72	795.23	225.54	-84.48
139	-795.35	-225.54	83.41	1214.33	253.26	-93.17
140	-1214.46	-253.27	91.54	1681.97	280.99	-101.29
141	-1640.24	276.34	-105.27	1168.55	-247.83	95.23
142	-1168.41	247.83	-96.85	748.03	-219.32	86.81
143	-747.91	219.32	-87.84	378.84	-190.80	77.81
144	-378.73	190.80	-78.34	60.99	-162.29	68.30
145	-60.91	162.30	-68.39	-205.54	-133.78	58.35
146	205.61	133.78	-58.06	-420.72	-105.27	48.03

HIPOTESIS 1 CARGA PERMANENTE

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
147	420.78	105.27	-47.45	-584.58	-76.75	37.41
148	584.58	76.78	-36.60	-697.10	-48.26	26.57
149	697.12	48.22	-25.61	-758.25	-19.71	15.57
150	758.28	19.72	-14.51	-768.11	8.79	4.48
151	768.13	-8.82	-3.41	-726.59	37.34	-6.62
152	726.61	-37.32	7.62	-633.79	65.83	-17.66
153	633.79	-65.83	18.54	-489.65	94.35	-28.57
154	489.63	-94.35	29.25	-294.16	122.86	-39.29
155	294.11	-122.85	39.70	-47.35	151.36	-49.73
156	47.27	-151.35	49.80	250.80	179.87	-59.83
157	-250.89	-179.87	59.48	600.28	208.38	-69.52
158	-600.39	-208.38	68.69	1001.10	236.90	-78.72
159	-1001.20	-236.90	77.34	1453.22	265.41	-87.38
160	-1453.34	-265.41	85.36	1956.68	293.92	-95.39
161	-1957.72	310.82	-114.60	1367.70	-279.13	103.45
162	-1367.54	279.13	-105.55	840.91	-247.44	94.40
163	-840.76	247.44	-95.69	377.53	-215.75	84.54
164	-377.39	215.76	-85.12	-22.47	-184.08	73.97
165	22.58	184.06	-73.93	-359.06	-152.38	62.78
166	359.14	152.38	-62.23	-632.27	-120.69	51.07
167	632.34	120.71	-50.10	-842.12	-89.03	38.94
168	842.14	89.06	-37.66	-988.59	-57.37	26.51
169	988.63	57.30	-24.96	-1071.57	-25.62	13.81
170	1071.62	25.62	-12.17	-1091.19	6.07	1.01
171	1091.24	-6.05	0.65	-1047.45	37.73	-11.80
172	1047.46	-37.65	13.42	-940.44	69.34	-24.57
173	940.39	-69.40	26.02	-769.89	101.09	-37.17
174	769.83	-101.10	38.36	-535.93	132.79	-49.51
175	535.86	-132.78	50.34	-238.59	164.47	-61.49
176	238.50	-164.48	61.86	122.17	196.16	-73.01
177	-122.29	-196.15	72.82	546.32	227.84	-83.97
178	-546.46	-227.83	83.14	1033.85	259.51	-94.29
179	-1034.01	-259.53	92.70	1584.80	291.21	-103.85
180	-1584.96	-291.22	101.41	2199.15	322.90	-112.56
181	-2202.46	318.99	-108.23	1610.40	-288.09	97.36
182	-1610.26	288.09	-99.76	1078.45	-257.19	88.89
183	-1078.32	257.19	-90.51	606.79	-226.29	79.63
184	-606.66	226.29	-80.54	195.42	-195.39	69.66
185	-195.30	195.37	-69.95	-155.64	-164.47	59.08
186	155.74	164.48	-58.84	-446.42	-133.58	47.97
187	446.49	133.56	-47.30	-676.86	-102.66	36.42
188	676.92	102.66	-35.40	-847.04	-71.76	24.53
189	847.09	71.76	-23.25	-956.91	-40.86	12.38
190	956.93	40.86	-10.95	-1006.48	-9.96	0.08
191	1006.47	9.96	1.63	-995.74	20.94	-12.51

HIPOTESIS 1 CARGA PERMANENTE

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
192	995.72	-20.95	13.82	-924.71	51.85	-24.69
193	924.68	-51.83	25.83	-793.45	82.73	-36.71
194	793.39	-82.75	38.00	-601.85	113.65	-48.88
195	601.78	-113.66	49.89	-349.94	144.56	-60.77
196	349.88	-144.57	61.21	-37.77	175.47	-72.09
197	37.68	-175.44	72.13	334.67	206.34	-83.01
198	-334.81	-206.34	82.51	767.42	237.24	-93.39
199	-767.56	-237.24	92.31	1260.44	268.14	-103.19
200	-1260.62	-268.15	101.06	1813.79	299.05	-111.93
201	-1811.79	287.63	-74.94	1421.97	-265.30	67.08
202	-1421.87	265.30	-69.16	1063.54	-242.96	61.30
203	-1063.48	242.96	-62.30	736.65	-220.63	54.44
204	-736.61	220.63	-55.03	441.26	-198.29	47.17
205	-441.20	198.29	-47.70	177.36	-175.95	39.83
206	-177.33	175.96	-39.93	-55.03	-153.62	32.07
207	55.05	153.61	-32.03	-255.88	-131.27	24.17
208	255.95	131.26	-23.67	-425.30	-108.92	15.81
209	425.29	108.95	-15.51	-563.15	-86.61	7.65
210	563.15	86.57	-7.23	-669.45	-64.23	-0.63
211	669.48	64.21	1.44	-744.27	-41.87	-9.30
212	744.29	41.90	10.14	-787.62	-19.56	-18.00
213	787.57	19.58	18.55	-799.44	2.76	-26.41
214	799.38	-2.76	26.95	-779.74	25.10	-34.81
215	779.69	-25.09	35.88	-728.57	47.43	-43.74
216	728.53	-47.47	44.24	-645.85	69.80	-52.10
217	645.83	-69.78	52.57	-531.70	92.11	-60.43
218	531.60	-92.11	61.11	-385.97	114.45	-68.97
219	385.89	-114.46	69.39	-208.74	136.80	-77.25
220	208.72	-136.78	77.33	-0.10	159.12	-85.19
221	151.77	-72.27	0.00	0.00	72.27	0.00
222	254.14	-121.02	0.00	0.00	121.02	0.00
223	573.94	-273.31	0.00	0.00	273.31	0.00
224	773.62	-368.39	0.00	0.00	368.39	0.00
225	555.06	-264.32	0.00	0.00	264.32	0.00
226	776.40	-369.72	0.00	0.00	369.72	0.00
227	552.31	-263.01	0.00	0.00	263.01	0.00
228	774.02	-368.58	0.00	0.00	368.58	0.00
229	568.30	-270.62	0.00	0.00	270.62	0.00
230	780.19	-371.52	0.00	0.00	371.52	0.00
231	531.41	-253.05	0.00	0.00	253.05	0.00
232	738.55	-351.69	0.00	0.00	351.69	0.00
233	565.25	-269.17	0.00	0.00	269.17	0.00
234	782.72	-372.72	0.00	0.00	372.72	0.00
235	523.28	-249.18	0.00	0.00	249.18	0.00
236	708.76	-337.50	0.00	0.00	337.50	0.00

HIPOTESIS 1 CARGA PERMANENTE

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
237	124.49	-59.28	0.00	0.00	59.28	0.00
238	209.68	-99.85	0.00	0.00	99.85	0.00

HIPOTESIS 1 GRADIENTE TERMICO, AT=10.0

REACCIONES

Nudo	Flector	Reac_vert	Torsor
101	0.00000	-0.13399	-26.08003
121	0.00000	-0.22251	-24.07591
141	0.00000	0.80708	-25.10408
222	0.00000	15.47971	0.00000
223	0.00000	17.70417	0.00000
224	0.00000	-25.89011	0.00000
225	0.00000	-14.23039	0.00000
226	0.00000	-1.92387	0.00000
227	0.00000	10.72788	0.00000
228	0.00000	-7.52204	0.00000
229	0.00000	5.14729	0.00000
230	0.00000	-5.87521	0.00000
231	0.00000	6.41988	0.00000
232	0.00000	-6.89752	0.00000
233	0.00000	4.65880	0.00000
234	0.00000	-2.07270	0.00000
235	0.00000	10.28205	0.00000
236	0.00000	-27.34147	0.00000
237	0.00000	-16.94777	0.00000
238	0.00000	18.10781	0.00000
239	0.00000	19.71357	0.00000

SUMA DE REACCIONES

Suma Momentos Flectores	=	0.000
Suma Reacciones Vertic.	=	-0.009
Suma Momentos Torsores	=	-75.260

HIPOTESIS 1 GRADIENTE TERMICO, AT=10.0

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.00	33.18	-4.67	-54.26	-33.18	4.67
2	54.27	33.18	-4.60	-108.52	-33.18	4.60
3	108.54	33.19	-4.47	-162.79	-33.19	4.47
4	162.80	33.19	-4.26	-217.06	-33.19	4.26
5	217.08	33.18	-3.99	-271.34	-33.18	3.99
6	271.35	33.19	-3.65	-325.63	-33.19	3.65
7	325.65	33.19	-3.24	-379.92	-33.19	3.24
8	379.93	33.19	-2.76	-434.19	-33.19	2.76
9	434.19	33.18	-2.22	-488.46	-33.18	2.22
10	488.45	33.18	-1.60	-542.71	-33.18	1.60
11	542.71	33.19	-0.92	-596.98	-33.19	0.92

HIPOTESIS 1 GRADIENTE TERMICO, AT=10.0

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
12	596.99	33.21	-0.16	-651.27	-33.21	0.16
13	651.26	33.21	0.65	-705.57	-33.21	-0.65
14	705.57	33.20	1.54	-759.84	-33.20	-1.54
15	759.86	33.20	2.50	-814.14	-33.20	-2.50
16	814.14	33.20	3.52	-868.43	-33.20	-3.52
17	868.43	33.21	4.61	-922.74	-33.21	-4.61
18	922.73	33.21	5.78	-977.03	-33.21	-5.78
19	977.02	33.21	7.00	-1031.32	-33.21	-7.00
20	1031.31	33.21	8.30	-1085.60	-33.21	-8.30
21	1085.43	-6.91	-14.67	-1071.61	6.91	14.67
22	1071.63	-6.91	-13.02	-1057.81	6.91	13.02
23	1057.83	-6.91	-11.39	-1044.00	6.91	11.39
24	1044.02	-6.91	-9.79	-1030.20	6.91	9.79
25	1030.21	-6.92	-8.20	-1016.39	6.92	8.20
26	1016.40	-6.92	-6.64	-1002.57	6.92	6.64
27	1002.58	-6.92	-5.09	-988.74	6.92	5.10
28	988.75	-6.92	-3.57	-974.91	6.92	3.57
29	974.92	-6.92	-2.07	-961.07	6.92	2.07
30	961.08	-6.92	-0.60	-947.24	6.92	0.60
31	947.24	-6.92	0.86	-933.39	6.92	-0.86
32	933.39	-6.92	2.30	-919.54	6.92	-2.30
33	919.54	-6.93	3.72	-905.69	6.93	-3.72
34	905.68	-6.92	5.11	-891.84	6.92	-5.11
35	891.83	-6.92	6.48	-877.99	6.92	-6.48
36	877.98	-6.92	7.83	-864.13	6.92	-7.83
37	864.12	-6.92	9.16	-850.28	6.92	-9.16
38	850.27	-6.92	10.47	-836.43	6.92	-10.47
39	836.41	-6.92	11.75	-822.57	6.92	-11.75
40	822.55	-6.92	13.02	-808.71	6.92	-13.02
41	808.87	1.88	-12.30	-812.64	-1.88	12.30
42	812.66	1.88	-11.05	-816.42	-1.88	11.05
43	816.44	1.88	-9.79	-820.20	-1.88	9.79
44	820.22	1.88	-8.54	-823.98	-1.88	8.54
45	823.99	1.88	-7.27	-827.76	-1.88	7.27
46	827.77	1.88	-5.99	-831.53	-1.88	5.99
47	831.54	1.88	-4.71	-835.31	-1.88	4.71
48	835.32	1.88	-3.43	-839.08	-1.88	3.43
49	839.08	1.88	-2.14	-842.85	-1.88	2.14
50	842.85	1.88	-0.84	-846.62	-1.88	0.84
51	846.62	1.88	0.46	-850.38	-1.88	-0.46
52	850.38	1.88	1.77	-854.15	-1.88	-1.77
53	854.14	1.88	3.09	-857.91	-1.88	-3.09
54	857.90	1.88	4.41	-861.67	-1.88	-4.41
55	861.66	1.88	5.73	-865.42	-1.88	-5.73
56	865.41	1.88	7.07	-869.18	-1.88	-7.07

HIPOTESIS 1 GRADIENTE TERMICO, AT=10.0

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
57	869.17	1.88	8.40	-872.93	-1.88	-8.40
58	872.92	1.88	9.74	-876.68	-1.88	-9.74
59	876.67	1.88	11.10	-880.43	-1.88	-11.10
60	880.42	1.88	12.45	-884.18	-1.88	-12.45
61	884.18	-0.49	-12.80	-883.19	0.49	12.80
62	883.21	-0.49	-11.43	-882.22	0.49	11.43
63	882.24	-0.49	-10.08	-881.26	0.49	10.08
64	881.27	-0.49	-8.73	-880.29	0.49	8.73
65	880.30	-0.49	-7.37	-879.31	0.49	7.37
66	879.32	-0.49	-6.02	-878.34	0.49	6.02
67	878.35	-0.49	-4.67	-877.36	0.49	4.67
68	877.37	-0.49	-3.31	-876.39	0.49	3.31
69	876.39	-0.49	-1.97	-875.41	0.49	1.97
70	875.41	-0.49	-0.62	-874.42	0.49	0.62
71	874.42	-0.49	0.73	-873.44	0.49	-0.73
72	873.43	-0.49	2.07	-872.45	0.49	-2.07
73	872.45	-0.49	3.41	-871.46	0.49	-3.41
74	871.45	-0.49	4.75	-870.47	0.49	-4.75
75	870.46	-0.49	6.09	-869.47	0.49	-6.09
76	869.46	-0.49	7.43	-868.48	0.49	-7.43
77	868.46	-0.49	8.76	-867.48	0.49	-8.76
78	867.46	-0.49	10.10	-866.47	0.49	-10.10
79	866.46	-0.49	11.43	-865.47	0.49	-11.43
80	865.45	-0.49	12.76	-864.46	0.49	-12.76
81	864.53	0.05	-11.73	-864.63	-0.05	11.73
82	864.65	0.05	-10.40	-864.75	-0.05	10.40
83	864.76	0.05	-9.06	-864.86	-0.05	9.06
84	864.88	0.05	-7.73	-864.98	-0.05	7.73
85	864.99	0.05	-6.40	-865.09	-0.05	6.40
86	865.10	0.05	-5.07	-865.20	-0.05	5.07
87	865.21	0.05	-3.74	-865.31	-0.05	3.74
88	865.31	0.05	-2.41	-865.42	-0.05	2.41
89	865.42	0.05	-1.08	-865.52	-0.05	1.08
90	865.52	0.05	0.26	-865.62	-0.05	-0.26
91	865.62	0.05	1.59	-865.72	-0.05	-1.59
92	865.72	0.05	2.92	-865.82	-0.05	-2.92
93	865.82	0.05	4.25	-865.92	-0.05	-4.25
94	865.91	0.05	5.59	-866.02	-0.05	-5.59
95	866.01	0.05	6.92	-866.11	-0.05	-6.92
96	866.10	0.05	8.25	-866.20	-0.05	-8.25
97	866.19	0.05	9.59	-866.29	-0.05	-9.59
98	866.28	0.05	10.92	-866.38	-0.05	-10.92
99	866.36	0.05	12.25	-866.47	-0.05	-12.25
100	866.45	0.05	13.58	-866.55	-0.05	-13.58
101	870.38	-0.08	-10.96	-870.24	0.08	10.96

HIPOTESIS 1 GRADIENTE TERMICO, AT=10.0

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
102	870.25	-0.08	-9.78	-870.11	0.08	9.78
103	870.12	-0.08	-8.61	-869.98	0.08	8.61
104	869.99	-0.08	-7.45	-869.85	0.08	7.45
105	869.86	-0.08	-6.27	-869.71	0.08	6.27
106	869.72	-0.08	-5.10	-869.58	0.08	5.10
107	869.58	-0.08	-3.93	-869.44	0.08	3.93
108	869.44	-0.08	-2.76	-869.30	0.08	2.76
109	869.30	-0.08	-1.59	-869.16	0.08	1.59
110	869.16	-0.08	-0.41	-869.01	0.08	0.41
111	869.01	-0.08	0.75	-868.86	0.08	-0.75
112	868.86	-0.08	1.92	-868.72	0.08	-1.92
113	868.71	-0.08	3.09	-868.57	0.08	-3.09
114	868.56	-0.08	4.26	-868.42	0.08	-4.26
115	868.41	-0.08	5.43	-868.27	0.08	-5.43
116	868.26	-0.08	6.60	-868.11	0.08	-6.60
117	868.11	-0.08	7.77	-867.96	0.08	-7.77
118	867.95	-0.08	8.94	-867.81	0.08	-8.94
119	867.79	-0.08	10.11	-867.65	0.08	-10.11
120	867.64	-0.08	11.27	-867.49	0.08	-11.27
121	871.67	-0.30	-11.26	-871.14	0.30	11.26
122	871.15	-0.31	-10.09	-870.62	0.31	10.09
123	870.63	-0.31	-8.92	-870.10	0.31	8.92
124	870.11	-0.30	-7.75	-869.58	0.30	7.75
125	869.59	-0.30	-6.57	-869.05	0.30	6.57
126	869.06	-0.30	-5.41	-868.53	0.30	5.41
127	868.53	-0.30	-4.24	-868.00	0.30	4.24
128	868.00	-0.31	-3.07	-867.47	0.31	3.07
129	867.47	-0.31	-1.90	-866.94	0.31	1.90
130	866.94	-0.31	-0.73	-866.40	0.31	0.73
131	866.40	-0.31	0.43	-865.87	0.31	-0.43
132	865.87	-0.31	1.60	-865.33	0.31	-1.60
133	865.33	-0.31	2.76	-864.80	0.31	-2.76
134	864.79	-0.31	3.93	-864.26	0.31	-3.93
135	864.25	-0.30	5.09	-863.72	0.30	-5.09
136	863.71	-0.31	6.25	-863.18	0.31	-6.25
137	863.17	-0.30	7.42	-862.63	0.30	-7.42
138	862.62	-0.31	8.58	-862.09	0.31	-8.58
139	862.07	-0.31	9.74	-861.54	0.31	-9.74
140	861.52	-0.31	10.90	-860.99	0.31	-10.90
141	866.01	0.50	-12.52	-866.91	-0.50	12.52
142	866.93	0.50	-11.32	-867.83	-0.50	11.32
143	867.85	0.50	-10.12	-868.75	-0.50	10.12
144	868.76	0.50	-8.91	-869.66	-0.50	8.91
145	869.67	0.50	-7.71	-870.57	-0.50	7.71
146	870.58	0.50	-6.50	-871.48	-0.50	6.50

HIPOTESIS 1 GRADIENTE TERMICO, AT=10.0

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
147	871.49	0.50	-5.30	-872.39	-0.50	5.30
148	872.40	0.50	-4.08	-873.30	-0.50	4.08
149	873.30	0.50	-2.88	-874.20	-0.50	2.88
150	874.21	0.50	-1.67	-875.11	-0.50	1.67
151	875.11	0.50	-0.45	-876.01	-0.50	0.45
152	876.01	0.50	0.75	-876.91	-0.50	-0.75
153	876.90	0.50	1.97	-877.81	-0.50	-1.97
154	877.80	0.50	3.19	-878.70	-0.50	-3.19
155	878.69	0.50	4.40	-879.59	-0.50	-4.40
156	879.59	0.50	5.62	-880.49	-0.50	-5.62
157	880.48	0.50	6.84	-881.38	-0.50	-6.84
158	881.37	0.50	8.06	-882.27	-0.50	-8.06
159	882.25	0.50	9.28	-883.15	-0.50	-9.28
160	883.14	0.50	10.51	-884.04	-0.50	-10.51
161	883.92	-1.74	-12.47	-880.44	1.74	12.47
162	880.46	-1.74	-11.11	-876.98	1.74	11.11
163	877.00	-1.74	-9.76	-873.52	1.74	9.76
164	873.54	-1.74	-8.42	-870.06	1.74	8.42
165	870.07	-1.74	-7.08	-866.60	1.74	7.08
166	866.61	-1.74	-5.75	-863.13	1.74	5.75
167	863.14	-1.74	-4.42	-859.66	1.74	4.42
168	859.66	-1.74	-3.10	-856.19	1.74	3.10
169	856.19	-1.74	-1.78	-852.71	1.74	1.78
170	852.72	-1.74	-0.46	-849.24	1.74	0.46
171	849.24	-1.74	0.83	-845.76	1.74	-0.83
172	845.76	-1.74	2.14	-842.28	1.74	-2.14
173	842.28	-1.74	3.44	-838.80	1.74	-3.44
174	838.79	-1.74	4.73	-835.32	1.74	-4.73
175	835.31	-1.74	6.02	-831.83	1.74	-6.02
176	831.82	-1.74	7.29	-828.34	1.74	-7.29
177	828.33	-1.74	8.57	-824.85	1.74	-8.57
178	824.84	-1.74	9.84	-821.36	1.74	-9.84
179	821.35	-1.74	11.10	-817.87	1.74	-11.10
180	817.85	-1.74	12.36	-814.38	1.74	-12.36
181	813.98	6.47	-12.34	-826.60	-6.47	12.34
182	826.62	6.47	-11.10	-839.24	-6.47	11.10
183	839.26	6.47	-9.85	-851.88	-6.47	9.84
184	851.90	6.47	-8.57	-864.52	-6.47	8.57
185	864.53	6.47	-7.27	-877.15	-6.47	7.27
186	877.16	6.47	-5.95	-889.78	-6.47	5.95
187	889.78	6.47	-4.62	-902.40	-6.47	4.62
188	902.41	6.47	-3.26	-915.02	-6.47	3.26
189	915.03	6.47	-1.89	-927.64	-6.47	1.89
190	927.64	6.47	-0.50	-940.26	-6.47	0.50
191	940.25	6.47	1.09	-952.87	-6.47	-1.09

HIPOTESIS 1 GRADIENTE TERMICO, AT=10.0

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
192	952.86	6.47	2.34	-965.47	-6.47	-2.34
193	965.47	6.47	3.54	-978.09	-6.47	-3.54
194	978.09	6.46	5.12	-990.70	-6.46	-5.12
195	990.69	6.47	6.80	-1003.30	-6.47	-6.80
196	1003.29	6.47	8.06	-1015.90	-6.47	-8.06
197	1015.89	6.47	9.46	-1028.51	-6.47	-9.46
198	1028.49	6.47	11.00	-1041.11	-6.47	-11.00
199	1041.09	6.47	12.45	-1053.71	-6.47	-12.45
200	1053.68	6.47	14.24	-1066.30	-6.47	-14.24
201	1066.53	-37.82	-6.76	-1013.20	37.82	6.76
202	1013.21	-37.82	-5.27	-959.88	37.82	5.27
203	959.89	-37.82	-4.37	-906.56	37.82	4.37
204	906.56	-37.83	-3.65	-853.23	37.83	3.65
205	853.23	-37.84	-2.61	-799.87	37.84	2.61
206	799.88	-37.85	-2.18	-746.53	37.85	2.18
207	746.54	-37.83	-1.71	-693.20	37.83	1.71
208	693.22	-37.86	-0.37	-639.83	37.86	0.37
209	639.85	-37.82	0.09	-586.53	37.82	-0.09
210	586.54	-37.82	0.54	-533.21	37.82	-0.54
211	533.23	-37.82	1.17	-479.90	37.82	-1.17
212	479.90	-37.82	1.71	-426.57	37.82	-1.71
213	426.59	-37.80	2.02	-373.28	37.80	-2.01
214	373.30	-37.83	2.27	-319.97	37.83	-2.27
215	319.96	-37.83	2.70	-266.63	37.83	-2.70
216	266.63	-37.82	2.88	-213.31	37.82	-2.89
217	213.31	-37.82	3.03	-159.97	37.82	-3.03
218	159.97	-37.80	3.23	-106.68	37.80	-3.23
219	106.66	-37.81	3.34	-53.35	37.81	-3.35
220	53.34	-37.82	3.37	0.00	37.82	-3.37
221	32.51	-15.48	0.00	0.00	15.48	0.00
222	37.18	-17.70	0.00	0.00	17.70	0.00
223	-54.37	25.89	0.00	0.00	-25.89	0.00
224	-29.88	14.23	0.00	0.00	-14.23	0.00
225	-4.04	1.92	0.00	0.00	-1.92	0.00
226	22.53	-10.73	0.00	0.00	10.73	0.00
227	-15.80	7.52	0.00	0.00	-7.52	0.00
228	10.81	-5.15	0.00	0.00	5.15	0.00
229	-12.34	5.88	0.00	0.00	-5.88	0.00
230	13.48	-6.42	0.00	0.00	6.42	0.00
231	-14.48	6.90	0.00	0.00	-6.90	0.00
232	9.78	-4.66	0.00	0.00	4.66	0.00
233	-4.35	2.07	0.00	0.00	-2.07	0.00
234	21.59	-10.28	0.00	0.00	10.28	0.00
235	-57.42	27.34	0.00	0.00	-27.34	0.00
236	-35.59	16.95	0.00	0.00	-16.95	0.00

HIPOTESIS 1 GRADIENTE TERMICO, AT=10.0

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
237	38.03	-18.11	0.00	0.00	18.11	0.00
238	41.40	-19.71	0.00	0.00	19.71	0.00

HIPOTESIS 1 PRETENSADO: PRIMER TESADO

REACCIONES

Nudo	Flector	Reac_vert	Torsor
101	0.00000	3.80938	-13.26574
121	0.00000	5.92811	-24.75764
141	0.00000	1.48942	-28.04152
222	0.00000	22.16838	0.00000
223	0.00000	25.57850	0.00000
224	0.00000	-36.14297	0.00000
225	0.00000	-19.07566	0.00000
226	0.00000	-8.48261	0.00000
227	0.00000	10.16333	0.00000
228	0.00000	-7.32844	0.00000
229	0.00000	8.37262	0.00000
230	0.00000	-7.14180	0.00000
231	0.00000	6.58590	0.00000
232	0.00000	-5.96583	0.00000
233	0.00000	6.77138	0.00000
234	0.00000	-11.41554	0.00000
235	0.00000	6.49410	0.00000
236	0.00000	-38.27662	0.00000
237	0.00000	-22.59188	0.00000
238	0.00000	26.77251	0.00000
239	0.00000	31.74384	0.00000

SUMA DE REACCIONES

Suma Momentos Flectores	=	0.000
Suma Reacciones Vertic.	=	-0.544
Suma Momentos Torsores	=	-66.065

HIPOTESIS 1 PRETENSADO: PRIMER TESADO

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-555.30	47.74	-7.17	1447.46	-47.74	5.85
2	-1447.44	47.74	-7.68	2131.70	-47.74	5.28
3	-2131.74	47.82	-7.95	2704.43	-47.82	4.66
4	-2704.45	47.82	-8.07	3165.77	-47.82	4.03
5	-3165.84	47.85	-8.02	3516.74	-47.85	3.37
6	-3516.74	47.91	-7.78	3758.29	-47.91	2.66
7	-3758.29	47.92	-7.40	3891.41	-47.92	1.95
8	-3891.56	47.77	-6.85	3939.11	-47.77	1.18
9	-3939.26	47.75	-6.12	3800.86	-47.75	0.42
10	-3800.83	47.66	-5.20	3518.74	-47.66	-0.33
11	-3518.69	47.81	-4.10	3092.26	-47.81	-1.09

HIPOTESIS 1 PRETENSADO: PRIMER TESADO

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
12	-3092.14	47.87	-2.80	2520.38	-47.87	-1.86
13	-2520.28	47.89	-1.30	1801.17	-47.89	-2.65
14	-1801.08	47.89	0.39	933.25	-47.89	-3.44
15	-933.26	47.91	2.25	-83.02	-47.91	-4.22
16	82.97	47.94	4.32	-1243.84	-47.94	-5.01
17	1243.78	47.99	6.57	-2540.60	-47.99	-5.82
18	2540.57	47.92	9.04	-3963.60	-47.92	-6.67
19	3963.59	47.91	11.64	-5263.58	-47.91	-7.66
20	5263.57	47.92	14.26	-5631.75	-47.92	-9.33
21	5631.49	-7.30	-18.62	-4957.67	7.30	24.37
22	4957.71	-7.30	-16.73	-3373.95	7.30	20.76
23	3373.97	-7.29	-15.56	-1846.03	7.29	17.22
24	1846.05	-7.28	-14.40	-409.82	7.28	13.80
25	409.81	-7.30	-13.17	672.33	7.30	10.65
26	-672.28	-7.26	-11.69	1531.51	7.26	7.70
27	-1531.49	-7.25	-10.06	2176.93	7.25	4.94
28	-2176.96	-7.20	-8.30	2620.60	7.20	2.36
29	-2620.76	-7.12	-6.39	2874.50	7.12	-0.06
30	-2874.54	-7.25	-4.36	2948.07	7.25	-2.32
31	-2948.08	-7.06	-2.22	2846.53	7.06	-4.42
32	-2846.53	-7.18	0.04	2571.53	7.18	-6.36
33	-2571.45	-7.23	2.40	2121.12	7.23	-8.14
34	-2121.00	-7.18	4.88	1490.94	7.18	-9.77
35	-1490.91	-7.18	7.48	677.15	7.18	-11.24
36	-677.17	-7.19	10.20	-321.11	7.19	-12.54
37	321.11	-7.19	13.03	-1498.09	7.19	-13.68
38	1498.06	-7.20	15.98	-2840.31	7.20	-14.67
39	2840.30	-7.19	19.03	-4258.19	7.19	-15.57
40	4258.16	-7.19	22.12	-4640.42	7.19	-17.25
41	4640.66	-5.51	-14.75	-4084.15	5.51	19.50
42	4084.18	-5.51	-13.22	-2774.74	5.51	16.56
43	2774.76	-5.51	-12.28	-1511.51	5.51	13.65
44	1511.54	-5.52	-11.34	-324.13	5.52	10.84
45	324.20	-5.54	-10.34	570.25	5.54	8.26
46	-570.18	-5.49	-9.14	1280.08	5.49	5.84
47	-1280.11	-5.48	-7.82	1813.16	5.48	3.58
48	-1813.13	-5.55	-6.36	2179.49	5.55	1.45
49	-2179.49	-5.51	-4.81	2388.70	5.51	-0.53
50	-2388.68	-5.56	-3.14	2448.71	5.56	-2.38
51	-2448.79	-5.43	-1.40	2364.01	5.43	-4.09
52	-2364.06	-5.47	0.46	2135.57	5.47	-5.69
53	-2135.65	-5.43	2.40	1761.91	5.43	-7.15
54	-1761.94	-5.41	4.44	1239.48	5.41	-8.48
55	-1239.52	-5.42	6.58	565.10	5.42	-9.68
56	-565.11	-5.41	8.82	-262.01	5.41	-10.75

HIPOTESIS 1 PRETENSADO: PRIMER TESADO

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
57	261.95	-5.38	11.16	-1237.00	5.38	-11.69
58	1236.95	-5.40	13.59	-2348.71	5.40	-12.51
59	2348.69	-5.40	16.13	-3523.04	5.40	-13.27
60	3523.02	-5.40	18.68	-3840.42	5.40	-14.65
61	3840.41	-4.35	-12.41	-3380.67	4.35	16.34
62	3380.69	-4.35	-11.13	-2298.42	4.35	13.89
63	2298.42	-4.35	-10.36	-1254.33	4.35	11.50
64	1254.35	-4.37	-9.57	-272.94	4.37	9.16
65	272.96	-4.34	-8.74	466.12	4.34	7.02
66	-466.13	-4.34	-7.73	1052.76	4.34	5.01
67	-1052.76	-4.36	-6.63	1493.15	4.36	3.13
68	-1493.14	-4.38	-5.43	1795.66	4.38	1.37
69	-1795.64	-4.41	-4.12	1968.29	4.41	-0.29
70	-1968.24	-4.36	-2.74	2017.39	4.36	-1.83
71	-2017.30	-4.40	-1.26	1946.93	4.40	-3.28
72	-1946.84	-4.35	0.29	1757.54	4.35	-4.61
73	-1757.57	-4.35	1.90	1448.27	4.35	-5.82
74	-1448.22	-4.38	3.60	1016.05	4.38	-6.94
75	-1016.03	-4.32	5.38	458.07	4.32	-7.95
76	-458.06	-4.31	7.25	-226.15	4.31	-8.85
77	226.14	-4.31	9.19	-1032.63	4.31	-9.63
78	1032.64	-4.31	11.23	-1952.20	4.31	-10.32
79	1952.20	-4.31	13.32	-2923.52	4.31	-10.96
80	2923.50	-4.30	15.46	-3186.27	4.30	-12.13
81	3186.35	-4.86	-11.79	-2803.41	4.86	15.05
82	2803.43	-4.86	-10.74	-1905.34	4.86	13.03
83	1905.35	-4.85	-10.08	-1038.85	4.85	11.02
84	1038.86	-4.84	-9.42	-224.29	4.84	9.09
85	224.30	-4.86	-8.74	389.83	4.86	7.32
86	-389.84	-4.82	-7.92	877.71	4.82	5.67
87	-877.73	-4.84	-7.02	1244.64	4.84	4.12
88	-1244.70	-4.82	-6.04	1497.39	4.82	2.68
89	-1497.46	-4.85	-4.99	1642.75	4.85	1.33
90	-1642.77	-4.84	-3.87	1685.94	4.84	0.09
91	-1685.96	-4.87	-2.67	1630.16	4.87	-1.08
92	-1630.14	-4.89	-1.42	1476.12	4.89	-2.16
93	-1476.14	-4.91	-0.11	1222.84	4.91	-3.15
94	-1222.86	-4.93	1.26	867.80	4.93	-4.04
95	-867.83	-4.90	2.69	408.77	4.90	-4.82
96	-408.80	-4.91	4.19	-154.66	4.91	-5.51
97	154.64	-4.92	5.75	-819.30	4.92	-6.12
98	819.28	-4.93	7.38	-1577.49	4.93	-6.63
99	1577.47	-4.92	9.06	-2378.49	4.92	-7.10
100	2378.49	-4.92	10.76	-2593.20	4.92	-8.00
101	2595.14	-1.11	-1.36	-2317.79	1.11	3.74

HIPOTESIS 1 PRETENSADO: PRIMER TESADO

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
102	2317.79	-1.11	-0.62	-1621.87	1.11	2.34
103	1621.87	-1.11	-0.16	-895.97	1.11	0.93
104	895.97	-1.12	0.27	-214.93	1.12	-0.45
105	214.93	-1.12	0.74	298.06	1.12	-1.71
106	-298.05	-1.14	1.32	704.09	1.14	-2.91
107	-704.04	-1.15	1.96	1007.53	1.15	-4.03
108	-1007.52	-1.08	2.67	1214.27	1.08	-5.08
109	-1214.29	-1.13	3.45	1330.16	1.13	-6.07
110	-1330.15	-1.06	4.27	1359.84	1.06	-6.98
111	-1359.88	-1.03	5.16	1306.00	1.03	-7.85
112	-1306.04	-1.06	6.11	1169.51	1.06	-8.67
113	-1169.56	-1.09	7.09	964.45	1.09	-9.43
114	-964.52	-1.08	8.13	674.64	1.08	-10.13
115	-674.70	-1.05	9.22	285.52	1.05	-10.76
116	-285.55	-1.10	10.38	-207.08	1.10	-11.33
117	207.08	-1.12	11.61	-803.86	1.12	-11.81
118	803.86	-1.11	12.90	-1501.53	1.11	-12.23
119	1501.51	-1.10	14.25	-2230.63	1.10	-12.62
120	2230.62	-1.10	15.63	-2495.16	1.10	-13.33
121	2499.45	4.83	-7.69	-2323.45	-4.83	10.04
122	2323.46	4.83	-6.93	-1664.39	-4.83	8.71
123	1664.40	4.83	-6.46	-908.59	-4.83	7.28
124	908.59	4.83	-6.06	-179.93	-4.83	5.86
125	179.93	4.84	-5.62	383.79	-4.84	4.54
126	-383.82	4.82	-5.06	843.72	-4.82	3.29
127	-843.74	4.84	-4.42	1199.98	-4.84	2.09
128	-1200.00	4.89	-3.71	1454.66	-4.89	0.94
129	-1454.68	4.89	-2.91	1610.27	-4.89	-0.14
130	-1610.30	4.90	-2.03	1667.72	-4.90	-1.17
131	-1667.74	4.90	-1.07	1626.22	-4.90	-2.15
132	-1626.22	4.82	-0.04	1482.59	-4.82	-3.07
133	-1482.62	4.83	1.07	1231.23	-4.83	-3.91
134	-1231.21	4.84	2.26	865.25	-4.84	-4.72
135	-865.24	4.84	3.56	377.63	-4.84	-5.44
136	-377.63	4.84	4.93	-236.88	-4.84	-6.09
137	236.87	4.86	6.41	-979.10	-4.86	-6.66
138	979.08	4.86	7.98	-1844.90	-4.86	-7.16
139	1844.89	4.88	9.65	-2749.26	-4.88	-7.66
140	2749.25	4.88	11.35	-3075.25	-4.88	-8.54
141	3080.86	6.36	-14.73	-2858.30	-6.36	17.69
142	2858.32	6.37	-13.74	-2036.37	-6.37	15.96
143	2036.39	6.38	-13.14	-1117.23	-6.38	14.15
144	1117.27	6.36	-12.59	-231.19	-6.36	12.33
145	231.21	6.38	-12.00	453.50	-6.38	10.64
146	-453.50	6.38	-11.27	1011.71	-6.38	9.03

HIPOTESIS 1 PRETENSADO: PRIMER TESADO

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
147	-1011.68	6.38	-10.42	1443.66	-6.38	7.48
148	-1443.63	6.38	-9.49	1752.32	-6.38	6.01
149	-1752.32	6.46	-8.42	1940.10	-6.46	4.58
150	-1940.14	6.41	-7.30	2008.84	-6.41	3.26
151	-2008.85	6.43	-6.05	1956.95	-6.43	1.99
152	-1956.98	6.37	-4.67	1781.02	-6.37	0.76
153	-1781.05	6.41	-3.24	1473.97	-6.41	-0.36
154	-1473.96	6.41	-1.68	1027.83	-6.41	-1.40
155	-1027.81	6.44	-0.03	433.81	-6.44	-2.35
156	-433.82	6.42	1.75	-314.21	-6.42	-3.22
157	314.22	6.41	3.66	-1217.41	-6.41	-4.00
158	1217.42	6.40	5.69	-2270.88	-6.40	-4.70
159	2270.86	6.41	7.83	-3391.09	-6.41	-5.35
160	3391.08	6.41	10.06	-3770.30	-6.41	-6.53
161	3770.18	7.21	-14.71	-3459.31	-7.21	18.70
162	3459.34	7.21	-13.38	-2396.32	-7.21	16.29
163	2396.34	7.22	-12.60	-1297.76	-7.22	13.83
164	1297.76	7.23	-11.84	-238.69	-7.23	11.38
165	238.74	7.23	-11.01	577.30	-7.23	9.10
166	-577.26	7.19	-9.98	1241.95	-7.19	6.90
167	-1241.96	7.20	-8.82	1756.07	-7.20	4.81
168	-1756.05	7.13	-7.50	2122.91	-7.13	2.79
169	-2122.92	7.20	-6.08	2345.84	-7.20	0.90
170	-2345.75	7.16	-4.48	2426.48	-7.16	-0.96
171	-2426.45	7.19	-2.75	2363.59	-7.19	-2.72
172	-2363.63	7.11	-0.94	2153.02	-7.11	-4.35
173	-2153.04	7.13	1.04	1786.63	-7.13	-5.91
174	-1786.64	7.14	3.16	1254.95	-7.14	-7.35
175	-1254.94	7.16	5.42	548.01	-7.16	-8.68
176	-548.04	7.19	7.84	-341.87	-7.19	-9.90
177	341.82	7.17	10.43	-1416.06	-7.17	-11.00
178	1416.03	7.16	13.17	-2669.48	-7.16	-11.97
179	2669.46	7.16	16.09	-4078.34	-7.16	-12.86
180	4078.32	7.16	19.15	-4647.14	-7.16	-14.44
181	4646.56	2.24	-16.09	-4269.51	-2.24	20.81
182	4269.53	2.23	-14.42	-2986.21	-2.23	17.89
183	2986.23	2.24	-13.40	-1638.12	-2.24	14.89
184	1638.12	2.26	-12.44	-338.10	-2.26	11.93
185	338.09	2.28	-11.43	667.16	-2.28	9.18
186	-667.19	2.29	-10.19	1488.49	-2.29	6.57
187	-1488.45	2.27	-8.77	2126.71	-2.27	4.04
188	-2126.74	2.34	-7.27	2585.67	-2.34	1.72
189	-2585.71	2.30	-5.60	2869.85	-2.30	-0.51
190	-2869.80	2.31	-3.77	2980.90	-2.31	-2.66
191	-2980.93	2.41	-2.40	2917.40	-2.41	-4.06

HIPOTESIS 1 PRETENSADO: PRIMER TESADO

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
192	-2917.43	2.32	0.24	2674.16	-2.32	-6.47
193	-2674.25	2.32	3.15	2241.62	-2.32	-8.91
194	-2241.60	2.26	5.30	1607.81	-2.26	-10.26
195	-1607.78	2.34	7.51	760.50	-2.34	-11.36
196	-760.51	2.31	10.39	-309.27	-2.31	-12.81
197	309.27	2.33	13.23	-1603.41	-2.33	-13.88
198	1603.38	2.32	16.27	-3115.39	-2.32	-14.83
199	3115.36	2.31	19.19	-4796.57	-2.31	-15.35
200	4796.54	2.31	23.47	-5687.62	-2.31	-17.90
201	5687.98	-58.56	-10.62	-5323.28	58.56	14.85
202	5323.29	-58.55	-7.04	-4164.39	58.55	10.54
203	4164.39	-58.56	-6.63	-2773.95	58.56	8.83
204	2773.97	-58.62	-6.60	-1359.26	58.62	7.37
205	1359.26	-58.60	-5.74	-215.47	58.60	5.21
206	215.50	-58.62	-5.06	791.84	58.62	3.46
207	-791.76	-58.60	-3.97	1658.74	58.60	1.44
208	-1658.67	-58.66	-4.62	2384.74	58.66	1.33
209	-2384.74	-58.48	-3.06	2970.90	58.48	-0.85
210	-2970.89	-58.31	-1.35	3418.52	58.31	-3.05
211	-3418.62	-58.47	-1.01	3729.72	58.47	-3.71
212	-3729.79	-58.59	-0.49	3904.00	58.59	-4.43
213	-3903.93	-58.48	1.65	3860.10	58.48	-6.52
214	-3859.96	-58.52	3.98	3746.47	58.52	-8.67
215	-3746.40	-58.53	3.53	3518.32	58.53	-7.95
216	-3518.30	-58.64	5.62	3175.06	58.64	-9.66
217	-3175.00	-58.54	7.31	2715.18	58.54	-10.83
218	-2715.15	-58.46	7.32	2143.82	58.46	-10.17
219	-2143.76	-58.53	7.93	1308.63	58.53	-9.94
220	-1308.60	-58.50	9.38	554.46	58.50	-10.44
221	46.55	-22.16	0.00	0.00	22.16	0.00
222	53.71	-25.58	0.00	0.00	25.58	0.00
223	-75.90	36.14	0.00	0.00	-36.14	0.00
224	-40.06	19.08	0.00	0.00	-19.08	0.00
225	-17.81	8.48	0.00	0.00	-8.48	0.00
226	21.34	-10.16	0.00	0.00	10.16	0.00
227	-15.39	7.33	0.00	0.00	-7.33	0.00
228	17.58	-8.37	0.00	0.00	8.37	0.00
229	-15.00	7.14	0.00	0.00	-7.14	0.00
230	13.83	-6.58	0.00	0.00	6.58	0.00
231	-12.53	5.96	0.00	0.00	-5.96	0.00
232	14.22	-6.77	0.00	0.00	6.77	0.00
233	-23.97	11.42	0.00	0.00	-11.42	0.00
234	13.64	-6.49	0.00	0.00	6.49	0.00
235	-80.38	38.28	0.00	0.00	-38.28	0.00
236	-47.44	22.59	0.00	0.00	-22.59	0.00

HIPOTESIS 1 PRETENSADO: PRIMER TESADO

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
237	56.22	-26.77	0.00	0.00	26.77	0.00
238	66.66	-31.74	0.00	0.00	31.74	0.00

HIPOTESIS 1 PRETENSADO INICIAL

REACCIONES

Nudo	Flector	Reac_vert	Torsor
101	0.00000	5.85341	-20.40063
121	0.00000	9.11255	-38.10673
141	0.00000	2.32413	-43.12094
222	0.00000	34.25567	0.00000
223	0.00000	39.51863	0.00000
224	0.00000	-55.98021	0.00000
225	0.00000	-29.62497	0.00000
226	0.00000	-12.83649	0.00000
227	0.00000	15.84790	0.00000
228	0.00000	-11.33191	0.00000
229	0.00000	12.82192	0.00000
230	0.00000	-10.97198	0.00000
231	0.00000	10.14825	0.00000
232	0.00000	-9.23581	0.00000
233	0.00000	10.35950	0.00000
234	0.00000	-17.35547	0.00000
235	0.00000	10.19689	0.00000
236	0.00000	-59.24602	0.00000
237	0.00000	-35.01548	0.00000
238	0.00000	41.30692	0.00000
239	0.00000	49.01014	0.00000

SUMA DE REACCIONES

Suma Momentos Flectores = 0.000
Suma Reacciones Vertic. = -0.842
Suma Momentos Torsores = -101.628

HIPOTESIS 1 PRETENSADO INICIAL

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-867.81	73.76	-11.06	2263.35	-73.76	9.01
2	-2263.31	73.73	-11.86	3333.72	-73.73	8.11
3	-3333.70	73.78	-12.29	4229.78	-73.78	7.15
4	-4229.63	73.91	-12.48	4951.59	-73.91	6.17
5	-4951.55	73.83	-12.41	5500.77	-73.83	5.15
6	-5500.61	73.98	-12.04	5933.60	-73.98	4.01
7	-5933.63	73.81	-11.49	6080.90	-73.81	2.94
8	-6080.99	74.03	-10.61	6055.88	-74.03	1.83
9	-6056.04	73.79	-9.42	5842.78	-73.79	0.64
10	-5842.82	73.62	-8.01	5408.07	-73.62	-0.52
11	-5408.02	73.97	-6.30	4751.40	-73.97	-1.69

HIPOTESIS 1 PRETENSADO INICIAL

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
12	-4751.40	73.74	-4.30	3871.24	-73.74	-2.88
13	-3871.12	74.04	-1.98	2764.11	-74.04	-4.10
14	-2764.16	74.02	0.63	1428.43	-74.02	-5.32
15	-1428.40	73.98	3.51	-135.53	-73.98	-6.53
16	135.52	74.02	6.70	-1921.98	-74.02	-7.77
17	1921.98	74.09	10.18	-3917.47	-74.09	-9.02
18	3917.45	74.08	13.98	-6107.31	-74.08	-10.34
19	6107.27	74.04	18.00	-8107.77	-74.04	-11.88
20	8107.75	74.04	22.04	-8674.71	-74.04	-14.46
21	8674.31	-11.56	-28.74	-7636.99	11.56	37.58
22	7637.04	-11.57	-25.81	-5199.84	11.57	32.02
23	5199.90	-11.57	-24.01	-2848.51	11.57	26.56
24	2848.58	-11.56	-22.20	-638.26	11.56	21.28
25	638.33	-11.58	-20.29	1027.21	11.58	16.43
26	-1027.23	-11.45	-18.01	2349.62	11.45	11.88
27	-2349.69	-11.47	-15.49	3343.33	11.47	7.61
28	-3343.30	-11.41	-12.77	4026.58	11.41	3.64
29	-4026.81	-11.35	-9.83	4417.79	11.35	-0.09
30	-4417.81	-11.47	-6.69	4531.75	11.47	-3.58
31	-4531.74	-11.31	-3.40	4376.19	11.31	-6.81
32	-4376.11	-11.37	0.09	3953.73	11.37	-9.81
33	-3953.73	-11.25	3.71	3261.38	11.25	-12.55
34	-3261.33	-11.40	7.54	2292.53	11.40	-15.06
35	-2292.59	-11.37	11.54	1041.27	11.37	-17.31
36	-1041.32	-11.37	15.71	-493.85	11.37	-19.31
37	493.82	-11.40	20.08	-2303.86	11.40	-21.07
38	2303.83	-11.39	24.61	-4368.20	11.39	-22.59
39	4368.14	-11.39	29.30	-6548.86	11.39	-23.98
40	6548.81	-11.40	34.05	-7136.23	11.40	-26.56
41	7136.61	-8.39	-22.66	-6280.62	8.39	29.98
42	6280.66	-8.39	-20.32	-4266.33	8.39	25.46
43	4266.36	-8.39	-18.88	-2323.06	8.39	20.99
44	2323.11	-8.39	-17.43	-496.54	8.39	16.67
45	496.54	-8.33	-15.90	879.16	8.33	12.71
46	-879.13	-8.32	-14.05	1971.14	8.32	8.98
47	-1971.21	-8.29	-12.03	2791.04	8.29	5.51
48	-2791.17	-8.37	-9.79	3354.39	8.37	2.23
49	-3354.45	-8.41	-7.40	3676.14	8.41	-0.81
50	-3676.30	-8.31	-4.86	3768.17	8.31	-3.64
51	-3768.39	-8.33	-2.16	3637.69	8.33	-6.29
52	-3637.87	-8.32	0.70	3286.12	8.32	-8.75
53	-3286.28	-8.24	3.68	2711.09	8.24	-11.00
54	-2711.12	-8.27	6.82	1907.24	8.27	-13.05
55	-1907.28	-8.20	10.10	869.51	8.20	-14.88
56	-869.57	-8.19	13.55	-403.20	8.19	-16.53

HIPOTESIS 1 PRETENSADO INICIAL

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
57	403.12	-8.25	17.16	-1903.24	8.25	-17.98
58	1903.22	-8.21	20.90	-3613.81	8.21	-19.23
59	3613.79	-8.22	24.81	-5420.66	8.22	-20.41
60	5420.63	-8.21	28.73	-5909.12	8.21	-22.53
61	5909.11	-6.72	-19.10	-5201.78	6.72	25.15
62	5201.80	-6.72	-17.13	-3536.71	6.72	21.38
63	3536.74	-6.72	-15.94	-1930.36	6.72	17.69
64	1930.39	-6.73	-14.73	-420.52	6.73	14.10
65	420.53	-6.73	-13.45	716.59	6.73	10.80
66	-716.54	-6.75	-11.90	1619.15	6.75	7.71
67	-1619.15	-6.75	-10.20	2296.71	6.75	4.81
68	-2296.65	-6.85	-8.35	2762.22	6.85	2.11
69	-2762.15	-6.79	-6.34	3027.81	6.79	-0.44
70	-3027.69	-6.77	-4.21	3103.45	6.77	-2.82
71	-3103.33	-6.70	-1.95	2994.91	6.70	-5.04
72	-2994.90	-6.73	0.45	2703.73	6.73	-7.11
73	-2703.77	-6.63	2.92	2227.91	6.63	-8.96
74	-2227.94	-6.74	5.53	1563.04	6.74	-10.67
75	-1563.00	-6.72	8.28	704.73	6.72	-12.23
76	-704.67	-6.69	11.15	-347.88	6.69	-13.62
77	347.86	-6.63	14.14	-1588.63	6.63	-14.82
78	1588.59	-6.65	17.27	-3003.31	6.65	-15.89
79	3003.27	-6.65	20.50	-4497.56	6.65	-16.86
80	4497.53	-6.64	23.79	-4901.75	6.64	-18.66
81	4901.86	-7.46	-18.14	-4312.74	7.46	23.15
82	4312.77	-7.46	-16.53	-2931.11	7.46	20.04
83	2931.12	-7.46	-15.51	-1598.06	7.46	16.95
84	1598.08	-7.46	-14.50	-344.90	7.46	13.98
85	344.92	-7.46	-13.45	599.87	7.46	11.26
86	-599.88	-7.44	-12.19	1350.49	7.44	8.72
87	-1350.52	-7.46	-10.81	1914.98	7.46	6.34
88	-1915.02	-7.42	-9.29	2303.80	7.42	4.12
89	-2303.87	-7.48	-7.67	2527.42	7.48	2.06
90	-2527.45	-7.46	-5.96	2593.83	7.46	0.14
91	-2593.87	-7.44	-4.11	2507.99	7.44	-1.67
92	-2508.02	-7.53	-2.19	2271.04	7.53	-3.32
93	-2271.04	-7.55	-0.16	1881.31	7.55	-4.83
94	-1881.32	-7.59	1.95	1335.13	7.59	-6.21
95	-1335.17	-7.52	4.14	628.89	7.52	-7.41
96	-628.94	-7.55	6.45	-237.95	7.55	-8.48
97	237.89	-7.54	8.85	-1260.48	7.54	-9.41
98	1260.42	-7.55	11.35	-2426.95	7.55	-10.20
99	2426.90	-7.56	13.93	-3659.27	7.56	-10.92
100	3659.24	-7.56	16.55	-3989.58	7.56	-12.31
101	3992.57	-1.71	-2.09	-3565.88	1.71	5.75

HIPOTESIS 1 PRETENSADO INICIAL

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
102	3565.89	-1.71	-0.95	-2495.22	1.71	3.60
103	2495.22	-1.70	-0.24	-1378.47	1.70	1.42
104	1378.46	-1.71	0.42	-330.73	1.71	-0.69
105	330.71	-1.71	1.14	458.51	1.71	-2.64
106	-458.53	-1.70	2.03	1083.11	1.70	-4.48
107	-1083.11	-1.74	3.02	1550.00	1.74	-6.19
108	-1549.95	-1.74	4.11	1868.10	1.74	-7.82
109	-1868.11	-1.69	5.31	2046.30	1.69	-9.34
110	-2046.35	-1.59	6.56	2092.00	1.59	-10.73
111	-2092.01	-1.60	7.95	2009.18	1.60	-12.10
112	-2009.23	-1.65	9.40	1799.21	1.65	-13.35
113	-1799.23	-1.64	10.93	1483.74	1.64	-14.52
114	-1483.79	-1.68	12.52	1037.92	1.68	-15.60
115	-1037.90	-1.68	14.21	439.25	1.68	-16.58
116	-439.27	-1.70	15.98	-318.63	1.70	-17.43
117	318.60	-1.68	17.86	-1236.77	1.68	-18.17
118	1236.76	-1.71	19.85	-2310.07	1.71	-18.82
119	2310.05	-1.69	21.93	-3431.79	1.69	-19.43
120	3431.76	-1.69	24.05	-3838.74	1.69	-20.51
121	3845.35	7.42	-11.84	-3574.57	-7.42	15.46
122	3574.59	7.42	-10.67	-2560.62	-7.42	13.41
123	2560.65	7.42	-9.95	-1397.81	-7.42	11.21
124	1397.83	7.43	-9.33	-276.82	-7.43	9.03
125	276.83	7.40	-8.66	590.51	-7.40	7.00
126	-590.47	7.39	-7.79	1298.10	-7.39	5.06
127	-1298.10	7.45	-6.81	1846.19	-7.45	3.22
128	-1846.21	7.54	-5.72	2237.99	-7.54	1.47
129	-2238.05	7.52	-4.48	2477.39	-7.52	-0.21
130	-2477.47	7.52	-3.13	2565.80	-7.52	-1.79
131	-2565.81	7.58	-1.65	2501.93	-7.58	-3.30
132	-2501.99	7.44	-0.09	2281.04	-7.44	-4.69
133	-2281.06	7.45	1.63	1894.28	-7.45	-6.02
134	-1894.33	7.46	3.46	1331.27	-7.46	-7.23
135	-1331.28	7.44	5.46	581.12	-7.44	-8.36
136	-581.12	7.45	7.58	-364.27	-7.45	-9.36
137	364.29	7.46	9.85	-1506.12	-7.46	-10.25
138	1506.11	7.48	12.26	-2838.13	-7.48	-11.01
139	2838.11	7.49	14.84	-4229.44	-7.49	-11.77
140	4229.42	7.49	17.46	-4730.94	-7.49	-13.12
141	4739.58	9.82	-22.65	-4397.22	-9.82	27.20
142	4397.25	9.82	-21.13	-3132.76	-9.82	24.55
143	3132.78	9.85	-20.22	-1718.76	-9.85	21.76
144	1718.79	9.83	-19.37	-355.66	-9.83	18.96
145	355.70	9.82	-18.46	697.68	-9.82	16.36
146	-697.67	9.90	-17.33	1556.36	-9.90	13.88

HIPOTESIS 1 PRETENSADO INICIAL

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
147	-1556.33	9.86	-16.02	2220.90	-9.86	11.49
148	-2220.82	9.83	-14.59	2695.68	-9.83	9.24
149	-2695.65	9.90	-12.94	2984.56	-9.90	7.05
150	-2984.55	9.87	-11.20	3090.23	-9.87	5.01
151	-3090.19	9.86	-9.29	3010.45	-9.86	3.06
152	-3010.38	9.84	-7.19	2739.69	-9.84	1.17
153	-2739.68	9.87	-4.98	2267.25	-9.87	-0.55
154	-2267.25	9.91	-2.59	1580.75	-9.91	-2.16
155	-1580.79	9.94	-0.04	666.85	-9.94	-3.63
156	-666.85	9.87	2.72	-483.96	-9.87	-4.98
157	483.98	9.93	5.64	-1873.60	-9.93	-6.17
158	1873.58	9.89	8.77	-3494.35	-9.89	-7.24
159	3494.32	9.88	12.06	-5217.79	-9.88	-8.24
160	5217.78	9.88	15.49	-5801.25	-9.88	-10.06
161	5801.05	11.01	-22.62	-5322.63	-11.01	28.76
162	5322.67	11.00	-20.57	-3687.08	-11.00	25.05
163	3687.12	11.00	-19.37	-1996.80	-11.00	21.25
164	1996.82	11.03	-18.20	-367.31	-11.03	17.50
165	367.33	11.01	-16.93	888.24	-11.01	13.98
166	-888.18	11.03	-15.34	1910.91	-11.03	10.60
167	-1910.93	10.96	-13.54	2702.07	-10.96	7.38
168	-2702.05	10.94	-11.52	3266.59	-10.94	4.27
169	-3266.62	10.94	-9.34	3609.81	-10.94	1.35
170	-3609.73	10.94	-6.90	3733.96	-10.94	-1.46
171	-3733.92	10.87	-4.23	3637.49	-10.87	-4.21
172	-3637.52	10.88	-1.43	3313.61	-10.88	-6.69
173	-3313.67	10.87	1.62	2750.20	-10.87	-9.11
174	-2750.18	10.97	4.87	1932.29	-10.97	-11.32
175	-1932.32	10.90	8.34	844.96	-10.90	-13.36
176	-844.94	10.96	12.07	-523.90	-10.96	-15.24
177	523.87	10.96	16.05	-2176.38	-10.96	-16.93
178	2176.32	10.93	20.26	-4104.52	-10.93	-18.41
179	4104.50	10.92	24.74	-6271.83	-10.92	-19.78
180	6271.80	10.93	29.45	-7146.72	-10.93	-22.20
181	7145.84	3.77	-24.77	-6566.40	-3.77	32.03
182	6566.43	3.77	-22.21	-4592.73	-3.77	27.54
183	4592.75	3.78	-20.65	-2519.38	-3.78	22.93
184	2519.40	3.77	-19.15	-519.97	-3.77	18.36
185	520.00	3.79	-17.59	1025.92	-3.79	14.14
186	-1025.91	3.81	-15.69	2288.91	-3.81	10.11
187	-2288.88	3.86	-13.53	3270.07	-3.86	6.27
188	-3270.11	3.92	-11.20	3975.67	-3.92	2.66
189	-3975.67	3.89	-8.62	4412.13	-3.89	-0.79
190	-4412.10	3.88	-5.81	4582.39	-3.88	-4.06
191	-4582.39	3.97	-3.69	4484.02	-3.97	-6.27

HIPOTESIS 1 PRETENSADO INICIAL

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
192	-4484.09	3.92	0.37	4109.21	-3.92	-9.97
193	-4109.19	3.74	4.88	3443.17	-3.74	-13.73
194	-3443.21	3.93	8.14	2467.27	-3.93	-15.76
195	-2467.34	3.94	11.58	1163.15	-3.94	-17.51
196	-1163.26	3.98	16.00	-483.36	-3.98	-19.70
197	483.28	3.88	20.42	-2474.88	-3.88	-21.40
198	2474.84	3.89	25.10	-4801.63	-3.89	-22.87
199	4801.58	3.88	29.59	-7388.70	-3.88	-23.68
200	7388.65	3.88	36.20	-8760.18	-3.88	-27.62
201	8760.73	-90.38	-16.46	-8199.24	90.38	22.96
202	8199.27	-90.37	-10.94	-6415.92	90.37	16.31
203	6415.92	-90.37	-10.30	-4276.42	90.37	13.68
204	4276.40	-90.43	-10.25	-2099.54	90.43	11.42
205	2099.52	-90.53	-8.89	-339.41	90.53	8.06
206	339.46	-90.44	-7.87	1210.66	90.44	5.40
207	-1210.61	-90.50	-6.15	2544.83	90.50	2.27
208	-2544.74	-90.47	-7.19	3662.19	90.47	2.09
209	-3662.15	-90.34	-4.78	4564.17	90.34	-1.29
210	-4564.11	-90.28	-2.03	5253.60	90.28	-4.69
211	-5253.46	-90.36	-1.59	5732.66	90.36	-5.71
212	-5732.68	-90.24	-0.80	6000.99	90.24	-6.77
213	-6001.13	-90.07	2.49	6069.97	90.07	-10.11
214	-6070.02	-90.08	6.06	5872.94	90.08	-13.46
215	-5873.03	-90.33	5.36	5514.83	90.33	-12.25
216	-5514.75	-90.36	8.64	4976.06	90.36	-14.90
217	-4976.09	-90.17	11.29	4254.69	90.17	-16.77
218	-4254.72	-90.22	11.28	3358.69	90.22	-15.75
219	-3358.65	-90.23	12.23	2049.22	90.23	-15.38
220	-2049.22	-90.35	14.53	866.56	90.35	-16.17
221	71.93	-34.25	0.00	0.00	34.25	0.00
222	82.99	-39.52	0.00	0.00	39.52	0.00
223	-117.56	55.98	0.00	0.00	-55.98	0.00
224	-62.21	29.63	0.00	0.00	-29.63	0.00
225	-26.96	12.84	0.00	0.00	-12.84	0.00
226	33.28	-15.85	0.00	0.00	15.85	0.00
227	-23.80	11.33	0.00	0.00	-11.33	0.00
228	26.93	-12.82	0.00	0.00	12.82	0.00
229	-23.04	10.97	0.00	0.00	-10.97	0.00
230	21.31	-10.15	0.00	0.00	10.15	0.00
231	-19.39	9.23	0.00	0.00	-9.23	0.00
232	21.75	-10.36	0.00	0.00	10.36	0.00
233	-36.45	17.36	0.00	0.00	-17.36	0.00
234	21.42	-10.20	0.00	0.00	10.20	0.00
235	-124.42	59.25	0.00	0.00	-59.25	0.00
236	-73.53	35.01	0.00	0.00	-35.01	0.00

HIPOTESIS 1 PRETENSADO INICIAL

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
237	86.75	-41.31	0.00	0.00	41.31	0.00
238	102.92	-49.01	0.00	0.00	49.01	0.00

HIPOTESIS 1 PRETENSADO FINAL

REACCIONES

Nudo	Flector	Reac_vert	Torsor
101	0.00000	5.00110	-14.48550
121	0.00000	8.13351	-34.73439
141	0.00000	2.55609	-34.99546
222	0.00000	29.17892	0.00000
223	0.00000	33.67848	0.00000
224	0.00000	-47.65794	0.00000
225	0.00000	-25.20384	0.00000
226	0.00000	-11.04251	0.00000
227	0.00000	13.43868	0.00000
228	0.00000	-9.50745	0.00000
229	0.00000	11.10539	0.00000
230	0.00000	-9.93078	0.00000
231	0.00000	8.63016	0.00000
232	0.00000	-8.01726	0.00000
233	0.00000	8.77376	0.00000
234	0.00000	-15.35528	0.00000
235	0.00000	8.24266	0.00000
236	0.00000	-49.95758	0.00000
237	0.00000	-29.46985	0.00000
238	0.00000	35.04781	0.00000
239	0.00000	41.63648	0.00000

SUMA DE REACCIONES

Suma Momentos Flectores	=	0.000
Suma Reacciones Vertic.	=	-0.719
Suma Momentos Torsores	=	-84.215

HIPOTESIS 1 PRETENSADO FINAL

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-774.47	62.86	-9.45	1976.85	-62.86	7.66
2	-1976.85	62.85	-10.15	2897.07	-62.85	6.88
3	-2897.02	62.90	-10.52	3655.07	-62.90	6.07
4	-3654.84	62.87	-10.67	4254.94	-62.87	5.24
5	-4254.90	62.94	-10.60	4702.90	-62.94	4.38
6	-4702.95	63.05	-10.28	5050.40	-63.05	3.43
7	-5050.42	62.97	-9.80	5162.67	-62.97	2.53
8	-5162.52	62.58	-9.03	5136.49	-62.58	1.58
9	-5136.37	62.81	-8.02	4960.60	-62.81	0.57
10	-4960.42	62.74	-6.82	4609.60	-62.74	-0.43
11	-4609.47	62.77	-5.37	4077.57	-62.77	-1.45

HIPOTESIS 1 PRETENSADO FINAL

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
12	-4077.56	63.00	-3.69	3354.08	-63.00	-2.48
13	-3354.10	63.07	-1.73	2427.03	-63.07	-3.53
14	-2427.12	63.17	0.48	1285.81	-63.17	-4.57
15	-1285.85	63.11	2.94	-72.61	-63.11	-5.58
16	72.64	63.04	5.68	-1637.33	-63.04	-6.61
17	1637.30	63.17	8.66	-3376.18	-63.17	-7.65
18	3376.09	63.13	11.93	-5279.02	-63.13	-8.75
19	5278.98	63.09	15.38	-6983.94	-63.09	-10.06
20	6983.92	63.08	18.82	-7532.13	-63.08	-12.22
21	7531.79	-9.78	-24.39	-6573.18	9.78	32.08
22	6573.24	-9.78	-21.95	-4510.79	9.78	27.34
23	4510.81	-9.76	-20.40	-2443.39	9.76	22.64
24	2443.42	-9.78	-18.90	-502.70	9.78	18.10
25	502.78	-9.80	-17.32	946.90	9.80	13.94
26	-946.84	-9.71	-15.40	2075.98	9.71	10.06
27	-2075.99	-9.71	-13.25	2904.05	9.71	6.44
28	-2904.05	-9.63	-10.92	3460.11	9.63	3.07
29	-3460.20	-9.56	-8.39	3771.93	9.56	-0.09
30	-3771.87	-9.72	-5.70	3859.06	9.72	-3.06
31	-3858.92	-9.59	-2.89	3730.96	9.59	-5.81
32	-3730.85	-9.56	0.08	3386.76	9.56	-8.39
33	-3386.81	-9.54	3.16	2817.25	9.54	-10.74
34	-2817.24	-9.61	6.41	2006.77	9.61	-12.90
35	-2006.81	-9.62	9.81	939.76	9.62	-14.82
36	-939.75	-9.68	13.37	-390.80	9.68	-16.51
37	390.84	-9.62	17.11	-1971.38	9.62	-17.98
38	1971.31	-9.63	21.01	-3782.21	9.63	-19.24
39	3782.16	-9.62	25.05	-5675.26	9.62	-20.40
40	5675.22	-9.63	29.13	-6275.12	9.63	-22.53
41	6275.45	-7.24	-19.20	-5439.13	7.24	25.64
42	5439.17	-7.24	-17.28	-3701.70	7.24	21.77
43	3701.74	-7.24	-16.06	-1993.00	7.24	17.92
44	1993.04	-7.24	-14.87	-399.22	7.24	14.20
45	399.26	-7.23	-13.59	794.56	7.23	10.81
46	-794.50	-7.21	-12.03	1732.73	7.21	7.63
47	-1732.75	-7.21	-10.30	2429.37	7.21	4.67
48	-2429.36	-7.29	-8.38	2903.56	7.29	1.87
49	-2903.52	-7.25	-6.35	3172.25	7.25	-0.72
50	-3172.27	-7.30	-4.16	3248.06	7.30	-3.14
51	-3248.02	-7.28	-1.86	3136.92	7.28	-5.40
52	-3136.99	-7.13	0.56	2839.25	7.13	-7.48
53	-2839.41	-7.03	3.11	2351.40	7.03	-9.40
54	-2351.51	-7.10	5.78	1665.85	7.10	-11.15
55	-1665.94	-7.13	8.58	774.85	7.13	-12.72
56	-774.88	-7.11	11.53	-324.83	7.11	-14.11

HIPOTESIS 1 PRETENSADO FINAL

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
57	324.78	-7.09	14.61	-1625.19	7.09	-15.33
58	1625.13	-7.09	17.82	-3122.78	7.09	-16.36
59	3122.77	-7.09	21.18	-4717.63	7.09	-17.32
60	4717.61	-7.09	24.56	-5254.78	7.09	-19.04
61	5254.77	-5.48	-16.17	-4524.62	5.48	21.56
62	4524.65	-5.49	-14.59	-3062.57	5.49	18.31
63	3062.58	-5.48	-13.61	-1652.94	5.48	15.14
64	1652.97	-5.49	-12.60	-346.01	5.49	12.06
65	346.03	-5.51	-11.52	636.82	5.51	9.23
66	-636.75	-5.51	-10.21	1417.11	5.51	6.59
67	-1417.07	-5.52	-8.77	2003.85	5.52	4.11
68	-2003.77	-5.58	-7.20	2407.73	5.58	1.79
69	-2407.73	-5.54	-5.49	2637.97	5.54	-0.40
70	-2637.89	-5.52	-3.66	2701.25	5.52	-2.42
71	-2701.12	-5.48	-1.72	2601.94	5.48	-4.31
72	-2601.85	-5.53	0.33	2342.55	5.53	-6.07
73	-2342.49	-5.46	2.45	1924.11	5.46	-7.65
74	-1924.03	-5.52	4.69	1345.81	5.52	-9.12
75	-1345.81	-5.45	7.05	605.76	5.45	-10.44
76	-605.74	-5.43	9.52	-297.57	5.43	-11.63
77	297.56	-5.43	12.09	-1363.04	5.43	-12.67
78	1363.03	-5.40	14.76	-2603.67	5.40	-13.56
79	2603.63	-5.42	17.55	-3961.96	5.42	-14.33
80	3961.94	-5.42	20.43	-4453.46	5.42	-15.77
81	4453.56	-6.71	-16.35	-3794.94	6.71	20.91
82	3794.96	-6.71	-15.09	-2543.80	6.71	18.19
83	2543.82	-6.70	-14.26	-1372.57	6.70	15.53
84	1372.58	-6.71	-13.42	-296.74	6.71	12.97
85	296.75	-6.71	-12.52	519.04	6.71	10.64
86	-519.03	-6.71	-11.44	1179.55	6.71	8.44
87	-1179.59	-6.67	-10.28	1689.82	6.67	6.40
88	-1689.85	-6.70	-8.99	2052.59	6.70	4.47
89	-2052.67	-6.70	-7.64	2268.49	6.70	2.69
90	-2268.51	-6.75	-6.18	2337.36	6.75	1.03
91	-2337.34	-6.71	-4.62	2259.43	6.71	-0.50
92	-2259.43	-6.77	-2.97	2037.14	6.77	-1.90
93	-2037.17	-6.82	-1.23	1674.76	6.82	-3.17
94	-1674.70	-6.87	0.60	1177.63	6.87	-4.32
95	-1177.60	-6.81	2.49	551.29	6.81	-5.32
96	-551.30	-6.82	4.47	-199.22	6.82	-6.22
97	199.22	-6.82	6.52	-1070.98	6.82	-7.01
98	1070.97	-6.80	8.65	-2080.23	6.80	-7.66
99	2080.19	-6.81	10.86	-3195.71	6.81	-8.21
100	3195.69	-6.81	13.13	-3616.74	6.81	-9.29
101	3618.87	-1.81	0.19	-3127.27	1.81	3.14

HIPOTESIS 1 PRETENSADO FINAL

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
102	3127.27	-1.81	1.07	-2148.92	1.81	1.27
103	2148.91	-1.80	1.62	-1169.02	1.80	-0.59
104	1169.01	-1.80	2.16	-281.94	1.80	-2.38
105	281.93	-1.81	2.77	377.77	1.81	-4.03
106	-377.76	-1.83	3.52	900.64	1.83	-5.57
107	-900.58	-1.85	4.36	1296.16	1.85	-7.02
108	-1296.15	-1.81	5.28	1571.84	1.81	-8.39
109	-1571.81	-1.79	6.28	1732.10	1.79	-9.68
110	-1732.08	-1.73	7.34	1779.06	1.73	-10.87
111	-1779.09	-1.73	8.48	1713.25	1.73	-12.01
112	-1713.31	-1.76	9.71	1534.94	1.76	-13.06
113	-1535.01	-1.79	10.98	1263.47	1.79	-14.03
114	-1263.52	-1.78	12.33	882.53	1.78	-14.93
115	-882.57	-1.75	13.74	375.69	1.75	-15.74
116	-375.71	-1.79	15.24	-262.79	1.79	-16.46
117	262.77	-1.80	16.82	-1036.27	1.80	-17.09
118	1036.25	-1.80	18.49	-1957.54	1.80	-17.61
119	1957.52	-1.79	20.25	-2951.36	1.79	-18.08
120	2951.33	-1.79	22.05	-3392.46	1.79	-18.91
121	3398.49	6.34	-10.72	-3063.22	-6.34	13.92
122	3063.24	6.34	-9.81	-2178.82	-6.34	12.18
123	2178.83	6.35	-9.24	-1176.07	-6.35	10.32
124	1176.08	6.34	-8.74	-218.97	-6.34	8.48
125	218.98	6.34	-8.19	523.32	-6.34	6.77
126	-523.34	6.33	-7.49	1130.41	-6.33	5.15
127	-1130.44	6.35	-6.67	1600.72	-6.35	3.60
128	-1600.70	6.39	-5.75	1935.89	-6.39	2.12
129	-1935.86	6.40	-4.72	2138.57	-6.40	0.72
130	-2138.60	6.42	-3.60	2210.29	-6.42	-0.61
131	-2210.30	6.43	-2.36	2151.20	-6.43	-1.87
132	-2151.18	6.38	-1.04	1959.00	-6.38	-3.03
133	-1959.03	6.39	0.39	1628.09	-6.39	-4.13
134	-1628.06	6.33	1.93	1149.64	-6.33	-5.14
135	-1149.62	6.36	3.61	512.70	-6.36	-6.08
136	-512.71	6.38	5.39	-292.33	-6.38	-6.91
137	292.32	6.37	7.31	-1267.36	-6.37	-7.64
138	1267.33	6.41	9.34	-2417.93	-6.41	-8.26
139	2417.91	6.40	11.52	-3634.61	-6.40	-8.87
140	3634.60	6.41	13.76	-4148.00	-6.41	-9.94
141	4155.01	8.96	-18.67	-3766.54	-8.96	22.67
142	3766.58	8.96	-17.46	-2681.00	-8.96	20.42
143	2681.02	8.97	-16.72	-1454.64	-8.97	18.06
144	1454.68	8.95	-16.03	-279.65	-8.95	15.68
145	279.68	8.98	-15.29	624.54	-8.98	13.48
146	-624.53	9.01	-14.36	1353.89	-9.01	11.39

HIPOTESIS 1 PRETENSADO FINAL

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
147	-1353.91	9.06	-13.26	1909.07	-9.06	9.39
148	-1909.08	8.96	-12.05	2297.55	-8.96	7.50
149	-2297.53	9.00	-10.64	2527.08	-9.00	5.64
150	-2527.04	8.99	-9.16	2604.32	-8.99	3.93
151	-2604.32	9.07	-7.54	2530.75	-9.07	2.27
152	-2530.79	9.00	-5.76	2303.78	-9.00	0.69
153	-2303.79	9.03	-3.87	1913.25	-9.03	-0.79
154	-1913.28	9.06	-1.87	1344.24	-9.06	-2.16
155	-1344.24	9.06	0.30	577.85	-9.06	-3.42
156	-577.89	9.04	2.62	-401.84	-9.04	-4.56
157	401.83	9.03	5.12	-1598.87	-9.03	-5.57
158	1598.86	9.02	7.79	-3015.41	-9.02	-6.46
159	3015.39	9.02	10.61	-4529.75	-9.02	-7.28
160	4529.73	9.02	13.57	-5116.87	-9.02	-8.76
161	5116.69	9.77	-19.04	-4593.11	-9.77	24.46
162	4593.15	9.78	-17.39	-3182.74	-9.78	21.29
163	3182.77	9.78	-16.38	-1704.69	-9.78	18.04
164	1704.72	9.79	-15.42	-285.64	-9.79	14.81
165	285.68	9.78	-14.37	809.80	-9.78	11.80
166	-809.78	9.77	-13.05	1699.08	-9.77	8.93
167	-1699.03	9.71	-11.53	2381.43	-9.71	6.16
168	-2381.38	9.75	-9.83	2862.45	-9.75	3.53
169	-2862.50	9.73	-7.96	3149.32	-9.73	1.05
170	-3149.23	9.68	-5.88	3246.98	-9.68	-1.36
171	-3246.91	9.65	-3.59	3156.79	-9.65	-3.69
172	-3156.82	9.64	-1.20	2875.34	-9.64	-5.81
173	-2875.37	9.65	1.40	2392.34	-9.65	-7.87
174	-2392.30	9.68	4.17	1692.64	-9.68	-9.75
175	-1692.63	9.70	7.13	757.85	-9.70	-11.48
176	-757.86	9.74	10.33	-427.38	-9.74	-13.08
177	427.36	9.71	13.74	-1864.44	-9.71	-14.50
178	1864.40	9.71	17.35	-3554.17	-9.71	-15.74
179	3554.14	9.71	21.22	-5448.29	-9.71	-16.88
180	5448.25	9.71	25.28	-6300.50	-9.71	-18.87
181	6299.75	2.59	-21.09	-5697.42	-2.59	27.49
182	5697.46	2.59	-18.97	-3996.89	-2.59	23.64
183	3996.91	2.58	-17.63	-2167.96	-2.58	19.65
184	2168.00	2.57	-16.40	-417.34	-2.57	15.72
185	417.39	2.64	-15.10	922.68	-2.64	12.09
186	-922.65	2.61	-13.48	1998.32	-2.61	8.65
187	-1998.27	2.69	-11.64	2816.72	-2.69	5.39
188	-2816.76	2.69	-9.65	3394.90	-2.69	2.31
189	-3394.88	2.62	-7.41	3749.59	-2.62	-0.61
190	-3749.60	2.75	-5.01	3890.92	-2.75	-3.41
191	-3890.94	2.76	-3.19	3820.06	-2.76	-5.28

HIPOTESIS 1 PRETENSADO FINAL

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
192	-3819.93	2.74	0.25	3526.82	-2.74	-8.43
193	-3526.86	2.66	4.07	2990.45	-2.66	-11.64
194	-2990.48	2.69	6.83	2181.86	-2.69	-13.41
195	-2181.88	2.75	9.70	1070.76	-2.75	-14.86
196	-1070.84	2.69	13.50	-361.94	-2.69	-16.76
197	361.92	2.72	17.25	-2106.34	-2.72	-18.13
198	2106.30	2.69	21.28	-4133.24	-2.69	-19.34
199	4133.23	2.69	25.12	-6314.70	-2.69	-20.02
200	6314.65	2.69	30.72	-7503.90	-2.69	-23.35
201	7504.36	-76.73	-13.85	-6998.78	76.73	19.42
202	6998.80	-76.73	-9.16	-5544.06	76.73	13.79
203	5544.07	-76.74	-8.60	-3696.20	76.74	11.55
204	3696.20	-76.78	-8.58	-1784.77	76.78	9.62
205	1784.79	-76.84	-7.47	-244.41	76.84	6.77
206	244.43	-76.83	-6.60	1096.81	76.83	4.45
207	-1096.69	-76.80	-5.12	2225.40	76.80	1.75
208	-2225.41	-76.79	-6.08	3144.54	76.79	1.68
209	-3144.50	-76.83	-3.94	3866.40	76.83	-1.20
210	-3866.36	-76.59	-1.66	4405.95	76.59	-4.04
211	-4405.92	-76.71	-1.23	4777.47	76.71	-4.88
212	-4777.55	-76.63	-0.53	4989.34	76.63	-5.76
213	-4989.44	-76.19	2.19	5052.44	76.19	-8.56
214	-5052.46	-76.76	5.25	4910.06	76.76	-11.37
215	-4910.00	-76.84	4.63	4641.57	76.84	-10.48
216	-4641.50	-76.62	7.36	4223.69	76.62	-12.70
217	-4223.78	-76.56	9.60	3645.78	76.56	-14.28
218	-3645.83	-76.51	9.58	2943.49	76.51	-13.41
219	-2943.52	-76.68	10.36	1828.47	76.68	-13.13
220	-1828.48	-76.69	12.37	773.31	76.69	-13.84
221	61.27	-29.18	0.00	0.00	29.18	0.00
222	70.72	-33.68	0.00	0.00	33.68	0.00
223	-100.08	47.66	0.00	0.00	-47.66	0.00
224	-52.93	25.20	0.00	0.00	-25.20	0.00
225	-23.19	11.04	0.00	0.00	-11.04	0.00
226	28.22	-13.44	0.00	0.00	13.44	0.00
227	-19.97	9.51	0.00	0.00	-9.51	0.00
228	23.32	-11.11	0.00	0.00	11.11	0.00
229	-20.85	9.93	0.00	0.00	-9.93	0.00
230	18.12	-8.63	0.00	0.00	8.63	0.00
231	-16.84	8.02	0.00	0.00	-8.02	0.00
232	18.43	-8.78	0.00	0.00	8.78	0.00
233	-32.25	15.36	0.00	0.00	-15.36	0.00
234	17.31	-8.25	0.00	0.00	8.25	0.00
235	-104.92	49.96	0.00	0.00	-49.96	0.00
236	-61.88	29.47	0.00	0.00	-29.47	0.00

HIPOTESIS 1 PRETENSADO FINAL

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
237	73.60	-35.05	0.00	0.00	35.05	0.00
238	87.44	-41.64	0.00	0.00	41.64	0.00

ENVOL. MAX. FLECTORES TREN TREN IPF-75 TIPO A en via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0001	2.1805	-0.3162	127.2827	77.9770	223.7337
2	127.2827	77.9770	223.7337	235.3057	44.5638	129.9695
3	235.3057	44.5638	129.9695	331.9174	67.8081	200.5966
4	331.9174	67.8081	200.5966	404.5640	34.4558	107.2075
5	404.5640	34.4558	107.2075	466.8344	27.8568	92.2110
6	466.8344	27.8568	92.2110	510.4377	24.6199	85.0956
7	510.4377	24.6199	85.0956	543.8999	21.4272	78.0422
8	543.8999	21.4272	78.0422	556.9016	15.1628	63.3543
9	556.9016	15.1628	63.3543	560.2113	-17.8910	-29.6625
10	560.2113	-17.8910	-29.6625	549.2590	6.1693	41.7276
11	549.2590	6.1693	41.7276	523.0124	-26.7229	-51.3127
12	523.0124	-26.7229	-51.3127	490.4283	-32.2824	-66.0392
13	490.4283	-32.2824	-66.0392	441.1340	-34.9609	-73.1559
14	441.1340	-34.9609	-73.1559	387.7184	-40.0368	-88.0524
15	387.7184	-40.0368	-88.0524	326.2418	-44.7582	-103.0683
16	326.2418	-44.7582	-103.0683	254.9794	-46.9918	-110.4636
17	254.9794	-46.9918	-110.4636	182.9021	-51.1430	-125.7202
18	182.9021	-51.1430	-125.7202	107.7184	-24.8645	-55.0658
19	107.7184	-24.8645	-55.0658	81.3783	2.6177	0.5526
20	81.3783	2.6177	0.5526	85.6669	-3.5866	2.1044
21	85.6669	-3.5866	2.1044	66.0942	-9.7913	3.6562
22	66.0942	-9.7913	3.6562	136.5577	23.6042	56.1430
23	136.5577	23.6042	56.1430	223.0257	19.7607	43.3346
24	223.0257	19.7607	43.3346	303.7473	43.3745	110.2891
25	303.7473	43.3745	110.2891	376.1944	38.7439	97.9029
26	376.1944	38.7439	97.9029	438.8004	6.3304	6.0561
27	438.8004	6.3304	6.0561	489.7379	1.3396	-6.0466
28	489.7379	1.3396	-6.0466	527.3919	-3.7996	-18.0325
29	527.3919	-3.7996	-18.0325	550.6960	-9.0454	-29.9376
30	550.6960	-9.0454	-29.9376	558.9276	-14.3883	-41.7982
31	558.9276	-14.3883	-41.7982	551.7883	-19.7161	-53.6553
32	551.7883	-19.7161	-53.6553	529.4340	-25.0018	-65.5498
33	529.4340	-25.0018	-65.5498	492.4485	-30.1954	-77.5201
34	492.4485	-30.1954	-77.5201	441.8026	-35.2313	-89.6050
35	441.8026	-35.2313	-89.6050	378.8981	-40.0804	-101.8326
36	378.8981	-40.0804	-101.8326	305.5099	-44.6764	-114.2301
37	305.5099	-44.6764	-114.2301	223.8963	-48.9693	-126.8152
38	223.8963	-48.9693	-126.8152	136.6808	-52.9072	-139.5954
39	136.6808	-52.9072	-139.5954	78.2807	2.6774	0.7378
40	78.2807	2.6774	0.7378	83.6219	-3.5203	2.2868
41	83.6219	-3.5203	2.2868	71.8752	-2.4432	-0.5328
42	71.8752	-2.4432	-0.5328	138.2023	23.5374	56.3898
43	138.2023	23.5374	56.3898	225.8080	47.5713	123.2417
44	225.8080	47.5713	123.2417	307.4457	43.2029	110.7252
45	307.4457	43.2029	110.7252	380.0592	38.5441	98.3712
46	380.0592	38.5441	98.3712	442.4495	6.1241	6.5363
47	442.4495	6.1241	6.5363	493.1803	1.1446	-5.5682
48	493.1803	1.1446	-5.5682	530.5129	-4.0043	-17.5749
49	530.5129	-4.0043	-17.5749	553.3690	-9.2606	-29.5142
50	553.3690	-9.2606	-29.5142	561.1324	-14.5821	-41.4229
51	561.1324	-14.5821	-41.4229	553.4826	-19.9095	-53.3383
52	553.4826	-19.9095	-53.3383	530.6377	-25.2009	-65.2963
53	530.6377	-25.2009	-65.2963	493.1354	-30.3623	-77.3333
54	493.1354	-30.3623	-77.3333	442.0269	-35.3959	-89.4802
55	442.0269	-35.3959	-89.4802	378.6975	-40.2232	-101.7659
56	378.6975	-40.2232	-101.7659	304.9984	-44.7963	-114.2130
57	304.9984	-44.7963	-114.2130	223.1459	-49.0655	-126.8340
58	223.1459	-49.0655	-126.8340	135.8108	-52.9809	-139.6324
59	135.8108	-52.9809	-139.6324	77.3405	2.6281	0.6901
60	77.3405	2.6281	0.6901	85.2514	3.6011	-2.5213
61	85.2514	3.6011	-2.5213	79.8192	-2.7178	-0.6919
62	79.8192	-2.7178	-0.6919	139.1327	23.4937	56.2399
63	139.1327	23.4937	56.2399	226.7422	47.5175	123.0176
64	226.7422	47.5175	123.0176	308.2823	43.1375	110.4695
65	308.2823	43.1375	110.4695	380.7516	38.4741	98.0977
66	380.7516	38.4741	98.0977	442.9869	6.0600	6.2562
67	442.9869	6.0600	6.2562	493.5168	1.0721	-5.8490
68	493.5168	1.0721	-5.8490	530.6594	-4.0705	-17.8482
69	530.6594	-4.0705	-17.8482	553.3051	-9.3456	-29.7744
70	553.3051	-9.3456	-29.7744	560.7803	-14.6713	-41.6621
71	560.7803	-14.6713	-41.6621	552.9138	-19.9925	-53.5550
72	552.9138	-19.9925	-53.5550	529.8632	-25.2703	-65.4826
73	529.8632	-25.2703	-65.4826	492.2405	-30.4357	-77.4855
74	492.2405	-30.4357	-77.4855	441.0575	-35.4576	-89.6028
75	441.0575	-35.4576	-89.6028	377.7126	-40.2812	-101.8592
76	377.7126	-40.2812	-101.8592	304.0555	-44.8458	-114.2782
77	304.0555	-44.8458	-114.2782	222.3367	-49.1012	-126.8736
78	222.3367	-49.1012	-126.8736	135.2301	-53.0051	-139.6525
79	135.2301	-53.0051	-139.6525	66.0374	9.9729	-4.0090
80	66.0374	9.9729	-4.0090	85.9799	3.5988	-2.0500
81	85.9799	3.5988	-2.0500	80.4241	-2.7757	-0.0802
82	80.4241	-2.7757	-0.0802	139.1982	23.4457	57.1291
83	139.1982	23.4457	57.1291	226.9616	47.4020	124.7774
84	226.9616	47.4020	124.7774	308.3644	42.9736	112.8328
85	308.3644	42.9736	112.8328	380.5052	38.2654	101.0546
86	380.5052	38.2654	101.0546	442.2747	5.8233	9.5020
87	442.2747	5.8233	9.5020	492.1743	0.7879	-2.0679
88	492.1743	0.7879	-2.0679	528.5133	-4.4021	-13.6010
89	528.5133	-4.4021	-13.6010	550.2749	-9.6876	-25.1557
90	550.2749	-9.6876	-25.1557	556.9271	-15.0086	-36.7956
91	556.9271	-15.0086	-36.7956	548.2867	-20.3378	-48.5807
92	548.2867	-20.3378	-48.5807	524.6781	-25.5976	-60.5726
93	524.6781	-25.5976	-60.5726	486.8087	-30.7289	-72.8334
94	486.8087	-30.7289	-72.8334	435.8077	-35.7148	-85.4133
95	435.8077	-35.7148	-85.4133	373.2657	-40.4833	-98.3672
96	373.2657	-40.4833	-98.3672	301.1889	-44.9636	-111.7407
97	301.1889	-44.9636	-111.7407	221.9999	-49.1173	-125.5704

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
98	221.9999	-49.1173	-125.5704	138.5728	-52.8872	-139.8820
99	138.5728	-52.8872	-139.8820	71.5762	10.1544	-6.2364
100	71.5762	10.1544	-6.2364	91.2549	3.4232	-1.8059
101	91.2549	3.4232	-1.8059	84.8248	-3.3076	2.6266
102	84.8248	-3.3076	2.6266	107.9382	52.9639	148.2972
103	107.9382	52.9639	148.2972	188.0374	48.2499	135.8535
104	188.0374	48.2499	135.8535	261.5410	43.1593	123.2074
105	261.5410	43.1593	123.2074	330.4557	40.4940	116.9983
106	330.4557	40.4940	116.9983	385.3400	34.9314	104.0242
107	385.3400	34.9314	104.0242	428.4127	29.1258	90.7648
108	428.4127	29.1258	90.7648	461.8889	-3.8403	-1.7220
109	461.8889	-3.8403	-1.7220	485.5206	20.1723	70.5779
110	485.5206	20.1723	70.5779	488.7664	14.0981	56.4615
111	488.7664	14.0981	56.4615	481.0797	-18.9263	-36.4662
112	481.0797	-18.9263	-36.4662	464.8649	-24.8952	-51.2327
113	464.8649	-24.8952	-51.2327	433.7019	-0.7236	19.5639
114	433.7019	-0.7236	19.5639	386.3427	-33.5751	-74.0226
115	386.3427	-33.5751	-74.0226	334.0841	-39.0798	-90.0714
116	334.0841	-39.0798	-90.0714	272.7225	-44.2414	-106.6697
117	272.7225	-44.2414	-106.6697	203.4539	-19.0178	-37.7933
118	203.4539	-19.0178	-37.7933	124.9225	-23.3226	-55.5248
119	124.9225	-23.3226	-55.5248	74.3233	12.6281	-13.0473
120	74.3233	12.6281	-13.0473	95.0135	4.6111	-4.8644
121	95.0135	4.6111	-4.8644	87.6301	-3.4054	3.3270
122	87.6301	-3.4054	3.3270	97.9818	53.4182	148.8697
123	97.9818	53.4182	148.8697	176.0975	48.8559	136.7856
124	176.0975	48.8559	136.7856	248.8017	43.8792	124.4606
125	248.8017	43.8792	124.4606	318.3748	41.2533	118.3884
126	318.3748	41.2533	118.3884	373.9514	35.7715	105.6701
127	373.9514	35.7715	105.6701	418.3765	30.0111	92.6239
128	418.3765	30.0111	92.6239	453.4744	-2.9452	0.2204
129	453.4744	-2.9452	0.2204	479.0747	21.0635	72.6658
130	479.0747	21.0635	72.6658	484.4802	14.9912	58.6449
131	484.4802	14.9912	58.6449	478.6615	-18.0443	-34.2533
132	478.6615	-18.0443	-34.2533	464.5790	-24.0601	-48.9986
133	464.5790	-24.0601	-48.9986	435.3157	0.0338	21.7553
134	435.3157	0.0338	21.7553	389.4511	-32.8461	-71.8790
135	389.4511	-32.8461	-71.8790	338.5560	-38.4291	-88.0703
136	338.5560	-38.4291	-88.0703	278.0786	-43.6971	-104.8813
137	278.0786	-43.6971	-104.8813	209.1707	-18.5756	-36.2987
138	209.1707	-18.5756	-36.2987	130.8983	-50.8506	-131.2189
139	130.8983	-50.8506	-131.2189	83.2923	3.2510	4.7822
140	83.2923	3.2510	4.7822	89.3562	-4.0862	3.0412
141	89.3562	-4.0862	3.0412	71.1956	-2.6600	2.2404
142	71.1956	-2.6600	2.2404	98.2390	53.8091	148.6176
143	98.2390	53.8091	148.6176	178.2143	49.4389	136.1879
144	178.2143	49.4389	136.1879	252.8790	44.6619	123.4433
145	252.8790	44.6619	123.4433	319.9652	39.5253	110.3950
146	319.9652	39.5253	110.3950	383.0585	36.8385	104.0072
147	383.0585	36.8385	104.0072	429.8186	31.2809	90.5697
148	429.8186	31.2809	90.5697	463.9133	25.5253	76.8692
149	463.9133	25.5253	76.8692	484.0760	-7.4155	-15.7777
150	484.0760	-7.4155	-15.7777	497.5245	-13.3393	-29.8257
151	497.5245	-13.3393	-29.8257	496.1440	10.7078	41.9248
152	496.1440	10.7078	41.9248	473.9811	4.8125	27.4136
153	473.9811	4.8125	27.4136	441.2723	-28.1196	-65.6507
154	441.2723	-28.1196	-65.6507	399.0197	-33.8286	-80.4944
155	399.0197	-33.8286	-80.4944	344.5085	-39.3136	-95.5356
156	344.5085	-39.3136	-95.5356	279.7585	-14.5108	-24.7057
157	279.7585	-14.5108	-24.7057	202.0579	-46.9826	-118.2608

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
158	202.0579	-46.9826	-118.2608	122.3244	-51.6208	-133.7173
159	122.3244	-51.6208	-133.7173	78.4014	2.9813	1.4061
160	78.4014	2.9813	1.4061	83.7726	-3.1967	3.1009
161	83.7726	-3.1967	3.1009	68.6005	-2.3426	-0.8538
162	68.6005	-2.3426	-0.8538	133.2415	23.6826	56.0002
163	133.2415	23.6826	56.0002	218.6252	19.8622	43.0974
164	218.6252	19.8622	43.0974	298.4868	15.6915	30.3811
165	298.4868	15.6915	30.3811	370.5699	11.2049	17.8461
166	370.5699	11.2049	17.8461	433.0128	6.4540	5.4775
167	433.0128	6.4540	5.4775	483.9042	1.4726	-6.7412
168	483.9042	1.4726	-6.7412	521.6534	-3.6948	-18.8351
169	521.6534	-3.6948	-18.8351	545.0643	-8.9722	-30.8352
170	545.0643	-8.9722	-30.8352	553.4171	-14.3139	-42.7854
171	553.4171	-14.3139	-42.7854	546.4420	-19.6689	-54.7074
172	546.4420	-19.6689	-54.7074	524.2631	-24.9806	-66.6396
173	524.2631	-24.9806	-66.6396	487.3633	-30.2255	-78.6217
174	487.3633	-30.2255	-78.6217	436.7745	-35.2924	-90.6843
175	436.7745	-35.2924	-90.6843	373.9169	-40.1673	-102.8553
176	373.9169	-40.1673	-102.8553	300.6422	-44.7784	-115.1571
177	300.6422	-44.7784	-115.1571	219.2361	-49.0806	-127.6002
178	219.2361	-49.0806	-127.6002	132.4217	-53.0189	-140.1889
179	132.4217	-53.0189	-140.1889	56.0015	1.9263	0.3086
180	56.0015	1.9263	0.3086	72.7037	2.9723	-2.0266
181	72.7037	2.9723	-2.0266	68.0203	-2.4116	-0.7233
182	68.0203	-2.4116	-0.7233	139.9797	23.0756	55.2628
183	139.9797	23.0756	55.2628	226.6489	18.9650	42.1076
184	226.6489	18.9650	42.1076	306.6617	44.5093	115.2111
185	306.6617	44.5093	115.2111	376.4376	39.7510	102.4792
186	376.4376	39.7510	102.4792	435.6487	34.7291	89.9250
187	435.6487	34.7291	89.9250	482.5446	29.4978	77.5238
188	482.5446	29.4978	77.5238	515.7493	24.1158	65.2440
189	515.7493	24.1158	65.2440	534.2969	18.6677	53.0369
190	534.2969	18.6677	53.0369	537.7278	13.1673	40.9309
191	537.7278	13.1673	40.9309	525.9297	7.6960	28.7647
192	525.9297	7.6960	28.7647	501.4030	-25.0122	-63.1101
193	501.4030	-25.0122	-63.1101	464.1915	-30.3214	-75.4283
194	464.1915	-30.3214	-75.4283	413.8798	-35.4818	-87.7351
195	413.8798	-35.4818	-87.7351	351.9550	-40.3814	-100.2682
196	351.9550	-40.3814	-100.2682	280.6838	-45.0140	-113.0298
197	280.6838	-45.0140	-113.0298	202.4982	-49.2978	-125.9193
198	202.4982	-49.2978	-125.9193	120.3576	-53.1737	-138.9804
199	120.3576	-53.1737	-138.9804	71.9509	10.4060	-3.3542
200	71.9509	10.4060	-3.3542	92.2374	3.5681	-1.8763
201	92.2374	3.5681	-1.8763	87.6120	-3.2706	-0.3951
202	87.6120	-3.2706	-0.3951	97.8412	24.3770	54.3351
203	97.8412	24.3770	54.3351	163.8248	49.8381	122.8373
204	163.8248	49.8381	122.8373	229.3947	47.3869	114.2202
205	229.3947	47.3869	114.2202	287.5286	42.1220	96.8039
206	287.5286	42.1220	96.8039	342.3306	39.3130	88.1815
207	342.3306	39.3130	88.1815	389.1245	6.3941	-6.1719
208	389.1245	6.3941	-6.1719	426.2623	30.2516	62.8536
209	426.2623	30.2516	62.8536	458.7083	27.0375	54.3912
210	458.7083	27.0375	54.3912	474.3204	-6.2894	-39.9701
211	474.3204	-6.2894	-39.9701	483.5237	16.8867	29.0842
212	483.5237	16.8867	29.0842	483.5196	-16.6498	-65.3012
213	483.5196	-16.6498	-65.3012	465.4778	-20.2370	-73.7830
214	465.4778	-20.2370	-73.7830	437.9456	-23.8575	-82.1374
215	437.9456	-23.8575	-82.1374	400.4860	-27.5632	-90.5174
216	400.4860	-27.5632	-90.5174	345.0409	-61.3195	-185.1525
217	345.0409	-61.3195	-185.1525	281.0502	-38.9344	-116.5820

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
218	281.0502	-38.9344	-116.5820	204.8158	-72.7923	-211.2731
219	204.8158	-72.7923	-211.2731	107.7876	-76.6664	-220.1344
220	107.7876	-76.6664	-220.1344	0.0011	-3.2599	0.4186

ENVOL. MIN. FLECTORES TREN TREN IPF-75 TIPO A en via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.0758	54.8191	153.6878	-15.7229	-9.6143	5.5161
2	-15.7229	-9.6143	5.5161	-31.4495	-9.6154	5.4865
3	-31.4495	-9.6154	5.4865	-47.1752	-9.6134	5.4370
4	-47.1752	-9.6134	5.4370	-62.8958	-9.6110	5.3677
5	-62.8958	-9.6110	5.3677	-78.6187	-9.6112	5.2788
6	-78.6187	-9.6112	5.2788	-94.3364	-9.6091	5.1701
7	-94.3364	-9.6091	5.1701	-110.0520	-9.6113	5.0413
8	-110.0520	-9.6113	5.0413	-125.7812	-9.6175	4.8932
9	-125.7812	-9.6175	4.8932	-141.5142	-9.6195	4.7252
10	-141.5142	-9.6195	4.7252	-157.2412	-9.6149	4.5370
11	-157.2412	-9.6149	4.5370	-172.9601	-9.6081	4.3289
12	-172.9601	-9.6081	4.3289	-188.6730	-9.6072	4.1017
13	-188.6730	-9.6072	4.1017	-204.3807	-9.6049	3.8552
14	-204.3807	-9.6049	3.8552	-220.0847	-9.6017	3.5876
15	-220.0847	-9.6017	3.5876	-235.7870	-9.6033	3.3005
16	-235.7870	-9.6033	3.3005	-251.4985	-9.5984	2.9952
17	-251.4985	-9.5984	2.9952	-267.1920	-9.5965	2.6682
18	-267.1920	-9.5965	2.6682	-282.8926	-9.6019	2.3217
19	-282.8926	-9.6019	2.3217	-298.5941	-9.6019	1.9571
20	-298.5941	-9.6019	1.9571	-313.7877	23.3110	76.9762
21	-313.7877	23.3110	76.9762	-263.0453	8.9319	-0.5467
22	-263.0453	8.9319	-0.5467	-245.1833	8.9321	-0.9383
23	-245.1833	8.9321	-0.9383	-227.3156	8.9343	-1.3011
24	-227.3156	8.9343	-1.3011	-209.4486	8.9351	-1.6371
25	-209.4486	8.9351	-1.6371	-191.5779	8.9358	-1.9460
26	-191.5779	8.9358	-1.9460	-173.7036	8.9387	-2.2266
27	-173.7036	8.9387	-2.2266	-155.8184	8.9424	-2.4800
28	-155.8184	8.9424	-2.4800	-137.9339	8.9432	-2.7061
29	-137.9339	8.9432	-2.7061	-120.0466	8.9414	-2.9044
30	-120.0466	8.9414	-2.9044	-110.1015	-9.7802	3.3516
31	-110.1015	-9.7802	3.3516	-129.6582	-9.7815	3.1672
32	-129.6582	-9.7815	3.1672	-149.2227	-9.7796	2.9525
33	-149.2227	-9.7796	2.9525	-168.7780	-9.7810	2.7078
34	-168.7780	-9.7810	2.7078	-188.3436	-9.7878	2.4337
35	-188.3436	-9.7878	2.4337	-207.9182	-9.7881	2.1286
36	-207.9182	-9.7881	2.1286	-227.4831	-9.7871	1.7937
37	-227.4831	-9.7871	1.7937	-247.0518	-9.7871	1.4293
38	-247.0518	-9.7871	1.4293	-266.6216	-9.7864	1.0344
39	-266.6216	-9.7864	1.0344	-286.1863	-9.7847	0.6093
40	-286.1863	-9.7847	0.6093	-311.0528	-23.8486	-78.4746
41	-311.0528	-23.8486	-78.4746	-291.6582	9.9097	-1.2055
42	-291.6582	9.9097	-1.2055	-271.8351	9.9088	-1.6392
43	-271.8351	9.9088	-1.6392	-252.0088	9.9089	-2.0419
44	-252.0088	9.9089	-2.0419	-232.1792	9.9096	-2.4141
45	-232.1792	9.9096	-2.4141	-212.3476	9.9131	-2.7566
46	-212.3476	9.9131	-2.7566	-192.5023	9.9112	-3.0677
47	-192.5023	9.9112	-3.0677	-172.6800	9.9071	-3.3486
48	-172.6800	9.9071	-3.3486	-152.8465	9.9103	-3.5987
49	-152.8465	9.9103	-3.5987	-133.0193	9.9081	-3.8187
50	-133.0193	9.9081	-3.8187	-113.1978	9.9065	-4.0082
51	-113.1978	9.9065	-4.0082	-130.2783	-9.7147	3.3164
52	-130.2783	-9.7147	3.3164	-149.7173	-9.7125	3.1011
53	-149.7173	-9.7125	3.1011	-169.1442	-9.7085	2.8558
54	-169.1442	-9.7085	2.8558	-188.5707	-9.7060	2.5801
55	-188.5707	-9.7060	2.5801	-207.9917	-9.7059	2.2747
56	-207.9917	-9.7059	2.2747	-227.4086	-9.7042	1.9398
57	-227.4086	-9.7042	1.9398	-246.8195	-9.7050	1.5756
58	-246.8195	-9.7050	1.5756	-266.2341	-9.7046	1.1809
59	-266.2341	-9.7046	1.1809	-285.6385	-9.7024	0.7560
60	-285.6385	-9.7024	0.7560	-312.8579	-23.9187	-78.1983
61	-312.8579	-23.9187	-78.1983	-292.8500	9.9676	-0.8694
62	-292.8500	9.9676	-0.8694	-272.9160	9.9676	-1.3047
63	-272.9160	9.9676	-1.3047	-252.9799	9.9663	-1.7084
64	-252.9799	9.9663	-1.7084	-233.0521	9.9676	-2.0825
65	-233.0521	9.9676	-2.0825	-213.1118	9.9674	-2.4257
66	-213.1118	9.9674	-2.4257	-193.1756	9.9643	-2.7374
67	-193.1756	9.9643	-2.7374	-173.2437	9.9598	-3.0191
68	-173.2437	9.9598	-3.0191	-153.3233	9.9607	-3.2706
69	-153.3233	9.9607	-3.2706	-133.3932	9.9686	-3.4911
70	-133.3932	9.9686	-3.4911	-113.4501	9.9704	-3.6805
71	-113.4501	9.9704	-3.6805	-129.0334	-9.6176	3.4660
72	-129.0334	-9.6176	3.4660	-148.2662	-9.6196	3.2523
73	-148.2662	-9.6196	3.2523	-167.5028	-9.6228	2.8898
74	-167.5028	-9.6228	2.8898	-186.7446	-9.6175	2.6170
75	-186.7446	-9.6175	2.6170	-205.9687	-9.6093	2.3151
76	-205.9687	-9.6093	2.3151	-225.1844	-9.6081	1.9836
77	-225.1844	-9.6081	1.9836	-244.4032	-9.6091	1.6218
78	-244.4032	-9.6091	1.6218	-263.6219	-9.6089	1.2309
79	-263.6219	-9.6089	1.2309	-282.8396	-9.6084	0.8109
80	-282.8396	-9.6084	0.8109	-314.5732	-23.8568	-79.4301
81	-314.5732	-23.8568	-79.4301	-294.3767	10.1607	-3.1518
82	-294.3767	10.1607	-3.1518	-274.0463	10.1612	-3.5897
83	-274.0463	10.1612	-3.5897	-253.7107	10.1639	-3.9962
84	-253.7107	10.1639	-3.9962	-233.3722	10.1663	-4.3701
85	-233.3722	10.1663	-4.3701	-213.0323	10.1649	-4.7134
86	-213.0323	10.1649	-4.7134	-192.6956	10.1646	-5.0266
87	-192.6956	10.1646	-5.0266	-172.3536	10.1633	-5.3070
88	-172.3536	10.1633	-5.3070	-152.0210	10.1616	-5.5571
89	-152.0210	10.1616	-5.5571	-131.6848	10.1609	-5.7759
90	-131.6848	10.1609	-5.7759	-111.3515	10.1630	-5.9631
91	-111.3515	10.1630	-5.9631	-102.0867	-7.6315	-6.3533
92	-102.0867	-7.6315	-6.3533	-117.3387	-7.6319	-6.5218
93	-117.3387	-7.6319	-6.5218	-132.5936	-7.6349	-6.7134
94	-132.5936	-7.6349	-6.7134	-147.8551	-7.6360	-6.9293
95	-147.8551	-7.6360	-6.9293	-163.1093	-7.6355	-7.1686
96	-163.1093	-7.6355	-7.1686	-178.3712	-7.6354	-7.4316
97	-178.3712	-7.6354	-7.4316	-193.6305	-7.6323	-7.7187
98	-193.6305	-7.6323	-7.7187	-208.8853	-7.6321	-8.0280
99	-208.8853	-7.6321	-8.0280	-224.1425	-7.6334	-8.3608
100	-224.1425	-7.6334	-8.3608	-335.3985	-22.7796	-80.5085
101	-335.3985	-22.7796	-80.5085	-323.7831	12.6237	-10.0259
102	-323.7831	12.6237	-10.0259	-301.6738	12.6263	-10.4468
103	-301.6738	12.6263	-10.4468	-279.5619	12.6241	-10.8371
104	-279.5619	12.6241	-10.8371	-257.4548	12.6194	-11.1988
105	-257.4548	12.6194	-11.1988	-235.3485	12.6209	-11.5302
106	-235.3485	12.6209	-11.5302	-213.2397	12.6209	-11.8317
107	-213.2397	12.6209	-11.8317	-191.1320	12.6262	-12.1049
108	-191.1320	12.6262	-12.1049	-169.0105	12.6299	-12.3468
109	-169.0105	12.6299	-12.3468	-146.8978	12.6329	-12.5597
110	-146.8978	12.6329	-12.5597	-124.7625	12.6346	-12.7425
111	-124.7625	12.6346	-12.7425	-110.0170	-9.1737	-10.3539
112	-110.0170	-9.1737	-10.3539	-126.0630	-9.1742	-10.5127
113	-126.0630	-9.1742	-10.5127	-142.1052	-9.1721	-10.6938
114	-142.1052	-9.1721	-10.6938	-158.1494	-9.1720	-10.8961

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	-158.1494	-9.1720	-10.8961	-174.1841	-9.1730	-11.1200
116	-174.1841	-9.1730	-11.1200	-190.2292	-9.1780	-11.3650
117	-190.2292	-9.1780	-11.3650	-206.2813	-9.1803	-11.6327
118	-206.2813	-9.1803	-11.6327	-222.3288	-9.1785	-11.9216
119	-222.3288	-9.1785	-11.9216	-238.3763	-9.1767	-12.2315
120	-238.3763	-9.1767	-12.2315	-275.1444	-23.6938	-76.7711
121	-275.1444	-23.6938	-76.7711	-268.6176	10.4401	-10.1983
122	-268.6176	10.4401	-10.1983	-250.3324	10.4413	-10.5472
123	-250.3324	10.4413	-10.5472	-232.0441	10.4428	-10.8717
124	-232.0441	10.4428	-10.8717	-213.7546	10.4426	-11.1723
125	-213.7546	10.4426	-11.1723	-195.4665	10.4393	-11.4479
126	-195.4665	10.4393	-11.4479	-177.1873	10.4382	-11.6982
127	-177.1873	10.4382	-11.6982	-158.9015	10.4440	-11.9247
128	-158.9015	10.4440	-11.9247	-140.5978	10.4473	-12.1258
129	-140.5978	10.4473	-12.1258	-122.2966	10.4467	-12.3027
130	-122.2966	10.4467	-12.3027	-103.9962	10.4507	-12.4554
131	-103.9962	10.4507	-12.4554	-112.4982	-9.6926	-12.2997
132	-112.4982	-9.6926	-12.2997	-129.4486	-9.6944	-12.4631
133	-129.4486	-9.6944	-12.4631	-146.3990	-9.6927	-12.6492
134	-146.3990	-9.6927	-12.6492	-163.3475	-9.6941	-12.8566
135	-163.3475	-9.6941	-12.8566	-180.2962	-9.6951	-13.0878
136	-180.2962	-9.6951	-13.0878	-197.2422	-9.6943	-13.3425
137	-197.2422	-9.6943	-13.3425	-214.1867	-9.6910	-13.6196
138	-214.1867	-9.6910	-13.6196	-231.1201	-9.6860	-13.9188
139	-231.1201	-9.6860	-13.9188	-248.0485	-9.6826	-14.2414
140	-248.0485	-9.6826	-14.2414	-283.7745	24.3737	77.1298
141	-283.7745	24.3737	77.1298	-261.8946	9.7851	-8.2414
142	-261.8946	9.7851	-8.2414	-244.2714	9.7877	-8.5913
143	-244.2714	9.7877	-8.5913	-226.6398	9.7892	-8.9177
144	-226.6398	9.7892	-8.9177	-209.0111	9.7887	-9.2185
145	-209.0111	9.7887	-9.2185	-191.3784	9.7901	-9.4945
146	-191.3784	9.7901	-9.4945	-173.7445	9.7916	-9.7477
147	-173.7445	9.7916	-9.7477	-156.1028	9.7902	-9.9764
148	-156.1028	9.7902	-9.9764	-138.4706	9.7911	-10.1804
149	-138.4706	9.7911	-10.1804	-120.8254	9.7929	-10.3587
150	-120.8254	9.7929	-10.3587	-115.8311	-11.4175	1.0017
151	-115.8311	-11.4175	1.0017	-136.3846	-11.4198	0.8271
152	-136.3846	-11.4198	0.8271	-156.9391	-11.4192	0.6258
153	-156.9391	-11.4192	0.6258	-177.4915	-11.4168	0.3929
154	-177.4915	-11.4168	0.3929	-198.0356	-11.4171	0.1326
155	-198.0356	-11.4171	0.1326	-218.5815	-11.4175	-0.1562
156	-218.5815	-11.4175	-0.1562	-239.1300	-11.4179	-0.4732
157	-239.1300	-11.4179	-0.4732	-259.6711	-11.4195	-0.8188
158	-259.6711	-11.4195	-0.8188	-280.2281	-11.4208	-1.1920
159	-280.2281	-11.4208	-1.1920	-300.7812	-11.4197	-1.5952
160	-300.7812	-11.4197	-1.5952	-321.0031	22.4405	74.8237
161	-321.0031	22.4405	74.8237	-244.9930	8.3602	-0.7046
162	-244.9930	8.3602	-0.7046	-228.2701	8.3610	-1.0698
163	-228.2701	8.3610	-1.0698	-211.5457	8.3618	-1.4081
164	-211.5457	8.3618	-1.4081	-194.8163	8.3617	-1.7204
165	-194.8163	8.3617	-1.7204	-178.0873	8.3617	-2.0075
166	-178.0873	8.3617	-2.0075	-161.3590	8.3591	-2.2692
167	-161.3590	8.3591	-2.2692	-144.6403	8.3561	-2.5042
168	-144.6403	8.3561	-2.5042	-127.9250	8.3582	-2.7147
169	-127.9250	8.3582	-2.7147	-111.2024	8.3587	-2.8989
170	-111.2024	8.3587	-2.8989	-103.8225	-9.3801	4.5236
171	-103.8225	-9.3801	4.5236	-122.5969	-9.3807	4.3495
172	-122.5969	-9.3807	4.3495	-141.3708	-9.3798	4.1460
173	-141.3708	-9.3798	4.1460	-160.1432	-9.3792	3.9132
174	-160.1432	-9.3792	3.9132	-178.9036	-9.3773	3.6519

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	-178.9036	-9.3773	3.6519	-197.6654	-9.3764	3.3624
176	-197.6654	-9.3764	3.3624	-216.4232	-9.3767	3.0441
177	-216.4232	-9.3767	3.0441	-235.1867	-9.3774	2.6958
178	-235.1867	-9.3774	2.6958	-253.9496	-9.3777	2.3197
179	-253.9496	-9.3777	2.3197	-272.7080	-9.3770	1.9153
180	-272.7080	-9.3770	1.9153	-314.9544	-23.6122	-78.6349
181	-314.9544	-23.6122	-78.6349	-293.4115	10.3977	-0.3656
182	-293.4115	10.3977	-0.3656	-273.1326	10.3980	-0.7904
183	-273.1326	10.3980	-0.7904	-252.8508	10.3962	-1.1843
184	-252.8508	10.3962	-1.1843	-232.5732	10.3967	-1.5484
185	-232.5732	10.3967	-1.5484	-212.2852	10.4018	-1.8845
186	-212.2852	10.4018	-1.8845	-191.9907	10.4057	-2.1880
187	-191.9907	10.4057	-2.1880	-171.6920	10.4060	-2.4615
188	-171.6920	10.4060	-2.4615	-151.3952	10.4059	-2.7049
189	-151.3952	10.4059	-2.7049	-131.0955	10.4089	-2.9165
190	-131.0955	10.4089	-2.9165	-110.7861	10.4105	-3.1080
191	-110.7861	10.4105	-3.1080	-94.7488	-7.2014	2.9655
192	-94.7488	-7.2014	2.9655	-108.8021	-7.2028	2.8355
193	-108.8021	-7.2028	2.8355	-122.8608	-7.2032	2.6688
194	-122.8608	-7.2032	2.6688	-136.9147	-7.2027	2.4543
195	-136.9147	-7.2027	2.4543	-150.9672	-7.2021	2.2429
196	-150.9672	-7.2021	2.2429	-165.0175	-7.2024	2.0338
197	-165.0175	-7.2024	2.0338	-179.0698	-7.2030	1.7866
198	-179.0698	-7.2030	1.7866	-193.1228	-7.2048	1.5177
199	-193.1228	-7.2048	1.5177	-222.6180	-52.2976	-141.2926
200	-222.6180	-52.2976	-141.2926	-330.8348	-22.9632	-78.5115
201	-330.8348	-22.9632	-78.5115	-315.0427	11.7578	-3.1797
202	-315.0427	11.7578	-3.1797	-298.4622	11.7580	-3.5509
203	-298.4622	11.7580	-3.5509	-281.8792	11.7540	-3.8019
204	-281.8792	11.7540	-3.8019	-265.3063	11.7472	-4.0759
205	-265.3063	11.7472	-4.0759	-248.7488	11.7460	-4.3043
206	-248.7488	11.7460	-4.3043	-232.1761	11.7503	-4.4425
207	-232.1761	11.7503	-4.4425	-215.6045	11.7531	-4.7259
208	-215.6045	11.7531	-4.7259	-199.0334	11.7547	-5.0078
209	-199.0334	11.7547	-5.0078	-182.4531	11.7593	-5.1459
210	-182.4531	11.7593	-5.1459	-165.8592	11.7536	-5.3112
211	-165.8592	11.7536	-5.3112	-149.2822	11.7500	-5.4954
212	-149.2822	11.7500	-5.4954	-132.6897	11.7586	-5.6270
213	-132.6897	11.7586	-5.6270	-116.0980	11.7594	-5.7122
214	-116.0980	11.7594	-5.7122	-99.5104	11.7575	-5.8197
215	-99.5104	11.7575	-5.8197	-82.9274	11.7581	-5.9155
216	-82.9274	11.7581	-5.9155	-66.3469	11.7578	-5.9672
217	-66.3469	11.7578	-5.9672	-49.7603	11.7605	-6.0248
218	-49.7603	11.7605	-6.0248	-33.1655	11.7601	-6.0745
219	-33.1655	11.7601	-6.0745	-16.5850	11.7568	-6.0945
220	-16.5850	11.7568	-6.0945	-0.2584	-76.6635	-220.1119

ENVOL. MAX. CORTANTES TREN TREN IPF-75 TIPO A en via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.0729	81.3910	231.6721	127.2827	77.9770	223.7337
2	127.2827	77.9770	223.7337	232.3040	71.1805	208.1125
3	232.3040	71.1805	208.1125	331.9174	67.8081	200.5966
4	331.9174	67.8081	200.5966	399.1061	61.1526	185.4630
5	399.1061	61.1526	185.4630	445.5931	54.6180	170.5349
6	445.5931	54.6180	170.5349	503.3216	51.4254	163.4222
7	503.3216	51.4254	163.4222	515.5831	45.1546	148.7205
8	515.5831	45.1546	148.7205	510.1049	39.0915	134.0804
9	510.1049	39.0915	134.0804	530.7216	36.1649	127.0873
10	530.7216	36.1649	127.0873	496.8511	30.4818	112.4528
11	496.8511	30.4818	112.4528	497.3217	27.7297	105.4199
12	497.3217	27.7297	105.4199	439.8773	22.4714	90.6725
13	439.8773	22.4714	90.6725	372.2701	17.5527	75.8349
14	372.2701	17.5527	75.8349	347.8088	15.2414	68.5872
15	347.8088	15.2414	68.5872	266.1903	10.8881	53.5364
16	266.1903	10.8881	53.5364	181.0003	6.9397	38.3616
17	181.0003	6.9397	38.3616	142.2097	5.1343	30.8167
18	142.2097	5.1343	30.8167	77.0992	2.6172	0.4532
19	77.0992	2.6172	0.4532	81.3783	2.6177	0.5526
20	81.3783	2.6177	0.5526	-70.8485	42.4401	123.2882
21	-70.8485	42.4401	123.2882	26.5898	83.6041	228.0974
22	26.5898	83.6041	228.0974	120.7259	79.7621	215.1508
23	120.7259	79.7621	215.1508	209.6546	75.5744	202.4113
24	209.6546	75.5744	202.4113	291.1449	71.0906	189.8731
25	291.1449	71.0906	189.8731	363.3015	66.3377	177.5200
26	363.3015	66.3377	177.5200	424.1673	61.3500	165.3301
27	424.1673	61.3500	165.3301	472.1006	56.1992	153.2784
28	472.1006	56.1992	153.2784	505.8937	50.9452	141.3302
29	505.8937	50.9452	141.3302	524.7610	45.6248	129.4485
30	524.7610	45.6248	129.4485	528.2791	40.2957	117.5936
31	528.2791	40.2957	117.5936	516.4869	34.9951	105.7255
32	516.4869	34.9951	105.7255	489.8652	29.8006	93.8040
33	489.8652	29.8006	93.8040	449.2830	24.7604	81.7908
34	449.2830	24.7604	81.7908	396.0273	19.9137	69.6512
35	396.0273	19.9137	69.6512	331.8221	15.3201	57.3599
36	331.8221	15.3201	57.3599	258.7645	11.0313	44.8942
37	258.7645	11.0313	44.8942	23.1044	8.9436	-3.5006
38	23.1044	8.9436	-3.5006	40.9945	8.9437	-3.4513
39	40.9945	8.9437	-3.4513	58.8867	8.9447	-3.3745
40	58.8867	8.9447	-3.3745	-69.1538	42.4426	122.7611
41	-69.1538	42.4426	122.7611	28.3233	83.5383	228.3413
42	28.3233	83.5383	228.3413	123.6239	79.6470	215.4895
43	123.6239	79.6470	215.4895	213.2890	75.4216	202.8196
44	213.2890	75.4216	202.8196	295.1443	70.8996	190.3253
45	295.1443	70.8996	190.3253	367.3422	66.1238	177.9927
46	367.3422	66.1238	177.9927	428.0172	61.1371	165.8037
47	428.0172	61.1371	165.8037	475.6139	55.9915	153.7310
48	475.6139	55.9915	153.7310	508.9761	50.7345	141.7473
49	508.9761	50.7345	141.7473	527.3114	45.4193	129.8186
50	527.3114	45.4193	129.8186	530.3307	40.1021	117.9070
51	530.3307	40.1021	117.9070	518.0212	34.8147	105.9765
52	518.0212	34.8147	105.9765	490.8766	29.6320	93.9893
53	490.8766	29.6320	93.9893	449.8057	24.6045	81.9135
54	449.8057	24.6045	81.9135	396.1240	19.7779	69.7175
55	396.1240	19.7779	69.7175	331.5453	15.2078	57.3772
56	331.5453	15.2078	57.3772	258.2261	10.9345	44.8763
57	258.2261	10.9345	44.8763	25.6977	9.9205	-4.4799
58	25.6977	9.9205	-4.4799	45.5488	9.9200	-4.4249
59	45.5488	9.9200	-4.4249	65.4012	9.9202	-4.3395
60	65.4012	9.9202	-4.3395	-68.9062	42.4232	122.7339
61	-68.9062	42.4232	122.7339	29.3899	83.4931	228.1903
62	29.3899	83.4931	228.1903	124.6669	79.5925	215.2857
63	124.6669	79.5925	215.2857	214.2512	75.3604	202.5773
64	214.2512	75.3604	202.5773	295.9926	70.8367	190.0587
65	295.9926	70.8367	190.0587	368.0311	66.0560	177.7134
66	368.0311	66.0560	177.7134	428.5395	61.0625	165.5215
67	428.5395	61.0625	165.5215	475.9263	55.9216	153.4583
68	475.9263	55.9216	153.4583	509.0743	50.6716	141.4890
69	509.0743	50.6716	141.4890	527.2015	45.3345	129.5818
70	527.2015	45.3345	129.5818	529.9307	40.0079	117.6944
71	529.9307	40.0079	117.6944	517.4117	34.7374	105.7901
72	517.4117	34.7374	105.7901	490.1082	29.5634	93.8359
73	490.1082	29.5634	93.8359	448.9461	24.5509	81.7931
74	448.9461	24.5509	81.7931	395.2396	19.7250	69.6267
75	395.2396	19.7250	69.6267	330.6926	15.1579	57.3136
76	330.6926	15.1579	57.3136	257.4708	10.8973	44.8368
77	257.4708	10.8973	44.8368	26.1421	9.9711	-4.1507
78	26.1421	9.9711	-4.1507	46.0899	9.9720	-4.0952
79	46.0899	9.9720	-4.0952	66.0374	9.9729	-4.0090
80	66.0374	9.9729	-4.0090	-68.7641	42.4257	122.9156
81	-68.7641	42.4257	122.9156	29.5029	83.4462	229.0789
82	29.5029	83.4462	229.0789	124.9534	79.5012	216.7475
83	124.9534	79.5012	216.7475	214.5407	75.2235	204.6389
84	214.5407	75.2235	204.6389	296.0975	70.6458	192.7215
85	296.0975	70.6458	192.7215	367.7690	65.8222	180.9585
86	367.7690	65.8222	180.9585	427.7120	60.7822	169.3050
87	427.7120	60.7822	169.3050	474.4203	55.6018	157.7068
88	474.4203	55.6018	157.7068	506.7467	50.3069	146.1083
89	506.7467	50.3069	146.1083	524.0314	44.9953	134.4528
90	524.0314	44.9953	134.4528	526.0237	39.6658	122.6739
91	526.0237	39.6658	122.6739	512.9023	34.3922	110.7108
92	512.9023	34.3922	110.7108	485.3001	29.2642	98.5002
93	485.3001	29.2642	98.5002	444.2614	24.2788	85.9893
94	444.2614	24.2788	85.9893	391.2213	19.5186	73.1245
95	391.2213	19.5186	73.1245	328.0786	15.0338	59.8540
96	328.0786	15.0338	59.8540	257.1815	10.8827	46.1404
97	257.1815	10.8827	46.1404	30.9317	10.1526	-6.3939
98	30.9317	10.1526	-6.3939	51.2528	10.1540	-6.3309
99	51.2528	10.1540	-6.3309	71.5762	10.1544	-6.2364
100	71.5762	10.1544	-6.2364	-66.6102	42.8521	122.4362
101	-66.6102	42.8521	122.4362	-1.0004	82.9644	234.2654
102	-1.0004	82.9644	234.2654	79.8294	78.2514	221.7135
103	79.8294	78.2514	221.7135	184.2919	75.7467	215.4575
104	184.2919	75.7467	215.4575	250.8031	70.4884	202.6477
105	250.8031	70.4884	202.6477	307.9025	64.9286	189.5973
106	307.9025	64.9286	189.5973	353.6114	59.1317	176.2771
107	353.6114	59.1317	176.2771	420.7073	56.1703	169.7652
108	420.7073	56.1703	169.7652	441.3859	50.1697	155.9939
109	441.3859	50.1697	155.9939	447.7181	44.1202	141.8697
110	447.7181	44.1202	141.8697	439.4132	38.0676	127.3543
111	439.4132	38.0676	127.3543	460.4827	35.0968	120.2267
112	460.4827	35.0968	120.2267	426.0528	29.2785	105.0237
113	426.0528	29.2785	105.0237	378.9988	23.6480	89.3376

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
114	378.9988	23.6480	89.3376	320.9099	18.2894	73.1333
115	320.9099	18.2894	73.1333	302.1223	15.7544	65.0232
116	302.1223	15.7544	65.0232	7.9700	12.6250	-13.2132
117	7.9700	12.6250	-13.2132	30.0891	12.6259	-13.1878
118	30.0891	12.6259	-13.1878	52.2055	12.6269	-13.1323
119	52.2055	12.6269	-13.1323	74.3233	12.6281	-13.0473
120	74.3233	12.6281	-13.0473	-70.1595	42.8859	122.2098
121	-70.1595	42.8859	122.2098	-11.7521	83.4183	234.8515
122	-11.7521	83.4183	234.8515	66.8325	78.8555	222.6631
123	66.8325	78.8555	222.6631	171.2373	76.4132	216.5648
124	171.2373	76.4132	216.5648	237.3861	71.2516	204.0548
125	237.3861	71.2516	204.0548	295.0337	65.7750	191.2596
126	295.0337	65.7750	191.2596	342.0176	60.0199	178.1513
127	342.0176	60.0199	178.1513	410.7420	57.0617	171.7212
128	410.7420	57.0617	171.7212	433.3759	51.0630	158.0931
129	433.3759	51.0630	158.0931	441.8759	45.0007	144.0624
130	441.8759	45.0007	144.0624	435.8271	38.9339	129.5840
131	435.8271	38.9339	129.5840	458.7242	35.9305	122.4571
132	458.7242	35.9305	122.4571	426.3250	30.0327	107.2137
133	426.3250	30.0327	107.2137	381.0215	24.3336	91.4176
134	381.0215	24.3336	91.4176	324.3080	18.8969	75.0305
135	324.3080	18.8969	75.0305	306.5237	16.3048	66.8043
136	306.5237	16.3048	66.8043	232.6852	11.4283	49.4440
137	232.6852	11.4283	49.4440	24.0906	10.4457	-12.8320
138	24.0906	10.4457	-12.8320	42.3923	10.4478	-12.7876
139	42.3923	10.4478	-12.7876	60.6966	10.4494	-12.7182
140	60.6966	10.4494	-12.7182	-71.2537	43.0285	122.1219
141	-71.2537	43.0285	122.1219	-13.3423	83.8105	234.5989
142	-13.3423	83.8105	234.5989	68.4860	79.4386	222.0565
143	68.4860	79.4386	222.0565	145.7324	74.6611	209.2086
144	145.7324	74.6611	209.2086	246.6450	72.1362	202.8109
145	246.6450	72.1362	202.8109	307.9550	66.8441	189.5686
146	307.9550	66.8441	189.5686	358.7104	61.2794	176.0622
147	358.7104	61.2794	176.0622	397.1382	55.5222	162.3154
148	397.1382	55.5222	162.3154	421.8379	49.6329	148.3425
149	421.8379	49.6329	148.3425	470.6069	46.6569	141.5803
150	470.6069	46.6569	141.5803	467.9741	40.7096	127.3008
151	467.9741	40.7096	127.3008	450.4080	34.8116	112.8142
152	450.4080	34.8116	112.8142	418.5032	29.0144	98.1413
153	418.5032	29.0144	98.1413	373.0530	23.4067	83.2948
154	373.0530	23.4067	83.2948	364.2547	20.6840	76.0541
155	364.2547	20.6840	76.0541	296.8922	15.4885	60.9342
156	296.8922	15.4885	60.9342	220.9201	10.6440	45.6909
157	220.9201	10.6440	45.6909	20.3141	9.7938	-10.9165
158	20.3141	9.7938	-10.9165	37.9539	9.7932	-10.8762
159	37.9539	9.7932	-10.8762	55.5948	9.7934	-10.8116
160	55.5948	9.7934	-10.8116	-72.4766	42.2707	122.6824
161	-72.4766	42.2707	122.6824	23.0709	83.6826	227.9594
162	23.0709	83.6826	227.9594	116.0732	79.8623	214.9198
163	116.0732	79.8623	214.9198	204.2522	75.6934	202.0737
164	204.2522	75.6934	202.0737	285.3053	71.2036	189.4229
165	285.3053	71.2036	189.4229	357.2250	66.4464	176.9509
166	357.2250	66.4464	176.9509	418.0585	61.4646	164.6444
167	418.0585	61.4646	164.6444	466.1066	56.3120	152.4832
168	466.1066	56.3120	152.4832	500.0816	51.0297	140.4389
169	500.0816	51.0297	140.4389	519.1040	45.6792	128.4757
170	519.1040	45.6792	128.4757	522.8125	40.3199	116.5529
171	522.8125	40.3199	116.5529	511.2142	35.0136	104.6402
172	511.2142	35.0136	104.6402	484.7839	29.7836	92.7085
173	484.7839	29.7836	92.7085	444.3386	24.7094	80.7154

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
174	444.3386	24.7094	80.7154	391.2062	19.8310	68.6364
175	391.2062	19.8310	68.6364	327.1431	15.2211	56.4403
176	327.1431	15.2211	56.4403	254.3269	10.9161	44.1158
177	254.3269	10.9161	44.1158	22.5321	8.3550	-3.4432
178	22.5321	8.3550	-3.4432	39.2486	8.3550	-3.3958
179	39.2486	8.3550	-3.3958	55.9666	8.3560	-3.3224
180	55.9666	8.3560	-3.3224	-67.5261	42.2906	122.5704
181	-67.5261	42.2906	122.5704	29.1467	83.0755	227.2158
182	29.1467	83.0755	227.2158	120.8205	78.9640	213.9272
183	120.8205	78.9640	213.9272	206.5625	74.5138	200.8647
184	206.5625	74.5138	200.8647	284.1089	69.7554	188.0207
185	284.1089	69.7554	188.0207	351.6025	64.7307	175.3757
186	351.6025	64.7307	175.3757	407.1826	59.4984	162.8967
187	407.1826	59.4984	162.8967	449.3424	54.1190	150.5577
188	449.3424	54.1190	150.5577	477.0291	48.6681	138.3215
189	477.0291	48.6681	138.3215	489.6661	43.1723	126.1505
190	489.6661	43.1723	126.1505	487.0536	37.6952	114.0473
191	487.0536	37.6952	114.0473	469.4780	32.3109	101.8502
192	469.4780	32.3109	101.8502	437.9064	27.0895	89.4981
193	437.9064	27.0895	89.4981	393.3268	22.0508	77.1398
194	393.3268	22.0508	77.1398	385.7161	19.6171	71.2651
195	385.7161	19.6171	71.2651	320.4293	14.9875	58.6550
196	320.4293	14.9875	58.6550	247.5760	10.7006	45.8392
197	247.5760	10.7006	45.8392	31.3466	10.4065	-3.5108
198	31.3466	10.4065	-3.5108	51.6473	10.4054	-3.4512
199	51.6473	10.4054	-3.4512	71.9509	10.4060	-3.3542
200	71.9509	10.4060	-3.3542	-61.0987	42.2640	119.7094
201	-61.0987	42.2640	119.7094	-5.5988	82.1678	217.5482
202	-5.5988	82.1678	217.5482	79.3061	79.8337	208.7751
203	79.3061	79.8337	208.7751	160.6294	77.3821	200.0559
204	160.6294	77.3821	200.0559	208.4666	72.1194	182.6405
205	208.4666	72.1194	182.6405	279.4775	69.3132	174.0377
206	279.4775	69.3132	174.0377	314.4155	63.3772	156.6664
207	314.4155	63.3772	156.6664	370.8611	60.2572	148.3788
208	370.8611	60.2572	148.3788	420.0615	57.0424	140.1096
209	420.0615	57.0424	140.1096	424.0818	50.3488	122.9055
210	424.0818	50.3488	122.9055	453.7768	46.8905	114.5784
211	453.7768	46.8905	114.5784	430.1679	39.7689	97.5705
212	430.1679	39.7689	97.5705	437.4428	36.1054	89.1876
213	437.4428	36.1054	89.1876	381.9813	28.6738	71.8872
214	381.9813	28.6738	71.8872	364.5759	24.8940	63.4639
215	364.5759	24.8940	63.4639	336.7491	21.0768	54.9647
216	336.7491	21.0768	54.9647	230.2672	13.3320	37.3865
217	230.2672	13.3320	37.3865	-49.7603	11.7605	-6.0248
218	-49.7603	11.7605	-6.0248	-33.1655	11.7601	-6.0745
219	-33.1655	11.7601	-6.0745	-16.5850	11.7568	-6.0945
220	-16.5850	11.7568	-6.0945	-0.0081	11.7574	-6.0982

ENVOL. MIN. CORTANTES TREN TREN IPF-75 TIPO A en via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.0017	-9.6137	5.5260	-15.7229	-9.6143	5.5161
2	-15.7229	-9.6143	5.5161	-31.4495	-9.6154	5.4865
3	-31.4495	-9.6154	5.4865	-47.1752	-9.6134	5.4370
4	-47.1752	-9.6134	5.4370	303.5054	-15.4397	-41.3990
5	303.5054	-15.4397	-41.3990	402.7607	-22.1997	-56.5639
6	402.7607	-22.1997	-56.5639	423.5883	-25.5471	-63.7986
7	423.5883	-25.5471	-63.7986	486.2191	-32.1377	-78.6362
8	486.2191	-32.1377	-78.6362	529.1461	-38.5732	-93.3636
9	529.1461	-38.5732	-93.3636	509.6552	-41.7337	-100.3783
10	509.6552	-41.7337	-100.3783	520.5354	-47.8978	-115.0219
11	520.5354	-47.8978	-115.0219	478.2209	-50.9044	-122.0400
12	478.2209	-50.9044	-122.0400	460.8115	-56.7336	-136.7343
13	460.8115	-56.7336	-136.7343	430.1101	-62.2948	-151.5018
14	430.1101	-62.2948	-151.5018	357.4258	-64.9588	-158.6929
15	357.4258	-64.9588	-158.6929	306.6644	-70.0345	-173.6548
16	306.6644	-70.0345	-173.6548	248.4335	-74.7666	-188.7478
17	248.4335	-74.7666	-188.7478	154.4728	-76.9936	-196.2460
18	154.4728	-76.9936	-196.2460	86.5856	-81.1436	-211.5901
19	86.5856	-81.1436	-211.5901	18.3375	-84.8636	-227.0667
20	18.3375	-84.8636	-227.0667	-84.7655	-41.9533	-119.3825
21	-84.7655	-41.9533	-119.3825	66.0942	-9.7913	3.6562
22	66.0942	-9.7913	3.6562	46.5096	-9.7913	3.7429
23	46.5096	-9.7913	3.7429	26.9268	-9.7908	3.7994
24	26.9268	-9.7908	3.7994	241.5393	-10.2404	-42.3479
25	241.5393	-10.2404	-42.3479	313.7767	-14.4250	-54.8382
26	313.7767	-14.4250	-54.8382	377.3572	-18.9171	-67.1542
27	377.3572	-18.9171	-67.1542	430.5099	-23.6805	-79.3152
28	430.5099	-23.6805	-79.3152	471.4901	-28.6621	-91.3465
29	471.4901	-28.6621	-91.3465	498.8987	-33.7918	-103.2837
30	498.8987	-33.7918	-103.2837	511.7006	-39.0525	-115.1604
31	511.7006	-39.0525	-115.1604	509.2827	-44.3965	-127.0157
32	509.2827	-44.3965	-127.0157	491.5092	-49.7185	-138.8926
33	491.5092	-49.7185	-138.8926	458.6048	-54.9884	-150.8297
34	458.6048	-54.9884	-150.8297	411.2635	-60.1812	-162.8665
35	411.2635	-60.1812	-162.8665	350.5648	-65.2264	-175.0357
36	350.5648	-65.2264	-175.0357	277.9808	-70.0787	-187.3669
37	277.9808	-70.0787	-187.3669	195.4259	-74.6735	-199.8853
38	195.4259	-74.6735	-199.8853	105.2387	-78.9698	-212.6022
39	105.2387	-78.9698	-212.6022	10.1697	-82.9075	-225.5224
40	10.1697	-82.9075	-225.5224	-87.5594	-41.8224	-121.3579
41	-87.5594	-41.8224	-121.3579	64.1703	-9.7181	3.8249
42	64.1703	-9.7181	3.8249	44.7240	-9.7178	3.9088
43	44.7240	-9.7178	3.9088	25.2810	-9.7176	3.9626
44	25.2810	-9.7176	3.9626	244.0236	-10.3545	-42.0008
45	244.0236	-10.3545	-42.0008	316.8235	-14.5829	-54.4198
46	316.8235	-14.5829	-54.4198	380.6286	-19.0985	-66.6897
47	380.6286	-19.0985	-66.6897	433.7554	-23.8741	-78.8298
48	433.7554	-23.8741	-78.8298	474.5355	-28.8573	-90.8649
49	474.5355	-28.8573	-90.8649	501.5949	-34.0027	-102.8196
50	501.5949	-34.0027	-102.8196	513.9687	-39.2487	-114.7337
51	513.9687	-39.2487	-114.7337	511.0912	-44.5868	-126.6387
52	511.0912	-44.5868	-126.6387	492.8181	-49.9147	-138.5734
53	492.8181	-49.9147	-138.5734	459.3989	-55.2030	-150.5743
54	459.3989	-55.2030	-150.5743	411.5772	-60.3709	-162.6758
55	411.5772	-60.3709	-162.6758	350.4111	-65.4027	-174.9095
56	350.4111	-65.4027	-174.9095	277.4519	-70.2236	-187.3017
57	277.4519	-70.2236	-187.3017	194.6171	-74.8001	-199.8691
58	194.6171	-74.8001	-199.8691	104.2541	-79.0669	-212.6225
59	104.2541	-79.0669	-212.6225	9.1066	-82.9807	-225.5606
60	9.1066	-82.9807	-225.5606	-87.8322	-41.8528	-121.3316
61	-87.8322	-41.8528	-121.3316	63.3586	-9.6178	3.8501
62	63.3586	-9.6178	3.8501	44.1210	-9.6187	3.9328
63	44.1210	-9.6187	3.9328	24.8813	-9.6204	3.9859
64	24.8813	-9.6204	3.9859	244.8116	-10.4091	-42.2022
65	244.8116	-10.4091	-42.2022	317.5052	-14.6405	-54.6605
66	317.5052	-14.6405	-54.6605	381.1935	-19.1675	-66.9563
67	381.1935	-19.1675	-66.9563	434.1577	-23.9354	-79.1085
68	434.1577	-23.9354	-79.1085	474.7509	-28.9144	-91.1452
69	474.7509	-28.9144	-91.1452	501.6018	-34.0773	-103.0943
70	501.6018	-34.0773	-103.0943	513.7061	-39.3603	-114.9935
71	513.7061	-39.3603	-114.9935	510.5792	-44.6711	-126.8818
72	510.5792	-44.6711	-126.8818	492.0897	-49.9994	-138.7899
73	492.0897	-49.9994	-138.7899	458.5154	-55.2635	-150.7602
74	458.5154	-55.2635	-150.7602	410.5849	-60.4368	-162.8316
75	410.5849	-60.4368	-162.8316	349.3625	-65.4603	-175.0358
76	349.3625	-65.4603	-175.0358	276.3967	-70.2817	-187.3967
77	276.3967	-70.2817	-187.3967	193.6237	-74.8481	-199.9349
78	193.6237	-74.8481	-199.9349	103.4146	-79.1016	-212.6631
79	103.4146	-79.1016	-212.6631	8.5289	-83.0049	-225.5822
80	8.5289	-83.0049	-225.5822	-88.3586	-41.8232	-121.6852
81	-88.3586	-41.8232	-121.6852	50.3636	-7.6253	-5.9562
82	50.3636	-7.6253	-5.9562	35.1184	-7.6250	-5.8905
83	35.1184	-7.6250	-5.8905	19.8732	-7.6244	-5.8482
84	19.8732	-7.6244	-5.8482	244.7723	-10.5011	-40.7401
85	244.7723	-10.5011	-40.7401	317.2874	-14.7762	-52.5998
86	317.2874	-14.7762	-52.5998	380.5827	-19.3496	-64.2918
87	380.5827	-19.3496	-64.2918	432.9797	-24.1761	-75.8638
88	432.9797	-24.1761	-75.8638	472.8162	-29.2091	-87.3674
89	472.8162	-29.2091	-87.3674	498.7859	-34.3918	-98.8517
90	498.7859	-34.3918	-98.8517	510.0125	-39.6773	-110.3820
91	510.0125	-39.6773	-110.3820	505.9915	-45.0035	-122.0211
92	505.9915	-45.0035	-122.0211	486.7324	-50.3370	-133.8257
93	486.7324	-50.3370	-133.8257	452.6201	-55.5898	-145.8630
94	452.6201	-55.5898	-145.8630	404.4854	-60.7357	-158.1852
95	404.4854	-60.7357	-158.1852	343.5471	-65.7178	-170.8518
96	343.5471	-65.7178	-170.8518	271.5032	-70.4781	-183.9099
97	271.5032	-70.4781	-183.9099	190.4736	-74.9640	-197.4019
98	190.4736	-74.9640	-197.4019	102.9967	-79.1194	-211.3607
99	102.9967	-79.1194	-211.3607	12.0515	-82.8883	-225.8062
100	12.0515	-82.8883	-225.8062	-96.8371	-41.0238	-121.9641
101	-96.8371	-41.0238	-121.9641	50.4344	-9.1773	-9.9538
102	50.4344	-9.1773	-9.9538	34.3861	-9.1765	-9.8965
103	34.3861	-9.1765	-9.8965	18.3392	-9.1759	-9.8612
104	18.3392	-9.1759	-9.8612	194.5757	-9.3461	-29.6161
105	194.5757	-9.3461	-29.6161	273.7507	-14.2516	-42.0036
106	273.7507	-14.2516	-42.0036	344.2736	-19.5116	-54.6271
107	344.2736	-19.5116	-54.6271	356.3361	-22.2649	-60.7956
108	356.3361	-22.2649	-60.7956	405.5845	-27.9490	-73.8110
109	405.5845	-27.9490	-73.8110	441.7155	-33.8425	-87.1544
110	441.7155	-33.8425	-87.1544	463.8041	-39.8421	-100.8631
111	463.8041	-39.8421	-100.8631	432.0026	-42.8727	-107.5708
112	432.0026	-42.8727	-107.5708	427.0754	-48.9136	-121.8971
113	427.0754	-48.9136	-121.8971	407.9432	-54.8854	-136.6842
114	407.9432	-54.8854	-136.6842	375.5026	-60.7308	-151.9722

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	375.5026	-60.7308	-151.9722	299.2166	-63.5720	-159.6005
116	299.2166	-63.5720	-159.6005	244.8745	-69.0689	-175.7220
117	244.8745	-69.0689	-175.7220	181.9947	-74.2413	-192.4025
118	181.9947	-74.2413	-192.4025	113.3334	-79.0179	-209.6599
119	113.3334	-79.0179	-209.6599	6.9402	-81.2385	-218.4908
120	6.9402	-81.2385	-218.4908	-88.2455	-40.6657	-120.2000
121	-88.2455	-40.6657	-120.2000	56.9822	-9.6950	-11.9258
122	56.9822	-9.6950	-11.9258	40.0300	-9.6947	-11.8605
123	40.0300	-9.6947	-11.8605	23.0784	-9.6946	-11.8179
124	23.0784	-9.6946	-11.8179	6.1284	-9.6958	-11.7978
125	6.1284	-9.6958	-11.7978	263.0157	-13.5841	-40.9295
126	263.0157	-13.5841	-40.9295	333.5398	-18.7438	-53.2537
127	333.5398	-18.7438	-53.2537	346.6375	-21.4613	-59.2942
128	346.6375	-21.4613	-59.2942	397.0638	-27.0955	-72.0707
129	397.0638	-27.0955	-72.0707	434.8772	-32.9420	-85.2203
130	434.8772	-32.9420	-85.2203	458.9473	-38.9424	-98.7817
131	458.9473	-38.9424	-98.7817	428.9884	-41.9700	-105.4341
132	428.9884	-41.9700	-105.4341	426.2029	-48.0303	-119.6824
133	426.2029	-48.0303	-119.6824	409.0938	-54.0607	-134.4489
134	409.0938	-54.0607	-134.4489	378.4661	-59.9627	-149.7794
135	378.4661	-59.9627	-149.7794	303.6138	-62.8416	-157.4539
136	303.6138	-62.8416	-157.4539	250.4748	-68.4277	-173.7130
137	250.4748	-68.4277	-173.7130	188.3029	-73.6993	-190.6072
138	188.3029	-73.6993	-190.6072	119.8156	-78.5789	-208.1577
139	119.8156	-78.5789	-208.1577	13.6318	-80.8537	-217.1614
140	13.6318	-80.8537	-217.1614	-85.5664	-40.5918	-119.4253
141	-85.5664	-40.5918	-119.4253	69.1738	-11.4229	1.2921
142	69.1738	-11.4229	1.2921	48.6131	-11.4220	1.3735
143	48.6131	-11.4220	1.3735	28.0541	-11.4219	1.4267
144	28.0541	-11.4219	1.4267	7.4952	-11.4218	1.4516
145	7.4952	-11.4218	1.4516	256.4617	-12.9098	-41.7171
146	256.4617	-12.9098	-41.7171	326.1721	-17.8739	-54.4708
147	326.1721	-17.8739	-54.4708	386.3391	-23.1581	-67.5406
148	386.3391	-23.1581	-67.5406	435.1216	-28.7231	-80.9137
149	435.1216	-28.7231	-80.9137	426.3453	-31.5900	-87.4043
150	426.3453	-31.5900	-87.4043	449.8158	-37.4103	-101.1703
151	449.8158	-37.4103	-101.1703	458.6143	-43.3443	-115.2070
152	458.6143	-43.3443	-115.2070	452.4928	-49.2921	-129.5007
153	452.4928	-49.2921	-129.5007	431.7162	-55.1954	-144.0392
154	431.7162	-55.1954	-144.0392	363.8253	-58.1186	-151.1332
155	363.8253	-58.1186	-151.1332	317.3082	-63.8257	-166.0385
156	317.3082	-63.8257	-166.0385	258.9579	-69.3113	-181.1576
157	258.9579	-69.3113	-181.1576	190.8060	-74.5078	-196.4606
158	190.8060	-74.5078	-196.4606	115.4414	-79.3527	-211.9185
159	115.4414	-79.3527	-211.9185	2.6736	-81.6212	-219.6704
160	2.6736	-81.6212	-219.6704	-81.1073	-41.6233	-119.5864
161	-81.1073	-41.6233	-119.5864	65.0231	-9.3747	4.7913
162	65.0231	-9.3747	4.7913	46.2645	-9.3753	4.8770
163	46.2645	-9.3753	4.8770	27.5054	-9.3745	4.9338
164	27.5054	-9.3745	4.9338	237.3604	-10.1384	-42.5914
165	237.3604	-10.1384	-42.5914	308.8858	-14.3065	-55.1912
166	308.8858	-14.3065	-55.1912	372.0426	-18.7854	-67.6221
167	372.0426	-18.7854	-67.6221	424.9922	-23.5415	-79.9026
168	424.9922	-23.5415	-79.9026	465.9304	-28.5250	-92.0491
169	465.9304	-28.5250	-92.0491	493.3613	-33.6971	-104.0886
170	493.3613	-33.6971	-104.0886	506.2318	-38.9702	-116.0729
171	506.2318	-38.9702	-116.0729	503.9239	-44.3060	-128.0164
172	503.9239	-44.3060	-128.0164	486.2737	-49.6722	-139.9508
173	486.2737	-49.6722	-139.9508	453.4479	-54.9967	-151.9257
174	453.4479	-54.9967	-151.9257	406.1033	-60.2223	-163.9753

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	406.1033	-60.2223	-163.9753	345.3888	-65.2957	-176.1217
176	345.3888	-65.2957	-176.1217	272.8008	-70.1677	-188.3996
177	272.8008	-70.1677	-188.3996	190.3227	-74.7776	-200.8188
178	190.3227	-74.7776	-200.8188	100.3363	-79.0800	-213.3946
179	100.3363	-79.0800	-213.3946	5.6589	-83.0191	-226.1230
180	5.6589	-83.0191	-226.1230	-88.8691	-41.8364	-121.4695
181	-88.8691	-41.8364	-121.4695	45.8349	-7.2070	3.3405
182	45.8349	-7.2070	3.3405	31.7716	-7.2078	3.3987
183	31.7716	-7.2078	3.3987	17.7062	-7.2080	3.4358
184	17.7062	-7.2080	3.4358	248.6456	-11.0366	-43.5759
185	248.6456	-11.0366	-43.5759	321.4236	-15.4940	-56.3954
186	321.4236	-15.4940	-56.3954	384.9316	-20.2543	-69.0294
187	384.9316	-20.2543	-69.0294	437.3646	-25.2721	-81.5006
188	437.3646	-25.2721	-81.5006	477.0948	-30.5014	-93.8331
189	477.0948	-30.5014	-93.8331	502.8209	-35.8820	-106.0726
190	502.8209	-35.8820	-106.0726	513.7443	-41.3414	-118.2086
191	513.7443	-41.3414	-118.2086	509.4289	-46.8312	-130.3608
192	509.4289	-46.8312	-130.3608	490.0141	-52.2928	-142.6672
193	490.0141	-52.2928	-142.6672	456.0682	-57.6768	-154.9753
194	456.0682	-57.6768	-154.9753	375.2334	-60.3224	-160.7763
195	375.2334	-60.3224	-160.7763	316.3539	-65.4750	-173.2258
196	316.3539	-65.4750	-173.2258	246.3687	-70.3850	-185.9164
197	246.3687	-70.3850	-185.9164	167.5919	-75.0139	-198.7509
198	167.5919	-75.0139	-198.7509	82.5798	-79.2959	-211.7501
199	82.5798	-79.2959	-211.7501	-5.5806	-83.1740	-224.9409
200	-5.5806	-83.1740	-224.9409	-94.8710	-41.5965	-122.2262
201	-94.8710	-41.5965	-122.2262	87.6120	-3.2706	-0.3951
202	87.6120	-3.2706	-0.3951	83.0010	-3.2712	-0.2918
203	83.0010	-3.2712	-0.2918	84.3784	-3.5338	-22.8093
204	84.3784	-3.5338	-22.8093	176.0844	-7.8255	-40.2565
205	176.0844	-7.8255	-40.2565	214.3054	-10.1572	-48.8662
206	214.3054	-10.1572	-48.8662	299.2114	-15.1986	-66.2893
207	299.2114	-15.1986	-66.2893	327.1289	-17.8902	-74.6743
208	327.1289	-17.8902	-74.6743	349.3795	-20.6891	-82.9581
209	349.3795	-20.6891	-82.9581	412.2319	-26.6564	-100.1491
210	412.2319	-26.6564	-100.1491	418.5905	-29.7694	-108.4933
211	418.5905	-29.7694	-108.4933	459.2687	-36.2937	-125.4685
212	459.2687	-36.2937	-125.4685	446.2437	-39.6570	-133.7983
213	446.2437	-39.6570	-133.7983	459.2029	-46.6490	-151.0197
214	459.2029	-46.6490	-151.0197	423.9002	-50.2304	-159.3732
215	423.9002	-50.2304	-159.3732	378.9062	-53.8582	-167.7480
216	378.9062	-53.8582	-167.7480	345.0409	-61.3195	-185.1525
217	345.0409	-61.3195	-185.1525	274.7524	-65.1096	-193.7238
218	274.7524	-65.1096	-193.7238	204.8158	-72.7923	-211.2731
219	204.8158	-72.7923	-211.2731	107.7876	-76.6664	-220.1344
220	107.7876	-76.6664	-220.1344	-0.2584	-76.6635	-220.1119

ENVOL. MAX. TORSORES TREN TREN IPF-75 TIPO A en via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.0729	81.3910	231.6721	127.2827	77.9770	223.7337
2	127.2827	77.9770	223.7337	232.3040	71.1805	208.1125
3	232.3040	71.1805	208.1125	331.9174	67.8081	200.5966
4	331.9174	67.8081	200.5966	399.1061	61.1526	185.4630
5	399.1061	61.1526	185.4630	445.5931	54.6180	170.5349
6	445.5931	54.6180	170.5349	503.3216	51.4254	163.4222
7	503.3216	51.4254	163.4222	515.5831	45.1546	148.7205
8	515.5831	45.1546	148.7205	510.1049	39.0915	134.0804
9	510.1049	39.0915	134.0804	530.7216	36.1649	127.0873
10	530.7216	36.1649	127.0873	496.8511	30.4818	112.4528
11	496.8511	30.4818	112.4528	497.3217	27.7297	105.4199
12	497.3217	27.7297	105.4199	439.8773	22.4714	90.6725
13	439.8773	22.4714	90.6725	372.2701	17.5527	75.8349
14	372.2701	17.5527	75.8349	347.8088	15.2414	68.5872
15	347.8088	15.2414	68.5872	266.1903	10.8881	53.5364
16	266.1903	10.8881	53.5364	181.0003	6.9397	38.3616
17	181.0003	6.9397	38.3616	142.2097	5.1343	30.8167
18	142.2097	5.1343	30.8167	54.4800	1.8620	16.1550
19	54.4800	1.8620	16.1550	-29.6679	-0.9485	7.5259
20	-29.6679	-0.9485	7.5259	-70.8485	42.4401	123.2882
21	-70.8485	42.4401	123.2882	26.5898	83.6041	228.0974
22	26.5898	83.6041	228.0974	120.7259	79.7621	215.1508
23	120.7259	79.7621	215.1508	209.6546	75.5744	202.4113
24	209.6546	75.5744	202.4113	291.1449	71.0906	189.8731
25	291.1449	71.0906	189.8731	363.3015	66.3377	177.5200
26	363.3015	66.3377	177.5200	424.1673	61.3500	165.3301
27	424.1673	61.3500	165.3301	472.1006	56.1992	153.2784
28	472.1006	56.1992	153.2784	505.8937	50.9452	141.3302
29	505.8937	50.9452	141.3302	524.7610	45.6248	129.4485
30	524.7610	45.6248	129.4485	528.2791	40.2957	117.5936
31	528.2791	40.2957	117.5936	516.4869	34.9951	105.7255
32	516.4869	34.9951	105.7255	489.8652	29.8006	93.8040
33	489.8652	29.8006	93.8040	449.2830	24.7604	81.7908
34	449.2830	24.7604	81.7908	396.0273	19.9137	69.6512
35	396.0273	19.9137	69.6512	331.8221	15.3201	57.3599
36	331.8221	15.3201	57.3599	258.7645	11.0313	44.8942
37	258.7645	11.0313	44.8942	179.4027	7.0932	32.2416
38	179.4027	7.0932	32.2416	96.5951	3.5611	19.4009
39	96.5951	3.5611	19.4009	13.1676	0.4668	9.0152
40	13.1676	0.4668	9.0152	-69.1538	42.4426	122.7611
41	-69.1538	42.4426	122.7611	28.3233	83.5383	228.3413
42	28.3233	83.5383	228.3413	123.6239	79.6470	215.4895
43	123.6239	79.6470	215.4895	213.2890	75.4216	202.8196
44	213.2890	75.4216	202.8196	295.1443	70.8996	190.3253
45	295.1443	70.8996	190.3253	367.3422	66.1238	177.9927
46	367.3422	66.1238	177.9927	428.0172	61.1371	165.8037
47	428.0172	61.1371	165.8037	475.6139	55.9915	153.7310
48	475.6139	55.9915	153.7310	508.9761	50.7345	141.7473
49	508.9761	50.7345	141.7473	527.3114	45.4193	129.8186
50	527.3114	45.4193	129.8186	530.3307	40.1021	117.9070
51	530.3307	40.1021	117.9070	518.0212	34.8147	105.9765
52	518.0212	34.8147	105.9765	490.8766	29.6320	93.9893
53	490.8766	29.6320	93.9893	449.8057	24.6045	81.9135
54	449.8057	24.6045	81.9135	396.1240	19.7779	69.7175
55	396.1240	19.7779	69.7175	331.5453	15.2078	57.3772
56	331.5453	15.2078	57.3772	258.2261	10.9345	44.8763
57	258.2261	10.9345	44.8763	178.6961	7.0196	32.2057
58	178.6961	7.0196	32.2057	95.8193	3.5113	19.3680
59	95.8193	3.5113	19.3680	12.4425	0.4403	9.0068
60	12.4425	0.4403	9.0068	-68.9062	42.4232	122.7339
61	-68.9062	42.4232	122.7339	29.3899	83.4931	228.1903
62	29.3899	83.4931	228.1903	124.6669	79.5925	215.2857
63	124.6669	79.5925	215.2857	214.2512	75.3604	202.5773
64	214.2512	75.3604	202.5773	295.9926	70.8367	190.0587
65	295.9926	70.8367	190.0587	368.0311	66.0560	177.7134
66	368.0311	66.0560	177.7134	428.5395	61.0625	165.5215
67	428.5395	61.0625	165.5215	475.9263	55.9216	153.4583
68	475.9263	55.9216	153.4583	509.0743	50.6716	141.4890
69	509.0743	50.6716	141.4890	527.2015	45.3345	129.5818
70	527.2015	45.3345	129.5818	529.9307	40.0079	117.6944
71	529.9307	40.0079	117.6944	517.4117	34.7374	105.7901
72	517.4117	34.7374	105.7901	490.1082	29.5634	93.8359
73	490.1082	29.5634	93.8359	448.9461	24.5509	81.7931
74	448.9461	24.5509	81.7931	395.2396	19.7250	69.6267
75	395.2396	19.7250	69.6267	330.6926	15.1579	57.3136
76	330.6926	15.1579	57.3136	257.4708	10.8973	44.8368
77	257.4708	10.8973	44.8368	178.1450	6.9957	32.1863
78	178.1450	6.9957	32.1863	95.5807	3.5006	19.3615
79	95.5807	3.5006	19.3615	12.5722	0.4439	9.0059
80	12.5722	0.4439	9.0059	-68.7641	42.4257	122.9156
81	-68.7641	42.4257	122.9156	29.5029	83.4462	229.0789
82	29.5029	83.4462	229.0789	124.9534	79.5012	216.7475
83	124.9534	79.5012	216.7475	214.5407	75.2235	204.6389
84	214.5407	75.2235	204.6389	296.0975	70.6458	192.7215
85	296.0975	70.6458	192.7215	367.7690	65.8222	180.9585
86	367.7690	65.8222	180.9585	427.7120	60.7822	169.3050
87	427.7120	60.7822	169.3050	474.4203	55.6018	157.7068
88	474.4203	55.6018	157.7068	506.7467	50.3069	146.1083
89	506.7467	50.3069	146.1083	524.0314	44.9953	134.4528
90	524.0314	44.9953	134.4528	526.0237	39.6658	122.6739
91	526.0237	39.6658	122.6739	512.9023	34.3922	110.7108
92	512.9023	34.3922	110.7108	485.3001	29.2642	98.5002
93	485.3001	29.2642	98.5002	444.2614	24.2788	85.9893
94	444.2614	24.2788	85.9893	391.2213	19.5186	73.1245
95	391.2213	19.5186	73.1245	328.0786	15.0338	59.8540
96	328.0786	15.0338	59.8540	257.1815	10.8827	46.1404
97	257.1815	10.8827	46.1404	181.2715	7.1114	31.9524
98	181.2715	7.1114	31.9524	103.4420	3.7765	17.2734
99	103.4420	3.7765	17.2734	26.2951	0.8965	4.8886
100	26.2951	0.8965	4.8886	-66.6102	42.8521	122.4362
101	-66.6102	42.8521	122.4362	-1.0004	82.9644	234.2654
102	-1.0004	82.9644	234.2654	79.8294	78.2514	221.7135
103	79.8294	78.2514	221.7135	184.2919	75.7467	215.4575
104	184.2919	75.7467	215.4575	250.8031	70.4884	202.6477
105	250.8031	70.4884	202.6477	307.9025	64.9286	189.5973
106	307.9025	64.9286	189.5973	353.6114	59.1317	176.2771
107	353.6114	59.1317	176.2771	420.7073	56.1703	169.7652
108	420.7073	56.1703	169.7652	441.3859	50.1697	155.9939
109	441.3859	50.1697	155.9939	447.7181	44.1202	141.8697
110	447.7181	44.1202	141.8697	439.4132	38.0676	127.3543
111	439.4132	38.0676	127.3543	460.4827	35.0968	120.2267
112	460.4827	35.0968	120.2267	426.0528	29.2785	105.0237
113	426.0528	29.2785	105.0237	378.9988	23.6480	89.3376

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
114	378.9988	23.6480	89.3376	320.9099	18.2894	73.1333
115	320.9099	18.2894	73.1333	302.1223	15.7544	65.0232
116	302.1223	15.7544	65.0232	227.7442	10.9806	47.9557
117	227.7442	10.9806	47.9557	149.2233	6.6763	30.3302
118	149.2233	6.6763	30.3302	69.6485	2.8970	12.8867
119	69.6485	2.8970	12.8867	31.2404	1.2142	6.1189
120	31.2404	1.2142	6.1189	-70.1595	42.8859	122.2098
121	-70.1595	42.8859	122.2098	-11.7521	83.4183	234.8515
122	-11.7521	83.4183	234.8515	66.8325	78.8555	222.6631
123	66.8325	78.8555	222.6631	171.2373	76.4132	216.5648
124	171.2373	76.4132	216.5648	237.3861	71.2516	204.0548
125	237.3861	71.2516	204.0548	295.0337	65.7750	191.2596
126	295.0337	65.7750	191.2596	342.0176	60.0199	178.1513
127	342.0176	60.0199	178.1513	410.7420	57.0617	171.7212
128	410.7420	57.0617	171.7212	433.3759	51.0630	158.0931
129	433.3759	51.0630	158.0931	441.8759	45.0007	144.0624
130	441.8759	45.0007	144.0624	435.8271	38.9339	129.5840
131	435.8271	38.9339	129.5840	458.7242	35.9305	122.4571
132	458.7242	35.9305	122.4571	426.3250	30.0327	107.2137
133	426.3250	30.0327	107.2137	381.0215	24.3336	91.4176
134	381.0215	24.3336	91.4176	324.3080	18.8969	75.0305
135	324.3080	18.8969	75.0305	306.5237	16.3048	66.8043
136	306.5237	16.3048	66.8043	232.6852	11.4283	49.4440
137	232.6852	11.4283	49.4440	154.1458	7.0132	31.4420
138	154.1458	7.0132	31.4420	73.9595	3.1233	13.5334
139	73.9595	3.1233	13.5334	35.1796	1.3856	6.5092
140	35.1796	1.3856	6.5092	-71.2537	43.0285	122.1219
141	-71.2537	43.0285	122.1219	-13.3423	83.8105	234.5989
142	-13.3423	83.8105	234.5989	68.4860	79.4386	222.0565
143	68.4860	79.4386	222.0565	145.7324	74.6611	209.2086
144	145.7324	74.6611	209.2086	246.6450	72.1362	202.8109
145	246.6450	72.1362	202.8109	307.9550	66.8441	189.5686
146	307.9550	66.8441	189.5686	358.7104	61.2794	176.0622
147	358.7104	61.2794	176.0622	397.1382	55.5222	162.3154
148	397.1382	55.5222	162.3154	421.8379	49.6329	148.3425
149	421.8379	49.6329	148.3425	470.6069	46.6569	141.5803
150	470.6069	46.6569	141.5803	467.9741	40.7096	127.3008
151	467.9741	40.7096	127.3008	450.4080	34.8116	112.8142
152	450.4080	34.8116	112.8142	418.5032	29.0144	98.1413
153	418.5032	29.0144	98.1413	373.0530	23.4067	83.2948
154	373.0530	23.4067	83.2948	364.2547	20.6840	76.0541
155	364.2547	20.6840	76.0541	296.8922	15.4885	60.9342
156	296.8922	15.4885	60.9342	220.9201	10.6440	45.6909
157	220.9201	10.6440	45.6909	139.2117	6.2298	30.3595
158	139.2117	6.2298	30.3595	54.6722	2.3004	15.6689
159	54.6722	2.3004	15.6689	12.8127	0.5383	10.2659
160	12.8127	0.5383	10.2659	-72.4766	42.2707	122.6824
161	-72.4766	42.2707	122.6824	23.0709	83.6826	227.9594
162	23.0709	83.6826	227.9594	116.0732	79.8623	214.9198
163	116.0732	79.8623	214.9198	204.2522	75.6934	202.0737
164	204.2522	75.6934	202.0737	285.3053	71.2036	189.4229
165	285.3053	71.2036	189.4229	357.2250	66.4464	176.9509
166	357.2250	66.4464	176.9509	418.0585	61.4646	164.6444
167	418.0585	61.4646	164.6444	466.1066	56.3120	152.4832
168	466.1066	56.3120	152.4832	500.0816	51.0297	140.4389
169	500.0816	51.0297	140.4389	519.1040	45.6792	128.4757
170	519.1040	45.6792	128.4757	522.8125	40.3199	116.5529
171	522.8125	40.3199	116.5529	511.2142	35.0136	104.6402
172	511.2142	35.0136	104.6402	484.7839	29.7836	92.7085
173	484.7839	29.7836	92.7085	444.3386	24.7094	80.7154

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
174	444.3386	24.7094	80.7154	391.2062	19.8310	68.6364
175	391.2062	19.8310	68.6364	327.1431	15.2211	56.4403
176	327.1431	15.2211	56.4403	254.3269	10.9161	44.1158
177	254.3269	10.9161	44.1158	175.3675	6.9811	31.6544
178	175.3675	6.9811	31.6544	93.1926	3.4577	19.0582
179	93.1926	3.4577	19.0582	10.7558	0.3867	8.9653
180	10.7558	0.3867	8.9653	-67.5261	42.2906	122.5704
181	-67.5261	42.2906	122.5704	29.1467	83.0755	227.2158
182	29.1467	83.0755	227.2158	120.8205	78.9640	213.9272
183	120.8205	78.9640	213.9272	206.5625	74.5138	200.8647
184	206.5625	74.5138	200.8647	284.1089	69.7554	188.0207
185	284.1089	69.7554	188.0207	351.6025	64.7307	175.3757
186	351.6025	64.7307	175.3757	407.1826	59.4984	162.8967
187	407.1826	59.4984	162.8967	449.3424	54.1190	150.5577
188	449.3424	54.1190	150.5577	477.0291	48.6681	138.3215
189	477.0291	48.6681	138.3215	489.6661	43.1723	126.1505
190	489.6661	43.1723	126.1505	487.0536	37.6952	114.0473
191	487.0536	37.6952	114.0473	469.4780	32.3109	101.8502
192	469.4780	32.3109	101.8502	437.9064	27.0895	89.4981
193	437.9064	27.0895	89.4981	393.3268	22.0508	77.1398
194	393.3268	22.0508	77.1398	385.7161	19.6171	71.2651
195	385.7161	19.6171	71.2651	320.4293	14.9875	58.6550
196	320.4293	14.9875	58.6550	247.5760	10.7006	45.8392
197	247.5760	10.7006	45.8392	169.9876	6.8254	32.8885
198	169.9876	6.8254	32.8885	90.8669	3.4051	19.7674
199	90.8669	3.4051	19.7674	13.3330	0.4800	9.1681
200	13.3330	0.4800	9.1681	-61.0987	42.2640	119.7094
201	-61.0987	42.2640	119.7094	-5.5988	82.1678	217.5482
202	-5.5988	82.1678	217.5482	79.3061	79.8337	208.7751
203	79.3061	79.8337	208.7751	160.6294	77.3821	200.0559
204	160.6294	77.3821	200.0559	208.4666	72.1194	182.6405
205	208.4666	72.1194	182.6405	279.4775	69.3132	174.0377
206	279.4775	69.3132	174.0377	314.4155	63.3772	156.6664
207	314.4155	63.3772	156.6664	370.8611	60.2572	148.3788
208	370.8611	60.2572	148.3788	420.0615	57.0424	140.1096
209	420.0615	57.0424	140.1096	424.0818	50.3488	122.9055
210	424.0818	50.3488	122.9055	453.7768	46.8905	114.5784
211	453.7768	46.8905	114.5784	430.1679	39.7689	97.5705
212	430.1679	39.7689	97.5705	437.4428	36.1054	89.1876
213	437.4428	36.1054	89.1876	381.9813	28.6738	71.8872
214	381.9813	28.6738	71.8872	364.5759	24.8940	63.4639
215	364.5759	24.8940	63.4639	336.7491	21.0768	54.9647
216	336.7491	21.0768	54.9647	230.2672	13.3320	37.3865
217	230.2672	13.3320	37.3865	13.7945	-3.2605	0.3984
218	13.7945	-3.2605	0.3984	9.1949	-3.2610	0.4121
219	9.1949	-3.2610	0.4121	4.5967	-3.2604	0.4176
220	4.5967	-3.2604	0.4176	0.0011	-3.2599	0.4186

ENVOL. MIN. TORSORES TREN TREN IPF-75 TIPO A en via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.0264	-0.0072	-2.0738	28.0883	-1.1558	-4.7716
2	28.0883	-1.1558	-4.7716	117.9119	-5.1811	-18.2106
3	117.9119	-5.1811	-18.2106	182.4586	-8.6093	-25.9706
4	182.4586	-8.6093	-25.9706	303.5054	-15.4397	-41.3990
5	303.5054	-15.4397	-41.3990	402.7607	-22.1997	-56.5639
6	402.7607	-22.1997	-56.5639	423.5883	-25.5471	-63.7986
7	423.5883	-25.5471	-63.7986	486.2191	-32.1377	-78.6362
8	486.2191	-32.1377	-78.6362	529.1461	-38.5732	-93.3636
9	529.1461	-38.5732	-93.3636	509.6552	-41.7337	-100.3783
10	509.6552	-41.7337	-100.3783	520.5354	-47.8978	-115.0219
11	520.5354	-47.8978	-115.0219	478.2209	-50.9044	-122.0400
12	478.2209	-50.9044	-122.0400	460.8115	-56.7336	-136.7343
13	460.8115	-56.7336	-136.7343	430.1101	-62.2948	-151.5018
14	430.1101	-62.2948	-151.5018	357.4258	-64.9588	-158.6929
15	357.4258	-64.9588	-158.6929	306.6644	-70.0345	-173.6548
16	306.6644	-70.0345	-173.6548	248.4335	-74.7666	-188.7478
17	248.4335	-74.7666	-188.7478	154.4728	-76.9936	-196.2460
18	154.4728	-76.9936	-196.2460	86.5856	-81.1436	-211.5901
19	86.5856	-81.1436	-211.5901	18.3375	-84.8636	-227.0667
20	18.3375	-84.8636	-227.0667	-84.7655	-41.9533	-119.3825
21	-84.7655	-41.9533	-119.3825	-3.1810	0.0926	-7.5704
22	-3.1810	0.0926	-7.5704	80.0780	-2.9350	-16.7924
23	80.0780	-2.9350	-16.7924	162.7375	-6.3962	-29.6672
24	162.7375	-6.3962	-29.6672	241.5393	-10.2404	-42.3479
25	241.5393	-10.2404	-42.3479	313.7767	-14.4250	-54.8382
26	313.7767	-14.4250	-54.8382	377.3572	-18.9171	-67.1542
27	377.3572	-18.9171	-67.1542	430.5099	-23.6805	-79.3152
28	430.5099	-23.6805	-79.3152	471.4901	-28.6621	-91.3465
29	471.4901	-28.6621	-91.3465	498.8987	-33.7918	-103.2837
30	498.8987	-33.7918	-103.2837	511.7006	-39.0525	-115.1604
31	511.7006	-39.0525	-115.1604	509.2827	-44.3965	-127.0157
32	509.2827	-44.3965	-127.0157	491.5092	-49.7185	-138.8926
33	491.5092	-49.7185	-138.8926	458.6048	-54.9884	-150.8297
34	458.6048	-54.9884	-150.8297	411.2635	-60.1812	-162.8665
35	411.2635	-60.1812	-162.8665	350.5648	-65.2264	-175.0357
36	350.5648	-65.2264	-175.0357	277.9808	-70.0787	-187.3669
37	277.9808	-70.0787	-187.3669	195.4259	-74.6735	-199.8853
38	195.4259	-74.6735	-199.8853	105.2387	-78.9698	-212.6022
39	105.2387	-78.9698	-212.6022	10.1697	-82.9075	-225.5224
40	10.1697	-82.9075	-225.5224	-87.5594	-41.8224	-121.3579
41	-87.5594	-41.8224	-121.3579	-5.0365	0.1550	-7.6104
42	-5.0365	0.1550	-7.6104	80.1690	-2.9404	-16.6691
43	80.1690	-2.9404	-16.6691	164.2594	-6.4634	-29.4178
44	164.2594	-6.4634	-29.4178	244.0236	-10.3545	-42.0008
45	244.0236	-10.3545	-42.0008	316.8235	-14.5829	-54.4198
46	316.8235	-14.5829	-54.4198	380.6286	-19.0985	-66.6897
47	380.6286	-19.0985	-66.6897	433.7554	-23.8741	-78.8298
48	433.7554	-23.8741	-78.8298	474.5355	-28.8573	-90.8649
49	474.5355	-28.8573	-90.8649	501.5949	-34.0027	-102.8196
50	501.5949	-34.0027	-102.8196	513.9687	-39.2487	-114.7337
51	513.9687	-39.2487	-114.7337	511.0912	-44.5868	-126.6387
52	511.0912	-44.5868	-126.6387	492.8181	-49.9147	-138.5734
53	492.8181	-49.9147	-138.5734	459.3989	-55.2030	-150.5743
54	459.3989	-55.2030	-150.5743	411.5772	-60.3709	-162.6758
55	411.5772	-60.3709	-162.6758	350.4111	-65.4027	-174.9095
56	350.4111	-65.4027	-174.9095	277.4519	-70.2236	-187.3017
57	277.4519	-70.2236	-187.3017	194.6171	-74.8001	-199.8691
58	194.6171	-74.8001	-199.8691	104.2541	-79.0669	-212.6225
59	104.2541	-79.0669	-212.6225	9.1066	-82.9807	-225.5606
60	9.1066	-82.9807	-225.5606	-87.8322	-41.8528	-121.3316
61	-87.8322	-41.8528	-121.3316	-4.3154	0.1307	-7.6075
62	-4.3154	0.1307	-7.6075	80.9960	-2.9764	-16.7487
63	80.9960	-2.9764	-16.7487	165.0959	-6.5058	-29.5667
64	165.0959	-6.5058	-29.5667	244.8116	-10.4091	-42.2022
65	244.8116	-10.4091	-42.2022	317.5052	-14.6405	-54.6605
66	317.5052	-14.6405	-54.6605	381.1935	-19.1675	-66.9563
67	381.1935	-19.1675	-66.9563	434.1577	-23.9354	-79.1085
68	434.1577	-23.9354	-79.1085	474.7509	-28.9144	-91.1452
69	474.7509	-28.9144	-91.1452	501.6018	-34.0773	-103.0943
70	501.6018	-34.0773	-103.0943	513.7061	-39.3603	-114.9935
71	513.7061	-39.3603	-114.9935	510.5792	-44.6711	-126.8818
72	510.5792	-44.6711	-126.8818	492.0897	-49.9994	-138.7899
73	492.0897	-49.9994	-138.7899	458.5154	-55.2635	-150.7602
74	458.5154	-55.2635	-150.7602	410.5849	-60.4368	-162.8316
75	410.5849	-60.4368	-162.8316	349.3625	-65.4603	-175.0358
76	349.3625	-65.4603	-175.0358	276.3967	-70.2817	-187.3967
77	276.3967	-70.2817	-187.3967	193.6237	-74.8481	-199.9349
78	193.6237	-74.8481	-199.9349	103.4146	-79.1016	-212.6631
79	103.4146	-79.1016	-212.6631	8.5289	-83.0049	-225.5822
80	8.5289	-83.0049	-225.5822	-88.3586	-41.8232	-121.6852
81	-88.3586	-41.8232	-121.6852	-4.7444	0.1595	-7.7691
82	-4.7444	0.1595	-7.7691	80.8369	-2.9862	-16.3853
83	80.8369	-2.9862	-16.3853	165.0739	-6.5536	-28.6767
84	165.0739	-6.5536	-28.6767	244.7723	-10.5011	-40.7401
85	244.7723	-10.5011	-40.7401	317.2874	-14.7762	-52.5998
86	317.2874	-14.7762	-52.5998	380.5827	-19.3496	-64.2918
87	380.5827	-19.3496	-64.2918	432.9797	-24.1761	-75.8638
88	432.9797	-24.1761	-75.8638	472.8162	-29.2091	-87.3674
89	472.8162	-29.2091	-87.3674	498.7859	-34.3918	-98.8517
90	498.7859	-34.3918	-98.8517	510.0125	-39.6773	-110.3820
91	510.0125	-39.6773	-110.3820	505.9915	-45.0035	-122.0211
92	505.9915	-45.0035	-122.0211	486.7324	-50.3370	-133.8257
93	486.7324	-50.3370	-133.8257	452.6201	-55.5898	-145.8630
94	452.6201	-55.5898	-145.8630	404.4854	-60.7357	-158.1852
95	404.4854	-60.7357	-158.1852	343.5471	-65.7178	-170.8518
96	343.5471	-65.7178	-170.8518	271.5032	-70.4781	-183.9099
97	271.5032	-70.4781	-183.9099	190.4736	-74.9640	-197.4019
98	190.4736	-74.9640	-197.4019	102.9967	-79.1194	-211.3607
99	102.9967	-79.1194	-211.3607	12.0515	-82.8883	-225.8062
100	12.0515	-82.8883	-225.8062	-96.8371	-41.0238	-121.9641
101	-96.8371	-41.0238	-121.9641	-323.7831	12.6237	-10.0259
102	-323.7831	12.6237	-10.0259	66.9676	-2.7639	-11.4573
103	66.9676	-2.7639	-11.4573	108.9186	-4.8441	-17.4326
104	108.9186	-4.8441	-17.4326	194.5757	-9.3461	-29.6161
105	194.5757	-9.3461	-29.6161	273.7507	-14.2516	-42.0036
106	273.7507	-14.2516	-42.0036	344.2736	-19.5116	-54.6271
107	344.2736	-19.5116	-54.6271	356.3361	-22.2649	-60.7956
108	356.3361	-22.2649	-60.7956	405.5845	-27.9490	-73.8110
109	405.5845	-27.9490	-73.8110	441.7155	-33.8425	-87.1544
110	441.7155	-33.8425	-87.1544	463.8041	-39.8421	-100.8631
111	463.8041	-39.8421	-100.8631	432.0026	-42.8727	-107.5708
112	432.0026	-42.8727	-107.5708	427.0754	-48.9136	-121.8971
113	427.0754	-48.9136	-121.8971	407.9432	-54.8854	-136.6842
114	407.9432	-54.8854	-136.6842	375.5026	-60.7308	-151.9722

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	375.5026	-60.7308	-151.9722	299.2166	-63.5720	-159.6005
116	299.2166	-63.5720	-159.6005	244.8745	-69.0689	-175.7220
117	244.8745	-69.0689	-175.7220	181.9947	-74.2413	-192.4025
118	181.9947	-74.2413	-192.4025	113.3334	-79.0179	-209.6599
119	113.3334	-79.0179	-209.6599	6.9402	-81.2385	-218.4908
120	6.9402	-81.2385	-218.4908	-88.2455	-40.6657	-120.2000
121	-88.2455	-40.6657	-120.2000	56.9822	-9.6950	-11.9258
122	56.9822	-9.6950	-11.9258	40.0300	-9.6947	-11.8605
123	40.0300	-9.6947	-11.8605	101.4221	-4.4770	-17.0707
124	101.4221	-4.4770	-17.0707	184.8595	-8.8132	-28.8797
125	184.8595	-8.8132	-28.8797	263.0157	-13.5841	-40.9295
126	263.0157	-13.5841	-40.9295	333.5398	-18.7438	-53.2537
127	333.5398	-18.7438	-53.2537	346.6375	-21.4613	-59.2942
128	346.6375	-21.4613	-59.2942	397.0638	-27.0955	-72.0707
129	397.0638	-27.0955	-72.0707	434.8772	-32.9420	-85.2203
130	434.8772	-32.9420	-85.2203	458.9473	-38.9424	-98.7817
131	458.9473	-38.9424	-98.7817	428.9884	-41.9700	-105.4341
132	428.9884	-41.9700	-105.4341	426.2029	-48.0303	-119.6824
133	426.2029	-48.0303	-119.6824	409.0938	-54.0607	-134.4489
134	409.0938	-54.0607	-134.4489	378.4661	-59.9627	-149.7794
135	378.4661	-59.9627	-149.7794	303.6138	-62.8416	-157.4539
136	303.6138	-62.8416	-157.4539	250.4748	-68.4277	-173.7130
137	250.4748	-68.4277	-173.7130	188.3029	-73.6993	-190.6072
138	188.3029	-73.6993	-190.6072	119.8156	-78.5789	-208.1577
139	119.8156	-78.5789	-208.1577	13.6318	-80.8537	-217.1614
140	13.6318	-80.8537	-217.1614	-85.5664	-40.5918	-119.4253
141	-85.5664	-40.5918	-119.4253	-261.8946	9.7851	-8.2414
142	-261.8946	9.7851	-8.2414	56.7814	-2.2741	-11.3295
143	56.7814	-2.2741	-11.3295	144.0023	-6.1921	-23.2945
144	144.0023	-6.1921	-23.2945	179.1883	-8.3265	-29.2876
145	179.1883	-8.3265	-29.2876	256.4617	-12.9098	-41.7171
146	256.4617	-12.9098	-41.7171	326.1721	-17.8739	-54.4708
147	326.1721	-17.8739	-54.4708	386.3391	-23.1581	-67.5406
148	386.3391	-23.1581	-67.5406	435.1216	-28.7231	-80.9137
149	435.1216	-28.7231	-80.9137	426.3453	-31.5900	-87.4043
150	426.3453	-31.5900	-87.4043	449.8158	-37.4103	-101.1703
151	449.8158	-37.4103	-101.1703	458.6143	-43.3443	-115.2070
152	458.6143	-43.3443	-115.2070	452.4928	-49.2921	-129.5007
153	452.4928	-49.2921	-129.5007	431.7162	-55.1954	-144.0392
154	431.7162	-55.1954	-144.0392	363.8253	-58.1186	-151.1332
155	363.8253	-58.1186	-151.1332	317.3082	-63.8257	-166.0385
156	317.3082	-63.8257	-166.0385	258.9579	-69.3113	-181.1576
157	258.9579	-69.3113	-181.1576	190.8060	-74.5078	-196.4606
158	190.8060	-74.5078	-196.4606	115.4414	-79.3527	-211.9185
159	115.4414	-79.3527	-211.9185	2.6736	-81.6212	-219.6704
160	2.6736	-81.6212	-219.6704	-81.1073	-41.6233	-119.5864
161	-81.1073	-41.6233	-119.5864	-2.7574	0.0764	-7.5862
162	-2.7574	0.0764	-7.5862	78.4023	-2.8943	-16.8605
163	78.4023	-2.8943	-16.8605	159.5969	-6.3162	-29.8146
164	159.5969	-6.3162	-29.8146	237.3604	-10.1384	-42.5914
165	237.3604	-10.1384	-42.5914	308.8858	-14.3065	-55.1912
166	308.8858	-14.3065	-55.1912	372.0426	-18.7854	-67.6221
167	372.0426	-18.7854	-67.6221	424.9922	-23.5415	-79.9026
168	424.9922	-23.5415	-79.9026	465.9304	-28.5250	-92.0491
169	465.9304	-28.5250	-92.0491	493.3613	-33.6971	-104.0886
170	493.3613	-33.6971	-104.0886	506.2318	-38.9702	-116.0729
171	506.2318	-38.9702	-116.0729	503.9239	-44.3060	-128.0164
172	503.9239	-44.3060	-128.0164	486.2737	-49.6722	-139.9508
173	486.2737	-49.6722	-139.9508	453.4479	-54.9967	-151.9257
174	453.4479	-54.9967	-151.9257	406.1033	-60.2223	-163.9753

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	406.1033	-60.2223	-163.9753	345.3888	-65.2957	-176.1217
176	345.3888	-65.2957	-176.1217	272.8008	-70.1677	-188.3996
177	272.8008	-70.1677	-188.3996	190.3227	-74.7776	-200.8188
178	190.3227	-74.7776	-200.8188	100.3363	-79.0800	-213.3946
179	100.3363	-79.0800	-213.3946	5.6589	-83.0191	-226.1230
180	5.6589	-83.0191	-226.1230	-88.8691	-41.8364	-121.4695
181	-88.8691	-41.8364	-121.4695	-2.5487	0.0729	-7.7940
182	-2.5487	0.0729	-7.7940	83.6678	-3.2025	-17.2998
183	83.6678	-3.2025	-17.2998	168.4741	-6.9233	-30.5458
184	168.4741	-6.9233	-30.5458	248.6456	-11.0366	-43.5759
185	248.6456	-11.0366	-43.5759	321.4236	-15.4940	-56.3954
186	321.4236	-15.4940	-56.3954	384.9316	-20.2543	-69.0294
187	384.9316	-20.2543	-69.0294	437.3646	-25.2721	-81.5006
188	437.3646	-25.2721	-81.5006	477.0948	-30.5014	-93.8331
189	477.0948	-30.5014	-93.8331	502.8209	-35.8820	-106.0726
190	502.8209	-35.8820	-106.0726	513.7443	-41.3414	-118.2086
191	513.7443	-41.3414	-118.2086	509.4289	-46.8312	-130.3608
192	509.4289	-46.8312	-130.3608	490.0141	-52.2928	-142.6672
193	490.0141	-52.2928	-142.6672	456.0682	-57.6768	-154.9753
194	456.0682	-57.6768	-154.9753	375.2334	-60.3224	-160.7763
195	375.2334	-60.3224	-160.7763	316.3539	-65.4750	-173.2258
196	316.3539	-65.4750	-173.2258	246.3687	-70.3850	-185.9164
197	246.3687	-70.3850	-185.9164	167.5919	-75.0139	-198.7509
198	167.5919	-75.0139	-198.7509	82.5798	-79.2959	-211.7501
199	82.5798	-79.2959	-211.7501	-5.5806	-83.1740	-224.9409
200	-5.5806	-83.1740	-224.9409	-94.8710	-41.5965	-122.2262
201	-94.8710	-41.5965	-122.2262	-5.9882	0.2160	-10.6416
202	-5.9882	0.2160	-10.6416	40.1113	-1.5916	-16.0483
203	40.1113	-1.5916	-16.0483	84.3784	-3.5338	-22.8093
204	84.3784	-3.5338	-22.8093	176.0844	-7.8255	-40.2565
205	176.0844	-7.8255	-40.2565	214.3054	-10.1572	-48.8662
206	214.3054	-10.1572	-48.8662	299.2114	-15.1986	-66.2893
207	299.2114	-15.1986	-66.2893	327.1289	-17.8902	-74.6743
208	327.1289	-17.8902	-74.6743	349.3795	-20.6891	-82.9581
209	349.3795	-20.6891	-82.9581	412.2319	-26.6564	-100.1491
210	412.2319	-26.6564	-100.1491	418.5905	-29.7694	-108.4933
211	418.5905	-29.7694	-108.4933	459.2687	-36.2937	-125.4685
212	459.2687	-36.2937	-125.4685	446.2437	-39.6570	-133.7983
213	446.2437	-39.6570	-133.7983	459.2029	-46.6490	-151.0197
214	459.2029	-46.6490	-151.0197	423.9002	-50.2304	-159.3732
215	423.9002	-50.2304	-159.3732	378.9062	-53.8582	-167.7480
216	378.9062	-53.8582	-167.7480	345.0409	-61.3195	-185.1525
217	345.0409	-61.3195	-185.1525	274.7524	-65.1096	-193.7238
218	274.7524	-65.1096	-193.7238	204.8158	-72.7923	-211.2731
219	204.8158	-72.7923	-211.2731	107.7876	-76.6664	-220.1344
220	107.7876	-76.6664	-220.1344	-0.2584	-76.6635	-220.1119

ENVOL. MAX. FLECTORES TREN TREN SW/0, EC-1 en via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0004	7.3379	-1.0880	247.5873	146.0043	452.5268
2	247.5873	146.0043	452.5268	457.3323	119.4011	379.9258
3	457.3323	119.4011	379.9258	633.9303	94.8003	315.6809
4	633.9303	94.8003	315.6809	777.3770	81.4943	280.0479
5	777.3770	81.4943	280.0479	884.4141	54.8904	208.0485
6	884.4141	54.8904	208.0485	957.9137	30.6070	145.3600
7	957.9137	30.6070	145.3600	998.5542	28.1842	117.8991
8	998.5542	28.1842	117.8991	1034.9220	12.8237	80.4549
9	1034.9220	12.8237	80.4549	1050.2834	4.6461	60.8396
10	1050.2834	4.6461	60.8396	1042.3982	-12.9453	17.1838
11	1042.3982	-12.9453	17.1838	1010.0920	-22.2264	-5.5745
12	1010.0920	-22.2264	-5.5745	946.3047	-45.1552	-65.9635
13	946.3047	-45.1552	-65.9635	854.4416	-68.3717	-127.5033
14	854.4416	-68.3717	-127.5033	731.8100	-78.5184	-153.7054
15	731.8100	-78.5184	-153.7054	576.3760	-105.1022	-225.9243
16	576.3760	-105.1022	-225.9243	390.9769	-128.8838	-290.1003
17	390.9769	-128.8838	-290.1003	208.0601	7.4764	1.0836
18	208.0601	7.4764	1.0836	220.2896	7.4800	1.3535
19	220.2896	7.4800	1.3535	232.5164	7.4794	1.6374
20	232.5164	7.4794	1.6374	244.7773	-10.2585	7.2599
21	244.7773	-10.2585	7.2599	188.8200	-27.9951	12.8820
22	188.8200	-27.9951	12.8820	132.8219	-27.9955	13.1299
23	132.8219	-27.9955	13.1299	205.7813	146.3512	392.2491
24	205.7813	146.3512	392.2491	471.6813	122.9584	329.8966
25	471.6813	122.9584	329.8966	690.4200	96.3251	257.7470
26	690.4200	96.3251	257.7470	862.2197	72.8985	196.1007
27	862.2197	72.8985	196.1007	986.6119	49.5264	134.6980
28	986.6119	49.5264	134.6980	1063.7642	26.2133	73.7213
29	1063.7642	26.2133	73.7213	1093.9554	2.9965	13.6769
30	1093.9554	2.9965	13.6769	1135.7917	20.0328	47.0537
31	1135.7917	20.0328	47.0537	1146.4604	-3.1782	-12.3449
32	1146.4604	-3.1782	-12.3449	1110.4128	-26.4516	-72.6109
33	1110.4128	-26.4516	-72.6109	1027.2012	-49.7785	-133.8192
34	1027.2012	-49.7785	-133.8192	896.6917	-73.1859	-195.2077
35	896.6917	-73.1859	-195.2077	718.8834	-96.5855	-256.8495
36	718.8834	-96.5855	-256.8495	494.2806	-123.1777	-328.9615
37	494.2806	-123.1777	-328.9615	222.7639	-146.5716	-391.3300
38	222.7639	-146.5716	-391.3300	208.4214	7.6533	1.8245
39	208.4214	7.6533	1.8245	223.7177	7.6519	2.1567
40	223.7177	7.6519	2.1567	238.9760	-10.0691	7.7772
41	238.9760	-10.0691	7.7772	183.3384	-27.7906	13.3668
42	183.3384	-27.7906	13.3668	164.9798	-6.0182	-1.0852
43	164.9798	-6.0182	-1.0852	220.0706	145.6864	393.2354
44	220.0706	145.6864	393.2354	484.8634	122.2533	330.8978
45	484.8634	122.2533	330.8978	702.2824	95.6525	258.7656
46	702.2824	95.6525	258.7656	872.8328	72.2652	197.1243
47	872.8328	72.2652	197.1243	995.9279	48.9164	135.7155
48	995.9279	48.9164	135.7155	1071.6997	25.6490	74.7277
49	1071.6997	25.6490	74.7277	1100.5723	2.4613	14.6699
50	1100.5723	2.4613	14.6699	1141.0166	19.5612	48.0601
51	1141.0166	19.5612	48.0601	1150.9897	-3.6851	-11.2890
52	1150.9897	-3.6851	-11.2890	1113.9656	-27.0306	-71.5163
53	1113.9656	-27.0306	-71.5163	1029.5740	-50.4403	-132.7034
54	1029.5740	-50.4403	-132.7034	897.7542	-73.8353	-194.0808
55	897.7542	-73.8353	-194.0808	718.4759	-100.4273	-265.8834
56	718.4759	-100.4273	-265.8834	492.4660	-123.8668	-327.8450
57	492.4660	-123.8668	-327.8450	219.3864	-147.2811	-390.2320
58	219.3864	-147.2811	-390.2320	205.8762	7.5082	1.6910
59	205.8762	7.5082	1.6910	220.8865	7.5076	2.0196
60	220.8865	7.5076	2.0196	247.9143	10.4800	-8.2955
61	247.9143	10.4800	-8.2955	232.1201	-7.9045	-2.0496
62	232.1201	-7.9045	-2.0496	216.3174	-7.9057	-1.7045
63	216.3174	-7.9057	-1.7045	223.5154	145.4238	392.5130
64	223.5154	145.4238	392.5130	487.6145	121.9965	330.1821
65	487.6145	121.9965	330.1821	704.4650	95.3891	258.0552
66	704.4650	95.3891	258.0552	874.3746	72.0040	196.4208
67	874.3746	72.0040	196.4208	996.8737	48.7085	135.0273
68	996.8737	48.7085	135.0273	1072.1348	25.3992	74.0582
69	1072.1348	25.3992	74.0582	1100.4817	2.2043	14.0152
70	1100.4817	2.2043	14.0152	1140.5815	19.2759	47.3876
71	1140.5815	19.2759	47.3876	1149.8948	-3.9500	-11.9911
72	1149.8948	-3.9500	-11.9911	1112.2994	-27.2812	-72.2349
73	1112.2994	-27.2812	-72.2349	1027.4463	-50.6246	-133.4305
74	1027.4463	-50.6246	-133.4305	895.2122	-74.0475	-194.8184
75	895.2122	-74.0475	-194.8184	715.5715	-97.4868	-256.4690
76	715.5715	-97.4868	-256.4690	489.1180	-124.1027	-328.5840
77	489.1180	-124.1027	-328.5840	215.7268	-147.4868	-390.9657
78	215.7268	-147.4868	-390.9657	141.5482	5.1618	0.7149
79	141.5482	5.1618	0.7149	192.1161	29.0310	-13.5386
80	192.1161	29.0310	-13.5386	250.1746	10.4790	-6.9208
81	250.1746	10.4790	-6.9208	234.0083	-8.0772	-0.2710
82	234.0083	-8.0772	-0.2710	217.8496	-8.0767	0.0768
83	217.8496	-8.0767	0.0768	226.2458	144.5216	405.3947
84	226.2458	144.5216	405.3947	488.6859	121.1548	342.6871
85	488.6859	121.1548	342.6871	703.9591	94.5651	270.5599
86	703.9591	94.5651	270.5599	872.5056	71.2169	208.3918
87	872.5056	71.2169	208.3918	993.8799	47.9457	146.2709
88	993.8799	47.9457	146.2709	1068.3621	24.7452	84.3951
89	1068.3621	24.7452	84.3951	1096.4178	1.6709	23.3083
90	1096.4178	1.6709	23.3083	1130.5658	18.3577	60.3162
91	1130.5658	18.3577	60.3162	1138.0325	-4.8532	1.1062
92	1138.0325	-4.8532	1.1062	1098.7839	-28.1306	-59.1086
93	1098.7839	-28.1306	-59.1086	1012.4835	-51.4725	-120.4202
94	1012.4835	-51.4725	-120.4202	879.1239	-74.8254	-182.0523
95	879.1239	-74.8254	-182.0523	698.7484	-98.2137	-244.0930
96	698.7484	-98.2137	-244.0930	471.8249	-121.5383	-306.6475
97	471.8249	-121.5383	-306.6475	198.8954	-144.8437	-369.7975
98	198.8954	-144.8437	-369.7975	149.2579	29.5790	-20.3370
99	149.2579	29.5790	-20.3370	208.4645	29.5798	-20.0617
100	208.4645	29.5798	-20.0617	265.6517	9.9785	-6.2126
101	265.6517	9.9785	-6.2126	246.8020	-9.6227	7.6421
102	246.8020	-9.6227	7.6421	229.9500	-9.6243	7.9629
103	229.9500	-9.6243	7.9629	213.0923	-9.6231	8.2606
104	213.0923	-9.6231	8.2606	385.6407	107.0320	327.6043
105	385.6407	107.0320	327.6043	554.7126	89.5383	280.3096
106	554.7126	89.5383	280.3096	685.3461	65.5080	215.6620
107	685.3461	65.5080	215.6620	779.7973	38.9008	143.6090
108	779.7973	38.9008	143.6090	837.3640	21.6357	98.2094
109	837.3640	21.6357	98.2094	854.6062	4.5684	53.6204
110	854.6062	4.5684	53.6204	870.9071	17.2623	72.6379
111	870.9071	17.2623	72.6379	891.0988	6.5194	49.5266
112	891.0988	6.5194	49.5266	871.0595	-17.6039	-11.4221
113	871.0595	-17.6039	-11.4221	815.0298	-44.2198	-83.3238

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
114	815.0298	-44.2198	-83.3238	721.3340	-68.5093	-145.7727
115	721.3340	-68.5093	-145.7727	589.0181	-81.8138	-181.4116
116	589.0181	-81.8138	-181.4116	417.9730	-106.0626	-245.6263
117	417.9730	-106.0626	-245.6263	208.8793	-130.3641	-311.5501
118	208.8793	-130.3641	-311.5501	157.5082	6.5038	8.4456
119	157.5082	6.5038	8.4456	218.2760	37.0876	-38.3179
120	218.2760	37.0876	-38.3179	279.0409	13.5436	-14.2865
121	279.0409	13.5436	-14.2865	257.3580	-10.0016	9.7710
122	257.3580	-10.0016	9.7710	239.8391	-10.0025	10.1053
123	239.8391	-10.0025	10.1053	222.3178	-10.0038	10.4163
124	222.3178	-10.0038	10.4163	347.9588	112.0224	340.4537
125	347.9588	112.0224	340.4537	521.9766	92.0878	286.2559
126	521.9766	92.0878	286.2559	657.7572	68.0096	221.4211
127	657.7572	68.0096	221.4211	756.5861	41.3764	149.3322
128	756.5861	41.3764	149.3322	819.1244	24.0731	103.7140
129	819.1244	24.0731	103.7140	841.1705	6.9302	58.8608
130	841.1705	6.9302	58.8608	862.0131	19.3717	77.7858
131	862.0131	19.3717	77.7858	885.2978	8.7871	54.8782
132	885.2978	8.7871	54.8782	869.0173	-15.2365	-5.8781
133	869.0173	-15.2365	-5.8781	817.1306	-41.8474	-77.7796
134	817.1306	-41.8474	-77.7796	727.8079	-65.9973	-140.0712
135	727.8079	-65.9973	-140.0712	599.8413	-79.3170	-175.7017
136	599.8413	-79.3170	-175.7017	433.5060	-103.5427	-239.7753
137	433.5060	-103.5427	-239.7753	229.1582	-127.8437	-305.5964
138	229.1582	-127.8437	-305.5964	221.7372	9.2931	13.3535
139	221.7372	9.2931	13.3535	237.9789	9.2895	13.6631
140	237.9789	9.2895	13.6631	255.0233	-11.6658	10.0614
141	255.0233	-11.6658	10.0614	197.1092	-32.6202	6.4361
142	197.1092	-32.6202	6.4361	170.4517	-6.8305	5.9949
143	170.4517	-6.8305	5.9949	158.1491	-6.8309	6.2229
144	158.1491	-6.8309	6.2229	349.1508	110.8132	327.3851
145	349.1508	110.8132	327.3851	534.8527	97.5058	291.4745
146	534.8527	97.5058	291.4745	678.0803	73.3888	227.9637
147	678.0803	73.3888	227.9637	780.8074	49.3859	165.4225
148	780.8074	49.3859	165.4225	845.6061	22.7817	93.5038
149	845.6061	22.7817	93.5038	870.6959	-1.0979	31.9479
150	870.6959	-1.0979	31.9479	901.8735	26.8461	87.6479
151	901.8735	26.8461	87.6479	923.5287	0.2582	15.8587
152	923.5287	0.2582	15.8587	906.8756	-23.5914	-44.0564
153	906.8756	-23.5914	-44.0564	850.5621	-47.6123	-105.1641
154	850.5621	-47.6123	-105.1641	753.0693	-60.9324	-140.5656
155	753.0693	-60.9324	-140.5656	615.8793	-85.0272	-203.1401
156	615.8793	-85.0272	-203.1401	438.2354	-109.2114	-267.1505
157	438.2354	-109.2114	-267.1505	220.8158	-135.8056	-339.7391
158	220.8158	-135.8056	-339.7391	202.8224	8.2793	3.6634
159	202.8224	8.2793	3.6634	217.7158	8.2782	3.9545
160	217.7158	8.2782	3.9545	232.6374	-8.8857	9.7487
161	232.6374	-8.8857	9.7487	180.5394	-26.0503	15.5302
162	180.5394	-26.0503	15.5302	163.6969	-5.9998	-1.9255
163	163.6969	-5.9998	-1.9255	186.8682	153.0125	407.6121
164	186.8682	153.0125	407.6121	452.9374	129.5891	345.2162
165	452.9374	129.5891	345.2162	671.7401	103.0021	273.0403
166	671.7401	103.0021	273.0403	843.8003	79.6182	211.3735
167	843.8003	79.6182	211.3735	968.6052	56.2458	149.9732
168	968.6052	56.2458	149.9732	1046.2140	32.9388	89.0325
169	1046.2140	32.9388	89.0325	1076.8661	9.7153	29.0501
170	1076.8661	9.7153	29.0501	1119.8267	20.1791	44.2000
171	1119.8267	20.1791	44.2000	1130.3234	-2.9636	-15.3148
172	1130.3234	-2.9636	-15.3148	1094.2537	-26.2640	-75.6718
173	1094.2537	-26.2640	-75.6718	1011.0224	-49.6367	-136.9603

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
174	1011.0224	-49.6367	-136.9603	880.4614	-73.0459	-198.4033
175	880.4614	-73.0459	-198.4033	702.8289	-99.6519	-270.2280
176	702.8289	-99.6519	-270.2280	478.1799	-123.0906	-332.2241
177	478.1799	-123.0906	-332.2241	206.6184	-146.4769	-394.6065
178	206.6184	-146.4769	-394.6065	101.5408	21.6504	-10.7129
179	101.5408	21.6504	-10.7129	144.8618	21.6506	-10.5228
180	144.8618	21.6506	-10.5228	188.2453	7.7033	-6.2274
181	188.2453	7.7033	-6.2274	176.1333	-6.2443	-1.9122
182	176.1333	-6.2443	-1.9122	163.9575	-6.2438	-1.6572
183	163.9575	-6.2438	-1.6572	228.1270	144.5742	397.5417
184	228.1270	144.5742	397.5417	474.9933	117.9624	325.0252
185	474.9933	117.9624	325.0252	677.0819	94.3864	262.3898
186	677.0819	94.3864	262.3898	833.5526	70.8663	200.0436
187	833.5526	70.8663	200.0436	944.5554	47.4234	138.1727
188	944.5554	47.4234	138.1727	1010.5106	24.0945	77.3197
189	1010.5106	24.0945	77.3197	1032.0730	0.9234	17.3938
190	1032.0730	0.9234	17.3938	1068.0048	9.3937	24.0147
191	1068.0048	9.3937	24.0147	1073.4578	-13.9886	-35.2729
192	1073.4578	-13.9886	-35.2729	1033.8816	-37.4382	-95.6902
193	1033.8816	-37.4382	-95.6902	948.9708	-60.9925	-156.9158
194	948.9708	-60.9925	-156.9158	818.5602	-71.2924	-182.4459
195	818.5602	-71.2924	-182.4459	641.9979	-94.8715	-244.8792
196	641.9979	-94.8715	-244.8792	420.3776	-118.4510	-307.7294
197	420.3776	-118.4510	-307.7294	154.3330	-141.9448	-370.9037
198	154.3330	-141.9448	-370.9037	149.6827	30.1856	-11.9644
199	149.6827	30.1856	-11.9644	208.5839	30.1867	-11.6824
200	208.5839	30.1867	-11.6824	267.4233	10.3531	-6.4462
201	267.4233	10.3531	-6.4462	254.0042	-9.4816	-1.1994
202	254.0042	-9.4816	-1.1994	240.6358	-9.4829	-0.8998
203	240.6358	-9.4829	-0.8998	227.2628	-9.4777	-0.6969
204	227.2628	-9.4777	-0.6969	213.9072	-9.4715	-0.4760
205	213.9072	-9.4715	-0.4760	200.5555	-9.4761	-0.2914
206	200.5555	-9.4761	-0.2914	282.8691	86.9468	166.6317
207	282.8691	86.9468	166.6317	406.6597	96.3775	181.0849
208	406.6597	96.3775	181.0849	531.6089	85.2059	157.0103
209	531.6089	85.2059	157.0103	628.0112	58.5879	84.3895
210	628.0112	58.5879	84.3895	700.8080	47.0338	59.2048
211	700.8080	47.0338	59.2048	748.1891	20.4332	-12.9982
212	748.1891	20.4332	-12.9982	768.7652	7.1123	-48.8258
213	768.7652	7.1123	-48.8258	764.7306	-19.4909	-121.3448
214	764.7306	-19.4909	-121.3448	731.5723	-32.7714	-157.1073
215	731.5723	-32.7714	-157.1073	674.2484	-46.0795	-192.9033
216	674.2484	-46.0795	-192.9033	589.2190	-72.6839	-265.5052
217	589.2190	-72.6839	-265.5052	478.1278	-85.9749	-301.5020
218	478.1278	-85.9749	-301.5020	341.8523	-112.5730	-374.0580
219	341.8523	-112.5730	-374.0580	176.8925	-125.8664	-410.3666
220	176.8925	-125.8664	-410.3666	0.0021	-8.0589	1.0329

ENVOL. MIN. FLECTORES TREN TREN SW/0, EC-1 en via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.1562	159.3055	488.8926	-45.0206	-27.5296	18.7270
2	-45.0206	-27.5296	18.7270	-90.0551	-27.5268	18.6422
3	-90.0551	-27.5268	18.6422	-135.0797	-27.5210	18.5006
4	-135.0797	-27.5210	18.5006	-180.0977	-27.5183	18.3022
5	-180.0977	-27.5183	18.3022	-225.1246	-27.5089	18.0475
6	-225.1246	-27.5089	18.0475	-270.1227	-27.5065	17.7362
7	-270.1227	-27.5065	17.7362	-315.1186	-27.5243	17.3676
8	-315.1186	-27.5243	17.3676	-360.1695	-27.5330	16.9435
9	-360.1695	-27.5330	16.9435	-405.1993	-27.5410	16.4624
10	-405.1993	-27.5410	16.4624	-450.2365	-27.5500	15.9236
11	-450.2365	-27.5500	15.9236	-495.2714	-27.5266	15.3279
12	-495.2714	-27.5266	15.3279	-540.2384	-27.5028	14.6772
13	-540.2384	-27.5028	14.6772	-585.2133	-27.5006	13.9719
14	-585.2133	-27.5006	13.9719	-630.1970	-27.5071	13.2054
15	-630.1970	-27.5071	13.2054	-675.1696	-27.4918	12.3831
16	-675.1696	-27.4918	12.3831	-720.1317	-27.4802	11.5086
17	-720.1317	-27.4802	11.5086	-765.0853	-27.4873	10.5726
18	-765.0853	-27.4873	10.5726	-810.0291	-27.4902	9.5802
19	-810.0291	-27.4902	9.5802	-854.9951	-27.4907	8.5362
20	-854.9951	-27.4907	8.5362	-1108.9619	5.2372	32.3916
21	-1108.9619	5.2372	32.3916	-762.6827	170.0778	397.2364
22	-762.6827	170.0778	397.2364	-604.6002	22.0201	-4.6948
23	-604.6002	22.0201	-4.6948	-560.5566	22.0238	-5.5898
24	-560.5566	22.0238	-5.5898	-516.5141	22.0260	-6.4181
25	-516.5141	22.0260	-6.4181	-472.4566	22.0296	-7.1799
26	-472.4566	22.0296	-7.1799	-428.3967	22.0406	-7.8720
27	-428.3967	22.0406	-7.8720	-384.3065	22.0553	-8.4973
28	-384.3065	22.0553	-8.4973	-340.2047	22.0490	-9.0545
29	-340.2047	22.0490	-9.0545	-296.1273	22.0421	-9.5436
30	-296.1273	22.0421	-9.5436	-315.0108	-27.9665	12.0084
31	-315.0108	-27.9665	12.0084	-370.9332	-27.9641	11.4813
32	-370.9332	-27.9641	11.4813	-426.8697	-27.9606	10.8676
33	-426.8697	-27.9606	10.8676	-482.7969	-27.9591	10.1669
34	-482.7969	-27.9591	10.1669	-538.7379	-27.9699	9.3825
35	-538.7379	-27.9699	9.3825	-594.6903	-27.9773	8.5102
36	-594.6903	-27.9773	8.5102	-650.6605	-27.9793	7.5519
37	-650.6605	-27.9793	7.5519	-706.6051	-27.9783	6.5096
38	-706.6051	-27.9783	6.5096	-762.5664	-27.9786	5.3807
39	-762.5664	-27.9786	5.3807	-818.5121	-27.9768	4.1652
40	-818.5121	-27.9768	4.1652	-1129.6594	5.3056	17.8016
41	-1129.6594	5.3056	17.8016	-848.7623	28.8255	-5.3857
42	-848.7623	28.8255	-5.3857	-791.0953	28.8239	-6.6482
43	-791.0953	28.8239	-6.6482	-733.3903	28.8234	-7.8197
44	-733.3903	28.8234	-7.8197	-675.7166	28.8244	-8.9032
45	-675.7166	28.8244	-8.9032	-617.9965	28.8399	-9.8993
46	-617.9965	28.8399	-9.8993	-560.2675	28.8406	-10.8060
47	-560.2675	28.8406	-10.8060	-502.5659	28.8362	-11.6225
48	-502.5659	28.8362	-11.6225	-444.8669	28.8358	-12.3505
49	-444.8669	28.8358	-12.3505	-387.1898	28.8357	-12.9912
50	-387.1898	28.8357	-12.9912	-329.4965	28.8305	-13.5434
51	-329.4965	28.8305	-13.5434	-372.7663	-27.7844	11.9105
52	-372.7663	-27.7844	11.9105	-428.3576	-27.7764	11.2948
53	-428.3576	-27.7764	11.2948	-483.9187	-27.7685	10.5919
54	-483.9187	-27.7685	10.5919	-539.4724	-27.7672	9.8034
55	-539.4724	-27.7672	9.8034	-595.0178	-27.7710	8.9307
56	-595.0178	-27.7710	8.9307	-650.5571	-27.7619	7.9721
57	-650.5571	-27.7619	7.9721	-706.0714	-27.7468	6.9293
58	-706.0714	-27.7468	6.9293	-761.5796	-27.7402	5.8000
59	-761.5796	-27.7402	5.8000	-817.0822	-27.7437	4.5848
60	-817.0822	-27.7437	4.5848	-1129.8630	5.1907	17.9908
61	-1129.8630	5.1907	17.9908	-852.7146	29.0156	-4.3945
62	-852.7146	29.0156	-4.3945	-794.6830	29.0144	-5.6621
63	-794.6830	29.0144	-5.6621	-736.6552	29.0169	-6.8383
64	-736.6552	29.0169	-6.8383	-678.6230	29.0224	-7.9278
65	-678.6230	29.0224	-7.9278	-620.5717	29.0192	-8.9268
66	-620.5717	29.0192	-8.9268	-562.5441	29.0159	-9.8355
67	-562.5441	29.0159	-9.8355	-504.5003	29.0104	-10.6557
68	-504.5003	29.0104	-10.6557	-446.4978	28.9951	-11.3863
69	-446.4978	28.9951	-11.3863	-388.4907	29.0075	-12.0283
70	-388.4907	29.0075	-12.0283	-330.4240	29.0280	-12.5807
71	-330.4240	29.0280	-12.5807	-368.9841	-27.4756	12.0113
72	-368.9841	-27.4756	12.0113	-423.9437	-27.4736	11.4007
73	-423.9437	-27.4736	11.4007	-478.9228	-27.4780	10.7031
74	-478.9228	-27.4780	10.7031	-533.9115	-27.4760	9.9240
75	-533.9115	-27.4760	9.9240	-588.8676	-27.4684	9.0605
76	-588.8676	-27.4684	9.0605	-643.7964	-27.4697	8.1140
77	-643.7964	-27.4697	8.1140	-698.7340	-27.4673	7.0784
78	-698.7340	-27.4673	7.0784	-753.6506	-27.4645	5.9619
79	-753.6506	-27.4645	5.9619	-808.5829	-27.4644	4.7613
80	-808.5829	-27.4644	4.7613	-1128.2920	5.1388	19.4624
81	-1128.2920	5.1388	19.4624	-857.6392	29.5984	-11.0742
82	-857.6392	29.5984	-11.0742	-798.4187	29.6001	-12.3499
83	-798.4187	29.6001	-12.3499	-739.1794	29.6072	-13.5352
84	-739.1794	29.6072	-13.5352	-679.9191	29.6082	-14.6242
85	-679.9191	29.6082	-14.6242	-620.6729	29.6074	-15.6227
86	-620.6729	29.6074	-15.6227	-561.4260	29.6100	-16.5362
87	-561.4260	29.6100	-16.5362	-502.1585	29.6075	-17.3534
88	-502.1585	29.6075	-17.3534	-442.9253	29.6027	-18.0803
89	-442.9253	29.6027	-18.0803	-383.6833	29.6049	-18.7193
90	-383.6833	29.6049	-18.7193	-324.4376	29.6100	-19.2633
91	-324.4376	29.6100	-19.2633	-265.1864	29.6011	-19.7150
92	-265.1864	29.6011	-19.7150	-290.1353	-18.8750	-16.1263
93	-290.1353	-18.8750	-16.1263	-327.8582	-18.8822	-16.5994
94	-327.8582	-18.8822	-16.5994	-365.5912	-18.8749	-17.1337
95	-365.5912	-18.8749	-17.1337	-403.3072	-18.8741	-17.7249
96	-403.3072	-18.8741	-17.7249	-441.0435	-18.8773	-18.3760
97	-441.0435	-18.8773	-18.3760	-478.7706	-18.8783	-19.0842
98	-478.7706	-18.8783	-19.0842	-516.5070	-18.8753	-19.8499
99	-516.5070	-18.8753	-19.8499	-721.6531	-152.3820	-362.1080
100	-721.6531	-152.3820	-362.1080	-1089.6650	11.5356	24.1392
101	-1089.6650	11.5356	24.1392	-950.9008	37.0789	-29.4445
102	-950.9008	37.0789	-29.4445	-885.9658	37.0837	-30.6800
103	-885.9658	37.0837	-30.6800	-821.0255	37.0813	-31.8264
104	-821.0255	37.0813	-31.8264	-756.1024	37.0743	-32.8884
105	-756.1024	37.0743	-32.8884	-691.1852	37.0769	-33.8632
106	-691.1852	37.0769	-33.8632	-626.2458	37.0733	-34.7496
107	-626.2458	37.0733	-34.7496	-561.3192	37.0710	-35.5518
108	-561.3192	37.0710	-35.5518	-496.3710	37.0760	-36.2616
109	-496.3710	37.0760	-36.2616	-431.4037	37.0841	-36.8834
110	-431.4037	37.0841	-36.8834	-366.4215	37.0961	-37.4225
111	-366.4215	37.0961	-37.4225	-301.4233	37.0946	-37.8696
112	-301.4233	37.0946	-37.8696	-311.9693	-22.7123	-26.0170
113	-311.9693	-22.7123	-26.0170	-351.6812	-22.7080	-26.4648
114	-351.6812	-22.7080	-26.4648	-391.3808	-22.6991	-26.9643

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	-391.3808	-22.6991	-26.9643	-431.0619	-22.7002	-27.5188
116	-431.0619	-22.7002	-27.5188	-470.7711	-22.7092	-28.1252
117	-470.7711	-22.7092	-28.1252	-510.4894	-22.7132	-28.7877
118	-510.4894	-22.7132	-28.7877	-550.2090	-22.7097	-29.5032
119	-550.2090	-22.7097	-29.5032	-699.3722	-152.2094	-350.5757
120	-699.3722	-152.2094	-350.5757	-1036.5149	6.9692	22.6403
121	-1036.5149	6.9692	22.6403	-806.7902	165.0871	399.2056
122	-806.7902	165.0871	399.2056	-642.5588	26.7990	-27.0731
123	-642.5588	26.7990	-27.0731	-595.6232	26.8022	-27.9060
124	-595.6232	26.8022	-27.9060	-548.6749	26.8064	-28.6779
125	-548.6749	26.8064	-28.6779	-501.7310	26.7999	-29.3845
126	-501.7310	26.7999	-29.3845	-454.8102	26.7900	-30.0266
127	-454.8102	26.7900	-30.0266	-407.8829	26.8025	-30.6086
128	-407.8829	26.8025	-30.6086	-360.8914	26.8167	-31.1252
129	-360.8914	26.8167	-31.1252	-313.9220	26.8229	-31.5818
130	-313.9220	26.8229	-31.5818	-266.9396	26.8325	-31.9736
131	-266.9396	26.8325	-31.9736	-284.8129	-24.5360	-31.1371
132	-284.8129	-24.5360	-31.1371	-327.7177	-24.5381	-31.5520
133	-327.7177	-24.5381	-31.5520	-370.6336	-24.5381	-32.0252
134	-370.6336	-24.5381	-32.0252	-413.5500	-24.5400	-32.5509
135	-413.5500	-24.5400	-32.5509	-456.4505	-24.5393	-33.1347
136	-456.4505	-24.5393	-33.1347	-499.3512	-24.5396	-33.7789
137	-499.3512	-24.5396	-33.7789	-542.2434	-24.5345	-34.4790
138	-542.2434	-24.5345	-34.4790	-585.1191	-24.5224	-35.2370
139	-585.1191	-24.5224	-35.2370	-694.9282	-151.6293	-350.0117
140	-694.9282	-151.6293	-350.0117	-1045.0543	7.8914	22.3519
141	-1045.0543	7.8914	22.3519	-818.1308	166.8245	397.9000
142	-818.1308	166.8245	397.9000	-625.6104	25.0660	-22.0022
143	-625.6104	25.0660	-22.0022	-580.4601	25.0680	-22.8382
144	-580.4601	25.0680	-22.8382	-535.3076	25.0733	-23.6100
145	-535.3076	25.0733	-23.6100	-490.1473	25.0713	-24.3183
146	-490.1473	25.0713	-24.3183	-444.9819	25.0706	-24.9637
147	-444.9819	25.0706	-24.9637	-399.8047	25.0749	-25.5513
148	-399.8047	25.0749	-25.5513	-354.6429	25.0793	-26.0737
149	-354.6429	25.0793	-26.0737	-309.4486	25.0812	-26.5317
150	-309.4486	25.0812	-26.5317	-331.2126	-32.6063	5.6009
151	-331.2126	-32.6063	5.6009	-389.9017	-32.6167	5.1048
152	-389.9017	-32.6167	5.1048	-448.6075	-32.6200	4.5270
153	-448.6075	-32.6200	4.5270	-507.2982	-32.6034	3.8614
154	-507.2982	-32.6034	3.8614	-565.9651	-32.5910	3.1184
155	-565.9651	-32.5910	3.1184	-624.6342	-32.5947	2.2922
156	-624.6342	-32.5947	2.2922	-683.3156	-32.5989	1.3861
157	-683.3156	-32.5989	1.3861	-741.9789	-32.6047	0.3985
158	-741.9789	-32.6047	0.3985	-800.6833	-32.6124	-0.6687
159	-800.6833	-32.6124	-0.6687	-859.3828	-32.6107	-1.8205
160	-859.3828	-32.6107	-1.8205	-1094.9060	6.3029	28.3827
161	-1094.9060	6.3029	28.3827	-754.0838	162.7887	381.1058
162	-754.0838	162.7887	381.1058	-591.6686	21.6662	-4.6807
163	-591.6686	21.6662	-4.6807	-548.3324	21.6687	-5.5581
164	-548.3324	21.6687	-5.5581	-504.9820	21.6667	-6.3678
165	-504.9820	21.6667	-6.3678	-461.6362	21.6667	-7.1135
166	-461.6362	21.6667	-7.1135	-418.2875	21.6617	-7.7903
167	-418.2875	21.6617	-7.7903	-374.9672	21.6513	-8.3997
168	-374.9672	21.6513	-8.3997	-331.6448	21.6535	-8.9445
169	-331.6448	21.6535	-8.9445	-288.3199	21.6586	-9.4230
170	-288.3199	21.6586	-9.4230	-288.6757	-26.0660	14.7859
171	-288.6757	-26.0660	14.7859	-340.8394	-26.0723	14.3000
172	-340.8394	-26.0723	14.3000	-393.0183	-26.0684	13.7367
173	-393.0183	-26.0684	13.7367	-445.1844	-26.0558	13.0880
174	-445.1844	-26.0558	13.0880	-497.3192	-26.0587	12.3610
175	-497.3192	-26.0587	12.3610	-549.4659	-26.0550	11.5560
176	-549.4659	-26.0550	11.5560	-601.5815	-26.0507	10.6695
177	-601.5815	-26.0507	10.6695	-653.7245	-26.0574	9.7035
178	-653.7245	-26.0574	9.7035	-705.8622	-26.0582	8.6607
179	-705.8622	-26.0582	8.6607	-795.6187	-154.5736	-349.9684
180	-795.6187	-154.5736	-349.9684	-1110.5521	4.4291	15.9725
181	-1110.5521	4.4291	15.9725	-851.3510	30.1596	-3.0096
182	-851.3510	30.1596	-3.0096	-792.5195	30.1590	-4.2417
183	-792.5195	30.1590	-4.2417	-733.6913	30.1637	-5.3877
184	-733.6913	30.1637	-5.3877	-674.8433	30.1642	-6.4452
185	-674.8433	30.1642	-6.4452	-615.9998	30.1728	-7.4187
186	-615.9998	30.1728	-7.4187	-557.1183	30.1873	-8.2992
187	-557.1183	30.1873	-8.2992	-498.2313	30.1908	-9.0900
188	-498.2313	30.1908	-9.0900	-439.3430	30.1881	-9.7969
189	-439.3430	30.1881	-9.7969	-380.4495	30.1819	-10.4083
190	-380.4495	30.1819	-10.4083	-321.5500	30.1904	-10.9651
191	-321.5500	30.1904	-10.9651	-262.6196	30.1961	-11.4086
192	-262.6196	30.1961	-11.4086	-203.7205	30.1818	-11.7078
193	-203.7205	30.1818	-11.7078	-144.8345	30.1793	-11.9522
194	-144.8345	30.1793	-11.9522	-102.0198	-5.4397	45.6300
195	-102.0198	-5.4397	45.6300	-112.6980	-5.4403	45.4729
196	-112.6980	-5.4403	45.4729	-126.0026	-18.7403	8.7933
197	-126.0026	-18.7403	8.7933	-181.2576	-132.6060	-303.5643
198	-181.2576	-132.6060	-303.5643	-450.0153	-139.3181	-318.8140
199	-450.0153	-139.3181	-318.8140	-732.7715	-145.6864	-333.6830
200	-732.7715	-145.6864	-333.6830	-1031.7635	15.7065	19.4481
201	-1031.7635	15.7065	19.4481	-898.6676	33.5387	-11.7759
202	-898.6676	33.5387	-11.7759	-851.3705	33.5416	-12.8344
203	-851.3705	33.5416	-12.8344	-804.0579	33.5246	-13.5541
204	-804.0579	33.5246	-13.5541	-756.8013	33.5051	-14.3332
205	-756.8013	33.5051	-14.3332	-709.5430	33.5033	-14.9808
206	-709.5430	33.5033	-14.9808	-662.2952	33.5140	-15.3805
207	-662.2952	33.5140	-15.3805	-614.9958	33.5007	-16.1854
208	-614.9958	33.5007	-16.1854	-567.7519	33.5119	-16.9848
209	-567.7519	33.5119	-16.9848	-520.4451	33.5438	-17.3853
210	-520.4451	33.5438	-17.3853	-473.1162	33.5275	-17.8589
211	-473.1162	33.5275	-17.8589	-425.8296	33.5338	-18.3829
212	-425.8296	33.5338	-18.3829	-378.5059	33.5641	-18.7560
213	-378.5059	33.5641	-18.7560	-331.1688	33.5578	-19.0014
214	-331.1688	33.5578	-19.0014	-283.8492	33.5429	-19.3055
215	-283.8492	33.5429	-19.3055	-236.5511	33.5443	-19.5819
216	-236.5511	33.5443	-19.5819	-189.2467	33.5445	-19.7301
217	-189.2467	33.5445	-19.7301	-141.9355	33.5460	-19.8921
218	-141.9355	33.5460	-19.8921	-94.6147	33.5447	-20.0347
219	-94.6147	33.5447	-20.0347	-47.3075	33.5384	-20.0925
220	-47.3075	33.5384	-20.0925	-0.4814	-125.8617	-410.3293

ENVOL. MAX. CORTANTES TREN TREN SW/0, EC-1 en via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.1562	159.3055	488.8926	241.5792	148.0248	460.6467
2	241.5792	148.0248	460.6467	412.4189	126.3937	407.6273
3	412.4189	126.3937	407.6273	564.1392	115.2686	350.1159
4	564.1392	115.2686	350.1159	665.0468	100.4792	314.9704
5	665.0468	100.4792	314.9704	755.8752	84.3701	275.2044
6	755.8752	84.3701	275.2044	858.3920	75.7793	254.3174
7	858.3920	75.7793	254.3174	912.0384	57.5788	208.4964
8	912.0384	57.5788	208.4964	509.5508	39.1157	208.4970
9	509.5508	39.1157	208.4970	970.7958	27.9869	132.6675
10	970.7958	27.9869	132.6675	326.9595	20.1278	164.2283
11	326.9595	20.1278	164.2283	165.9340	9.3251	134.1043
12	165.9340	9.3251	134.1043	146.9223	7.4837	-0.0325
13	146.9223	7.4837	-0.0325	159.1540	7.4778	0.1594
14	159.1540	7.4778	0.1594	171.3792	7.4809	0.3677
15	171.3792	7.4809	0.3677	183.6131	7.4830	0.5913
16	183.6131	7.4830	0.5913	195.8451	7.4766	0.8292
17	195.8451	7.4766	0.8292	208.0601	7.4764	1.0836
18	208.0601	7.4764	1.0836	220.2896	7.4800	1.3535
19	220.2896	7.4800	1.3535	232.5164	7.4794	1.6374
20	232.5164	7.4794	1.6374	-893.0024	94.4795	296.1940
21	-893.0024	94.4795	296.1940	-484.3699	199.5501	538.7256
22	-484.3699	199.5501	538.7256	-144.3924	179.3344	485.6591
23	-144.3924	179.3344	485.6591	138.4695	159.2812	433.4979
24	138.4695	159.2812	433.4979	159.4610	140.9371	334.2589
25	159.4610	140.9371	334.2589	417.4843	124.5706	299.3598
26	417.4843	124.5706	299.3598	643.2513	107.1589	261.5773
27	643.2513	107.1589	261.5773	829.9284	88.8027	220.8643
28	829.9284	88.8027	220.8643	971.5645	69.7140	177.1389
29	971.5645	69.7140	177.1389	657.1456	52.1578	194.9393
30	657.1456	52.1578	194.9393	578.0159	37.7858	167.0221
31	578.0159	37.7858	167.0221	375.0975	25.2129	147.6085
32	375.0975	25.2129	147.6085	-163.7733	22.0663	-10.6054
33	-163.7733	22.0663	-10.6054	-119.6526	22.0556	-10.8232
34	-119.6526	22.0556	-10.8232	-75.4952	22.0504	-10.4120
35	-75.4952	22.0504	-10.4120	-31.4452	22.0492	-11.0555
36	-31.4452	22.0492	-11.0555	12.6660	22.0477	-11.0697
37	12.6660	22.0477	-11.0697	56.7695	22.0452	-11.0159
38	56.7695	22.0452	-11.0159	100.8717	22.0471	-10.8948
39	100.8717	22.0471	-10.8948	144.9790	22.0486	-10.7058
40	144.9790	22.0486	-10.7058	-871.4702	93.9171	294.3756
41	-871.4702	93.9171	294.3756	-467.6956	198.8888	539.6644
42	-467.6956	198.8888	539.6644	-128.7824	178.6656	486.6010
43	-128.7824	178.6656	486.6010	152.5384	158.6291	434.4225
44	152.5384	158.6291	434.4225	156.6647	140.9900	334.3857
45	156.6647	140.9900	334.3857	419.1558	124.4379	299.7187
46	419.1558	124.4379	299.7187	647.7852	106.8519	262.1585
47	647.7852	106.8519	262.1585	836.0005	88.4399	221.6364
48	836.0005	88.4399	221.6364	978.2515	69.2590	178.0675
49	978.2515	69.2590	178.0675	660.0344	51.8523	195.5679
50	660.0344	51.8523	195.5679	579.6492	37.5512	167.5873
51	579.6492	37.5512	167.5873	-271.8137	28.8250	-14.0049
52	-271.8137	28.8250	-14.0049	-214.1208	28.8525	-14.3793
53	-214.1208	28.8525	-14.3793	-156.3645	28.8658	-14.6661
54	-156.3645	28.8658	-14.6661	-98.6324	28.8567	-14.8623
55	-98.6324	28.8567	-14.8623	-40.8763	28.8555	-14.9692
56	-40.8763	28.8555	-14.9692	16.8728	28.8572	-14.9873
57	16.8728	28.8572	-14.9873	74.6335	28.8629	-14.9166
58	74.6335	28.8629	-14.9166	132.3945	28.8633	-14.7570
59	132.3945	28.8633	-14.7570	190.1602	28.8637	-14.5084
60	190.1602	28.8637	-14.5084	-867.8110	93.8898	294.2164
61	-867.8110	93.8898	294.2164	-462.8882	198.6106	538.9298
62	-462.8882	198.6106	538.9298	-124.8376	178.3997	485.8862
63	-124.8376	178.3997	485.8862	155.6241	158.3781	433.7411
64	155.6241	158.3781	433.7411	158.8531	140.8235	334.0857
65	158.8531	140.8235	334.0857	421.1765	124.2251	299.3185
66	421.1765	124.2251	299.3185	649.4951	106.6519	261.6627
67	649.4951	106.6519	261.6627	837.2973	88.1886	221.0637
68	837.2973	88.1886	221.0637	979.0215	69.0045	177.4321
69	979.0215	69.0045	177.4321	660.2987	51.7766	195.2198
70	660.2987	51.7766	195.2198	579.9688	37.4976	167.3043
71	579.9688	37.4976	167.3043	-272.3745	29.0266	-13.0417
72	-272.3745	29.0266	-13.0417	-214.3298	29.0243	-13.4173
73	-214.3298	29.0243	-13.4173	-156.2780	29.0163	-13.7049
74	-156.2780	29.0163	-13.7049	-98.2356	29.0154	-13.8995
75	-98.2356	29.0154	-13.8995	-40.1768	29.0270	-14.0058
76	-40.1768	29.0270	-14.0058	17.8984	29.0303	-14.0230
77	17.8984	29.0303	-14.0230	75.9686	29.0312	-13.9511
78	75.9686	29.0312	-13.9511	134.0481	29.0304	-13.7895
79	134.0481	29.0304	-13.7895	192.1161	29.0310	-13.5386
80	192.1161	29.0310	-13.5386	-859.2903	93.5886	300.8530
81	-859.2903	93.5886	300.8530	-456.9273	197.7460	551.7958
82	-456.9273	197.7460	551.7958	-120.7747	177.6196	497.8414
83	-120.7747	177.6196	497.8414	157.9521	157.7278	444.0776
84	157.9521	157.7278	444.0776	158.9002	140.3150	341.5038
85	158.9002	140.3150	341.5038	420.2069	123.5981	308.3730
86	420.2069	123.5981	308.3730	647.0167	105.8801	272.1871
87	647.0167	105.8801	272.1871	832.9905	87.3336	232.8080
88	832.9905	87.3336	232.8080	710.6056	68.1955	222.1729
89	710.6056	68.1955	222.1729	675.7512	53.2682	187.8006
90	675.7512	53.2682	187.8006	518.3188	39.8575	160.4867
91	518.3188	39.8575	160.4867	-265.1864	29.6011	-19.7150
92	-265.1864	29.6011	-19.7150	-205.9753	29.5872	-20.0746
93	-205.9753	29.5872	-20.0746	-146.7715	29.5871	-20.3468
94	-146.7715	29.5871	-20.3468	-87.5537	29.5844	-20.5256
95	-87.5537	29.5844	-20.5256	-28.3461	29.5799	-20.6150
96	-28.3461	29.5799	-20.6150	30.8535	29.5789	-20.6137
97	30.8535	29.5789	-20.6137	90.0592	29.5778	-20.5205
98	90.0592	29.5778	-20.5205	149.2579	29.5790	-20.3370
99	149.2579	29.5790	-20.3370	208.4645	29.5798	-20.0617
100	208.4645	29.5798	-20.0617	-634.3059	86.1462	268.9181
101	-634.3059	86.1462	268.9181	-832.6427	181.1678	424.6606
102	-832.6427	181.1678	424.6606	-540.7891	165.7856	395.3267
103	-540.7891	165.7856	395.3267	-261.4987	157.5714	380.6090
104	-261.4987	157.5714	380.6090	-6.4603	140.1545	351.1248
105	-6.4603	140.1545	351.1248	224.5401	121.5060	317.8196
106	224.5401	121.5060	317.8196	424.6301	101.7699	280.4441
107	424.6301	101.7699	280.4441	591.0308	91.5277	260.5103
108	591.0308	91.5277	260.5103	715.0449	70.5022	216.5623
109	715.0449	70.5022	216.5623	794.4372	48.8719	167.7242
110	794.4372	48.8719	167.7242	-366.4215	37.0961	-37.4225
111	-366.4215	37.0961	-37.4225	-301.4233	37.0946	-37.8696
112	-301.4233	37.0946	-37.8696	-236.4525	37.0789	-38.2293
113	-236.4525	37.0789	-38.2293	-171.4979	37.0753	-38.5042

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
114	-171.4979	37.0753	-38.5042	-106.5383	37.0880	-38.6919
115	-106.5383	37.0880	-38.6919	-41.5508	37.0931	-38.7921
116	-41.5508	37.0931	-38.7921	23.4147	37.0870	-38.8056
117	23.4147	37.0870	-38.8056	88.3653	37.0834	-38.7309
118	88.3653	37.0834	-38.7309	153.3208	37.0850	-38.5681
119	153.3208	37.0850	-38.5681	218.2760	37.0876	-38.3179
120	218.2760	37.0876	-38.3179	-680.8925	85.5268	267.3268
121	-680.8925	85.5268	267.3268	-410.3773	182.7599	534.5826
122	-410.3773	182.7599	534.5826	-518.3976	165.0865	398.3143
123	-518.3976	165.0865	398.3143	-248.2698	157.2619	383.7932
124	-248.2698	157.2619	383.7932	-7.0316	140.5634	354.7092
125	-7.0316	140.5634	354.7092	214.4427	122.5350	321.8532
126	214.4427	122.5350	321.8532	408.9047	103.3131	284.9495
127	408.9047	103.3131	284.9495	575.3057	93.2702	265.2393
128	575.3057	93.2702	265.2393	698.7499	72.6003	221.7429
129	698.7499	72.6003	221.7429	779.9197	51.2351	173.2854
130	779.9197	51.2351	173.2854	388.4011	34.5649	159.9675
131	388.4011	34.5649	159.9675	-219.9444	26.8195	-32.3005
132	-219.9444	26.8195	-32.3005	-172.9823	26.8046	-32.5654
133	-172.9823	26.8046	-32.5654	-126.0235	26.8025	-32.7668
134	-126.0235	26.8025	-32.7668	-79.0617	26.8050	-32.9044
135	-79.0617	26.8050	-32.9044	-32.0990	26.8070	-32.9788
136	-32.0990	26.8070	-32.9788	14.8703	26.8065	-32.9893
137	14.8703	26.8065	-32.9893	61.8361	26.8138	-32.9382
138	61.8361	26.8138	-32.9382	108.8154	26.8207	-32.8242
139	108.8154	26.8207	-32.8242	155.7994	26.8225	-32.6456
140	155.7994	26.8225	-32.6456	-730.7783	87.3433	266.0334
141	-730.7783	87.3433	266.0334	-450.6195	188.1942	538.7137
142	-450.6195	188.1942	538.7137	-518.4305	166.8215	396.9765
143	-518.4305	166.8215	396.9765	-250.3153	151.4245	367.3242
144	-250.3153	151.4245	367.3242	7.3307	143.2081	351.6989
145	7.3307	143.2081	351.6989	235.1097	125.7671	318.1156
146	235.1097	125.7671	318.1156	435.9778	107.0953	280.9269
147	435.9778	107.0953	280.9269	602.9060	87.3833	239.9408
148	602.9060	87.3833	239.9408	729.8081	66.7645	194.9160
149	729.8081	66.7645	194.9160	827.1072	56.1983	171.3631
150	827.1072	56.1983	171.3631	419.7140	36.5622	188.1485
151	419.7140	36.5622	188.1485	-219.0854	25.0895	-27.2647
152	-219.0854	25.0895	-27.2647	-173.9171	25.0835	-27.5346
153	-173.9171	25.0835	-27.5346	-128.7346	25.0858	-27.7445
154	-128.7346	25.0858	-27.7445	-83.5442	25.0887	-27.8914
155	-83.5442	25.0887	-27.8914	-38.3469	25.0851	-27.9760
156	-38.3469	25.0851	-27.9760	6.8342	25.0850	-27.9981
157	6.8342	25.0850	-27.9981	52.0281	25.0852	-27.9582
158	52.0281	25.0852	-27.9582	97.2068	25.0823	-27.8554
159	97.2068	25.0823	-27.8554	142.3852	25.0823	-27.6898
160	142.3852	25.0823	-27.6898	-899.1852	97.2040	303.2329
161	-899.1852	97.2040	303.2329	-503.5942	206.2168	554.1450
162	-503.5942	206.2168	554.1450	-163.1576	185.9845	501.0444
163	-163.1576	185.9845	501.0444	120.5679	165.8987	448.9432
164	120.5679	165.8987	448.9432	345.9252	146.1644	400.2822
165	345.9252	146.1644	400.2822	513.0619	126.9989	355.5057
166	513.0619	126.9989	355.5057	623.5516	108.5625	314.4620
167	623.5516	108.5625	314.4620	680.3016	90.9949	276.9984
168	680.3016	90.9949	276.9984	687.3949	74.4021	242.9781
169	687.3949	74.4021	242.9781	649.9261	58.9370	212.2724
170	649.9261	58.9370	212.2724	573.8854	44.6603	184.7714
171	573.8854	44.6603	184.7714	465.7762	31.6392	160.1505
172	465.7762	31.6392	160.1505	-158.3779	21.6455	-10.4487
173	-158.3779	21.6455	-10.4487	-115.0766	21.6476	-10.6598
174	-115.0766	21.6476	-10.6598	-71.7457	21.6507	-10.8048
175	-71.7457	21.6507	-10.8048	-28.4278	21.6509	-10.8807
176	-28.4278	21.6509	-10.8807	14.9000	21.6522	-10.8915
177	14.9000	21.6522	-10.8915	58.2226	21.6511	-10.8355
178	58.2226	21.6511	-10.8355	101.5408	21.6504	-10.7129
179	101.5408	21.6504	-10.7129	144.8618	21.6506	-10.5228
180	144.8618	21.6506	-10.5228	-792.8241	96.3510	303.1722
181	-792.8241	96.3510	303.1722	-416.9545	197.7679	543.8726
182	-416.9545	197.7679	543.8726	-100.6327	177.2969	489.6316
183	-100.6327	177.2969	489.6316	158.5106	157.1496	437.3845
184	158.5106	157.1496	437.3845	359.9662	137.5547	389.0980
185	359.9662	137.5547	389.0980	392.5842	119.8118	292.3860
186	392.5842	119.8118	292.3860	609.3324	101.5344	253.6573
187	609.3324	101.5344	253.6573	637.5662	83.7484	266.5573
188	637.5662	83.7484	266.5573	634.3535	68.0277	232.7466
189	634.3535	68.0277	232.7466	592.6895	53.5843	202.2898
190	592.6895	53.5843	202.2898	519.2354	40.5018	175.1629
191	519.2354	40.5018	175.1629	-262.6196	30.1961	-11.4086
192	-262.6196	30.1961	-11.4086	-203.7205	30.1818	-11.7078
193	-203.7205	30.1818	-11.7078	-144.8345	30.1793	-11.9522
194	-144.8345	30.1793	-11.9522	-85.9334	30.1850	-12.1414
195	-85.9334	30.1850	-12.1414	-27.0212	30.1842	-12.2315
196	-27.0212	30.1842	-12.2315	31.8787	30.1862	-12.2274
197	31.8787	30.1862	-12.2274	90.7862	30.1868	-12.1368
198	90.7862	30.1868	-12.1368	149.6827	30.1856	-11.9644
199	149.6827	30.1856	-11.9644	208.5839	30.1867	-11.6824
200	208.5839	30.1867	-11.6824	-1020.6885	22.2898	36.1861
201	-1020.6885	22.2898	36.1861	-786.7775	175.5061	365.8113
202	-786.7775	175.5061	365.8113	-547.9192	167.4436	344.8566
203	-547.9192	167.4436	344.8566	-320.7775	158.9366	324.3749
204	-320.7775	158.9366	324.3749	-107.8371	140.5654	284.0950
205	-107.8371	140.5654	284.0950	85.9612	130.7163	262.8685
206	85.9612	130.7163	262.8685	259.8425	109.6781	217.1310
207	259.8425	109.6781	217.1310	405.9817	98.5168	192.9434
208	405.9817	98.5168	192.9434	527.6428	86.9350	167.6950
209	527.6428	86.9350	167.6950	626.4500	60.3318	95.0741
210	626.4500	60.3318	95.0741	700.8080	47.0338	59.2048
211	700.8080	47.0338	59.2048	-425.8296	33.5338	-18.3829
212	-425.8296	33.5338	-18.3829	-378.5059	33.5641	-18.7560
213	-378.5059	33.5641	-18.7560	-331.1688	33.5578	-19.0014
214	-331.1688	33.5578	-19.0014	-283.8492	33.5429	-19.3055
215	-283.8492	33.5429	-19.3055	-236.5511	33.5443	-19.5819
216	-236.5511	33.5443	-19.5819	-189.2467	33.5445	-19.7301
217	-189.2467	33.5445	-19.7301	-141.9355	33.5460	-19.8921
218	-141.9355	33.5460	-19.8921	-94.6147	33.5447	-20.0347
219	-94.6147	33.5447	-20.0347	-47.3075	33.5384	-20.0925
220	-47.3075	33.5384	-20.0925	-0.0263	33.5346	-20.1027

ENVOL. MIN. CORTANTES TREN TREN SW/0, EC-1 en via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.0048	-27.5267	18.7554	-45.0206	-27.5296	18.7270
2	-45.0206	-27.5296	18.7270	-90.0551	-27.5268	18.6422
3	-90.0551	-27.5268	18.6422	-135.0797	-27.5210	18.5006
4	-135.0797	-27.5210	18.5006	-180.0977	-27.5183	18.3022
5	-180.0977	-27.5183	18.3022	-225.1246	-27.5089	18.0475
6	-225.1246	-27.5089	18.0475	-270.1227	-27.5065	17.7362
7	-270.1227	-27.5065	17.7362	496.9415	-33.1798	-81.6785
8	496.9415	-33.1798	-81.6785	613.4344	-45.5278	-109.6915
9	613.4344	-45.5278	-109.6915	624.2002	-52.3616	-124.7971
10	624.2002	-52.3616	-124.7971	704.4990	-67.4165	-157.8970
11	704.4990	-67.4165	-157.8970	669.1010	-75.1047	-174.0403
12	669.1010	-75.1047	-174.0403	676.1810	-90.1729	-207.1607
13	676.1810	-90.1729	-207.1607	643.0193	-104.8522	-240.3419
14	643.0193	-104.8522	-240.3419	346.5773	-116.5647	-228.1855
15	346.5773	-116.5647	-228.1855	427.4786	-128.4393	-298.0145
16	427.4786	-128.4393	-298.0145	296.2740	-145.9926	-342.2007
17	296.2740	-145.9926	-342.2007	88.8586	-155.2889	-365.8710
18	88.8586	-155.2889	-365.8710	-120.8938	-174.7624	-416.9213
19	-120.8938	-174.7624	-416.9213	-377.2908	-195.4055	-472.5942
20	-377.2908	-195.4055	-472.5942	-690.1539	-92.1264	-252.9970
21	-690.1539	-92.1264	-252.9970	188.8200	-27.9951	12.8820
22	188.8200	-27.9951	12.8820	132.8219	-27.9955	13.1299
23	132.8219	-27.9955	13.1299	76.8213	-27.9985	13.2909
24	76.8213	-27.9985	13.2909	20.8228	-27.9993	13.3659
25	20.8228	-27.9993	13.3659	-35.1683	-27.9947	13.3552
26	-35.1683	-27.9947	13.3552	-91.1543	-27.9872	13.2582
27	-91.1543	-27.9872	13.2582	-147.1219	-27.9789	13.0751
28	-147.1219	-27.9789	13.0751	-203.0870	-27.9806	12.8054
29	-203.0870	-27.9806	12.8054	444.0876	-30.0954	-155.8079
30	444.0876	-30.0954	-155.8079	551.3378	-42.7533	-183.8084
31	551.3378	-42.7533	-183.8084	628.2938	-56.7259	-211.5160
32	628.2938	-56.7259	-211.5160	668.2191	-71.9210	-241.5685
33	668.2191	-71.9210	-241.5685	664.8197	-88.3010	-274.8976
34	664.8197	-88.3010	-274.8976	612.4547	-105.6851	-311.6143
35	612.4547	-105.6851	-311.6143	506.4271	-124.0027	-351.8328
36	506.4271	-124.0027	-351.8328	343.3647	-143.0774	-395.6902
37	343.3647	-143.0774	-395.6902	121.4267	-162.7365	-443.3293
38	121.4267	-162.7365	-443.3293	-159.5605	-182.7715	-494.8885
39	-159.5605	-182.7715	-494.8885	-497.9567	-202.9810	-547.9377
40	-497.9567	-202.9810	-547.9377	-892.4780	-97.3538	-303.4659
41	-892.4780	-97.3538	-303.4659	183.3384	-27.7906	13.3668
42	183.3384	-27.7906	13.3668	127.7243	-27.7893	13.6061
43	127.7243	-27.7893	13.6061	72.1165	-27.7870	13.7598
44	72.1165	-27.7870	13.7598	16.5094	-27.7864	13.8278
45	16.5094	-27.7864	13.8278	-39.0888	-27.7871	13.8107
46	-39.0888	-27.7871	13.8107	-94.6842	-27.7899	13.7081
47	-94.6842	-27.7899	13.7081	-150.2954	-27.7878	13.5201
48	-150.2954	-27.7878	13.5201	-205.9019	-27.7890	13.2461
49	-205.9019	-27.7890	13.2461	430.5557	-29.1091	-156.5525
50	430.5557	-29.1091	-156.5525	543.7496	-42.0943	-184.2764
51	543.7496	-42.0943	-184.2764	624.7715	-56.3568	-211.6978
52	624.7715	-56.3568	-211.6978	667.1918	-71.8168	-241.4636
53	667.1918	-71.8168	-241.4636	664.9870	-88.4142	-274.5239
54	664.9870	-88.4142	-274.5239	612.7861	-105.9996	-310.9962
55	612.7861	-105.9996	-310.9962	506.1644	-124.4353	-351.0132
56	506.1644	-124.4353	-351.0132	341.9630	-143.6283	-394.7166
57	341.9630	-143.6283	-394.7166	118.5106	-163.3619	-442.2549
58	118.5106	-163.3619	-442.2549	-164.1634	-183.4458	-493.7789
59	-164.1634	-183.4458	-493.7789	-504.3032	-203.6753	-546.8427
60	-504.3032	-203.6753	-546.8427	-898.4849	-97.6070	-302.4480
61	-898.4849	-97.6070	-302.4480	180.9153	-27.4883	13.4527
62	180.9153	-27.4883	13.4527	125.9270	-27.4889	13.6887
63	125.9270	-27.4889	13.6887	70.9425	-27.4913	13.8403
64	70.9425	-27.4913	13.8403	15.9494	-27.4925	13.9076
65	15.9494	-27.4925	13.9076	-39.0334	-27.4962	13.8903
66	-39.0334	-27.4962	13.8903	-94.0307	-27.4967	13.7885
67	-94.0307	-27.4967	13.7885	-149.0116	-27.4968	13.6013
68	-149.0116	-27.4968	13.6013	-204.0336	-27.4968	13.3291
69	-204.0336	-27.4968	13.3291	430.7084	-29.1774	-156.5293
70	430.7084	-29.1774	-156.5293	543.7031	-42.2401	-184.3586
71	543.7031	-42.2401	-184.3586	624.4146	-56.5079	-211.8905
72	624.4146	-56.5079	-211.8905	666.4122	-72.0027	-241.7625
73	666.4122	-72.0027	-241.7625	663.7173	-88.5973	-274.9283
74	663.7173	-88.5973	-274.9283	611.0103	-106.1950	-311.5009
75	611.0103	-106.1950	-311.5009	503.7722	-124.6810	-351.6065
76	503.7722	-124.6810	-351.6065	338.9615	-143.8788	-395.3828
77	338.9615	-143.8788	-395.3828	114.9417	-163.6012	-442.9742
78	114.9417	-163.6012	-442.9742	-168.1858	-183.6838	-494.5262
79	-168.1858	-183.6838	-494.5262	-508.6269	-203.9079	-547.5958
80	-508.6269	-203.9079	-547.5958	-903.7754	-97.4302	-306.1186
81	-903.7754	-97.4302	-306.1186	124.5312	-18.8550	-14.7274
82	124.5312	-18.8550	-14.7274	86.8340	-18.8540	-14.5650
83	86.8340	-18.8540	-14.5650	49.1407	-18.8531	-14.4599
84	49.1407	-18.8531	-14.4599	11.4486	-18.8552	-14.4131
85	11.4486	-18.8552	-14.4131	-26.2483	-18.8547	-14.4244
86	-26.2483	-18.8547	-14.4244	-63.9391	-18.8522	-14.4942
87	-63.9391	-18.8522	-14.4942	-101.6313	-18.8542	-14.6223
88	-101.6313	-18.8542	-14.6223	-139.3253	-18.8578	-14.8075
89	-139.3253	-18.8578	-14.8075	429.4410	-29.2701	-154.3028
90	429.4410	-29.2701	-154.3028	540.8447	-42.4522	-180.4394
91	540.8447	-42.4522	-180.4394	619.3032	-56.8549	-206.2225
92	619.3032	-56.8549	-206.2225	658.5802	-72.4554	-234.3846
93	658.5802	-72.4554	-234.3846	652.8387	-89.1637	-265.9473
94	652.8387	-89.1637	-265.9473	596.8336	-106.8324	-301.0893
95	596.8336	-106.8324	-301.0893	486.3810	-125.4131	-340.0033
96	486.3810	-125.4131	-340.0033	318.7288	-144.6356	-382.9149
97	318.7288	-144.6356	-382.9149	92.5416	-164.4040	-430.0486
98	92.5416	-164.4040	-430.0486	-191.6597	-184.4527	-481.6578
99	-191.6597	-184.4527	-481.6578	-531.7326	-204.6203	-535.3398
100	-531.7326	-204.6203	-535.3398	-965.6074	-93.9398	-309.1439
101	-965.6074	-93.9398	-309.1439	124.8132	-22.7118	-24.6330
102	124.8132	-22.7118	-24.6330	85.0984	-22.7118	-24.4915
103	85.0984	-22.7118	-24.4915	45.3839	-22.7113	-24.4039
104	45.3839	-22.7113	-24.4039	5.6712	-22.7150	-24.3699
105	5.6712	-22.7150	-24.3699	-34.0579	-22.7141	-24.3885
106	-34.0579	-22.7141	-24.3885	-73.7682	-22.7113	-24.4610
107	-73.7682	-22.7113	-24.4610	-113.4805	-22.7153	-24.5862
108	-113.4805	-22.7153	-24.5862	-153.1961	-22.7134	-24.7669
109	-153.1961	-22.7134	-24.7669	-192.8960	-22.7017	-24.9996
110	-192.8960	-22.7017	-24.9996	380.5457	-31.6454	-159.1387
111	380.5457	-31.6454	-159.1387	777.4877	-48.6201	-90.2524
112	777.4877	-48.6201	-90.2524	694.6804	-62.1800	-123.5705
113	694.6804	-62.1800	-123.5705	569.9761	-78.5742	-166.0319
114	569.9761	-78.5742	-166.0319	415.7152	-97.2246	-212.8629

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	415.7152	-97.2246	-212.8629	233.2422	-114.6524	-256.2119
116	233.2422	-114.6524	-256.2119	29.4169	-124.0949	-277.5927
117	29.4169	-124.0949	-277.5927	134.2129	-142.2984	-359.3542
118	134.2129	-142.2984	-359.3542	-73.1526	-163.9164	-408.9712
119	-73.1526	-163.9164	-408.9712	-349.3998	-174.8656	-436.1505
120	-349.3998	-174.8656	-436.1505	-695.1772	-85.0460	-260.1096
121	-695.1772	-85.0460	-260.1096	144.2596	-24.5452	-30.1919
122	144.2596	-24.5452	-30.1919	101.3423	-24.5438	-30.0265
123	101.3423	-24.5438	-30.0265	58.4289	-24.5406	-29.9186
124	58.4289	-24.5406	-29.9186	15.5150	-24.5434	-29.8682
125	15.5150	-24.5434	-29.8682	-27.4042	-24.5442	-29.8769
126	-27.4042	-24.5442	-29.8769	-70.3282	-24.5434	-29.9436
127	-70.3282	-24.5434	-29.9436	-113.2477	-24.5370	-30.0665
128	-113.2477	-24.5370	-30.0665	-156.1376	-24.5306	-30.2469
129	-156.1376	-24.5306	-30.2469	-199.0332	-24.5307	-30.4865
130	-199.0332	-24.5307	-30.4865	399.9932	-33.1796	-156.1435
131	399.9932	-33.1796	-156.1435	772.3065	-46.2595	-85.0248
132	772.3065	-46.2595	-85.0248	693.9785	-60.0001	-118.9240
133	693.9785	-60.0001	-118.9240	572.9256	-76.5189	-161.7259
134	572.9256	-76.5189	-161.7259	421.2943	-95.4337	-209.3116
135	421.2943	-95.4337	-209.3116	240.0809	-113.1866	-253.4840
136	240.0809	-113.1866	-253.4840	35.9182	-122.9696	-275.7299
137	35.9182	-122.9696	-275.7299	151.3257	-140.1961	-354.1652
138	151.3257	-140.1961	-354.1652	-50.3332	-161.5802	-403.3533
139	-50.3332	-161.5802	-403.3533	-321.5865	-172.4522	-430.3350
140	-321.5865	-172.4522	-430.3350	-668.1716	-84.6528	-254.5537
141	-668.1716	-84.6528	-254.5537	197.1092	-32.6202	6.4361
142	197.1092	-32.6202	6.4361	138.3922	-32.6169	6.6684
143	138.3922	-32.6169	6.6684	79.6816	-32.6134	6.8187
144	79.6816	-32.6134	6.8187	20.9721	-32.6149	6.8899
145	20.9721	-32.6149	6.8899	-37.7388	-32.6131	6.8801
146	-37.7388	-32.6131	6.8801	-96.4373	-32.6077	6.7875
147	-96.4373	-32.6077	6.7875	-155.1350	-32.6063	6.6120
148	-155.1350	-32.6063	6.6120	-213.8377	-32.5979	6.3579
149	-213.8377	-32.5979	6.3579	-272.5204	-32.5979	6.0189
150	-272.5204	-32.5979	6.0189	-331.2126	-32.6063	5.6009
151	-331.2126	-32.6063	5.6009	480.1069	-45.9872	-184.0361
152	480.1069	-45.9872	-184.0361	709.3151	-61.6334	-124.2356
153	709.3151	-61.6334	-124.2356	580.4264	-81.4867	-170.0186
154	580.4264	-81.4867	-170.0186	413.2698	-100.3522	-212.5894
155	413.2698	-100.3522	-212.5894	218.9145	-109.3582	-232.4704
156	218.9145	-109.3582	-232.4704	-9.5393	-126.4574	-270.2676
157	-9.5393	-126.4574	-270.2676	152.4852	-146.0484	-380.3615
158	152.4852	-146.0484	-380.3615	-66.8896	-167.2971	-430.5493
159	-66.8896	-167.2971	-430.5493	-357.3073	-178.1147	-457.7767
160	-357.3073	-178.1147	-457.7767	-676.9032	-89.1753	-259.7605
161	-676.9032	-89.1753	-259.7605	180.5394	-26.0503	15.5302
162	180.5394	-26.0503	15.5302	128.4111	-26.0504	15.7682
163	128.4111	-26.0504	15.7682	76.2810	-26.0504	15.9252
164	76.2810	-26.0504	15.9252	24.1535	-26.0497	16.0016
165	24.1535	-26.0497	16.0016	-27.9667	-26.0490	15.9987
166	-27.9667	-26.0490	15.9987	-80.1009	-26.0522	15.9158
167	-80.1009	-26.0522	15.9158	-132.2430	-26.0584	15.7529
168	-132.2430	-26.0584	15.7529	-184.3975	-26.0569	15.5066
169	-184.3975	-26.0569	15.5066	448.6478	-30.7443	-156.6788
170	448.6478	-30.7443	-156.6788	551.5369	-43.2454	-184.9590
171	551.5369	-43.2454	-184.9590	624.7191	-57.0392	-212.9601
172	624.7191	-57.0392	-212.9601	661.5596	-72.0893	-243.3114
173	661.5596	-72.0893	-243.3114	655.6892	-88.3610	-276.9565
174	655.6892	-88.3610	-276.9565	601.4203	-105.6658	-313.9651

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	601.4203	-105.6658	-313.9651	493.9550	-123.9142	-354.4666
176	493.9550	-123.9142	-354.4666	329.7729	-142.9588	-398.5789
177	329.7729	-142.9588	-398.5789	106.9902	-162.5951	-446.4233
178	106.9902	-162.5951	-446.4233	-174.6951	-182.6492	-498.1370
179	-174.6951	-182.6492	-498.1370	-513.6407	-202.8723	-551.2711
180	-513.6407	-202.8723	-551.2711	-902.0491	-96.6647	-303.9726
181	-902.0491	-96.6647	-303.9726	176.1333	-6.2443	-1.9122
182	176.1333	-6.2443	-1.9122	163.9575	-6.2438	-1.6572
183	163.9575	-6.2438	-1.6572	151.7818	-6.2437	-1.4204
184	151.7818	-6.2437	-1.4204	139.6057	-6.2452	-1.2016
185	139.6057	-6.2452	-1.2016	127.4238	-6.2478	-1.0008
186	127.4238	-6.2478	-1.0008	115.2406	-6.2518	-0.8179
187	115.2406	-6.2518	-0.8179	142.6190	-7.7385	-103.7897
188	142.6190	-7.7385	-103.7897	298.8300	-18.6746	-131.1331
189	298.8300	-18.6746	-131.1331	435.7598	-31.0033	-160.2032
190	435.7598	-31.0033	-160.2032	546.3192	-44.6614	-188.8726
191	546.3192	-44.6614	-188.8726	623.7515	-59.5814	-217.2857
192	623.7515	-59.5814	-217.2857	661.7596	-75.7267	-248.3019
193	661.7596	-75.7267	-248.3019	654.6663	-93.0103	-282.6540
194	654.6663	-93.0103	-282.6540	514.4069	-102.4669	-236.6557
195	514.4069	-102.4669	-236.6557	431.0145	-120.7521	-340.2064
196	431.0145	-120.7521	-340.2064	272.2850	-140.2150	-383.6528
197	272.2850	-140.2150	-383.6528	55.6930	-160.2785	-430.8997
198	55.6930	-160.2785	-430.8997	-218.5665	-180.7049	-482.0924
199	-218.5665	-180.7049	-482.0924	-548.3271	-201.2732	-536.5586
200	-548.3271	-201.2732	-536.5586	-932.9547	-94.2822	-301.8343
201	-932.9547	-94.2822	-301.8343	254.0042	-9.4816	-1.1994
202	254.0042	-9.4816	-1.1994	240.6358	-9.4829	-0.8998
203	240.6358	-9.4829	-0.8998	227.2628	-9.4777	-0.6969
204	227.2628	-9.4777	-0.6969	213.9072	-9.4715	-0.4760
205	213.9072	-9.4715	-0.4760	200.5555	-9.4761	-0.2914
206	200.5555	-9.4761	-0.2914	187.1909	-9.4779	-0.1795
207	187.1909	-9.4779	-0.1795	173.8286	-9.4724	0.0479
208	173.8286	-9.4724	0.0479	160.4734	-9.4740	0.2740
209	160.4734	-9.4740	0.2740	147.1014	-9.4816	0.3855
210	147.1014	-9.4816	0.3855	133.8896	-9.5950	-142.0677
211	133.8896	-9.5950	-142.0677	284.5074	-22.5367	-178.5359
212	284.5074	-22.5367	-178.5359	333.4432	-29.7024	-197.9954
213	333.4432	-29.7024	-197.9954	446.0615	-45.3728	-237.1863
214	446.0615	-45.3728	-237.1863	454.2678	-53.8739	-256.4417
215	454.2678	-53.8739	-256.4417	441.6626	-62.8587	-275.6293
216	441.6626	-62.8587	-275.6293	461.7839	-82.1216	-315.8261
217	461.7839	-82.1216	-315.8261	389.8136	-92.4286	-337.4741
218	389.8136	-92.4286	-337.4741	321.5001	-114.3152	-384.8249
219	321.5001	-114.3152	-384.8249	176.8925	-125.8664	-410.3666
220	176.8925	-125.8664	-410.3666	-0.4814	-125.8617	-410.3293

ENVOL. MAX. TORSORES TREN TREN SW/0, EC-1 en via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.1562	159.3055	488.8926	241.5792	148.0248	460.6467
2	241.5792	148.0248	460.6467	412.4189	126.3937	407.6273
3	412.4189	126.3937	407.6273	519.1112	106.0742	359.1769
4	519.1112	106.0742	359.1769	629.1575	96.4294	336.9789
5	629.1575	96.4294	336.9789	637.7545	78.2119	295.0670
6	637.7545	78.2119	295.0670	601.1287	61.4521	257.2995
7	601.1287	61.4521	257.2995	611.8702	53.6436	240.3062
8	611.8702	53.6436	240.3062	509.5508	39.1157	208.4970
9	509.5508	39.1157	208.4970	381.7630	26.0896	178.9250
10	381.7630	26.0896	178.9250	326.9595	20.1278	164.2283
11	326.9595	20.1278	164.2283	165.9340	9.3251	134.1043
12	165.9340	9.3251	134.1043	86.3400	4.4897	118.9756
13	86.3400	4.4897	118.9756	-87.9587	-4.0619	91.4023
14	-87.9587	-4.0619	91.4023	-256.8167	-11.1542	67.7093
15	-256.8167	-11.1542	67.7093	-349.0164	-14.1760	57.1126
16	-349.0164	-14.1760	57.1126	-503.3364	-19.1792	39.2241
17	-503.3364	-19.1792	39.2241	-638.4594	-22.9211	25.3463
18	-638.4594	-22.9211	25.3463	-717.6537	-24.3488	19.4865
19	-717.6537	-24.3488	19.4865	-819.5801	-26.3525	11.6954
20	-819.5801	-26.3525	11.6954	-893.0024	94.4795	296.1940
21	-893.0024	94.4795	296.1940	-484.3699	199.5501	538.7256
22	-484.3699	199.5501	538.7256	-144.3924	179.3344	485.6591
23	-144.3924	179.3344	485.6591	138.4695	159.2812	433.4979
24	138.4695	159.2812	433.4979	362.7450	139.5786	384.6817
25	362.7450	139.5786	384.6817	528.5887	120.4144	339.6668
26	528.5887	120.4144	339.6668	637.4966	101.9310	298.3127
27	637.4966	101.9310	298.3127	618.4316	82.5246	260.6131
28	618.4316	82.5246	260.6131	616.1923	66.4187	227.8595
29	616.1923	66.4187	227.8595	570.7637	51.4724	198.3871
30	570.7637	51.4724	198.3871	488.1972	37.7205	172.1162
31	488.1972	37.7205	172.1162	375.0975	25.2129	147.6085
32	375.0975	25.2129	147.6085	238.4520	14.0277	122.7523
33	238.4520	14.0277	122.7523	85.5466	4.1795	97.5210
34	85.5466	4.1795	97.5210	-76.1971	-4.2921	74.4908
35	-76.1971	-4.2921	74.4908	-239.4816	-11.3792	54.5480
36	-239.4816	-11.3792	54.5480	-397.5446	-17.1129	37.7423
37	-397.5446	-17.1129	37.7423	-544.3383	-21.5471	24.1419
38	-544.3383	-21.5471	24.1419	-674.6143	-24.7416	13.8276
39	-674.6143	-24.7416	13.8276	-784.0364	-26.7911	6.8920
40	-784.0364	-26.7911	6.8920	-871.4702	93.9171	294.3756
41	-871.4702	93.9171	294.3756	-467.6956	198.8888	539.6644
42	-467.6956	198.8888	539.6644	-128.7824	178.6656	486.6010
43	-128.7824	178.6656	486.6010	152.5384	158.6291	434.4225
44	152.5384	158.6291	434.4225	374.9392	138.9424	385.5750
45	374.9392	138.9424	385.5750	538.7244	119.8217	340.5193
46	538.7244	119.8217	340.5193	645.5837	101.4031	299.1182
47	645.5837	101.4031	299.1182	624.0433	82.1079	261.3279
48	624.0433	82.1079	261.3279	620.1407	66.0840	228.5159
49	620.1407	66.0840	228.5159	573.2606	51.1971	198.9825
50	573.2606	51.1971	198.9825	489.5019	37.5009	172.6480
51	489.5019	37.5009	172.6480	375.4795	25.0636	148.0733
52	375.4795	25.0636	148.0733	238.1405	13.9284	123.1570
53	238.1405	13.9284	123.1570	84.7841	4.1403	97.8799
54	84.7841	4.1403	97.8799	-77.1545	-4.2788	74.8234
55	-77.1545	-4.2788	74.8234	-240.3705	-11.3119	54.8731
56	-240.3705	-11.3119	54.8731	-398.1634	-17.0035	38.0753
57	-398.1634	-17.0035	38.0753	-544.5010	-21.3892	24.4935
58	-544.5010	-21.3892	24.4935	-674.1973	-24.5506	14.2039
59	-674.1973	-24.5506	14.2039	-782.9530	-26.5771	7.2927
60	-782.9530	-26.5771	7.2927	-867.8110	93.8898	294.2164
61	-867.8110	93.8898	294.2164	-462.8882	198.6106	538.9298
62	-462.8882	198.6106	538.9298	-124.8376	178.3997	485.8862
63	-124.8376	178.3997	485.8862	155.6241	158.3781	433.7411
64	155.6241	158.3781	433.7411	377.2589	138.7255	384.9357
65	377.2589	138.7255	384.9357	540.3285	119.5936	339.9297
66	540.3285	119.5936	339.9297	646.6309	101.2431	298.5815
67	646.6309	101.2431	298.5815	624.6693	81.9980	260.8835
68	624.6693	81.9980	260.8835	620.5494	66.0085	228.1337
69	620.5494	66.0085	228.1337	573.6139	51.1426	198.6675
70	573.6139	51.1426	198.6675	489.9880	37.4769	172.4003
71	489.9880	37.4769	172.4003	376.3351	25.1008	147.8936
72	376.3351	25.1008	147.8936	239.6384	14.0077	123.0506
73	239.6384	14.0077	123.0506	87.1685	4.2646	97.8410
74	87.1685	4.2646	97.8410	-73.7222	-4.1105	74.8436
75	-73.7222	-4.1105	74.8436	-235.7858	-11.1098	54.9446
76	-235.7858	-11.1098	54.9446	-392.3624	-16.7519	38.1886
77	-392.3624	-16.7519	38.1886	-537.5132	-21.1098	24.6394
78	-537.5132	-21.1098	24.6394	-666.1385	-24.2598	14.3757
79	-666.1385	-24.2598	14.3757	-774.0713	-26.2831	7.4833
80	-774.0713	-26.2831	7.4833	-859.2903	93.5886	300.8530
81	-859.2903	93.5886	300.8530	-456.9273	197.7460	551.7958
82	-456.9273	197.7460	551.7958	-120.7747	177.6196	497.8414
83	-120.7747	177.6196	497.8414	157.9521	157.7278	444.0776
84	157.9521	157.7278	444.0776	378.3663	138.2930	393.0431
85	378.3663	138.2930	393.0431	541.1397	119.4498	345.3447
86	541.1397	119.4498	345.3447	648.3292	101.3768	300.9703
87	648.3292	101.3768	300.9703	703.3015	84.2691	259.9087
88	703.3015	84.2691	259.9087	631.0002	67.2355	222.3120
89	631.0002	67.2355	222.3120	591.6443	52.9155	189.6714
90	591.6443	52.9155	189.6714	518.3188	39.8575	160.4867
91	518.3188	39.8575	160.4867	417.8705	28.0950	133.3737
92	417.8705	28.0950	133.3737	297.6175	17.6916	106.0929
93	297.6175	17.6916	106.0929	164.8723	8.6497	78.5215
94	164.8723	8.6497	78.5215	26.7165	0.9913	53.2981
95	26.7165	0.9913	53.2981	-110.0295	-5.3034	31.4425
96	-110.0295	-5.3034	31.4425	-239.2325	-10.2876	13.1081
97	-239.2325	-10.2876	13.1081	129.3858	5.1012	5.1576
98	129.3858	5.1012	5.1576	139.5806	5.1006	5.3643
99	139.5806	5.1006	5.3643	149.7749	5.1002	5.5869
100	149.7749	5.1002	5.5869	-634.3059	86.1462	268.9181
101	-634.3059	86.1462	268.9181	-359.1843	180.1891	528.3101
102	-359.1843	180.1891	528.3101	-97.1924	158.5911	469.4574
103	-97.1924	158.5911	469.4574	109.9893	137.5948	413.9796
104	109.9893	137.5948	413.9796	304.3965	120.7341	369.4639
105	304.3965	120.7341	369.4639	413.8947	107.6549	337.6738
106	413.8947	107.6549	337.6738	473.9348	88.9944	291.3483
107	473.9348	88.9944	291.3483	591.0308	91.5277	260.5103
108	591.0308	91.5277	260.5103	715.0449	70.5022	216.5623
109	715.0449	70.5022	216.5623	479.3138	47.9228	193.1862
110	479.3138	47.9228	193.1862	393.2316	33.9773	159.4059
111	393.2316	33.9773	159.4059	284.7820	21.5676	125.6282
112	284.7820	21.5676	125.6282	161.2236	10.7462	91.7240
113	161.2236	10.7462	91.7240	101.1233	5.9353	75.8072

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
114	101.1233	5.9353	75.8072	-39.2506	-2.4787	46.8280
115	-39.2506	-2.4787	46.8280	-176.0203	-9.3104	22.1240
116	-176.0203	-9.3104	22.1240	-6.0774	-9.6250	10.0716
117	-6.0774	-9.6250	10.0716	-22.9335	-9.6253	10.0525
118	-22.9335	-9.6253	10.0525	-39.7944	-9.6259	10.0103
119	-39.7944	-9.6259	10.0103	-56.6525	-9.6257	9.9452
120	-56.6525	-9.6257	9.9452	-680.8925	85.5268	267.3268
121	-680.8925	85.5268	267.3268	-410.3773	182.7599	534.5826
122	-410.3773	182.7599	534.5826	-142.2725	161.0985	475.4146
123	-142.2725	161.0985	475.4146	71.8438	139.9538	419.4376
124	71.8438	139.9538	419.4376	271.8018	123.0129	374.5862
125	271.8018	123.0129	374.5862	388.2176	109.7048	342.0941
126	388.2176	109.7048	342.0941	454.6907	90.7652	294.9700
127	454.6907	90.7652	294.9700	575.3057	93.2702	265.2393
128	575.3057	93.2702	265.2393	698.7499	72.6003	221.7429
129	698.7499	72.6003	221.7429	472.5040	48.8637	194.6149
130	472.5040	48.8637	194.6149	388.4011	34.5649	159.9675
131	388.4011	34.5649	159.9675	280.4523	21.7958	125.3430
132	280.4523	21.7958	125.3430	155.8912	10.6040	90.5858
133	155.8912	10.6040	90.5858	94.4581	5.6130	74.2305
134	94.4581	5.6130	74.2305	-49.3212	-3.1453	44.3847
135	-49.3212	-3.1453	44.3847	-190.6125	-10.2857	18.8456
136	-190.6125	-10.2857	18.8456	189.2333	9.2994	12.8005
137	189.2333	9.2994	12.8005	205.4904	9.2980	13.0665
138	205.4904	9.2980	13.0665	221.7372	9.2931	13.3535
139	221.7372	9.2931	13.3535	237.9789	9.2895	13.6631
140	237.9789	9.2895	13.6631	-730.7783	87.3433	266.0334
141	-730.7783	87.3433	266.0334	-450.6195	188.1942	538.7137
142	-450.6195	188.1942	538.7137	-164.9156	166.5107	481.9011
143	-164.9156	166.5107	481.9011	65.1716	145.2336	428.7617
144	65.1716	145.2336	428.7617	239.2052	124.5763	379.3225
145	239.2052	124.5763	379.3225	408.3478	114.5347	356.2389
146	408.3478	114.5347	356.2389	483.4634	95.1622	312.4315
147	483.4634	95.1622	312.4315	508.8652	76.8507	272.3093
148	508.8652	76.8507	272.3093	489.1282	59.7472	235.8746
149	489.1282	59.7472	235.8746	429.6534	43.9405	203.1391
150	429.6534	43.9405	203.1391	419.7140	36.5622	188.1485
151	419.7140	36.5622	188.1485	300.2274	22.8499	157.4081
152	300.2274	22.8499	157.4081	158.9068	10.6147	126.5280
153	158.9068	10.6147	126.5280	3.0900	-0.0839	96.5328
154	3.0900	-0.0839	96.5328	-159.6683	-9.1859	70.3857
155	-159.6683	-9.1859	70.3857	-253.1880	-13.1404	58.6046
156	-253.1880	-13.1404	58.6046	-418.7877	-19.8738	38.2383
157	-418.7877	-19.8738	38.2383	-572.6489	-25.0785	21.8897
158	-572.6489	-25.0785	21.8897	-709.2078	-28.8393	9.6329
159	-709.2078	-28.8393	9.6329	-38.7939	-6.8339	7.5442
160	-38.7939	-6.8339	7.5442	-899.1852	97.2040	303.2329
161	-899.1852	97.2040	303.2329	-503.5942	206.2168	554.1450
162	-503.5942	206.2168	554.1450	-163.1576	185.9845	501.0444
163	-163.1576	185.9845	501.0444	120.5679	165.8987	448.9432
164	120.5679	165.8987	448.9432	345.9252	146.1644	400.2822
165	345.9252	146.1644	400.2822	513.0619	126.9989	355.5057
166	513.0619	126.9989	355.5057	623.5516	108.5625	314.4620
167	623.5516	108.5625	314.4620	680.3016	90.9949	276.9984
168	680.3016	90.9949	276.9984	687.3949	74.4021	242.9781
169	687.3949	74.4021	242.9781	649.9261	58.9370	212.2724
170	649.9261	58.9370	212.2724	573.8854	44.6603	184.7714
171	573.8854	44.6603	184.7714	465.7762	31.6392	160.1505
172	465.7762	31.6392	160.1505	332.4691	19.9045	135.7726
173	332.4691	19.9045	135.7726	181.1825	9.5194	111.0207
174	181.1825	9.5194	111.0207	19.3633	0.5116	86.7608
175	19.3633	0.5116	86.7608	-145.4790	-7.0953	65.5800
176	-145.4790	-7.0953	65.5800	-306.3153	-13.3221	47.5101
177	-306.3153	-13.3221	47.5101	-456.8902	-18.2125	32.5970
178	-456.8902	-18.2125	32.5970	-591.7296	-21.8307	20.9043
179	-591.7296	-21.8307	20.9043	-706.2587	-24.2696	12.5042
180	-706.2587	-24.2696	12.5042	-792.8241	96.3510	303.1722
181	-792.8241	96.3510	303.1722	-416.9545	197.7679	543.8726
182	-416.9545	197.7679	543.8726	-100.6327	177.2969	489.6316
183	-100.6327	177.2969	489.6316	158.5106	157.1496	437.3845
184	158.5106	157.1496	437.3845	359.9662	137.5547	389.0980
185	359.9662	137.5547	389.0980	504.9727	118.6584	344.6211
186	504.9727	118.6584	344.6211	596.1557	100.6798	303.8140
187	596.1557	100.6798	303.8140	637.5662	83.7484	266.5573
188	637.5662	83.7484	266.5573	634.3535	68.0277	232.7466
189	634.3535	68.0277	232.7466	592.6895	53.5843	202.2898
190	592.6895	53.5843	202.2898	519.2354	40.5018	175.1629
191	519.2354	40.5018	175.1629	421.3032	28.8348	149.8098
192	421.3032	28.8348	149.8098	306.4471	18.6227	124.1098
193	306.4471	18.6227	124.1098	182.4141	9.8829	98.1965
194	182.4141	9.8829	98.1965	56.9333	2.6435	74.6412
195	56.9333	2.6435	74.6412	-62.6038	-3.1081	54.3108
196	-62.6038	-3.1081	54.3108	-126.0026	-18.7403	8.7933
197	-126.0026	-18.7403	8.7933	-1.4217	-0.4711	0.0160
198	-1.4217	-0.4711	0.0160	-2.3407	-0.4711	0.0133
199	-2.3407	-0.4711	0.0133	-3.2597	-0.4711	0.0089
200	-3.2597	-0.4711	0.0089	-647.5498	20.7997	50.8106
201	-647.5498	20.7997	50.8106	-786.7775	175.5061	365.8113
202	-786.7775	175.5061	365.8113	-547.9192	167.4436	344.8566
203	-547.9192	167.4436	344.8566	-320.7775	158.9366	324.3749
204	-320.7775	158.9366	324.3749	-107.8371	140.5654	284.0950
205	-107.8371	140.5654	284.0950	85.9612	130.7163	262.8685
206	85.9612	130.7163	262.8685	259.8425	109.6781	217.1310
207	259.8425	109.6781	217.1310	405.9817	98.5168	192.9434
208	405.9817	98.5168	192.9434	527.6428	86.9350	167.6950
209	527.6428	86.9350	167.6950	626.4500	60.3318	95.0741
210	626.4500	60.3318	95.0741	700.8080	47.0338	59.2048
211	700.8080	47.0338	59.2048	118.5560	-9.3407	0.6826
212	118.5560	-9.3407	0.6826	105.3786	-9.3482	0.7873
213	105.3786	-9.3482	0.7873	92.1994	-9.3429	0.8541
214	92.1994	-9.3429	0.8541	79.0300	-9.3390	0.9400
215	79.0300	-9.3390	0.9400	65.8557	-9.3369	1.0159
216	65.8557	-9.3369	1.0159	52.6917	-9.3405	1.0585
217	52.6917	-9.3405	1.0585	39.9528	-9.4482	1.1043
218	39.9528	-9.4482	1.1043	26.6324	-9.4462	1.1437
219	26.6324	-9.4462	1.1437	13.3146	-9.4443	1.1601
220	13.3146	-9.4443	1.1601	0.0017	-9.4428	1.1628

ENVOL. MIN. TORSORES TREN TREN SW/0, EC-1 en via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0002	7.4147	-1.1529	12.4373	-0.5156	-2.9093
2	12.4373	-0.5156	-2.9093	69.6747	-3.0620	-10.3244
3	69.6747	-3.0620	-10.3244	107.8344	-5.0927	-15.6023
4	107.8344	-5.0927	-15.6023	209.1838	-10.6604	-29.4240
5	209.1838	-10.6604	-29.4240	329.2705	-18.2181	-47.4022
6	329.2705	-18.2181	-47.4022	374.8282	-22.7308	-57.6835
7	374.8282	-22.7308	-57.6835	496.9415	-33.1798	-81.6785
8	496.9415	-33.1798	-81.6785	613.4344	-45.5278	-109.6915
9	613.4344	-45.5278	-109.6915	624.2002	-52.3616	-124.7971
10	624.2002	-52.3616	-124.7971	704.4990	-67.4165	-157.8970
11	704.4990	-67.4165	-157.8970	669.1010	-75.1047	-174.0403
12	669.1010	-75.1047	-174.0403	676.1810	-90.1729	-207.1607
13	676.1810	-90.1729	-207.1607	643.0193	-104.8522	-240.3419
14	643.0193	-104.8522	-240.3419	522.1616	-112.3455	-258.2288
15	522.1616	-112.3455	-258.2288	427.4786	-128.4393	-298.0145
16	427.4786	-128.4393	-298.0145	296.2740	-145.9926	-342.2007
17	296.2740	-145.9926	-342.2007	88.8586	-155.2889	-365.8710
18	88.8586	-155.2889	-365.8710	-120.8938	-174.7624	-416.9213
19	-120.8938	-174.7624	-416.9213	-377.2908	-195.4055	-472.5942
20	-377.2908	-195.4055	-472.5942	-690.1539	-92.1264	-252.9970
21	-690.1539	-92.1264	-252.9970	-621.0957	21.0754	-7.1523
22	-621.0957	21.0754	-7.1523	-534.1715	19.4410	-14.5000
23	-534.1715	19.4410	-14.5000	-421.7402	16.5532	-25.2749
24	-421.7402	16.5532	-25.2749	-288.5973	12.3285	-39.3848
25	-288.5973	12.3285	-39.3848	-141.2596	6.6989	-56.7279
26	-141.2596	6.6989	-56.7279	13.2747	-0.3612	-77.2228
27	13.2747	-0.3612	-77.2228	167.4951	-8.8626	-100.8136
28	167.4951	-8.8626	-100.8136	313.6461	-18.7874	-127.4668
29	313.6461	-18.7874	-127.4668	444.0876	-30.0954	-155.8079
30	444.0876	-30.0954	-155.8079	551.3378	-42.7533	-183.8084
31	551.3378	-42.7533	-183.8084	628.2938	-56.7259	-211.5160
32	628.2938	-56.7259	-211.5160	668.2191	-71.9210	-241.5685
33	668.2191	-71.9210	-241.5685	664.8197	-88.3010	-274.8976
34	664.8197	-88.3010	-274.8976	612.4547	-105.6851	-311.6143
35	612.4547	-105.6851	-311.6143	506.4271	-124.0027	-351.8328
36	506.4271	-124.0027	-351.8328	343.3647	-143.0774	-395.6902
37	343.3647	-143.0774	-395.6902	121.4267	-162.7365	-443.3293
38	121.4267	-162.7365	-443.3293	-159.5605	-182.7715	-494.8885
39	-159.5605	-182.7715	-494.8885	-497.9567	-202.9810	-547.9377
40	-497.9567	-202.9810	-547.9377	-892.4780	-97.3538	-303.4659
41	-892.4780	-97.3538	-303.4659	-796.8508	27.0590	-9.2039
42	-796.8508	27.0590	-9.2039	-674.7740	24.5735	-16.6445
43	-674.7740	24.5735	-16.6445	-531.8297	20.8946	-27.4024
44	-531.8297	20.8946	-27.4024	-373.1073	15.9372	-41.3917
45	-373.1073	15.9372	-41.3917	-204.5982	9.6540	-58.5402
46	-204.5982	9.6540	-58.5402	-32.8601	2.0078	-78.7908
47	-32.8601	2.0078	-78.7908	135.0973	-7.0126	-102.1098
48	135.0973	-7.0126	-102.1098	291.9894	-17.3926	-128.4859
49	291.9894	-17.3926	-128.4859	430.5557	-29.1091	-156.5525
50	430.5557	-29.1091	-156.5525	543.7496	-42.0943	-184.2764
51	543.7496	-42.0943	-184.2764	624.7715	-56.3568	-211.6978
52	624.7715	-56.3568	-211.6978	667.1918	-71.8168	-241.4636
53	667.1918	-71.8168	-241.4636	664.9870	-88.4142	-274.5239
54	664.9870	-88.4142	-274.5239	612.7861	-105.9996	-310.9962
55	612.7861	-105.9996	-310.9962	506.1644	-124.4353	-351.0132
56	506.1644	-124.4353	-351.0132	341.9630	-143.6283	-394.7166
57	341.9630	-143.6283	-394.7166	118.5106	-163.3619	-442.2549
58	118.5106	-163.3619	-442.2549	-164.1634	-183.4458	-493.7789
59	-164.1634	-183.4458	-493.7789	-504.3032	-203.6753	-546.8427
60	-504.3032	-203.6753	-546.8427	-898.4849	-97.6070	-302.4480
61	-898.4849	-97.6070	-302.4480	-800.2177	27.2238	-8.2754
62	-800.2177	27.2238	-8.2754	-677.4009	24.7205	-15.7944
63	-677.4009	24.7205	-15.7944	-533.7477	21.0078	-26.6516
64	-533.7477	21.0078	-26.6516	-374.3912	16.0238	-40.7556
65	-374.3912	16.0238	-40.7556	-205.3456	9.7090	-58.0280
66	-205.3456	9.7090	-58.0280	-33.1781	2.0334	-78.4072
67	-33.1781	2.0334	-78.4072	135.0721	-7.0188	-101.8531
68	135.0721	-7.0188	-101.8531	292.1168	-17.4223	-128.3507
69	292.1168	-17.4223	-128.3507	430.7084	-29.1774	-156.5293
70	430.7084	-29.1774	-156.5293	543.7031	-42.2401	-184.3586
71	543.7031	-42.2401	-184.3586	624.4146	-56.5079	-211.8905
72	624.4146	-56.5079	-211.8905	666.4122	-72.0027	-241.7625
73	666.4122	-72.0027	-241.7625	663.7173	-88.5973	-274.9283
74	663.7173	-88.5973	-274.9283	611.0103	-106.1950	-311.5009
75	611.0103	-106.1950	-311.5009	503.7722	-124.6810	-351.6065
76	503.7722	-124.6810	-351.6065	338.9615	-143.8788	-395.3828
77	338.9615	-143.8788	-395.3828	114.9417	-163.6012	-442.9742
78	114.9417	-163.6012	-442.9742	-168.1858	-183.6838	-494.5262
79	-168.1858	-183.6838	-494.5262	-508.6269	-203.9079	-547.5958
80	-508.6269	-203.9079	-547.5958	-903.7754	-97.4302	-306.1186
81	-903.7754	-97.4302	-306.1186	124.5312	-18.8550	-14.7274
82	124.5312	-18.8550	-14.7274	-680.8627	25.2461	-21.6919
83	-680.8627	25.2461	-21.6919	-535.9636	21.4972	-31.9170
84	-535.9636	21.4972	-31.9170	-375.5119	16.4431	-45.1867
85	-375.5119	16.4431	-45.1867	-205.6422	10.0499	-61.4327
86	-205.6422	10.0499	-61.4327	-33.0013	2.2840	-80.6094
87	-33.0013	2.2840	-80.6094	135.2918	-6.8747	-102.6964
88	135.2918	-6.8747	-102.6964	291.8797	-17.3961	-127.7135
89	291.8797	-17.3961	-127.7135	429.4410	-29.2701	-154.3028
90	429.4410	-29.2701	-154.3028	540.8447	-42.4522	-180.4394
91	540.8447	-42.4522	-180.4394	619.3032	-56.8549	-206.2225
92	619.3032	-56.8549	-206.2225	658.5802	-72.4554	-234.3846
93	658.5802	-72.4554	-234.3846	652.8387	-89.1637	-265.9473
94	652.8387	-89.1637	-265.9473	596.8336	-106.8324	-301.0893
95	596.8336	-106.8324	-301.0893	486.3810	-125.4131	-340.0033
96	486.3810	-125.4131	-340.0033	318.7288	-144.6356	-382.9149
97	318.7288	-144.6356	-382.9149	92.5416	-164.4040	-430.0486
98	92.5416	-164.4040	-430.0486	-191.6597	-184.4527	-481.6578
99	-191.6597	-184.4527	-481.6578	-531.7326	-204.6203	-535.3398
100	-531.7326	-204.6203	-535.3398	-965.6074	-93.9398	-309.1439
101	-965.6074	-93.9398	-309.1439	-903.7886	35.2421	-29.6807
102	-903.7886	35.2421	-29.6807	-772.9304	32.3735	-34.5602
103	-772.9304	32.3735	-34.5602	-671.8716	30.3783	-38.6250
104	-671.8716	30.3783	-38.6250	-512.8003	25.2621	-48.0904
105	-512.8003	25.2621	-48.0904	-340.5806	18.5651	-60.7549
106	-340.5806	18.5651	-60.7549	-161.8974	10.2421	-76.7324
107	-161.8974	10.2421	-76.7324	-67.5388	5.4645	-86.0535
108	-67.5388	5.4645	-86.0535	97.7607	-5.3206	-107.1632
109	97.7607	-5.3206	-107.1632	249.6052	-17.7148	-132.0131
110	249.6052	-17.7148	-132.0131	380.5457	-31.6454	-159.1387
111	380.5457	-31.6454	-159.1387	401.7473	-39.1614	-172.3593
112	401.7473	-39.1614	-172.3593	474.2101	-55.2302	-199.1736
113	474.2101	-55.2302	-199.1736	508.3323	-72.6638	-226.8975
114	508.3323	-72.6638	-226.8975	498.9644	-91.3217	-258.8628

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	498.9644	-91.3217	-258.8628	388.2109	-101.0601	-276.2447
116	388.2109	-101.0601	-276.2447	287.7713	-121.2612	-315.2380
117	287.7713	-121.2612	-315.2380	134.2129	-142.2984	-359.3542
118	134.2129	-142.2984	-359.3542	-73.1526	-163.9164	-408.9712
119	-73.1526	-163.9164	-408.9712	-349.3998	-174.8656	-436.1505
120	-349.3998	-174.8656	-436.1505	-695.1772	-85.0460	-260.1096
121	-695.1772	-85.0460	-260.1096	144.2596	-24.5452	-30.1919
122	144.2596	-24.5452	-30.1919	-576.4481	24.0647	-32.1272
123	-576.4481	24.0647	-32.1272	-500.1091	22.5480	-36.1087
124	-500.1091	22.5480	-36.1087	-374.0984	18.4095	-45.6256
125	-374.0984	18.4095	-45.6256	-231.9395	12.7120	-58.2950
126	-231.9395	12.7120	-58.2950	-79.7488	5.4006	-74.2234
127	-79.7488	5.4006	-74.2234	-0.9847	1.1206	-83.4568
128	-0.9847	1.1206	-83.4568	144.6292	-8.6851	-104.4641
129	144.6292	-8.6851	-104.4641	280.8160	-20.1355	-129.1770
130	280.8160	-20.1355	-129.1770	399.9932	-33.1796	-156.1435
131	399.9932	-33.1796	-156.1435	415.7294	-40.2667	-169.2616
132	415.7294	-40.2667	-169.2616	482.5167	-55.5597	-195.8518
133	482.5167	-55.5597	-195.8518	514.1138	-72.2445	-223.2733
134	514.1138	-72.2445	-223.2733	505.0148	-90.2802	-254.8466
135	505.0148	-90.2802	-254.8466	396.4399	-99.7661	-272.0034
136	396.4399	-99.7661	-272.0034	299.8187	-119.5175	-310.5237
137	299.8187	-119.5175	-310.5237	151.3257	-140.1961	-354.1652
138	151.3257	-140.1961	-354.1652	-50.3332	-161.5802	-403.3533
139	-50.3332	-161.5802	-403.3533	-321.5865	-172.4522	-430.3350
140	-321.5865	-172.4522	-430.3350	-668.1716	-84.6528	-254.5537
141	-668.1716	-84.6528	-254.5537	-652.8571	24.3935	-22.1729
142	-652.8571	24.3935	-22.1729	-562.3969	22.5334	-27.3192
143	-562.3969	22.5334	-27.3192	-447.4431	19.3375	-35.6623
144	-447.4431	19.3375	-35.6623	-366.6010	17.2084	-41.3147
145	-366.6010	17.2084	-41.3147	-228.4515	11.8188	-54.5006
146	-228.4515	11.8188	-54.5006	-80.1958	4.8739	-71.0987
147	-80.1958	4.8739	-71.0987	71.4204	-3.6810	-91.2353
148	71.4204	-3.6810	-91.2353	219.0854	-13.8365	-115.0596
149	219.0854	-13.8365	-115.0596	271.6037	-19.5155	-128.2133
150	271.6037	-19.5155	-128.2133	387.8862	-32.0135	-156.1790
151	387.8862	-32.0135	-156.1790	480.1069	-45.9872	-184.0361
152	480.1069	-45.9872	-184.0361	541.5839	-61.3900	-211.6451
153	541.5839	-61.3900	-211.6451	566.1261	-78.1721	-241.9464
154	566.1261	-78.1721	-241.9464	484.5042	-87.0479	-258.1832
155	484.5042	-87.0479	-258.1832	425.9645	-105.7210	-294.4751
156	425.9645	-105.7210	-294.4751	316.3481	-125.4408	-335.1031
157	316.3481	-125.4408	-335.1031	152.4852	-146.0484	-380.3615
158	152.4852	-146.0484	-380.3615	-66.8896	-167.2971	-430.5493
159	-66.8896	-167.2971	-430.5493	-357.3073	-178.1147	-457.7767
160	-357.3073	-178.1147	-457.7767	-676.9032	-89.1753	-259.7605
161	-676.9032	-89.1753	-259.7605	-606.5659	20.6846	-7.1478
162	-606.5659	20.6846	-7.1478	-512.7545	18.7601	-14.5019
163	-512.7545	18.7601	-14.5019	-397.0900	15.6720	-25.3018
164	-397.0900	15.6720	-25.3018	-263.9781	11.3342	-39.4534
165	-263.9781	11.3342	-39.4534	-118.9370	5.6793	-56.8715
166	-118.9370	5.6793	-56.8715	31.8387	-1.3486	-77.4827
167	31.8387	-1.3486	-77.4827	181.5270	-9.7610	-101.2356
168	181.5270	-9.7610	-101.2356	322.9135	-19.5644	-128.0958
169	322.9135	-19.5644	-128.0958	448.6478	-30.7443	-156.6788
170	448.6478	-30.7443	-156.6788	551.5369	-43.2454	-184.9590
171	551.5369	-43.2454	-184.9590	624.7191	-57.0392	-212.9601
172	624.7191	-57.0392	-212.9601	661.5596	-72.0893	-243.3114
173	661.5596	-72.0893	-243.3114	655.6892	-88.3610	-276.9565
174	655.6892	-88.3610	-276.9565	601.4203	-105.6658	-313.9651
175	601.4203	-105.6658	-313.9651	493.9550	-123.9142	-354.4666
176	493.9550	-123.9142	-354.4666	329.7729	-142.9588	-398.5789
177	329.7729	-142.9588	-398.5789	106.9902	-162.5951	-446.4233
178	106.9902	-162.5951	-446.4233	-174.6951	-182.6492	-498.1370
179	-174.6951	-182.6492	-498.1370	-513.6407	-202.8723	-551.2711
180	-513.6407	-202.8723	-551.2711	-902.0491	-96.6647	-303.9726
181	-902.0491	-96.6647	-303.9726	-797.9156	28.2598	-7.0818
182	-797.9156	28.2598	-7.0818	-673.7401	25.6202	-14.8402
183	-673.7401	25.6202	-14.8402	-528.7477	21.7255	-26.0660
184	-528.7477	21.7255	-26.0660	-368.1747	16.4850	-40.6525
185	-368.1747	16.4850	-40.6525	-198.2057	9.8480	-58.5132
186	-198.2057	9.8480	-58.5132	-25.5383	1.7753	-79.5748
187	-25.5383	1.7753	-79.5748	142.6190	-7.7385	-103.7897
188	142.6190	-7.7385	-103.7897	298.8300	-18.6746	-131.1331
189	298.8300	-18.6746	-131.1331	435.7598	-31.0033	-160.2032
190	435.7598	-31.0033	-160.2032	546.3192	-44.6614	-188.8726
191	546.3192	-44.6614	-188.8726	623.7515	-59.5814	-217.2857
192	623.7515	-59.5814	-217.2857	661.7596	-75.7267	-248.3019
193	661.7596	-75.7267	-248.3019	654.6663	-93.0103	-282.6540
194	654.6663	-93.0103	-282.6540	533.3112	-102.0363	-300.5834
195	533.3112	-102.0363	-300.5834	431.0145	-120.7521	-340.2064
196	431.0145	-120.7521	-340.2064	272.2850	-140.2150	-383.6528
197	272.2850	-140.2150	-383.6528	55.6930	-160.2785	-430.8997
198	55.6930	-160.2785	-430.8997	-218.5665	-180.7049	-482.0924
199	-218.5665	-180.7049	-482.0924	-548.3271	-201.2732	-536.5586
200	-548.3271	-201.2732	-536.5586	-932.9547	-94.2822	-301.8343
201	-932.9547	-94.2822	-301.8343	-847.9775	31.6422	-16.8785
202	-847.9775	31.6422	-16.8785	-771.3329	30.3807	-21.4774
203	-771.3329	30.3807	-21.4774	-689.8326	28.7430	-26.9273
204	-689.8326	28.7430	-26.9273	-551.3588	24.3842	-40.7787
205	-551.3588	24.3842	-40.7787	-458.6971	21.6245	-49.6352
206	-458.6971	21.6245	-49.6352	-295.1074	14.8785	-70.2520
207	-295.1074	14.8785	-70.2520	-200.5767	10.8788	-82.5368
208	-200.5767	10.8788	-82.5368	-109.9755	6.4237	-95.8398
209	-109.9755	6.4237	-95.8398	57.6047	-3.8001	-125.5509
210	57.6047	-3.8001	-125.5509	133.8896	-9.5950	-142.0677
211	133.8896	-9.5950	-142.0677	284.5074	-22.5367	-178.5359
212	284.5074	-22.5367	-178.5359	333.4432	-29.7024	-197.9954
213	333.4432	-29.7024	-197.9954	446.0615	-45.3728	-237.1863
214	446.0615	-45.3728	-237.1863	454.2678	-53.8739	-256.4417
215	454.2678	-53.8739	-256.4417	441.6626	-62.8587	-275.6293
216	441.6626	-62.8587	-275.6293	461.7839	-82.1216	-315.8261
217	461.7839	-82.1216	-315.8261	389.8136	-92.4286	-337.4741
218	389.8136	-92.4286	-337.4741	321.5001	-114.3152	-384.8249
219	321.5001	-114.3152	-384.8249	176.8925	-125.8664	-410.3666
220	176.8925	-125.8664	-410.3666	-0.4814	-125.8617	-410.3293

ENVOL. MAX. FLECTORES TREN TREN SW/2, EC-1 en via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0002	6.6757	-1.0360	320.0635	186.8762	489.6491
2	320.0635	186.8762	489.6491	601.9446	156.8708	419.2180
3	601.9446	156.8708	419.2180	844.3500	141.8412	384.6224
4	844.3500	141.8412	384.6224	1044.6281	111.8383	314.8025
5	1044.6281	111.8383	314.8025	1209.9465	84.0551	253.6486
6	1209.9465	84.0551	253.6486	1334.8920	69.0379	219.7429
7	1334.8920	69.0379	219.7429	1419.1919	39.0636	150.4680
8	1419.1919	39.0636	150.4680	1467.5544	11.5670	89.7696
9	1467.5544	11.5670	89.7696	1475.6957	-3.3947	56.1144
10	1475.6957	-3.3947	56.1144	1444.5085	-33.4507	-13.0566
11	1444.5085	-33.4507	-13.0566	1378.7415	-45.7467	-38.2688
12	1378.7415	-45.7467	-38.2688	1270.3489	-75.8099	-107.6129
13	1270.3489	-75.8099	-107.6129	1127.4172	-102.8303	-168.6184
14	1127.4172	-102.8303	-168.6184	946.2629	-114.5302	-194.3473
15	946.2629	-114.5302	-194.3473	728.5107	-144.5315	-264.3018
16	728.5107	-144.5315	-264.3018	476.7471	-170.9588	-326.1290
17	476.7471	-170.9588	-326.1290	208.5725	7.4952	1.1105
18	208.5725	7.4952	1.1105	220.8277	7.4979	1.3810
19	220.8277	7.4979	1.3810	233.0854	7.4979	1.6658
20	233.0854	7.4979	1.6658	245.3801	-10.2913	7.7937
21	245.3801	-10.2913	7.7937	189.2551	-28.0798	13.9215
22	189.2551	-28.0798	13.9215	133.0877	-28.0807	14.1698
23	133.0877	-28.0807	14.1698	334.3444	164.7260	430.5567
24	334.3444	164.7260	430.5567	627.1138	134.7248	360.2867
25	627.1138	134.7248	360.2867	859.9987	104.7019	290.4223
26	859.9987	104.7019	290.4223	1035.9984	76.2706	228.9703
27	1035.9984	76.2706	228.9703	1152.4886	48.0331	168.5923
28	1152.4886	48.0331	168.5923	1212.3071	18.0154	99.4023
29	1212.3071	18.0154	99.4023	1214.6433	-9.9384	40.0382
30	1214.6433	-9.9384	40.0382	1237.9653	38.4916	28.1419
31	1237.9653	38.4916	28.1419	1279.2399	10.7025	-30.9196
32	1279.2399	10.7025	-30.9196	1264.7871	-19.2915	-99.9720
33	1264.7871	-19.2915	-99.9720	1193.6117	-47.3545	-159.9038
34	1193.6117	-47.3545	-159.9038	1064.2467	-75.6468	-220.8289
35	1064.2467	-75.6468	-220.8289	877.4011	-105.6452	-290.3456
36	877.4011	-105.6452	-290.3456	631.6071	-134.1822	-352.6920
37	631.6071	-134.1822	-352.6920	327.9214	-164.1676	-422.9662
38	327.9214	-164.1676	-422.9662	209.3116	7.6867	1.8519
39	209.3116	7.6867	1.8519	224.6732	7.6851	2.1855
40	224.6732	7.6851	2.1855	258.7388	10.9663	-6.6344
41	258.7388	10.9663	-6.6344	242.2431	-8.2339	-1.7971
42	242.2431	-8.2339	-1.7971	225.7759	-8.2335	-1.4368
43	225.7759	-8.2335	-1.4368	348.5193	164.0652	432.2642
44	348.5193	164.0652	432.2642	640.0615	134.0587	362.0140
45	640.0615	134.0587	362.0140	871.6942	104.0470	292.1680
46	871.6942	104.0470	292.1680	1046.4880	75.6142	230.7782
47	1046.4880	75.6142	230.7782	1161.7322	47.4142	170.4390
48	1161.7322	47.4142	170.4390	1220.3923	17.4261	101.2594
49	1220.3923	17.4261	101.2594	1221.4521	-10.5130	41.9202
50	1221.4521	-10.5130	41.9202	1217.0725	40.3000	26.6641
51	1217.0725	40.3000	26.6641	1264.3534	12.2583	-32.2921
52	1264.3534	12.2583	-32.2921	1253.9644	-16.1021	-92.0303
53	1253.9644	-16.1021	-92.0303	1185.8877	-46.1203	-161.1610
54	1185.8877	-46.1203	-161.1610	1059.5999	-74.6664	-221.9308
55	1059.5999	-74.6664	-221.9308	874.6427	-104.6523	-291.4543
56	874.6427	-104.6523	-291.4543	630.5076	-133.4149	-353.6398
57	630.5076	-133.4149	-353.6398	328.2210	-163.4207	-423.9142
58	328.2210	-163.4207	-423.9142	214.3331	7.8154	1.7629
59	214.3331	7.8154	1.7629	229.9563	7.8140	2.1047
60	229.9563	7.8140	2.1047	259.2316	10.9654	-9.0337
61	259.2316	10.9654	-9.0337	242.7156	-8.2647	-2.1574
62	242.7156	-8.2647	-2.1574	226.1936	-8.2664	-1.7964
63	226.1936	-8.2664	-1.7964	351.6354	163.9451	431.3630
64	351.6354	163.9451	431.3630	642.8646	133.9446	361.1183
65	642.8646	133.9446	361.1183	874.1768	103.9467	291.2751
66	874.1768	103.9467	291.2751	1048.7385	75.5222	229.8843
67	1048.7385	75.5222	229.8843	1163.8286	47.3614	169.5561
68	1163.8286	47.3614	169.5561	1222.3574	17.3689	100.3802
69	1222.3574	17.3689	100.3802	1223.4215	-10.5482	41.0521
70	1223.4215	-10.5482	41.0521	1215.4576	40.0750	26.7470
71	1215.4576	40.0750	26.7470	1262.3661	12.0265	-32.2454
72	1262.3661	12.0265	-32.2454	1251.6431	-16.2842	-92.0171
73	1251.6431	-16.2842	-92.0171	1183.2686	-46.2692	-161.1476
74	1183.2686	-46.2692	-161.1476	1056.7615	-74.8371	-221.9648
75	1056.7615	-74.8371	-221.9648	871.4985	-104.8501	-291.4949
76	871.4985	-104.8501	-291.4949	627.1059	-133.6019	-353.7248
77	627.1059	-133.6019	-353.7248	324.5430	-163.5937	-424.0023
78	324.5430	-163.5937	-424.0023	138.2914	5.0429	0.6986
79	138.2914	5.0429	0.6986	197.7710	29.9051	-14.8624
80	197.7710	29.9051	-14.8624	257.5733	10.7957	-7.5963
81	257.5733	10.7957	-7.5963	240.9287	-8.3164	-0.2977
82	240.9287	-8.3164	-0.2977	224.2926	-8.3174	0.0608
83	224.2926	-8.3174	0.0608	345.4006	166.8323	420.9532
84	345.4006	166.8323	420.9532	642.5382	136.8444	350.7000
85	642.5382	136.8444	350.7000	880.2885	108.7714	287.9154
86	880.2885	108.7714	287.9154	1061.5020	78.7823	218.4024
87	1061.5020	78.7823	218.4024	1185.1675	50.9751	157.1030
88	1185.1675	50.9751	157.1030	1252.0336	23.4658	96.8652
89	1252.0336	23.4658	96.8652	1263.6299	-3.7952	37.6234
90	1263.6299	-3.7952	37.6234	1221.4082	-30.7670	-20.7281
91	1221.4082	-30.7670	-20.7281	1251.9817	11.2652	-20.0592
92	1251.9817	11.2652	-20.0592	1240.0332	-17.0310	-80.0065
93	1240.0332	-17.0310	-80.0065	1170.1310	-47.0397	-149.1643
94	1170.1310	-47.0397	-149.1643	1042.7917	-75.4957	-210.3148
95	1042.7917	-75.4957	-210.3148	856.0432	-105.5163	-279.8615
96	856.0432	-105.5163	-279.8615	611.4659	-134.2137	-342.5870
97	611.4659	-134.2137	-342.5870	307.5416	-164.2225	-412.8896
98	307.5416	-164.2225	-412.8896	153.6024	30.4596	-21.8596
99	153.6024	30.4596	-21.8596	214.5638	30.4592	-21.5762
100	214.5638	30.4592	-21.5762	273.3818	10.2785	-6.8597
101	273.3818	10.2785	-6.8597	253.9184	-9.9000	7.8624
102	253.9184	-9.9000	7.8624	236.5803	-9.9014	8.1922
103	236.5803	-9.9014	8.1922	279.5718	145.7563	409.5255
104	279.5718	145.7563	409.5255	500.7146	117.5051	346.2303
105	500.7146	117.5051	346.2303	677.4532	87.5041	276.0123
106	677.4532	87.5041	276.0123	811.5958	59.5087	214.1631
107	811.5958	59.5087	214.1631	901.2413	44.5122	179.8101
108	901.2413	44.5122	179.8101	946.7874	16.8021	119.1826
109	946.7874	16.8021	119.1826	950.2110	-10.5943	59.5690
110	950.2110	-10.5943	59.5690	912.9861	-37.6824	0.6292
111	912.9861	-37.6824	0.6292	908.1288	27.3851	-9.4996
112	908.1288	27.3851	-9.4996	920.7625	-1.0796	-69.9165
113	920.7625	-1.0796	-69.9165	890.4964	-31.0686	-139.7083

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
114	890.4964	-31.0686	-139.7083	815.7146	-59.7999	-201.3074
115	815.7146	-59.7999	-201.3074	697.0881	-74.7934	-235.7941
116	697.0881	-74.7934	-235.7941	530.5417	-104.7881	-305.9748
117	530.5417	-104.7881	-305.9748	319.6916	-133.7307	-368.9812
118	319.6916	-133.7307	-368.9812	158.8654	38.4286	-39.9636
119	158.8654	38.4286	-39.9636	226.1758	38.4303	-39.7046
120	226.1758	38.4303	-39.7046	289.1357	14.0324	-14.8032
121	289.1357	14.0324	-14.8032	266.6695	-10.3638	10.1242
122	266.6695	-10.3638	10.1242	248.5159	-10.3648	10.4707
123	248.5159	-10.3648	10.4707	240.8085	147.2858	410.8632
124	240.8085	147.2858	410.8632	464.4767	118.9448	347.3826
125	464.4767	118.9448	347.3826	643.7209	88.9528	277.1196
126	643.7209	88.9528	277.1196	780.2603	60.8512	215.0920
127	780.2603	60.8512	215.0920	872.2667	45.8459	180.7008
128	872.2667	45.8459	180.7008	919.7944	18.0236	119.9039
129	919.7944	18.0236	119.9039	924.9958	-9.5061	60.1367
130	924.9958	-9.5061	60.1367	910.1103	33.2929	15.2794
131	910.1103	33.2929	15.2794	957.6250	20.9226	-9.5863
132	957.6250	20.9226	-9.5863	961.0167	-6.7354	-70.0262
133	961.0167	-6.7354	-70.0262	922.0863	-34.7331	-130.8683
134	922.0863	-34.7331	-130.8683	840.5221	-64.7258	-200.6963
135	840.5221	-64.7258	-200.6963	715.5675	-77.9674	-227.3740
136	715.5675	-77.9674	-227.3740	543.4498	-107.9783	-297.5341
137	543.4498	-107.9783	-297.5341	328.3096	-136.4456	-361.0119
138	328.3096	-136.4456	-361.0119	224.0251	9.3867	13.4914
139	224.0251	9.3867	13.4914	240.4350	9.3856	13.8043
140	240.4350	9.3856	13.8043	257.5457	-11.7880	10.7036
141	257.5457	-11.7880	10.7036	198.9169	-32.9606	7.5789
142	198.9169	-32.9606	7.5789	158.0537	-6.3330	5.5591
143	158.0537	-6.3330	5.5591	243.5290	136.1352	419.4642
144	243.5290	136.1352	419.4642	474.4836	121.1380	384.4524
145	474.4836	121.1380	384.4524	656.0143	91.1322	314.2222
146	656.0143	91.1322	314.2222	791.5865	62.6241	252.5699
147	791.5865	62.6241	252.5699	879.9863	32.6228	182.7194
148	879.9863	32.6228	182.7194	922.5992	4.3899	122.0397
149	922.5992	4.3899	122.0397	917.1100	-8.5197	97.6221
150	917.1100	-8.5197	97.6221	963.1451	40.5345	23.2461
151	963.1451	40.5345	23.2461	1007.8932	13.0714	-36.2482
152	1007.8932	13.0714	-36.2482	1008.4413	-14.6971	-95.8413
153	1008.4413	-14.6971	-95.8413	964.1626	-44.7087	-165.4812
154	964.1626	-44.7087	-165.4812	873.1813	-57.7701	-190.4850
155	873.1813	-57.7701	-190.4850	733.5078	-87.7670	-260.3788
156	733.5078	-87.7670	-260.3788	548.8349	-116.1068	-322.0787
157	548.8349	-116.1068	-322.0787	316.3682	-146.1028	-392.4913
158	316.3682	-146.1028	-392.4913	211.7539	8.6423	3.8238
159	211.7539	8.6423	3.8238	227.3046	8.6425	4.1280
160	227.3046	8.6425	4.1280	242.8820	-9.2812	10.1606
161	242.8820	-9.2812	10.1606	188.4733	-27.2050	16.1800
162	188.4733	-27.2050	16.1800	161.8605	-5.9320	-1.9040
163	161.8605	-5.9320	-1.9040	313.2933	165.4797	429.8168
164	313.2933	165.4797	429.8168	607.6840	135.4756	359.5184
165	607.6840	135.4756	359.5184	842.2562	107.1388	297.8634
166	842.2562	107.1388	297.8634	1020.1740	77.1724	228.2882
167	1020.1740	77.1724	228.2882	1139.2336	49.0834	168.0074
168	1139.2336	49.0834	168.0074	1201.1595	19.0690	98.8011
169	1201.1595	19.0690	98.8011	1206.7390	-8.8093	39.5524
170	1206.7390	-8.8093	39.5524	1236.9993	34.6833	14.0009
171	1236.9993	34.6833	14.0009	1274.8167	7.2366	-44.3120
172	1274.8167	7.2366	-44.3120	1257.3967	-20.4735	-103.4083
173	1257.3967	-20.4735	-103.4083	1183.1686	-48.4967	-163.3790

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
174	1183.1686	-48.4967	-163.3790	1050.9187	-76.7367	-224.3294
175	1050.9187	-76.7367	-224.3294	861.7999	-106.7476	-293.8654
176	861.7999	-106.7476	-293.8654	613.5886	-135.2036	-356.2312
177	613.5886	-135.2036	-356.2312	307.7692	-165.1977	-426.5307
178	307.7692	-165.1977	-426.5307	100.8671	21.5210	-11.8392
179	100.8671	21.5210	-11.8392	143.9367	21.5229	-11.6502
180	143.9367	21.5229	-11.6502	187.0759	7.6587	-6.7972
181	187.0759	7.6587	-6.7972	175.0481	-6.2057	-1.9244
182	175.0481	-6.2057	-1.9244	162.9478	-6.2057	-1.6709
183	162.9478	-6.2057	-1.6709	343.2034	157.2719	408.5070
184	343.2034	157.2719	408.5070	622.1179	129.2511	345.4202
185	622.1179	129.2511	345.4202	845.2395	99.2370	275.5132
186	845.2395	99.2370	275.5132	1015.7923	71.4810	213.9818
187	1015.7923	71.4810	213.9818	1132.4121	44.0227	153.5341
188	1132.4121	44.0227	153.5341	1196.5942	16.8496	94.0912
189	1196.5942	16.8496	94.0912	1209.8845	-10.0096	35.5542
190	1209.8845	-10.0096	35.5542	1174.0017	-36.5448	-22.0401
191	1174.0017	-36.5448	-22.0401	1167.6292	2.0893	-54.7494
192	1167.6292	2.0893	-54.7494	1155.1792	-26.1889	-114.8314
193	1155.1792	-26.1889	-114.8314	1087.8196	-56.1950	-184.2487
194	1087.8196	-56.1950	-184.2487	965.6041	-69.7428	-209.4731
195	965.6041	-69.7428	-209.4731	786.3935	-99.7351	-279.1699
196	786.3935	-99.7351	-279.1699	551.7501	-128.4778	-341.5977
197	551.7501	-128.4778	-341.5977	261.1885	-158.4673	-412.0346
198	261.1885	-158.4673	-412.0346	158.1228	31.9150	-13.2404
199	158.1228	31.9150	-13.2404	220.3957	31.9157	-12.9429
200	220.3957	31.9157	-12.9429	282.5981	10.9474	-7.1187
201	282.5981	10.9474	-7.1187	268.4144	-10.0205	-1.2837
202	268.4144	-10.0205	-1.2837	254.2880	-10.0210	-0.9676
203	254.2880	-10.0210	-0.9676	240.1581	-10.0137	-0.7529
204	240.1581	-10.0137	-0.7529	226.0410	-10.0071	-0.5194
205	226.0410	-10.0071	-0.5194	211.9302	-10.0070	-0.3266
206	211.9302	-10.0070	-0.3266	197.8151	-10.0138	-0.2071
207	197.8151	-10.0138	-0.2071	192.3720	123.1869	127.0266
208	192.3720	123.1869	127.0266	351.5402	110.7325	96.5595
209	351.5402	110.7325	96.5595	480.9155	80.7081	25.8550
210	480.9155	80.7081	25.8550	583.6986	67.6666	-5.2077
211	583.6986	67.6666	-5.2077	657.8702	37.6611	-75.4951
212	657.8702	37.6611	-75.4951	701.7759	22.6459	-110.3787
213	701.7759	22.6459	-110.3787	717.9037	-7.3524	-180.9039
214	717.9037	-7.3524	-180.9039	701.1743	-22.3265	-215.6917
215	701.1743	-22.3265	-215.6917	657.1957	-37.3252	-250.4923
216	657.1957	-37.3252	-250.4923	581.9644	-67.3411	-321.0696
217	581.9644	-67.3411	-321.0696	477.3175	-82.3354	-356.0563
218	477.3175	-82.3354	-356.0563	344.2841	-112.3278	-426.5783
219	344.2841	-112.3278	-426.5783	178.8708	-127.3237	-461.8663
220	178.8708	-127.3237	-461.8663	0.0024	-9.5266	1.1850

ENVOL. MIN. FLECTORES TREN TREN SW/2, EC-1 en via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.1816	199.8939	516.6334	-45.1894	-27.6282	19.9818
2	-45.1894	-27.6282	19.9818	-90.3903	-27.6244	19.8967
3	-90.3903	-27.6244	19.8967	-135.5807	-27.6181	19.7547
4	-135.5807	-27.6181	19.7547	-180.7613	-27.6189	19.5555
5	-180.7613	-27.6189	19.5555	-225.9612	-27.6123	19.2999
6	-225.9612	-27.6123	19.2999	-271.1190	-27.6086	18.9874
7	-271.1190	-27.6086	18.9874	-316.2985	-27.6324	18.6174
8	-316.2985	-27.6324	18.6174	-361.5120	-27.6369	18.1915
9	-361.5120	-27.6369	18.1915	-406.6993	-27.6428	17.7087
10	-406.6993	-27.6428	17.7087	-451.9113	-27.6643	17.1682
11	-451.9113	-27.6643	17.1682	-497.1061	-27.6299	16.5702
12	-497.1061	-27.6299	16.5702	-542.2457	-27.5984	15.9173
13	-542.2457	-27.5984	15.9173	-587.3911	-27.6035	15.2087
14	-587.3911	-27.6035	15.2087	-632.5251	-27.6131	14.4398
15	-632.5251	-27.6131	14.4398	-677.6782	-27.6073	13.6145
16	-677.6782	-27.6073	13.6145	-722.8174	-27.5914	12.7366
17	-722.8174	-27.5914	12.7366	-881.7428	-206.5414	-336.6501
18	-881.7428	-206.5414	-336.6501	-1244.3751	-231.8636	-388.5724
19	-1244.3751	-231.8636	-388.5724	-1632.1575	-243.7450	-415.7133
20	-1632.1575	-243.7450	-415.7133	-2038.4443	1.7814	39.6373
21	-2038.4443	1.7814	39.6373	-1534.2019	247.8549	497.5466
22	-1534.2019	247.8549	497.5466	-1068.2103	225.1444	450.2307
23	-1068.2103	225.1444	450.2307	-766.7834	30.1211	-4.4413
24	-766.7834	30.1211	-4.4413	-706.5411	30.1269	-5.5747
25	-706.5411	30.1269	-5.5747	-646.2662	30.1409	-6.6170
26	-646.2662	30.1409	-6.6170	-585.9776	30.1529	-7.5637
27	-585.9776	30.1529	-7.5637	-525.6655	30.1628	-8.4186
28	-525.6655	30.1628	-8.4186	-465.3485	30.1656	-9.1812
29	-465.3485	30.1656	-9.1812	-405.0173	30.1584	-9.8500
30	-405.0173	30.1584	-9.8500	-344.7032	30.1679	-10.4270
31	-344.7032	30.1679	-10.4270	-372.1961	-28.0500	12.5142
32	-372.1961	-28.0500	12.5142	-428.3072	-28.0483	11.8977
33	-428.3072	-28.0483	11.8977	-484.3969	-28.0476	11.1955
34	-484.3969	-28.0476	11.1955	-540.5130	-28.0527	10.4080
35	-540.5130	-28.0527	10.4080	-596.6366	-28.0606	9.5332
36	-596.6366	-28.0606	9.5332	-652.7691	-28.0688	8.5721
37	-652.7691	-28.0688	8.5721	-741.3528	-208.8621	-403.3362
38	-741.3528	-208.8621	-403.3362	-1178.4932	-231.4365	-447.3677
39	-1178.4932	-231.4365	-447.3677	-1650.0045	-242.2164	-470.5404
40	-1650.0045	-242.2164	-470.5404	-2152.0820	10.2957	25.1423
41	-2152.0820	10.2957	25.1423	-1634.2188	251.1667	496.4830
42	-1634.2188	251.1667	496.4830	-1144.7802	239.6190	471.6848
43	-1144.7802	239.6190	471.6848	-767.3485	30.1632	-8.8760
44	-767.3485	30.1632	-8.8760	-706.9755	30.1521	-10.0080
45	-706.9755	30.1521	-10.0080	-646.6350	30.1599	-11.0504
46	-646.6350	30.1599	-11.0504	-586.2336	30.1784	-11.9998
47	-586.2336	30.1784	-11.9998	-525.8560	30.1611	-12.8538
48	-525.8560	30.1611	-12.8538	-465.5134	30.1486	-13.6150
49	-465.5134	30.1486	-13.6150	-405.1830	30.1618	-14.2868
50	-405.1830	30.1618	-14.2868	-344.8195	30.1722	-14.8647
51	-344.8195	30.1722	-14.8647	-374.7072	-27.9239	12.9433
52	-374.7072	-27.9239	12.9433	-430.5594	-27.9105	12.3242
53	-430.5594	-27.9105	12.3242	-486.3921	-27.9030	11.6180
54	-486.3921	-27.9030	11.6180	-542.2156	-27.9007	10.8254
55	-542.2156	-27.9007	10.8254	-598.0293	-27.8951	9.9473
56	-598.0293	-27.8951	9.9473	-653.8212	-27.8851	8.9848
57	-653.8212	-27.8851	8.9848	-744.4355	-209.4339	-401.5230
58	-744.4355	-209.4339	-401.5230	-1182.4910	-231.9587	-445.6857
59	-1182.4910	-231.9587	-445.6857	-1654.9663	-242.7088	-468.9440
60	-1654.9663	-242.7088	-468.9440	-2154.4814	10.0229	25.9911
61	-2154.4814	10.0229	25.9911	-1632.9963	251.0511	496.6555
62	-1632.9963	251.0511	496.6555	-1143.7021	239.4836	471.8507
63	-1143.7021	239.4836	471.8507	-758.9236	29.8874	-7.9571
64	-758.9236	29.8874	-7.9571	-699.1538	29.8941	-9.0782
65	-699.1538	29.8941	-9.0782	-639.3612	29.8945	-10.1080
66	-639.3612	29.8945	-10.1080	-579.5726	29.8824	-11.0429
67	-579.5726	29.8824	-11.0429	-519.8158	29.8778	-11.8902
68	-519.8158	29.8778	-11.8902	-460.0493	29.8807	-12.6449
69	-460.0493	29.8807	-12.6449	-400.2872	29.8822	-13.3053
70	-400.2872	29.8822	-13.3053	-340.4866	29.8864	-13.8723
71	-340.4866	29.8864	-13.8723	-384.4650	-28.6217	12.6072
72	-384.4650	-28.6217	12.6072	-441.7209	-28.6193	11.9700
73	-441.7209	-28.6193	11.9700	-498.9792	-28.6303	11.2435
74	-498.9792	-28.6303	11.2435	-556.2646	-28.6200	10.4318
75	-556.2646	-28.6200	10.4318	-613.4919	-28.6073	9.5340
76	-613.4919	-28.6073	9.5340	-670.7260	-28.6103	8.5448
77	-670.7260	-28.6103	8.5448	-740.4520	-209.3636	-402.2422
78	-740.4520	-209.3636	-402.2422	-1177.2316	-231.8481	-446.2951
79	-1177.2316	-231.8481	-446.2951	-1648.7793	-242.5764	-469.4872
80	-1648.7793	-242.5764	-469.4872	-2148.7358	9.7868	30.3819
81	-2148.7358	9.7868	30.3819	-1628.9246	250.3300	507.1644
82	-1628.9246	250.3300	507.1644	-1140.6252	238.7267	482.8887
83	-1140.6252	238.7267	482.8887	-761.1945	30.4855	-14.8530
84	-761.1945	30.4855	-14.8530	-700.1852	30.4751	-15.9736
85	-700.1852	30.4751	-15.9736	-639.1906	30.4844	-17.0043
86	-639.1906	30.4844	-17.0043	-578.1632	30.4934	-17.9450
87	-578.1632	30.4934	-17.9450	-517.1519	30.4815	-18.7868
88	-517.1519	30.4815	-18.7868	-456.1523	30.4740	-19.5344
89	-456.1523	30.4740	-19.5344	-395.1533	30.4729	-20.1919
90	-395.1533	30.4729	-20.1919	-334.1576	30.4725	-20.7526
91	-334.1576	30.4725	-20.7526	-273.1444	30.4690	-21.2160
92	-273.1444	30.4690	-21.2160	-283.4657	-18.4389	-15.7549
93	-283.4657	-18.4389	-15.7549	-320.3214	-18.4383	-16.2174
94	-320.3214	-18.4383	-16.2174	-357.1751	-18.4383	-16.7386
95	-357.1751	-18.4383	-16.7386	-394.0362	-18.4432	-17.3181
96	-394.0362	-18.4432	-17.3181	-430.9044	-18.4459	-17.9540
97	-430.9044	-18.4459	-17.9540	-598.9534	-192.3640	-394.0435
98	-598.9534	-192.3640	-394.0435	-1009.9512	-214.7361	-439.8466
99	-1009.9512	-214.7361	-439.8466	-1451.4198	-225.4255	-462.8580
100	-1451.4198	-225.4255	-462.8580	-1998.1392	6.3324	7.0734
101	-1998.1392	6.3324	7.0734	-1629.3057	246.1411	493.6876
102	-1629.3057	246.1411	493.6876	-1212.4403	233.5324	466.2797
103	-1212.4403	233.5324	466.2797	-850.7372	38.4217	-32.9792
104	-850.7372	38.4217	-32.9792	-783.4473	38.4090	-34.0779
105	-783.4473	38.4090	-34.0779	-716.1898	38.4050	-35.0867
106	-716.1898	38.4050	-35.0867	-648.9202	38.4076	-36.0067
107	-648.9202	38.4076	-36.0067	-581.6284	38.4142	-36.8345
108	-581.6284	38.4142	-36.8345	-514.3240	38.4323	-37.5722
109	-514.3240	38.4323	-37.5722	-447.0181	38.4419	-38.2193
110	-447.0181	38.4419	-38.2193	-379.6843	38.4597	-38.7765
111	-379.6843	38.4597	-38.7765	-312.3228	38.4560	-39.2423
112	-312.3228	38.4560	-39.2423	-300.6429	-21.8857	-25.0721
113	-300.6429	-21.8857	-25.0721	-338.9083	-21.8786	-25.5028
114	-338.9083	-21.8786	-25.5028	-377.1664	-21.8701	-25.9844

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	-377.1664	-21.8701	-25.9844	-415.4090	-21.8780	-26.5197
116	-415.4090	-21.8780	-26.5197	-453.6854	-21.8931	-27.1038
117	-453.6854	-21.8931	-27.1038	-629.8334	-178.2019	-337.0939
118	-629.8334	-178.2019	-337.0939	-965.0165	-202.6483	-387.8646
119	-965.0165	-202.6483	-387.8646	-1329.5392	-214.3821	-413.9370
120	-1329.5392	-214.3821	-413.9370	-1805.1687	13.1989	44.9765
121	-1805.1687	13.1989	44.9765	-1473.5419	228.3275	476.9125
122	-1473.5419	228.3275	476.9125	-1085.0803	215.9330	449.2617
123	-1085.0803	215.9330	449.2617	-729.1069	190.2782	395.5895
124	-729.1069	190.2782	395.5895	-508.7616	24.8521	-26.5932
125	-508.7616	24.8521	-26.5932	-465.2416	24.8322	-27.2477
126	-465.2416	24.8322	-27.2477	-421.7426	24.8307	-27.8443
127	-421.7426	24.8307	-27.8443	-378.2073	24.8552	-28.3822
128	-378.2073	24.8552	-28.3822	-334.6438	24.8607	-28.8615
129	-334.6438	24.8607	-28.8615	-291.0934	24.8631	-29.2821
130	-291.0934	24.8631	-29.2821	-247.5164	24.8737	-29.6464
131	-247.5164	24.8737	-29.6464	-258.2472	-22.2418	-28.2338
132	-258.2472	-22.2418	-28.2338	-297.1619	-22.2483	-28.6102
133	-297.1619	-22.2483	-28.6102	-336.0668	-22.2457	-29.0389
134	-336.0668	-22.2457	-29.0389	-374.9785	-22.2485	-29.5142
135	-374.9785	-22.2485	-29.5142	-413.8777	-22.2452	-30.0436
136	-413.8777	-22.2452	-30.0436	-452.7799	-22.2433	-30.6291
137	-452.7799	-22.2433	-30.6291	-637.3618	-176.9724	-336.5746
138	-637.3618	-176.9724	-336.5746	-975.0387	-201.6849	-387.6152
139	-975.0387	-201.6849	-387.6152	-1340.4227	-213.5603	-413.8204
140	-1340.4227	-213.5603	-413.8204	-1832.3811	4.1471	18.3070
141	-1832.3811	4.1471	18.3070	-1498.4111	232.7264	474.4323
142	-1498.4111	232.7264	474.4323	-1093.6667	220.5615	447.3754
143	-1093.6667	220.5615	447.3754	-724.9631	195.3155	395.6768
144	-724.9631	195.3155	395.6768	-529.3020	24.7863	-23.3461
145	-529.3020	24.7863	-23.3461	-484.6509	24.7882	-24.0466
146	-484.6509	24.7882	-24.0466	-439.9970	24.7910	-24.6856
147	-439.9970	24.7910	-24.6856	-395.3154	24.7886	-25.2635
148	-395.3154	24.7886	-25.2635	-350.6657	24.7937	-25.7780
149	-350.6657	24.7937	-25.7780	-305.9836	24.8036	-26.2343
150	-305.9836	24.8036	-26.2343	-334.9310	-32.9375	6.7320
151	-334.9310	-32.9375	6.7320	-394.2162	-32.9424	6.2309
152	-394.2162	-32.9424	6.2309	-453.5421	-32.9464	5.6438
153	-453.5421	-32.9464	5.6438	-512.8370	-32.9371	4.9750
154	-512.8370	-32.9371	4.9750	-572.1332	-32.9313	4.2207
155	-572.1332	-32.9313	4.2207	-631.3983	-32.9380	3.3876
156	-631.3983	-32.9380	3.3876	-690.7008	-32.9420	2.4703
157	-690.7008	-32.9420	2.4703	-793.1118	-201.1604	-350.0165
158	-793.1118	-201.1604	-350.0165	-1167.9968	-213.4620	-375.7379
159	-1167.9968	-213.4620	-375.7379	-1576.5493	-237.0772	-426.8514
160	-1576.5493	-237.0772	-426.8514	-2010.0911	4.4780	32.8210
161	-2010.0911	4.4780	32.8210	-1508.5215	246.4314	494.4495
162	-1508.5215	246.4314	494.4495	-1045.3391	223.6777	446.9604
163	-1045.3391	223.6777	446.9604	-615.4474	199.6561	398.8991
164	-615.4474	199.6561	398.8991	-502.1392	21.5410	-7.5194
165	-502.1392	21.5410	-7.5194	-459.0245	21.5428	-8.2584
166	-459.0245	21.5428	-8.2584	-415.9387	21.5284	-8.9305
167	-415.9387	21.5284	-8.9305	-372.8696	21.5201	-9.5381
168	-372.8696	21.5201	-9.5381	-329.8018	21.5237	-10.0801
169	-329.8018	21.5237	-10.0801	-286.7251	21.5267	-10.5554
170	-286.7251	21.5267	-10.5554	-301.5406	-27.2095	15.3990
171	-301.5406	-27.2095	15.3990	-356.0235	-27.2190	14.8919
172	-356.0235	-27.2190	14.8919	-410.5161	-27.2245	14.3025
173	-410.5161	-27.2245	14.3025	-464.9970	-27.2192	13.6271
174	-464.9970	-27.2192	13.6271	-519.4390	-27.2116	12.8685
175	-519.4390	-27.2116	12.8685	-573.8975	-27.2060	12.0266
176	-573.8975	-27.2060	12.0266	-628.3174	-27.2057	11.1047
177	-628.3174	-27.2057	11.1047	-719.7320	-207.3396	-403.3534
178	-719.7320	-207.3396	-403.3534	-1148.1516	-218.7076	-426.2664
179	-1148.1516	-218.7076	-426.2664	-1612.6630	-240.4406	-470.2509
180	-1612.6630	-240.4406	-470.2509	-2096.7759	8.3170	21.3488
181	-2096.7759	8.3170	21.3488	-1586.5905	244.6158	487.5992
182	-1586.5905	244.6158	487.5992	-1119.5918	232.7186	462.4075
183	-1119.5918	232.7186	462.4075	-775.8020	31.8809	-6.2820
184	-775.8020	31.8809	-6.2820	-713.6107	31.8888	-7.4026
185	-713.6107	31.8888	-7.4026	-651.3789	31.9035	-8.4290
186	-651.3789	31.9035	-8.4290	-589.1392	31.9172	-9.3643
187	-589.1392	31.9172	-9.3643	-526.8718	31.9235	-10.2007
188	-526.8718	31.9235	-10.2007	-464.6190	31.9125	-10.9466
189	-464.6190	31.9125	-10.9466	-402.3542	31.9090	-11.5950
190	-402.3542	31.9090	-11.5950	-340.0765	31.9124	-12.1829
191	-340.0765	31.9124	-12.1829	-277.7811	31.9179	-12.6542
192	-277.7811	31.9179	-12.6542	-215.5063	31.9128	-12.9704
193	-215.5063	31.9128	-12.9704	-153.2532	31.9098	-13.2247
194	-153.2532	31.9098	-13.2247	-90.9800	31.9180	-13.4261
195	-90.9800	31.9180	-13.4261	-28.6968	31.9191	-13.5225
196	-28.6968	31.9191	-13.5225	-231.3810	-163.1615	-323.0757
197	-231.3810	-163.1615	-323.0757	-575.1899	-186.5159	-372.0708
198	-575.1899	-186.5159	-372.0708	-950.8629	-197.6880	-396.0827
199	-950.8629	-197.6880	-396.0827	-1355.4883	-218.9733	-441.3875
200	-1355.4883	-218.9733	-441.3875	-1787.1288	21.8571	8.4780
201	-1787.1288	21.8571	8.4780	-1423.5823	247.6882	422.9421
202	-1423.5823	247.6882	422.9421	-1082.6272	232.6881	385.8858
203	-1082.6272	232.6881	385.8858	-815.2932	33.9780	-15.2321
204	-815.2932	33.9780	-15.2321	-767.3699	33.9620	-16.0203
205	-767.3699	33.9620	-16.0203	-719.4685	33.9736	-16.6785
206	-719.4685	33.9736	-16.6785	-671.5342	33.9797	-17.0858
207	-671.5342	33.9797	-17.0858	-623.5987	33.9690	-17.8970
208	-623.5987	33.9690	-17.8970	-575.6757	33.9764	-18.7106
209	-575.6757	33.9764	-18.7106	-527.7203	34.0143	-19.1186
210	-527.7203	34.0143	-19.1186	-479.7168	34.0184	-19.5989
211	-479.7168	34.0184	-19.5989	-431.7505	33.9922	-20.1248
212	-431.7505	33.9922	-20.1248	-383.7935	34.0063	-20.5041
213	-383.7935	34.0063	-20.5041	-335.7944	34.0222	-20.7531
214	-335.7944	34.0222	-20.7531	-287.8143	34.0106	-21.0627
215	-287.8143	34.0106	-21.0627	-239.8485	34.0017	-21.3384
216	-239.8485	34.0017	-21.3384	-191.9019	34.0061	-21.4931
217	-191.9019	34.0061	-21.4931	-143.9203	34.0112	-21.6573
218	-143.9203	34.0112	-21.6573	-95.9348	34.0085	-21.8018
219	-95.9348	34.0085	-21.8018	-47.9701	34.0049	-21.8605
220	-47.9701	34.0049	-21.8605	-0.5465	-127.3180	-461.8291

ENVOL. MAX. CORTANTES TREN TREN SW/2, EC-1 en via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.1705	201.8730	524.9524	308.6782	189.0878	498.1121
2	308.6782	189.0878	498.1121	536.1244	164.2540	444.9427
3	536.1244	164.2540	444.9427	745.2924	152.2242	419.0384
4	745.2924	152.2242	419.0384	842.6396	129.0915	366.8094
5	842.6396	129.0915	366.8094	885.4307	106.6819	313.7010
6	885.4307	106.6819	313.7010	976.4151	95.1047	287.7184
7	976.4151	95.1047	287.7184	965.8806	71.4974	234.5227
8	965.8806	71.4974	234.5227	928.4832	47.1100	181.1996
9	928.4832	47.1100	181.1996	927.1746	34.6457	155.0510
10	927.1746	34.6457	155.0510	221.2973	13.6620	163.3589
11	221.2973	13.6620	163.3589	146.5869	8.2601	146.6225
12	146.5869	8.2601	146.6225	147.2812	7.4997	-0.0084
13	147.2812	7.4997	-0.0084	159.5397	7.4988	0.1840
14	159.5397	7.4988	0.1840	171.7986	7.5015	0.3928
15	171.7986	7.5015	0.3928	184.0614	7.5025	0.6170
16	184.0614	7.5025	0.6170	196.3233	7.4972	0.8555
17	196.3233	7.4972	0.8555	208.5725	7.4952	1.1105
18	208.5725	7.4952	1.1105	220.8277	7.4979	1.3810
19	220.8277	7.4979	1.3810	233.0854	7.4979	1.6658
20	233.0854	7.4979	1.6658	-898.8879	112.9261	323.3443
21	-898.8879	112.9261	323.3443	-1437.0385	279.1769	565.5568
22	-1437.0385	279.1769	565.5568	-1001.6049	258.6713	518.2600
23	-1001.6049	258.6713	518.2600	-589.0146	236.6791	471.6218
24	-589.0146	236.6791	471.6218	-207.7243	213.2778	425.3763
25	-207.7243	213.2778	425.3763	134.2960	188.5653	376.9937
26	134.2960	188.5653	376.9937	429.3337	162.6901	325.8463
27	429.3337	162.6901	325.8463	670.3995	135.8326	271.8577
28	670.3995	135.8326	271.8577	851.5120	108.1675	216.2648
29	851.5120	108.1675	216.2648	968.0702	79.8800	160.9619
30	968.0702	79.8800	160.9619	1016.7222	51.0968	105.8292
31	1016.7222	51.0968	105.8292	-284.3290	30.1794	-10.9107
32	-284.3290	30.1794	-10.9107	-223.9690	30.1765	-11.3017
33	-223.9690	30.1765	-11.3017	-163.6056	30.1683	-11.5996
34	-163.6056	30.1683	-11.5996	-103.2614	30.1595	-11.8046
35	-103.2614	30.1595	-11.8046	-42.9253	30.1591	-11.9170
36	-42.9253	30.1591	-11.9170	17.4108	30.1627	-11.9363
37	17.4108	30.1627	-11.9363	77.7538	30.1644	-11.8631
38	77.7538	30.1644	-11.8631	138.0892	30.1651	-11.6969
39	138.0892	30.1651	-11.6969	198.4297	30.1672	-11.4384
40	198.4297	30.1672	-11.4384	-877.0444	112.3693	321.7464
41	-877.0444	112.3693	321.7464	-1573.5117	283.7383	564.5859
42	-1573.5117	283.7383	564.5859	-1105.4517	262.3745	517.0550
43	-1105.4517	262.3745	517.0550	-666.1840	239.6159	470.2919
44	-666.1840	239.6159	470.2919	-263.4455	215.5532	424.0370
45	-263.4455	215.5532	424.0370	95.4778	190.2812	375.7437
46	95.4778	190.2812	375.7437	403.5315	163.9228	324.7672
47	403.5315	163.9228	324.7672	654.3697	136.6846	271.0157
48	654.3697	136.6846	271.0157	842.6033	108.6469	215.7220
49	842.6033	108.6469	215.7220	963.9955	80.0701	160.7607
50	963.9955	80.0701	160.7607	1015.7686	51.0816	105.9914
51	1015.7686	51.0816	105.9914	-284.4698	30.1667	-15.3481
52	-284.4698	30.1667	-15.3481	-224.1055	30.1747	-15.7390
53	-224.1055	30.1747	-15.7390	-163.7042	30.1915	-16.0387
54	-163.7042	30.1915	-16.0387	-103.2950	30.1937	-16.2443
55	-103.2950	30.1937	-16.2443	-42.8799	30.1912	-16.3566
56	-42.8799	30.1912	-16.3566	17.5333	30.1932	-16.3762
57	17.5333	30.1932	-16.3762	77.9604	30.1940	-16.3019
58	77.9604	30.1940	-16.3019	138.3820	30.1940	-16.1349
59	138.3820	30.1940	-16.1349	198.8116	30.1952	-15.8755
60	198.8116	30.1952	-15.8755	-874.6083	112.3923	321.4980
61	-874.6083	112.3923	321.4980	-1573.1626	283.6677	564.7758
62	-1573.1626	283.6677	564.7758	-1104.9211	262.2712	517.2370
63	-1104.9211	262.2712	517.2370	-665.5511	239.4894	470.4597
64	-665.5511	239.4894	470.4597	-262.7396	215.4041	424.1770
65	-262.7396	215.4041	424.1770	96.1343	190.0996	375.8375
66	96.1343	190.0996	375.8375	404.0998	163.7333	324.7985
67	404.0998	163.7333	324.7985	654.7421	136.4604	270.9685
68	654.7421	136.4604	270.9685	842.7669	108.4346	215.5743
69	842.7669	108.4346	215.5743	963.9332	79.8303	160.5020
70	963.9332	79.8303	160.5020	1015.3584	50.8189	105.6097
71	1015.3584	50.8189	105.6097	-280.7024	29.8979	-14.3491
72	-280.7024	29.8979	-14.3491	-220.8867	29.9035	-14.7364
73	-220.8867	29.9035	-14.7364	-161.0983	29.8984	-15.0312
74	-161.0983	29.8984	-15.0312	-101.3174	29.9016	-15.2339
75	-101.3174	29.9016	-15.2339	-41.5039	29.9067	-15.3433
76	-41.5039	29.9067	-15.3433	18.3139	29.9051	-15.3608
77	18.3139	29.9051	-15.3608	78.1327	29.9059	-15.2869
78	78.1327	29.9059	-15.2869	137.9552	29.9052	-15.1210
79	137.9552	29.9052	-15.1210	197.7710	29.9051	-14.8624
80	197.7710	29.9051	-14.8624	-895.0815	113.3612	316.6490
81	-895.0815	113.3612	316.6490	-1570.3213	283.0981	573.3558
82	-1570.3213	283.0981	573.3558	-1102.3833	261.5959	527.1583
83	-1102.3833	261.5959	527.1583	-663.8134	238.7254	481.4968
84	-663.8134	238.7254	481.4968	-262.2317	214.5873	436.0303
85	-262.2317	214.5873	436.0303	95.2522	189.2585	388.0719
86	95.2522	189.2585	388.0719	401.8323	162.9193	336.8730
87	401.8323	162.9193	336.8730	651.5079	135.7074	282.2352
88	651.5079	135.7074	282.2352	839.2500	107.8262	225.3727
89	839.2500	107.8262	225.3727	961.2737	79.4393	168.3302
90	961.2737	79.4393	168.3302	1015.1030	50.7333	111.0937
91	1015.1030	50.7333	111.0937	521.8755	34.8580	145.7789
92	521.8755	34.8580	145.7789	-212.1620	30.4697	-22.1509
93	-212.1620	30.4697	-22.1509	-151.1964	30.4605	-22.4282
94	-151.1964	30.4605	-22.4282	-90.2372	30.4548	-22.0521
95	-90.2372	30.4548	-22.0521	-29.2749	30.4568	-22.1449
96	-29.2749	30.4568	-22.1449	31.6824	30.4571	-22.1438
97	31.6824	30.4571	-22.1438	92.6423	30.4568	-22.0479
98	92.6423	30.4568	-22.0479	153.6024	30.4596	-21.8596
99	153.6024	30.4596	-21.8596	214.5638	30.4592	-21.5762
100	214.5638	30.4592	-21.5762	-611.2437	101.3627	283.5405
101	-611.2437	101.3627	283.5405	-1600.7128	270.3573	544.3381
102	-1600.7128	270.3573	544.3381	-1199.1885	246.1403	491.7835
103	-1199.1885	246.1403	491.7835	-804.3557	233.5340	464.9246
104	-804.3557	233.5340	464.9246	-469.7946	207.4136	412.7770
105	-469.7946	207.4136	412.7770	-173.3762	180.2126	359.1793
106	-173.3762	180.2126	359.1793	79.5359	152.0949	303.2055
107	79.5359	152.0949	303.2055	308.4332	137.7478	275.3993
108	308.4332	137.7478	275.3993	461.7568	108.5988	219.6447
109	461.7568	108.5988	219.6447	561.0530	79.0034	163.9847
110	561.0530	79.0034	163.9847	604.4925	49.1287	108.4082
111	604.4925	49.1287	108.4082	-312.3228	38.4560	-39.2423
112	-312.3228	38.4560	-39.2423	-245.0121	38.4295	-39.6141
113	-245.0121	38.4295	-39.6141	-177.7099	38.4281	-39.9000

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
114	-177.7099	38.4281	-39.9000	-110.3884	38.4451	-40.0927
115	-110.3884	38.4451	-40.0927	-43.0513	38.4455	-40.1972
116	-43.0513	38.4455	-40.1972	24.2603	38.4335	-40.2108
117	24.2603	38.4335	-40.2108	91.5665	38.4272	-40.1318
118	91.5665	38.4272	-40.1318	158.8654	38.4286	-39.9636
119	158.8654	38.4286	-39.9636	226.1758	38.4303	-39.7046
120	226.1758	38.4303	-39.7046	-648.7589	100.4305	279.8974
121	-648.7589	100.4305	279.8974	-1415.0549	263.5736	553.9100
122	-1415.0549	263.5736	553.9100	-1049.2783	240.4090	501.0300
123	-1049.2783	240.4090	501.0300	-675.5974	228.3278	474.0183
124	-675.5974	228.3278	474.0183	-370.4728	203.2470	421.2661
125	-370.4728	203.2470	421.2661	-99.4220	177.0520	366.9696
126	-99.4220	177.0520	366.9696	132.3945	149.8633	310.2202
127	132.3945	149.8633	310.2202	350.7225	135.9317	282.0359
128	350.7225	135.9317	282.0359	489.6323	107.6164	225.4395
129	489.6323	107.6164	225.4395	578.1093	78.7360	168.9512
130	578.1093	78.7360	168.9512	613.8684	49.4726	112.5959
131	613.8684	49.4726	112.5959	641.8807	34.7566	84.8873
132	641.8807	34.7566	84.8873	-160.4009	24.8572	-30.1973
133	-160.4009	24.8572	-30.1973	-116.8559	24.8553	-30.3843
134	-116.8559	24.8553	-30.3843	-73.3136	24.8613	-30.5117
135	-73.3136	24.8613	-30.5117	-29.7626	24.8615	-30.5807
136	-29.7626	24.8615	-30.5807	13.7891	24.8591	-30.5900
137	13.7891	24.8591	-30.5900	57.3390	24.8631	-30.5425
138	57.3390	24.8631	-30.5425	100.9015	24.8690	-30.4365
139	100.9015	24.8690	-30.4365	144.4687	24.8716	-30.2711
140	144.4687	24.8716	-30.2711	-668.6237	101.4605	296.2805
141	-668.6237	101.4605	296.2805	-1431.3450	267.2075	550.4788
142	-1431.3450	267.2075	550.4788	-1051.9231	244.5591	498.0095
143	-1051.9231	244.5591	498.0095	-697.3209	220.5619	446.1345
144	-697.3209	220.5619	446.1345	-344.3999	208.0886	420.2249
145	-344.3999	208.0886	420.2249	-62.0312	182.2483	368.5212
146	-62.0312	182.2483	368.5212	179.4928	155.3233	314.3181
147	179.4928	155.3233	314.3181	374.5046	127.5197	260.3495
148	374.5046	127.5197	260.3495	518.3887	98.9686	207.1368
149	518.3887	98.9686	207.1368	645.8543	84.4607	181.1823
150	645.8543	84.4607	181.1823	680.2818	55.1303	128.8073
151	680.2818	55.1303	128.8073	656.2920	25.4873	76.6414
152	656.2920	25.4873	76.6414	-171.9616	24.7980	-27.2229
153	-171.9616	24.7980	-27.2229	-127.2890	24.8008	-27.4323
154	-127.2890	24.8008	-27.4323	-82.6062	24.8008	-27.5771
155	-82.6062	24.8008	-27.5771	-37.9185	24.7997	-27.6622
156	-37.9185	24.7997	-27.6622	6.7551	24.8027	-27.6857
157	6.7551	24.8027	-27.6857	51.4465	24.8045	-27.6454
158	51.4465	24.8045	-27.6454	96.1164	24.8001	-27.5431
159	96.1164	24.8001	-27.5431	140.7872	24.8004	-27.3791
160	140.7872	24.8004	-27.3791	-923.2606	110.6071	317.6436
161	-923.2606	110.6071	317.6436	-1416.7812	278.0173	562.8903
162	-1416.7812	278.0173	562.8903	-979.5012	257.3029	515.3323
163	-979.5012	257.3029	515.3323	-568.5691	235.2192	468.4816
164	-568.5691	235.2192	468.4816	-191.2336	211.8184	422.0800
165	-191.2336	211.8184	422.0800	145.5269	187.1869	373.5934
166	145.5269	187.1869	373.5934	434.8616	161.4859	322.4006
167	434.8616	161.4859	322.4006	670.3857	134.8098	268.4395
168	670.3857	134.8098	268.4395	846.5831	107.3279	212.9669
169	846.5831	107.3279	212.9669	959.1044	79.2408	157.8520
170	959.1044	79.2408	157.8520	1004.9302	50.7435	102.9460
171	1004.9302	50.7435	102.9460	406.7071	26.8955	164.9167
172	406.7071	26.8955	164.9167	-157.5472	21.5164	-11.5752
173	-157.5472	21.5164	-11.5752	-114.4879	21.5230	-11.7871
174	-114.4879	21.5230	-11.7871	-71.4111	21.5254	-11.9299
175	-71.4111	21.5254	-11.9299	-28.3436	21.5255	-12.0065
176	-28.3436	21.5255	-12.0065	14.7318	21.5255	-12.0169
177	14.7318	21.5255	-12.0169	57.7990	21.5219	-11.9610
178	57.7990	21.5219	-11.9610	100.8671	21.5210	-11.8392
179	100.8671	21.5210	-11.8392	143.9367	21.5229	-11.6502
180	143.9367	21.5229	-11.6502	-831.8300	110.1908	315.1003
181	-831.8300	110.1908	315.1003	-1535.0792	278.3074	557.1750
182	-1535.0792	278.3074	557.1750	-1085.9222	256.1916	508.7752
183	-1085.9222	256.1916	508.7752	-666.3510	232.7142	461.0683
184	-666.3510	232.7142	461.0683	-283.7303	207.9890	413.7563
185	-283.7303	207.9890	413.7563	55.0893	182.1302	364.2023
186	55.0893	182.1302	364.2023	343.6945	155.2819	311.7453
187	343.6945	155.2819	311.7453	576.4349	127.6230	256.5458
188	576.4349	127.6230	256.5458	748.8942	99.3842	201.0709
189	748.8942	99.3842	201.0709	857.8458	70.7199	145.7894
190	857.8458	70.7199	145.7894	901.4504	41.7906	90.6981
191	901.4504	41.7906	90.6981	-277.7811	31.9179	-12.6542
192	-277.7811	31.9179	-12.6542	-215.5063	31.9128	-12.9704
193	-215.5063	31.9128	-12.9704	-153.2532	31.9098	-13.2247
194	-153.2532	31.9098	-13.2247	-90.9800	31.9180	-13.4261
195	-90.9800	31.9180	-13.4261	-28.6968	31.9191	-13.5225
196	-28.6968	31.9191	-13.5225	33.5778	31.9177	-13.5177
197	33.5778	31.9177	-13.5177	95.8536	31.9155	-13.4225
198	95.8536	31.9155	-13.4225	158.1228	31.9150	-13.2404
199	158.1228	31.9150	-13.2404	220.3957	31.9157	-12.9429
200	220.3957	31.9157	-12.9429	-1765.0933	33.6133	34.9318
201	-1765.0933	33.6133	34.9318	-1423.5823	247.6882	422.9421
202	-1423.5823	247.6882	422.9421	-1082.6272	232.6881	385.8858
203	-1082.6272	232.6881	385.8858	-768.7999	217.6902	349.5649
204	-768.7999	217.6902	349.5649	-487.3600	187.6940	277.9526
205	-487.3600	187.6940	277.9526	-234.1855	172.6915	242.0905
206	-234.1855	172.6915	242.0905	-10.6143	142.6927	171.0135
207	-10.6143	142.6927	171.0135	181.8465	127.6912	135.6795
208	181.8465	127.6912	135.6795	347.0160	112.6895	100.4767
209	347.0160	112.6895	100.4767	479.1625	82.6808	29.7695
210	479.1625	82.6808	29.7695	583.6986	67.6666	-5.2077
211	583.6986	67.6666	-5.2077	657.8702	37.6611	-75.4951
212	657.8702	37.6611	-75.4951	-383.7935	34.0063	-20.5041
213	-383.7935	34.0063	-20.5041	-335.7944	34.0222	-20.7531
214	-335.7944	34.0222	-20.7531	-287.8143	34.0106	-21.0627
215	-287.8143	34.0106	-21.0627	-239.8485	34.0017	-21.3384
216	-239.8485	34.0017	-21.3384	-191.9019	34.0061	-21.4931
217	-191.9019	34.0061	-21.4931	-143.9203	34.0112	-21.6573
218	-143.9203	34.0112	-21.6573	-95.9348	34.0085	-21.8018
219	-95.9348	34.0085	-21.8018	-47.9701	34.0049	-21.8605
220	-47.9701	34.0049	-21.8605	-0.0278	34.0017	-21.8710

ENVOL. MIN. CORTANTES TREN TREN SW/2, EC-1 en via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.0056	-27.6281	20.0103	-45.1894	-27.6282	19.9818
2	-45.1894	-27.6282	19.9818	-90.3903	-27.6244	19.8967
3	-90.3903	-27.6244	19.8967	-135.5807	-27.6181	19.7547
4	-135.5807	-27.6181	19.7547	-180.7613	-27.6189	19.5555
5	-180.7613	-27.6189	19.5555	-225.9612	-27.6123	19.2999
6	-225.9612	-27.6123	19.2999	-271.1190	-27.6086	18.9874
7	-271.1190	-27.6086	18.9874	560.5807	-37.4343	-79.5486
8	560.5807	-37.4343	-79.5486	692.0036	-51.3547	-106.7292
9	692.0036	-51.3547	-106.7292	704.1185	-59.0503	-121.3112
10	704.1185	-59.0503	-121.3112	680.6110	-82.9814	-90.6277
11	680.6110	-82.9814	-90.6277	556.4601	-96.5475	-117.4041
12	556.4601	-96.5475	-117.4041	418.3044	-123.8334	-172.0007
13	418.3044	-123.8334	-172.0007	245.6202	-151.3698	-226.9392
14	245.6202	-151.3698	-226.9392	11.1705	-165.2390	-254.4993
15	11.1705	-165.2390	-254.4993	-237.3918	-193.1086	-309.3109
16	-237.3918	-193.1086	-309.3109	-522.5825	-219.4644	-361.0383
17	-522.5825	-219.4644	-361.0383	-865.7582	-231.8680	-387.2438
18	-865.7582	-231.8680	-387.2438	-1208.6072	-255.1076	-439.3004
19	-1208.6072	-255.1076	-439.3004	-1562.7812	-276.2715	-491.8882
20	-1562.7812	-276.2715	-491.8882	-925.4597	-115.8063	-270.9779
21	-925.4597	-115.8063	-270.9779	189.2551	-28.0798	13.9215
22	189.2551	-28.0798	13.9215	133.0877	-28.0807	14.1698
23	133.0877	-28.0807	14.1698	76.9181	-28.0809	14.3314
24	76.9181	-28.0809	14.3314	20.7505	-28.0788	14.4063
25	20.7505	-28.0788	14.4063	-35.4098	-28.0770	14.3953
26	-35.4098	-28.0770	14.3953	-91.5649	-28.0712	14.2979
27	-91.5649	-28.0712	14.2979	-147.7189	-28.0577	14.1135
28	-147.7189	-28.0577	14.1135	-203.8387	-28.0568	13.8427
29	-203.8387	-28.0568	13.8427	458.9385	-30.8377	-155.8738
30	458.9385	-30.8377	-155.8738	985.5234	-50.3875	-92.0681
31	985.5234	-50.3875	-92.0681	920.1888	-78.8519	-147.1837
32	920.1888	-78.8519	-147.1837	787.5037	-106.7347	-202.4812
33	787.5037	-106.7347	-202.4812	591.2086	-133.7859	-256.7560
34	591.2086	-133.7859	-256.7560	336.3865	-159.9299	-308.1263
35	336.3865	-159.9299	-308.1263	29.0117	-184.9919	-356.6885
36	29.0117	-184.9919	-356.6885	-324.3270	-208.8636	-402.5162
37	-324.3270	-208.8636	-402.5162	-716.3969	-231.4406	-445.9108
38	-716.3969	-231.4406	-445.9108	-1139.5172	-252.6432	-489.4086
39	-1139.5172	-252.6432	-489.4086	-1585.4442	-272.3956	-533.6064
40	-1585.4442	-272.3956	-533.6064	-944.6992	-112.0396	-321.3603
41	-944.6992	-112.0396	-321.3603	184.0828	-27.9228	14.4089
42	184.0828	-27.9228	14.4089	128.2049	-27.9225	14.6493
43	128.2049	-27.9225	14.6493	72.3251	-27.9236	14.8037
44	72.3251	-27.9236	14.8037	16.4547	-27.9258	14.8719
45	16.4547	-27.9258	14.8719	-39.4209	-27.9223	14.8544
46	-39.4209	-27.9223	14.8544	-95.2766	-27.9193	14.7514
47	-95.2766	-27.9193	14.7514	-151.1510	-27.9236	14.5620
48	-151.1510	-27.9236	14.5620	-207.0290	-27.9240	14.2873
49	-207.0290	-27.9240	14.2873	-262.9196	-27.9261	13.9253
50	-262.9196	-27.9261	13.9253	989.9250	-50.8614	-90.7328
51	989.9250	-50.8614	-90.7328	924.2043	-79.3855	-145.5959
52	924.2043	-79.3855	-145.5959	790.6312	-107.3241	-200.7103
53	790.6312	-107.3241	-200.7103	593.1943	-134.4309	-254.8789
54	593.1943	-134.4309	-254.8789	337.0742	-160.5763	-306.2069
55	337.0742	-160.5763	-306.2069	28.4142	-185.6028	-354.7932
56	28.4142	-185.6028	-354.7932	-326.1163	-209.4333	-400.6995
57	-326.1163	-209.4333	-400.6995	-719.1837	-231.9586	-444.2203
58	-719.1837	-231.9586	-444.2203	-1143.1063	-253.1027	-487.8859
59	-1143.1063	-253.1027	-487.8859	-1589.6030	-272.7917	-532.2711
60	-1589.6030	-272.7917	-532.2711	-938.2668	-111.7709	-321.3824
61	-938.2668	-111.7709	-321.3824	188.3120	-28.6314	14.1103
62	188.3120	-28.6314	14.1103	131.0403	-28.6318	14.3561
63	131.0403	-28.6318	14.3561	73.7615	-28.6344	14.5135
64	73.7615	-28.6344	14.5135	16.4853	-28.6331	14.5830
65	16.4853	-28.6331	14.5830	-40.7917	-28.6318	14.5649
66	-40.7917	-28.6318	14.5649	-98.0697	-28.6308	14.4583
67	-98.0697	-28.6308	14.4583	-155.3467	-28.6340	14.2636
68	-155.3467	-28.6340	14.2636	-212.6403	-28.6404	13.9818
69	-212.6403	-28.6404	13.9818	-269.9383	-28.6354	13.6097
70	-269.9383	-28.6354	13.6097	990.5391	-51.0681	-91.4935
71	990.5391	-51.0681	-91.4935	924.7444	-79.5583	-146.4377
72	924.7444	-79.5583	-146.4377	791.3220	-107.3929	-201.5952
73	791.3220	-107.3929	-201.5952	594.3425	-134.4715	-255.7668
74	594.3425	-134.4715	-255.7668	338.9099	-160.5706	-307.0699
75	338.9099	-160.5706	-307.0699	31.0764	-185.5786	-355.5999
76	31.0764	-185.5786	-355.5999	-322.4212	-209.3672	-401.4230
77	-322.4212	-209.3672	-401.4230	-714.3119	-231.8437	-444.8408
78	-714.3119	-231.8437	-444.8408	-1136.9255	-252.9526	-488.3817
79	-1136.9255	-252.9526	-488.3817	-1582.0068	-272.5972	-532.6369
80	-1582.0068	-272.5972	-532.6369	-943.4313	-111.5687	-324.8763
81	-943.4313	-111.5687	-324.8763	121.6674	-18.4208	-14.3885
82	121.6674	-18.4208	-14.3885	84.8388	-18.4207	-14.2295
83	84.8388	-18.4207	-14.2295	48.0094	-18.4198	-14.1267
84	48.0094	-18.4198	-14.1267	11.1840	-18.4178	-14.0816
85	11.1840	-18.4178	-14.0816	-25.6433	-18.4153	-14.0928
86	-25.6433	-18.4153	-14.0928	-62.4673	-18.4172	-14.1616
87	-62.4673	-18.4172	-14.1616	-99.2930	-18.4227	-14.2860
88	-99.2930	-18.4227	-14.2860	-136.1273	-18.4193	-14.4676
89	-136.1273	-18.4193	-14.4676	348.5506	-22.6265	-158.0350
90	348.5506	-22.6265	-158.0350	1007.2202	-49.7172	-95.4543
91	1007.2202	-49.7172	-95.4543	951.9645	-77.6221	-153.0052
92	951.9645	-77.6221	-153.0052	832.4503	-104.8271	-210.5768
93	832.4503	-104.8271	-210.5768	652.8922	-131.1552	-266.8673
94	652.8922	-131.1552	-266.8673	418.4526	-156.4963	-319.8801
95	418.4526	-156.4963	-319.8801	135.2607	-180.7130	-369.6519
96	135.2607	-180.7130	-369.6519	-190.1849	-203.7132	-416.1965
97	-190.1849	-203.7132	-416.1965	-550.9674	-225.4168	-459.7811
98	-550.9674	-225.4168	-459.7811	-939.5755	-245.7530	-503.0950
99	-939.5755	-245.7530	-503.0950	-1348.3218	-264.6599	-546.9703
100	-1348.3218	-264.6599	-546.9703	-1008.3521	-107.9028	-328.1779
101	-1008.3521	-107.9028	-328.1779	120.2825	-21.8871	-23.7392
102	120.2825	-21.8871	-23.7392	82.0105	-21.8881	-23.6026
103	82.0105	-21.8881	-23.6026	43.7366	-21.8890	-23.5178
104	43.7366	-21.8890	-23.5178	5.4619	-21.8892	-23.4854
105	5.4619	-21.8892	-23.4854	-32.8182	-21.8864	-23.5038
106	-32.8182	-21.8864	-23.5038	-71.0899	-21.8875	-23.5733
107	-71.0899	-21.8875	-23.5733	-109.3636	-21.8879	-23.6943
108	-109.3636	-21.8879	-23.6943	-147.6307	-21.8827	-23.8671
109	-147.6307	-21.8827	-23.8671	622.7878	-25.5290	-32.9873
110	622.7878	-25.5290	-32.9873	651.4475	-54.9566	-88.3859
111	651.4475	-54.9566	-88.3859	584.4103	-69.4818	-115.6713
112	584.4103	-69.4818	-115.6713	507.0917	-97.9899	-171.1919
113	507.0917	-97.9899	-171.1919	379.9937	-125.7246	-227.0082
114	379.9937	-125.7246	-227.0082	207.1196	-152.5232	-283.0057

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	207.1196	-152.5232	-283.0057	-39.7404	-165.5128	-310.0414
116	-39.7404	-165.5128	-310.0414	-294.3087	-190.5917	-361.6678
117	-294.3087	-190.5917	-361.6678	-580.2563	-214.3821	-411.3643
118	-580.2563	-214.3821	-411.3643	-890.7574	-236.7870	-461.7139
119	-890.7574	-236.7870	-461.7139	-1269.1968	-247.4438	-487.9897
120	-1269.1968	-247.4438	-487.9897	-636.2349	-92.4737	-288.9020
121	-636.2349	-92.4737	-288.9020	130.8064	-22.2560	-27.3762
122	130.8064	-22.2560	-27.3762	91.8905	-22.2558	-27.2264
123	91.8905	-22.2558	-27.2264	52.9790	-22.2545	-27.1283
124	52.9790	-22.2545	-27.1283	14.0676	-22.2549	-27.0828
125	14.0676	-22.2549	-27.0828	-24.8473	-22.2568	-27.0904
126	-24.8473	-22.2568	-27.0904	-63.7674	-22.2579	-27.1497
127	-63.7674	-22.2579	-27.1497	-102.6890	-22.2482	-27.2613
128	-102.6890	-22.2482	-27.2613	-141.5779	-22.2398	-27.4260
129	-141.5779	-22.2398	-27.4260	614.7075	-24.1820	-30.4119
130	614.7075	-24.1820	-30.4119	641.0258	-53.3997	-86.3056
131	641.0258	-53.3997	-86.3056	574.7505	-67.8460	-113.8112
132	574.7505	-67.8460	-113.8112	496.7852	-96.3287	-169.7135
133	496.7852	-96.3287	-169.7135	369.4022	-124.1367	-225.8592
134	369.4022	-124.1367	-225.8592	196.1382	-151.0742	-282.1617
135	196.1382	-151.0742	-282.1617	-49.8730	-164.1555	-309.3568
136	-49.8730	-164.1555	-309.3568	-305.8607	-189.4771	-361.2705
137	-305.8607	-189.4771	-361.2705	-594.0110	-213.5559	-411.2158
138	-594.0110	-213.5559	-411.2158	-907.4727	-236.2646	-461.7957
139	-907.4727	-236.2646	-461.7957	-1287.3203	-247.0750	-488.2054
140	-1287.3203	-247.0750	-488.2054	-652.7398	-94.1465	-282.9361
141	-652.7398	-94.1465	-282.9361	198.9169	-32.9606	7.5789
142	198.9169	-32.9606	7.5789	139.5865	-32.9581	7.8131
143	139.5865	-32.9581	7.8131	80.2619	-32.9543	7.9648
144	80.2619	-32.9543	7.9648	20.9440	-32.9554	8.0373
145	20.9440	-32.9554	8.0373	-38.3827	-32.9551	8.0251
146	-38.3827	-32.9551	8.0251	-97.7065	-32.9492	7.9303
147	-97.7065	-32.9492	7.9303	-157.0016	-32.9463	7.7536
148	-157.0016	-32.9463	7.7536	-216.3241	-32.9444	7.4960
149	-216.3241	-32.9444	7.4960	-275.6241	-32.9431	7.1551
150	-275.6241	-32.9431	7.1551	645.4128	-48.8549	-56.8135
151	645.4128	-48.8549	-56.8135	601.8628	-78.1908	-109.5830
152	601.8628	-78.1908	-109.5830	501.2588	-107.0262	-163.0911
153	501.2588	-107.0262	-163.0911	346.3392	-135.1459	-217.6579
154	346.3392	-135.1459	-217.6579	115.8552	-148.8928	-245.0236
155	115.8552	-148.8928	-245.0236	-137.0015	-175.6025	-298.3368
156	-137.0015	-175.6025	-298.3368	-431.5438	-201.1586	-349.1689
157	-431.5438	-201.1586	-349.1689	-761.3926	-225.4422	-398.9391
158	-761.3926	-225.4422	-398.9391	-1119.5093	-248.3513	-449.7947
159	-1119.5093	-248.3513	-449.7947	-1539.7231	-259.2534	-476.5770
160	-1539.7231	-259.2534	-476.5770	-671.6221	-99.8510	-287.5736
161	-671.6221	-99.8510	-287.5736	188.4733	-27.2050	16.1800
162	188.4733	-27.2050	16.1800	134.0331	-27.2034	16.4282
163	134.0331	-27.2034	16.4282	79.5957	-27.2028	16.5925
164	79.5957	-27.2028	16.5925	25.1515	-27.2013	16.6724
165	25.1515	-27.2013	16.6724	-29.2727	-27.2029	16.6695
166	-29.2727	-27.2029	16.6695	-83.7206	-27.2090	16.5825
167	-83.7206	-27.2090	16.5825	-138.1799	-27.2113	16.4109
168	-138.1799	-27.2113	16.4109	-192.6469	-27.2111	16.1539
169	-192.6469	-27.2111	16.1539	458.1934	-31.0892	-157.0265
170	458.1934	-31.0892	-157.0265	972.4450	-49.9896	-93.7888
171	972.4450	-49.9896	-93.7888	909.2962	-78.2279	-148.5813
172	909.2962	-78.2279	-148.5813	780.2236	-105.9283	-203.5613
173	780.2236	-105.9283	-203.5613	588.8274	-132.8215	-257.5492
174	588.8274	-132.8215	-257.5492	339.9981	-158.7853	-308.6389

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	339.9981	-158.7853	-308.6389	39.6964	-183.6625	-356.9531
176	39.6964	-183.6625	-356.9531	-305.6331	-207.3503	-402.5680
177	-305.6331	-207.3503	-402.5680	-688.8295	-229.7385	-445.7778
178	-688.8295	-229.7385	-445.7778	-1102.5137	-250.7834	-489.1154
179	-1102.5137	-250.7834	-489.1154	-1538.6538	-270.3912	-533.1498
180	-1538.6538	-270.3912	-533.1498	-964.4452	-111.7071	-321.9286
181	-964.4452	-111.7071	-321.9286	175.0481	-6.2057	-1.9244
182	175.0481	-6.2057	-1.9244	162.9478	-6.2057	-1.6709
183	162.9478	-6.2057	-1.6709	150.8473	-6.2056	-1.4353
184	150.8473	-6.2056	-1.4353	138.7462	-6.2077	-1.2178
185	138.7462	-6.2077	-1.2178	126.6368	-6.2099	-1.0182
186	126.6368	-6.2099	-1.0182	114.5278	-6.2106	-0.8377
187	114.5278	-6.2106	-0.8377	102.4165	-6.2097	-0.6745
188	102.4165	-6.2097	-0.6745	206.2765	-12.0838	-131.2140
189	206.2765	-12.0838	-131.2140	930.0079	-30.2197	-51.9705
190	930.0079	-30.2197	-51.9705	940.9965	-58.4191	-107.1189
191	940.9965	-58.4191	-107.1189	889.6122	-86.0377	-162.3504
192	889.6122	-86.0377	-162.3504	779.5702	-112.7679	-217.9383
193	779.5702	-112.7679	-217.9383	615.8404	-138.5405	-272.2819
194	615.8404	-138.5405	-272.2819	368.6237	-151.0036	-297.8428
195	368.6237	-151.0036	-297.8428	112.1348	-175.0260	-347.6157
196	112.1348	-175.0260	-347.6157	-180.7926	-197.6978	-394.4446
197	-180.7926	-197.6978	-394.4446	-502.5685	-218.9856	-438.5596
198	-502.5685	-218.9856	-438.5596	-929.0549	-218.9769	-439.5877
199	-929.0549	-218.9769	-439.5877	-515.8066	-221.1981	-570.7798
200	-515.8066	-221.1981	-570.7798	-955.4222	-107.2436	-319.6766
201	-955.4222	-107.2436	-319.6766	268.4144	-10.0205	-1.2837
202	268.4144	-10.0205	-1.2837	254.2880	-10.0210	-0.9676
203	254.2880	-10.0210	-0.9676	240.1581	-10.0137	-0.7529
204	240.1581	-10.0137	-0.7529	226.0410	-10.0071	-0.5194
205	226.0410	-10.0071	-0.5194	211.9302	-10.0070	-0.3266
206	211.9302	-10.0070	-0.3266	197.8151	-10.0138	-0.2071
207	197.8151	-10.0138	-0.2071	183.6921	-10.0167	0.0334
208	183.6921	-10.0167	0.0334	169.5767	-10.0175	0.2734
209	169.5767	-10.0175	0.2734	155.4479	-10.0254	0.3915
210	155.4479	-10.0254	0.3915	141.3118	-10.0231	0.5331
211	141.3118	-10.0231	0.5331	207.8695	-16.5026	-179.8784
212	207.8695	-16.5026	-179.8784	265.4672	-23.6775	-199.7208
213	265.4672	-23.6775	-199.7208	390.0638	-39.7013	-243.1418
214	390.0638	-39.7013	-243.1418	409.2746	-48.5762	-266.3087
215	409.2746	-48.5762	-266.3087	407.6437	-58.0128	-290.5718
216	407.6437	-58.0128	-290.5718	442.5677	-78.7339	-343.1662
217	442.5677	-78.7339	-343.1662	379.3836	-89.9923	-370.9864
218	379.3836	-89.9923	-370.9864	321.3296	-114.2808	-430.5883
219	321.3296	-114.2808	-430.5883	178.8708	-127.3237	-461.8663
220	178.8708	-127.3237	-461.8663	-0.5465	-127.3180	-461.8291

ENVOL. MAX. TORSORES TREN TREN SW/2, EC-1 en via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.1678	166.9357	530.9529	250.4888	153.4989	505.0607
2	250.4888	153.4989	505.0607	418.1398	128.1730	454.9984
3	418.1398	128.1730	454.9984	568.9445	116.2888	430.4390
4	568.9445	116.2888	430.4390	613.5212	94.0771	380.8868
5	613.5212	94.0771	380.8868	602.6067	73.9380	331.4164
6	602.6067	73.9380	331.4164	632.1265	64.6471	307.3578
7	632.1265	64.6471	307.3578	542.8439	47.6256	261.3906
8	542.8439	47.6256	261.3906	424.2233	32.5997	219.2759
9	424.2233	32.5997	219.2759	377.6521	25.8162	199.8757
10	377.6521	25.8162	199.8757	221.2973	13.6620	163.3589
11	221.2973	13.6620	163.3589	146.5869	8.2601	146.6225
12	146.5869	8.2601	146.6225	-25.8321	-1.2246	115.7439
13	-25.8321	-1.2246	115.7439	-194.0078	-9.0535	88.7207
14	-194.0078	-9.0535	88.7207	-284.8378	-12.3773	76.4875
15	-284.8378	-12.3773	76.4875	-440.6769	-17.9197	55.2153
16	-440.6769	-17.9197	55.2153	-578.4433	-22.0627	37.9180
17	-578.4433	-22.0627	37.9180	-658.8275	-23.6458	30.3658
18	-658.8275	-23.6458	30.3658	-765.6051	-25.9753	19.0671
19	-765.6051	-25.9753	19.0671	-847.2843	-27.2405	11.9111
20	-847.2843	-27.2405	11.9111	-898.8879	112.9261	323.3443
21	-898.8879	112.9261	323.3443	-443.3648	226.2867	580.8230
22	-443.3648	226.2867	580.8230	-71.6015	200.1375	528.3744
23	-71.6015	200.1375	528.3744	221.6365	175.0823	479.9428
24	221.6365	175.0823	479.9428	440.3170	151.1968	435.3597
25	440.3170	151.1968	435.3597	589.4211	128.6013	394.2089
26	589.4211	128.6013	394.2089	674.4539	107.3626	353.8308
27	674.4539	107.3626	353.8308	701.7405	87.6044	313.4962
28	701.7405	87.6044	313.4962	678.2159	69.3857	273.0734
29	678.2159	69.3857	273.0734	611.3160	52.7749	233.7859
30	611.3160	52.7749	233.7859	508.9305	37.8177	197.5576
31	508.9305	37.8177	197.5576	378.9410	24.5096	164.3333
32	378.9410	24.5096	164.3333	229.1856	12.8546	134.0853
33	229.1856	12.8546	134.0853	67.1651	2.8077	106.8537
34	67.1651	2.8077	106.8537	-99.8663	-5.6771	82.6642
35	-99.8663	-5.6771	82.6642	-265.0636	-12.6624	61.5511
36	-265.0636	-12.6624	61.5511	-422.1611	-18.2006	43.5671
37	-422.1611	-18.2006	43.5671	-565.6792	-22.3927	28.7832
38	-565.6792	-22.3927	28.7832	-691.0829	-25.3420	17.2770
39	-691.0829	-25.3420	17.2770	-794.9008	-27.1549	9.1364
40	-794.9008	-27.1549	9.1364	-877.0444	112.3693	321.7464
41	-877.0444	112.3693	321.7464	-426.7600	225.6220	582.5226
42	-426.7600	225.6220	582.5226	-56.4146	199.4846	530.1368
43	-56.4146	199.4846	530.1368	235.0363	174.4563	481.7099
44	235.0363	174.4563	481.7099	451.7112	150.6245	437.0769
45	451.7112	150.6245	437.0769	598.7120	128.0854	395.8277
46	598.7120	128.0854	395.8277	681.7740	106.9317	355.3129
47	681.7740	106.9317	355.3129	707.2262	87.2627	314.8130
48	707.2262	87.2627	314.8130	682.0901	69.0997	274.2196
49	682.0901	69.0997	274.2196	613.8203	52.5529	234.7696
50	613.8203	52.5529	234.7696	510.3053	37.6493	198.3940
51	510.3053	37.6493	198.3940	379.4229	24.3951	165.0396
52	379.4229	24.3951	165.0396	228.9863	12.7902	134.6819
53	228.9863	12.7902	134.6819	66.5090	2.7965	107.3639
54	66.5090	2.7965	107.3639	-100.7587	-5.6413	83.1109
55	-100.7587	-5.6413	83.1109	-265.9868	-12.5746	61.9568
56	-265.9868	-12.5746	61.9568	-422.9632	-18.0832	43.9532
57	-422.9632	-18.0832	43.9532	-566.2363	-22.2411	29.1648
58	-566.2363	-22.2411	29.1648	-691.3400	-25.1687	17.6642
59	-691.3400	-25.1687	17.6642	-794.8323	-26.9743	9.5338
60	-794.8323	-26.9743	9.5338	-874.6083	112.3923	321.4980
61	-874.6083	112.3923	321.4980	-423.0852	225.5218	581.6115
62	-423.0852	225.5218	581.6115	-53.4538	199.4335	529.2521
63	-53.4538	199.4335	529.2521	237.4798	174.4517	480.8771
64	237.4798	174.4517	480.8771	453.8563	150.6592	436.3174
65	453.8563	150.6592	436.3174	600.7358	128.1701	395.1598
66	600.7358	128.1701	395.1598	683.8888	107.0724	354.7497
67	683.8888	107.0724	354.7497	709.5910	87.4487	314.3660
68	709.5910	87.4487	314.3660	684.8360	69.3336	273.8816
69	684.8360	69.3336	273.8816	617.0068	52.7992	234.5308
70	617.0068	52.7992	234.5308	513.8745	37.8862	198.2392
71	513.8745	37.8862	198.2392	383.2797	24.6455	164.9460
72	383.2797	24.6455	164.9460	232.8981	13.0229	134.6299
73	232.8981	13.0229	134.6299	70.1276	2.9884	107.3289
74	70.1276	2.9884	107.3289	-97.9204	-5.5050	83.0691
75	-97.9204	-5.5050	83.0691	-264.5524	-12.5116	61.8871
76	-264.5524	-12.5116	61.8871	-423.6660	-18.1077	43.8335
77	-423.6660	-18.1077	43.8335	-570.0101	-22.3911	28.9728
78	-570.0101	-22.3911	28.9728	-699.2257	-25.4633	17.3848
79	-699.2257	-25.4633	17.3848	-807.9811	-27.4276	9.1488
80	-807.9811	-27.4276	9.1488	-895.0815	113.3612	316.6490
81	-895.0815	113.3612	316.6490	-1570.3213	283.0981	573.3558
82	-1570.3213	283.0981	573.3558	-1102.3833	261.5959	527.1583
83	-1102.3833	261.5959	527.1583	-663.8134	238.7254	481.4968
84	-663.8134	238.7254	481.4968	-262.2317	214.5873	436.0303
85	-262.2317	214.5873	436.0303	95.2522	189.2585	388.0719
86	95.2522	189.2585	388.0719	709.9453	114.1944	337.9746
87	709.9453	114.1944	337.9746	754.0054	95.2993	297.4615
88	754.0054	95.2993	297.4615	750.2552	77.9032	256.7365
89	750.2552	77.9032	256.7365	705.6346	62.0142	216.8972
90	705.6346	62.0142	216.8972	627.0905	47.6676	179.9120
91	627.0905	47.6676	179.9120	521.8755	34.8580	145.7789
92	521.8755	34.8580	145.7789	396.9848	23.5658	114.5039
93	396.9848	23.5658	114.5039	259.3546	13.7659	86.1360
94	259.3546	13.7659	86.1360	115.7135	5.4136	60.7597
95	115.7135	5.4136	60.7597	-27.6190	-1.5329	38.4866
96	-27.6190	-1.5329	38.4866	-164.8969	-7.1430	19.4574
97	-164.8969	-7.1430	19.4574	124.6881	4.9161	4.9703
98	124.6881	4.9161	4.9703	134.5131	4.9150	5.1696
99	134.5131	4.9150	5.1696	144.3372	4.9144	5.3840
100	144.3372	4.9144	5.3840	-611.2437	101.3627	283.5405
101	-611.2437	101.3627	283.5405	-1600.7128	270.3573	544.3381
102	-1600.7128	270.3573	544.3381	-1199.1885	246.1403	491.7835
103	-1199.1885	246.1403	491.7835	-804.3557	233.5340	464.9246
104	-804.3557	233.5340	464.9246	-469.7946	207.4136	412.7770
105	-469.7946	207.4136	412.7770	-173.3762	180.2126	359.1793
106	-173.3762	180.2126	359.1793	505.6547	92.4309	308.6011
107	505.6547	92.4309	308.6011	586.7842	82.9659	284.4412
108	586.7842	82.9659	284.4412	558.3287	65.2617	237.8295
109	558.3287	65.2617	237.8295	496.1114	49.2671	194.5318
110	496.1114	49.2671	194.5318	406.8101	34.9914	154.6138
111	406.8101	34.9914	154.6138	378.9514	28.5066	136.1905
112	378.9514	28.5066	136.1905	251.5279	16.8176	101.4393
113	251.5279	16.8176	101.4393	115.5289	6.8185	70.3508

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
114	115.5289	6.8185	70.3508	-22.5109	-1.5281	43.0911
115	-22.5109	-1.5281	43.0911	-94.8634	-5.1014	30.8925
116	-94.8634	-5.1014	30.8925	-6.2518	-9.9028	10.3623
117	-6.2518	-9.9028	10.3623	-23.5958	-9.9028	10.3422
118	-23.5958	-9.9028	10.3422	-40.9409	-9.9039	10.2990
119	-40.9409	-9.9039	10.2990	-58.2870	-9.9035	10.2320
120	-58.2870	-9.9035	10.2320	-648.7589	100.4305	279.8974
121	-648.7589	100.4305	279.8974	-1415.0549	263.5736	553.9100
122	-1415.0549	263.5736	553.9100	-1049.2783	240.4090	501.0300
123	-1049.2783	240.4090	501.0300	-675.5974	228.3278	474.0183
124	-675.5974	228.3278	474.0183	-370.4728	203.2470	421.2661
125	-370.4728	203.2470	421.2661	-99.4220	177.0520	366.9696
126	-99.4220	177.0520	366.9696	132.3945	149.8633	310.2202
127	132.3945	149.8633	310.2202	563.9186	82.8812	284.2211
128	563.9186	82.8812	284.2211	537.5673	64.9303	237.2730
129	537.5673	64.9303	237.2730	476.8751	48.6990	193.5865
130	476.8751	48.6990	193.5865	388.6104	34.2457	153.2491
131	388.6104	34.2457	153.2491	360.4113	27.6777	134.6024
132	360.4113	27.6777	134.6024	233.4453	15.8636	99.4095
133	233.4453	15.8636	99.4095	97.8297	5.7845	67.8848
134	97.8297	5.7845	67.8848	-39.6853	-2.5960	40.2156
135	-39.6853	-2.5960	40.2156	-112.5926	-6.1660	27.8181
136	-112.5926	-6.1660	27.8181	191.1887	9.3960	12.9330
137	191.1887	9.3960	12.9330	207.6120	9.3913	13.2015
138	207.6120	9.3913	13.2015	224.0251	9.3867	13.4914
139	224.0251	9.3867	13.4914	240.4350	9.3856	13.8043
140	240.4350	9.3856	13.8043	-668.6237	101.4605	296.2805
141	-668.6237	101.4605	296.2805	-376.7488	197.6547	570.0071
142	-376.7488	197.6547	570.0071	-88.5682	171.4987	517.7928
143	-88.5682	171.4987	517.7928	131.5378	146.5580	468.8299
144	131.5378	146.5580	468.8299	338.1025	134.5811	444.7731
145	338.1025	134.5811	444.7731	443.3136	111.6602	396.1918
146	443.3136	111.6602	396.1918	492.9555	90.2422	347.3585
147	492.9555	90.2422	347.3585	492.7339	70.4574	298.5937
148	492.7339	70.4574	298.5937	449.1026	52.4144	252.7538
149	449.1026	52.4144	252.7538	452.6957	44.0615	231.4889
150	452.6957	44.0615	231.4889	343.6179	28.7365	191.0240
151	343.6179	28.7365	191.0240	211.1219	15.2359	154.2159
152	211.1219	15.2359	154.2159	62.6602	3.5410	121.1665
153	62.6602	3.5410	121.1665	-94.4118	-6.3763	91.9379
154	-94.4118	-6.3763	91.9379	-183.6159	-10.6888	78.6477
155	-183.6159	-10.6888	78.6477	-347.0497	-18.0410	55.1413
156	-347.0497	-18.0410	55.1413	-500.8811	-23.7929	35.6031
157	-500.8811	-23.7929	35.6031	-639.6891	-28.0285	20.0944
158	-639.6891	-28.0285	20.0944	-759.1268	-30.8671	8.6746
159	-759.1268	-30.8671	8.6746	-35.9724	-6.3366	6.9955
160	-35.9724	-6.3366	6.9955	-923.2606	110.6071	317.6436
161	-923.2606	110.6071	317.6436	-468.2827	227.1415	580.2892
162	-468.2827	227.1415	580.2892	-95.1232	201.1845	528.0435
163	-95.1232	201.1845	528.0435	200.6769	176.2988	479.7732
164	200.6769	176.2988	479.7732	422.9701	152.6109	435.2961
165	422.9701	152.6109	435.2961	576.6564	130.2115	394.2061
166	576.6564	130.2115	394.2061	667.2359	109.1899	353.8436
167	667.2359	109.1899	353.8436	700.8673	89.6121	313.5251
168	700.8673	89.6121	313.5251	684.2207	71.5133	273.1608
169	684.2207	71.5133	273.1608	624.5523	55.0122	233.9842
170	624.5523	55.0122	233.9842	529.4996	40.1447	197.9192
171	529.4996	40.1447	197.9192	406.7071	26.8955	164.9167
172	406.7071	26.8955	164.9167	263.6698	15.2563	134.9613
173	263.6698	15.2563	134.9613	107.5804	5.1834	108.0734

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
174	107.5804	5.1834	108.0734	-54.5149	-3.3600	84.2532
175	-54.5149	-3.3600	84.2532	-216.0174	-10.4333	63.5177
176	-216.0174	-10.4333	63.5177	-370.9712	-16.1080	45.9042
177	-370.9712	-16.1080	45.9042	-514.2415	-20.4923	31.4601
178	-514.2415	-20.4923	31.4601	-641.5216	-23.6688	20.2434
179	-641.5216	-23.6688	20.2434	-749.5798	-25.7559	12.3110
180	-749.5798	-25.7559	12.3110	-831.8300	110.1908	315.1003
181	-831.8300	110.1908	315.1003	-406.3461	221.5037	565.8838
182	-406.3461	221.5037	565.8838	-60.3707	196.8817	513.5310
183	-60.3707	196.8817	513.5310	214.7946	173.5328	465.2257
184	214.7946	173.5328	465.2257	424.0643	151.5425	420.8206
185	424.0643	151.5425	420.8206	636.3235	126.0450	364.7150
186	636.3235	126.0450	364.7150	343.6945	155.2819	311.7453
187	343.6945	155.2819	311.7453	576.4349	127.6230	256.5458
188	576.4349	127.6230	256.5458	748.8942	99.3842	201.0709
189	748.8942	99.3842	201.0709	857.8458	70.7199	145.7894
190	857.8458	70.7199	145.7894	901.4504	41.7906	90.6981
191	901.4504	41.7906	90.6981	879.0838	12.8763	35.4914
192	879.0838	12.8763	35.4914	2.9406	-0.4366	0.0087
193	2.9406	-0.4366	0.0087	2.0940	-0.4375	0.0122
194	2.0940	-0.4375	0.0122	1.2376	-0.4366	0.0149
195	1.2376	-0.4366	0.0149	0.3859	-0.4366	0.0162
196	0.3859	-0.4366	0.0162	-0.4667	-0.4376	0.0162
197	-0.4667	-0.4376	0.0162	-1.3204	-0.4376	0.0149
198	-1.3204	-0.4376	0.0149	-2.1739	-0.4376	0.0124
199	-2.1739	-0.4376	0.0124	-3.0274	-0.4376	0.0083
200	-3.0274	-0.4376	0.0083	-1765.0933	33.6133	34.9318
201	-1765.0933	33.6133	34.9318	-1423.5823	247.6882	422.9421
202	-1423.5823	247.6882	422.9421	-1082.6272	232.6881	385.8858
203	-1082.6272	232.6881	385.8858	-768.7999	217.6902	349.5649
204	-768.7999	217.6902	349.5649	-487.3600	187.6940	277.9526
205	-487.3600	187.6940	277.9526	-234.1855	172.6915	242.0905
206	-234.1855	172.6915	242.0905	-10.6143	142.6927	171.0135
207	-10.6143	142.6927	171.0135	181.8465	127.6912	135.6795
208	181.8465	127.6912	135.6795	347.0160	112.6895	100.4767
209	347.0160	112.6895	100.4767	479.1625	82.6808	29.7695
210	479.1625	82.6808	29.7695	139.4675	-9.8885	0.5516
211	139.4675	-9.8885	0.5516	125.5269	-9.8904	0.7063
212	125.5269	-9.8904	0.7063	111.5788	-9.8950	0.8166
213	111.5788	-9.8950	0.8166	97.6214	-9.8946	0.8880
214	97.6214	-9.8946	0.8880	83.6729	-9.8892	0.9780
215	83.6729	-9.8892	0.9780	69.7315	-9.8878	1.0591
216	69.7315	-9.8878	1.0591	55.7867	-9.8900	1.1031
217	55.7867	-9.8900	1.1031	41.8374	-9.8899	1.1510
218	41.8374	-9.8899	1.1510	28.1632	-9.9898	1.1928
219	28.1632	-9.9898	1.1928	14.0794	-9.9878	1.2102
220	14.0794	-9.9878	1.2102	0.0013	-9.9859	1.2130

ENVOL. MIN. TORSORES TREN TREN SW/2, EC-1 en via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0000	7.4774	-1.1277	14.0301	-0.5813	-2.8418
2	14.0301	-0.5813	-2.8418	78.5987	-3.4530	-10.1032
3	78.5987	-3.4530	-10.1032	121.6465	-5.7457	-15.2565
4	121.6465	-5.7457	-15.2565	235.9839	-12.0273	-28.7500
5	235.9839	-12.0273	-28.7500	371.4525	-20.5494	-46.2690
6	371.4525	-20.5494	-46.2690	422.8433	-25.6356	-56.2375
7	422.8433	-25.6356	-56.2375	560.5807	-37.4343	-79.5486
8	560.5807	-37.4343	-79.5486	692.0036	-51.3547	-106.7292
9	692.0036	-51.3547	-106.7292	704.1185	-59.0503	-121.3112
10	704.1185	-59.0503	-121.3112	794.6133	-76.0688	-154.2287
11	794.6133	-76.0688	-154.2287	759.3177	-85.2948	-171.6544
12	759.3177	-85.2948	-171.6544	784.9829	-105.1887	-210.4542
13	784.9829	-105.1887	-210.4542	767.3922	-126.8769	-253.3030
14	767.3922	-126.8769	-253.3030	627.4296	-138.3296	-275.8410
15	627.4296	-138.3296	-275.8410	513.6212	-162.4884	-324.9957
16	513.6212	-162.4884	-324.9957	341.2385	-188.2001	-377.6344
17	341.2385	-188.2001	-377.6344	68.2438	-200.9910	-404.0988
18	68.2438	-200.9910	-404.0988	-211.0168	-225.8398	-457.7835
19	-211.0168	-225.8398	-457.7835	-536.8945	-249.5680	-512.1041
20	-536.8945	-249.5680	-512.1041	-925.4597	-115.8063	-270.9779
21	-925.4597	-115.8063	-270.9779	-805.8008	27.3465	-6.1446
22	-805.8008	27.3465	-6.1446	-669.0709	24.3566	-13.8543
23	-669.0709	24.3566	-13.8543	-516.2899	20.2710	-24.8305
24	-516.2899	20.2710	-24.8305	-351.6539	15.0173	-38.9974
25	-351.6539	15.0173	-38.9974	-180.1231	8.5218	-56.2866
26	-180.1231	8.5218	-56.2866	-7.1322	0.7234	-76.6436
27	-7.1322	0.7234	-76.6436	161.3494	-8.4221	-100.0347
28	161.3494	-8.4221	-100.0347	318.9224	-18.9352	-126.4427
29	318.9224	-18.9352	-126.4427	458.9385	-30.8377	-155.8738
30	458.9385	-30.8377	-155.8738	574.6965	-44.1160	-188.3532
31	574.6965	-44.1160	-188.3532	659.5276	-58.7477	-223.9294
32	659.5276	-58.7477	-223.9294	707.0962	-74.6620	-262.6739
33	707.0962	-74.6620	-262.6739	712.2408	-91.9458	-304.6140
34	712.2408	-91.9458	-304.6140	670.1058	-110.8714	-348.4753
35	670.1058	-110.8714	-348.4753	573.1906	-131.3711	-392.3843
36	573.1906	-131.3711	-392.3843	414.7274	-153.3967	-436.4824
37	414.7274	-153.3967	-436.4824	188.6295	-176.7596	-481.1813
38	188.6295	-176.7596	-481.1813	-110.4326	-201.4695	-529.1338
39	-110.4326	-201.4695	-529.1338	-486.5737	-227.3275	-581.0918
40	-486.5737	-227.3275	-581.0918	-944.6992	-112.0396	-321.3603
41	-944.6992	-112.0396	-321.3603	-862.6187	29.2912	-9.5566
42	-862.6187	29.2912	-9.5566	-753.9623	27.4652	-17.0441
43	-753.9623	27.4652	-17.0441	-623.2612	24.4852	-27.8635
44	-623.2612	24.4852	-27.8635	-474.4169	20.2611	-41.9337
45	-474.4169	20.2611	-41.9337	-312.2305	14.6958	-59.1834
46	-312.2305	14.6958	-59.1834	-142.1747	7.6775	-79.5493
47	-142.1747	7.6775	-79.5493	29.5577	-0.8611	-102.9857
48	29.5577	-0.8611	-102.9857	196.1263	-10.9836	-129.4644
49	196.1263	-10.9836	-129.4644	350.1577	-22.7371	-158.9695
50	350.1577	-22.7371	-158.9695	483.8482	-36.1620	-191.4635
51	483.8482	-36.1620	-191.4635	589.0935	-51.2715	-226.9694
52	589.0935	-51.2715	-226.9694	657.7043	-68.0327	-265.5516
53	657.7043	-68.0327	-265.5516	681.7577	-86.3984	-307.2926
54	681.7577	-86.3984	-307.2926	653.8308	-106.2960	-350.9633
55	653.8308	-106.2960	-350.9633	567.1017	-127.7041	-394.6758
56	567.1017	-127.7041	-394.6758	415.3914	-150.4516	-438.5638
57	415.3914	-150.4516	-438.5638	193.1676	-174.5171	-483.0159
58	193.1676	-174.5171	-483.0159	-104.2958	-199.7978	-530.6950
59	-104.2958	-199.7978	-530.6950	-480.6315	-226.1456	-582.3542
60	-480.6315	-226.1456	-582.3542	-938.2668	-111.7709	-321.3824
61	-938.2668	-111.7709	-321.3824	-857.2256	29.1564	-8.6523
62	-857.2256	29.1564	-8.6523	-750.8534	27.3997	-16.1592
63	-750.8534	27.3997	-16.1592	-621.7999	24.4694	-27.0217
64	-621.7999	24.4694	-27.0217	-474.0900	20.2850	-41.1565
65	-474.0900	20.2850	-41.1565	-312.6496	14.7419	-58.4817
66	-312.6496	14.7419	-58.4817	-143.0356	7.7362	-78.9286
67	-143.0356	7.7362	-78.9286	28.4506	-0.7937	-102.4491
68	28.4506	-0.7937	-102.4491	194.9041	-10.9200	-129.0084
69	194.9041	-10.9200	-129.0084	348.8695	-22.6866	-158.5900
70	348.8695	-22.6866	-158.5900	482.4504	-36.1384	-191.1527
71	482.4504	-36.1384	-191.1527	587.5348	-51.2510	-226.7213
72	587.5348	-51.2510	-226.7213	655.9618	-68.0238	-265.3495
73	655.9618	-68.0238	-265.3495	679.8279	-86.4062	-307.1186
74	679.8279	-86.4062	-307.1186	651.6753	-106.3528	-350.8076
75	651.6753	-106.3528	-350.8076	564.6475	-127.7514	-394.5375
76	564.6475	-127.7514	-394.5375	412.5372	-150.5680	-438.4388
77	412.5372	-150.5680	-438.4388	189.9040	-174.6413	-482.9195
78	189.9040	-174.6413	-482.9195	-107.9476	-199.9454	-530.6449
79	-107.9476	-199.9454	-530.6449	-484.6360	-226.3195	-582.3727
80	-484.6360	-226.3195	-582.3727	-943.4313	-111.5687	-324.8763
81	-943.4313	-111.5687	-324.8763	-862.1751	29.7501	-15.4238
82	-862.1751	29.7501	-15.4238	-754.6515	27.9809	-22.6612
83	-754.6515	27.9809	-22.6612	-624.4152	25.0341	-33.0748
84	-624.4152	25.0341	-33.0748	-475.5829	20.7967	-46.5614
85	-475.5829	20.7967	-46.5614	-313.1967	15.1918	-63.0456
86	-313.1967	15.1918	-63.0456	-142.9045	8.1174	-82.4644
87	-142.9045	8.1174	-82.4644	28.9053	-0.5071	-104.7729
88	28.9053	-0.5071	-104.7729	195.2298	-10.7391	-129.9608
89	195.2298	-10.7391	-129.9608	348.5506	-22.6265	-158.0350
90	348.5506	-22.6265	-158.0350	480.9597	-36.1988	-188.9933
91	480.9597	-36.1988	-188.9933	584.3092	-51.4346	-222.9067
92	584.3092	-51.4346	-222.9067	650.5286	-68.3220	-259.8876
93	650.5286	-68.3220	-259.8876	671.7745	-86.8015	-300.0848
94	671.7745	-86.8015	-300.0848	640.6807	-106.8616	-342.3100
95	640.6807	-106.8616	-342.3100	550.5210	-128.3513	-384.7291
96	550.5210	-128.3513	-384.7291	395.3596	-151.2169	-427.5486
97	395.3596	-151.2169	-427.5486	170.0327	-175.3701	-471.2521
98	170.0327	-175.3701	-471.2521	-129.7599	-200.6776	-518.6352
99	-129.7599	-200.6776	-518.6352	-507.0912	-227.0224	-570.5455
100	-507.0912	-227.0224	-570.5455	-1008.3521	-107.9028	-328.1779
101	-1008.3521	-107.9028	-328.1779	-967.9495	37.7430	-31.6245
102	-967.9495	37.7430	-31.6245	-855.1710	35.8192	-37.2369
103	-855.1710	35.8192	-37.2369	-759.0948	34.3214	-41.7493
104	-759.0948	34.3214	-41.7493	-613.9468	30.2277	-52.0408
105	-613.9468	30.2277	-52.0408	-451.9090	24.5522	-65.5682
106	-451.9090	24.5522	-65.5682	-278.5429	17.1989	-82.4100
107	-278.5429	17.1989	-82.4100	-178.2352	12.8626	-92.2264
108	-178.2352	12.8626	-92.2264	-8.6220	2.8127	-114.0947
109	-8.6220	2.8127	-114.0947	153.8827	-9.1068	-139.5316
110	153.8827	-9.1068	-139.5316	301.7061	-22.9300	-168.6720
111	301.7061	-22.9300	-168.6720	341.0791	-30.5615	-184.4404
112	341.0791	-30.5615	-184.4404	437.8174	-47.2403	-219.3602
113	437.8174	-47.2403	-219.3602	498.9789	-65.7832	-258.4492
114	498.9789	-65.7832	-258.4492	517.3505	-86.1093	-301.9537

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	517.3505	-86.1093	-301.9537	423.8582	-96.8987	-325.1301
116	423.8582	-96.8987	-325.1301	346.3802	-119.6380	-374.1607
117	346.3802	-119.6380	-374.1607	210.5278	-143.8534	-424.0345
118	210.5278	-143.8534	-424.0345	12.6012	-169.3847	-474.7462
119	12.6012	-169.3847	-474.7462	-269.9553	-182.5996	-500.5429
120	-269.9553	-182.5996	-500.5429	-636.2349	-92.4737	-288.9020
121	-636.2349	-92.4737	-288.9020	130.8064	-22.2560	-27.3762
122	130.8064	-22.2560	-27.3762	-533.0149	22.2546	-30.1343
123	-533.0149	22.2546	-30.1343	-461.3077	20.8020	-34.0486
124	-461.3077	20.8020	-34.0486	-341.7413	16.8380	-43.5261
125	-341.7413	16.8380	-43.5261	-205.9879	11.3454	-56.2216
126	-205.9879	11.3454	-56.2216	-59.3667	4.2452	-72.2460
127	-59.3667	4.2452	-72.2460	16.2735	0.0696	-81.5371
128	16.2735	0.0696	-81.5371	159.2669	-9.5906	-102.7059
129	159.2669	-9.5906	-102.7059	295.4902	-21.0231	-127.5593
130	295.4902	-21.0231	-127.5593	417.7885	-34.2442	-156.2696
131	417.7885	-34.2442	-156.2696	435.2187	-41.5277	-171.8249
132	435.2187	-41.5277	-171.8249	509.1980	-57.4149	-206.6252
133	509.1980	-57.4149	-206.6252	549.8879	-75.0571	-245.8097
134	549.8879	-75.0571	-245.8097	550.7452	-94.4096	-289.6154
135	550.7452	-94.4096	-289.6154	442.8878	-104.7167	-313.0032
136	442.8878	-104.7167	-313.0032	353.7663	-126.4427	-362.6358
137	353.7663	-126.4427	-362.6358	209.7402	-149.6258	-413.2836
138	209.7402	-149.6258	-413.2836	7.0387	-174.1130	-464.8801
139	7.0387	-174.1130	-464.8801	-280.3657	-186.8069	-491.1506
140	-280.3657	-186.8069	-491.1506	-652.7398	-94.1465	-282.9361
141	-652.7398	-94.1465	-282.9361	-638.5800	23.8584	-21.6843
142	-638.5800	23.8584	-21.6843	-545.3003	21.8505	-26.5675
143	-545.3003	21.8505	-26.5675	-429.3386	18.5597	-34.6603
144	-429.3386	18.5597	-34.6603	-349.3162	16.4025	-40.1943
145	-349.3162	16.4025	-40.1943	-212.0761	10.9998	-53.2215
146	-212.0761	10.9998	-53.2215	-65.0259	4.0619	-69.7465
147	-65.0259	4.0619	-69.7465	85.9730	-4.4878	-89.8898
148	85.9730	-4.4878	-89.8898	234.4585	-14.7079	-113.7691
149	234.4585	-14.7079	-113.7691	287.2819	-20.4604	-126.9426
150	287.2819	-20.4604	-126.9426	407.4671	-33.2523	-156.5533
151	407.4671	-33.2523	-156.5533	505.9099	-47.7756	-190.2087
152	505.9099	-47.7756	-190.2087	575.3944	-64.0330	-228.0296
153	575.3944	-64.0330	-228.0296	608.9081	-81.9996	-270.1180
154	608.9081	-81.9996	-270.1180	527.8241	-91.6163	-292.4062
155	527.8241	-91.6163	-292.4062	476.5747	-112.0392	-340.8762
156	476.5747	-112.0392	-340.8762	372.2712	-133.9755	-390.6456
157	372.2712	-133.9755	-390.6456	209.9928	-157.3016	-440.8091
158	209.9928	-157.3016	-440.8091	-14.3183	-181.9182	-491.1142
159	-14.3183	-181.9182	-491.1142	-325.6776	-194.6980	-516.7005
160	-325.6776	-194.6980	-516.7005	-671.6221	-99.8510	-287.5736
161	-671.6221	-99.8510	-287.5736	-599.3617	20.4336	-8.1983
162	-599.3617	20.4336	-8.1983	-505.3873	18.4837	-15.4009
163	-505.3873	18.4837	-15.4009	-390.9033	15.4236	-25.9962
164	-390.9033	15.4236	-25.9962	-259.8151	11.1562	-39.9017
165	-259.8151	11.1562	-39.9017	-116.8602	5.5911	-57.0463
166	-116.8602	5.5911	-57.0463	32.6431	-1.3540	-77.3682
167	32.6431	-1.3540	-77.3682	182.7560	-9.7430	-100.8225
168	182.7560	-9.7430	-100.8225	326.9366	-19.6408	-127.3777
169	326.9366	-19.6408	-127.3777	458.1934	-31.0892	-157.0265
170	458.1934	-31.0892	-157.0265	569.2148	-44.0974	-189.7878
171	569.2148	-44.0974	-189.7878	652.5759	-58.7113	-225.6743
172	652.5759	-58.7113	-225.6743	700.8206	-74.9062	-264.6904
173	700.8206	-74.9062	-264.6904	706.4718	-92.6811	-306.8832
174	706.4718	-92.6811	-306.8832	662.4250	-111.9562	-351.0167
175	662.4250	-111.9562	-351.0167	562.1729	-132.6727	-395.2007
176	562.1729	-132.6727	-395.2007	399.6929	-154.7519	-439.5661
177	399.6929	-154.7519	-439.5661	169.6145	-178.1394	-484.4974
178	169.6145	-178.1394	-484.4974	-132.8918	-202.7624	-532.6405
179	-132.8918	-202.7624	-532.6405	-511.6411	-228.5110	-584.7272
180	-511.6411	-228.5110	-584.7272	-964.4452	-111.7071	-321.9286
181	-964.4452	-111.7071	-321.9286	-871.1670	30.8503	-7.1795
182	-871.1670	30.8503	-7.1795	-758.1741	28.8296	-14.9424
183	-758.1741	28.8296	-14.9424	-623.3812	25.6126	-26.1691
184	-623.3812	25.6126	-26.1691	-470.8745	21.0709	-40.7544
185	-470.8745	21.0709	-40.7544	-305.6738	15.1238	-58.6188
186	-305.6738	15.1238	-58.6188	-133.4048	7.6649	-79.6808
187	-133.4048	7.6649	-79.6808	39.5690	-1.3845	-103.8914
188	39.5690	-1.3845	-103.8914	206.2765	-12.0838	-131.2140
189	206.2765	-12.0838	-131.2140	359.2621	-24.4790	-161.6322
190	359.2621	-24.4790	-161.6322	490.7299	-38.5961	-195.0576
191	490.7299	-38.5961	-195.0576	592.6138	-54.4175	-231.5783
192	592.6138	-54.4175	-231.5783	656.9343	-71.9234	-271.4005
193	656.9343	-71.9234	-271.4005	676.1630	-91.0372	-314.3989
194	676.1630	-91.0372	-314.3989	568.2416	-101.2106	-336.2874
195	568.2416	-101.2106	-336.2874	485.9263	-122.6103	-381.2097
196	485.9263	-122.6103	-381.2097	340.8829	-145.4158	-426.4142
197	340.8829	-145.4158	-426.4142	128.1671	-169.5275	-471.9171
198	128.1671	-169.5275	-471.9171	-156.3839	-194.8290	-519.2744
199	-156.3839	-194.8290	-519.2744	-515.8066	-221.1981	-570.7798
200	-515.8066	-221.1981	-570.7798	-955.4222	-107.2436	-319.6766
201	-955.4222	-107.2436	-319.6766	-887.1161	33.0955	-17.7709
202	-887.1161	33.0955	-17.7709	-817.5508	32.1992	-22.4132
203	-817.5508	32.1992	-22.4132	-742.5370	30.9435	-27.8926
204	-742.5370	30.9435	-27.8926	-618.9551	27.3852	-41.7800
205	-618.9551	27.3852	-41.7800	-530.7207	25.0223	-50.6791
206	-530.7207	25.0223	-50.6791	-378.3248	19.0974	-71.3073
207	-378.3248	19.0974	-71.3073	-284.9247	15.4755	-83.6786
208	-284.9247	15.4755	-83.6786	-193.9597	11.3837	-97.0777
209	-193.9597	11.3837	-97.0777	-28.8573	1.7693	-126.8142
210	-28.8573	1.7693	-126.8142	52.0919	-3.7929	-143.3864
211	52.0919	-3.7929	-143.3864	207.8695	-16.5026	-179.8784
212	207.8695	-16.5026	-179.8784	265.4672	-23.6775	-199.7208
213	265.4672	-23.6775	-199.7208	390.0638	-39.7013	-243.1418
214	390.0638	-39.7013	-243.1418	409.2746	-48.5762	-266.3087
215	409.2746	-48.5762	-266.3087	407.6437	-58.0128	-290.5718
216	407.6437	-58.0128	-290.5718	442.5677	-78.7339	-343.1662
217	442.5677	-78.7339	-343.1662	379.3836	-89.9923	-370.9864
218	379.3836	-89.9923	-370.9864	321.3296	-114.2808	-430.5883
219	321.3296	-114.2808	-430.5883	178.8708	-127.3237	-461.8663
220	178.8708	-127.3237	-461.8663	-0.5465	-127.3180	-461.8291

ENVOL. MAX. FLECTORES TREN TREN SIN CARGA, EC-1 en via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.0009	-0.0003	-0.0713	27.3799	16.0078	42.7355
2	27.3799	16.0078	42.7355	51.5791	13.5072	36.8676
3	51.5791	13.5072	36.8676	72.4852	12.2562	33.9869
4	72.4852	12.2562	33.9869	89.8846	9.7549	28.1716
5	89.8846	9.7549	28.1716	104.1165	7.2545	22.3760
6	104.1165	7.2545	22.3760	114.9389	6.0040	19.5549
7	114.9389	6.0040	19.5549	122.3684	3.5066	13.7869
8	122.3684	3.5066	13.7869	126.6454	1.0088	8.0259
9	126.6454	1.0088	8.0259	127.3904	-0.2396	5.2267
10	127.3904	-0.2396	5.2267	124.8671	-2.7364	-0.5318
11	124.8671	-2.7364	-0.5318	119.1550	-3.9918	-3.3368
12	119.1550	-3.9918	-3.3368	109.8224	-6.4971	-9.1104
13	109.8224	-6.4971	-9.1104	97.3253	-8.9977	-14.8980
14	97.3253	-8.9977	-14.8980	81.5181	-10.2474	-17.7441
15	81.5181	-10.2474	-17.7441	62.2245	-12.7472	-23.5710
16	62.2245	-12.7472	-23.5710	39.7636	-15.2488	-29.4246
17	39.7636	-15.2488	-29.4246	13.8701	-16.5005	-32.3496
18	13.8701	-16.5005	-32.3496	-0.0082	-0.0003	-0.0714
19	-0.0082	-0.0003	-0.0714	-0.0086	-0.0003	-0.0714
20	-0.0086	-0.0003	-0.0714	-0.0087	0.0000	-0.0364
21	-0.0087	0.0000	-0.0364	-0.0079	0.0003	-0.0014
22	-0.0079	0.0003	-0.0014	-0.0074	0.0003	-0.0014
23	-0.0074	0.0003	-0.0014	-0.0068	0.0003	-0.0014
24	-0.0068	0.0003	-0.0014	-0.0063	0.0003	-0.0014
25	-0.0063	0.0003	-0.0014	22.0853	15.4268	28.5446
26	22.0853	15.4268	28.5446	49.8923	12.9255	22.6824
27	49.8923	12.9255	22.6824	72.7040	10.4248	16.8592
28	72.7040	10.4248	16.8592	90.5272	7.9252	11.0672
29	90.5272	7.9252	11.0672	103.3595	5.4236	5.2987
30	103.3595	5.4236	5.2987	111.1969	2.9218	-0.4538
31	111.1969	2.9218	-0.4538	114.0419	0.4218	-6.1980
32	114.0419	0.4218	-6.1980	111.8962	-2.0793	-11.9416
33	111.8962	-2.0793	-11.9416	104.7574	-4.5798	-17.6924
34	104.7574	-4.5798	-17.6924	92.6351	-7.0781	-23.4582
35	92.6351	-7.0781	-23.4582	75.5242	-9.5772	-29.2464
36	75.5242	-9.5772	-29.2464	53.4228	-12.0762	-35.0648
37	53.4228	-12.0762	-35.0648	26.3315	-14.5763	-40.9210
38	26.3315	-14.5763	-40.9210	12.1515	2.6558	-1.1188
39	12.1515	2.6558	-1.1188	17.4646	2.6561	-1.0960
40	17.4646	2.6561	-1.0960	22.7743	0.9657	-0.6295
41	22.7743	0.9657	-0.6295	21.3222	-0.7248	-0.1600
42	21.3222	-0.7248	-0.1600	19.8727	-0.7248	-0.1283
43	19.8727	-0.7248	-0.1283	18.4230	-0.7248	-0.0988
44	18.4230	-0.7248	-0.0988	16.9733	-0.7250	-0.0716
45	16.9733	-0.7250	-0.0716	22.3352	15.4035	28.2684
46	22.3352	15.4035	28.2684	50.1082	12.9044	22.4067
47	50.1082	12.9044	22.4067	72.8922	10.4036	16.5838
48	72.8922	10.4036	16.5838	90.6810	7.9049	10.7918
49	90.6810	7.9049	10.7918	103.4872	5.4068	5.0238
50	103.4872	5.4068	5.0238	111.2973	2.9066	-0.7285
51	111.2973	2.9066	-0.7285	114.1169	0.4059	-6.4726
52	114.1169	0.4059	-6.4726	111.9403	-2.0993	-12.2161
53	111.9403	-2.0993	-12.2161	104.7594	-4.6020	-17.9667
54	104.7594	-4.6020	-17.9667	92.5912	-7.1011	-23.7321
55	92.5912	-7.1011	-23.7321	75.4253	-9.6010	-29.5203
56	75.4253	-9.6010	-29.5203	53.2685	-12.1016	-35.3389
57	53.2685	-12.1016	-35.3389	26.1147	-14.6020	-41.1956
58	26.1147	-14.6020	-41.1956	12.4380	2.7141	-1.5304
59	12.4380	2.7141	-1.5304	17.8701	2.7143	-1.5071
60	17.8701	2.7143	-1.5071	23.3013	0.9857	-0.8528
61	23.3013	0.9857	-0.8528	21.8168	-0.7429	-0.1955
62	21.8168	-0.7429	-0.1955	20.3316	-0.7430	-0.1630
63	20.3316	-0.7430	-0.1630	18.8460	-0.7429	-0.1330
64	18.8460	-0.7429	-0.1330	17.3610	-0.7427	-0.1051
65	17.3610	-0.7427	-0.1051	22.6019	15.3779	28.2644
66	22.6019	15.3779	28.2644	50.3102	12.8766	22.4031
67	50.3102	12.8766	22.4031	73.0347	10.3781	16.5804
68	73.0347	10.3781	16.5804	90.7709	7.8788	10.7889
69	90.7709	7.8788	10.7889	103.5155	5.3772	5.0208
70	103.5155	5.3772	5.0208	111.2630	2.8761	-0.7319
71	111.2630	2.8761	-0.7319	114.0201	0.3779	-6.4768
72	114.0201	0.3779	-6.4768	111.7921	-2.1231	-12.2206
73	111.7921	-2.1231	-12.2206	104.5674	-4.6233	-17.9707
74	104.5674	-4.6233	-17.9707	92.3607	-7.1234	-23.7367
75	92.3607	-7.1234	-23.7367	75.1544	-9.6264	-29.5259
76	75.1544	-9.6264	-29.5259	52.9567	-12.1277	-35.3445
77	52.9567	-12.1277	-35.3445	25.7677	-14.6283	-41.2014
78	25.7677	-14.6283	-41.2014	12.5382	2.7182	-1.4457
79	12.5382	2.7182	-1.4457	17.9751	2.7181	-1.4223
80	17.9751	2.7181	-1.4223	23.4100	0.9811	-0.7269
81	23.4100	0.9811	-0.7269	21.8973	-0.7558	-0.0285
82	21.8973	-0.7558	-0.0285	20.3855	-0.7559	0.0041
83	20.3855	-0.7559	0.0041	18.8732	-0.7559	0.0344
84	18.8732	-0.7559	0.0344	17.3610	-0.7560	0.0621
85	17.3610	-0.7560	0.0621	22.4958	15.3189	29.2694
86	22.4958	15.3189	29.2694	50.0984	12.8179	23.4079
87	50.0984	12.8179	23.4079	72.7063	10.3182	17.5849
88	72.7063	10.3182	17.5849	90.3262	7.8219	11.7924
89	90.3262	7.8219	11.7924	102.9596	5.3221	6.0244
90	102.9596	5.3221	6.0244	110.5927	2.8207	0.2709
91	110.5927	2.8207	0.2709	113.2354	0.3223	-5.4752
92	113.2354	0.3223	-5.4752	110.8929	-2.1751	-11.2210
93	110.8929	-2.1751	-11.2210	103.5620	-4.6736	-16.9736
94	103.5620	-4.6736	-16.9736	91.2405	-7.1755	-22.7414
95	91.2405	-7.1755	-22.7414	73.9251	-9.6772	-28.5310
96	73.9251	-9.6772	-28.5310	51.6163	-12.1755	-34.3519
97	51.6163	-12.1755	-34.3519	24.3209	-14.6744	-40.2108
98	24.3209	-14.6744	-40.2108	13.9757	2.7707	-2.0602
99	13.9757	2.7707	-2.0602	19.5208	2.7706	-2.0344
100	19.5208	2.7706	-2.0344	24.8663	0.9351	-0.6599
101	24.8663	0.9351	-0.6599	23.0908	-0.9003	0.7149
102	23.0908	-0.9003	0.7149	21.5141	-0.9003	0.7450
103	21.5141	-0.9003	0.7450	19.9370	-0.9001	0.7728
104	19.9370	-0.9001	0.7728	18.3606	-0.9000	0.7986
105	18.3606	-0.9000	0.7986	16.7840	-0.9003	0.8223
106	16.7840	-0.9003	0.8223	20.5532	11.9278	21.1125
107	20.5532	11.9278	21.1125	40.2136	10.6783	18.1946
108	40.2136	10.6783	18.1946	55.8801	8.1786	12.3415
109	55.8801	8.1786	12.3415	67.8022	5.6757	6.5075
110	67.8022	5.6757	6.5075	75.9785	3.1744	0.6869
111	75.9785	3.1744	0.6869	80.3483	1.9260	-2.1669
112	80.3483	1.9260	-2.1669	80.7260	-0.5724	-7.9763
113	80.7260	-0.5724	-7.9763	77.3626	-3.0712	-13.7873

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
114	77.3626	-3.0712	-13.7873	70.2576	-5.5720	-19.6056
115	70.2576	-5.5720	-19.6056	59.3412	-6.8218	-22.4770
116	59.3412	-6.8218	-22.4770	44.4341	-9.3200	-28.3246
117	44.4341	-9.3200	-28.3246	25.7880	-11.8208	-34.1947
118	25.7880	-11.8208	-34.1947	14.4667	3.4987	-3.6640
119	14.4667	3.4987	-3.6640	20.5950	3.4989	-3.6404
120	20.5950	3.4989	-3.6404	26.3253	1.2777	-1.3605
121	26.3253	1.2777	-1.3605	24.2777	-0.9435	0.9218
122	24.2777	-0.9435	0.9218	22.6250	-0.9437	0.9533
123	22.6250	-0.9437	0.9533	20.9721	-0.9438	0.9826
124	20.9721	-0.9438	0.9826	19.3191	-0.9437	1.0098
125	19.3191	-0.9437	1.0098	17.6663	-0.9436	1.0346
126	17.6663	-0.9436	1.0346	38.2499	10.9651	22.6129
127	38.2499	10.9651	22.6129	56.2233	9.7114	19.7182
128	56.2233	9.7114	19.7182	70.1942	7.2105	13.8855
129	70.1942	7.2105	13.8855	80.4261	4.7112	8.0691
130	80.4261	4.7112	8.0691	86.9146	2.2092	2.2648
131	86.9146	2.2092	2.2648	89.5912	0.9598	-0.5752
132	89.5912	0.9598	-0.5752	88.2839	-1.5396	-6.3721
133	88.2839	-1.5396	-6.3721	83.2315	-4.0392	-12.1739
134	83.2315	-4.0392	-12.1739	74.4373	-6.5377	-17.9861
135	74.4373	-6.5377	-17.9861	61.8354	-7.7877	-20.8535
136	61.8354	-7.7877	-20.8535	45.2375	-10.2871	-26.6988
137	45.2375	-10.2871	-26.6988	24.8988	-12.7880	-32.5689
138	24.8988	-12.7880	-32.5689	9.0767	2.2364	-2.7626
139	9.0767	2.2364	-2.7626	12.9948	2.2366	-2.7478
140	12.9948	2.2366	-2.7478	16.5869	0.8337	-1.1350
141	16.5869	0.8337	-1.1350	15.2373	-0.5694	0.4795
142	15.2373	-0.5694	0.4795	14.2118	-0.5694	0.4998
143	14.2118	-0.5694	0.4998	13.1863	-0.5693	0.5188
144	13.1863	-0.5693	0.5188	12.1606	-0.5695	0.5364
145	12.1606	-0.5695	0.5364	13.1070	14.2838	28.3152
146	13.1070	14.2838	28.3152	36.2777	11.7831	22.4314
147	36.2777	11.7831	22.4314	55.4570	9.2837	16.5778
148	55.4570	9.2837	16.5778	70.6464	6.7813	10.7474
149	70.6464	6.7813	10.7474	81.7121	5.5288	7.8945
150	81.7121	5.5288	7.8945	88.6602	3.0302	2.0950
151	88.6602	3.0302	2.0950	91.6196	0.5305	-3.6981
152	91.6196	0.5305	-3.6981	90.5871	-1.9688	-9.4896
153	90.5871	-1.9688	-9.4896	85.5618	-4.4681	-15.2854
154	85.5618	-4.4681	-15.2854	76.4196	-5.7199	-18.1315
155	76.4196	-5.7199	-18.1315	63.1515	-8.2202	-23.9525
156	63.1515	-8.2202	-23.9525	45.8983	-10.7195	-29.7942
157	45.8983	-10.7195	-29.7942	24.6508	-13.2188	-35.6627
158	24.6508	-13.2188	-35.6627	9.3006	2.4000	-2.6895
159	9.3006	2.4000	-2.6895	13.6229	2.3997	-2.6736
160	13.6229	2.3997	-2.6736	17.9507	0.9128	-1.4434
161	17.9507	0.9128	-1.4434	16.8099	-0.5741	-0.2097
162	16.8099	-0.5741	-0.2097	15.6621	-0.5741	-0.1847
163	15.6621	-0.5741	-0.1847	14.5142	-0.5743	-0.1616
164	14.5142	-0.5743	-0.1616	13.3659	-0.5743	-0.1400
165	13.3659	-0.5743	-0.1400	33.7619	14.7945	28.0967
166	33.7619	14.7945	28.0967	60.3185	12.2976	22.2516
167	60.3185	12.2976	22.2516	81.8895	9.8007	16.4430
168	81.8895	9.8007	16.4430	98.4711	7.2993	10.6649
169	98.4711	7.2993	10.6649	110.0546	4.7981	4.9086
170	110.0546	4.7981	4.9086	116.6486	2.3000	-0.8360
171	116.6486	2.3000	-0.8360	118.2569	-0.1970	-6.5736
172	118.2569	-0.1970	-6.5736	114.8792	-2.6956	-12.3111
173	114.8792	-2.6956	-12.3111	106.5049	-5.1995	-18.0582

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
174	106.5049	-5.1995	-18.0582	93.1324	-7.7023	-23.8215
175	93.1324	-7.7023	-23.8215	74.7708	-10.2012	-29.6102
176	74.7708	-10.2012	-29.6102	51.4142	-12.7006	-35.4308
177	51.4142	-12.7006	-35.4308	23.0693	-15.2006	-41.2907
178	23.0693	-15.2006	-41.2907	9.4440	2.0152	-1.1012
179	9.4440	2.0152	-1.1012	13.4767	2.0153	-1.0835
180	13.4767	2.0153	-1.0835	17.5157	0.7171	-0.6327
181	17.5157	0.7171	-0.6327	16.3895	-0.5811	-0.1801
182	16.3895	-0.5811	-0.1801	15.2565	-0.5810	-0.1564
183	15.2565	-0.5810	-0.1564	14.1236	-0.5809	-0.1343
184	14.1236	-0.5809	-0.1343	12.9907	-0.5811	-0.1139
185	12.9907	-0.5811	-0.1139	15.6985	14.7624	26.9230
186	15.6985	14.7624	26.9230	42.2045	12.2623	21.0487
187	42.2045	12.2623	21.0487	63.9672	9.7612	15.2109
188	63.9672	9.7612	15.2109	80.9850	7.2617	9.4029
189	80.9850	7.2617	9.4029	93.2627	4.7598	3.6157
190	93.2627	4.7598	3.6157	100.7945	2.2569	-2.1465
191	100.7945	2.2569	-2.1465	103.5794	-0.2418	-7.9114
192	103.5794	-0.2418	-7.9114	101.6249	-2.7404	-13.6975
193	101.6249	-2.7404	-13.6975	94.9310	-5.2408	-19.4756
194	94.9310	-5.2408	-19.4756	83.4934	-6.4907	-22.2870
195	83.4934	-6.4907	-22.2870	67.2449	-8.9905	-28.0917
196	67.2449	-8.9905	-28.0917	46.2459	-11.4907	-33.9347
197	46.2459	-11.4907	-33.9347	20.5096	-13.9902	-39.8053
198	20.5096	-13.9902	-39.8053	14.9554	3.0181	-1.2770
199	14.9554	3.0181	-1.2770	20.8442	3.0180	-1.2487
200	20.8442	3.0180	-1.2487	26.7271	1.0353	-0.6859
201	26.7271	1.0353	-0.6859	25.3854	-0.9477	-0.1221
202	25.3854	-0.9477	-0.1221	24.0492	-0.9475	-0.0922
203	24.0492	-0.9475	-0.0922	22.7131	-0.9470	-0.0719
204	22.7131	-0.9470	-0.0719	21.3780	-0.9464	-0.0498
205	21.3780	-0.9464	-0.0498	20.0430	-0.9462	-0.0316
206	20.0430	-0.9462	-0.0316	18.7086	-0.9469	-0.0203
207	18.7086	-0.9469	-0.0203	19.7705	10.3883	10.6384
208	19.7705	10.3883	10.6384	33.1805	9.1390	7.7108
209	33.1805	9.1390	7.7108	43.8368	6.6392	1.8212
210	43.8368	6.6392	1.8212	52.1953	5.3883	-1.0897
211	52.1953	5.3883	-1.0897	58.0198	2.8871	-6.9431
212	58.0198	2.8871	-6.9431	61.3217	1.6364	-9.8476
213	61.3217	1.6364	-9.8476	62.3116	-0.8634	-15.7229
214	62.3116	-0.8634	-15.7229	60.5616	-2.1123	-18.6194
215	60.5616	-2.1123	-18.6194	56.5416	-3.3608	-21.5177
216	56.5416	-3.3608	-21.5177	49.9185	-5.8621	-27.3979
217	49.9185	-5.8621	-27.3979	40.8423	-7.1132	-30.3119
218	40.8423	-7.1132	-30.3119	29.4006	-9.6130	-36.1877
219	29.4006	-9.6130	-36.1877	15.2607	-10.8626	-39.1279
220	15.2607	-10.8626	-39.1279	0.0003	-0.8722	0.1091

ENVOL. MIN. FLECTORES TREN TREN SIN CARGA, EC-1 en via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.0164	14.6793	47.6207	-0.0014	-0.0003	-0.0713
2	-0.0014	-0.0003	-0.0713	-0.0018	-0.0003	-0.0713
3	-0.0018	-0.0003	-0.0713	-0.0022	-0.0003	-0.0713
4	-0.0022	-0.0003	-0.0713	-0.0025	-0.0003	-0.0713
5	-0.0025	-0.0003	-0.0713	-0.0030	-0.0003	-0.0713
6	-0.0030	-0.0003	-0.0713	-0.0033	-0.0003	-0.0713
7	-0.0033	-0.0003	-0.0713	-0.0038	-0.0003	-0.0713
8	-0.0038	-0.0003	-0.0713	-0.0041	-0.0003	-0.0714
9	-0.0041	-0.0003	-0.0714	-0.0045	-0.0003	-0.0714
10	-0.0045	-0.0003	-0.0714	-0.0049	-0.0003	-0.0714
11	-0.0049	-0.0003	-0.0714	-0.0054	-0.0003	-0.0714
12	-0.0054	-0.0003	-0.0714	-0.0058	-0.0003	-0.0714
13	-0.0058	-0.0003	-0.0714	-0.0061	-0.0003	-0.0714
14	-0.0061	-0.0003	-0.0714	-0.0066	-0.0003	-0.0714
15	-0.0066	-0.0003	-0.0714	-19.4091	-16.0739	-22.2816
16	-19.4091	-16.0739	-22.2816	-47.3089	-18.5745	-28.2409
17	-47.3089	-18.5745	-28.2409	-78.6355	-19.8241	-31.2791
18	-78.6355	-19.8241	-31.2791	-113.3302	-22.3240	-37.3176
19	-113.3302	-22.3240	-37.3176	-151.1929	-24.8241	-43.4008
20	-151.1929	-24.8241	-43.4008	-192.2429	0.9268	6.0533
21	-192.2429	0.9268	6.0533	-139.0521	25.4277	52.5363
22	-139.0521	25.4277	52.5363	-91.2820	22.9273	46.4413
23	-91.2820	22.9273	46.4413	-67.5214	2.6532	-0.4798
24	-67.5214	2.6532	-0.4798	-62.2156	2.6527	-0.5796
25	-62.2156	2.6527	-0.5796	-56.9092	2.6525	-0.6714
26	-56.9092	2.6525	-0.6714	-51.6021	2.6542	-0.7547
27	-51.6021	2.6542	-0.7547	-46.2906	2.6560	-0.8300
28	-46.2906	2.6560	-0.8300	-40.9790	2.6560	-0.8971
29	-40.9790	2.6560	-0.8971	-35.6688	2.6557	-0.9560
30	-35.6688	2.6557	-0.9560	-30.3573	2.6572	-1.0069
31	-30.3573	2.6572	-1.0069	-25.0399	2.6565	-1.0495
32	-25.0399	2.6565	-1.0495	-19.7281	2.6552	-1.0839
33	-19.7281	2.6552	-1.0839	-14.4128	2.6564	-1.1101
34	-14.4128	2.6564	-1.1101	-9.0988	2.6562	-1.1283
35	-9.0988	2.6562	-1.1283	-3.7871	2.6562	-1.1381
36	-3.7871	2.6562	-1.1381	-25.2942	-15.4622	-34.3233
37	-25.2942	-15.4622	-34.3233	-59.1546	-17.9621	-40.3057
38	-59.1546	-17.9621	-40.3057	-98.0049	-20.4621	-46.3440
39	-98.0049	-20.4621	-46.3440	-141.8448	-22.9621	-52.4459
40	-141.8448	-22.9621	-52.4459	-191.0898	1.2215	-0.0951
41	-191.0898	1.2215	-0.0951	-138.6815	25.4051	52.2580
42	-138.6815	25.4051	52.2580	-90.9392	22.9058	46.1638
43	-90.9392	22.9058	46.1638	-68.9780	2.7117	-0.8778
44	-68.9780	2.7117	-0.8778	-63.5530	2.7115	-0.9797
45	-63.5530	2.7115	-0.9797	-58.1268	2.7121	-1.0734
46	-58.1268	2.7121	-1.0734	-52.6980	2.7119	-1.1586
47	-52.6980	2.7119	-1.1586	-47.2718	2.7117	-1.2355
48	-47.2718	2.7117	-1.2355	-41.8464	2.7112	-1.3040
49	-41.8464	2.7112	-1.3040	-36.4207	2.7102	-1.3641
50	-36.4207	2.7102	-1.3641	-30.9982	2.7112	-1.4161
51	-30.9982	2.7112	-1.4161	-25.5723	2.7117	-1.4597
52	-25.5723	2.7117	-1.4597	-20.1465	2.7123	-1.4948
53	-20.1465	2.7123	-1.4948	-14.7165	2.7139	-1.5217
54	-14.7165	2.7139	-1.5217	-9.2857	2.7139	-1.5403
55	-9.2857	2.7139	-1.5403	-3.8561	2.7138	-1.5503
56	-3.8561	2.7138	-1.5503	-25.4166	-15.4587	-34.5466
57	-25.4166	-15.4587	-34.5466	-59.2826	-17.9587	-40.5293
58	-59.2826	-17.9587	-40.5293	-98.1405	-20.4590	-46.5681
59	-98.1405	-20.4590	-46.5681	-141.9901	-22.9590	-52.6704
60	-141.9901	-22.9590	-52.6704	-190.8634	1.2095	-0.2106
61	-190.8634	1.2095	-0.2106	-138.1446	25.3777	52.2519
62	-138.1446	25.3777	52.2519	-90.4747	22.8778	46.1583
63	-90.4747	22.8778	46.1583	-68.9795	2.7158	-0.7946
64	-68.9795	2.7158	-0.7946	-63.5464	2.7164	-0.8965
65	-63.5464	2.7164	-0.8965	-58.1124	2.7174	-0.9902
66	-58.1124	2.7174	-0.9902	-52.6772	2.7162	-1.0752
67	-52.6772	2.7162	-1.0752	-47.2459	2.7141	-1.1521
68	-47.2459	2.7141	-1.1521	-41.8147	2.7142	-1.2206
69	-41.8147	2.7142	-1.2206	-36.3829	2.7155	-1.2808
70	-36.3829	2.7155	-1.2808	-30.9473	2.7159	-1.3323
71	-30.9473	2.7159	-1.3323	-25.5130	2.7164	-1.3756
72	-25.5130	2.7164	-1.3756	-20.0774	2.7169	-1.4107
73	-20.0774	2.7169	-1.4107	-14.6430	2.7165	-1.4376
74	-14.6430	2.7165	-1.4376	-9.2090	2.7171	-1.4560
75	-9.2090	2.7171	-1.4560	-3.7730	2.7178	-1.4659
76	-3.7730	2.7178	-1.4659	-24.8530	-15.4454	-34.5336
77	-24.8530	-15.4454	-34.5336	-58.6803	-17.9457	-40.5154
78	-58.6803	-17.9457	-40.5154	-97.4978	-20.4459	-46.5529
79	-97.4978	-20.4459	-46.5529	-141.3044	-22.9459	-52.6542
80	-141.3044	-22.9459	-52.6542	-190.2946	1.1867	0.2994
81	-190.2946	1.1867	0.2994	-137.8351	25.3189	53.2560
82	-137.8351	25.3189	53.2560	-90.2638	22.8177	47.1630
83	-90.2638	22.8177	47.1630	-69.2417	2.7731	-1.4229
84	-69.2417	2.7731	-1.4229	-63.6908	2.7734	-1.5249
85	-63.6908	2.7734	-1.5249	-58.1423	2.7736	-1.6186
86	-58.1423	2.7736	-1.6186	-52.5919	2.7740	-1.7041
87	-52.5919	2.7740	-1.7041	-47.0408	2.7730	-1.7808
88	-47.0408	2.7730	-1.7808	-41.4935	2.7729	-1.8489
89	-41.4935	2.7729	-1.8489	-35.9421	2.7724	-1.9084
90	-35.9421	2.7724	-1.9084	-30.3945	2.7714	-1.9594
91	-30.3945	2.7714	-1.9594	-24.8456	2.7713	-2.0017
92	-24.8456	2.7713	-2.0017	-19.2984	2.7718	-2.0357
93	-19.2984	2.7718	-2.0357	-13.7509	2.7714	-2.0609
94	-13.7509	2.7714	-2.0609	-8.2064	2.7708	-2.0777
95	-8.2064	2.7708	-2.0777	-2.6604	2.7710	-2.0862
96	-2.6604	2.7710	-2.0862	-2.5164	-14.4913	-36.6077
97	-2.5164	-14.4913	-36.6077	-34.4447	-16.9911	-42.5535
98	-34.4447	-16.9911	-42.5535	-71.3658	-19.4918	-48.5521
99	-71.3658	-19.4918	-48.5521	-113.2786	-21.9921	-54.6117
100	-113.2786	-21.9921	-54.6117	-168.7719	0.5930	-3.2672
101	-168.7719	0.5930	-3.2672	-134.7807	23.1779	48.0739
102	-134.7807	23.1779	48.0739	-96.0269	20.6777	42.0010
103	-96.0269	20.6777	42.0010	-77.4564	3.4975	-3.0280
104	-77.4564	3.4975	-3.0280	-71.3321	3.4966	-3.1283
105	-71.3321	3.4966	-3.1283	-65.2070	3.4962	-3.2201
106	-65.2070	3.4962	-3.2201	-59.0813	3.4962	-3.3036
107	-59.0813	3.4962	-3.3036	-52.9550	3.4981	-3.3791
108	-52.9550	3.4981	-3.3791	-46.8282	3.4995	-3.4465
109	-46.8282	3.4995	-3.4465	-40.6998	3.5001	-3.5053
110	-40.6998	3.5001	-3.5053	-34.5681	3.4999	-3.5561
111	-34.5681	3.4999	-3.5561	-28.4354	3.4989	-3.5979
112	-28.4354	3.4989	-3.5979	-22.3064	3.4985	-3.6322
113	-22.3064	3.4985	-3.6322	-16.1784	3.4989	-3.6581
114	-16.1784	3.4989	-3.6581	-10.0487	3.4999	-3.6757

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	-10.0487	3.4999	-3.6757	-3.9185	3.4983	-3.6585
116	-3.9185	3.4983	-3.6585	-13.4012	-12.1129	-31.7796
117	-13.4012	-12.1129	-31.7796	-36.9277	-14.6124	-37.7311
118	-36.9277	-14.6124	-37.7311	-64.1970	-17.1124	-43.7167
119	-64.1970	-17.1124	-43.7167	-95.2729	-18.3624	-46.7829
120	-95.2729	-18.3624	-46.7829	-139.9350	1.9259	1.3267
121	-139.9350	1.9259	1.3267	-108.6459	22.2143	49.4274
122	-108.6459	22.2143	49.4274	-71.5798	19.7146	43.3886
123	-71.5798	19.7146	43.3886	-49.6698	2.2353	-2.3527
124	-49.6698	2.2353	-2.3527	-45.7540	2.2351	-2.4169
125	-45.7540	2.2351	-2.4169	-41.8399	2.2343	-2.4760
126	-41.8399	2.2343	-2.4760	-37.9262	2.2341	-2.5294
127	-37.9262	2.2341	-2.5294	-34.0124	2.2354	-2.5780
128	-34.0124	2.2354	-2.5780	-30.0941	2.2359	-2.6210
129	-30.0941	2.2359	-2.6210	-26.1771	2.2359	-2.6589
130	-26.1771	2.2359	-2.6589	-22.2589	2.2368	-2.6916
131	-22.2589	2.2368	-2.6916	-18.3396	2.2364	-2.7190
132	-18.3396	2.2364	-2.7190	-14.4239	2.2360	-2.7411
133	-14.4239	2.2360	-2.7411	-10.5077	2.2362	-2.7580
134	-10.5077	2.2362	-2.7580	-6.5914	2.2362	-2.7694
135	-6.5914	2.2362	-2.7694	-2.6747	2.2361	-2.7757
136	-2.6747	2.2361	-2.7757	-16.2554	-13.3086	-30.8586
137	-16.2554	-13.3086	-30.8586	-41.8779	-15.8090	-36.8151
138	-41.8779	-15.8090	-36.8151	-71.2443	-18.3096	-42.8087
139	-71.2443	-18.3096	-42.8087	-104.4167	-19.5596	-45.8857
140	-104.4167	-19.5596	-45.8857	-152.5867	1.7374	1.7108
141	-152.5867	1.7374	1.7108	-120.1330	23.0340	49.2945
142	-120.1330	23.0340	49.2945	-80.7404	20.5336	43.2382
143	-80.7404	20.5336	43.2382	-55.5351	2.3986	-2.2093
144	-55.5351	2.3986	-2.2093	-51.2151	2.3984	-2.2832
145	-51.2151	2.3984	-2.2832	-46.8952	2.3990	-2.3509
146	-46.8952	2.3990	-2.3509	-42.5742	2.3997	-2.4130
147	-42.5742	2.3997	-2.4130	-38.2511	2.3992	-2.4690
148	-38.2511	2.3992	-2.4690	-33.9301	2.3999	-2.5187
149	-33.9301	2.3999	-2.5187	-29.6072	2.4002	-2.5627
150	-29.6072	2.4002	-2.5627	-25.2845	2.4004	-2.6010
151	-25.2845	2.4004	-2.6010	-20.9607	2.4005	-2.6328
152	-20.9607	2.4005	-2.6328	-16.6390	2.3996	-2.6586
153	-16.6390	2.3996	-2.6586	-12.3168	2.4003	-2.6789
154	-12.3168	2.4003	-2.6789	-7.9929	2.4009	-2.6930
155	-7.9929	2.4009	-2.6930	-12.3927	-12.1625	-23.8685
156	-12.3927	-12.1625	-23.8685	-36.7449	-14.6624	-29.8200
157	-36.7449	-14.6624	-29.8200	-65.0883	-17.1625	-35.8081
158	-65.0883	-17.1625	-35.8081	-97.4234	-19.6625	-41.8379
159	-97.4234	-19.6625	-41.8379	-133.8760	-20.9125	-44.9569
160	-133.8760	-20.9125	-44.9569	-174.2085	1.9419	3.5226
161	-174.2085	1.9419	3.5226	-122.3754	24.7962	52.0009
162	-122.3754	24.7962	52.0009	-75.8533	22.2959	45.9309
163	-75.8533	22.2959	45.9309	-51.0498	2.0170	-0.6212
164	-51.0498	2.0170	-0.6212	-47.0147	2.0173	-0.6966
165	-47.0147	2.0173	-0.6966	-42.9792	2.0168	-0.7659
166	-42.9792	2.0168	-0.7659	-38.9440	2.0159	-0.8289
167	-38.9440	2.0159	-0.8289	-34.9118	2.0150	-0.8857
168	-34.9118	2.0150	-0.8857	-30.8799	2.0155	-0.9365
169	-30.8799	2.0155	-0.9365	-26.8463	2.0160	-0.9808
170	-26.8463	2.0160	-0.9808	-22.8128	2.0157	-1.0189
171	-22.8128	2.0157	-1.0189	-18.7813	2.0150	-1.0508
172	-18.7813	2.0150	-1.0508	-14.7507	2.0148	-1.0764
173	-14.7507	2.0148	-1.0764	-10.7195	2.0153	-1.0961
174	-10.7195	2.0153	-1.0961	-6.6865	2.0156	-1.1098

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	-6.6865	2.0156	-1.1098	-2.6539	2.0154	-1.1168
176	-2.6539	2.0154	-1.1168	-21.2384	-15.8482	-34.3100
177	-21.2384	-15.8482	-34.3100	-55.8803	-18.3480	-40.2867
178	-55.8803	-18.3480	-40.2867	-95.5130	-20.8478	-46.3204
179	-95.5130	-20.8478	-46.3204	-140.1368	-23.3479	-52.4195
180	-140.1368	-23.3479	-52.4195	-188.9124	0.7074	-0.7508
181	-188.9124	0.7074	-0.7508	-137.7639	24.7629	50.9229
182	-137.7639	24.7629	50.9229	-92.2835	22.2626	44.8334
183	-92.2835	22.2626	44.8334	-73.3694	3.0151	-0.6189
184	-73.3694	3.0151	-0.6189	-67.4865	3.0163	-0.7247
185	-67.4865	3.0163	-0.7247	-61.6006	3.0177	-0.8220
186	-61.6006	3.0177	-0.8220	-55.7148	3.0178	-0.9103
187	-55.7148	3.0178	-0.9103	-49.8265	3.0179	-0.9894
188	-49.8265	3.0179	-0.9894	-43.9387	3.0185	-1.0600
189	-43.9387	3.0185	-1.0600	-38.0506	3.0187	-1.1214
190	-38.0506	3.0187	-1.1214	-32.1604	3.0188	-1.1771
191	-32.1604	3.0188	-1.1771	-26.2697	3.0187	-1.2218
192	-26.2697	3.0187	-1.2218	-20.3800	3.0176	-1.2515
193	-20.3800	3.0176	-1.2515	-14.4927	3.0181	-1.2757
194	-14.4927	3.0181	-1.2757	-8.6021	3.0187	-1.2946
195	-8.6021	3.0187	-1.2946	-2.7129	3.0182	-1.3036
196	-2.7129	3.0182	-1.3036	-0.6199	-0.5816	-0.0026
197	-0.6199	-0.5816	-0.0026	-25.1256	-15.8245	-39.2659
198	-25.1256	-15.8245	-39.2659	-59.1821	-18.3246	-45.2435
199	-59.1821	-18.3246	-45.2435	-97.9768	-20.8250	-51.2854
200	-97.9768	-20.8250	-51.2854	-142.0815	-0.2184	-8.3713
201	-142.0815	-0.2184	-8.3713	-111.8854	20.3884	34.5438
202	-111.8854	20.3884	34.5438	-83.8274	19.1385	31.4637
203	-83.8274	19.1385	31.4637	-72.9013	3.0412	-1.4771
204	-72.9013	3.0412	-1.4771	-68.6149	3.0403	-1.5480
205	-68.6149	3.0403	-1.5480	-64.3310	3.0386	-1.6068
206	-64.3310	3.0386	-1.6068	-60.0477	3.0395	-1.6429
207	-60.0477	3.0395	-1.6429	-55.7603	3.0394	-1.7160
208	-55.7603	3.0394	-1.7160	-51.4753	3.0394	-1.7885
209	-51.4753	3.0394	-1.7885	-47.1857	3.0400	-1.8245
210	-47.1857	3.0400	-1.8245	-42.8972	3.0395	-1.8674
211	-42.8972	3.0395	-1.8674	-38.6067	3.0411	-1.9151
212	-38.6067	3.0411	-1.9151	-34.3176	3.0430	-1.9491
213	-34.3176	3.0430	-1.9491	-30.0250	3.0424	-1.9711
214	-30.0250	3.0424	-1.9711	-25.7364	3.0410	-1.9987
215	-25.7364	3.0410	-1.9987	-21.4468	3.0408	-2.0235
216	-21.4468	3.0408	-2.0235	-17.1593	3.0413	-2.0371
217	-17.1593	3.0413	-2.0371	-12.8687	3.0415	-2.0518
218	-12.8687	3.0415	-2.0518	-8.5782	3.0408	-2.0646
219	-8.5782	3.0408	-2.0646	-4.2894	3.0405	-2.0700
220	-4.2894	3.0405	-2.0700	-0.0461	-10.8620	-39.1249

ENVOL. MAX. CORTANTES TREN TREN SIN CARGA, EC-1 en via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.0155	17.2575	45.6770	27.3799	16.0078	42.7355
2	27.3799	16.0078	42.7355	51.5791	13.5072	36.8676
3	51.5791	13.5072	36.8676	72.4852	12.2562	33.9869
4	72.4852	12.2562	33.9869	89.8846	9.7549	28.1716
5	89.8846	9.7549	28.1716	104.1165	7.2545	22.3760
6	104.1165	7.2545	22.3760	114.9389	6.0040	19.5549
7	114.9389	6.0040	19.5549	122.3684	3.5066	13.7869
8	122.3684	3.5066	13.7869	126.6454	1.0088	8.0259
9	126.6454	1.0088	8.0259	-0.0045	-0.0003	-0.0714
10	-0.0045	-0.0003	-0.0714	-0.0049	-0.0003	-0.0714
11	-0.0049	-0.0003	-0.0714	-0.0054	-0.0003	-0.0714
12	-0.0054	-0.0003	-0.0714	-0.0058	-0.0003	-0.0714
13	-0.0058	-0.0003	-0.0714	-0.0061	-0.0003	-0.0714
14	-0.0061	-0.0003	-0.0714	-0.0066	-0.0003	-0.0714
15	-0.0066	-0.0003	-0.0714	-0.0070	-0.0003	-0.0714
16	-0.0070	-0.0003	-0.0714	-0.0074	-0.0003	-0.0714
17	-0.0074	-0.0003	-0.0714	-0.0077	-0.0003	-0.0714
18	-0.0077	-0.0003	-0.0714	-0.0082	-0.0003	-0.0714
19	-0.0082	-0.0003	-0.0714	-0.0086	-0.0003	-0.0714
20	-0.0086	-0.0003	-0.0714	-192.2429	0.9268	6.0533
21	-192.2429	0.9268	6.0533	-139.0521	25.4277	52.5363
22	-139.0521	25.4277	52.5363	-91.2820	22.9273	46.4413
23	-91.2820	22.9273	46.4413	-48.5032	20.4277	40.4164
24	-48.5032	20.4277	40.4164	-10.7126	17.9276	34.4535
25	-10.7126	17.9276	34.4535	22.0853	15.4268	28.5446
26	22.0853	15.4268	28.5446	49.8923	12.9255	22.6824
27	49.8923	12.9255	22.6824	72.7040	10.4248	16.8592
28	72.7040	10.4248	16.8592	90.5272	7.9252	11.0672
29	90.5272	7.9252	11.0672	103.3595	5.4236	5.2987
30	103.3595	5.4236	5.2987	111.1969	2.9218	-0.4538
31	111.1969	2.9218	-0.4538	-25.0399	2.6565	-1.0495
32	-25.0399	2.6565	-1.0495	-19.7281	2.6552	-1.0839
33	-19.7281	2.6552	-1.0839	-14.4128	2.6564	-1.1101
34	-14.4128	2.6564	-1.1101	-9.0988	2.6562	-1.1283
35	-9.0988	2.6562	-1.1283	-3.7871	2.6562	-1.1381
36	-3.7871	2.6562	-1.1381	1.5267	2.6564	-1.1399
37	1.5267	2.6564	-1.1399	6.8392	2.6556	-1.1334
38	6.8392	2.6556	-1.1334	12.1515	2.6558	-1.1188
39	12.1515	2.6558	-1.1188	17.4646	2.6561	-1.0960
40	17.4646	2.6561	-1.0960	-191.0898	1.2215	-0.0951
41	-191.0898	1.2215	-0.0951	-138.6815	25.4051	52.2580
42	-138.6815	25.4051	52.2580	-90.9392	22.9058	46.1638
43	-90.9392	22.9058	46.1638	-48.1878	20.4058	40.1393
44	-48.1878	20.4058	40.1393	-10.4278	17.9040	34.1768
45	-10.4278	17.9040	34.1768	22.3352	15.4035	28.2684
46	22.3352	15.4035	28.2684	50.1082	12.9044	22.4067
47	50.1082	12.9044	22.4067	72.8922	10.4036	16.5838
48	72.8922	10.4036	16.5838	90.6810	7.9049	10.7918
49	90.6810	7.9049	10.7918	103.4872	5.4068	5.0238
50	103.4872	5.4068	5.0238	111.2973	2.9066	-0.7285
51	111.2973	2.9066	-0.7285	-25.5723	2.7117	-1.4597
52	-25.5723	2.7117	-1.4597	-20.1465	2.7123	-1.4948
53	-20.1465	2.7123	-1.4948	-14.7165	2.7139	-1.5217
54	-14.7165	2.7139	-1.5217	-9.2857	2.7139	-1.5403
55	-9.2857	2.7139	-1.5403	-3.8561	2.7138	-1.5503
56	-3.8561	2.7138	-1.5503	1.5754	2.7141	-1.5520
57	1.5754	2.7141	-1.5520	7.0068	2.7141	-1.5454
58	7.0068	2.7141	-1.5454	12.4380	2.7141	-1.5304
59	12.4380	2.7141	-1.5304	17.8701	2.7143	-1.5071
60	17.8701	2.7143	-1.5071	-190.8634	1.2095	-0.2106
61	-190.8634	1.2095	-0.2106	-138.1446	25.3777	52.2519
62	-138.1446	25.3777	52.2519	-90.4747	22.8778	46.1583
63	-90.4747	22.8778	46.1583	-47.7926	20.3780	40.1347
64	-47.7926	20.3780	40.1347	-10.1025	17.8792	34.1724
65	-10.1025	17.8792	34.1724	22.6019	15.3779	28.2644
66	22.6019	15.3779	28.2644	50.3102	12.8766	22.4031
67	50.3102	12.8766	22.4031	73.0347	10.3781	16.5804
68	73.0347	10.3781	16.5804	90.7709	7.8788	10.7889
69	90.7709	7.8788	10.7889	103.5155	5.3772	5.0208
70	103.5155	5.3772	5.0208	111.2630	2.8761	-0.7319
71	111.2630	2.8761	-0.7319	-25.5130	2.7164	-1.3756
72	-25.5130	2.7164	-1.3756	-20.0774	2.7169	-1.4107
73	-20.0774	2.7169	-1.4107	-14.6430	2.7165	-1.4376
74	-14.6430	2.7165	-1.4376	-9.2090	2.7171	-1.4560
75	-9.2090	2.7171	-1.4560	-3.7730	2.7178	-1.4659
76	-3.7730	2.7178	-1.4659	1.6640	2.7179	-1.4676
77	1.6640	2.7179	-1.4676	7.1009	2.7182	-1.4609
78	7.1009	2.7182	-1.4609	12.5382	2.7182	-1.4457
79	12.5382	2.7182	-1.4457	17.9751	2.7181	-1.4223
80	17.9751	2.7181	-1.4223	-190.2946	1.1867	0.2994
81	-190.2946	1.1867	0.2994	-137.8351	25.3189	53.2560
82	-137.8351	25.3189	53.2560	-90.2601	22.8177	47.1622
83	-90.2601	22.8177	47.1622	-47.6866	20.3174	41.1393
84	-47.6866	20.3174	41.1393	-10.0997	17.8186	35.1772
85	-10.0997	17.8186	35.1772	22.4958	15.3189	29.2694
86	22.4958	15.3189	29.2694	50.0984	12.8179	23.4079
87	50.0984	12.8179	23.4079	72.7063	10.3182	17.5849
88	72.7063	10.3182	17.5849	90.3262	7.8219	11.7924
89	90.3262	7.8219	11.7924	102.9596	5.3221	6.0244
90	102.9596	5.3221	6.0244	110.5927	2.8207	0.2709
91	110.5927	2.8207	0.2709	-24.8456	2.7713	-2.0017
92	-24.8456	2.7713	-2.0017	-19.2984	2.7718	-2.0357
93	-19.2984	2.7718	-2.0357	-13.7509	2.7714	-2.0609
94	-13.7509	2.7714	-2.0609	-8.2064	2.7708	-2.0777
95	-8.2064	2.7708	-2.0777	-2.6604	2.7710	-2.0862
96	-2.6604	2.7710	-2.0862	2.8851	2.7704	-2.0860
97	2.8851	2.7704	-2.0860	8.4300	2.7705	-2.0774
98	8.4300	2.7705	-2.0774	13.9757	2.7707	-2.0602
99	13.9757	2.7707	-2.0602	19.5208	2.7706	-2.0344
100	19.5208	2.7706	-2.0344	24.8663	0.9351	-0.6599
101	24.8663	0.9351	-0.6599	-134.7807	23.1779	48.0739
102	-134.7807	23.1779	48.0739	-96.0269	20.6777	42.0010
103	-96.0269	20.6777	42.0010	-61.0798	19.4277	38.9368
104	-61.0798	19.4277	38.9368	-30.1266	16.9277	32.9580
105	-30.1266	16.9277	32.9580	-2.9156	14.4281	27.0181
106	-2.9156	14.4281	27.0181	20.5532	11.9278	21.1125
107	20.5532	11.9278	21.1125	40.2136	10.6783	18.1946
108	40.2136	10.6783	18.1946	55.8801	8.1786	12.3415
109	55.8801	8.1786	12.3415	67.8022	5.6757	6.5075
110	67.8022	5.6757	6.5075	-34.5681	3.4999	-3.5561
111	-34.5681	3.4999	-3.5561	-28.4354	3.4989	-3.5979
112	-28.4354	3.4989	-3.5979	-22.3064	3.4985	-3.6322
113	-22.3064	3.4985	-3.6322	-16.1784	3.4989	-3.6581

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
114	-16.1784	3.4989	-3.6581	-10.0487	3.4999	-3.6757
115	-10.0487	3.4999	-3.6757	-3.9178	3.4996	-3.6852
116	-3.9178	3.4996	-3.6852	2.2111	3.4985	-3.6863
117	2.2111	3.4985	-3.6863	8.3384	3.4984	-3.6794
118	8.3384	3.4984	-3.6794	14.4667	3.4987	-3.6640
119	14.4667	3.4987	-3.6640	20.5950	3.4989	-3.6404
120	20.5950	3.4989	-3.6404	-139.9350	1.9259	1.3267
121	-139.9350	1.9259	1.3267	-108.6459	22.2143	49.4274
122	-108.6459	22.2143	49.4274	-71.5798	19.7146	43.3886
123	-71.5798	19.7146	43.3886	-38.3207	18.4645	40.3557
124	-38.3207	18.4645	40.3557	-9.0562	15.9646	34.4062
125	-9.0562	15.9646	34.4062	16.4657	13.4657	28.4935
126	16.4657	13.4657	28.4935	38.2499	10.9651	22.6129
127	38.2499	10.9651	22.6129	56.2233	9.7114	19.7182
128	56.2233	9.7114	19.7182	70.1942	7.2105	13.8855
129	70.1942	7.2105	13.8855	80.4261	4.7112	8.0691
130	80.4261	4.7112	8.0691	-22.2589	2.2368	-2.6916
131	-22.2589	2.2368	-2.6916	-18.3396	2.2364	-2.7190
132	-18.3396	2.2364	-2.7190	-14.4239	2.2360	-2.7411
133	-14.4239	2.2360	-2.7411	-10.5077	2.2362	-2.7580
134	-10.5077	2.2362	-2.7580	-6.5914	2.2362	-2.7694
135	-6.5914	2.2362	-2.7694	-2.6747	2.2361	-2.7757
136	-2.6747	2.2361	-2.7757	1.2420	2.2359	-2.7765
137	1.2420	2.2359	-2.7765	5.1590	2.2361	-2.7722
138	5.1590	2.2361	-2.7722	9.0767	2.2364	-2.7626
139	9.0767	2.2364	-2.7626	12.9948	2.2366	-2.7478
140	12.9948	2.2366	-2.7478	-152.5867	1.7374	1.7108
141	-152.5867	1.7374	1.7108	-120.1330	23.0340	49.2945
142	-120.1330	23.0340	49.2945	-80.7404	20.5336	43.2382
143	-80.7404	20.5336	43.2382	-45.3400	18.0340	37.2332
144	-45.3400	18.0340	37.2332	-14.0571	16.7845	34.2331
145	-14.0571	16.7845	34.2331	13.1070	14.2838	28.3152
146	13.1070	14.2838	28.3152	36.2777	11.7831	22.4314
147	36.2777	11.7831	22.4314	55.4570	9.2837	16.5778
148	55.4570	9.2837	16.5778	70.6464	6.7813	10.7474
149	70.6464	6.7813	10.7474	81.7121	5.5288	7.8945
150	81.7121	5.5288	7.8945	88.6602	3.0302	2.0950
151	88.6602	3.0302	2.0950	-20.9607	2.4005	-2.6328
152	-20.9607	2.4005	-2.6328	-16.6390	2.3996	-2.6586
153	-16.6390	2.3996	-2.6586	-12.3168	2.4003	-2.6789
154	-12.3168	2.4003	-2.6789	-7.9929	2.4009	-2.6930
155	-7.9929	2.4009	-2.6930	-3.6690	2.4004	-2.7010
156	-3.6690	2.4004	-2.7010	0.6542	2.4004	-2.7032
157	0.6542	2.4004	-2.7032	4.9780	2.4005	-2.6993
158	4.9780	2.4005	-2.6993	9.3006	2.4000	-2.6895
159	9.3006	2.4000	-2.6895	13.6229	2.3997	-2.6736
160	13.6229	2.3997	-2.6736	-174.2085	1.9419	3.5226
161	-174.2085	1.9419	3.5226	-122.3754	24.7962	52.0009
162	-122.3754	24.7962	52.0009	-75.8533	22.2959	45.9309
163	-75.8533	22.2959	45.9309	-34.3233	19.7962	39.9286
164	-34.3233	19.7962	39.9286	2.2175	17.2952	33.9865
165	2.2175	17.2952	33.9865	33.7619	14.7945	28.0967
166	33.7619	14.7945	28.0967	60.3185	12.2976	22.2516
167	60.3185	12.2976	22.2516	81.8895	9.8007	16.4430
168	81.8895	9.8007	16.4430	98.4711	7.2993	10.6649
169	98.4711	7.2993	10.6649	110.0546	4.7981	4.9086
170	110.0546	4.7981	4.9086	116.6486	2.3000	-0.8360
171	116.6486	2.3000	-0.8360	-18.7813	2.0150	-1.0508
172	-18.7813	2.0150	-1.0508	-14.7507	2.0148	-1.0764
173	-14.7507	2.0148	-1.0764	-10.7195	2.0153	-1.0961
174	-10.7195	2.0153	-1.0961	-6.6865	2.0156	-1.1098
175	-6.6865	2.0156	-1.1098	-2.6539	2.0154	-1.1168
176	-2.6539	2.0154	-1.1168	1.3789	2.0154	-1.1178
177	1.3789	2.0154	-1.1178	5.4118	2.0152	-1.1126
178	5.4118	2.0152	-1.1126	9.4440	2.0152	-1.1012
179	9.4440	2.0152	-1.1012	13.4767	2.0153	-1.0835
180	13.4767	2.0153	-1.0835	17.5157	0.7171	-0.6327
181	17.5157	0.7171	-0.6327	-137.7639	24.7629	50.9229
182	-137.7639	24.7629	50.9229	-92.2835	22.2626	44.8334
183	-92.2835	22.2626	44.8334	-51.5469	19.7628	38.8079
184	-51.5469	19.7628	38.8079	-15.5513	17.2625	32.8401
185	-15.5513	17.2625	32.8401	15.6985	14.7624	26.9230
186	15.6985	14.7624	26.9230	42.2045	12.2623	21.0487
187	42.2045	12.2623	21.0487	63.9672	9.7612	15.2109
188	63.9672	9.7612	15.2109	80.9850	7.2617	9.4029
189	80.9850	7.2617	9.4029	93.2627	4.7598	3.6157
190	93.2627	4.7598	3.6157	-32.1604	3.0188	-1.1771
191	-32.1604	3.0188	-1.1771	-26.2697	3.0187	-1.2218
192	-26.2697	3.0187	-1.2218	-20.3800	3.0176	-1.2515
193	-20.3800	3.0176	-1.2515	-14.4927	3.0181	-1.2757
194	-14.4927	3.0181	-1.2757	-8.6021	3.0187	-1.2946
195	-8.6021	3.0187	-1.2946	-2.7129	3.0182	-1.3036
196	-2.7129	3.0182	-1.3036	3.1767	3.0182	-1.3033
197	3.1767	3.0182	-1.3033	9.0662	3.0182	-1.2942
198	9.0662	3.0182	-1.2942	14.9554	3.0181	-1.2770
199	14.9554	3.0181	-1.2770	20.8442	3.0180	-1.2487
200	20.8442	3.0180	-1.2487	26.7271	1.0353	-0.6859
201	26.7271	1.0353	-0.6859	-111.8854	20.3884	34.5438
202	-111.8854	20.3884	34.5438	-83.8274	19.1385	31.4637
203	-83.8274	19.1385	31.4637	-58.0303	17.8887	28.4423
204	-58.0303	17.8887	28.4423	-34.9319	15.3890	22.4805
205	-34.9319	15.3890	22.4805	-14.1887	14.1383	19.4970
206	-14.1887	14.1383	19.4970	4.0875	11.6379	13.5770
207	4.0875	11.6379	13.5770	19.7705	10.3883	10.6384
208	19.7705	10.3883	10.6384	33.1805	9.1390	7.7108
209	33.1805	9.1390	7.7108	43.8368	6.6392	1.8212
210	43.8368	6.6392	1.8212	52.1953	5.3883	-1.0897
211	52.1953	5.3883	-1.0897	-38.6067	3.0411	-1.9151
212	-38.6067	3.0411	-1.9151	-34.3176	3.0430	-1.9491
213	-34.3176	3.0430	-1.9491	-30.0250	3.0424	-1.9711
214	-30.0250	3.0424	-1.9711	-25.7364	3.0410	-1.9987
215	-25.7364	3.0410	-1.9987	-21.4468	3.0408	-2.0235
216	-21.4468	3.0408	-2.0235	-17.1593	3.0413	-2.0371
217	-17.1593	3.0413	-2.0371	-12.8687	3.0415	-2.0518
218	-12.8687	3.0415	-2.0518	-8.5782	3.0408	-2.0646
219	-8.5782	3.0408	-2.0646	-4.2894	3.0405	-2.0700
220	-4.2894	3.0405	-2.0700	-0.0026	3.0403	-2.0708

ENVOL. MIN. CORTANTES TREN TREN SIN CARGA, EC-1 en via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.0009	-0.0003	-0.0713	1.1691	-0.0484	-0.2368
2	1.1691	-0.0484	-0.2368	6.5498	-0.2878	-0.8419
3	6.5498	-0.2878	-0.8419	10.1372	-0.4787	-1.2714
4	10.1372	-0.4787	-1.2714	19.6652	-1.0020	-2.3958
5	19.6652	-1.0020	-2.3958	30.9543	-1.7121	-3.8557
6	30.9543	-1.7121	-3.8557	35.2369	-2.1368	-4.6865
7	35.2369	-2.1368	-4.6865	46.7158	-3.1205	-6.6291
8	46.7158	-3.1205	-6.6291	57.6668	-4.2793	-8.8941
9	57.6668	-4.2793	-8.8941	58.6772	-4.9221	-10.1093
10	58.6772	-4.9221	-10.1093	66.2188	-6.3379	-12.8524
11	66.2188	-6.3379	-12.8524	59.2709	-7.3224	-1.6913
12	59.2709	-7.3224	-1.6913	44.5031	-9.8231	-7.5436
13	44.5031	-9.8231	-7.5436	26.5665	-12.3239	-13.4166
14	26.5665	-12.3239	-13.4166	5.3221	-13.5739	-16.3553
15	5.3221	-13.5739	-16.3553	-19.4091	-16.0739	-22.2816
16	-19.4091	-16.0739	-22.2816	-47.3089	-18.5745	-28.2409
17	-47.3089	-18.5745	-28.2409	-78.6355	-19.8241	-31.2791
18	-78.6355	-19.8241	-31.2791	-113.3302	-22.3240	-37.3176
19	-113.3302	-22.3240	-37.3176	-151.1929	-24.8241	-43.4008
20	-151.1929	-24.8241	-43.4008	-83.6261	-10.0484	-23.7047
21	-83.6261	-10.0484	-23.7047	-0.0079	0.0003	-0.0014
22	-0.0079	0.0003	-0.0014	-0.0074	0.0003	-0.0014
23	-0.0074	0.0003	-0.0014	-0.0068	0.0003	-0.0014
24	-0.0068	0.0003	-0.0014	-0.0063	0.0003	-0.0014
25	-0.0063	0.0003	-0.0014	-0.0057	0.0003	-0.0014
26	-0.0057	0.0003	-0.0014	-0.0052	0.0003	-0.0014
27	-0.0052	0.0003	-0.0014	-0.0047	0.0003	-0.0014
28	-0.0047	0.0003	-0.0014	13.2886	-0.7167	-10.7572
29	13.2886	-0.7167	-10.7572	26.9407	-1.7279	-13.2528
30	26.9407	-1.7279	-13.2528	38.8685	-2.8874	-15.9984
31	38.8685	-2.8874	-15.9984	48.3487	-4.1942	-18.9964
32	48.3487	-4.1942	-18.9964	54.6615	-5.6489	-22.2519
33	54.6615	-5.6489	-22.2519	46.3480	-7.9630	-16.6346
34	46.3480	-7.9630	-16.6346	27.4570	-10.4632	-22.4954
35	27.4570	-10.4632	-22.4954	3.5760	-12.9628	-28.3890
36	3.5760	-12.9628	-28.3890	-25.2942	-15.4622	-34.3233
37	-25.2942	-15.4622	-34.3233	-59.1546	-17.9621	-40.3057
38	-59.1546	-17.9621	-40.3057	-98.0049	-20.4621	-46.3440
39	-98.0049	-20.4621	-46.3440	-141.8448	-22.9621	-52.4459
40	-141.8448	-22.9621	-52.4459	-85.0905	-9.6834	-29.6577
41	-85.0905	-9.6834	-29.6577	21.3222	-0.7248	-0.1600
42	21.3222	-0.7248	-0.1600	19.8727	-0.7248	-0.1283
43	19.8727	-0.7248	-0.1283	18.4230	-0.7248	-0.0988
44	18.4230	-0.7248	-0.0988	16.9733	-0.7250	-0.0716
45	16.9733	-0.7250	-0.0716	15.5229	-0.7253	-0.0465
46	15.5229	-0.7253	-0.0465	14.0723	-0.7255	-0.0237
47	14.0723	-0.7255	-0.0237	12.6215	-0.7250	-0.0033
48	12.6215	-0.7250	-0.0033	11.1721	-0.7243	0.0150
49	11.1721	-0.7243	0.0150	26.6341	-1.7059	-13.5669
50	26.6341	-1.7059	-13.5669	38.6697	-2.8702	-16.3015
51	38.6697	-2.8702	-16.3015	48.2348	-4.1830	-19.2901
52	48.2348	-4.1830	-19.2901	54.6031	-5.6455	-22.5377
53	54.6031	-5.6455	-22.5377	46.2286	-7.9588	-16.8574
54	46.2286	-7.9588	-16.8574	27.3403	-10.4587	-22.7183
55	27.3403	-10.4587	-22.7183	3.4578	-12.9593	-28.6120
56	3.4578	-12.9593	-28.6120	-25.4166	-15.4587	-34.5466
57	-25.4166	-15.4587	-34.5466	-59.2826	-17.9587	-40.5293
58	-59.2826	-17.9587	-40.5293	-98.1405	-20.4590	-46.5681
59	-98.1405	-20.4590	-46.5681	-141.9901	-22.9590	-52.6704
60	-141.9901	-22.9590	-52.6704	-85.3078	-9.6934	-29.7540
61	-85.3078	-9.6934	-29.7540	21.8168	-0.7429	-0.1955
62	21.8168	-0.7429	-0.1955	20.3316	-0.7430	-0.1630
63	20.3316	-0.7430	-0.1630	18.8460	-0.7429	-0.1330
64	18.8460	-0.7429	-0.1330	17.3610	-0.7427	-0.1051
65	17.3610	-0.7427	-0.1051	15.8756	-0.7430	-0.0796
66	15.8756	-0.7430	-0.0796	14.3899	-0.7430	-0.0564
67	14.3899	-0.7430	-0.0564	12.9046	-0.7423	-0.0353
68	12.9046	-0.7423	-0.0353	11.4207	-0.7425	-0.0166
69	11.4207	-0.7425	-0.0166	26.7162	-1.7156	-13.5364
70	26.7162	-1.7156	-13.5364	38.7232	-2.8825	-16.2782
71	38.7232	-2.8825	-16.2782	48.2493	-4.1982	-19.2731
72	48.2493	-4.1982	-19.2731	54.5718	-5.6583	-22.5266
73	54.5718	-5.6583	-22.5266	46.6889	-7.9451	-16.8468
74	46.6889	-7.9451	-16.8468	27.8355	-10.4443	-22.7070
75	27.8355	-10.4443	-22.7070	3.9840	-12.9448	-28.6001
76	3.9840	-12.9448	-28.6001	-24.8530	-15.4454	-34.5336
77	-24.8530	-15.4454	-34.5336	-58.6803	-17.9457	-40.5154
78	-58.6803	-17.9457	-40.5154	-97.4978	-20.4459	-46.5529
79	-97.4978	-20.4459	-46.5529	-141.3044	-22.9459	-52.6542
80	-141.3044	-22.9459	-52.6542	-85.8351	-9.6774	-30.0710
81	-85.8351	-9.6774	-30.0710	21.8973	-0.7558	-0.0285
82	21.8973	-0.7558	-0.0285	20.3855	-0.7559	0.0041
83	20.3855	-0.7559	0.0041	18.8732	-0.7559	0.0344
84	18.8732	-0.7559	0.0344	17.3610	-0.7560	0.0621
85	17.3610	-0.7560	0.0621	15.8489	-0.7563	0.0877
86	15.8489	-0.7563	0.0877	14.3363	-0.7563	0.1110
87	14.3363	-0.7563	0.1110	12.8235	-0.7557	0.1319
88	12.8235	-0.7557	0.1319	11.3123	-0.7559	0.1504
89	11.3123	-0.7559	0.1504	26.7118	-1.7051	-13.5336
90	26.7118	-1.7051	-13.5336	38.6199	-2.8825	-16.1315
91	38.6199	-2.8825	-16.1315	47.9940	-4.2072	-18.9773
92	47.9940	-4.2072	-18.9773	54.1176	-5.6815	-22.0794
93	54.1176	-5.6815	-22.0794	56.2953	-7.2976	-25.4506
94	56.2953	-7.2976	-25.4506	46.3785	-9.4924	-24.8434
95	46.3785	-9.4924	-24.8434	24.4322	-11.9918	-30.7065
96	24.4322	-11.9918	-30.7065	-2.5164	-14.4913	-36.6077
97	-2.5164	-14.4913	-36.6077	-34.4447	-16.9911	-42.5535
98	-34.4447	-16.9911	-42.5535	-71.3658	-19.4918	-48.5521
99	-71.3658	-19.4918	-48.5521	-113.2786	-21.9921	-54.6117
100	-113.2786	-21.9921	-54.6117	-91.7034	-9.3396	-30.3723
101	-91.7034	-9.3396	-30.3723	23.0908	-0.9003	0.7149
102	23.0908	-0.9003	0.7149	21.5141	-0.9003	0.7450
103	21.5141	-0.9003	0.7450	19.9370	-0.9001	0.7728
104	19.9370	-0.9001	0.7728	18.3606	-0.9000	0.7986
105	18.3606	-0.9000	0.7986	16.7840	-0.9003	0.8223
106	16.7840	-0.9003	0.8223	15.2077	-0.9006	0.8438
107	15.2077	-0.9006	0.8438	13.6304	-0.9007	0.8633
108	13.6304	-0.9007	0.8633	12.0535	-0.9007	0.8806
109	12.0535	-0.9007	0.8806	10.4760	-0.9009	0.8957
110	10.4760	-0.9009	0.8957	22.5413	-1.6476	-14.3216
111	22.5413	-1.6476	-14.3216	26.4850	-2.3078	-15.6136
112	26.4850	-2.3078	-15.6136	35.3217	-3.7533	-18.4683
113	35.3217	-3.7533	-18.4683	34.1592	-5.8628	-17.0385
114	34.1592	-5.8628	-17.0385	22.1757	-8.3630	-22.9180

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	22.1757	-8.3630	-22.9180	6.3842	-9.6133	-25.8574
116	6.3842	-9.6133	-25.8574	-13.4012	-12.1129	-31.7796
117	-13.4012	-12.1129	-31.7796	-36.9277	-14.6124	-37.7311
118	-36.9277	-14.6124	-37.7311	-64.1970	-17.1124	-43.7167
119	-64.1970	-17.1124	-43.7167	-95.2729	-18.3624	-46.7829
120	-95.2729	-18.3624	-46.7829	-57.2187	-7.9214	-25.5713
121	-57.2187	-7.9214	-25.5713	24.2777	-0.9435	0.9218
122	24.2777	-0.9435	0.9218	22.6250	-0.9437	0.9533
123	22.6250	-0.9437	0.9533	20.9721	-0.9438	0.9826
124	20.9721	-0.9438	0.9826	19.3191	-0.9437	1.0098
125	19.3191	-0.9437	1.0098	17.6663	-0.9436	1.0346
126	17.6663	-0.9436	1.0346	16.0140	-0.9435	1.0573
127	16.0140	-0.9435	1.0573	14.3612	-0.9438	1.0777
128	14.3612	-0.9438	1.0777	12.7073	-0.9439	1.0959
129	12.7073	-0.9439	1.0959	22.5909	-1.5778	-10.8346
130	22.5909	-1.5778	-10.8346	33.7684	-2.7476	-13.1481
131	33.7684	-2.7476	-13.1481	35.7460	-3.3964	-14.3955
132	35.7460	-3.3964	-14.3955	42.6560	-4.8189	-17.1764
133	42.6560	-4.8189	-17.1764	37.5891	-7.0580	-16.1181
134	37.5891	-7.0580	-16.1181	23.5111	-9.5585	-21.9945
135	23.5111	-9.5585	-21.9945	5.6249	-10.8088	-24.9338
136	5.6249	-10.8088	-24.9338	-16.2554	-13.3086	-30.8586
137	-16.2554	-13.3086	-30.8586	-41.8779	-15.8090	-36.8151
138	-41.8779	-15.8090	-36.8151	-71.2443	-18.3096	-42.8087
139	-71.2443	-18.3096	-42.8087	-104.4167	-19.5596	-45.8857
140	-104.4167	-19.5596	-45.8857	-63.7512	-8.3261	-24.6798
141	-63.7512	-8.3261	-24.6798	15.2373	-0.5694	0.4795
142	15.2373	-0.5694	0.4795	14.2118	-0.5694	0.4998
143	14.2118	-0.5694	0.4998	13.1863	-0.5693	0.5188
144	13.1863	-0.5693	0.5188	12.1606	-0.5695	0.5364
145	12.1606	-0.5695	0.5364	11.1347	-0.5697	0.5525
146	11.1347	-0.5697	0.5525	10.1086	-0.5698	0.5671
147	10.1086	-0.5698	0.5671	9.0823	-0.5696	0.5804
148	9.0823	-0.5696	0.5804	12.6012	-0.7350	-9.9907
149	12.6012	-0.7350	-9.9907	18.1479	-1.2352	-11.0752
150	18.1479	-1.2352	-11.0752	29.6133	-2.3590	-13.4887
151	29.6133	-2.3590	-13.4887	39.2404	-3.6471	-16.2140
152	39.2404	-3.6471	-16.2140	36.3349	-5.9119	-9.1361
153	36.3349	-5.9119	-9.1361	24.2113	-8.4121	-15.0116
154	24.2113	-8.4121	-15.0116	7.9685	-9.6625	-17.9480
155	7.9685	-9.6625	-17.9480	-12.3927	-12.1625	-23.8685
156	-12.3927	-12.1625	-23.8685	-36.7449	-14.6624	-29.8200
157	-36.7449	-14.6624	-29.8200	-65.0883	-17.1625	-35.8081
158	-65.0883	-17.1625	-35.8081	-97.4234	-19.6625	-41.8379
159	-97.4234	-19.6625	-41.8379	-133.8760	-20.9125	-44.9569
160	-133.8760	-20.9125	-44.9569	-63.2962	-8.7256	-25.4439
161	-63.2962	-8.7256	-25.4439	16.8099	-0.5741	-0.2097
162	16.8099	-0.5741	-0.2097	15.6621	-0.5741	-0.1847
163	15.6621	-0.5741	-0.1847	14.5142	-0.5743	-0.1616
164	14.5142	-0.5743	-0.1616	13.3659	-0.5743	-0.1400
165	13.3659	-0.5743	-0.1400	12.2178	-0.5743	-0.1203
166	12.2178	-0.5743	-0.1203	11.0693	-0.5739	-0.1024
167	11.0693	-0.5739	-0.1024	9.9222	-0.5737	-0.0863
168	9.9222	-0.5737	-0.0863	22.5719	-1.3316	-10.8815
169	22.5719	-1.3316	-10.8815	34.8389	-2.3399	-13.3875
170	34.8389	-2.3399	-13.3875	45.3895	-3.4962	-16.1486
171	45.3895	-3.4962	-16.1486	53.5060	-4.8003	-19.1665
172	53.5060	-4.8003	-19.1665	58.4636	-6.2532	-22.4449
173	58.4636	-6.2532	-22.4449	52.7392	-8.3477	-16.6454
174	52.7392	-8.3477	-16.6454	33.0706	-10.8477	-22.4968

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	33.0706	-10.8477	-22.4968	8.4124	-13.3478	-28.3825
176	8.4124	-13.3478	-28.3825	-21.2384	-15.8482	-34.3100
177	-21.2384	-15.8482	-34.3100	-55.8803	-18.3480	-40.2867
178	-55.8803	-18.3480	-40.2867	-95.5130	-20.8478	-46.3204
179	-95.5130	-20.8478	-46.3204	-140.1368	-23.3479	-52.4195
180	-140.1368	-23.3479	-52.4195	-91.4888	-9.8425	-29.7170
181	-91.4888	-9.8425	-29.7170	16.3895	-0.5811	-0.1801
182	16.3895	-0.5811	-0.1801	15.2565	-0.5810	-0.1564
183	15.2565	-0.5810	-0.1564	14.1236	-0.5809	-0.1343
184	14.1236	-0.5809	-0.1343	12.9907	-0.5811	-0.1139
185	12.9907	-0.5811	-0.1139	11.8570	-0.5813	-0.0951
186	11.8570	-0.5813	-0.0951	10.7234	-0.5817	-0.0782
187	10.7234	-0.5817	-0.0782	9.5889	-0.5817	-0.0630
188	9.5889	-0.5817	-0.0630	11.1022	-0.5892	-11.2066
189	11.1022	-0.5892	-11.2066	25.1553	-1.6611	-13.7740
190	25.1553	-1.6611	-13.7740	37.3646	-2.8856	-16.5951
191	37.3646	-2.8856	-16.5951	47.0036	-4.2634	-19.6767
192	47.0036	-4.2634	-19.6767	53.3587	-5.7910	-23.0364
193	53.3587	-5.7910	-23.0364	55.7468	-7.4674	-26.6648
194	55.7468	-7.4674	-26.6648	47.1169	-8.3599	-28.5351
195	47.1169	-8.3599	-28.5351	28.7668	-10.8256	-27.4355
196	28.7668	-10.8256	-27.4355	4.1897	-13.3256	-33.3321
197	4.1897	-13.3256	-33.3321	-25.1256	-15.8245	-39.2659
198	-25.1256	-15.8245	-39.2659	-59.1821	-18.3246	-45.2435
199	-59.1821	-18.3246	-45.2435	-97.9768	-20.8250	-51.2854
200	-97.9768	-20.8250	-51.2854	-85.4722	-9.2252	-29.4443
201	-85.4722	-9.2252	-29.4443	25.3854	-0.9477	-0.1221
202	25.3854	-0.9477	-0.1221	24.0492	-0.9475	-0.0922
203	24.0492	-0.9475	-0.0922	22.7131	-0.9470	-0.0719
204	22.7131	-0.9470	-0.0719	21.3780	-0.9464	-0.0498
205	21.3780	-0.9464	-0.0498	20.0430	-0.9462	-0.0316
206	20.0430	-0.9462	-0.0316	18.7086	-0.9469	-0.0203
207	18.7086	-0.9469	-0.0203	17.3728	-0.9474	0.0025
208	17.3728	-0.9474	0.0025	16.0374	-0.9470	0.0250
209	16.0374	-0.9470	0.0250	14.7017	-0.9470	0.0360
210	14.7017	-0.9470	0.0360	13.3650	-0.9473	0.0496
211	13.3650	-0.9473	0.0496	14.8628	-1.1816	-15.4039
212	14.8628	-1.1816	-15.4039	20.2174	-1.8040	-17.0724
213	20.2174	-1.8040	-17.0724	31.4171	-3.1982	-20.7174
214	31.4171	-3.1982	-20.7174	33.4592	-3.9708	-22.6630
215	33.4592	-3.9708	-22.6630	33.6886	-4.7964	-24.7010
216	33.6886	-4.7964	-24.7010	37.1204	-6.6034	-29.1198
217	37.1204	-6.6034	-29.1198	31.9920	-7.5869	-31.4583
218	31.9920	-7.5869	-31.4583	27.3228	-9.7171	-36.4686
219	27.3228	-9.7171	-36.4686	15.2607	-10.8626	-39.1279
220	15.2607	-10.8626	-39.1279	-0.0461	-10.8620	-39.1249

ENVOL. MAX. TORSORES TREN TREN SIN CARGA, EC-1 en via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.0162	13.9362	47.7383	21.9479	12.6863	44.7934
2	21.9479	12.6863	44.7934	40.7130	10.1863	38.9152
3	40.7130	10.1863	38.9152	56.1884	8.9357	36.0174
4	56.1884	8.9357	36.0174	68.1557	6.4358	30.1782
5	68.1557	6.4358	30.1782	76.9579	3.9349	24.3519
6	76.9579	3.9349	24.3519	82.3463	2.6841	21.4932
7	82.3463	2.6841	21.4932	84.3499	0.1860	15.6807
8	84.3499	0.1860	15.6807	83.3248	-2.3013	9.8686
9	83.3248	-2.3013	9.8686	78.6566	-3.5511	7.0116
10	78.6566	-3.5511	7.0116	70.9543	-6.0399	1.1882
11	70.9543	-6.0399	1.1882	-0.0054	-0.0003	-0.0714
12	-0.0054	-0.0003	-0.0714	-0.0058	-0.0003	-0.0714
13	-0.0058	-0.0003	-0.0714	-0.0061	-0.0003	-0.0714
14	-0.0061	-0.0003	-0.0714	-0.0066	-0.0003	-0.0714
15	-0.0066	-0.0003	-0.0714	-0.0070	-0.0003	-0.0714
16	-0.0070	-0.0003	-0.0714	-0.0074	-0.0003	-0.0714
17	-0.0074	-0.0003	-0.0714	-0.0077	-0.0003	-0.0714
18	-0.0077	-0.0003	-0.0714	-0.0082	-0.0003	-0.0714
19	-0.0082	-0.0003	-0.0714	-0.0086	-0.0003	-0.0714
20	-0.0086	-0.0003	-0.0714	-162.6988	-0.3115	6.8441
21	-162.6988	-0.3115	6.8441	-116.4375	22.0737	53.9250
22	-116.4375	22.0737	53.9250	-75.3759	19.5739	47.8597
23	-75.3759	19.5739	47.8597	-39.2634	17.0588	41.8540
24	-39.2634	17.0588	41.8540	-8.2115	14.5591	35.9001
25	-8.2115	14.5591	35.9001	17.8502	12.0583	29.9900
26	17.8502	12.0583	29.9900	38.9196	9.5571	24.1161
27	38.9196	9.5571	24.1161	55.0777	7.0711	18.2709
28	55.0777	7.0711	18.2709	66.1931	4.5717	12.4467
29	66.1931	4.5717	12.4467	72.4956	2.0889	6.6358
30	72.4956	2.0889	6.6358	80.6898	0.2124	0.8324
31	80.6898	0.2124	0.8324	-0.0025	0.0003	-0.0014
32	-0.0025	0.0003	-0.0014	-0.0020	0.0003	-0.0014
33	-0.0020	0.0003	-0.0014	-0.0014	0.0003	-0.0014
34	-0.0014	0.0003	-0.0014	-0.0009	0.0003	-0.0014
35	-0.0009	0.0003	-0.0014	-0.0004	0.0003	-0.0014
36	-0.0004	0.0003	-0.0014	0.0002	0.0003	-0.0014
37	0.0002	0.0003	-0.0014	0.0007	0.0003	-0.0014
38	0.0007	0.0003	-0.0014	0.0013	0.0003	-0.0014
39	0.0013	0.0003	-0.0014	0.0018	0.0003	-0.0014
40	0.0018	0.0003	-0.0014	-162.2527	0.0061	0.7584
41	-162.2527	0.0061	0.7584	-116.6286	22.0617	53.7048
42	-116.6286	22.0617	53.7048	-75.5761	19.5618	47.6394
43	-75.5761	19.5618	47.6394	-39.5149	17.0616	41.6334
44	-39.5149	17.0616	41.6334	-8.4462	14.5614	35.6791
45	-8.4462	14.5614	35.6791	17.6308	12.0610	29.7686
46	17.6308	12.0610	29.7686	38.7141	9.5609	23.8945
47	38.7141	9.5609	23.8945	54.8068	7.0617	18.0489
48	54.8068	7.0617	18.0489	66.0202	4.5756	12.2243
49	66.0202	4.5756	12.2243	72.1599	2.0754	6.4131
50	72.1599	2.0754	6.4131	73.5217	-0.4038	0.6077
51	73.5217	-0.4038	0.6077	6.7172	-0.7137	0.0576
52	6.7172	-0.7137	0.0576	5.2895	-0.7139	0.0668
53	5.2895	-0.7139	0.0668	3.8611	-0.7141	0.0739
54	3.8611	-0.7141	0.0739	2.4325	-0.7141	0.0787
55	2.4325	-0.7141	0.0787	1.0038	-0.7140	0.0814
56	1.0038	-0.7140	0.0814	-0.4252	-0.7142	0.0818
57	-0.4252	-0.7142	0.0818	-1.8541	-0.7142	0.0800
58	-1.8541	-0.7142	0.0800	-3.2831	-0.7143	0.0761
59	-3.2831	-0.7143	0.0761	-4.7122	-0.7143	0.0699
60	-4.7122	-0.7143	0.0699	-162.3576	0.0019	0.6399
61	-162.3576	0.0019	0.6399	-116.2841	22.0558	53.7085
62	-116.2841	22.0558	53.7085	-75.2589	19.5557	47.6436
63	-75.2589	19.5557	47.6436	-39.2233	17.0558	41.6381
64	-39.2233	17.0558	41.6381	-8.1775	14.5564	35.6841
65	-8.1775	14.5564	35.6841	17.8784	12.0560	29.7739
66	17.8784	12.0560	29.7739	38.9455	9.5560	23.9001
67	38.9455	9.5560	23.9001	55.0226	7.0563	18.0549
68	55.0226	7.0563	18.0549	66.1100	4.5576	12.2305
69	66.1100	4.5576	12.2305	72.2111	2.0563	6.4192
70	72.2111	2.0563	6.4192	73.3120	-0.4448	0.6135
71	73.3120	-0.4448	0.6135	6.7284	-0.7179	0.0273
72	6.7284	-0.7179	0.0273	5.2929	-0.7179	0.0366
73	5.2929	-0.7179	0.0366	3.9275	-0.7308	0.0437
74	3.9275	-0.7308	0.0437	2.4664	-0.7308	0.0487
75	2.4664	-0.7308	0.0487	1.0042	-0.7312	0.0514
76	1.0042	-0.7312	0.0514	-0.4582	-0.7314	0.0518
77	-0.4582	-0.7314	0.0518	-1.9207	-0.7313	0.0500
78	-1.9207	-0.7313	0.0500	-3.3830	-0.7312	0.0459
79	-3.3830	-0.7312	0.0459	-4.7586	-0.7183	0.0395
80	-4.7586	-0.7183	0.0395	-190.2946	1.1867	0.2994
81	-190.2946	1.1867	0.2994	-137.8351	25.3189	53.2560
82	-137.8351	25.3189	53.2560	-90.2638	22.8177	47.1630
83	-90.2638	22.8177	47.1630	-47.6866	20.3174	41.1393
84	-47.6866	20.3174	41.1393	-10.0997	17.8186	35.1772
85	-10.0997	17.8186	35.1772	22.4958	15.3189	29.2694
86	22.4958	15.3189	29.2694	50.0984	12.8179	23.4079
87	50.0984	12.8179	23.4079	72.7063	10.3182	17.5849
88	72.7063	10.3182	17.5849	90.3262	7.8219	11.7924
89	90.3262	7.8219	11.7924	102.9596	5.3221	6.0244
90	102.9596	5.3221	6.0244	110.5927	2.8207	0.2709
91	110.5927	2.8207	0.2709	6.7446	-0.7520	0.1923
92	6.7446	-0.7520	0.1923	5.2399	-0.7520	0.2015
93	5.2399	-0.7520	0.2015	3.7354	-0.7520	0.2083
94	3.7354	-0.7520	0.2083	2.2309	-0.7519	0.2129
95	2.2309	-0.7519	0.2129	0.7268	-0.7518	0.2152
96	0.7268	-0.7518	0.2152	-0.7774	-0.7517	0.2152
97	-0.7774	-0.7517	0.2152	-2.2815	-0.7517	0.2129
98	-2.2815	-0.7517	0.2129	-3.7859	-0.7519	0.2082
99	-3.7859	-0.7519	0.2082	-5.2901	-0.7519	0.2012
100	-5.2901	-0.7519	0.2012	-5.9965	-0.2242	0.0040
101	-5.9965	-0.2242	0.0040	-134.7807	23.1779	48.0739
102	-134.7807	23.1779	48.0739	-96.0269	20.6777	42.0010
103	-96.0269	20.6777	42.0010	-61.0798	19.4277	38.9368
104	-61.0798	19.4277	38.9368	-30.1266	16.9277	32.9580
105	-30.1266	16.9277	32.9580	-2.9156	14.4281	27.0181
106	-2.9156	14.4281	27.0181	20.5532	11.9278	21.1125
107	20.5532	11.9278	21.1125	40.2136	10.6783	18.1946
108	40.2136	10.6783	18.1946	55.8801	8.1786	12.3415
109	55.8801	8.1786	12.3415	67.8022	5.6757	6.5075
110	67.8022	5.6757	6.5075	8.8978	-0.9014	0.9088
111	8.8978	-0.9014	0.9088	7.3194	-0.9013	0.9196
112	7.3194	-0.9013	0.9196	5.7417	-0.9007	0.9284
113	5.7417	-0.9007	0.9284	4.1648	-0.9006	0.9351

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
114	4.1648	-0.9006	0.9351	2.5870	-0.9009	0.9395
115	2.5870	-0.9009	0.9395	1.0090	-0.9009	0.9420
116	1.0090	-0.9009	0.9420	-0.5686	-0.9007	0.9423
117	-0.5686	-0.9007	0.9423	-2.1459	-0.9004	0.9405
118	-2.1459	-0.9004	0.9405	-3.7231	-0.9005	0.9365
119	-3.7231	-0.9005	0.9365	-5.3004	-0.9006	0.9305
120	-5.3004	-0.9006	0.9305	-139.9350	1.9259	1.3267
121	-139.9350	1.9259	1.3267	-108.6459	22.2143	49.4274
122	-108.6459	22.2143	49.4274	-71.5798	19.7146	43.3886
123	-71.5798	19.7146	43.3886	-38.3207	18.4645	40.3557
124	-38.3207	18.4645	40.3557	-9.0562	15.9646	34.4062
125	-9.0562	15.9646	34.4062	16.4657	13.4657	28.4935
126	16.4657	13.4657	28.4935	38.2499	10.9651	22.6129
127	38.2499	10.9651	22.6129	56.2233	9.7114	19.7182
128	56.2233	9.7114	19.7182	70.1942	7.2105	13.8855
129	70.1942	7.2105	13.8855	80.4261	4.7112	8.0691
130	80.4261	4.7112	8.0691	86.9146	2.2092	2.2648
131	86.9146	2.2092	2.2648	7.7439	-0.9442	1.1372
132	7.7439	-0.9442	1.1372	6.0909	-0.9438	1.1467
133	6.0909	-0.9438	1.1467	4.4374	-0.9439	1.1538
134	4.4374	-0.9439	1.1538	2.7838	-0.9439	1.1586
135	2.7838	-0.9439	1.1586	1.1303	-0.9439	1.1612
136	1.1303	-0.9439	1.1612	-0.5235	-0.9439	1.1616
137	-0.5235	-0.9439	1.1616	-2.1772	-0.9440	1.1598
138	-2.1772	-0.9440	1.1598	-3.8315	-0.9442	1.1558
139	-3.8315	-0.9442	1.1558	-5.4857	-0.9444	1.1495
140	-5.4857	-0.9444	1.1495	-121.7603	0.3260	2.8308
141	-121.7603	0.3260	2.8308	-102.3650	20.0881	50.1015
142	-102.3650	20.0881	50.1015	-68.2754	17.5879	44.0662
143	-68.2754	17.5879	44.0662	-38.1766	15.0879	38.0749
144	-38.1766	15.0879	38.0749	-12.1976	13.8379	35.0811
145	-12.1976	13.8379	35.0811	9.6639	11.3375	29.1618
146	9.6639	11.3375	29.1618	27.5334	8.8375	23.2701
147	27.5334	8.8375	23.2701	41.4108	6.3377	17.4004
148	41.4108	6.3377	17.4004	51.2972	3.8372	11.5469
149	51.2972	3.8372	11.5469	57.0638	2.5872	8.6630
150	57.0638	2.5872	8.6630	58.7128	0.0882	2.8259
151	58.7128	0.0882	2.8259	4.9771	-0.5698	0.6193
152	4.9771	-0.5698	0.6193	3.9507	-0.5698	0.6255
153	3.9507	-0.5698	0.6255	2.9243	-0.5700	0.6302
154	2.9243	-0.5700	0.6302	1.8978	-0.5699	0.6336
155	1.8978	-0.5699	0.6336	0.8713	-0.5699	0.6356
156	0.8713	-0.5699	0.6356	-0.1553	-0.5699	0.6360
157	-0.1553	-0.5699	0.6360	-1.1819	-0.5699	0.6351
158	-1.1819	-0.5699	0.6351	-2.2083	-0.5698	0.6328
159	-2.2083	-0.5698	0.6328	-3.2345	-0.5698	0.6291
160	-3.2345	-0.5698	0.6291	-146.1259	0.8689	4.6144
161	-146.1259	0.8689	4.6144	-100.6205	21.6563	53.7096
162	-100.6205	21.6563	53.7096	-60.3549	19.1509	47.6681
163	-60.3549	19.1509	47.6681	-25.1179	16.6514	41.6849
164	-25.1179	16.6514	41.6849	5.1291	14.1510	35.7521
165	5.1291	14.1510	35.7521	30.3873	11.6559	29.8620
166	30.3873	11.6559	29.8620	50.6618	9.1571	24.0066
167	50.6618	9.1571	24.0066	65.9479	6.6574	18.1788
168	65.9479	6.6574	18.1788	76.2403	4.1571	12.3710
169	76.2403	4.1571	12.3710	81.4960	1.6510	6.5752
170	81.4960	1.6510	6.5752	81.8533	-0.8408	0.7827
171	81.8533	-0.8408	0.7827	-1.2647	0.1361	0.0093
172	-1.2647	0.1361	0.0093	-0.9927	0.1360	0.0075
173	-0.9927	0.1360	0.0075	-0.7206	0.1361	0.0061

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
174	-0.7206	0.1361	0.0061	-0.4434	0.1346	0.0052
175	-0.4434	0.1346	0.0052	-0.1762	0.1361	0.0048
176	-0.1762	0.1361	0.0048	0.0960	0.1361	0.0048
177	0.0960	0.1361	0.0048	0.3682	0.1361	0.0051
178	0.3682	0.1361	0.0051	0.6403	0.1361	0.0059
179	0.6403	0.1361	0.0059	0.9125	0.1361	0.0071
180	0.9125	0.1361	0.0071	-4.9859	-0.2037	0.0076
181	-4.9859	-0.2037	0.0076	-126.1075	22.9270	51.8585
182	-126.1075	22.9270	51.8585	-84.2103	20.4272	45.7834
183	-84.2103	20.4272	45.7834	-47.0550	17.9273	39.7675
184	-47.0550	17.9273	39.7675	-14.6431	15.4263	33.8039
185	-14.6431	15.4263	33.8039	13.0248	12.9256	27.8855
186	13.0248	12.9256	27.8855	35.9502	10.4255	22.0046
187	35.9502	10.4255	22.0046	54.1309	7.9250	16.1546
188	54.1309	7.9250	16.1546	67.5699	5.4247	10.3286
189	67.5699	5.4247	10.3286	76.2661	2.9233	4.5191
190	76.2661	2.9233	4.5191	-1.7095	0.1607	0.0008
191	-1.7095	0.1607	0.0008	0.3210	-0.0369	0.0004
192	0.3210	-0.0369	0.0004	0.2395	-0.0355	0.0008
193	0.2395	-0.0355	0.0008	0.1883	-0.0393	0.0012
194	0.1883	-0.0393	0.0012	0.1114	-0.0393	0.0014
195	0.1114	-0.0393	0.0014	0.0344	-0.0389	0.0014
196	0.0344	-0.0389	0.0014	-0.0415	-0.0389	0.0014
197	-0.0415	-0.0389	0.0014	-0.1149	-0.0381	0.0013
198	-0.1149	-0.0381	0.0013	-0.1931	-0.0389	0.0011
199	-0.1931	-0.0389	0.0011	-0.2689	-0.0389	0.0008
200	-0.2689	-0.0389	0.0008	-4.6136	-0.1783	0.0033
201	-4.6136	-0.1783	0.0033	-111.8854	20.3884	34.5438
202	-111.8854	20.3884	34.5438	-83.8274	19.1385	31.4637
203	-83.8274	19.1385	31.4637	-58.0303	17.8887	28.4423
204	-58.0303	17.8887	28.4423	-34.9319	15.3890	22.4805
205	-34.9319	15.3890	22.4805	-14.1887	14.1383	19.4970
206	-14.1887	14.1383	19.4970	4.0875	11.6379	13.5770
207	4.0875	11.6379	13.5770	19.7705	10.3883	10.6384
208	19.7705	10.3883	10.6384	33.1805	9.1390	7.7108
209	33.1805	9.1390	7.7108	43.8368	6.6392	1.8212
210	43.8368	6.6392	1.8212	12.9498	-0.9182	0.0518
211	12.9498	-0.9182	0.0518	11.8531	-0.9337	0.0662
212	11.8531	-0.9337	0.0662	10.5362	-0.9343	0.0766
213	10.5362	-0.9343	0.0766	9.2180	-0.9347	0.0835
214	9.2180	-0.9347	0.0835	7.9011	-0.9345	0.0921
215	7.9011	-0.9345	0.0921	6.5841	-0.9340	0.0996
216	6.5841	-0.9340	0.0996	5.2676	-0.9336	0.1037
217	5.2676	-0.9336	0.1037	3.9510	-0.9338	0.1082
218	3.9510	-0.9338	0.1082	2.6335	-0.9340	0.1123
219	2.6335	-0.9340	0.1123	1.3166	-0.9339	0.1138
220	1.3166	-0.9339	0.1138	0.0002	-0.9338	0.1141

ENVOL. MIN. TORSORES TREN TREN SIN CARGA, EC-1 en via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.0009	-0.0003	-0.0713	1.1691	-0.0484	-0.2368
2	1.1691	-0.0484	-0.2368	6.5498	-0.2878	-0.8419
3	6.5498	-0.2878	-0.8419	10.1372	-0.4787	-1.2714
4	10.1372	-0.4787	-1.2714	19.6652	-1.0020	-2.3958
5	19.6652	-1.0020	-2.3958	30.9543	-1.7121	-3.8557
6	30.9543	-1.7121	-3.8557	35.2369	-2.1368	-4.6865
7	35.2369	-2.1368	-4.6865	46.7158	-3.1205	-6.6291
8	46.7158	-3.1205	-6.6291	57.6668	-4.2793	-8.8941
9	57.6668	-4.2793	-8.8941	58.6772	-4.9221	-10.1093
10	58.6772	-4.9221	-10.1093	66.2188	-6.3379	-12.8524
11	66.2188	-6.3379	-12.8524	63.2799	-7.1075	-14.3045
12	63.2799	-7.1075	-14.3045	65.4138	-8.7647	-17.5379
13	65.4138	-8.7647	-17.5379	63.9495	-10.5728	-21.1086
14	63.9495	-10.5728	-21.1086	52.2846	-11.5259	-22.9867
15	52.2846	-11.5259	-22.9867	42.7994	-13.5446	-27.0830
16	42.7994	-13.5446	-27.0830	28.4287	-15.6834	-31.5409
17	28.4287	-15.6834	-31.5409	5.5942	-16.7994	-33.9008
18	5.5942	-16.7994	-33.9008	-18.5509	-19.1089	-38.9343
19	-18.5509	-19.1089	-38.9343	-48.2584	-21.5150	-44.3582
20	-48.2584	-21.5150	-44.3582	-83.6261	-10.0484	-23.7047
21	-83.6261	-10.0484	-23.7047	-77.0952	2.6170	-0.4934
22	-77.0952	2.6170	-0.4934	-68.4107	2.4906	-1.1478
23	-68.4107	2.4906	-1.1478	-57.6160	2.2628	-2.0852
24	-57.6160	2.2628	-2.0852	-45.0522	1.9232	-3.2975
25	-45.0522	1.9232	-3.2975	-31.1508	1.4635	-4.7770
26	-31.1508	1.4635	-4.7770	-16.4062	0.8743	-6.5166
27	-16.4062	0.8743	-6.5166	-1.3842	0.1494	-8.5112
28	-1.3842	0.1494	-8.5112	13.2886	-0.7167	-10.7572
29	13.2886	-0.7167	-10.7572	26.9407	-1.7279	-13.2528
30	26.9407	-1.7279	-13.2528	38.8685	-2.8874	-15.9984
31	38.8685	-2.8874	-15.9984	48.3487	-4.1942	-18.9964
32	48.3487	-4.1942	-18.9964	54.6615	-5.6489	-22.2519
33	54.6615	-5.6489	-22.2519	57.0963	-7.2505	-25.7715
34	57.0963	-7.2505	-25.7715	54.9679	-8.9923	-29.5648
35	54.9679	-8.9923	-29.5648	47.6398	-10.8738	-33.6426
36	47.6398	-10.8738	-33.6426	34.5176	-12.8851	-38.0179
37	34.5176	-12.8851	-38.0179	15.0868	-15.0217	-42.7049
38	15.0868	-15.0217	-42.7049	-11.0874	-17.2743	-47.7191
39	-11.0874	-17.2743	-47.7191	-44.3349	-19.6300	-53.0763
40	-44.3349	-19.6300	-53.0763	-85.0905	-9.6834	-29.6577
41	-85.0905	-9.6834	-29.6577	-78.8064	2.6759	-0.8850
42	-78.8064	2.6759	-0.8850	-69.9687	2.5486	-1.5364
43	-69.9687	2.5486	-1.5364	-58.9887	2.3187	-2.4676
44	-58.9887	2.3187	-2.4676	-46.2246	1.9742	-3.6711
45	-46.2246	1.9742	-3.6711	-32.1189	1.5093	-5.1399
46	-32.1189	1.5093	-5.1399	-17.1800	0.9140	-6.8675
47	-17.1800	0.9140	-6.8675	-1.9806	0.1829	-8.8496
48	-1.9806	0.1829	-8.8496	12.8491	-0.6893	-11.0831
49	12.8491	-0.6893	-11.0831	26.6341	-1.7059	-13.5669
50	26.6341	-1.7059	-13.5669	38.6697	-2.8702	-16.3015
51	38.6697	-2.8702	-16.3015	48.2348	-4.1830	-19.2901
52	48.2348	-4.1830	-19.2901	54.6031	-5.6455	-22.5377
53	54.6031	-5.6455	-22.5377	57.0637	-7.2525	-26.0511
54	57.0637	-7.2525	-26.0511	54.9366	-9.0002	-29.8400
55	54.9366	-9.0002	-29.8400	47.5816	-10.8858	-33.9151
56	47.5816	-10.8858	-33.9151	34.4137	-12.9030	-38.2895
57	34.4137	-12.9030	-38.2895	14.9186	-15.0425	-42.9769
58	14.9186	-15.0425	-42.9769	-11.3275	-17.2968	-47.9923
59	-11.3275	-17.2968	-47.9923	-44.6594	-19.6545	-53.3512
60	-44.6594	-19.6545	-53.3512	-85.3078	-9.6934	-29.7540
61	-85.3078	-9.6934	-29.7540	-78.8054	2.6806	-0.8031
62	-78.8054	2.6806	-0.8031	-69.9373	2.5518	-1.4577
63	-69.9373	2.5518	-1.4577	-58.9328	2.3191	-2.3937
64	-58.9328	2.3191	-2.3937	-46.1474	1.9750	-3.6035
65	-46.1474	1.9750	-3.6035	-32.0258	1.5080	-5.0792
66	-32.0258	1.5080	-5.0792	-17.0773	0.9105	-6.8143
67	-17.0773	0.9105	-6.8143	-1.8760	0.1777	-8.8041
68	-1.8760	0.1777	-8.8041	12.9467	-0.6963	-11.0454
69	12.9467	-0.6963	-11.0454	26.7162	-1.7156	-13.5364
70	26.7162	-1.7156	-13.5364	38.7232	-2.8825	-16.2782
71	38.7232	-2.8825	-16.2782	48.2493	-4.1982	-19.2731
72	48.2493	-4.1982	-19.2731	54.5718	-5.6583	-22.5266
73	54.5718	-5.6583	-22.5266	56.9815	-7.2676	-26.0443
74	56.9815	-7.2676	-26.0443	54.8017	-9.0184	-29.8373
75	54.8017	-9.0184	-29.8373	47.3868	-10.9071	-33.9159
76	47.3868	-10.9071	-33.9159	34.1581	-12.9253	-38.2926
77	34.1581	-12.9253	-38.2926	14.6047	-15.0654	-42.9818
78	14.6047	-15.0654	-42.9818	-11.6976	-17.3213	-47.9983
79	-11.6976	-17.3213	-47.9983	-45.0724	-19.6784	-53.3582
80	-45.0724	-19.6784	-53.3582	-85.8351	-9.6774	-30.0710
81	-85.8351	-9.6774	-30.0710	-79.3035	2.7366	-1.4256
82	-79.3035	2.7366	-1.4256	-70.3202	2.6075	-2.0622
83	-70.3202	2.6075	-2.0622	-59.1969	2.3733	-2.9636
84	-59.1969	2.3733	-2.9636	-46.2993	2.0238	-4.1204
85	-46.2993	2.0238	-4.1204	-32.0840	1.5526	-5.5252
86	-32.0840	1.5526	-5.5252	-17.0646	0.9486	-7.1718
87	-17.0646	0.9486	-7.1718	-1.8256	0.2076	-9.0560
88	-1.8256	0.2076	-9.0560	12.9938	-0.6759	-11.1763
89	12.9938	-0.6759	-11.1763	26.7118	-1.7051	-13.5336
90	26.7118	-1.7051	-13.5336	38.6199	-2.8825	-16.1315
91	38.6199	-2.8825	-16.1315	47.9940	-4.2072	-18.9773
92	47.9940	-4.2072	-18.9773	54.1176	-5.6815	-22.0794
93	54.1176	-5.6815	-22.0794	56.2953	-7.2976	-25.4506
94	56.2953	-7.2976	-25.4506	53.8474	-9.0599	-29.1047
95	53.8474	-9.0599	-29.1047	46.1546	-10.9562	-33.0600
96	46.1546	-10.9562	-33.0600	32.6597	-12.9788	-37.3358
97	32.6597	-12.9788	-37.3358	-34.4447	-16.9911	-42.5535
98	-34.4447	-16.9911	-42.5535	-71.3658	-19.4918	-48.5521
99	-71.3658	-19.4918	-48.5521	-113.2786	-21.9921	-54.6117
100	-113.2786	-21.9921	-54.6117	-91.7034	-9.3396	-30.3723
101	-91.7034	-9.3396	-30.3723	-89.0598	3.4729	-2.8955
102	-89.0598	3.4729	-2.8955	-79.6886	3.3372	-3.3949
103	-79.6886	3.3372	-3.3949	-71.2742	3.2224	-3.7898
104	-71.2742	3.2224	-3.7898	-58.7962	2.8941	-4.6687
105	-58.7962	2.8941	-4.6687	-44.6879	2.4232	-5.8083
106	-44.6879	2.4232	-5.8083	-29.4547	1.8023	-7.2138
107	-29.4547	1.8023	-7.2138	-20.3322	1.4334	-8.0326
108	-20.3322	1.4334	-8.0326	-5.2561	0.5732	-9.8393
109	-5.2561	0.5732	-9.8393	9.2640	-0.4527	-11.9319
110	9.2640	-0.4527	-11.9319	22.5413	-1.6476	-14.3216
111	22.5413	-1.6476	-14.3216	26.4850	-2.3078	-15.6136
112	26.4850	-2.3078	-15.6136	35.3217	-3.7533	-18.4683
113	35.3217	-3.7533	-18.4683	41.0424	-5.3647	-21.6585
114	41.0424	-5.3647	-21.6585	43.0010	-7.1363	-25.2036

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	43.0010	-7.1363	-25.2036	35.3279	-8.0800	-27.0889
116	35.3279	-8.0800	-27.0889	-13.4012	-12.1129	-31.7796
117	-13.4012	-12.1129	-31.7796	-36.9277	-14.6124	-37.7311
118	-36.9277	-14.6124	-37.7311	-64.1970	-17.1124	-43.7167
119	-64.1970	-17.1124	-43.7167	-95.2729	-18.3624	-46.7829
120	-95.2729	-18.3624	-46.7829	-57.2187	-7.9214	-25.5713
121	-57.2187	-7.9214	-25.5713	-56.9201	2.2126	-2.2992
122	-56.9201	2.2126	-2.2992	-49.9757	2.0862	-2.7453
123	-49.9757	2.0862	-2.7453	-43.8880	1.9793	-3.0926
124	-43.8880	1.9793	-3.0926	-33.8826	1.6667	-3.9097
125	-33.8826	1.6667	-3.9097	-22.2376	1.2165	-4.9822
126	-22.2376	1.2165	-4.9822	-9.4249	0.6173	-6.3161
127	-9.4249	0.6173	-6.3161	-2.5165	0.2603	-7.0854
128	-2.5165	0.2603	-7.0854	10.2692	-0.5762	-8.8179
129	10.2692	-0.5762	-8.8179	22.5909	-1.5778	-10.8346
130	22.5909	-1.5778	-10.8346	33.7684	-2.7476	-13.1481
131	33.7684	-2.7476	-13.1481	35.7460	-3.3964	-14.3955
132	35.7460	-3.3964	-14.3955	42.6560	-4.8189	-17.1764
133	42.6560	-4.8189	-17.1764	46.5445	-6.4093	-20.2967
134	46.5445	-6.4093	-20.2967	46.7564	-8.1600	-23.7766
135	46.7564	-8.1600	-23.7766	37.3489	-9.0945	-25.6300
136	37.3489	-9.0945	-25.6300	-16.2554	-13.3086	-30.8586
137	-16.2554	-13.3086	-30.8586	-41.8779	-15.8090	-36.8151
138	-41.8779	-15.8090	-36.8151	-71.2443	-18.3096	-42.8087
139	-71.2443	-18.3096	-42.8087	-104.4167	-19.5596	-45.8857
140	-104.4167	-19.5596	-45.8857	-63.7512	-8.3261	-24.6798
141	-63.7512	-8.3261	-24.6798	-63.6439	2.3779	-2.1351
142	-63.6439	2.3779	-2.1351	-56.4174	2.2607	-2.5999
143	-56.4174	2.2607	-2.5999	-46.9115	2.0274	-3.3263
144	-46.9115	2.0274	-3.3263	-39.7241	1.8647	-3.8176
145	-39.7241	1.8647	-3.8176	-27.8351	1.4363	-4.9394
146	-27.8351	1.4363	-4.9394	-14.7793	0.8658	-6.3375
147	-14.7793	0.8658	-6.3375	-1.0974	0.1442	-8.0189
148	-1.0974	0.1442	-8.0189	12.6012	-0.7350	-9.9907
149	12.6012	-0.7350	-9.9907	18.1479	-1.2352	-11.0752
150	18.1479	-1.2352	-11.0752	29.6133	-2.3590	-13.4887
151	29.6133	-2.3590	-13.4887	39.2404	-3.6471	-16.2140
152	39.2404	-3.6471	-16.2140	46.3200	-5.1007	-19.2603
153	46.3200	-5.1007	-19.2603	50.1497	-6.7183	-22.6374
154	50.1497	-6.7183	-22.6374	43.8261	-7.5874	-24.4205
155	43.8261	-7.5874	-24.4205	39.8723	-9.4394	-28.3162
156	39.8723	-9.4394	-28.3162	30.9520	-11.4397	-32.5740
157	30.9520	-11.4397	-32.5740	16.5515	-13.5810	-37.2050
158	16.5515	-13.5810	-37.2050	-3.7473	-15.8496	-42.2207
159	-3.7473	-15.8496	-42.2207	-133.7523	-20.9079	-44.9573
160	-133.7523	-20.9079	-44.9573	-63.2962	-8.7256	-25.4439
161	-63.2962	-8.7256	-25.4439	-58.1041	1.9812	-0.6901
162	-58.1041	1.9812	-0.6901	-50.7603	1.8567	-1.3189
163	-50.7603	1.8567	-1.3189	-41.3390	1.6316	-2.2355
164	-41.3390	1.6316	-2.2355	-30.1670	1.2948	-3.4320
165	-30.1670	1.2948	-3.4320	-17.6664	0.8378	-4.9007
166	-17.6664	0.8378	-4.9007	-4.3271	0.2521	-6.6351
167	-4.3271	0.2521	-6.6351	9.2929	-0.4692	-8.6299
168	9.2929	-0.4692	-8.6299	22.5719	-1.3316	-10.8815
169	22.5719	-1.3316	-10.8815	34.8389	-2.3399	-13.3875
170	34.8389	-2.3399	-13.3875	45.3895	-3.4962	-16.1486
171	45.3895	-3.4962	-16.1486	53.5060	-4.8003	-19.1665
172	53.5060	-4.8003	-19.1665	58.4636	-6.2532	-22.4449
173	58.4636	-6.2532	-22.4449	59.5456	-7.8555	-25.9905
174	59.5456	-7.8555	-25.9905	56.0619	-9.6003	-29.8110

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	56.0619	-9.6003	-29.8110	47.3730	-11.4848	-33.9178
176	47.3730	-11.4848	-33.9178	32.8871	-13.5007	-38.3219
177	32.8871	-13.5007	-38.3219	12.0958	-15.6388	-43.0361
178	12.0958	-15.6388	-43.0361	-15.4357	-17.8930	-48.0754
179	-15.4357	-17.8930	-48.0754	-50.0340	-20.2513	-53.4545
180	-50.0340	-20.2513	-53.4545	-91.4888	-9.8425	-29.7170
181	-91.4888	-9.8425	-29.7170	-84.0368	2.9764	-0.6265
182	-84.0368	2.9764	-0.6265	-74.6441	2.8393	-1.3044
183	-74.6441	2.8393	-1.3044	-63.1021	2.5933	-2.2735
184	-63.1021	2.5933	-2.2735	-49.7834	2.2277	-3.5249
185	-49.7834	2.2277	-3.5249	-35.1466	1.7337	-5.0501
186	-35.1466	1.7337	-5.0501	-19.7165	1.1044	-6.8419
187	-19.7165	1.1044	-6.8419	-4.0844	0.3317	-8.8954
188	-4.0844	0.3317	-8.8954	11.1022	-0.5892	-11.2066
189	11.1022	-0.5892	-11.2066	25.1553	-1.6611	-13.7740
190	25.1553	-1.6611	-13.7740	37.3646	-2.8856	-16.5951
191	37.3646	-2.8856	-16.5951	47.0036	-4.2634	-19.6767
192	47.0036	-4.2634	-19.6767	53.3587	-5.7910	-23.0364
193	53.3587	-5.7910	-23.0364	55.7468	-7.4674	-26.6648
194	55.7468	-7.4674	-26.6648	47.1169	-8.3599	-28.5351
195	47.1169	-8.3599	-28.5351	40.4940	-10.2498	-32.5856
196	40.4940	-10.2498	-32.5856	28.2364	-12.2720	-36.9482
197	28.2364	-12.2720	-36.9482	9.8755	-14.4175	-41.6236
198	9.8755	-14.4175	-41.6236	-14.9790	-16.6772	-46.6268
199	-14.9790	-16.6772	-46.6268	-46.5973	-19.0396	-51.9812
200	-46.5973	-19.0396	-51.9812	-85.4722	-9.2252	-29.4443
201	-85.4722	-9.2252	-29.4443	-80.3620	2.9989	-1.6399
202	-80.3620	2.9989	-1.6399	-74.5625	2.9366	-2.0483
203	-74.5625	2.9366	-2.0483	-68.2227	2.8437	-2.5250
204	-68.2227	2.8437	-2.5250	-57.9044	2.5613	-3.7178
205	-57.9044	2.5613	-3.7178	-50.2457	2.3696	-4.4799
206	-50.2457	2.3696	-4.4799	-37.1504	1.8759	-6.2324
207	-37.1504	1.8759	-6.2324	-28.8896	1.5689	-7.2849
208	-28.8896	1.5689	-7.2849	-20.7959	1.2218	-8.4235
209	-20.7959	1.2218	-8.4235	-6.2948	0.3978	-10.9335
210	-6.2948	0.3978	-10.9335	1.0305	-0.0814	-12.3323
211	1.0305	-0.0814	-12.3323	14.8628	-1.1816	-15.4039
212	14.8628	-1.1816	-15.4039	20.2174	-1.8040	-17.0724
213	20.2174	-1.8040	-17.0724	31.4171	-3.1982	-20.7174
214	31.4171	-3.1982	-20.7174	33.4592	-3.9708	-22.6630
215	33.4592	-3.9708	-22.6630	33.6886	-4.7964	-24.7010
216	33.6886	-4.7964	-24.7010	37.1204	-6.6034	-29.1198
217	37.1204	-6.6034	-29.1198	31.9920	-7.5869	-31.4583
218	31.9920	-7.5869	-31.4583	27.3228	-9.7171	-36.4686
219	27.3228	-9.7171	-36.4686	15.2607	-10.8626	-39.1279
220	15.2607	-10.8626	-39.1279	-0.0461	-10.8620	-39.1249

ENVOL. MAX. FLECTORES TREN TREN IPF-75 TIPO A en via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0350	54.8225	-72.6974	127.5697	77.9621	-106.6388
2	127.5697	77.9621	-106.6388	235.9027	44.5569	-63.3941
3	235.9027	44.5569	-63.3941	332.8475	67.7896	-96.7519
4	332.8475	67.7896	-96.7519	405.6669	34.4408	-53.1325
5	405.6669	34.4408	-53.1325	468.0848	27.8287	-46.1121
6	468.0848	27.8287	-46.1121	511.7948	24.5912	-42.2186
7	511.7948	24.5912	-42.2186	545.3732	21.3891	-38.2629
8	545.3732	21.3891	-38.2629	558.3051	15.1136	-30.9335
9	558.3051	15.1136	-30.9335	561.5640	-17.9413	13.0597
10	561.5640	-17.9413	13.0597	550.5250	6.1077	-19.5336
11	550.5250	6.1077	-19.5336	524.1761	-26.7789	24.4358
12	524.1761	-26.7789	24.4358	491.5480	-32.3339	31.7261
13	491.5480	-32.3339	31.7261	442.0463	-35.0032	35.6181
14	442.0463	-35.0032	35.6181	388.5131	-40.0839	42.7391
15	388.5131	-40.0839	42.7391	326.9984	-44.7971	49.7399
16	326.9984	-44.7971	49.7399	255.5338	-47.0231	53.3532
17	255.5338	-47.0231	53.3532	183.4361	-51.1661	60.1139
18	183.4361	-51.1661	60.1139	108.3633	-24.8730	26.7858
19	108.3633	-24.8730	26.7858	82.2524	2.6462	0.4491
20	82.2524	2.6462	0.4491	86.5721	-3.6285	-0.1999
21	86.5721	-3.6285	-0.1999	66.7647	-9.9030	-0.8489
22	66.7647	-9.9030	-0.8489	134.9689	23.6707	-27.9977
23	134.9689	23.6707	-27.9977	221.6307	19.8298	-22.6433
24	221.6307	19.8298	-22.6433	302.4680	43.4328	-54.4438
25	302.4680	43.4328	-54.4438	375.2010	11.1458	-11.3452
26	375.2010	11.1458	-11.3452	438.0612	6.3849	-5.4327
27	438.0612	6.3849	-5.4327	489.1805	1.3874	0.6285
28	489.1805	1.3874	0.6285	527.0012	-3.7729	6.8070
29	527.0012	-3.7729	6.8070	550.3908	-9.0440	13.0657
30	550.3908	-9.0440	13.0657	558.6564	-14.3843	19.3690
31	558.6564	-14.3843	19.3690	551.5089	-19.7157	25.6761
32	551.5089	-19.7157	25.6761	529.0880	-25.0280	31.9464
33	529.0880	-25.0280	31.9464	491.9811	-30.2256	38.1397
34	491.9811	-30.2256	38.1397	441.1764	-35.2732	44.2189
35	441.1764	-35.2732	44.2189	378.0780	-40.1287	50.1551
36	378.0780	-40.1287	50.1551	304.4816	-44.7266	55.9211
37	304.4816	-44.7266	55.9211	222.6550	-49.0261	61.4991
38	222.6550	-49.0261	61.4991	135.2492	-52.9639	66.8820
39	135.2492	-52.9639	66.8820	78.8978	2.6985	0.6535
40	78.8978	2.6985	0.6535	84.2975	-3.5536	-0.0069
41	84.2975	-3.5536	-0.0069	72.6799	-2.4704	-0.4541
42	72.6799	-2.4704	-0.4541	138.6180	23.5355	-27.7367
43	138.6180	23.5355	-27.7367	226.1043	19.6481	-22.2826
44	226.1043	19.6481	-22.2826	307.6758	43.2044	-53.9881
45	307.6758	43.2044	-53.9881	380.3348	38.5491	-48.1779
46	380.3348	38.5491	-48.1779	442.8851	6.1230	-4.9306
47	442.8851	6.1230	-4.9306	493.6577	1.1496	1.1284
48	493.6577	1.1496	1.1284	531.0021	-4.0098	7.2854
49	531.0021	-4.0098	7.2854	553.8650	-9.2708	13.5105
50	553.8650	-9.2708	13.5105	561.5731	-14.5886	19.7640
51	561.5731	-14.5886	19.7640	553.8516	-19.9300	26.0124
52	553.8516	-19.9300	26.0124	530.9033	-25.2178	32.2177
53	530.9033	-25.2178	32.2177	493.2665	-30.4024	38.3446
54	493.2665	-30.4024	38.3446	441.9950	-35.4402	44.3609
55	441.9950	-35.4402	44.3609	378.5037	-40.2654	50.2373
56	378.5037	-40.2654	50.2373	304.6462	-44.8381	55.9530
57	304.6462	-44.8381	55.9530	222.6678	-49.1053	61.4946
58	222.6678	-49.1053	61.4946	135.2455	-53.0159	66.8592
59	135.2455	-53.0159	66.8592	77.3471	2.6284	0.6003
60	77.3471	2.6284	0.6003	85.7016	3.6249	-0.1717
61	85.7016	3.6249	-0.1717	80.2386	-2.7323	-0.6035
62	80.2386	-2.7323	-0.6035	138.5883	23.5247	-27.8801
63	138.5883	23.5247	-27.8801	226.1576	19.6257	-22.4810
64	226.1576	19.6257	-22.4810	307.7924	43.1642	-54.2422
65	307.7924	43.1642	-54.2422	380.4100	38.5094	-48.4517
66	380.4100	38.5094	-48.4517	442.8773	6.0885	-5.2109
67	442.8773	6.0885	-5.2109	493.5170	1.0914	0.8474
68	493.5170	1.0914	0.8474	530.7517	-4.0477	7.0108
69	530.7517	-4.0477	7.0108	553.4435	-9.3373	13.2500
70	553.4435	-9.3373	13.2500	560.9263	-14.6676	19.5224
71	560.9263	-14.6676	19.5224	553.0167	-20.0057	25.7943
72	553.0167	-20.0057	25.7943	529.8887	-25.2812	32.0289
73	529.8887	-25.2812	32.0289	492.1480	-30.4550	38.1884
74	492.1480	-30.4550	38.1884	440.8300	-35.4942	44.2359
75	440.8300	-35.4942	44.2359	377.3205	-40.3197	50.1409
76	377.3205	-40.3197	50.1409	303.4974	-44.8893	55.8858
77	303.4974	-44.8893	55.8858	221.6275	-49.1469	61.4526
78	221.6275	-49.1469	61.4526	134.4098	-53.0447	66.8365
79	134.4098	-53.0447	66.8365	66.5904	10.0680	0.6027
80	66.5904	10.0680	0.6027	86.7237	3.6343	0.3025
81	86.7237	3.6343	0.3025	81.1234	-2.8001	0.0132
82	81.1234	-2.8001	0.0132	139.4854	23.3717	-26.2220
83	139.4854	23.3717	-26.2220	227.0874	47.2724	-56.8217
84	227.0874	47.2724	-56.8217	308.3096	42.8029	-50.2668
85	308.3096	42.8029	-50.2668	380.1244	38.0536	-43.5436
86	380.1244	38.0536	-43.5436	441.5824	5.5898	0.1531
87	441.5824	5.5898	0.1531	490.8447	0.5117	7.0791
88	490.8447	0.5117	7.0791	526.3622	-4.7238	14.0419
89	526.3622	-4.7238	14.0419	547.1478	-10.0464	20.9810
90	547.1478	-10.0464	20.9810	552.5947	-15.4212	27.8311
91	552.5947	-15.4212	27.8311	542.5459	-20.7966	34.5323
92	542.5459	-20.7966	34.5323	517.3428	-26.0989	41.0215
93	517.3428	-26.0989	41.0215	477.7150	-31.2999	47.2394
94	477.7150	-31.2999	47.2394	424.7700	-36.3154	53.1305
95	424.7700	-36.3154	53.1305	360.1021	-41.1252	58.6402
96	360.1021	-41.1252	58.6402	285.7529	-45.6476	63.7245
97	285.7529	-45.6476	63.7245	204.1721	-49.8347	68.3452
98	204.1721	-49.8347	68.3452	118.2402	-53.6385	72.4778
99	118.2402	-53.6385	72.4778	71.7822	10.2267	-1.5603
100	71.7822	10.2267	-1.5603	91.9459	3.4407	0.5469
101	91.9459	3.4407	0.5469	85.7931	-3.3452	2.6566
102	85.7931	-3.3452	2.6566	131.8451	51.8596	-61.9273
103	131.8451	51.8596	-61.9273	208.7584	47.1506	-52.8463
104	208.7584	47.1506	-52.8463	279.1002	42.0571	-43.9770
105	279.1002	42.0571	-43.9770	345.6286	39.3808	-39.4185
106	345.6286	39.3808	-39.4185	397.2747	33.8119	-30.8935
107	397.2747	33.8119	-30.8935	437.1622	28.0085	-22.6621
108	437.1622	28.0085	-22.6621	468.1513	-4.9629	21.5974
109	468.1513	-4.9629	21.5974	488.5242	19.0187	-10.6272
110	488.5242	19.0187	-10.6272	488.4035	12.9543	-3.2810
111	488.4035	12.9543	-3.2810	478.0424	-20.0839	40.5196
112	478.0424	-20.0839	40.5196	458.5388	-26.0526	47.2040
113	458.5388	-26.0526	47.2040	423.9482	-1.8947	13.4384

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
114	423.9482	-1.8947	13.4384	373.7427	-34.7484	56.5582
115	373.7427	-34.7484	56.5582	318.0395	-40.2573	61.9345
116	318.0395	-40.2573	61.9345	253.2914	-45.4226	66.7471
117	253.2914	-45.4226	66.7471	180.5807	-20.2027	31.0238
118	180.5807	-20.2027	31.0238	99.1145	-52.4181	72.9604
119	99.1145	-52.4181	72.9604	73.3320	2.8231	3.7628
120	73.3320	2.8231	3.7628	90.5198	4.3930	-4.6344
121	90.5198	4.3930	-4.6344	83.4856	-3.2448	3.1697
122	83.4856	-3.2448	3.1697	124.6562	52.1820	-61.1078
123	124.6562	52.1820	-61.1078	199.2363	47.6184	-51.7047
124	199.2363	47.6184	-51.7047	268.4144	42.6325	-42.5544
125	268.4144	42.6325	-42.5544	335.2800	40.0081	-37.8794
126	335.2800	40.0081	-37.8794	387.2274	34.4987	-29.1376
127	387.2274	34.4987	-29.1376	428.0542	28.7388	-20.7357
128	428.0542	28.7388	-20.7357	460.3060	-4.2354	23.5872
129	460.3060	-4.2354	23.5872	482.2148	19.7607	-8.5370
130	482.2148	19.7607	-8.5370	483.7747	13.6715	-1.1409
131	483.7747	13.6715	-1.1409	474.8790	-19.3745	42.6654
132	474.8790	-19.3745	42.6654	456.9897	-25.4012	49.3213
133	456.9897	-25.4012	49.3213	423.7715	-1.3239	15.4630
134	423.7715	-1.3239	15.4630	374.6165	-34.2123	58.5119
135	374.6165	-34.2123	58.5119	319.6957	-39.8008	63.6889
136	319.6957	-39.8008	63.6889	255.2236	-45.0848	68.2362
137	255.2236	-45.0848	68.2362	182.2486	-19.9750	32.1635
138	182.2486	-19.9750	32.1635	100.5670	-52.2487	73.8947
139	100.5670	-52.2487	73.8947	83.4280	3.2565	4.7899
140	83.4280	3.2565	4.7899	90.0244	-4.1405	0.4942
141	90.0244	-4.1405	0.4942	70.1657	-11.5360	-3.8091
142	70.1657	-11.5360	-3.8091	127.9670	52.6291	-63.2603
143	127.9670	52.6291	-63.2603	204.0473	48.3352	-55.1623
144	204.0473	48.3352	-55.1623	275.1996	43.6391	-47.3923
145	275.1996	43.6391	-47.3923	339.2488	11.1420	-3.4437
146	339.2488	11.1420	-3.4437	399.9744	35.9220	-36.0646
147	399.9744	35.9220	-36.0646	443.9729	30.4327	-29.0127
148	443.9729	30.4327	-29.0127	475.5085	24.7383	-22.2329
149	475.5085	24.7383	-22.2329	493.8428	-8.1576	21.3646
150	493.8428	-8.1576	21.3646	505.2710	-14.0183	27.7851
151	505.2710	-14.0183	27.7851	502.0302	10.0955	-6.0052
152	502.0302	10.0955	-6.0052	478.2480	4.2621	-0.0592
153	478.2480	4.2621	-0.0592	444.2620	-28.6201	43.1088
154	444.2620	-28.6201	43.1088	400.8054	-34.2621	48.7164
155	400.8054	-34.2621	48.7164	345.4099	-39.6871	54.1238
156	345.4099	-39.6871	54.1238	279.9647	-14.8188	19.4001
157	279.9647	-14.8188	19.4001	201.6505	-47.2465	62.0696
158	201.6505	-47.2465	62.0696	121.7433	-51.8067	67.0611
159	121.7433	-51.8067	67.0611	78.5470	2.9862	1.3054
160	78.5470	2.9862	1.3054	83.9173	-3.2070	0.7415
161	83.9173	-3.2070	0.7415	65.1107	-9.4000	0.1730
162	65.1107	-9.4000	0.1730	131.7408	23.7568	-28.1323
163	131.7408	23.7568	-28.1323	217.2968	19.9436	-22.8741
164	217.2968	19.9436	-22.8741	297.3776	15.7792	-17.4298
165	297.3776	15.7792	-17.4298	369.7313	11.2963	-11.8038
166	369.7313	11.2963	-11.8038	432.4419	6.5420	-6.0104
167	432.4419	6.5420	-6.0104	483.6132	1.5538	-0.0698
168	483.6132	1.5538	-0.0698	521.6207	-3.6090	6.0002
169	521.6207	-3.6090	6.0002	545.2702	-8.9039	12.1639
170	545.2702	-8.9039	12.1639	553.8429	-14.2476	18.3768
171	553.8429	-14.2476	18.3768	547.0480	-19.6066	24.6178
172	547.0480	-19.6066	24.6178	525.0029	-24.9389	30.8526
173	525.0029	-24.9389	30.8526	488.2588	-30.1709	37.0351

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
174	488.2588	-30.1709	37.0351	437.7610	-35.2466	43.1385
175	437.7610	-35.2466	43.1385	375.0124	-40.1257	49.1351
176	375.0124	-40.1257	49.1351	301.8425	-44.7392	55.0005
177	301.8425	-44.7392	55.0005	220.5812	-49.0348	60.7255
178	220.5812	-49.0348	60.7255	133.9479	-52.9679	66.3053
179	133.9479	-52.9679	66.3053	57.4280	8.5789	1.2770
180	57.4280	8.5789	1.2770	74.5713	3.0534	0.3114
181	74.5713	3.0534	0.3114	69.7330	-2.4720	-0.6463
182	69.7330	-2.4720	-0.6463	137.2447	23.1868	-27.8017
183	137.2447	23.1868	-27.8017	224.2681	19.0693	-22.3479
184	224.2681	19.0693	-22.3479	304.6505	44.6039	-56.6350
185	304.6505	44.6039	-56.6350	374.7693	39.8341	-50.7584
186	374.7693	39.8341	-50.7584	434.2845	34.7981	-44.7018
187	434.2845	34.7981	-44.7018	481.4460	29.5581	-38.4898
188	481.4460	29.5581	-38.4898	514.8408	24.1705	-32.1567
189	514.8408	24.1705	-32.1567	533.5332	18.6859	-25.7522
190	533.5332	18.6859	-25.7522	537.0062	13.1712	-19.2482
191	537.0062	13.1712	-19.2482	525.2510	7.6878	-12.8031
192	525.2510	7.6878	-12.8031	500.5950	-25.0218	30.6309
193	500.5950	-25.0218	30.6309	463.2382	-30.3556	36.9280
194	463.2382	-30.3556	36.9280	412.7037	-35.5109	43.2292
195	412.7037	-35.5109	43.2292	350.6823	-40.4429	49.3118
196	350.6823	-40.4429	49.3118	279.1768	-45.0832	55.1607
197	279.1768	-45.0832	55.1607	200.7469	-49.3690	60.8828
198	200.7469	-49.3690	60.8828	118.3965	-53.2477	66.4325
199	118.3965	-53.2477	66.4325	72.8933	10.5550	1.3765
200	72.8933	10.5550	1.3765	93.4910	3.6198	0.5524
201	93.4910	3.6198	0.5524	88.8256	-3.3158	-0.2681
202	88.8256	-3.3158	-0.2681	99.1845	24.3483	-25.9296
203	99.1845	24.3483	-25.9296	165.0865	49.8249	-58.0886
204	165.0865	49.8249	-58.0886	230.6670	47.3787	-54.0360
205	230.6670	47.3787	-54.0360	288.7729	42.1347	-46.1117
206	288.7729	42.1347	-46.1117	343.5204	39.3253	-42.0683
207	343.5204	39.3253	-42.0683	390.2793	6.4135	2.2488
208	390.2793	6.4135	2.2488	427.6190	30.2628	-29.3853
209	427.6190	30.2628	-29.3853	460.0591	27.0394	-25.1781
210	460.0591	27.0394	-25.1781	475.6815	-6.2593	19.1287
211	475.6815	-6.2593	19.1287	484.8729	16.9158	-12.4795
212	484.8729	16.9158	-12.4795	484.8838	-16.6328	31.8071
213	484.8838	-16.6328	31.8071	466.8437	-20.2133	35.9931
214	466.8437	-20.2133	35.9931	439.1956	-23.8423	40.3095
215	439.1956	-23.8423	40.3095	401.6202	-27.5461	44.5956
216	401.6202	-27.5461	44.5956	346.0879	-61.2977	88.6295
217	346.0879	-61.2977	88.6295	281.9092	-38.9270	56.5373
218	281.9092	-38.9270	56.5373	205.4227	-72.7760	100.5135
219	205.4227	-72.7760	100.5135	108.2253	-76.6551	104.3200
220	108.2253	-76.6551	104.3200	0.1242	-76.6517	104.3423

ENVOL. MIN. FLECTORES TREN TREN IPF-75 TIPO A en via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.0001	-9.6168	0.1273	-15.8179	-9.6747	0.0583
2	-15.8179	-9.6747	0.0583	-31.6367	-9.6749	0.0285
3	-31.6367	-9.6749	0.0285	-47.4543	-9.6737	-0.0212
4	-47.4543	-9.6737	-0.0212	-63.2672	-9.6726	-0.0909
5	-63.2672	-9.6726	-0.0909	-79.0846	-9.6701	-0.1804
6	-79.0846	-9.6701	-0.1804	-94.8897	-9.6694	-0.2898
7	-94.8897	-9.6694	-0.2898	-110.7024	-9.6739	-0.4193
8	-110.7024	-9.6739	-0.4193	-126.5217	-9.6777	-0.5683
9	-126.5217	-9.6777	-0.5683	-142.3448	-9.6788	-0.7373
10	-142.3448	-9.6788	-0.7373	-158.1615	-9.6781	-0.9265
11	-158.1615	-9.6781	-0.9265	-173.9794	-9.6729	-1.1358
12	-173.9794	-9.6729	-1.1358	-189.7852	-9.6656	-1.3644
13	-189.7852	-9.6656	-1.3644	-205.5807	-9.6603	-1.6123
14	-205.5807	-9.6603	-1.6123	-221.3803	-9.6604	-1.8815
15	-221.3803	-9.6604	-1.8815	-237.1779	-9.6649	-2.1702
16	-237.1779	-9.6649	-2.1702	-252.9788	-9.6630	-2.4776
17	-252.9788	-9.6630	-2.4776	-268.7621	-9.6607	-2.8063
18	-268.7621	-9.6607	-2.8063	-284.5568	-9.6632	-3.1549
19	-284.5568	-9.6632	-3.1549	-300.3507	-9.6632	-3.5217
20	-300.3507	-9.6632	-3.5217	-316.3801	23.2964	-39.3343
21	-316.3801	23.2964	-39.3343	-266.1372	9.0384	3.7074
22	-266.1372	9.0384	3.7074	-248.0681	9.0383	3.3112
23	-248.0681	9.0383	3.3112	-229.9957	9.0387	2.9440
24	-229.9957	9.0387	2.9440	-211.9241	9.0400	2.6041
25	-211.9241	9.0400	2.6041	-193.8454	9.0431	2.2916
26	-193.8454	9.0431	2.2916	-175.7631	9.0459	2.0077
27	-175.7631	9.0459	2.0077	-157.6722	9.0464	1.7513
28	-157.6722	9.0464	1.7513	-139.5820	9.0489	1.5224
29	-139.5820	9.0489	1.5224	-121.4878	9.0518	1.3217
30	-121.4878	9.0518	1.3217	-111.3799	-9.8941	-1.1578
31	-111.3799	-9.8941	-1.1578	-131.1550	-9.8904	-1.3442
32	-131.1550	-9.8904	-1.3442	-150.9281	-9.8874	-1.5613
33	-150.9281	-9.8874	-1.5613	-170.7054	-9.8913	-1.8090
34	-170.7054	-9.8913	-1.8090	-190.4886	-9.8951	-2.0863
35	-190.4886	-9.8951	-2.0863	-210.2762	-9.8948	-2.3947
36	-210.2762	-9.8948	-2.3947	-230.0565	-9.8966	-2.7335
37	-230.0565	-9.8966	-2.7335	-249.8441	-9.9001	-3.1020
38	-249.8441	-9.9001	-3.1020	-269.6280	-9.8994	-3.5010
39	-269.6280	-9.8994	-3.5010	-289.4103	-9.8974	-3.9309
40	-289.4103	-9.8974	-3.9309	-313.5571	-23.8297	40.1210
41	-313.5571	-23.8297	40.1210	-293.4119	9.9701	3.4251
42	-293.4119	9.9701	3.4251	-273.4739	9.9685	2.9887
43	-273.4739	9.9685	2.9887	-253.5298	9.9690	2.5837
44	-253.5298	9.9690	2.5837	-233.5865	9.9706	2.2093
45	-233.5865	9.9706	2.2093	-213.6395	9.9762	1.8648
46	-213.6395	9.9762	1.8648	-193.6799	9.9769	1.5514
47	-193.6799	9.9769	1.5514	-173.7333	9.9694	1.2690
48	-173.7333	9.9694	1.2690	-153.7906	9.9640	1.0177
49	-153.7906	9.9640	1.0177	-133.8476	9.9643	0.7964
50	-133.8476	9.9643	0.7964	-113.9081	9.9665	0.6057
51	-113.9081	9.9665	0.6057	-131.4457	-9.8043	-1.1914
52	-131.4457	-9.8043	-1.1914	-151.0560	-9.7999	-1.4088
53	-151.0560	-9.7999	-1.4088	-170.6485	-9.7991	-1.6566
54	-170.6485	-9.7991	-1.6566	-190.2446	-9.8015	-1.9345
55	-190.2446	-9.8015	-1.9345	-209.8355	-9.7966	-2.2429
56	-209.8355	-9.7966	-2.2429	-229.4187	-9.7917	-2.5805
57	-229.4187	-9.7917	-2.5805	-248.9996	-9.7901	-2.9479
58	-248.9996	-9.7901	-2.9479	-268.5812	-9.7903	-3.3463
59	-268.5812	-9.7903	-3.3463	-288.1549	-9.7899	-3.7749
60	-288.1549	-9.7899	-3.7749	-315.6649	-23.8887	40.4156
61	-315.6649	-23.8887	40.4156	-295.5857	10.0631	3.7724
62	-295.5857	10.0631	3.7724	-275.4722	10.0633	3.3328
63	-275.4722	10.0633	3.3328	-255.3520	10.0618	2.9253
64	-255.3520	10.0618	2.9253	-235.2378	10.0611	2.5480
65	-235.2378	10.0611	2.5480	-215.1202	10.0620	2.2014
66	-215.1202	10.0620	2.2014	-195.0009	10.0589	1.8865
67	-195.0009	10.0589	1.8865	-174.8846	10.0536	1.6025
68	-174.8846	10.0536	1.6025	-154.7812	10.0566	1.3486
69	-154.7812	10.0566	1.3486	-134.6642	10.0576	1.1258
70	-134.6642	10.0576	1.1258	-114.5470	10.0588	0.9352
71	-114.5470	10.0588	0.9352	-129.1957	-9.6245	-1.1745
72	-129.1957	-9.6245	-1.1745	-148.4457	-9.6252	-1.3885
73	-148.4457	-9.6252	-1.3885	-167.7004	-9.6297	-1.6329
74	-167.7004	-9.6297	-1.6329	-186.9548	-9.6276	-1.9055
75	-186.9548	-9.6276	-1.9055	-206.1949	-9.6198	-2.2078
76	-206.1949	-9.6198	-2.2078	-225.4296	-9.6166	-2.5403
77	-225.4296	-9.6166	-2.5403	-244.6607	-9.6168	-2.9022
78	-244.6607	-9.6168	-2.9022	-263.8952	-9.6190	-3.2934
79	-263.8952	-9.6190	-3.2934	-283.1281	-9.6202	-3.7136
80	-283.1281	-9.6202	-3.7136	-317.1667	-23.8342	39.2126
81	-317.1667	-23.8342	39.2126	-296.6346	10.2330	1.5526
82	-296.6346	10.2330	1.5526	-276.1637	10.2337	1.1114
83	-276.1637	10.2337	1.1114	-255.6947	10.2355	0.7016
84	-255.6947	10.2355	0.7016	-235.2164	10.2343	0.3250
85	-235.2164	10.2343	0.3250	-214.7471	10.2386	-0.0211
86	-214.7471	10.2386	-0.0211	-194.2633	10.2395	-0.3376
87	-194.2633	10.2395	-0.3376	-173.7903	10.2304	-0.6199
88	-173.7903	10.2304	-0.6199	-153.3207	10.2312	-0.8717
89	-153.3207	10.2312	-0.8717	-132.8466	10.2332	-1.0922
90	-132.8466	10.2332	-1.0922	-112.3746	10.2318	-1.2808
91	-112.3746	10.2318	-1.2808	-108.1794	-8.0856	-6.7326
92	-108.1794	-8.0856	-6.7326	-124.3354	-8.0856	-6.9107
93	-124.3354	-8.0856	-6.9107	-140.5047	-8.0884	-7.1137
94	-140.5047	-8.0884	-7.1137	-156.6730	-8.0905	-7.3426
95	-156.6730	-8.0905	-7.3426	-172.8412	-8.0898	-7.5961
96	-172.8412	-8.0898	-7.5961	-189.0087	-8.0892	-7.8751
97	-189.0087	-8.0892	-7.8751	-205.1798	-8.0906	-8.1786
98	-205.1798	-8.0906	-8.1786	-221.3493	-8.0887	-8.5068
99	-221.3493	-8.0887	-8.5068	-237.5119	-8.0872	-8.8596
100	-237.5119	-8.0872	-8.8596	-336.5136	-23.3431	38.0699
101	-336.5136	-23.3431	38.0699	-308.4677	12.0278	-9.5515
102	-308.4677	12.0278	-9.5515	-287.4064	12.0285	-9.9524
103	-287.4064	12.0285	-9.9524	-266.3376	12.0294	-10.3244
104	-266.3376	12.0294	-10.3244	-245.2771	12.0272	-10.6690
105	-245.2771	12.0272	-10.6690	-224.2168	12.0244	-10.9846
106	-224.2168	12.0244	-10.9846	-203.1556	12.0235	-11.2720
107	-203.1556	12.0235	-11.2720	-182.0920	12.0252	-11.5320
108	-182.0920	12.0252	-11.5320	-161.0218	12.0308	-11.7624
109	-161.0218	12.0308	-11.7624	-139.9474	12.0369	-11.9664
110	-139.9474	12.0369	-11.9664	-118.8658	12.0404	-12.1404
111	-118.8658	12.0404	-12.1404	-117.6787	-9.8120	-11.0751
112	-117.6787	-9.8120	-11.0751	-134.8421	-9.8175	-11.2449
113	-134.8421	-9.8175	-11.2449	-152.0023	-9.8171	-11.4380
114	-152.0023	-9.8171	-11.4380	-169.1670	-9.8106	-11.6545

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	-169.1670	-9.8106	-11.6545	-186.3161	-9.8083	-11.8942
116	-186.3161	-9.8083	-11.8942	-203.4781	-9.8149	-12.1562
117	-203.4781	-9.8149	-12.1562	-220.6491	-9.8186	-12.4426
118	-220.6491	-9.8186	-12.4426	-237.8156	-9.8182	-12.7521
119	-237.8156	-9.8182	-12.7521	-254.9799	-9.8161	-13.0834
120	-254.9799	-9.8161	-13.0834	-279.9651	-24.5634	41.0058
121	-279.9651	-24.5634	41.0058	-253.8493	9.8652	-9.6375
122	-253.8493	9.8652	-9.6375	-236.5685	9.8646	-9.9670
123	-236.5685	9.8646	-9.9670	-219.2901	9.8677	-10.2744
124	-219.2901	9.8677	-10.2744	-202.0041	9.8687	-10.5586
125	-202.0041	9.8687	-10.5586	-184.7205	9.8649	-10.8188
126	-184.7205	9.8649	-10.8188	-167.4455	9.8635	-11.0553
127	-167.4455	9.8635	-11.0553	-150.1676	9.8705	-11.2690
128	-150.1676	9.8705	-11.2690	-132.8681	9.8753	-11.4596
129	-132.8681	9.8753	-11.4596	-115.5691	9.8709	-11.6261
130	-115.5691	9.8709	-11.6261	-105.0504	-10.6518	-13.3667
131	-105.0504	-10.6518	-13.3667	-123.6735	-10.6539	-13.5207
132	-123.6735	-10.6539	-13.5207	-142.3078	-10.6547	-13.7013
133	-142.3078	-10.6547	-13.7013	-160.9440	-10.6554	-13.9066
134	-160.9440	-10.6554	-13.9066	-179.5741	-10.6586	-14.1340
135	-179.5741	-10.6586	-14.1340	-198.2068	-10.6590	-14.3876
136	-198.2068	-10.6590	-14.3876	-216.8361	-10.6574	-14.6679
137	-216.8361	-10.6574	-14.6679	-235.4629	-10.6529	-14.9721
138	-235.4629	-10.6529	-14.9721	-254.0802	-10.6487	-15.3017
139	-254.0802	-10.6487	-15.3017	-272.6900	-10.6444	-15.6560
140	-272.6900	-10.6444	-15.6560	-286.1096	23.4889	-41.3384
141	-286.1096	23.4889	-41.3384	-244.7360	9.1425	-7.7011
142	-244.7360	9.1425	-7.7011	-228.2701	9.1462	-8.0284
143	-228.2701	9.1462	-8.0284	-211.7910	9.1480	-8.3337
144	-211.7910	9.1480	-8.3337	-195.3160	9.1449	-8.6143
145	-195.3160	9.1449	-8.6143	-178.8416	9.1460	-8.8725
146	-178.8416	9.1460	-8.8725	-162.3622	9.1508	-9.1093
147	-162.3622	9.1508	-9.1093	-145.8748	9.1495	-9.3228
148	-145.8748	9.1495	-9.3228	-129.3976	9.1480	-9.5132
149	-129.3976	9.1480	-9.5132	-112.9100	9.1504	-9.6803
150	-112.9100	9.1504	-9.6803	-116.6075	-11.5327	-4.0985
151	-116.6075	-11.5327	-4.0985	-137.3483	-11.5352	-4.2724
152	-137.3483	-11.5352	-4.2724	-158.1086	-11.5370	-4.4767
153	-158.1086	-11.5370	-4.4767	-178.8512	-11.5321	-4.7108
154	-178.8512	-11.5321	-4.7108	-199.5975	-11.5289	-4.9737
155	-199.5975	-11.5289	-4.9737	-220.3386	-11.5282	-5.2649
156	-220.3386	-11.5282	-5.2649	-241.0806	-11.5297	-5.5847
157	-241.0806	-11.5297	-5.5847	-261.8220	-11.5308	-5.9333
158	-261.8220	-11.5308	-5.9333	-282.5738	-11.5326	-6.3100
159	-282.5738	-11.5326	-6.3100	-303.3234	-11.5330	-6.7157
160	-303.3234	-11.5330	-6.7157	-324.2225	22.4223	-41.3092
161	-324.2225	22.4223	-41.3092	-251.4445	8.5839	3.9633
162	-251.4445	8.5839	3.9633	-234.2794	8.5846	3.5891
163	-234.2794	8.5846	3.5891	-217.1169	8.5852	3.2415
164	-217.1169	8.5852	3.2415	-199.9487	8.5870	2.9207
165	-199.9487	8.5870	2.9207	-182.7771	8.5849	2.6263
166	-182.7771	8.5849	2.6263	-165.6138	8.5812	2.3585
167	-165.6138	8.5812	2.3585	-148.4538	8.5811	2.1167
168	-148.4538	8.5811	2.1167	-131.2970	8.5806	1.9008
169	-131.2970	8.5806	1.9008	-114.1364	8.5793	1.7121
170	-114.1364	8.5793	1.7121	-104.1256	-9.4016	-0.0967
171	-104.1256	-9.4016	-0.0967	-122.9405	-9.4058	-0.2709
172	-122.9405	-9.4058	-0.2709	-141.7616	-9.4065	-0.4746
173	-141.7616	-9.4065	-0.4746	-160.5780	-9.4036	-0.7076
174	-160.5780	-9.4036	-0.7076	-179.3799	-9.4025	-0.9703

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	-179.3799	-9.4025	-0.9703	-198.1872	-9.4015	-1.2613
176	-198.1872	-9.4015	-1.2613	-216.9858	-9.4018	-1.5796
177	-216.9858	-9.4018	-1.5796	-235.7934	-9.4038	-1.9286
178	-235.7934	-9.4038	-1.9286	-254.5995	-9.4048	-2.3054
179	-254.5995	-9.4048	-2.3054	-273.4040	-9.4034	-2.7111
180	-273.4040	-9.4034	-2.7111	-317.5864	-23.5134	40.0412
181	-317.5864	-23.5134	40.0412	-297.5859	10.5462	4.4085
182	-297.5859	10.5462	4.4085	-277.0251	10.5476	3.9777
183	-277.0251	10.5476	3.9777	-256.4590	10.5467	3.5770
184	-256.4590	10.5467	3.5770	-235.8929	10.5469	3.2084
185	-235.8929	10.5469	3.2084	-215.3232	10.5510	2.8678
186	-215.3232	10.5510	2.8678	-194.7455	10.5546	2.5598
187	-194.7455	10.5546	2.5598	-174.1612	10.5556	2.2825
188	-174.1612	10.5556	2.2825	-153.5808	10.5569	2.0358
189	-153.5808	10.5569	2.0358	-132.9905	10.5595	1.8219
190	-132.9905	10.5595	1.8219	-112.4017	10.5590	1.6279
191	-112.4017	10.5590	1.6279	-96.0401	-7.2985	-1.4760
192	-96.0401	-7.2985	-1.4760	-110.2735	-7.3013	-1.6071
193	-110.2735	-7.3013	-1.6071	-124.5165	-7.3019	-1.7763
194	-124.5165	-7.3019	-1.7763	-138.7485	-7.2982	-1.9939
195	-138.7485	-7.2982	-1.9939	-152.9823	-7.2975	-2.2079
196	-152.9823	-7.2975	-2.2079	-167.2141	-7.2992	-2.4197
197	-167.2141	-7.2992	-2.4197	-181.4486	-7.3000	-2.6706
198	-181.4486	-7.3000	-2.6706	-195.6841	-7.3005	-2.9434
199	-195.6841	-7.3005	-2.9434	-225.7087	-52.3060	69.1216
200	-225.7087	-52.3060	69.1216	-333.1413	-22.9513	39.1772
201	-333.1413	-22.9513	39.1772	-316.1309	11.8011	3.1706
202	-316.1309	11.8011	3.1706	-299.4965	11.8023	2.7975
203	-299.4965	11.8023	2.7975	-282.8519	11.7962	2.5446
204	-282.8519	11.7962	2.5446	-266.2277	11.7884	2.2709
205	-266.2277	11.7884	2.2709	-249.6042	11.7892	2.0423
206	-249.6042	11.7892	2.0423	-232.9824	11.7958	1.9016
207	-232.9824	11.7958	1.9016	-216.3464	11.7953	1.6175
208	-216.3464	11.7953	1.6175	-199.7206	11.7902	1.3377
209	-199.7206	11.7902	1.3377	-183.0868	11.7950	1.1978
210	-183.0868	11.7950	1.1978	-166.4387	11.7996	1.0297
211	-166.4387	11.7996	1.0297	-149.7982	11.8070	0.8454
212	-149.7982	11.8070	0.8454	-133.1487	11.8129	0.7134
213	-133.1487	11.8129	0.7134	-116.4966	11.8099	0.6274
214	-116.4966	11.8099	0.6274	-99.8533	11.8067	0.5199
215	-99.8533	11.8067	0.5199	-83.2107	11.8020	0.4248
216	-83.2107	11.8020	0.4248	-66.5735	11.8017	0.3722
217	-66.5735	11.8017	0.3722	-49.9287	11.8057	0.3141
218	-49.9287	11.8057	0.3141	-33.2803	11.8063	0.2646
219	-33.2803	11.8063	0.2646	-16.6387	11.8034	0.2446
220	-16.6387	11.8034	0.2446	-0.0013	10.3965	-0.0435

ENVOL. MAX. CORTANTES TREN TREN IPF-75 TIPO A en via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0336	81.3882	-109.7065	127.5697	77.9621	-106.6388
2	127.5697	77.9621	-106.6388	232.9176	71.1618	-100.2446
3	232.9176	71.1618	-100.2446	332.8475	67.7896	-96.7519
4	332.8475	67.7896	-96.7519	400.1715	61.1199	-89.8701
5	400.1715	61.1199	-89.8701	446.7825	54.5840	-82.7811
6	446.7825	54.5840	-82.7811	504.6371	51.3841	-78.8843
7	504.6371	51.3841	-78.8843	516.8675	45.1040	-71.5690
8	516.8675	45.1040	-71.5690	511.3728	39.0420	-64.1915
9	511.3728	39.0420	-64.1915	531.9253	36.1129	-60.1754
10	531.9253	36.1129	-60.1754	497.9742	30.4198	-52.7921
11	497.9742	30.4198	-52.7921	498.4951	27.6744	-48.8161
12	498.4951	27.6744	-48.8161	440.7804	22.4206	-41.5470
13	440.7804	22.4206	-41.5470	373.0880	17.5125	-34.3675
14	373.0880	17.5125	-34.3675	348.6600	15.1995	-30.6059
15	348.6600	15.1995	-30.6059	266.8270	10.8529	-23.6399
16	266.8270	10.8529	-23.6399	181.6698	6.9264	-16.7971
17	181.6698	6.9264	-16.7971	142.8930	5.1245	-13.3327
18	142.8930	5.1245	-13.3327	77.9269	2.6455	0.3487
19	77.9269	2.6455	0.3487	82.2524	2.6462	0.4491
20	82.2524	2.6462	0.4491	-71.6266	42.4743	-58.1268
21	-71.6266	42.4743	-58.1268	24.5450	83.6707	-108.0406
22	24.5450	83.6707	-108.0406	118.8989	79.8275	-102.8246
23	118.8989	79.8275	-102.8246	208.0767	75.6422	-97.4019
24	208.0767	75.6422	-97.4019	289.8390	71.1505	-91.7775
25	289.8390	71.1505	-91.7775	362.2457	66.3926	-85.9675
26	362.2457	66.3926	-85.9675	423.3479	61.3943	-79.9938
27	423.3479	61.3943	-79.9938	471.4756	56.2269	-73.8818
28	471.4756	56.2269	-73.8818	505.4297	50.9570	-67.6656
29	505.4297	50.9570	-67.6656	524.3777	45.6281	-61.3842
30	524.3777	45.6281	-61.3842	527.9445	40.2933	-55.0743
31	527.9445	40.2933	-55.0743	516.1404	34.9709	-48.7778
32	516.1404	34.9709	-48.7778	489.4449	29.7729	-42.5354
33	489.4449	29.7729	-42.5354	448.7339	24.7187	-36.3845
34	448.7339	24.7187	-36.3845	395.3435	19.8741	-30.3604
35	395.3435	19.8741	-30.3604	330.9627	15.2689	-24.4880
36	330.9627	15.2689	-24.4880	257.7291	10.9738	-18.7897
37	257.7291	10.9738	-18.7897	23.3172	9.0501	0.7181
38	23.3172	9.0501	0.7181	41.4145	9.0503	0.7678
39	41.4145	9.0503	0.7678	59.5134	9.0513	0.8454
40	59.5134	9.0513	0.8454	-69.9165	42.4036	-57.9142
41	-69.9165	42.4036	-57.9142	28.4225	83.5359	-107.7854
42	28.4225	83.5359	-107.7854	123.6986	79.6455	-102.4711
43	123.6986	79.6455	-102.4711	213.3772	75.4281	-96.9765
44	213.3772	75.4281	-96.9765	295.3001	70.9109	-91.3059
45	295.3001	70.9109	-91.3059	367.5659	66.1255	-85.4743
46	367.5659	66.1255	-85.4743	428.3056	61.1395	-79.4996
47	428.3056	61.1395	-79.4996	475.9634	55.9851	-73.4087
48	475.9634	55.9851	-73.4087	509.3492	50.7238	-67.2290
49	509.3492	50.7238	-67.2290	527.6841	45.4115	-60.9947
50	527.6841	45.4115	-60.9947	530.6649	40.0777	-54.7419
51	530.6649	40.0777	-54.7419	518.2885	34.7990	-48.5096
52	518.2885	34.7990	-48.5096	491.0634	29.6130	-42.3334
53	491.0634	29.6130	-42.3334	449.8680	24.5648	-36.2474
54	449.8680	24.5648	-36.2474	396.0541	19.7384	-30.2792
55	396.0541	19.7384	-30.2792	331.3519	15.1654	-24.4565
56	331.3519	15.1654	-24.4565	257.9182	10.8935	-18.7943
57	257.9182	10.8935	-18.7943	25.7978	9.9814	0.1304
58	25.7978	9.9814	0.1304	45.7656	9.9829	0.1855
59	45.7656	9.9829	0.1855	65.7348	9.9825	0.2715
60	65.7348	9.9825	0.2715	-69.6958	42.4199	-57.9297
61	-69.6958	42.4199	-57.9297	28.4578	83.5247	-107.9284
62	28.4578	83.5247	-107.9284	123.8354	79.6227	-102.6700
63	123.8354	79.6227	-102.6700	213.5540	75.3988	-97.2156
64	213.5540	75.3988	-97.2156	295.4543	70.8680	-91.5713
65	295.4543	70.8680	-91.5713	367.6625	66.0863	-85.7540
66	367.6625	66.0863	-85.7540	428.3198	61.0793	-79.7823
67	428.3198	61.0793	-79.7823	475.8257	55.9353	-73.6824
68	475.8257	55.9353	-73.6824	509.0810	50.6749	-67.4877
69	509.0810	50.6749	-67.4877	527.2522	45.3462	-61.2335
70	527.2522	45.3462	-61.2335	530.0046	39.9993	-54.9560
71	530.0046	39.9993	-54.9560	517.4314	34.7120	-48.6968
72	517.4314	34.7120	-48.6968	490.0660	29.5367	-42.4891
73	490.0660	29.5367	-42.4891	448.8005	24.5093	-36.3686
74	448.8005	24.5093	-36.3686	394.9662	19.6900	-30.3723
75	394.9662	19.6900	-30.3723	330.2863	15.1101	-24.5221
76	330.2863	15.1101	-24.5221	256.9467	10.8533	-18.8358
77	256.9467	10.8533	-18.8358	26.3303	10.0664	0.4597
78	26.3303	10.0664	0.4597	46.4608	10.0669	0.5157
79	46.4608	10.0669	0.5157	66.5904	10.0680	0.6027
80	66.5904	10.0680	0.6027	-69.0898	42.3890	-57.5296
81	-69.0898	42.3890	-57.5296	29.6150	83.3724	-106.2729
82	29.6150	83.3724	-106.2729	125.1148	79.3923	-100.1023
83	125.1148	79.3923	-100.1023	214.6430	75.0719	-93.7102
84	214.6430	75.0719	-93.7102	296.0007	70.4604	-87.1271
85	296.0007	70.4604	-87.1271	367.3240	65.5893	-80.3909
86	367.3240	65.5893	-80.3909	426.7602	60.5091	-73.5446
87	426.7602	60.5091	-73.5446	472.7637	55.2700	-66.6460
88	472.7637	55.2700	-66.6460	504.1961	49.9446	-59.7506
89	504.1961	49.9446	-59.7506	520.4189	44.5788	-52.9137
90	520.4189	44.5788	-52.9137	521.1526	39.1956	-46.2040
91	521.1526	39.1956	-46.2040	506.5678	33.8900	-39.6849
92	506.5678	33.8900	-39.6849	477.3201	28.7061	-33.4146
93	477.3201	28.7061	-33.4146	434.4285	23.6834	-27.4508
94	434.4285	23.6834	-27.4508	379.3887	18.8762	-21.8489
95	379.3887	18.8762	-21.8489	314.0887	14.3483	-16.6576
96	314.0887	14.3483	-16.6576	10.4060	10.2268	-1.7498
97	10.4060	10.2268	-1.7498	30.8647	10.2256	-1.7181
98	30.8647	10.2256	-1.7181	51.3223	10.2256	-1.6551
99	51.3223	10.2256	-1.6551	71.7822	10.2267	-1.5603
100	71.7822	10.2267	-1.5603	-64.2904	41.9110	-56.8874
101	-64.2904	41.9110	-56.8874	24.4690	81.8602	-101.9924
102	24.4690	81.8602	-101.9924	102.1403	77.1496	-93.0148
103	102.1403	77.1496	-93.0148	204.2979	74.6466	-88.4966
104	204.2979	74.6466	-88.4966	267.6188	69.3809	-79.7914
105	267.6188	69.3809	-79.7914	321.5342	63.8131	-71.3371
106	321.5342	63.8131	-71.3371	364.0936	58.0077	-63.1618
107	364.0936	58.0077	-63.1618	428.7958	55.0443	-58.9256
108	428.7958	55.0443	-58.9256	446.2007	49.0191	-51.2164
109	446.2007	49.0191	-51.2164	449.1956	42.9668	-43.8730
110	449.1956	42.9668	-43.8730	437.5988	36.9096	-36.9293
111	437.5988	36.9096	-36.9293	456.1340	33.9414	-33.3307
112	456.1340	33.9414	-33.3307	418.2618	28.0998	-27.0888
113	418.2618	28.0998	-27.0888	367.7350	22.4693	-21.3431

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
114	367.7350	22.4693	-21.3431	306.2518	17.1059	-16.1241
115	306.2518	17.1059	-16.1241	284.8191	14.5722	-13.5359
116	284.8191	14.5722	-13.5359	7.5951	12.0296	-12.5882
117	7.5951	12.0296	-12.5882	28.6651	12.0296	-12.5641
118	28.6651	12.0296	-12.5641	49.7373	12.0301	-12.5114
119	49.7373	12.0301	-12.5114	70.8085	12.0305	-12.4303
120	70.8085	12.0305	-12.4303	-69.3541	41.7159	-57.2863
121	-69.3541	41.7159	-57.2863	16.7188	82.1820	-101.1627
122	16.7188	82.1820	-101.1627	91.8006	77.6168	-91.8602
123	91.8006	77.6168	-91.8602	193.6051	75.1769	-87.2023
124	193.6051	75.1769	-87.2023	256.1794	70.0019	-78.2375
125	256.1794	70.0019	-78.2375	310.2591	64.5042	-69.5670
126	310.2591	64.5042	-69.5670	353.6920	58.7395	-61.2217
127	353.6920	58.7395	-61.2217	419.6892	55.7721	-56.9240
128	419.6892	55.7721	-56.9240	438.5855	49.7539	-49.1175
129	438.5855	49.7539	-49.1175	443.3139	43.6796	-41.7255
130	443.3139	43.6796	-41.7255	433.4980	37.5919	-34.7889
131	433.4980	37.5919	-34.7889	453.4478	34.5958	-31.2161
132	453.4478	34.5958	-31.2161	417.0886	28.6737	-25.0627
133	417.0886	28.6737	-25.0627	367.7548	22.9603	-19.4800
134	367.7548	22.9603	-19.4800	307.0670	17.5173	-14.4938
135	307.0670	17.5173	-14.4938	286.1636	14.9173	-12.0497
136	286.1636	14.9173	-12.0497	208.2172	10.0292	-8.0592
137	208.2172	10.0292	-8.0592	22.7660	9.8716	-12.1269
138	22.7660	9.8716	-12.1269	40.0620	9.8738	-12.0845
139	40.0620	9.8738	-12.0845	57.3603	9.8751	-12.0189
140	57.3603	9.8751	-12.0189	-71.7648	41.7197	-58.1056
141	-71.7648	41.7197	-58.1056	18.1291	82.6301	-103.3213
142	18.1291	82.6301	-103.3213	95.9566	78.3340	-95.3302
143	95.9566	78.3340	-95.3302	169.5802	73.6367	-87.6583
144	169.5802	73.6367	-87.6583	268.1293	71.1442	-83.7842
145	268.1293	71.1442	-83.7842	326.2409	65.9276	-76.5262
146	326.2409	65.9276	-76.5262	374.1398	60.4303	-69.5400
147	374.1398	60.4303	-69.5400	409.9168	54.7410	-62.8041
148	409.9168	54.7410	-62.8041	432.2549	48.9258	-56.3008
149	432.2549	48.9258	-56.3008	479.4908	45.9822	-52.8204
150	479.4908	45.9822	-52.8204	474.8275	40.0874	-46.6362
151	474.8275	40.0874	-46.6362	455.5466	34.2590	-40.6623
152	455.5466	34.2590	-40.6623	422.0766	28.5365	-34.8810
153	422.0766	28.5365	-34.8810	375.3982	22.9903	-29.2756
154	375.3982	22.9903	-29.2756	365.8610	20.3134	-26.2896
155	365.8610	20.3134	-26.2896	297.6229	15.1820	-20.9606
156	297.6229	15.1820	-20.9606	221.1523	10.4184	-15.7569
157	221.1523	10.4184	-15.7569	18.9832	9.1522	-10.2009
158	18.9832	9.1522	-10.2009	35.4678	9.1523	-10.1637
159	35.4678	9.1523	-10.1637	51.9529	9.1519	-10.1031
160	51.9529	9.1519	-10.1031	-73.5294	42.2854	-58.4266
161	-73.5294	42.2854	-58.4266	21.0965	83.7574	-108.1701
162	21.0965	83.7574	-108.1701	114.2867	79.9441	-103.0485
163	114.2867	79.9441	-103.0485	202.7094	75.7785	-97.7345
164	202.7094	75.7785	-97.7345	284.0408	71.2929	-92.2263
165	284.0408	71.2929	-92.2263	356.2740	66.5343	-86.5372
166	356.2740	66.5343	-86.5372	417.4203	61.5494	-80.6806
167	417.4203	61.5494	-80.6806	465.7667	56.3899	-74.6817
168	465.7667	56.3899	-74.6817	500.0248	51.1032	-68.5645
169	500.0248	51.1032	-68.5645	519.2969	45.7457	-62.3629
170	519.2969	45.7457	-62.3629	523.2274	40.3815	-56.1231
171	523.2274	40.3815	-56.1231	511.8383	35.0667	-49.8670
172	511.8383	35.0667	-49.8670	485.5555	29.8459	-43.6343
173	485.5555	29.8459	-43.6343	445.2588	24.7519	-37.4632

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
174	445.2588	24.7519	-37.4632	392.2533	19.8746	-31.3754
175	392.2533	19.8746	-31.3754	328.3345	15.2628	-25.4039
176	328.3345	15.2628	-25.4039	255.6696	10.9637	-19.5616
177	255.6696	10.9637	-19.5616	23.1131	8.5785	1.1528
178	23.1131	8.5785	1.1528	40.2701	8.5786	1.2016
179	40.2701	8.5786	1.2016	57.4280	8.5789	1.2770
180	57.4280	8.5789	1.2770	-68.3600	42.3722	-57.7748
181	-68.3600	42.3722	-57.7748	25.8840	83.1861	-107.8445
182	25.8840	83.1861	-107.8445	117.9418	79.0708	-102.5247
183	117.9418	79.0708	-102.5247	204.0166	74.6070	-96.9785
184	204.0166	74.6070	-96.9785	281.9518	69.8420	-91.2130
185	281.9518	69.8420	-91.2130	349.8038	64.7953	-85.2477
186	349.8038	64.7953	-85.2477	405.7072	59.5630	-79.1169
187	405.7072	59.5630	-79.1169	448.1194	54.1646	-72.8410
188	448.1194	54.1646	-72.8410	476.0068	48.6889	-66.4657
189	476.0068	48.6889	-66.4657	488.7360	43.1767	-60.0260
190	488.7360	43.1767	-60.0260	486.2031	37.6875	-53.5189
191	486.2031	37.6875	-53.5189	468.6636	32.2934	-47.1018
192	468.6636	32.2934	-47.1018	436.9019	27.0423	-40.8388
193	436.9019	27.0423	-40.8388	392.1818	21.9868	-34.5854
194	392.1818	21.9868	-34.5854	384.5646	19.5575	-31.1557
195	384.5646	19.5575	-31.1557	319.1187	14.9187	-25.1524
196	319.1187	14.9187	-25.1524	246.0595	10.6301	-19.3580
197	246.0595	10.6301	-19.3580	31.7204	10.5561	1.2174
198	31.7204	10.5561	1.2174	52.3059	10.5549	1.2778
199	52.3059	10.5549	1.2778	72.8933	10.5550	1.3765
200	72.8933	10.5550	1.3765	-61.6747	42.2020	-56.2795
201	-61.6747	42.2020	-56.2795	-4.6092	82.1474	-102.0483
202	-4.6092	82.1474	-102.0483	80.3716	79.8201	-98.1518
203	80.3716	79.8201	-98.1518	161.6933	77.3710	-94.2000
204	161.6933	77.3710	-94.2000	209.5025	72.1297	-86.2757
205	209.5025	72.1297	-86.2757	280.5486	69.3267	-82.2104
206	280.5486	69.3267	-82.2104	315.3817	63.3904	-74.2446
207	315.3817	63.3904	-74.2446	371.9406	60.2730	-69.8633
208	371.9406	60.2730	-69.8633	421.2861	57.0487	-65.4605
209	421.2861	57.0487	-65.4605	425.2596	50.3653	-57.3305
210	425.2596	50.3653	-57.3305	454.9840	46.9125	-52.9832
211	454.9840	46.9125	-52.9832	431.4105	39.7910	-44.6584
212	431.4105	39.7910	-44.6584	438.6619	36.1423	-40.3726
213	438.6619	36.1423	-40.3726	383.1248	28.6954	-32.3353
214	383.1248	28.6954	-32.3353	365.6372	24.9146	-28.0879
215	365.6372	24.9146	-28.0879	337.6975	21.0847	-23.9206
216	337.6975	21.0847	-23.9206	231.0097	13.3467	-16.1611
217	231.0097	13.3467	-16.1611	-49.9287	11.8057	0.3141
218	-49.9287	11.8057	0.3141	-33.2803	11.8063	0.2646
219	-33.2803	11.8063	0.2646	-16.6387	11.8034	0.2446
220	-16.6387	11.8034	0.2446	0.0002	11.8017	0.2412

ENVOL. MIN. CORTANTES TREN TREN IPF-75 TIPO A en via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0002	-9.6748	0.0683	-15.8179	-9.6747	0.0583
2	-15.8179	-9.6747	0.0583	-31.6367	-9.6749	0.0285
3	-31.6367	-9.6749	0.0285	-47.4543	-9.6737	-0.0212
4	-47.4543	-9.6737	-0.0212	304.2468	-15.4486	17.2393
5	304.2468	-15.4486	17.2393	403.8205	-22.2231	24.0902
6	403.8205	-22.2231	24.0902	424.6965	-25.5719	27.8646
7	424.6965	-25.5719	27.8646	487.4000	-32.1663	35.0439
8	487.4000	-32.1663	35.0439	530.5365	-38.6108	42.3333
9	530.5365	-38.6108	42.3333	510.8658	-41.7674	46.3279
10	510.8658	-41.7674	46.3279	521.6854	-47.9316	53.7022
11	521.6854	-47.9316	53.7022	479.2789	-50.9486	57.6928
12	479.2789	-50.9486	57.6928	461.7386	-56.7885	65.0154
13	461.7386	-56.7885	65.0154	430.9514	-62.3332	72.2645
14	430.9514	-62.3332	72.2645	358.0499	-64.9998	76.0822
15	358.0499	-64.9998	76.0822	307.1478	-70.0748	83.1374
16	307.1478	-70.0748	83.1374	248.8564	-74.8029	90.0609
17	248.8564	-74.8029	90.0609	154.6883	-77.0296	93.5712
18	154.6883	-77.0296	93.5712	86.7780	-81.1644	100.2446
19	86.7780	-81.1644	100.2446	18.7080	-84.8729	106.7854
20	18.7080	-84.8729	106.7854	-85.7168	-41.9141	56.4847
21	-85.7168	-41.9141	56.4847	66.7647	-9.9030	-0.8489
22	66.7647	-9.9030	-0.8489	46.9641	-9.9028	-0.7613
23	46.9641	-9.9028	-0.7613	27.1632	-9.9025	-0.7043
24	27.1632	-9.9025	-0.7043	240.2831	-10.1708	17.6721
25	240.2831	-10.1708	17.6721	312.7053	-14.3616	23.3452
26	312.7053	-14.3616	23.3452	376.4637	-18.8586	29.1920
27	376.4637	-18.8586	29.1920	429.7812	-23.6204	35.1948
28	429.7812	-23.6204	35.1948	470.9186	-28.6159	41.3270
29	470.9186	-28.6159	41.3270	498.4120	-33.7690	47.5542
30	498.4120	-33.7690	47.5542	511.2661	-39.0444	53.8424
31	511.2661	-39.0444	53.8424	508.8475	-44.3838	60.1508
32	508.8475	-44.3838	60.1508	491.0067	-49.7202	66.4382
33	491.0067	-49.7202	66.4382	457.9847	-55.0173	72.6659
34	457.9847	-55.0173	72.6659	410.4769	-60.2161	78.7928
35	410.4769	-60.2161	78.7928	349.5651	-65.2663	84.7876
36	349.5651	-65.2663	84.7876	276.7338	-70.1280	90.6190
37	276.7338	-70.1280	90.6190	193.9303	-74.7256	96.2639
38	193.9303	-74.7256	96.2639	103.4962	-79.0271	101.7097
39	103.4962	-79.0271	101.7097	8.2102	-82.9639	106.9523
40	8.2102	-82.9639	106.9523	-88.4650	-41.8495	57.4440
41	-88.4650	-41.8495	57.4440	64.6889	-9.8052	-0.6782
42	64.6889	-9.8052	-0.6782	45.0756	-9.8052	-0.5938
43	45.0756	-9.8052	-0.5938	25.4615	-9.8055	-0.5395
44	25.4615	-9.8055	-0.5395	244.4067	-10.3526	18.0392
45	244.4067	-10.3526	18.0392	317.1768	-14.5754	23.7848
46	317.1768	-14.5754	23.7848	380.9900	-19.0935	29.6798
47	380.9900	-19.0935	29.6798	434.1234	-23.8703	35.7034
48	434.1234	-23.8703	35.7034	474.9074	-28.8548	41.8330
49	474.9074	-28.8548	41.8330	501.9349	-34.0101	48.0409
50	501.9349	-34.0101	48.0409	514.2700	-39.2749	54.2923
51	514.2700	-39.2749	54.2923	511.2990	-44.6011	60.5494
52	511.2990	-44.6011	60.5494	492.9209	-49.9393	66.7778
53	492.9209	-49.9393	66.7778	459.3561	-55.2280	72.9406
54	459.3561	-55.2280	72.9406	411.3481	-60.4032	79.0011
55	411.3481	-60.4032	79.0011	350.0043	-65.4404	84.9299
56	350.0043	-65.4404	84.9299	276.8434	-70.2653	90.7010
57	276.8434	-70.2653	90.7010	193.8293	-74.8418	96.2961
58	193.8293	-74.8418	96.2961	103.3091	-79.1071	101.7050
59	103.3091	-79.1071	101.7050	8.0568	-83.0159	106.9297
60	8.0568	-83.0159	106.9297	-88.8117	-41.8461	57.4837
61	-88.8117	-41.8461	57.4837	63.3493	-9.6294	-0.6703
62	63.3493	-9.6294	-0.6703	44.0954	-9.6294	-0.5877
63	44.0954	-9.6294	-0.5877	24.8420	-9.6304	-0.5346
64	24.8420	-9.6304	-0.5346	244.4138	-10.3728	17.8408
65	244.4138	-10.3728	17.8408	317.1992	-14.5971	23.5455
66	317.1992	-14.5971	23.5455	380.9767	-19.1289	29.4137
67	380.9767	-19.1289	29.4137	434.0271	-23.9129	35.4240
68	434.0271	-23.9129	35.4240	474.6964	-28.8924	41.5513
69	474.6964	-28.8924	41.5513	501.5781	-34.0595	47.7635
70	501.5781	-34.0595	47.7635	513.6887	-39.3397	54.0274
71	513.6887	-39.3397	54.0274	510.5339	-44.6758	60.3044
72	510.5339	-44.6758	60.3044	491.9547	-49.9978	66.5596
73	491.9547	-49.9978	66.5596	458.2740	-55.2719	72.7523
74	458.2740	-55.2719	72.7523	410.1822	-60.4597	78.8437
75	410.1822	-60.4597	78.8437	348.7660	-65.4962	84.8022
76	348.7660	-65.4962	84.8022	275.5950	-70.3261	90.6043
77	275.5950	-70.3261	90.6043	192.6235	-74.8878	96.2278
78	192.6235	-74.8878	96.2278	102.2364	-79.1454	101.6616
79	102.2364	-79.1454	101.6616	7.2158	-83.0441	106.9050
80	7.2158	-83.0441	106.9050	-89.1754	-41.8354	57.1870
81	-89.1754	-41.8354	57.1870	53.3680	-8.0802	-6.3116
82	53.3680	-8.0802	-6.3116	37.2135	-8.0800	-6.2418
83	37.2135	-8.0800	-6.2418	21.0587	-8.0795	-6.1968
84	21.0587	-8.0795	-6.1968	244.7947	-10.6078	20.4103
85	244.7947	-10.6078	20.4103	317.0365	-14.9220	27.0509
86	317.0365	-14.9220	27.0509	379.9149	-19.5421	33.8592
87	379.9149	-19.5421	33.8592	431.7297	-24.4103	40.7854
88	431.7297	-24.4103	40.7854	470.8279	-29.4827	47.7798
89	470.8279	-29.4827	47.7798	495.8738	-34.7136	54.7903
90	495.8738	-34.7136	54.7903	505.9688	-40.0433	61.7508
91	505.9688	-40.0433	61.7508	500.6315	-45.4228	68.6003
92	500.6315	-45.4228	68.6003	479.8548	-50.7854	75.2766
93	479.8548	-50.7854	75.2766	444.0419	-56.0851	81.7186
94	444.0419	-56.0851	81.7186	393.9912	-61.2952	87.8710
95	393.9912	-61.2952	87.8710	330.9905	-66.3175	93.6727
96	330.9905	-66.3175	93.6727	256.7205	-71.1178	99.0746
97	256.7205	-71.1178	99.0746	173.3174	-75.6416	104.0375
98	173.3174	-75.6416	104.0375	83.3399	-79.8365	108.5264
99	83.3399	-79.8365	108.5264	-10.2055	-83.6391	112.5208
100	-10.2055	-83.6391	112.5208	-95.1638	-41.9261	56.8224
101	-95.1638	-41.9261	56.8224	53.9478	-9.8163	-10.6473
102	53.9478	-9.8163	-10.6473	36.7820	-9.8168	-10.5862
103	36.7820	-9.8168	-10.5862	19.6170	-9.8179	-10.5481
104	19.6170	-9.8179	-10.5481	214.0817	-10.4390	22.9620
105	214.0817	-10.4390	22.9620	290.1302	-15.3589	32.0914
106	290.1302	-15.3589	32.0914	357.5486	-20.6196	40.9748
107	357.5486	-20.6196	40.9748	366.9303	-23.3728	45.5619
108	366.9303	-23.3728	45.5619	412.9543	-29.0685	54.0367
109	412.9543	-29.0685	54.0367	445.9081	-34.9668	62.1742
110	445.9081	-34.9668	62.1742	464.7587	-40.9745	69.9328
111	464.7587	-40.9745	69.9328	430.1492	-44.0176	73.9560
112	430.1492	-44.0176	73.9560	421.8480	-50.0718	81.0848
113	421.8480	-50.0718	81.0848	399.3634	-56.0530	87.7425
114	399.3634	-56.0530	87.7425	363.5488	-61.8987	93.8878

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	363.5488	-61.8987	93.8878	284.3068	-64.7486	96.9615
116	284.3068	-64.7486	96.9615	226.4825	-70.2457	102.2596
117	226.4825	-70.2457	102.2596	160.1739	-75.4247	106.9863
118	160.1739	-75.4247	106.9863	88.1243	-80.2023	111.1248
119	88.1243	-80.2023	111.1248	-21.2510	-82.4181	112.9730
120	-21.2510	-82.4181	112.9730	-88.6631	-41.8061	56.7666
121	-88.6631	-41.8061	56.7666	62.6428	-10.6582	-13.1105
122	62.6428	-10.6582	-13.1105	44.0071	-10.6586	-13.0386
123	44.0071	-10.6586	-13.0386	25.3719	-10.6586	-12.9918
124	25.3719	-10.6586	-12.9918	6.7371	-10.6590	-12.9699
125	6.7371	-10.6590	-12.9699	281.2711	-14.8272	33.3596
126	281.2711	-14.8272	33.3596	348.3010	-19.9925	42.5003
127	348.3010	-19.9925	42.5003	358.3834	-22.7143	47.1945
128	358.3834	-22.7143	47.1945	405.1608	-28.3677	55.8668
129	405.1608	-28.3677	55.8668	439.3464	-34.2316	64.1535
130	439.3464	-34.2316	64.1535	459.7418	-40.2476	72.0171
131	459.7418	-40.2476	72.0171	426.5763	-43.2749	76.0713
132	426.5763	-43.2749	76.0713	419.9167	-49.3640	83.2299
133	419.9167	-49.3640	83.2299	398.9349	-55.4017	89.8585
134	398.9349	-55.4017	89.8585	364.3849	-61.3241	95.9108
135	364.3849	-61.3241	95.9108	286.1283	-64.2140	98.9154
136	286.1283	-64.2140	98.9154	228.9113	-69.8020	104.0195
137	228.9113	-69.8020	104.0195	162.6943	-75.0876	108.4778
138	162.6943	-75.0876	108.4778	90.1792	-79.9794	112.2668
139	90.1792	-79.9794	112.2668	-19.5070	-82.2506	113.9095
140	-19.5070	-82.2506	113.9095	-86.7508	-41.8960	57.2832
141	-86.7508	-41.8960	57.2832	70.1657	-11.5360	-3.8091
142	70.1657	-11.5360	-3.8091	49.4089	-11.5352	-3.7266
143	49.4089	-11.5352	-3.7266	28.6524	-11.5351	-3.6726
144	28.6524	-11.5351	-3.6726	7.8989	-11.5354	-3.6465
145	7.8989	-11.5354	-3.6465	277.6880	-13.9692	29.2372
146	277.6880	-13.9692	29.2372	344.2856	-18.8603	36.9885
147	344.2856	-18.8603	36.9885	401.6227	-24.0730	44.4112
148	401.6227	-24.0730	44.4112	447.7467	-29.5681	51.5240
149	447.7467	-29.5681	51.5240	436.8707	-32.3957	55.2782
150	436.8707	-32.3957	55.2782	458.1146	-38.1658	61.9860
151	458.1146	-38.1658	61.9860	464.9788	-44.0123	68.4115
152	464.9788	-44.0123	68.4115	457.1821	-49.9007	74.5783
153	457.1821	-49.9007	74.5783	434.8721	-55.7401	80.4945
154	434.8721	-55.7401	80.4945	365.6656	-58.6272	83.6320
155	365.6656	-58.6272	83.6320	318.0391	-64.2632	89.1738
156	318.0391	-64.2632	89.1738	258.8926	-69.6848	94.5036
157	258.8926	-69.6848	94.5036	190.2332	-74.8150	99.6460
158	190.2332	-74.8150	99.6460	114.5953	-79.5790	104.6342
159	114.5953	-79.5790	104.6342	1.3930	-81.8064	107.1062
160	1.3930	-81.8064	107.1062	-82.8671	-41.6287	57.4878
161	-82.8671	-41.6287	57.4878	65.1107	-9.4000	0.1730
162	65.1107	-9.4000	0.1730	46.3085	-9.4000	0.2588
163	46.3085	-9.4000	0.2588	27.5071	-9.3997	0.3155
164	27.5071	-9.3997	0.3155	236.1970	-10.0563	17.4347
165	236.1970	-10.0563	17.4347	307.9337	-14.2195	22.9974
166	307.9337	-14.2195	22.9974	371.3198	-18.6989	28.7275
167	371.3198	-18.6989	28.7275	424.5176	-23.4482	34.6095
168	424.5176	-23.4482	34.6095	465.6902	-28.4461	40.6223
169	465.6902	-28.4461	40.6223	493.3486	-33.6153	46.7434
170	493.3486	-33.6153	46.7434	506.4135	-38.8964	52.9244
171	506.4135	-38.8964	52.9244	504.2985	-44.2433	59.1497
172	504.2985	-44.2433	59.1497	486.7833	-49.6033	65.3780
173	486.7833	-49.6033	65.3780	454.0686	-54.9471	71.5643
174	454.0686	-54.9471	71.5643	406.8104	-60.1729	77.6843

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	406.8104	-60.1729	77.6843	346.1743	-65.2453	83.7026
176	346.1743	-65.2453	83.7026	273.6472	-70.1244	89.5925
177	273.6472	-70.1244	89.5925	191.2529	-74.7355	95.3402
178	191.2529	-74.7355	95.3402	101.3781	-79.0358	100.9329
179	101.3781	-79.0358	100.9329	6.8710	-82.9690	106.3730
180	6.8710	-82.9690	106.3730	-89.8983	-41.7427	57.4508
181	-89.8983	-41.7427	57.4508	46.3569	-7.3035	-1.0949
182	46.3569	-7.3035	-1.0949	32.1115	-7.3036	-1.0361
183	32.1115	-7.3036	-1.0361	17.8658	-7.3032	-0.9987
184	17.8658	-7.3032	-0.9987	246.4655	-10.9340	17.9659
185	246.4655	-10.9340	17.9659	319.6617	-15.3986	23.7543
186	319.6617	-15.3986	23.7543	383.4639	-20.1765	29.7330
187	383.4639	-20.1765	29.7330	436.1525	-25.2055	35.8730
188	436.1525	-25.2055	35.8730	476.0831	-30.4452	42.1497
189	476.0831	-30.4452	42.1497	501.9689	-35.8360	48.5221
190	501.9689	-35.8360	48.5221	512.9357	-41.3160	55.0015
191	512.9357	-41.3160	55.0015	508.6484	-46.8305	61.4600
192	508.6484	-46.8305	61.4600	489.2023	-52.3003	67.7646
193	489.2023	-52.3003	67.7646	455.1218	-57.7019	74.0725
194	455.1218	-57.7019	74.0725	373.9315	-60.3573	77.5778
195	373.9315	-60.3573	77.5778	314.8401	-65.5146	83.7368
196	314.8401	-65.5146	83.7368	244.6968	-70.4424	89.6597
197	244.6968	-70.4424	89.6597	165.6257	-75.0802	95.4369
198	165.6257	-75.0802	95.4369	80.3327	-79.3675	101.0487
199	80.3327	-79.3675	101.0487	-8.1108	-83.2482	106.4684
200	-8.1108	-83.2482	106.4684	-95.6063	-41.6483	57.6317
201	-95.6063	-41.6483	57.6317	88.8256	-3.3158	-0.2681
202	88.8256	-3.3158	-0.2681	84.1512	-3.3156	-0.1632
203	84.1512	-3.3156	-0.1632	85.9188	-3.5763	10.2583
204	85.9188	-3.5763	10.2583	177.4286	-7.8419	18.1509
205	177.4286	-7.8419	18.1509	215.6425	-10.1721	22.2100
206	215.6425	-10.1721	22.2100	300.4683	-15.1859	30.1255
207	300.4683	-15.1859	30.1255	328.3474	-17.8791	34.4116
208	328.3474	-17.8791	34.4116	350.6052	-20.6873	38.7994
209	350.6052	-20.6873	38.7994	413.4897	-26.6238	46.9438
210	413.4897	-26.6238	46.9438	419.8917	-29.7477	51.2658
211	419.8917	-29.7477	51.2658	460.5180	-36.2616	59.6329
212	460.5180	-36.2616	59.6329	447.5101	-39.6272	63.9723
213	447.5101	-39.6272	63.9723	460.4991	-46.6248	72.0890
214	460.4991	-46.6248	72.0890	425.1140	-50.1999	76.4003
215	425.1140	-50.1999	76.4003	380.0119	-53.8456	80.6998
216	380.0119	-53.8456	80.6998	346.0879	-61.2977	88.6295
217	346.0879	-61.2977	88.6295	275.6246	-65.0916	92.7254
218	275.6246	-65.0916	92.7254	205.4227	-72.7760	100.5135
219	205.4227	-72.7760	100.5135	108.2253	-76.6551	104.3200
220	108.2253	-76.6551	104.3200	0.1242	-76.6517	104.3423

ENVOL. MAX. TORSORES TREN TREN IPF-75 TIPO A en via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0123	-0.0070	0.9606	28.1250	-1.1537	1.9323
2	28.1250	-1.1537	1.9323	118.1436	-5.1776	7.4046
3	118.1436	-5.1776	7.4046	182.9160	-8.6143	10.6520
4	182.9160	-8.6143	10.6520	304.2468	-15.4486	17.2393
5	304.2468	-15.4486	17.2393	403.8205	-22.2231	24.0902
6	403.8205	-22.2231	24.0902	424.6965	-25.5719	27.8646
7	424.6965	-25.5719	27.8646	487.4000	-32.1663	35.0439
8	487.4000	-32.1663	35.0439	530.5365	-38.6108	42.3333
9	530.5365	-38.6108	42.3333	510.8658	-41.7674	46.3279
10	510.8658	-41.7674	46.3279	521.6854	-47.9316	53.7022
11	521.6854	-47.9316	53.7022	479.2789	-50.9486	57.6928
12	479.2789	-50.9486	57.6928	461.7386	-56.7885	65.0154
13	461.7386	-56.7885	65.0154	430.9514	-62.3332	72.2645
14	430.9514	-62.3332	72.2645	358.0499	-64.9998	76.0822
15	358.0499	-64.9998	76.0822	307.1478	-70.0748	83.1374
16	307.1478	-70.0748	83.1374	248.8564	-74.8029	90.0609
17	248.8564	-74.8029	90.0609	154.6883	-77.0296	93.5712
18	154.6883	-77.0296	93.5712	86.7780	-81.1644	100.2446
19	86.7780	-81.1644	100.2446	18.7080	-84.8729	106.7854
20	18.7080	-84.8729	106.7854	-85.7168	-41.9141	56.4847
21	-85.7168	-41.9141	56.4847	-257.7162	8.7510	3.8405
22	-257.7162	8.7510	3.8405	78.5366	-2.8720	6.9015
23	78.5366	-2.8720	6.9015	161.3145	-6.3288	12.1898
24	161.3145	-6.3288	12.1898	240.2831	-10.1708	17.6721
25	240.2831	-10.1708	17.6721	312.7053	-14.3616	23.3452
26	312.7053	-14.3616	23.3452	376.4637	-18.8586	29.1920
27	376.4637	-18.8586	29.1920	429.7812	-23.6204	35.1948
28	429.7812	-23.6204	35.1948	470.9186	-28.6159	41.3270
29	470.9186	-28.6159	41.3270	498.4120	-33.7690	47.5542
30	498.4120	-33.7690	47.5542	511.2661	-39.0444	53.8424
31	511.2661	-39.0444	53.8424	508.8475	-44.3838	60.1508
32	508.8475	-44.3838	60.1508	491.0067	-49.7202	66.4382
33	491.0067	-49.7202	66.4382	457.9847	-55.0173	72.6659
34	457.9847	-55.0173	72.6659	410.4769	-60.2161	78.7928
35	410.4769	-60.2161	78.7928	349.5651	-65.2663	84.7876
36	349.5651	-65.2663	84.7876	276.7338	-70.1280	90.6190
37	276.7338	-70.1280	90.6190	193.9303	-74.7256	96.2639
38	193.9303	-74.7256	96.2639	103.4962	-79.0271	101.7097
39	103.4962	-79.0271	101.7097	8.2102	-82.9639	106.9523
40	8.2102	-82.9639	106.9523	-88.4650	-41.8495	57.4440
41	-88.4650	-41.8495	57.4440	-4.5445	0.1427	3.5697
42	-4.5445	0.1427	3.5697	80.7362	-2.9532	7.0386
43	80.7362	-2.9532	7.0386	164.7042	-6.4660	12.4566
44	164.7042	-6.4660	12.4566	244.4067	-10.3526	18.0392
45	244.4067	-10.3526	18.0392	317.1768	-14.5754	23.7848
46	317.1768	-14.5754	23.7848	380.9900	-19.0935	29.6798
47	380.9900	-19.0935	29.6798	434.1234	-23.8703	35.7034
48	434.1234	-23.8703	35.7034	474.9074	-28.8548	41.8330
49	474.9074	-28.8548	41.8330	501.9349	-34.0101	48.0409
50	501.9349	-34.0101	48.0409	514.2700	-39.2749	54.2923
51	514.2700	-39.2749	54.2923	511.2990	-44.6011	60.5494
52	511.2990	-44.6011	60.5494	492.9209	-49.9393	66.7778
53	492.9209	-49.9393	66.7778	459.3561	-55.2280	72.9406
54	459.3561	-55.2280	72.9406	411.3481	-60.4032	79.0011
55	411.3481	-60.4032	79.0011	350.0043	-65.4404	84.9299
56	350.0043	-65.4404	84.9299	276.8434	-70.2653	90.7010
57	276.8434	-70.2653	90.7010	193.8293	-74.8418	96.2961
58	193.8293	-74.8418	96.2961	103.3091	-79.1071	101.7050
59	103.3091	-79.1071	101.7050	8.0568	-83.0159	106.9297
60	8.0568	-83.0159	106.9297	-88.8117	-41.8461	57.4837
61	-88.8117	-41.8461	57.4837	-285.7759	9.7269	3.8663
62	-285.7759	9.7269	3.8663	80.5445	-2.9522	6.9663
63	80.5445	-2.9522	6.9663	164.6425	-6.4746	12.3127
64	164.6425	-6.4746	12.3127	244.4138	-10.3728	17.8408
65	244.4138	-10.3728	17.8408	317.1992	-14.5971	23.5455
66	317.1992	-14.5971	23.5455	380.9767	-19.1289	29.4137
67	380.9767	-19.1289	29.4137	434.0271	-23.9129	35.4240
68	434.0271	-23.9129	35.4240	474.6964	-28.8924	41.5513
69	474.6964	-28.8924	41.5513	501.5781	-34.0595	47.7635
70	501.5781	-34.0595	47.7635	513.6887	-39.3397	54.0274
71	513.6887	-39.3397	54.0274	510.5339	-44.6758	60.3044
72	510.5339	-44.6758	60.3044	491.9547	-49.9978	66.5596
73	491.9547	-49.9978	66.5596	458.2740	-55.2719	72.7523
74	458.2740	-55.2719	72.7523	410.1822	-60.4597	78.8437
75	410.1822	-60.4597	78.8437	348.7660	-65.4962	84.8022
76	348.7660	-65.4962	84.8022	275.5950	-70.3261	90.6043
77	275.5950	-70.3261	90.6043	192.6235	-74.8878	96.2278
78	192.6235	-74.8878	96.2278	102.2364	-79.1454	101.6616
79	102.2364	-79.1454	101.6616	7.2158	-83.0441	106.9050
80	7.2158	-83.0441	106.9050	-89.1754	-41.8354	57.1870
81	-89.1754	-41.8354	57.1870	-4.7439	0.1452	3.6199
82	-4.7439	0.1452	3.6199	81.0554	-3.0283	7.7626
83	81.0554	-3.0283	7.7626	165.2426	-6.6293	13.9725
84	165.2426	-6.6293	13.9725	244.7947	-10.6078	20.4103
85	244.7947	-10.6078	20.4103	317.0365	-14.9220	27.0509
86	317.0365	-14.9220	27.0509	379.9149	-19.5421	33.8592
87	379.9149	-19.5421	33.8592	431.7297	-24.4103	40.7854
88	431.7297	-24.4103	40.7854	470.8279	-29.4827	47.7798
89	470.8279	-29.4827	47.7798	495.8738	-34.7136	54.7903
90	495.8738	-34.7136	54.7903	505.9688	-40.0433	61.7508
91	505.9688	-40.0433	61.7508	500.6315	-45.4228	68.6003
92	500.6315	-45.4228	68.6003	479.8548	-50.7854	75.2766
93	479.8548	-50.7854	75.2766	444.0419	-56.0851	81.7186
94	444.0419	-56.0851	81.7186	393.9912	-61.2952	87.8710
95	393.9912	-61.2952	87.8710	330.9905	-66.3175	93.6727
96	330.9905	-66.3175	93.6727	256.7205	-71.1178	99.0746
97	256.7205	-71.1178	99.0746	173.3174	-75.6416	104.0375
98	173.3174	-75.6416	104.0375	83.3399	-79.8365	108.5264
99	83.3399	-79.8365	108.5264	-10.2055	-83.6391	112.5208
100	-10.2055	-83.6391	112.5208	-95.1638	-41.9261	56.8224
101	-95.1638	-41.9261	56.8224	-15.5154	2.8233	3.0622
102	-15.5154	2.8233	3.0622	92.3738	-3.8700	8.8165
103	92.3738	-3.8700	8.8165	131.6674	-5.9432	13.6220
104	131.6674	-5.9432	13.6220	214.0817	-10.4390	22.9620
105	214.0817	-10.4390	22.9620	290.1302	-15.3589	32.0914
106	290.1302	-15.3589	32.0914	357.5486	-20.6196	40.9748
107	357.5486	-20.6196	40.9748	366.9303	-23.3728	45.5619
108	366.9303	-23.3728	45.5619	412.9543	-29.0685	54.0367
109	412.9543	-29.0685	54.0367	445.9081	-34.9668	62.1742
110	445.9081	-34.9668	62.1742	464.7587	-40.9745	69.9328
111	464.7587	-40.9745	69.9328	430.1492	-44.0176	73.9560
112	430.1492	-44.0176	73.9560	421.8480	-50.0718	81.0848
113	421.8480	-50.0718	81.0848	399.3634	-56.0530	87.7425

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
114	399.3634	-56.0530	87.7425	363.5488	-61.8987	93.8878
115	363.5488	-61.8987	93.8878	284.3068	-64.7486	96.9615
116	284.3068	-64.7486	96.9615	226.4825	-70.2457	102.2596
117	226.4825	-70.2457	102.2596	160.1739	-75.4247	106.9863
118	160.1739	-75.4247	106.9863	88.1243	-80.2023	111.1248
119	88.1243	-80.2023	111.1248	-21.2510	-82.4181	112.9730
120	-21.2510	-82.4181	112.9730	-88.6631	-41.8061	56.7666
121	-88.6631	-41.8061	56.7666	-19.1650	3.2608	4.0110
122	-19.1650	3.2608	4.0110	89.1665	-3.7249	9.2698
123	89.1665	-3.7249	9.2698	126.7829	-5.7060	14.2556
124	126.7829	-5.7060	14.2556	206.6143	-10.0439	23.9319
125	206.6143	-10.0439	23.9319	281.2711	-14.8272	33.3596
126	281.2711	-14.8272	33.3596	348.3010	-19.9925	42.5003
127	348.3010	-19.9925	42.5003	358.3834	-22.7143	47.1945
128	358.3834	-22.7143	47.1945	405.1608	-28.3677	55.8668
129	405.1608	-28.3677	55.8668	439.3464	-34.2316	64.1535
130	439.3464	-34.2316	64.1535	459.7418	-40.2476	72.0171
131	459.7418	-40.2476	72.0171	426.5763	-43.2749	76.0713
132	426.5763	-43.2749	76.0713	419.9167	-49.3640	83.2299
133	419.9167	-49.3640	83.2299	398.9349	-55.4017	89.8585
134	398.9349	-55.4017	89.8585	364.3849	-61.3241	95.9108
135	364.3849	-61.3241	95.9108	286.1283	-64.2140	98.9154
136	286.1283	-64.2140	98.9154	228.9113	-69.8020	104.0195
137	228.9113	-69.8020	104.0195	162.6943	-75.0876	108.4778
138	162.6943	-75.0876	108.4778	90.1792	-79.9794	112.2668
139	90.1792	-79.9794	112.2668	-19.5070	-82.2506	113.9095
140	-19.5070	-82.2506	113.9095	-86.7508	-41.8960	57.2832
141	-86.7508	-41.8960	57.2832	67.2820	-2.5140	2.1172
142	67.2820	-2.5140	2.1172	88.5532	-3.5382	8.2981
143	88.5532	-3.5382	8.2981	171.7249	-7.3714	16.8674
144	171.7249	-7.3714	16.8674	203.9172	-9.4636	21.1530
145	203.9172	-9.4636	21.1530	277.6880	-13.9692	29.2372
146	277.6880	-13.9692	29.2372	344.2856	-18.8603	36.9885
147	344.2856	-18.8603	36.9885	401.6227	-24.0730	44.4112
148	401.6227	-24.0730	44.4112	447.7467	-29.5681	51.5240
149	447.7467	-29.5681	51.5240	436.8707	-32.3957	55.2782
150	436.8707	-32.3957	55.2782	458.1146	-38.1658	61.9860
151	458.1146	-38.1658	61.9860	464.9788	-44.0123	68.4115
152	464.9788	-44.0123	68.4115	457.1821	-49.9007	74.5783
153	457.1821	-49.9007	74.5783	434.8721	-55.7401	80.4945
154	434.8721	-55.7401	80.4945	365.6656	-58.6272	83.6320
155	365.6656	-58.6272	83.6320	318.0391	-64.2632	89.1738
156	318.0391	-64.2632	89.1738	258.8926	-69.6848	94.5036
157	258.8926	-69.6848	94.5036	190.2332	-74.8150	99.6460
158	190.2332	-74.8150	99.6460	114.5953	-79.5790	104.6342
159	114.5953	-79.5790	104.6342	1.3930	-81.8064	107.1062
160	1.3930	-81.8064	107.1062	-82.8671	-41.6287	57.4878
161	-82.8671	-41.6287	57.4878	-244.6034	8.3484	4.0591
162	-244.6034	8.3484	4.0591	77.0011	-2.8298	6.8434
163	77.0011	-2.8298	6.8434	158.2772	-6.2433	12.0508
164	158.2772	-6.2433	12.0508	236.1970	-10.0563	17.4347
165	236.1970	-10.0563	17.4347	307.9337	-14.2195	22.9974
166	307.9337	-14.2195	22.9974	371.3198	-18.6989	28.7275
167	371.3198	-18.6989	28.7275	424.5176	-23.4482	34.6095
168	424.5176	-23.4482	34.6095	465.6902	-28.4461	40.6223
169	465.6902	-28.4461	40.6223	493.3486	-33.6153	46.7434
170	493.3486	-33.6153	46.7434	506.4135	-38.8964	52.9244
171	506.4135	-38.8964	52.9244	504.2985	-44.2433	59.1497
172	504.2985	-44.2433	59.1497	486.7833	-49.6033	65.3780
173	486.7833	-49.6033	65.3780	454.0686	-54.9471	71.5643

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
174	454.0686	-54.9471	71.5643	406.8104	-60.1729	77.6843
175	406.8104	-60.1729	77.6843	346.1743	-65.2453	83.7026
176	346.1743	-65.2453	83.7026	273.6472	-70.1244	89.5925
177	273.6472	-70.1244	89.5925	191.2529	-74.7355	95.3402
178	191.2529	-74.7355	95.3402	101.3781	-79.0358	100.9329
179	101.3781	-79.0358	100.9329	6.8710	-82.9690	106.3730
180	6.8710	-82.9690	106.3730	-89.8983	-41.7427	57.4508
181	-89.8983	-41.7427	57.4508	-288.3228	10.2167	4.4950
182	-288.3228	10.2167	4.4950	80.8888	-3.0914	7.0227
183	80.8888	-3.0914	7.0227	165.9841	-6.8122	12.3858
184	165.9841	-6.8122	12.3858	246.4655	-10.9340	17.9659
185	246.4655	-10.9340	17.9659	319.6617	-15.3986	23.7543
186	319.6617	-15.3986	23.7543	383.4639	-20.1765	29.7330
187	383.4639	-20.1765	29.7330	436.1525	-25.2055	35.8730
188	436.1525	-25.2055	35.8730	476.0831	-30.4452	42.1497
189	476.0831	-30.4452	42.1497	501.9689	-35.8360	48.5221
190	501.9689	-35.8360	48.5221	512.9357	-41.3160	55.0015
191	512.9357	-41.3160	55.0015	508.6484	-46.8305	61.4600
192	508.6484	-46.8305	61.4600	489.2023	-52.3003	67.7646
193	489.2023	-52.3003	67.7646	455.1218	-57.7019	74.0725
194	455.1218	-57.7019	74.0725	373.9315	-60.3573	77.5778
195	373.9315	-60.3573	77.5778	314.8401	-65.5146	83.7368
196	314.8401	-65.5146	83.7368	244.6968	-70.4424	89.6597
197	244.6968	-70.4424	89.6597	165.6257	-75.0802	95.4369
198	165.6257	-75.0802	95.4369	80.3327	-79.3675	101.0487
199	80.3327	-79.3675	101.0487	-8.1108	-83.2482	106.4684
200	-8.1108	-83.2482	106.4684	-95.6063	-41.6483	57.6317
201	-95.6063	-41.6483	57.6317	-4.5184	0.1720	4.9455
202	-4.5184	0.1720	4.9455	41.6163	-1.6348	7.2448
203	41.6163	-1.6348	7.2448	85.9188	-3.5763	10.2583
204	85.9188	-3.5763	10.2583	177.4286	-7.8419	18.1509
205	177.4286	-7.8419	18.1509	215.6425	-10.1721	22.2100
206	215.6425	-10.1721	22.2100	300.4683	-15.1859	30.1255
207	300.4683	-15.1859	30.1255	328.3474	-17.8791	34.4116
208	328.3474	-17.8791	34.4116	350.6052	-20.6873	38.7994
209	350.6052	-20.6873	38.7994	413.4897	-26.6238	46.9438
210	413.4897	-26.6238	46.9438	419.8917	-29.7477	51.2658
211	419.8917	-29.7477	51.2658	460.5180	-36.2616	59.6329
212	460.5180	-36.2616	59.6329	447.5101	-39.6272	63.9723
213	447.5101	-39.6272	63.9723	460.4991	-46.6248	72.0890
214	460.4991	-46.6248	72.0890	425.1140	-50.1999	76.4003
215	425.1140	-50.1999	76.4003	380.0119	-53.8456	80.6998
216	380.0119	-53.8456	80.6998	346.0879	-61.2977	88.6295
217	346.0879	-61.2977	88.6295	275.6246	-65.0916	92.7254
218	275.6246	-65.0916	92.7254	205.4227	-72.7760	100.5135
219	205.4227	-72.7760	100.5135	108.2253	-76.6551	104.3200
220	108.2253	-76.6551	104.3200	0.1242	-76.6517	104.3423

ENVOL. MIN. TORSORES TREN TREN IPF-75 TIPO A en via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0336	81.3882	-109.7065	127.5697	77.9621	-106.6388
2	127.5697	77.9621	-106.6388	232.9176	71.1618	-100.2446
3	232.9176	71.1618	-100.2446	332.8475	67.7896	-96.7519
4	332.8475	67.7896	-96.7519	400.1715	61.1199	-89.8701
5	400.1715	61.1199	-89.8701	446.7825	54.5840	-82.7811
6	446.7825	54.5840	-82.7811	504.6371	51.3841	-78.8843
7	504.6371	51.3841	-78.8843	516.8675	45.1040	-71.5690
8	516.8675	45.1040	-71.5690	511.3728	39.0420	-64.1915
9	511.3728	39.0420	-64.1915	531.9253	36.1129	-60.1754
10	531.9253	36.1129	-60.1754	497.9742	30.4198	-52.7921
11	497.9742	30.4198	-52.7921	498.4951	27.6744	-48.8161
12	498.4951	27.6744	-48.8161	440.7804	22.4206	-41.5470
13	440.7804	22.4206	-41.5470	373.0880	17.5125	-34.3675
14	373.0880	17.5125	-34.3675	348.6600	15.1995	-30.6059
15	348.6600	15.1995	-30.6059	266.8270	10.8529	-23.6399
16	266.8270	10.8529	-23.6399	181.6698	6.9264	-16.7971
17	181.6698	6.9264	-16.7971	142.8930	5.1245	-13.3327
18	142.8930	5.1245	-13.3327	55.2080	1.8681	-7.0550
19	55.2080	1.8681	-7.0550	-29.1179	-0.9394	-3.7376
20	-29.1179	-0.9394	-3.7376	-71.6266	42.4743	-58.1268
21	-71.6266	42.4743	-58.1268	24.5450	83.6707	-108.0406
22	24.5450	83.6707	-108.0406	118.8989	79.8275	-102.8246
23	118.8989	79.8275	-102.8246	208.0767	75.6422	-97.4019
24	208.0767	75.6422	-97.4019	289.8390	71.1505	-91.7775
25	289.8390	71.1505	-91.7775	362.2457	66.3926	-85.9675
26	362.2457	66.3926	-85.9675	423.3479	61.3943	-79.9938
27	423.3479	61.3943	-79.9938	471.4756	56.2269	-73.8818
28	471.4756	56.2269	-73.8818	505.4297	50.9570	-67.6656
29	505.4297	50.9570	-67.6656	524.3777	45.6281	-61.3842
30	524.3777	45.6281	-61.3842	527.9445	40.2933	-55.0743
31	527.9445	40.2933	-55.0743	516.1404	34.9709	-48.7778
32	516.1404	34.9709	-48.7778	489.4449	29.7729	-42.5354
33	489.4449	29.7729	-42.5354	448.7339	24.7187	-36.3845
34	448.7339	24.7187	-36.3845	395.3435	19.8741	-30.3604
35	395.3435	19.8741	-30.3604	330.9627	15.2689	-24.4880
36	330.9627	15.2689	-24.4880	257.7291	10.9738	-18.7897
37	257.7291	10.9738	-18.7897	178.2108	7.0352	-13.2788
38	178.2108	7.0352	-13.2788	95.2847	3.5055	-7.9559
39	95.2847	3.5055	-7.9559	-276.1561	-9.4419	-4.0458
40	-276.1561	-9.4419	-4.0458	-69.9165	42.4036	-57.9142
41	-69.9165	42.4036	-57.9142	28.4225	83.5359	-107.7854
42	28.4225	83.5359	-107.7854	123.6986	79.6455	-102.4711
43	123.6986	79.6455	-102.4711	213.3772	75.4281	-96.9765
44	213.3772	75.4281	-96.9765	295.3001	70.9109	-91.3059
45	295.3001	70.9109	-91.3059	367.5659	66.1255	-85.4743
46	367.5659	66.1255	-85.4743	428.3056	61.1395	-79.4996
47	428.3056	61.1395	-79.4996	475.9634	55.9851	-73.4087
48	475.9634	55.9851	-73.4087	509.3492	50.7238	-67.2290
49	509.3492	50.7238	-67.2290	527.6841	45.4115	-60.9947
50	527.6841	45.4115	-60.9947	530.6649	40.0777	-54.7419
51	530.6649	40.0777	-54.7419	518.2885	34.7990	-48.5096
52	518.2885	34.7990	-48.5096	491.0634	29.6130	-42.3334
53	491.0634	29.6130	-42.3334	449.8680	24.5648	-36.2474
54	449.8680	24.5648	-36.2474	396.0541	19.7384	-30.2792
55	396.0541	19.7384	-30.2792	331.3519	15.1654	-24.4565
56	331.3519	15.1654	-24.4565	257.9182	10.8935	-18.7943
57	257.9182	10.8935	-18.7943	178.3237	6.9860	-13.3019
58	178.3237	6.9860	-13.3019	95.4433	3.4841	-7.9759
59	95.4433	3.4841	-7.9759	11.9726	0.4182	-4.0316
60	11.9726	0.4182	-4.0316	-69.6958	42.4199	-57.9297
61	-69.6958	42.4199	-57.9297	28.4578	83.5247	-107.9284
62	28.4578	83.5247	-107.9284	123.8354	79.6227	-102.6700
63	123.8354	79.6227	-102.6700	213.5540	75.3988	-97.2156
64	213.5540	75.3988	-97.2156	295.4543	70.8680	-91.5713
65	295.4543	70.8680	-91.5713	367.6625	66.0863	-85.7540
66	367.6625	66.0863	-85.7540	428.3198	61.0793	-79.7823
67	428.3198	61.0793	-79.7823	475.8257	55.9353	-73.6824
68	475.8257	55.9353	-73.6824	509.0810	50.6749	-67.4877
69	509.0810	50.6749	-67.4877	527.2522	45.3462	-61.2335
70	527.2522	45.3462	-61.2335	530.0046	39.9993	-54.9560
71	530.0046	39.9993	-54.9560	517.4314	34.7120	-48.6968
72	517.4314	34.7120	-48.6968	490.0660	29.5367	-42.4891
73	490.0660	29.5367	-42.4891	448.8005	24.5093	-36.3686
74	448.8005	24.5093	-36.3686	394.9662	19.6900	-30.3723
75	394.9662	19.6900	-30.3723	330.2863	15.1101	-24.5221
76	330.2863	15.1101	-24.5221	256.9467	10.8533	-18.8358
77	256.9467	10.8533	-18.8358	177.5303	6.9567	-13.3235
78	177.5303	6.9567	-13.3235	94.9304	3.4676	-7.9850
79	94.9304	3.4676	-7.9850	11.8650	0.4148	-4.0333
80	11.8650	0.4148	-4.0333	-69.0898	42.3890	-57.5296
81	-69.0898	42.3890	-57.5296	29.6150	83.3724	-106.2729
82	29.6150	83.3724	-106.2729	125.1148	79.3923	-100.1023
83	125.1148	79.3923	-100.1023	214.6430	75.0719	-93.7102
84	214.6430	75.0719	-93.7102	296.0007	70.4604	-87.1271
85	296.0007	70.4604	-87.1271	367.3240	65.5893	-80.3909
86	367.3240	65.5893	-80.3909	426.7602	60.5091	-73.5446
87	426.7602	60.5091	-73.5446	472.7637	55.2700	-66.6460
88	472.7637	55.2700	-66.6460	504.1961	49.9446	-59.7506
89	504.1961	49.9446	-59.7506	520.4189	44.5788	-52.9137
90	520.4189	44.5788	-52.9137	521.1526	39.1956	-46.2040
91	521.1526	39.1956	-46.2040	506.5678	33.8900	-39.6849
92	506.5678	33.8900	-39.6849	477.3201	28.7061	-33.4146
93	477.3201	28.7061	-33.4146	434.4285	23.6834	-27.4508
94	434.4285	23.6834	-27.4508	379.3887	18.8762	-21.8489
95	379.3887	18.8762	-21.8489	314.0887	14.3483	-16.6576
96	314.0887	14.3483	-16.6576	240.8940	10.1663	-11.9175
97	240.8940	10.1663	-11.9175	-205.1798	-8.0906	-8.1786
98	-205.1798	-8.0906	-8.1786	-221.3493	-8.0887	-8.5068
99	-221.3493	-8.0887	-8.5068	-237.5119	-8.0872	-8.8596
100	-237.5119	-8.0872	-8.8596	-64.2904	41.9110	-56.8874
101	-64.2904	41.9110	-56.8874	24.4690	81.8602	-101.9924
102	24.4690	81.8602	-101.9924	102.1403	77.1496	-93.0148
103	102.1403	77.1496	-93.0148	204.2979	74.6466	-88.4966
104	204.2979	74.6466	-88.4966	267.6188	69.3809	-79.7914
105	267.6188	69.3809	-79.7914	321.5342	63.8131	-71.3371
106	321.5342	63.8131	-71.3371	364.0936	58.0077	-63.1618
107	364.0936	58.0077	-63.1618	428.7958	55.0443	-58.9256
108	428.7958	55.0443	-58.9256	446.2007	49.0191	-51.2164
109	446.2007	49.0191	-51.2164	449.1956	42.9668	-43.8730
110	449.1956	42.9668	-43.8730	437.5988	36.9096	-36.9293
111	437.5988	36.9096	-36.9293	456.1340	33.9414	-33.3307
112	456.1340	33.9414	-33.3307	418.2618	28.0998	-27.0888
113	418.2618	28.0998	-27.0888	367.7350	22.4693	-21.3431
114	367.7350	22.4693	-21.3431	306.2518	17.1059	-16.1241

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	306.2518	17.1059	-16.1241	284.8191	14.5722	-13.5359
116	284.8191	14.5722	-13.5359	7.5951	12.0296	-12.5882
117	7.5951	12.0296	-12.5882	28.6651	12.0296	-12.5641
118	28.6651	12.0296	-12.5641	-237.8156	-9.8182	-12.7521
119	-237.8156	-9.8182	-12.7521	-254.9799	-9.8161	-13.0834
120	-254.9799	-9.8161	-13.0834	-69.3541	41.7159	-57.2863
121	-69.3541	41.7159	-57.2863	16.7188	82.1820	-101.1627
122	16.7188	82.1820	-101.1627	91.8006	77.6168	-91.8602
123	91.8006	77.6168	-91.8602	193.6051	75.1769	-87.2023
124	193.6051	75.1769	-87.2023	256.1794	70.0019	-78.2375
125	256.1794	70.0019	-78.2375	310.2591	64.5042	-69.5670
126	310.2591	64.5042	-69.5670	353.6920	58.7395	-61.2217
127	353.6920	58.7395	-61.2217	419.6892	55.7721	-56.9240
128	419.6892	55.7721	-56.9240	438.5855	49.7539	-49.1175
129	438.5855	49.7539	-49.1175	443.3139	43.6796	-41.7255
130	443.3139	43.6796	-41.7255	433.4980	37.5919	-34.7889
131	433.4980	37.5919	-34.7889	453.4478	34.5958	-31.2161
132	453.4478	34.5958	-31.2161	417.0886	28.6737	-25.0627
133	417.0886	28.6737	-25.0627	367.7548	22.9603	-19.4800
134	367.7548	22.9603	-19.4800	307.0670	17.5173	-14.4938
135	307.0670	17.5173	-14.4938	-198.2068	-10.6590	-14.3876
136	-198.2068	-10.6590	-14.3876	-216.8361	-10.6574	-14.6679
137	-216.8361	-10.6574	-14.6679	-235.4629	-10.6529	-14.9721
138	-235.4629	-10.6529	-14.9721	-254.0802	-10.6487	-15.3017
139	-254.0802	-10.6487	-15.3017	-272.6900	-10.6444	-15.6560
140	-272.6900	-10.6444	-15.6560	-71.7648	41.7197	-58.1056
141	-71.7648	41.7197	-58.1056	18.1291	82.6301	-103.3213
142	18.1291	82.6301	-103.3213	95.9566	78.3340	-95.3302
143	95.9566	78.3340	-95.3302	169.5802	73.6367	-87.6583
144	169.5802	73.6367	-87.6583	268.1293	71.1442	-83.7842
145	268.1293	71.1442	-83.7842	326.2409	65.9276	-76.5262
146	326.2409	65.9276	-76.5262	374.1398	60.4303	-69.5400
147	374.1398	60.4303	-69.5400	409.9168	54.7410	-62.8041
148	409.9168	54.7410	-62.8041	432.2549	48.9258	-56.3008
149	432.2549	48.9258	-56.3008	479.4908	45.9822	-52.8204
150	479.4908	45.9822	-52.8204	474.8275	40.0874	-46.6362
151	474.8275	40.0874	-46.6362	455.5466	34.2590	-40.6623
152	455.5466	34.2590	-40.6623	422.0766	28.5365	-34.8810
153	422.0766	28.5365	-34.8810	375.3982	22.9903	-29.2756
154	375.3982	22.9903	-29.2756	365.8610	20.3134	-26.2896
155	365.8610	20.3134	-26.2896	297.6229	15.1820	-20.9606
156	297.6229	15.1820	-20.9606	221.1523	10.4184	-15.7569
157	221.1523	10.4184	-15.7569	139.1762	6.0795	-10.6399
158	139.1762	6.0795	-10.6399	35.4678	9.1523	-10.1637
159	35.4678	9.1523	-10.1637	51.9529	9.1519	-10.1031
160	51.9529	9.1519	-10.1031	-73.5294	42.2854	-58.4266
161	-73.5294	42.2854	-58.4266	21.0965	83.7574	-108.1701
162	21.0965	83.7574	-108.1701	114.2867	79.9441	-103.0485
163	114.2867	79.9441	-103.0485	202.7094	75.7785	-97.7345
164	202.7094	75.7785	-97.7345	284.0408	71.2929	-92.2263
165	284.0408	71.2929	-92.2263	356.2740	66.5343	-86.5372
166	356.2740	66.5343	-86.5372	417.4203	61.5494	-80.6806
167	417.4203	61.5494	-80.6806	465.7667	56.3899	-74.6817
168	465.7667	56.3899	-74.6817	500.0248	51.1032	-68.5645
169	500.0248	51.1032	-68.5645	519.2969	45.7457	-62.3629
170	519.2969	45.7457	-62.3629	523.2274	40.3815	-56.1231
171	523.2274	40.3815	-56.1231	511.8383	35.0667	-49.8670
172	511.8383	35.0667	-49.8670	485.5555	29.8459	-43.6343
173	485.5555	29.8459	-43.6343	445.2588	24.7519	-37.4632
174	445.2588	24.7519	-37.4632	392.2533	19.8746	-31.3754

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	392.2533	19.8746	-31.3754	328.3345	15.2628	-25.4039
176	328.3345	15.2628	-25.4039	255.6696	10.9637	-19.5616
177	255.6696	10.9637	-19.5616	176.9142	7.0327	-13.8536
178	176.9142	7.0327	-13.8536	95.0103	3.5174	-8.2796
179	95.0103	3.5174	-8.2796	12.7134	0.4501	-4.0586
180	12.7134	0.4501	-4.0586	-68.3600	42.3722	-57.7748
181	-68.3600	42.3722	-57.7748	25.8840	83.1861	-107.8445
182	25.8840	83.1861	-107.8445	117.9418	79.0708	-102.5247
183	117.9418	79.0708	-102.5247	204.0166	74.6070	-96.9785
184	204.0166	74.6070	-96.9785	281.9518	69.8420	-91.2130
185	281.9518	69.8420	-91.2130	349.8038	64.7953	-85.2477
186	349.8038	64.7953	-85.2477	405.7072	59.5630	-79.1169
187	405.7072	59.5630	-79.1169	448.1194	54.1646	-72.8410
188	448.1194	54.1646	-72.8410	476.0068	48.6889	-66.4657
189	476.0068	48.6889	-66.4657	488.7360	43.1767	-60.0260
190	488.7360	43.1767	-60.0260	486.2031	37.6875	-53.5189
191	486.2031	37.6875	-53.5189	468.6636	32.2934	-47.1018
192	468.6636	32.2934	-47.1018	436.9019	27.0423	-40.8388
193	436.9019	27.0423	-40.8388	392.1818	21.9868	-34.5854
194	392.1818	21.9868	-34.5854	384.5646	19.5575	-31.1557
195	384.5646	19.5575	-31.1557	319.1187	14.9187	-25.1524
196	319.1187	14.9187	-25.1524	246.0595	10.6301	-19.3580
197	246.0595	10.6301	-19.3580	168.2801	6.7516	-13.6966
198	168.2801	6.7516	-13.6966	89.0065	3.3314	-8.2056
199	89.0065	3.3314	-8.2056	11.2789	0.4061	-4.1157
200	11.2789	0.4061	-4.1157	-61.6747	42.2020	-56.2795
201	-61.6747	42.2020	-56.2795	-4.6092	82.1474	-102.0483
202	-4.6092	82.1474	-102.0483	80.3716	79.8201	-98.1518
203	80.3716	79.8201	-98.1518	161.6933	77.3710	-94.2000
204	161.6933	77.3710	-94.2000	209.5025	72.1297	-86.2757
205	209.5025	72.1297	-86.2757	280.5486	69.3267	-82.2104
206	280.5486	69.3267	-82.2104	315.3817	63.3904	-74.2446
207	315.3817	63.3904	-74.2446	371.9406	60.2730	-69.8633
208	371.9406	60.2730	-69.8633	421.2861	57.0487	-65.4605
209	421.2861	57.0487	-65.4605	425.2596	50.3653	-57.3305
210	425.2596	50.3653	-57.3305	454.9840	46.9125	-52.9832
211	454.9840	46.9125	-52.9832	431.4105	39.7910	-44.6584
212	431.4105	39.7910	-44.6584	438.6619	36.1423	-40.3726
213	438.6619	36.1423	-40.3726	383.1248	28.6954	-32.3353
214	383.1248	28.6954	-32.3353	365.6372	24.9146	-28.0879
215	365.6372	24.9146	-28.0879	337.6975	21.0847	-23.9206
216	337.6975	21.0847	-23.9206	231.0097	13.3467	-16.1611
217	231.0097	13.3467	-16.1611	-3.2926	0.7784	-0.1146
218	-3.2926	0.7784	-0.1146	-2.1949	0.7783	-0.1179
219	-2.1949	0.7783	-0.1179	-1.0973	0.7782	-0.1193
220	-1.0973	0.7782	-0.1193	-0.0002	0.7781	-0.1195

ENVOL. MAX. FLECTORES TREN TREN SW/0, EC-1 en via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0828	159.2078	-273.0314	248.1096	145.9091	-253.5368
2	248.1096	145.9091	-253.5368	458.5150	119.3096	-214.4167
3	458.5150	119.3096	-214.4167	635.6553	94.7064	-179.2581
4	635.6553	94.7064	-179.2581	779.5333	81.3916	-159.0286
5	779.5333	81.3916	-159.0286	886.8693	54.8102	-119.3053
6	886.8693	54.8102	-119.3053	960.5404	30.5215	-84.1824
7	960.5404	30.5215	-84.1824	1001.0372	28.0794	-67.8013
8	1001.0372	28.0794	-67.8013	1037.4048	12.7225	-46.5920
9	1037.4048	12.7225	-46.5920	1052.7284	4.4648	-34.4382
10	1052.7284	4.4648	-34.4382	1044.7239	-13.0632	-9.6795
11	1044.7239	-13.0632	-9.6795	1012.2532	-22.3655	4.2111
12	1012.2532	-22.3655	4.2111	948.2377	-45.2547	37.9569
13	948.2377	-45.2547	37.9569	856.0221	-68.4692	72.1783
14	856.0221	-68.4692	72.1783	732.9655	-78.6302	87.5061
15	732.9655	-78.6302	87.5061	576.9850	-105.2318	127.0082
16	576.9850	-105.2318	127.0082	390.9769	-129.0201	161.8465
17	390.9769	-129.0201	161.8465	210.4811	7.5651	0.6794
18	210.4811	7.5651	0.6794	222.8517	7.5683	0.9525
19	222.8517	7.5683	0.9525	235.2204	7.5667	1.2397
20	235.2204	7.5667	1.2397	247.5661	-10.3902	-1.5194
21	247.5661	-10.3902	-1.5194	190.8645	-28.3463	-4.2787
22	190.8645	-28.3463	-4.2787	134.1920	-28.3465	-4.0283
23	134.1920	-28.3465	-4.0283	198.7860	146.3490	-221.4136
24	198.7860	146.3490	-221.4136	465.7080	122.9274	-187.6507
25	465.7080	122.9274	-187.6507	685.1987	96.3228	-148.0885
26	685.1987	96.3228	-148.0885	857.7379	72.8889	-113.6163
27	857.7379	72.8889	-113.6163	982.6893	49.5093	-78.8992
28	982.6893	49.5093	-78.8992	1060.2180	26.1820	-44.1496
29	1060.2180	26.1820	-44.1496	1090.5616	2.9704	-9.7847
30	1090.5616	2.9704	-9.7847	1132.4204	20.1120	-25.5471
31	1132.4204	20.1120	-25.5471	1143.1719	-3.1256	8.5555
32	1143.1719	-3.1256	8.5555	1107.0134	-26.4207	43.0996
33	1107.0134	-26.4207	43.0996	1023.4948	-49.7719	78.0123
34	1023.4948	-49.7719	78.0123	892.4755	-73.1615	112.7432
35	892.4755	-73.1615	112.7432	714.0943	-99.7492	152.6552
36	714.0943	-99.7492	152.6552	488.7758	-123.1751	186.8232
37	488.7758	-123.1751	186.8232	216.2657	-146.5708	220.5699
38	216.2657	-146.5708	220.5699	210.0379	7.7124	1.4957
39	210.0379	7.7124	1.4957	225.4546	7.7115	1.8305
40	225.4546	7.7115	1.8305	240.8900	-10.1687	-0.9634
41	240.8900	-10.1687	-0.9634	184.8094	-28.0478	-3.7884
42	184.8094	-28.0478	-3.7884	167.0199	-6.0920	-0.8191
43	167.0199	-6.0920	-0.8191	217.7612	145.5962	-220.3782
44	217.7612	145.5962	-220.3782	483.1429	122.1637	-186.5975
45	483.1429	122.1637	-186.5975	701.1614	95.5571	-147.0097
46	701.1614	95.5571	-147.0097	872.0488	72.1664	-112.5308
47	872.0488	72.1664	-112.5308	995.3490	48.8186	-77.8184
48	995.3490	48.8186	-77.8184	1071.2944	25.5458	-43.0791
49	1071.2944	25.5458	-43.0791	1100.1248	2.3400	-8.7220
50	1100.1248	2.3400	-8.7220	1140.9537	19.4581	-24.4205
51	1140.9537	19.4581	-24.4205	1150.6621	-3.8018	9.7241
52	1150.6621	-3.8018	9.7241	1113.2622	-27.1285	44.3002
53	1113.2622	-27.1285	44.3002	1028.3076	-50.5388	79.2346
54	1028.3076	-50.5388	79.2346	895.7794	-73.9415	113.9750
55	895.7794	-73.9415	113.9750	715.7548	-100.5388	153.8914
56	715.7548	-100.5388	153.8914	488.8226	-123.9615	188.0483
57	488.8226	-123.9615	188.0483	214.6726	-147.3887	221.7790
58	214.6726	-147.3887	221.7790	204.1664	7.4444	1.3437
59	204.1664	7.4444	1.3437	219.0497	7.4430	1.6695
60	219.0497	7.4430	1.6695	248.9724	10.5409	0.3082
61	248.9724	10.5409	0.3082	233.0990	-7.9364	-1.7217
62	233.0990	-7.9364	-1.7217	217.2328	-7.9358	-1.3751
63	217.2328	-7.9358	-1.3751	218.9752	145.3684	-221.0909
64	218.9752	145.3684	-221.0909	483.8770	121.9615	-187.3059
65	483.8770	121.9615	-187.3059	701.4151	95.3578	-147.7176
66	701.4151	95.3578	-147.7176	871.9077	71.9707	-113.2339
67	871.9077	71.9707	-113.2339	994.7875	48.6378	-78.5046
68	994.7875	48.6378	-78.5046	1070.3879	25.3303	-43.7499
69	1070.3879	25.3303	-43.7499	1098.8218	2.1597	-9.3829
70	1098.8218	2.1597	-9.3829	1139.0424	19.2792	-25.1017
71	1139.0424	19.2792	-25.1017	1148.3311	-3.9539	9.0084
72	1148.3311	-3.9539	9.0084	1110.4800	-27.2773	43.5706
73	1110.4800	-27.2773	43.5706	1025.2366	-50.6488	78.4934
74	1025.2366	-50.6488	78.4934	892.4470	-74.1048	113.2309
75	892.4470	-74.1048	113.2309	712.1349	-100.7140	153.1368
76	712.1349	-100.7140	153.1368	484.9231	-124.1367	187.2946
77	484.9231	-124.1367	187.2946	210.5280	-147.5460	221.0284
78	210.5280	-147.5460	221.0284	150.8523	5.5017	0.7618
79	150.8523	5.5017	0.7618	193.8029	29.3280	3.3400
80	193.8029	29.3280	3.3400	252.4530	10.5897	1.6891
81	252.4530	10.5897	1.6891	236.1516	-8.1511	0.0704
82	236.1516	-8.1511	0.0704	219.8467	-8.1527	0.4216
83	219.8467	-8.1527	0.4216	227.3945	142.7311	-193.3007
84	227.3945	142.7311	-193.3007	487.1226	119.2689	-159.1526
85	487.1226	119.2689	-159.1526	699.3470	92.6595	-119.5623
86	699.3470	92.6595	-119.5623	864.3762	69.2235	-84.8878
87	864.3762	69.2235	-84.8878	981.7618	45.8450	-50.1707
88	981.7618	45.8450	-50.1707	1051.8064	22.5968	-15.6285
89	1051.8064	22.5968	-15.6285	1074.9529	-0.5870	18.3329
90	1074.9529	-0.5870	18.3329	1113.6039	16.9084	-0.1948
91	1113.6039	16.9084	-0.1948	1117.0098	-6.3919	34.7482
92	1117.0098	-6.3919	34.7482	1073.1486	-29.7658	70.0124
93	1073.1486	-29.7658	70.0124	981.7136	-53.1714	105.5066
94	981.7136	-53.1714	105.5066	843.2266	-79.7616	145.5842
95	843.2266	-79.7616	145.5842	657.1644	-103.2348	180.5006
96	657.1644	-103.2348	180.5006	423.7252	-126.7130	214.9149
97	423.7252	-126.7130	214.9149	143.3051	-150.1443	248.7328
98	143.3051	-150.1443	248.7328	150.2781	5.4914	5.7754
99	150.2781	5.4914	5.7754	208.7905	29.7844	-2.9341
100	208.7905	29.7844	-2.9341	267.6331	10.0214	2.3975
101	267.6331	10.0214	2.3975	249.8344	-9.7410	7.7361
102	249.8344	-9.7410	7.7361	232.7747	-9.7416	8.0609
103	232.7747	-9.7416	8.0609	229.5125	119.5566	-144.1947
104	229.5125	119.5566	-144.1947	429.6274	101.9622	-118.8923
105	429.6274	101.9622	-118.8923	587.8098	84.4628	-94.2511
106	587.8098	84.4628	-94.2511	709.1401	57.8559	-54.7001
107	709.1401	57.8559	-54.7001	793.4684	33.8379	-20.9404
108	793.4684	33.8379	-20.9404	840.1453	16.6053	2.3811
109	840.1453	16.6053	2.3811	847.5968	-3.3612	32.5302
110	847.5968	-3.3612	32.5302	881.3083	12.3384	17.7454
111	881.3083	12.3384	17.7454	890.5873	1.5626	34.3147
112	890.5873	1.5626	34.3147	861.2985	-25.0302	74.1698
113	861.2985	-25.0302	74.1698	794.3298	-49.2136	110.2636

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
114	794.3298	-49.2136	110.2636	689.3526	-75.8420	149.9410
115	689.3526	-75.8420	149.9410	547.3525	-86.8128	166.6360
116	547.3525	-86.8128	166.6360	364.1573	-111.1167	202.6121
117	364.1573	-111.1167	202.6121	165.6549	7.3735	9.3410
118	165.6549	7.3735	9.3410	178.5457	7.3725	9.5735
119	178.5457	7.3725	9.5735	205.0122	34.8303	-35.9894
120	205.0122	34.8303	-35.9894	262.0859	12.7192	-13.4182
121	262.0859	12.7192	-13.4182	241.7186	-9.3938	9.1774
122	241.7186	-9.3938	9.1774	225.2668	-9.3939	9.4916
123	225.2668	-9.3939	9.4916	208.8102	-9.3961	9.7835
124	208.8102	-9.3961	9.7835	398.2371	103.7402	-113.1988
125	398.2371	103.7402	-113.1988	559.7377	86.2197	-88.7887
126	559.7377	86.2197	-88.7887	684.1299	59.6124	-49.2746
127	684.1299	59.6124	-49.2746	771.7715	35.4982	-15.7812
128	771.7715	35.4982	-15.7812	821.6035	18.1890	7.2320
129	821.6035	18.1890	7.2320	831.7720	-1.7573	37.3489
130	831.7720	-1.7573	37.3489	872.5665	13.7614	23.1131
131	872.5665	13.7614	23.1131	883.9564	0.4749	43.6373
132	883.9564	0.4749	43.6373	856.9965	-23.4712	79.6788
133	856.9965	-23.4712	79.6788	792.3480	-47.5905	115.8891
134	792.3480	-47.5905	115.8891	690.2920	-74.1831	155.5589
135	690.2920	-74.1831	155.5589	551.0963	-85.0831	172.3289
136	551.0963	-85.0831	172.3289	370.7880	-109.3620	208.3462
137	370.7880	-109.3620	208.3462	205.4921	9.2971	13.0665
138	205.4921	9.2971	13.0665	221.7402	9.2921	13.3540
139	221.7402	9.2921	13.3540	237.9815	9.2888	13.6636
140	237.9815	9.2888	13.6636	257.0159	-11.8466	0.3536
141	257.0159	-11.8466	0.3536	200.4576	-32.9801	-12.9779
142	200.4576	-32.9801	-12.9779	159.7396	-6.4003	5.6182
143	159.7396	-6.4003	5.6182	186.7238	129.6642	-174.1242
144	186.7238	129.6642	-174.1242	405.9852	105.6110	-138.8499
145	405.9852	105.6110	-138.8499	585.1876	94.8839	-123.3479
146	585.1876	94.8839	-123.3479	721.5907	70.9164	-88.9775
147	721.5907	70.9164	-88.9775	820.0344	44.3088	-49.2341
148	820.0344	44.3088	-49.2341	878.7650	20.4664	-15.2898
149	878.7650	20.4664	-15.2898	898.0544	-3.3088	18.0331
150	898.0544	-3.3088	18.0331	940.8453	20.2493	-7.4970
151	940.8453	20.2493	-7.4970	955.5742	-3.3589	27.4595
152	955.5742	-3.3589	27.4595	931.5322	-27.1017	62.7901
153	931.5322	-27.1017	62.7901	868.0543	-51.0019	98.4121
154	868.0543	-51.0019	98.4121	764.1305	-64.3163	118.8881
155	764.1305	-64.3163	118.8881	620.2085	-88.2981	154.5270
156	620.2085	-88.2981	154.5270	436.2139	-112.3131	190.2274
157	436.2139	-112.3131	190.2274	212.4995	-138.9061	229.3541
158	212.4995	-138.9061	229.3541	202.7158	8.2733	3.2860
159	202.7158	8.2733	3.2860	217.6013	8.2733	3.5775
160	217.6013	8.2733	3.5775	232.4763	-8.8961	1.1698
161	232.4763	-8.8961	1.1698	180.3257	-26.0649	-1.2508
162	180.3257	-26.0649	-1.2508	151.3208	-5.5458	-1.7796
163	151.3208	-5.5458	-1.7796	179.3694	153.2799	-234.0007
164	179.3694	153.2799	-234.0007	446.9578	129.8477	-200.2851
165	446.9578	129.8477	-200.2851	667.1686	106.4444	-166.1328
166	667.1686	106.4444	-166.1328	840.4126	79.8663	-126.2990
167	840.4126	79.8663	-126.2990	966.3785	56.4902	-91.5748
168	966.3785	56.4902	-91.5748	1045.0142	33.1945	-56.7948
169	1045.0142	33.1945	-56.7948	1076.5721	9.9707	-22.3694
170	1076.5721	9.9707	-22.3694	1118.9000	20.4843	-28.3974
171	1118.9000	20.4843	-28.3974	1130.1079	-2.7063	5.5905
172	1130.1079	-2.7063	5.5905	1094.5238	-25.9940	40.0466
173	1094.5238	-25.9940	40.0466	1011.6915	-49.3889	74.8892

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
174	1011.6915	-49.3889	74.8892	881.3621	-72.7712	109.5643
175	881.3621	-72.7712	109.5643	703.7194	-96.2201	144.0172
176	703.7194	-96.2201	144.0172	479.0511	-122.8216	183.5978
177	479.0511	-122.8216	183.5978	207.3564	-146.2123	217.3430
178	207.3564	-146.2123	217.3430	106.2428	22.6788	4.9752
179	106.2428	22.6788	4.9752	151.6006	22.6800	5.1742
180	151.6006	22.6800	5.1742	196.9076	8.0764	1.7420
181	196.9076	8.0764	1.7420	184.1185	-6.5273	-1.6695
182	184.1185	-6.5273	-1.6695	171.3921	-6.5272	-1.4032
183	171.3921	-6.5272	-1.4032	218.9986	144.6331	-223.8612
184	218.9986	144.6331	-223.8612	466.8820	121.0347	-189.7321
185	466.8820	121.0347	-189.7321	669.9559	94.4205	-150.1970
186	669.9559	94.4205	-150.1970	827.2700	70.8738	-115.4325
187	827.2700	70.8738	-115.4325	938.9292	47.4433	-80.5916
188	938.9292	47.4433	-80.5916	1005.2961	24.0842	-46.0773
189	1005.2961	24.0842	-46.0773	1027.0249	0.8813	-11.9615
190	1027.0249	0.8813	-11.9615	1062.7300	9.5575	-13.6423
191	1062.7300	9.5575	-13.6423	1068.4116	-13.8372	20.1424
192	1068.4116	-13.8372	20.1424	1028.9006	-37.3277	54.1493
193	1028.9006	-37.3277	54.1493	943.7877	-60.9058	88.6889
194	943.7877	-60.9058	88.6889	812.9424	-71.2096	104.4059
195	812.9424	-71.2096	104.4059	635.8695	-94.8352	139.0909
196	635.8695	-94.8352	139.0909	413.5969	-118.4105	173.3470
197	413.5969	-118.4105	173.3470	146.6794	-141.9169	207.2826
198	146.6794	-141.9169	207.2826	151.7354	30.6602	5.3417
199	151.7354	30.6602	5.3417	211.5381	30.6614	5.6270
200	211.5381	30.6614	5.6270	271.3787	10.5184	2.4418
201	271.3787	10.5184	2.4418	257.8445	-9.6250	-0.7327
202	257.8445	-9.6250	-0.7327	244.2740	-9.6266	-0.4286
203	244.2740	-9.6266	-0.4286	230.7015	-9.6253	-0.2223
204	230.7015	-9.6253	-0.2223	217.1376	-9.6194	0.0018
205	217.1376	-9.6194	0.0018	203.5806	-9.6166	0.1874
206	203.5806	-9.6166	0.1874	285.0109	86.9623	-91.7644
207	285.0109	86.9623	-91.7644	409.0027	96.4063	-98.9302
208	409.0027	96.4063	-98.9302	534.4304	85.2359	-85.1795
209	534.4304	85.2359	-85.1795	630.9821	58.6203	-46.0751
210	630.9821	58.6203	-46.0751	703.8995	47.0405	-31.6049
211	703.8995	47.0405	-31.6049	751.3423	20.4385	7.9202
212	751.3423	20.4385	7.9202	771.8851	7.1411	27.9564
213	771.8851	7.1411	27.9564	767.7786	-19.4609	67.1562
214	767.7786	-19.4609	67.1562	734.4116	-32.7582	87.2596
215	734.4116	-32.7582	87.2596	676.8181	-46.0629	107.3309
216	676.8181	-46.0629	107.3309	591.5544	-72.6771	146.4479
217	591.5544	-72.6771	146.4479	480.0281	-85.9805	166.3167
218	480.0281	-85.9805	166.3167	343.1535	-112.5673	205.4803
219	343.1535	-112.5673	205.4803	177.7629	-125.8506	225.0323
220	177.7629	-125.8506	225.0323	0.2766	-125.8429	225.0686

ENVOL. MIN. FLECTORES TREN TREN SW/0, EC-1 en via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.0001	6.5397	-1.3313	-45.2489	-27.6793	-2.0726
2	-45.2489	-27.6793	-2.0726	-90.5032	-27.6790	-2.1579
3	-90.5032	-27.6790	-2.1579	-135.7512	-27.6706	-2.3001
4	-135.7512	-27.6706	-2.3001	-180.9878	-27.6697	-2.4996
5	-180.9878	-27.6697	-2.4996	-226.2330	-27.6651	-2.7555
6	-226.2330	-27.6651	-2.7555	-271.4474	-27.6618	-3.0682
7	-271.4474	-27.6618	-3.0682	-316.6846	-27.6746	-3.4387
8	-316.6846	-27.6746	-3.4387	-361.9461	-27.6798	-3.8651
9	-361.9461	-27.6798	-3.8651	-407.1943	-27.6910	-4.3485
10	-407.1943	-27.6910	-4.3485	-452.4727	-27.6807	-4.8899
11	-452.4727	-27.6807	-4.8899	-497.6952	-27.6581	-5.4885
12	-497.6952	-27.6581	-5.4885	-542.8945	-27.6512	-6.1423
13	-542.8945	-27.6512	-6.1423	-588.1041	-27.6363	-6.8516
14	-588.1041	-27.6363	-6.8516	-633.2861	-27.6418	-7.6217
15	-633.2861	-27.6418	-7.6217	-678.4789	-27.6654	-8.4477
16	-678.4789	-27.6654	-8.4477	-723.6981	-27.6530	-9.3268
17	-723.6981	-27.6530	-9.3268	-768.8400	-27.6379	-10.2671
18	-768.8400	-27.6379	-10.2671	-814.0240	-27.6404	-11.2646
19	-814.0240	-27.6404	-11.2646	-859.1989	-27.6411	-12.3137
20	-859.1989	-27.6411	-12.3137	-1118.6455	5.3033	-18.5255
21	-1118.6455	5.3033	-18.5255	-775.5381	170.3891	-214.3587
22	-775.5381	170.3891	-214.3587	-612.6135	22.3148	9.8954
23	-612.6135	22.3148	9.8954	-568.0027	22.3158	8.9886
24	-568.0027	22.3158	8.9886	-523.3873	22.3203	8.1493
25	-523.3873	22.3203	8.1493	-478.7626	22.3168	7.3772
26	-478.7626	22.3168	7.3772	-434.1262	22.3160	6.6762
27	-434.1262	22.3160	6.6762	-389.4742	22.3377	6.0424
28	-389.4742	22.3377	6.0424	-344.8003	22.3456	5.4776
29	-344.8003	22.3456	5.4776	-300.1418	22.3377	4.9822
30	-300.1418	22.3377	4.9822	-319.0316	-28.3232	-5.1661
31	-319.0316	-28.3232	-5.1661	-375.6284	-28.3089	-5.7004
32	-375.6284	-28.3089	-5.7004	-432.2438	-28.3074	-6.3222
33	-432.2438	-28.3074	-6.3222	-488.8284	-28.3140	-7.0304
34	-488.8284	-28.3140	-7.0304	-545.4590	-28.3194	-7.8245
35	-545.4590	-28.3194	-7.8245	-602.0775	-28.3230	-8.7083
36	-602.0775	-28.3230	-8.7083	-658.7183	-28.3280	-9.6783
37	-658.7183	-28.3280	-9.6783	-715.3511	-28.3275	-10.7336
38	-715.3511	-28.3275	-10.7336	-771.9772	-28.3267	-11.8766
39	-771.9772	-28.3267	-11.8766	-828.5965	-28.3242	-13.1072
40	-828.5965	-28.3242	-13.1072	-1139.3772	5.1727	-10.8661
41	-1139.3772	5.1727	-10.8661	-853.1686	28.9862	11.5438
42	-853.1686	28.9862	11.5438	-795.2087	28.9828	10.2752
43	-795.2087	28.9828	10.2752	-737.2217	28.9813	9.0976
44	-737.2217	28.9813	9.0976	-679.2543	28.9865	8.0087
45	-679.2543	28.9865	8.0087	-621.2493	29.0004	7.0065
46	-621.2493	29.0004	7.0065	-563.2387	29.0000	6.0951
47	-563.2387	29.0000	6.0951	-505.2496	28.9942	5.2737
48	-505.2496	28.9942	5.2737	-447.2610	28.9861	4.5430
49	-447.2610	28.9861	4.5430	-389.2927	28.9783	3.8986
50	-389.2927	28.9783	3.8986	-331.3215	28.9764	3.3439
51	-331.3215	28.9764	3.3439	-376.1978	-28.0350	-5.2597
52	-376.1978	-28.0350	-5.2597	-432.2726	-28.0219	-5.8819
53	-432.2726	-28.0219	-5.8819	-488.3212	-28.0255	-6.5907
54	-488.3212	-28.0255	-6.5907	-544.3684	-28.0259	-7.3857
55	-544.3684	-28.0259	-7.3857	-600.3997	-28.0153	-8.2670
56	-600.3997	-28.0153	-8.2670	-656.4202	-28.0110	-9.2341
57	-656.4202	-28.0110	-9.2341	-712.4364	-28.0042	-10.2864
58	-712.4364	-28.0042	-10.2864	-768.4308	-27.9986	-11.4259
59	-768.4308	-27.9986	-11.4259	-824.4221	-28.0016	-12.6519
60	-824.4221	-28.0016	-12.6519	-1139.9819	5.1654	-10.6237
61	-1139.9819	5.1654	-10.6237	-861.2230	29.3102	12.5782
62	-861.2230	29.3102	12.5782	-802.6293	29.3139	11.2980
63	-802.6293	29.3139	11.2980	-744.0241	29.3167	10.1103
64	-744.0241	29.3167	10.1103	-685.4418	29.3228	9.0099
65	-685.4418	29.3228	9.0099	-626.8202	29.3214	8.0000
66	-626.8202	29.3214	8.0000	-568.2301	29.3163	7.0832
67	-568.2301	29.3163	7.0832	-509.6143	29.3039	6.2534
68	-509.6143	29.3039	6.2534	-451.0569	29.2983	5.5153
69	-451.0569	29.2983	5.5153	-392.4516	29.3106	4.8679
70	-392.4516	29.3106	4.8679	-333.8506	29.3122	4.3096
71	-333.8506	29.3122	4.3096	-366.3799	-27.2873	-4.8815
72	-366.3799	-27.2873	-4.8815	-420.9412	-27.2841	-5.4889
73	-420.9412	-27.2841	-5.4889	-475.5048	-27.2865	-6.1816
74	-475.5048	-27.2865	-6.1816	-530.0781	-27.2781	-6.9544
75	-530.0781	-27.2781	-6.9544	-584.6016	-27.2767	-7.8092
76	-584.6016	-27.2767	-7.8092	-639.1323	-27.2789	-8.7509
77	-639.1323	-27.2789	-8.7509	-693.6477	-27.2686	-9.7797
78	-693.6477	-27.2686	-9.7797	-748.1545	-27.2687	-10.8883
79	-748.1545	-27.2687	-10.8883	-809.6752	-161.2654	193.6603
80	-809.6752	-161.2654	193.6603	-1133.2827	4.8665	-6.7128
81	-1133.2827	4.8665	-6.7128	-864.1447	29.8048	6.1385
82	-864.1447	29.8048	6.1385	-804.5325	29.8081	4.8535
83	-804.5325	29.8081	4.8535	-744.9177	29.8105	3.6589
84	-744.9177	29.8105	3.6589	-685.2823	29.8020	2.5630
85	-685.2823	29.8020	2.5630	-625.6671	29.8043	1.5550
86	-625.6671	29.8043	1.5550	-566.0233	29.8130	0.6338
87	-566.0233	29.8130	0.6338	-506.3911	29.8078	-0.1913
88	-506.3911	29.8078	-0.1913	-446.7675	29.8030	-0.9237
89	-446.7675	29.8030	-0.9237	-387.1528	29.8055	-1.5677
90	-387.1528	29.8055	-1.5677	-327.5192	29.8015	-2.1163
91	-327.5192	29.8015	-2.1163	-269.0175	-20.0954	-16.7424
92	-269.0175	-20.0954	-16.7424	-309.2114	-20.0954	-17.1871
93	-309.2114	-20.0954	-17.1871	-349.4111	-20.0994	-17.6935
94	-349.4111	-20.0994	-17.6935	-389.6176	-20.1074	-18.2612
95	-389.6176	-20.1074	-18.2612	-429.8176	-20.1161	-18.8904
96	-429.8176	-20.1161	-18.8904	-470.0391	-20.1150	-19.5847
97	-470.0391	-20.1150	-19.5847	-510.2455	-20.1138	-20.3404
98	-510.2455	-20.1138	-20.3404	-550.4537	-20.1152	-21.1551
99	-550.4537	-20.1152	-21.1551	-802.4403	-155.0559	196.7957
100	-802.4403	-155.0559	196.7957	-1084.5754	8.1278	-7.5720
101	-1084.5754	8.1278	-7.5720	-893.1216	34.8245	-27.6562
102	-893.1216	34.8245	-27.6562	-832.1378	34.8265	-28.8166
103	-832.1378	34.8265	-28.8166	-771.1371	34.8240	-29.8936
104	-771.1371	34.8240	-29.8936	-710.1627	34.8149	-30.8911
105	-710.1627	34.8149	-30.8911	-649.1862	34.8145	-31.8045
106	-649.1862	34.8145	-31.8045	-588.1977	34.8102	-32.6375
107	-588.1977	34.8102	-32.6375	-527.2112	34.8139	-33.3901
108	-527.2112	34.8139	-33.3901	-466.2155	34.8248	-34.0585
109	-466.2155	34.8248	-34.0585	-405.1937	34.8331	-34.6438
110	-405.1937	34.8331	-34.6438	-344.1569	34.8492	-35.1477
111	-344.1569	34.8492	-35.1477	-293.1315	-24.4366	-27.5883
112	-293.1315	-24.4366	-27.5883	-335.8729	-24.4470	-28.0099
113	-335.8729	-24.4470	-28.0099	-378.6250	-24.4500	-28.4911
114	-378.6250	-24.4500	-28.4911	-421.3732	-24.4428	-29.0308

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	-421.3732	-24.4428	-29.0308	-464.0952	-24.4466	-29.6273
116	-464.0952	-24.4466	-29.6273	-506.8531	-24.4580	-30.2800
117	-506.8531	-24.4580	-30.2800	-549.6081	-24.4600	-30.9922
118	-549.6081	-24.4600	-30.9922	-592.3783	-24.4529	-31.7628
119	-592.3783	-24.4529	-31.7628	-799.7012	-156.5256	192.9918
120	-799.7012	-156.5256	192.9918	-1039.0947	2.5846	-2.2224
121	-1039.0947	2.5846	-2.2224	-711.9741	160.4269	-190.8090
122	-711.9741	160.4269	-190.8090	-602.1879	25.1161	-25.3725
123	-602.1879	25.1161	-25.3725	-558.1951	25.1217	-26.1531
124	-558.1951	25.1217	-26.1531	-514.1933	25.1247	-26.8759
125	-514.1933	25.1247	-26.8759	-470.2008	25.1158	-27.5378
126	-470.2008	25.1158	-27.5378	-426.2335	25.1159	-28.1403
127	-426.2335	25.1159	-28.1403	-382.2298	25.1208	-28.6842
128	-382.2298	25.1208	-28.6842	-338.2285	25.1292	-29.1702
129	-338.2285	25.1292	-29.1702	-294.1883	25.1413	-29.5954
130	-294.1883	25.1413	-29.5954	-274.2415	-27.8044	-34.8959
131	-274.2415	-27.8044	-34.8959	-322.8423	-27.8073	-35.2971
132	-322.8423	-27.8073	-35.2971	-371.4902	-27.8192	-35.7671
133	-371.4902	-27.8192	-35.7671	-420.1343	-27.8238	-36.3014
134	-420.1343	-27.8238	-36.3014	-468.7766	-27.8157	-36.8991
135	-468.7766	-27.8157	-36.8991	-517.4069	-27.8166	-37.5589
136	-517.4069	-27.8166	-37.5589	-566.0432	-27.8242	-38.2905
137	-566.0432	-27.8242	-38.2905	-614.6664	-27.8098	-39.0841
138	-614.6664	-27.8098	-39.0841	-663.2659	-27.7929	-39.9438
139	-663.2659	-27.7929	-39.9438	-820.9761	-157.0563	191.7795
140	-820.9761	-157.0563	191.7795	-1058.4692	3.2686	-9.7185
141	-1058.4692	3.2686	-9.7185	-716.0626	162.9146	-205.8150
142	-716.0626	162.9146	-205.8150	-578.3116	23.1668	-20.3387
143	-578.3116	23.1668	-20.3387	-536.5825	23.1734	-21.1126
144	-536.5825	23.1734	-21.1126	-494.8372	23.1789	-21.8259
145	-494.8372	23.1789	-21.8259	-453.0958	23.1777	-22.4816
146	-453.0958	23.1777	-22.4816	-411.3445	23.1840	-23.0791
147	-411.3445	23.1840	-23.0791	-369.5798	23.1817	-23.6205
148	-369.5798	23.1817	-23.6205	-327.8301	23.1776	-24.1018
149	-327.8301	23.1776	-24.1018	-286.0626	23.1856	-24.5265
150	-286.0626	23.1856	-24.5265	-333.4564	-32.9688	-13.8055
151	-333.4564	-32.9688	-13.8055	-392.7681	-32.9701	-14.3060
152	-392.7681	-32.9701	-14.3060	-452.0856	-32.9694	-14.8874
153	-452.0856	-32.9694	-14.8874	-511.3940	-32.9593	-15.5570
154	-511.3940	-32.9593	-15.5570	-570.6958	-32.9572	-16.3088
155	-570.6958	-32.9572	-16.3088	-629.9822	-32.9563	-17.1413
156	-629.9822	-32.9563	-17.1413	-689.2855	-32.9510	-18.0564
157	-689.2855	-32.9510	-18.0564	-748.5729	-32.9601	-19.0515
158	-748.5729	-32.9601	-19.0515	-807.8904	-32.9716	-20.1287
159	-807.8904	-32.9716	-20.1287	-867.2089	-32.9711	-21.2893
160	-867.2089	-32.9711	-21.2893	-1111.3594	6.0748	-13.4556
161	-1111.3594	6.0748	-13.4556	-770.8834	163.2995	-208.2639
162	-770.8834	163.2995	-208.2639	-619.5491	22.6917	11.2917
163	-619.5491	22.6917	11.2917	-574.1705	22.6929	10.3736
164	-574.1705	22.6929	10.3736	-528.7906	22.6945	9.5265
165	-528.7906	22.6945	9.5265	-483.3994	22.6941	8.7448
166	-483.3994	22.6941	8.7448	-438.0180	22.6835	8.0364
167	-438.0180	22.6835	8.0364	-392.6677	22.6789	7.3969
168	-392.6677	22.6789	7.3969	-347.2982	22.6758	6.8316
169	-347.2982	22.6758	6.8316	-301.9443	22.6779	6.3305
170	-301.9443	22.6779	6.3305	-288.9276	-26.0753	-2.0013
171	-288.9276	-26.0753	-2.0013	-341.0862	-26.0854	-2.4824
172	-341.0862	-26.0854	-2.4824	-393.2791	-26.0907	-3.0484
173	-393.2791	-26.0907	-3.0484	-445.4557	-26.0753	-3.6959
174	-445.4557	-26.0753	-3.6959	-497.5792	-26.0709	-4.4244

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	-497.5792	-26.0709	-4.4244	-549.7356	-26.0680	-5.2308
176	-549.7356	-26.0680	-5.2308	-601.8580	-26.0663	-6.1150
177	-601.8580	-26.0663	-6.1150	-654.0049	-26.0783	-7.0830
178	-654.0049	-26.0783	-7.0830	-706.1555	-26.0752	-8.1284
179	-706.1555	-26.0752	-8.1284	-795.7827	-154.4818	187.1836
180	-795.7827	-154.4818	187.1836	-1120.1729	4.7066	-9.2858
181	-1120.1729	4.7066	-9.2858	-864.6183	30.6362	14.4394
182	-864.6183	30.6362	14.4394	-804.8882	30.6347	13.1881
183	-804.8882	30.6347	13.1881	-745.1667	30.6362	12.0242
184	-745.1667	30.6362	12.0242	-685.4194	30.6424	10.9508
185	-685.4194	30.6424	10.9508	-625.6691	30.6551	9.9605
186	-625.6691	30.6551	9.9605	-565.8764	30.6604	9.0658
187	-565.8764	30.6604	9.0658	-506.1003	30.6599	8.2626
188	-506.1003	30.6599	8.2626	-446.3109	30.6571	7.5476
189	-446.3109	30.6571	7.5476	-386.5148	30.6570	6.9258
190	-386.5148	30.6570	6.9258	-326.7082	30.6665	6.3604
191	-326.7082	30.6665	6.3604	-266.8857	30.6716	5.9040
192	-266.8857	30.6716	5.9040	-207.0805	30.6699	5.5995
193	-207.0805	30.6699	5.5995	-147.2907	30.6709	5.3540
194	-147.2907	30.6709	5.3540	-107.9950	-5.7515	-25.0508
195	-107.9950	-5.7515	-25.0508	-119.1707	-5.7506	-25.2171
196	-119.1707	-5.7506	-25.2171	-133.0272	-19.0507	-6.0451
197	-133.0272	-19.0507	-6.0451	-191.3228	-132.8751	166.3653
198	-191.3228	-132.8751	166.3653	-461.3251	-139.6003	173.2383
199	-461.3251	-139.6003	173.2383	-745.4772	-145.9823	179.1520
200	-745.4772	-145.9823	179.1520	-1039.4263	15.5900	-9.5991
201	-1039.4263	15.5900	-9.5991	-899.9833	33.6055	11.2488
202	-899.9833	33.6055	11.2488	-852.6171	33.6163	10.1878
203	-852.6171	33.6163	10.1878	-805.2344	33.5942	9.4648
204	-805.2344	33.5942	9.4648	-757.9033	33.5546	8.6874
205	-757.9033	33.5546	8.6874	-710.5942	33.5550	8.0384
206	-710.5942	33.5550	8.0384	-663.2582	33.5754	7.6396
207	-663.2582	33.5754	7.6396	-615.9268	33.5974	6.8289
208	-615.9268	33.5974	6.8289	-568.5574	33.5954	6.0272
209	-568.5574	33.5954	6.0272	-521.2246	33.5917	5.6295
210	-521.2246	33.5917	5.6295	-473.8199	33.6103	5.1542
211	-473.8199	33.6103	5.1542	-426.4332	33.6006	4.6307
212	-426.4332	33.6006	4.6307	-379.0703	33.6130	4.2578
213	-379.0703	33.6130	4.2578	-331.6497	33.6374	4.0101
214	-331.6497	33.6374	4.0101	-284.2640	33.6221	3.7023
215	-284.2640	33.6221	3.7023	-236.8918	33.6030	3.4313
216	-236.8918	33.6030	3.4313	-189.5149	33.5971	3.2842
217	-189.5149	33.5971	3.2842	-142.1456	33.6008	3.1195
218	-142.1456	33.6008	3.1195	-94.7541	33.6061	2.9760
219	-94.7541	33.6061	2.9760	-47.3666	33.6061	2.9177
220	-47.3666	33.6061	2.9177	-0.0019	27.9541	1.1891

ENVOL. MAX. CORTANTES TREN TREN SW/0, EC-1 en via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0828	159.2078	-273.0314	242.0931	147.9229	-257.7354
2	242.0931	147.9229	-257.7354	413.4730	126.2915	-228.4519
3	413.4730	126.2915	-228.4519	565.5495	115.1685	-196.7829
4	565.5495	115.1685	-196.7829	666.7084	100.3841	-177.3862
5	666.7084	100.3841	-177.3862	757.7263	84.2345	-155.2450
6	757.7263	84.2345	-155.2450	860.4866	75.6293	-142.7365
7	860.4866	75.6293	-142.7365	914.2278	57.4523	-116.8900
8	914.2278	57.4523	-116.8900	510.3745	38.9389	-111.7227
9	510.3745	38.9389	-111.7227	973.0793	27.8657	-73.0137
10	973.0793	27.8657	-73.0137	326.8995	19.9217	-86.1112
11	326.8995	19.9217	-86.1112	165.3474	9.1411	-69.6512
12	165.3474	9.1411	-69.6512	148.6284	7.5681	-0.4498
13	148.6284	7.5681	-0.4498	161.0035	7.5680	-0.2556
14	161.0035	7.5680	-0.2556	173.3712	7.5704	-0.0447
15	173.3712	7.5704	-0.0447	185.7485	7.5721	0.1814
16	185.7485	7.5721	0.1814	198.1221	7.5659	0.4220
17	198.1221	7.5659	0.4220	210.4811	7.5651	0.6794
18	210.4811	7.5651	0.6794	222.8517	7.5683	0.9525
19	222.8517	7.5683	0.9525	235.2204	7.5667	1.2397
20	235.2204	7.5667	1.2397	-900.2828	94.4181	-167.3497
21	-900.2828	94.4181	-167.3497	-493.7563	199.5648	-298.3521
22	-493.7563	199.5648	-298.3521	-152.2306	179.3309	-270.9017
23	-152.2306	179.3309	-270.9017	132.0108	159.2448	-242.9386
24	132.0108	159.2448	-242.9386	151.2542	141.1703	-185.7477
25	151.2542	141.1703	-185.7477	410.6034	124.7826	-167.6348
26	410.6034	124.7826	-167.6348	637.5176	107.3002	-147.1628
27	637.5176	107.3002	-147.1628	825.1002	88.9341	-124.3800
28	825.1002	88.9341	-124.3800	967.3980	69.8066	-99.3678
29	967.3980	69.8066	-99.3678	653.4792	51.8960	-105.6861
30	653.4792	51.8960	-105.6861	573.8885	37.4886	-89.3847
31	573.8885	37.4886	-89.3847	370.1082	24.8725	-78.1604
32	370.1082	24.8725	-78.1604	-166.0785	22.3516	3.9063
33	-166.0785	22.3516	3.9063	-121.3885	22.3461	3.6851
34	-121.3885	22.3461	3.6851	-76.7116	22.3463	3.5328
35	-76.7116	22.3463	3.5328	-32.0306	22.3457	3.4490
36	-32.0306	22.3457	3.4490	12.6432	22.3436	3.4343
37	12.6432	22.3436	3.4343	57.3231	22.3448	3.4884
38	57.3231	22.3448	3.4884	101.9953	22.3456	3.6111
39	101.9953	22.3456	3.6111	146.6754	22.3467	3.8020
40	146.6754	22.3467	3.8020	-879.2020	93.6901	-167.2831
41	-879.2020	93.6901	-167.2831	-471.9468	198.7901	-297.3799
42	-471.9468	198.7901	-297.3799	-132.2213	178.5744	-269.9216
43	-132.2213	178.5744	-269.9216	149.8473	158.5214	-241.9731
44	149.8473	158.5214	-241.9731	154.6638	141.0035	-185.1717
45	154.6638	141.0035	-185.1717	417.9485	124.4255	-166.9399
46	417.9485	124.4255	-166.9399	647.1377	106.8218	-146.3382
47	647.1377	106.8218	-146.3382	835.7487	88.3678	-123.4317
48	835.7487	88.3678	-123.4317	978.1057	69.1779	-98.3135
49	978.1057	69.1779	-98.3135	658.5240	51.6339	-105.0201
50	658.5240	51.6339	-105.0201	577.6693	37.3075	-88.7834
51	577.6693	37.3075	-88.7834	-273.3530	28.9811	2.8792
52	-273.3530	28.9811	2.8792	-215.3555	28.9994	2.5026
53	-215.3555	28.9994	2.5026	-157.3358	29.0196	2.2149
54	-157.3358	29.0196	2.2149	-99.2918	29.0208	2.0168
55	-99.2918	29.0208	2.0168	-41.2607	29.0133	1.9093
56	-41.2607	29.0133	1.9093	16.7733	29.0189	1.8903
57	16.7733	29.0189	1.8903	74.8280	29.0225	1.9613
58	74.8280	29.0225	1.9613	132.8709	29.0211	2.1215
59	132.8709	29.0211	2.1215	190.9240	29.0212	2.3706
60	190.9240	29.0212	2.3706	-875.4051	93.7489	-167.4126
61	-875.4051	93.7489	-167.4126	-469.6295	198.5767	-298.0995
62	-469.6295	198.5767	-298.0995	-130.3965	178.3506	-270.6243
63	-130.3965	178.3506	-270.6243	151.1422	158.3280	-242.6471
64	151.1422	158.3280	-242.6471	153.7455	140.9552	-185.4557
65	153.7455	140.9552	-185.4557	417.1994	124.3318	-167.3304
66	417.1994	124.3318	-167.3304	646.4310	106.7056	-146.8248
67	646.4310	106.7056	-146.8248	834.9165	88.2215	-124.0028
68	834.9165	88.2215	-124.0028	977.0608	69.0050	-98.9510
69	977.0608	69.0050	-98.9510	658.6107	51.6298	-105.3322
70	658.6107	51.6298	-105.3322	578.2543	37.3546	-89.0182
71	578.2543	37.3546	-89.0182	-275.2336	29.3157	3.8438
72	-275.2336	29.3157	3.8438	-216.6028	29.3186	3.4658
73	-216.6028	29.3186	3.4658	-157.9845	29.3153	3.1750
74	-157.9845	29.3153	3.1750	-99.3820	29.3144	2.9773
75	-99.3820	29.3144	2.9773	-40.7596	29.3217	2.8699
76	-40.7596	29.3217	2.8699	17.8856	29.3254	2.8521
77	17.8856	29.3254	2.8521	76.5235	29.3259	2.9241
78	76.5235	29.3259	2.9241	135.1647	29.3264	3.0868
79	135.1647	29.3264	3.0868	193.8029	29.3280	3.3400
80	193.8029	29.3280	3.3400	-852.3481	92.8131	-153.5137
81	-852.3481	92.8131	-153.5137	-450.8232	195.9354	-270.3490
82	-450.8232	195.9354	-270.3490	-116.3609	175.6390	-242.3084
83	-116.3609	175.6390	-242.3084	159.9083	155.5851	-214.4931
84	159.9083	155.5851	-214.4931	155.6754	139.6007	-171.1439
85	155.6754	139.6007	-171.1439	416.1932	122.7206	-150.4015
86	416.1932	122.7206	-150.4015	641.5142	104.8400	-127.3544
87	641.5142	104.8400	-127.3544	825.1640	86.1341	-102.1508
88	825.1640	86.1341	-102.1508	961.6597	66.7243	-74.9576
89	961.6597	66.7243	-74.9576	650.2826	50.5538	-90.2665
90	650.2826	50.5538	-90.2665	487.8221	37.1640	-81.0740
91	487.8221	37.1640	-81.0740	-267.9074	29.7905	-2.5726
92	-267.9074	29.7905	-2.5726	-208.2880	29.7784	-2.9355
93	-208.2880	29.7784	-2.9355	-148.7148	29.7726	-3.2076
94	-148.7148	29.7726	-3.2076	-89.1261	29.7800	-3.3930
95	-89.1261	29.7800	-3.3930	-29.5368	29.7855	-3.4846
96	-29.5368	29.7855	-3.4846	30.0441	29.7848	-3.4841
97	30.0441	29.7848	-3.4841	89.6265	29.7819	-3.3925
98	89.6265	29.7819	-3.3925	149.2076	29.7830	-3.2092
99	149.2076	29.7830	-3.2092	208.7905	29.7844	-2.9341
100	208.7905	29.7844	-2.9341	-614.6213	82.9753	-131.5672
101	-614.6213	82.9753	-131.5672	-743.7433	177.0030	-216.7291
102	-743.7433	177.0030	-216.7291	-458.5925	161.4705	-195.0315
103	-458.5925	161.4705	-195.0315	-186.2397	153.1799	-184.1856
104	-186.2397	153.1799	-184.1856	61.1972	135.6208	-161.0773
105	61.1972	135.6208	-161.0773	283.3210	116.8174	-135.4722
106	283.3210	116.8174	-135.4722	473.2894	96.9686	-107.6230
107	473.2894	96.9686	-107.6230	630.1870	86.6917	-92.5520
108	630.1870	86.6917	-92.5520	742.3152	65.5503	-61.8215
109	742.3152	65.5503	-61.8215	808.8031	43.8551	-29.6856
110	808.8031	43.8551	-29.6856	-344.1569	34.8492	-35.1477
111	-344.1569	34.8492	-35.1477	-283.1066	34.8487	-35.5693
112	-283.1066	34.8487	-35.5693	-222.0882	34.8363	-35.9090
113	-222.0882	34.8363	-35.9090	-161.0781	34.8307	-36.1662

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
114	-161.0781	34.8307	-36.1662	-100.0571	34.8307	-36.3403
115	-100.0571	34.8307	-36.3403	-39.0330	34.8340	-36.4347
116	-39.0330	34.8340	-36.4347	21.9913	34.8310	-36.4485
117	21.9913	34.8310	-36.4485	82.9967	34.8288	-36.3772
118	82.9967	34.8288	-36.3772	144.0067	34.8285	-36.2241
119	144.0067	34.8285	-36.2241	205.0122	34.8303	-35.9894
120	205.0122	34.8303	-35.9894	-660.1069	81.7012	-133.8324
121	-660.1069	81.7012	-133.8324	-331.6536	176.8898	-219.7993
122	-331.6536	176.8898	-219.7993	-430.9425	160.4263	-191.5778
123	-430.9425	160.4263	-191.5778	-167.7780	152.4846	-180.5341
124	-167.7780	152.4846	-180.5341	66.1622	135.5456	-157.0346
125	66.1622	135.5456	-157.0346	278.5906	117.3233	-131.0131
126	278.5906	117.3233	-131.0131	462.3209	97.9032	-102.7530
127	462.3209	97.9032	-102.7530	618.2187	87.8103	-87.4960
128	618.2187	87.8103	-87.4960	728.5380	66.9575	-56.4208
129	728.5380	66.9575	-56.4208	795.2300	45.5041	-24.0418
130	795.2300	45.5041	-24.0418	350.1750	29.1381	-79.2968
131	350.1750	29.1381	-79.2968	-206.1222	25.1406	-30.2710
132	-206.1222	25.1406	-30.2710	-162.1090	25.1272	-30.5204
133	-162.1090	25.1272	-30.5204	-118.1031	25.1204	-30.7087
134	-118.1031	25.1204	-30.7087	-74.0933	25.1236	-30.8367
135	-74.0933	25.1236	-30.8367	-30.0825	25.1236	-30.9062
136	-30.0825	25.1236	-30.9062	13.9344	25.1229	-30.9170
137	13.9344	25.1229	-30.9170	57.9515	25.1250	-30.8681
138	57.9515	25.1250	-30.8681	101.9746	25.1320	-30.7610
139	101.9746	25.1320	-30.7610	146.0097	25.1367	-30.5941
140	146.0097	25.1367	-30.5941	-737.0553	84.1989	-155.8413
141	-737.0553	84.1989	-155.8413	-380.5151	185.4217	-255.0500
142	-380.5151	185.4217	-255.0500	-106.4115	164.0314	-226.3459
143	-106.4115	164.0314	-226.3459	-160.0614	147.4619	-187.5172
144	-160.0614	147.4619	-187.5172	91.2354	139.2317	-177.2124
145	91.2354	139.2317	-177.2124	311.8787	121.7952	-154.5453
146	311.8787	121.7952	-154.5453	504.7028	103.1866	-129.4750
147	504.7028	103.1866	-129.4750	662.9186	83.5919	-102.1993
148	662.9186	83.5919	-102.1993	780.7681	63.1443	-72.9513
149	780.7681	63.1443	-72.9513	870.4882	52.6615	-57.0925
150	870.4882	52.6615	-57.0925	428.5950	35.4164	-87.6806
151	428.5950	35.4164	-87.6806	-202.5266	23.1809	-25.2020
152	-202.5266	23.1809	-25.2020	-160.7691	23.1798	-25.4512
153	-160.7691	23.1798	-25.4512	-118.9998	23.1857	-25.6461
154	-118.9998	23.1857	-25.6461	-77.2321	23.1895	-25.7829
155	-77.2321	23.1895	-25.7829	-35.4482	23.1899	-25.8614
156	-35.4482	23.1899	-25.8614	6.3183	23.1908	-25.8825
157	6.3183	23.1908	-25.8825	48.0956	23.1885	-25.8448
158	48.0956	23.1885	-25.8448	89.8573	23.1844	-25.7496
159	89.8573	23.1844	-25.7496	131.6205	23.1852	-25.5963
160	131.6205	23.1852	-25.5963	-909.2697	97.1600	-180.1735
161	-909.2697	97.1600	-180.1735	-514.4933	206.4852	-310.8806
162	-514.4933	206.4852	-310.8806	-172.1629	186.2495	-283.4735
163	-172.1629	186.2495	-283.4735	113.3890	166.1643	-255.4539
164	113.3890	166.1643	-255.4539	340.4878	146.4311	-228.3294
165	340.4878	146.4311	-228.3294	509.1645	127.2437	-202.5767
166	509.1645	127.2437	-202.5767	621.0209	108.8020	-178.3477
167	621.0209	108.8020	-178.3477	678.9144	91.2026	-155.7946
168	678.9144	91.2026	-155.7946	686.8944	74.6051	-135.0567
169	686.8944	74.6051	-135.0567	650.0778	59.0885	-116.2577
170	650.0778	59.0885	-116.2577	574.4385	44.7698	-99.5103
171	574.4385	44.7698	-99.5103	466.5312	31.7233	-84.7546
172	466.5312	31.7233	-84.7546	-165.9004	22.6729	5.2510
173	-165.9004	22.6729	5.2510	-120.5524	22.6776	5.0315

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
174	-120.5524	22.6776	5.0315	-75.1917	22.6841	4.8795
175	-75.1917	22.6841	4.8795	-29.8299	22.6826	4.7984
176	-29.8299	22.6826	4.7984	15.5319	22.6791	4.7887
177	15.5319	22.6791	4.7887	60.8868	22.6780	4.8470
178	60.8868	22.6780	4.8470	106.2428	22.6788	4.9752
179	106.2428	22.6788	4.9752	151.6006	22.6800	5.1742
180	151.6006	22.6800	5.1742	-799.2250	96.4003	-169.7010
181	-799.2250	96.4003	-169.7010	-428.5120	197.8267	-300.9420
182	-428.5120	197.8267	-300.9420	-110.2755	177.3185	-272.6807
183	-110.2755	177.3185	-272.6807	150.5151	157.1360	-244.5631
184	150.5151	157.1360	-244.5631	353.3119	137.4644	-217.8321
185	353.3119	137.4644	-217.8321	382.6272	120.1393	-163.6418
186	382.6272	120.1393	-163.6418	600.8279	101.8055	-142.7833
187	600.8279	101.8055	-142.7833	633.0222	83.5609	-147.3914
188	633.0222	83.5609	-147.3914	629.9656	67.7970	-127.5699
189	629.9656	67.7970	-127.5699	588.1786	53.3256	-109.7516
190	588.1786	53.3256	-109.7516	514.4577	40.2038	-93.9436
191	514.4577	40.2038	-93.9436	-266.8857	30.6716	5.9040
192	-266.8857	30.6716	5.9040	-207.0805	30.6699	5.5995
193	-207.0805	30.6699	5.5995	-147.2907	30.6709	5.3540
194	-147.2907	30.6709	5.3540	-87.4883	30.6717	5.1609
195	-87.4883	30.6717	5.1609	-27.6758	30.6691	5.0689
196	-27.6758	30.6691	5.0689	32.1337	30.6649	5.0751
197	32.1337	30.6649	5.0751	91.9385	30.6604	5.1670
198	91.9385	30.6604	5.1670	151.7354	30.6602	5.3417
199	151.7354	30.6602	5.3417	211.5381	30.6614	5.6270
200	211.5381	30.6614	5.6270	-1028.2417	22.1777	-18.0376
201	-1028.2417	22.1777	-18.0376	-787.9415	175.5825	-194.4849
202	-787.9415	175.5825	-194.4849	-548.3477	167.5217	-184.9529
203	-548.3477	167.5217	-184.9529	-320.6429	159.0091	-174.9471
204	-320.6429	159.0091	-174.9471	-106.9164	140.6240	-154.2525
205	-106.9164	140.6240	-154.2525	87.4245	130.7590	-143.1551
206	87.4245	130.7590	-143.1551	261.7787	109.6996	-118.7438
207	261.7787	109.6996	-118.7438	408.4012	98.5405	-105.1053
208	408.4012	98.5405	-105.1053	530.4844	86.9501	-90.6893
209	530.4844	86.9501	-90.6893	629.4298	60.3441	-51.5943
210	629.4298	60.3441	-51.5943	703.8995	47.0405	-31.6049
211	703.8995	47.0405	-31.6049	-426.4332	33.6006	4.6307
212	-426.4332	33.6006	4.6307	-379.0703	33.6130	4.2578
213	-379.0703	33.6130	4.2578	-331.6497	33.6374	4.0101
214	-331.6497	33.6374	4.0101	-284.2640	33.6221	3.7023
215	-284.2640	33.6221	3.7023	-236.8918	33.6030	3.4313
216	-236.8918	33.6030	3.4313	-189.5149	33.5971	3.2842
217	-189.5149	33.5971	3.2842	-142.1456	33.6008	3.1195
218	-142.1456	33.6008	3.1195	-94.7541	33.6061	2.9760
219	-94.7541	33.6061	2.9760	-47.3666	33.6061	2.9177
220	-47.3666	33.6061	2.9177	0.0046	33.6039	2.9084

ENVOL. MIN. CORTANTES TREN TREN SW/0, EC-1 en via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0028	-27.6783	-2.0441	-45.2489	-27.6793	-2.0726
2	-45.2489	-27.6793	-2.0726	-90.5032	-27.6790	-2.1579
3	-90.5032	-27.6790	-2.1579	-135.7512	-27.6706	-2.3001
4	-135.7512	-27.6706	-2.3001	-180.9878	-27.6697	-2.4996
5	-180.9878	-27.6697	-2.4996	-226.2330	-27.6651	-2.7555
6	-226.2330	-27.6651	-2.7555	-271.4474	-27.6618	-3.0682
7	-271.4474	-27.6618	-3.0682	498.1910	-33.2168	41.8310
8	498.1910	-33.2168	41.8310	614.9180	-45.5638	57.1788
9	614.9180	-45.5638	57.1788	625.6136	-52.4400	66.1949
10	625.6136	-52.4400	66.1949	705.9839	-67.4818	84.8719
11	705.9839	-67.4818	84.8719	670.3846	-75.1741	94.7586
12	670.3846	-75.1741	94.7586	677.3138	-90.2846	113.6964
13	677.3138	-90.2846	113.6964	643.8760	-104.9581	132.5728
14	643.8760	-104.9581	132.5728	346.6874	-116.7010	126.4404
15	346.6874	-116.7010	126.4404	427.4157	-128.5476	165.3195
16	427.4157	-128.5476	165.3195	295.7220	-146.1076	189.5454
17	295.7220	-146.1076	189.5454	87.5568	-155.3934	202.5199
18	87.5568	-155.3934	202.5199	-122.8648	-174.8814	229.6418
19	-122.8648	-174.8814	229.6418	-379.9894	-195.5124	258.6472
20	-379.9894	-195.5124	258.6472	-696.4033	-92.0293	142.7645
21	-696.4033	-92.0293	142.7645	190.8645	-28.3463	-4.2787
22	190.8645	-28.3463	-4.2787	134.1920	-28.3465	-4.0283
23	134.1920	-28.3465	-4.0283	77.5173	-28.3503	-3.8656
24	77.5173	-28.3503	-3.8656	20.8456	-28.3512	-3.7898
25	20.8456	-28.3512	-3.7898	-35.8247	-28.3414	-3.8013
26	-35.8247	-28.3414	-3.8013	-92.4747	-28.3349	-3.9000
27	-92.4747	-28.3349	-3.9000	-149.1308	-28.3281	-4.0861
28	-149.1308	-28.3281	-4.0861	-205.7509	-28.3289	-4.3588
29	-205.7509	-28.3289	-4.3588	439.2590	-29.7594	82.4052
30	439.2590	-29.7594	82.4052	547.0660	-42.4545	98.2543
31	547.0660	-42.4545	98.2543	624.5273	-56.4552	114.3967
32	624.5273	-56.4552	114.3967	664.7651	-71.6776	132.1252
33	664.7651	-71.6776	132.1252	661.4296	-88.0779	151.8149
34	661.4296	-88.0779	151.8149	608.8507	-105.5067	173.3582
35	608.8507	-105.5067	173.3582	502.3292	-123.8579	196.6382
36	502.3292	-123.8579	196.6382	338.4844	-142.9905	221.5184
37	338.4844	-142.9905	221.5184	115.5244	-162.6759	247.8531
38	115.5244	-162.6759	247.8531	-166.7533	-182.7511	275.5050
39	-166.7533	-182.7511	275.5050	-506.6180	-202.9851	302.9734
40	-506.6180	-202.9851	302.9734	-899.5054	-97.2883	171.5173
41	-899.5054	-97.2883	171.5173	184.8094	-28.0478	-3.7884
42	184.8094	-28.0478	-3.7884	128.7084	-28.0475	-3.5471
43	128.7084	-28.0475	-3.5471	72.6111	-28.0477	-3.3923
44	72.6111	-28.0477	-3.3923	16.5124	-28.0471	-3.3237
45	16.5124	-28.0471	-3.3237	-39.5770	-28.0460	-3.3408
46	-39.5770	-28.0460	-3.3408	-95.6608	-28.0462	-3.4448
47	-95.6608	-28.0462	-3.4448	-151.7543	-28.0497	-3.6343
48	-151.7543	-28.0497	-3.6343	-207.8601	-28.0487	-3.9105
49	-207.8601	-28.0487	-3.9105	429.4913	-29.0033	82.6091
50	429.4913	-29.0033	82.6091	542.8399	-42.0222	98.5812
51	542.8399	-42.0222	98.5812	623.9575	-56.3001	114.8553
52	623.9575	-56.3001	114.8553	666.2722	-71.7973	132.7318
53	666.2722	-71.7973	132.7318	663.7540	-88.4507	152.5743
54	663.7540	-88.4507	152.5743	610.9915	-106.0135	174.2637
55	610.9915	-106.0135	174.2637	503.5745	-124.5150	197.6723
56	503.5745	-124.5150	197.6723	338.3752	-143.7115	222.6526
57	338.3752	-143.7115	222.6526	113.7837	-163.4677	249.0577
58	113.7837	-163.4677	249.0577	-170.1781	-183.5476	276.7346
59	-170.1781	-183.5476	276.7346	-511.6833	-203.7746	304.1854
60	-511.6833	-203.7746	304.1854	-907.0192	-97.5108	172.6161
61	-907.0192	-97.5108	172.6161	179.3653	-27.2945	-3.4488
62	179.3653	-27.2945	-3.4488	124.7926	-27.2949	-3.2148
63	124.7926	-27.2949	-3.2148	70.2200	-27.2969	-3.0647
64	70.2200	-27.2969	-3.0647	15.6427	-27.2979	-2.9982
65	15.6427	-27.2979	-2.9982	-38.9265	-27.2984	-3.0153
66	-38.9265	-27.2984	-3.0153	-93.5072	-27.2956	-3.1172
67	-93.5072	-27.2956	-3.1172	-148.0753	-27.3006	-3.3025
68	-148.0753	-27.3006	-3.3025	-202.6875	-27.3046	-3.5738
69	-202.6875	-27.3046	-3.5738	427.6518	-28.9563	82.6340
70	427.6518	-28.9563	82.6340	541.0972	-42.0186	98.4946
71	541.0972	-42.0186	98.4946	622.1780	-56.3374	114.6560
72	622.1780	-56.3374	114.6560	664.3340	-71.8475	132.4218
73	664.3340	-71.8475	132.4218	661.5637	-88.4714	152.1568
74	661.5637	-88.4714	152.1568	608.4965	-106.1280	173.7473
75	608.4965	-106.1280	173.7473	500.6647	-124.6476	197.0647
76	500.6647	-124.6476	197.0647	335.0166	-143.8452	221.9709
77	335.0166	-143.8452	221.9709	109.9534	-163.6065	248.3225
78	109.9534	-163.6065	248.3225	-174.4223	-183.7069	275.9714
79	-174.4223	-183.7069	275.9714	-516.2164	-203.9421	303.4160
80	-516.2164	-203.9421	303.4160	-911.2975	-97.3605	169.0701
81	-911.2975	-97.3605	169.0701	132.7166	-20.0944	-15.6948
82	132.7166	-20.0944	-15.6948	92.5436	-20.0937	-15.5215
83	92.5436	-20.0937	-15.5215	52.3732	-20.0946	-15.4096
84	52.3732	-20.0946	-15.4096	12.2009	-20.0933	-15.3601
85	12.2009	-20.0933	-15.3601	-27.9701	-20.0926	-15.3717
86	-27.9701	-20.0926	-15.3717	-68.1388	-20.0961	-15.4461
87	-68.1388	-20.0961	-15.4461	-108.3145	-20.0941	-15.5823
88	-108.3145	-20.0941	-15.5823	-148.4841	-20.0932	-15.7794
89	-148.4841	-20.0932	-15.7794	422.4016	-29.6092	89.2328
90	422.4016	-29.6092	89.2328	531.9995	-42.9063	107.5882
91	531.9995	-42.9063	107.5882	608.2075	-57.4385	126.2950
92	608.2075	-57.4385	126.2950	644.5403	-73.1585	146.6308
93	644.5403	-73.1585	146.6308	634.9657	-90.0350	168.9174
94	634.9657	-90.0350	168.9174	574.2137	-107.8941	192.9706
95	574.2137	-107.8941	192.9706	458.0663	-126.6005	218.5894
96	458.0663	-126.6005	218.5894	283.6394	-146.0228	245.5546
97	283.6394	-146.0228	245.5546	49.6193	-165.9414	273.6212
98	49.6193	-165.9414	273.6212	-243.5424	-186.1919	302.5527
99	-243.5424	-186.1919	302.5527	-593.3928	-206.5190	330.7207
100	-593.3928	-206.5190	330.7207	-967.0984	-96.2326	165.7966
101	-967.0984	-96.2326	165.7966	134.3784	-24.4515	-26.5208
102	134.3784	-24.4515	-26.5208	91.6190	-24.4510	-26.3685
103	91.6190	-24.4510	-26.3685	48.8596	-24.4498	-26.2747
104	48.8596	-24.4498	-26.2747	6.1056	-24.4517	-26.2372
105	6.1056	-24.4517	-26.2372	-36.6596	-24.4567	-26.2573
106	-36.6596	-24.4567	-26.2573	-79.4261	-24.4545	-26.3356
107	-79.4261	-24.4545	-26.3356	-122.1783	-24.4485	-26.4712
108	-122.1783	-24.4485	-26.4712	-164.9398	-24.4424	-26.6660
109	-164.9398	-24.4424	-26.6660	-207.6654	-24.4396	-26.9162
110	-207.6654	-24.4396	-26.9162	406.3380	-35.8015	93.9343
111	406.3380	-35.8015	93.9343	751.6932	-53.6472	104.4393
112	751.6932	-53.6472	104.4393	656.5598	-67.1382	116.7827
113	656.5598	-67.1382	116.7827	521.4948	-83.4922	136.6373
114	521.4948	-83.4922	136.6373	356.3171	-102.0538	153.8870

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	356.3171	-102.0538	153.8870	164.0428	-119.3708	168.2905
116	164.0428	-119.3708	168.2905	-48.2707	-128.6716	170.4084
117	-48.2707	-128.6716	170.4084	81.4682	-147.2476	255.8774
118	81.4682	-147.2476	255.8774	-140.6382	-168.9240	287.0659
119	-140.6382	-168.9240	287.0659	-429.4058	-179.9047	302.5957
120	-429.4058	-179.9047	302.5957	-717.5950	-88.4889	155.2820
121	-717.5950	-88.4889	155.2820	163.5264	-27.8224	-34.2236
122	163.5264	-27.8224	-34.2236	114.8799	-27.8241	-34.0359
123	114.8799	-27.8241	-34.0359	66.2289	-27.8224	-33.9137
124	66.2289	-27.8224	-33.9137	17.5819	-27.8172	-33.8577
125	17.5819	-27.8172	-33.8577	-31.0559	-27.8236	-33.8666
126	-31.0559	-27.8236	-33.8666	-79.7258	-27.8256	-33.9410
127	-79.7258	-27.8256	-33.9410	-128.3730	-27.8069	-34.0811
128	-128.3730	-27.8069	-34.0811	-176.9862	-27.8032	-34.2866
129	-176.9862	-27.8032	-34.2866	-225.6138	-27.8098	-34.5564
130	-225.6138	-27.8098	-34.5564	426.0042	-37.6070	97.4361
131	426.0042	-37.6070	97.4361	741.3802	-52.1535	108.9148
132	741.3802	-52.1535	108.9148	648.2268	-65.8678	120.4957
133	648.2268	-65.8678	120.4957	514.7822	-82.3497	139.9216
134	514.7822	-82.3497	139.9216	349.5808	-101.2354	156.2515
135	349.5808	-101.2354	156.2515	155.7699	-118.9071	169.6670
136	155.7699	-118.9071	169.6670	-59.8493	-128.5934	170.7652
137	-59.8493	-128.5934	170.7652	90.4954	-145.8177	261.2544
138	90.4954	-145.8177	261.2544	-128.2000	-167.3118	292.7125
139	-128.2000	-167.3118	292.7125	-413.8182	-178.2270	308.3375
140	-413.8182	-178.2270	308.3375	-693.8744	-88.5972	160.6652
141	-693.8744	-88.5972	160.6652	200.4576	-32.9801	-12.9779
142	200.4576	-32.9801	-12.9779	141.1192	-32.9771	-12.7416
143	141.1192	-32.9771	-12.7416	81.7874	-32.9755	-12.5865
144	81.7874	-32.9755	-12.5865	22.4553	-32.9758	-12.5129
145	22.4553	-32.9758	-12.5129	-36.8757	-32.9770	-12.5226
146	-36.8757	-32.9770	-12.5226	-96.1998	-32.9707	-12.6142
147	-96.1998	-32.9707	-12.6142	-155.5112	-32.9704	-12.7892
148	-155.5112	-32.9704	-12.7892	-214.8434	-32.9678	-13.0452
149	-214.8434	-32.9678	-13.0452	-274.1438	-32.9653	-13.3851
150	-274.1438	-32.9653	-13.3851	429.1926	-35.8938	86.1616
151	429.1926	-35.8938	86.1616	514.6212	-49.8990	106.9664
152	514.6212	-49.8990	106.9664	569.2017	-65.3503	128.0181
153	569.2017	-65.3503	128.0181	588.5252	-83.2379	124.8087
154	588.5252	-83.2379	124.8087	416.9072	-101.9091	143.8789
155	416.9072	-101.9091	143.8789	218.9902	-110.8348	152.5943
156	218.9902	-110.8348	152.5943	313.7670	-129.2375	216.8893
157	313.7670	-129.2375	216.8893	142.8333	-149.6678	245.7975
158	142.8333	-149.6678	245.7975	-82.9115	-170.6954	275.7752
159	-82.9115	-170.6954	275.7752	-379.5731	-181.3665	290.8669
160	-379.5731	-181.3665	290.8669	-705.3949	-90.1467	167.6189
161	-705.3949	-90.1467	167.6189	180.3257	-26.0649	-1.2508
162	180.3257	-26.0649	-1.2508	128.1931	-26.0644	-1.0131
163	128.1931	-26.0644	-1.0131	76.0573	-26.0620	-0.8569
164	76.0573	-26.0620	-0.8569	23.9268	-26.0618	-0.7804
165	23.9268	-26.0618	-0.7804	-28.1952	-26.0644	-0.7827
166	-28.1952	-26.0644	-0.7827	-80.3314	-26.0697	-0.8664
167	-80.3314	-26.0697	-0.8664	-132.4905	-26.0703	-1.0313
168	-132.4905	-26.0703	-1.0313	-184.6390	-26.0676	-1.2748
169	-184.6390	-26.0676	-1.2748	442.3021	-30.1692	81.9100
170	442.3021	-30.1692	81.9100	546.7953	-42.7159	97.4090
171	546.7953	-42.7159	97.4090	621.4456	-56.5590	113.1893
172	621.4456	-56.5590	113.1893	659.4657	-71.6693	130.5583
173	659.4657	-71.6693	130.5583	654.4955	-87.9575	149.8867
174	654.4955	-87.9575	149.8867	600.7572	-105.3172	171.0974

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	600.7572	-105.3172	171.0974	493.6276	-123.6171	194.0735
176	493.6276	-123.6171	194.0735	329.5297	-142.6898	218.6801
177	329.5297	-142.6898	218.6801	106.6945	-162.3242	244.8022
178	106.6945	-162.3242	244.8022	-175.1403	-182.3716	272.3084
179	-175.1403	-182.3716	272.3084	-514.3065	-202.6054	299.7079
180	-514.3065	-202.6054	299.7079	-909.5599	-96.2821	171.3367
181	-909.5599	-96.2821	171.3367	184.1185	-6.5273	-1.6695
182	184.1185	-6.5273	-1.6695	171.3921	-6.5272	-1.4032
183	171.3921	-6.5272	-1.4032	158.6626	-6.5267	-1.1554
184	158.6626	-6.5267	-1.1554	145.9338	-6.5264	-0.9271
185	145.9338	-6.5264	-0.9271	133.2003	-6.5292	-0.7163
186	133.2003	-6.5292	-0.7163	120.4628	-6.5310	-0.5258
187	120.4628	-6.5310	-0.5258	133.6288	-7.2050	55.0169
188	133.6288	-7.2050	55.0169	290.7900	-18.1554	69.2010
189	290.7900	-18.1554	69.2010	428.6096	-30.5002	84.8947
190	428.6096	-30.5002	84.8947	540.0156	-44.1919	100.9941
191	540.0156	-44.1919	100.9941	618.2094	-59.1665	117.3486
192	618.2094	-59.1665	117.3486	656.8456	-75.3644	135.1531
193	656.8456	-75.3644	135.1531	650.0247	-92.6872	155.0010
194	650.0247	-92.6872	155.0010	507.4625	-102.6550	131.3830
195	507.4625	-102.6550	131.3830	426.0044	-120.4857	188.8644
196	426.0044	-120.4857	188.8644	266.7659	-140.0381	213.1053
197	266.7659	-140.0381	213.1053	49.2659	-160.1342	238.9325
198	49.2659	-160.1342	238.9325	-226.2170	-180.5992	266.2056
199	-226.2170	-180.5992	266.2056	-557.5409	-201.2128	294.2465
200	-557.5409	-201.2128	294.2465	-938.6511	-94.2495	167.4794
201	-938.6511	-94.2495	167.4794	257.8445	-9.6250	-0.7327
202	257.8445	-9.6250	-0.7327	244.2740	-9.6266	-0.4286
203	244.2740	-9.6266	-0.4286	230.7015	-9.6253	-0.2223
204	230.7015	-9.6253	-0.2223	217.1376	-9.6194	0.0018
205	217.1376	-9.6194	0.0018	203.5806	-9.6166	0.1874
206	203.5806	-9.6166	0.1874	190.0213	-9.6154	0.3018
207	190.0213	-9.6154	0.3018	176.4580	-9.6117	0.5310
208	176.4580	-9.6117	0.5310	162.9013	-9.6126	0.7619
209	162.9013	-9.6126	0.7619	149.3253	-9.6175	0.8758
210	149.3253	-9.6175	0.8758	135.7519	-9.6218	1.0123
211	135.7519	-9.6218	1.0123	285.9559	-22.4658	93.9605
212	285.9559	-22.4658	93.9605	334.9260	-29.6272	104.9915
213	334.9260	-29.6272	104.9915	447.8760	-45.3024	126.7819
214	447.8760	-45.3024	126.7819	456.0134	-53.8061	138.0142
215	456.0134	-53.8061	138.0142	443.3359	-62.7735	149.3145
216	443.3359	-62.7735	149.3145	463.6387	-82.0701	171.9361
217	463.6387	-82.0701	171.9361	391.3952	-92.3898	184.4464
218	391.3952	-92.3898	184.4464	322.7413	-114.2914	210.9141
219	322.7413	-114.2914	210.9141	177.7629	-125.8506	225.0323
220	177.7629	-125.8506	225.0323	0.2766	-125.8429	225.0686

ENVOL. MAX. TORSORES TREN TREN SW/0, EC-1 en via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0059	-0.0031	0.4650	12.4698	-0.5145	1.4079
2	12.4698	-0.5145	1.4079	69.8525	-3.0613	4.8168
3	69.8525	-3.0613	4.8168	108.1169	-5.0937	7.3910
4	108.1169	-5.0937	7.3910	209.7574	-10.6673	14.1536
5	209.7574	-10.6673	14.1536	330.1470	-18.2331	23.2672
6	330.1470	-18.2331	23.2672	375.7921	-22.7509	28.9727
7	375.7921	-22.7509	28.9727	498.1910	-33.2168	41.8310
8	498.1910	-33.2168	41.8310	614.9180	-45.5638	57.1788
9	614.9180	-45.5638	57.1788	625.6136	-52.4400	66.1949
10	625.6136	-52.4400	66.1949	705.9839	-67.4818	84.8719
11	705.9839	-67.4818	84.8719	670.3846	-75.1741	94.7586
12	670.3846	-75.1741	94.7586	677.3138	-90.2846	113.6964
13	677.3138	-90.2846	113.6964	643.8760	-104.9581	132.5728
14	643.8760	-104.9581	132.5728	522.5441	-112.4630	143.1992
15	522.5441	-112.4630	143.1992	427.4157	-128.5476	165.3195
16	427.4157	-128.5476	165.3195	295.7220	-146.1076	189.5454
17	295.7220	-146.1076	189.5454	87.5568	-155.3934	202.5199
18	87.5568	-155.3934	202.5199	-122.8648	-174.8814	229.6418
19	-122.8648	-174.8814	229.6418	-379.9894	-195.5124	258.6472
20	-379.9894	-195.5124	258.6472	-696.4033	-92.0293	142.7645
21	-696.4033	-92.0293	142.7645	-630.1461	21.3904	12.3168
22	-630.1461	21.3904	12.3168	-542.9096	19.7693	14.2500
23	-542.9096	19.7693	14.2500	-430.0497	16.8957	17.9776
24	-430.0497	16.8957	17.9776	-296.3861	12.6688	23.6103
25	-296.3861	12.6688	23.6103	-148.4590	7.0484	31.2492
26	-148.4590	7.0484	31.2492	6.6901	-0.0090	40.9766
27	6.6901	-0.0090	40.9766	161.5313	-8.5091	52.8487
28	161.5313	-8.5091	52.8487	308.2803	-18.4417	66.8990
29	308.2803	-18.4417	66.8990	439.2590	-29.7594	82.4052
30	439.2590	-29.7594	82.4052	547.0660	-42.4545	98.2543
31	547.0660	-42.4545	98.2543	624.5273	-56.4552	114.3967
32	624.5273	-56.4552	114.3967	664.7651	-71.6776	132.1252
33	664.7651	-71.6776	132.1252	661.4296	-88.0779	151.8149
34	661.4296	-88.0779	151.8149	608.8507	-105.5067	173.3582
35	608.8507	-105.5067	173.3582	502.3292	-123.8579	196.6382
36	502.3292	-123.8579	196.6382	338.4844	-142.9905	221.5184
37	338.4844	-142.9905	221.5184	115.5244	-162.6759	247.8531
38	115.5244	-162.6759	247.8531	-166.7533	-182.7511	275.5050
39	-166.7533	-182.7511	275.5050	-506.6180	-202.9851	302.9734
40	-506.6180	-202.9851	302.9734	-899.5054	-97.2883	171.5173
41	-899.5054	-97.2883	171.5173	-800.7504	27.2018	13.0266
42	-800.7504	27.2018	13.0266	-678.1345	24.7106	14.5461
43	-678.1345	24.7106	14.5461	-534.6979	21.0260	18.0108
44	-534.6979	21.0260	18.0108	-375.5236	16.0602	23.5075
45	-375.5236	16.0602	23.5075	-206.6181	9.7701	31.1082
46	-206.6181	9.7701	31.1082	-34.5260	2.1209	40.8689
47	-34.5260	2.1209	40.8689	133.7077	-6.9028	52.8236
48	133.7077	-6.9028	52.8236	290.7850	-17.2879	66.9836
49	290.7850	-17.2879	66.9836	429.4913	-29.0033	82.6091
50	429.4913	-29.0033	82.6091	542.8399	-42.0222	98.5812
51	542.8399	-42.0222	98.5812	623.9575	-56.3001	114.8553
52	623.9575	-56.3001	114.8553	666.2722	-71.7973	132.7318
53	666.2722	-71.7973	132.7318	663.7540	-88.4507	152.5743
54	663.7540	-88.4507	152.5743	610.9915	-106.0135	174.2637
55	610.9915	-106.0135	174.2637	503.5745	-124.5150	197.6723
56	503.5745	-124.5150	197.6723	338.3752	-143.7115	222.6526
57	338.3752	-143.7115	222.6526	113.7837	-163.4677	249.0577
58	113.7837	-163.4677	249.0577	-170.1781	-183.5476	276.7346
59	-170.1781	-183.5476	276.7346	-511.6833	-203.7746	304.1854
60	-511.6833	-203.7746	304.1854	-907.0192	-97.5108	172.6161
61	-907.0192	-97.5108	172.6161	-808.4174	27.5102	14.0004
62	-808.4174	27.5102	14.0004	-684.8436	25.0005	15.4340
63	-684.8436	25.0005	15.4340	-540.4342	21.2833	18.7940
64	-540.4342	21.2833	18.7940	-380.3464	16.3030	24.1684
65	-380.3464	16.3030	24.1684	-210.5920	9.9796	31.6392
66	-210.5920	9.9796	31.6392	-37.7661	2.2923	41.2664
67	-37.7661	2.2923	41.2664	131.0791	-6.7678	53.0892
68	131.0791	-6.7678	53.0892	288.6268	-17.1855	67.1239
69	288.6268	-17.1855	67.1239	427.6518	-28.9563	82.6340
70	427.6518	-28.9563	82.6340	541.0972	-42.0186	98.4946
71	541.0972	-42.0186	98.4946	622.1780	-56.3374	114.6560
72	622.1780	-56.3374	114.6560	664.3340	-71.8475	132.4218
73	664.3340	-71.8475	132.4218	661.5637	-88.4714	152.1568
74	661.5637	-88.4714	152.1568	608.4965	-106.1280	173.7473
75	608.4965	-106.1280	173.7473	500.6647	-124.6476	197.0647
76	500.6647	-124.6476	197.0647	335.0166	-143.8452	221.9709
77	335.0166	-143.8452	221.9709	109.9534	-163.6065	248.3225
78	109.9534	-163.6065	248.3225	-174.4223	-183.7069	275.9714
79	-174.4223	-183.7069	275.9714	-516.2164	-203.9421	303.4160
80	-516.2164	-203.9421	303.4160	-911.2975	-97.3605	169.0701
81	-911.2975	-97.3605	169.0701	-811.0486	27.9608	8.0012
82	-811.0486	27.9608	8.0012	-686.2584	25.4051	10.0451
83	-686.2584	25.4051	10.0451	-540.7634	21.6192	14.3051
84	-540.7634	21.6192	14.3051	-379.8638	16.5185	20.8817
85	-379.8638	16.5185	20.8817	-209.7623	10.0667	29.8400
86	-209.7623	10.0667	29.8400	-37.1945	2.2238	41.2295
87	-37.1945	2.2238	41.2295	130.6297	-7.0177	55.0664
88	130.6297	-7.0177	55.0664	286.2673	-17.6399	71.3302
89	286.2673	-17.6399	71.3302	422.4016	-29.6092	89.2328
90	422.4016	-29.6092	89.2328	531.9995	-42.9063	107.5882
91	531.9995	-42.9063	107.5882	608.2075	-57.4385	126.2950
92	608.2075	-57.4385	126.2950	644.5403	-73.1585	146.6308
93	644.5403	-73.1585	146.6308	634.9657	-90.0350	168.9174
94	634.9657	-90.0350	168.9174	574.2137	-107.8941	192.9706
95	574.2137	-107.8941	192.9706	458.0663	-126.6005	218.5894
96	458.0663	-126.6005	218.5894	283.6394	-146.0228	245.5546
97	283.6394	-146.0228	245.5546	49.6193	-165.9414	273.6212
98	49.6193	-165.9414	273.6212	-243.5424	-186.1919	302.5527
99	-243.5424	-186.1919	302.5527	-593.3928	-206.5190	330.7207
100	-593.3928	-206.5190	330.7207	-967.0984	-96.2326	165.7966
101	-967.0984	-96.2326	165.7966	-40.5020	7.3700	7.9936
102	-40.5020	7.3700	7.9936	232.7747	-9.7416	8.0609
103	232.7747	-9.7416	8.0609	215.7135	-9.7411	8.3621
104	215.7135	-9.7411	8.3621	198.6548	-9.7389	8.6413
105	198.6548	-9.7389	8.6413	181.6004	-9.7403	8.8970
106	181.6004	-9.7403	8.8970	-105.5493	6.5926	19.2852
107	-105.5493	6.5926	19.2852	-17.4952	1.7294	28.0549
108	-17.4952	1.7294	28.0549	140.7964	-9.2113	47.7953
109	140.7964	-9.2113	47.7953	284.4470	-21.7376	70.1115
110	284.4470	-21.7376	70.1115	406.3380	-35.8015	93.9343
111	406.3380	-35.8015	93.9343	418.9840	-43.3940	106.1964
112	418.9840	-43.3940	106.1964	481.5716	-59.6269	130.3025
113	481.5716	-59.6269	130.3025	505.1293	-77.2113	155.0605

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
114	505.1293	-77.2113	155.0605	484.1221	-96.0105	181.8845
115	484.1221	-96.0105	181.8845	362.7026	-105.8178	196.2431
116	362.7026	-105.8178	196.2431	249.0555	-126.1320	225.4751
117	249.0555	-126.1320	225.4751	81.4682	-147.2476	255.8774
118	81.4682	-147.2476	255.8774	-140.6382	-168.9240	287.0659
119	-140.6382	-168.9240	287.0659	-429.4058	-179.9047	302.5957
120	-429.4058	-179.9047	302.5957	-717.5950	-88.4889	155.2820
121	-717.5950	-88.4889	155.2820	-54.6690	9.3018	11.4419
122	-54.6690	9.3018	11.4419	-38.4052	9.3014	11.3792
123	-38.4052	9.3014	11.3792	-22.1432	9.3021	11.3381
124	-22.1432	9.3021	11.3381	-5.8787	9.3020	11.3191
125	-5.8787	9.3020	11.3191	10.3843	9.3012	11.3222
126	10.3843	9.3012	11.3222	-24.5116	1.7675	22.2351
127	-24.5116	1.7675	22.2351	48.5003	-2.6400	31.1185
128	48.5003	-2.6400	31.1185	187.7959	-12.6925	50.9957
129	187.7959	-12.6925	50.9957	316.0099	-24.3647	73.4610
130	316.0099	-24.3647	73.4610	426.0042	-37.6070	97.4361
131	426.0042	-37.6070	97.4361	432.7102	-44.8113	109.7963
132	432.7102	-44.8113	109.7963	489.0231	-60.3270	134.1172
133	489.0231	-60.3270	134.1172	509.1607	-77.2517	159.1674
134	509.1607	-77.2517	159.1674	487.1708	-95.4917	186.3409
135	487.1708	-95.4917	186.3409	366.6889	-105.0680	200.8859
136	366.6889	-105.0680	200.8859	255.0766	-124.9960	230.4993
137	255.0766	-124.9960	230.4993	90.4954	-145.8177	261.2544
138	90.4954	-145.8177	261.2544	-128.2000	-167.3118	292.7125
139	-128.2000	-167.3118	292.7125	-413.8182	-178.2270	308.3375
140	-413.8182	-178.2270	308.3375	-693.8744	-88.5972	160.6652
141	-693.8744	-88.5972	160.6652	171.2650	-6.3990	5.3892
142	171.2650	-6.3990	5.3892	159.7396	-6.4003	5.6182
143	159.7396	-6.4003	5.6182	148.2105	-6.4007	5.8313
144	148.2105	-6.4007	5.8313	136.6820	-6.4021	6.0285
145	136.6820	-6.4021	6.0285	-160.5260	8.3663	7.6645
146	-160.5260	8.3663	7.6645	-15.2719	1.2411	21.1060
147	-15.2719	1.2411	21.1060	131.8864	-7.4338	37.0298
148	131.8864	-7.4338	37.0298	273.8989	-17.6572	55.2800
149	273.8989	-17.6572	55.2800	319.6356	-23.3588	65.4529
150	319.6356	-23.3588	65.4529	429.1926	-35.8938	86.1616
151	429.1926	-35.8938	86.1616	514.6212	-49.8990	106.9664
152	514.6212	-49.8990	106.9664	569.2017	-65.3503	128.0181
153	569.2017	-65.3503	128.0181	586.3884	-82.1543	150.8808
154	586.3884	-82.1543	150.8808	497.1177	-91.0361	163.4860
155	497.1177	-91.0361	163.4860	430.9236	-109.6313	189.3571
156	430.9236	-109.6313	189.3571	313.7670	-129.2375	216.8893
157	313.7670	-129.2375	216.8893	142.8333	-149.6678	245.7975
158	142.8333	-149.6678	245.7975	-82.9115	-170.6954	275.7752
159	-82.9115	-170.6954	275.7752	-379.5731	-181.3665	290.8669
160	-379.5731	-181.3665	290.8669	-705.3949	-90.1467	167.6189
161	-705.3949	-90.1467	167.6189	-633.4170	21.6131	13.6427
162	-633.4170	21.6131	13.6427	-535.9990	19.6244	15.3841
163	-535.9990	19.6244	15.3841	-417.0718	16.4901	18.9343
164	-417.0718	16.4901	18.9343	-281.0236	12.1014	24.3902
165	-281.0236	12.1014	24.3902	-133.3304	6.3983	31.8349
166	-133.3304	6.3983	31.8349	19.8243	-0.6680	41.3394
167	19.8243	-0.6680	41.3394	171.6382	-9.1181	52.9566
168	171.6382	-9.1181	52.9566	314.8734	-18.9527	66.7186
169	314.8734	-18.9527	66.7186	442.3021	-30.1692	81.9100
170	442.3021	-30.1692	81.9100	546.7953	-42.7159	97.4090
171	546.7953	-42.7159	97.4090	621.4456	-56.5590	113.1893
172	621.4456	-56.5590	113.1893	659.4657	-71.6693	130.5583
173	659.4657	-71.6693	130.5583	654.4955	-87.9575	149.8867

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
174	654.4955	-87.9575	149.8867	600.7572	-105.3172	171.0974
175	600.7572	-105.3172	171.0974	493.6276	-123.6171	194.0735
176	493.6276	-123.6171	194.0735	329.5297	-142.6898	218.6801
177	329.5297	-142.6898	218.6801	106.6945	-162.3242	244.8022
178	106.6945	-162.3242	244.8022	-175.1403	-182.3716	272.3084
179	-175.1403	-182.3716	272.3084	-514.3065	-202.6054	299.7079
180	-514.3065	-202.6054	299.7079	-909.5599	-96.2821	171.3367
181	-909.5599	-96.2821	171.3367	-812.2494	28.7714	15.8136
182	-812.2494	28.7714	15.8136	-687.4281	26.1544	17.2240
183	-687.4281	26.1544	17.2240	-541.6386	22.2629	20.5619
184	-541.6386	22.2629	20.5619	-380.1685	17.0294	25.9309
185	-380.1685	17.0294	25.9309	-209.2157	10.3939	33.4176
186	-209.2157	10.3939	33.4176	-35.5331	2.3178	43.0980
187	-35.5331	2.3178	43.0980	133.6288	-7.2050	55.0169
188	133.6288	-7.2050	55.0169	290.7900	-18.1554	69.2010
189	290.7900	-18.1554	69.2010	428.6096	-30.5002	84.8947
190	428.6096	-30.5002	84.8947	540.0156	-44.1919	100.9941
191	540.0156	-44.1919	100.9941	618.2094	-59.1665	117.3486
192	618.2094	-59.1665	117.3486	656.8456	-75.3644	135.1531
193	656.8456	-75.3644	135.1531	650.0247	-92.6872	155.0010
194	650.0247	-92.6872	155.0010	528.5589	-101.7309	166.1918
195	528.5589	-101.7309	166.1918	426.0044	-120.4857	188.8644
196	426.0044	-120.4857	188.8644	266.7659	-140.0381	213.1053
197	266.7659	-140.0381	213.1053	49.2659	-160.1342	238.9325
198	49.2659	-160.1342	238.9325	-226.2170	-180.5992	266.2056
199	-226.2170	-180.5992	266.2056	-557.5409	-201.2128	294.2465
200	-557.5409	-201.2128	294.2465	-938.6511	-94.2495	167.4794
201	-938.6511	-94.2495	167.4794	-848.5999	31.6923	13.6502
202	-848.5999	31.6923	13.6502	-771.7292	30.4149	14.4103
203	-771.7292	30.4149	14.4103	-689.9979	28.7866	16.1588
204	-689.9979	28.7866	16.1588	-551.1707	24.4286	22.1954
205	-551.1707	24.4286	22.1954	-458.3241	21.6674	26.0432
206	-458.3241	21.6674	26.0432	-294.3918	14.9311	36.3209
207	-294.3918	14.9311	36.3209	-199.7731	10.9151	42.2382
208	-199.7731	10.9151	42.2382	-109.0852	6.4712	48.9697
209	-109.0852	6.4712	48.9697	58.8207	-3.7483	64.8312
210	58.8207	-3.7483	64.8312	135.1725	-9.5338	73.8518
211	135.1725	-9.5338	73.8518	285.9559	-22.4658	93.9605
212	285.9559	-22.4658	93.9605	334.9260	-29.6272	104.9915
213	334.9260	-29.6272	104.9915	447.8760	-45.3024	126.7819
214	447.8760	-45.3024	126.7819	456.0134	-53.8061	138.0142
215	456.0134	-53.8061	138.0142	443.3359	-62.7735	149.3145
216	443.3359	-62.7735	149.3145	463.6387	-82.0701	171.9361
217	463.6387	-82.0701	171.9361	391.3952	-92.3898	184.4464
218	391.3952	-92.3898	184.4464	322.7413	-114.2914	210.9141
219	322.7413	-114.2914	210.9141	177.7629	-125.8506	225.0323
220	177.7629	-125.8506	225.0323	0.2766	-125.8429	225.0686

ENVOL. MIN. TORSORES TREN TREN SW/0, EC-1 en via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0828	159.2078	-273.0314	242.0931	147.9229	-257.7354
2	242.0931	147.9229	-257.7354	413.4730	126.2915	-228.4519
3	413.4730	126.2915	-228.4519	520.4869	105.9597	-200.9760
4	520.4869	105.9597	-200.9760	630.8512	96.3103	-187.6009
5	630.8512	96.3103	-187.6009	639.3925	78.0640	-163.1515
6	639.3925	78.0640	-163.1515	860.4866	75.6293	-142.7365
7	860.4866	75.6293	-142.7365	613.2093	53.4824	-130.3289
8	613.2093	53.4824	-130.3289	510.3745	38.9389	-111.7227
9	510.3745	38.9389	-111.7227	381.9911	25.8965	-94.7077
10	381.9911	25.8965	-94.7077	326.8995	19.9217	-86.1112
11	326.8995	19.9217	-86.1112	165.3474	9.1411	-69.6512
12	165.3474	9.1411	-69.6512	85.4864	4.3102	-61.4886
13	85.4864	4.3102	-61.4886	-89.2660	-4.2296	-47.2621
14	-89.2660	-4.2296	-47.2621	-258.5894	-11.3146	-35.5344
15	-258.5894	-11.3146	-35.5344	-351.0773	-14.3244	-30.8134
16	-351.0773	-14.3244	-30.8134	-505.8578	-19.3386	-22.8489
17	-505.8578	-19.3386	-22.8489	-641.4504	-23.0648	-17.2530
18	-641.4504	-23.0648	-17.2530	-720.9733	-24.4888	-15.7694
19	-720.9733	-24.4888	-15.7694	-823.3832	-26.4926	-13.6551
20	-823.3832	-26.4926	-13.6551	-900.2828	94.4181	-167.3497
21	-900.2828	94.4181	-167.3497	-493.7563	199.5648	-298.3521
22	-493.7563	199.5648	-298.3521	-152.2306	179.3309	-270.9017
23	-152.2306	179.3309	-270.9017	132.0108	159.2448	-242.9386
24	132.0108	159.2448	-242.9386	357.4532	139.5242	-215.9685
25	357.4532	139.5242	-215.9685	524.1860	120.3077	-190.4561
26	524.1860	120.3077	-190.4561	633.7096	101.7840	-166.5437
27	633.7096	101.7840	-166.5437	688.8681	84.1395	-144.3627
28	688.8681	84.1395	-144.3627	612.6324	66.1951	-124.7764
29	612.6324	66.1951	-124.7764	566.9434	51.1957	-107.3980
30	566.9434	51.1957	-107.3980	483.8719	37.3969	-92.0813
31	483.8719	37.3969	-92.0813	370.1082	24.8725	-78.1604
32	370.1082	24.8725	-78.1604	232.7797	13.6645	-64.5890
33	232.7797	13.6645	-64.5890	79.2244	3.8110	-51.3944
34	79.2244	3.8110	-51.3944	-83.1957	-4.6661	-39.9457
35	-83.1957	-4.6661	-39.9457	-247.1834	-11.7590	-30.6726
36	-247.1834	-11.7590	-30.6726	-405.9547	-17.4921	-23.5261
37	-405.9547	-17.4921	-23.5261	-553.4271	-21.9132	-18.4377
38	-553.4271	-21.9132	-18.4377	-684.3505	-25.1023	-15.3260
39	-684.3505	-25.1023	-15.3260	-794.3665	-27.1474	-14.0978
40	-794.3665	-27.1474	-14.0978	-879.2020	93.6901	-167.2831
41	-879.2020	93.6901	-167.2831	-471.9468	198.7901	-297.3799
42	-471.9468	198.7901	-297.3799	-132.2213	178.5744	-269.9216
43	-132.2213	178.5744	-269.9216	149.8473	158.5214	-241.9731
44	149.8473	158.5214	-241.9731	372.8684	138.8354	-215.0328
45	372.8684	138.8354	-215.0328	537.1290	119.7213	-189.5630
46	537.1290	119.7213	-189.5630	644.2979	101.2748	-165.6977
47	644.2979	101.2748	-165.6977	697.3564	83.7253	-143.5764
48	697.3564	83.7253	-143.5764	618.6791	65.9063	-124.0872
49	618.6791	65.9063	-124.0872	571.5035	50.9826	-106.7682
50	571.5035	50.9826	-106.7682	487.2629	37.2618	-91.5161
51	487.2629	37.2618	-91.5161	372.6247	24.8005	-77.6628
52	372.6247	24.8005	-77.6628	234.6998	13.6536	-64.1517
53	234.6998	13.6536	-64.1517	80.8148	3.8660	-51.0035
54	80.8148	3.8660	-51.0035	-81.6534	-4.5508	-39.5811
55	-81.6534	-4.5508	-39.5811	-245.4393	-11.5866	-30.3155
56	-245.4393	-11.5866	-30.3155	-403.7766	-17.2659	-23.1599
57	-403.7766	-17.2659	-23.1599	-550.6777	-21.6526	-18.0502
58	-550.6777	-21.6526	-18.0502	-680.9181	-24.8027	-14.9121
59	-680.9181	-24.8027	-14.9121	-790.2248	-26.8385	-13.6574
60	-790.2248	-26.8385	-13.6574	-875.4051	93.7489	-167.4126
61	-875.4051	93.7489	-167.4126	-469.6295	198.5767	-298.0995
62	-469.6295	198.5767	-298.0995	-130.3965	178.3506	-270.6243
63	-130.3965	178.3506	-270.6243	151.1422	158.3280	-242.6471
64	151.1422	158.3280	-242.6471	373.6689	138.6480	-215.6667
65	373.6689	138.6480	-215.6667	537.4653	119.5392	-190.1449
66	537.4653	119.5392	-190.1449	644.3043	101.1546	-166.2240
67	644.3043	101.1546	-166.2240	697.1290	83.6286	-144.0341
68	697.1290	83.6286	-144.0341	618.7031	65.8644	-124.4347
69	618.7031	65.8644	-124.4347	571.8292	51.0082	-107.0434
70	571.8292	51.0082	-107.0434	488.1863	37.3259	-91.7077
71	488.1863	37.3259	-91.7077	374.4966	24.9419	-77.7684
72	374.4966	24.9419	-77.7684	237.8757	13.8729	-64.1675
73	237.8757	13.8729	-64.1675	85.6391	4.1505	-50.9314
74	85.6391	4.1505	-50.9314	-74.8820	-4.1959	-39.4262
75	-74.8820	-4.1959	-39.4262	-236.4160	-11.1628	-30.0805
76	-236.4160	-11.1628	-30.0805	-392.2714	-16.7673	-22.8500
77	-392.2714	-16.7673	-22.8500	-536.4666	-21.0887	-17.6698
78	-536.4666	-21.0887	-17.6698	-663.8849	-24.1933	-14.4591
79	-663.8849	-24.1933	-14.4591	-770.3356	-26.1627	-13.1343
80	-770.3356	-26.1627	-13.1343	-852.3481	92.8131	-153.5137
81	-852.3481	92.8131	-153.5137	-450.8232	195.9354	-270.3490
82	-450.8232	195.9354	-270.3490	-116.3609	175.6390	-242.3084
83	-116.3609	175.6390	-242.3084	159.9083	155.5851	-214.4931
84	159.9083	155.5851	-214.4931	377.0058	135.9698	-188.4526
85	377.0058	135.9698	-188.4526	535.7482	117.0014	-164.5423
86	535.7482	117.0014	-164.5423	572.7341	96.7440	-142.8376
87	572.7341	96.7440	-142.8376	614.7957	80.0708	-124.3100
88	614.7957	80.0708	-124.3100	610.6077	64.5276	-107.8673
89	610.6077	64.5276	-107.8673	566.0928	50.1963	-93.4688
90	566.0928	50.1963	-93.4688	487.8221	37.1640	-81.0740
91	487.8221	37.1640	-81.0740	382.7672	25.4447	-69.8811
92	382.7672	25.4447	-69.8811	258.1766	15.0942	-58.8610
93	258.1766	15.0942	-58.8610	121.4297	6.1204	-48.1375
94	121.4297	6.1204	-48.1375	-20.0282	-1.4455	-39.1550
95	-20.0282	-1.4455	-39.1550	-159.1125	-7.6236	-32.2528
96	-159.1125	-7.6236	-32.2528	-289.4966	-12.4513	-27.2746
97	-289.4966	-12.4513	-27.2746	-405.7300	-16.0185	-24.0450
98	-405.7300	-16.0185	-24.0450	-503.2843	-18.3923	-22.3783
99	-503.2843	-18.3923	-22.3783	-578.9182	-19.7098	-22.0821
100	-578.9182	-19.7098	-22.0821	-614.6213	82.9753	-131.5672
101	-614.6213	82.9753	-131.5672	-290.9919	175.1228	-225.6397
102	-290.9919	175.1228	-225.6397	-42.1758	153.5456	-198.0656
103	-42.1758	153.5456	-198.0656	-186.2397	153.1799	-184.1856
104	-186.2397	153.1799	-184.1856	61.1972	135.6208	-161.0773
105	61.1972	135.6208	-161.0773	433.4418	102.7399	-141.5472
106	433.4418	102.7399	-141.5472	481.8259	84.1679	-123.6699
107	481.8259	84.1679	-123.6699	485.6291	66.8385	-108.2466
108	485.6291	66.8385	-108.2466	450.2587	50.8699	-95.1136
109	450.2587	50.8699	-95.1136	457.8083	43.4319	-89.0632
110	457.8083	43.4319	-89.0632	363.1924	29.6596	-78.2866
111	363.1924	29.6596	-78.2866	246.9178	17.4421	-67.5183
112	246.9178	17.4421	-67.5183	116.3214	6.8222	-56.8845
113	116.3214	6.8222	-56.8845	49.8898	2.1172	-52.1476
114	49.8898	2.1172	-52.1476	-95.2863	-6.0582	-44.4919

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	-95.2863	-6.0582	-44.4919	-235.1590	-12.6216	-38.8705
116	-235.1590	-12.6216	-38.8705	21.9913	34.8310	-36.4485
117	21.9913	34.8310	-36.4485	82.9967	34.8288	-36.3772
118	82.9967	34.8288	-36.3772	144.0067	34.8285	-36.2241
119	144.0067	34.8285	-36.2241	205.0122	34.8303	-35.9894
120	205.0122	34.8303	-35.9894	-660.1069	81.7012	-133.8324
121	-660.1069	81.7012	-133.8324	-331.6536	176.8898	-219.7993
122	-331.6536	176.8898	-219.7993	-78.4820	155.2187	-192.7075
123	-78.4820	155.2187	-192.7075	-167.7780	152.4846	-180.5341
124	-167.7780	152.4846	-180.5341	66.1622	135.5456	-157.0346
125	66.1622	135.5456	-157.0346	411.0104	103.8600	-138.1161
126	411.0104	103.8600	-138.1161	463.7242	84.9780	-121.1812
127	463.7242	84.9780	-121.1812	470.8675	67.2912	-106.7523
128	470.8675	67.2912	-106.7523	437.4944	50.9491	-94.6317
129	437.4944	50.9491	-94.6317	445.4108	43.2953	-89.0882
130	445.4108	43.2953	-89.0882	350.1750	29.1381	-79.2968
131	350.1750	29.1381	-79.2968	231.6262	16.5075	-69.4984
132	231.6262	16.5075	-69.4984	97.0845	5.4699	-59.8472
133	97.0845	5.4699	-59.8472	26.7199	0.5641	-55.6227
134	26.7199	0.5641	-55.6227	-125.0782	-8.0032	-48.9553
135	-125.0782	-8.0032	-48.9553	-272.8672	-14.9251	-44.2850
136	-272.8672	-14.9251	-44.2850	-410.1487	-20.2555	-41.3685
137	-410.1487	-20.2555	-41.3685	-492.5845	-22.3375	-40.8156
138	-492.5845	-22.3375	-40.8156	-606.5116	-25.4290	-40.1367
139	-606.5116	-25.4290	-40.1367	-711.8469	-27.7861	-40.8699
140	-711.8469	-27.7861	-40.8699	-737.0553	84.1989	-155.8413
141	-737.0553	84.1989	-155.8413	-380.5151	185.4217	-255.0500
142	-380.5151	185.4217	-255.0500	-106.4115	164.0314	-226.3459
143	-106.4115	164.0314	-226.3459	113.5646	143.0299	-199.9288
144	113.5646	143.0299	-199.9288	91.2354	139.2317	-177.2124
145	91.2354	139.2317	-177.2124	442.6690	112.6871	-164.2588
146	442.6690	112.6871	-164.2588	510.8506	93.5054	-143.3976
147	510.8506	93.5054	-143.3976	530.2542	75.3791	-124.7950
148	530.2542	75.3791	-124.7950	505.3357	58.4244	-108.4463
149	505.3357	58.4244	-108.4463	441.3701	42.7377	-94.3382
150	441.3701	42.7377	-94.3382	428.5950	35.4164	-87.6806
151	428.5950	35.4164	-87.6806	305.5544	21.8358	-75.1475
152	305.5544	21.8358	-75.1475	161.2478	9.7382	-62.7583
153	161.2478	9.7382	-62.7583	3.0061	-0.8213	-50.9706
154	3.0061	-0.8213	-50.9706	-161.6757	-9.8077	-41.2633
155	-161.6757	-9.8077	-41.2633	-256.4465	-13.7118	-37.3437
156	-256.4465	-13.7118	-37.3437	-423.2895	-20.3568	-30.7440
157	-423.2895	-20.3568	-30.7440	-578.1688	-25.4953	-26.0515
158	-578.1688	-25.4953	-26.0515	89.8573	23.1844	-25.7496
159	89.8573	23.1844	-25.7496	131.6205	23.1852	-25.5963
160	131.6205	23.1852	-25.5963	-909.2697	97.1600	-180.1735
161	-909.2697	97.1600	-180.1735	-514.4933	206.4852	-310.8806
162	-514.4933	206.4852	-310.8806	-172.1629	186.2495	-283.4735
163	-172.1629	186.2495	-283.4735	113.3890	166.1643	-255.4539
164	113.3890	166.1643	-255.4539	340.4878	146.4311	-228.3294
165	340.4878	146.4311	-228.3294	509.1645	127.2437	-202.5767
166	509.1645	127.2437	-202.5767	621.0209	108.8020	-178.3477
167	621.0209	108.8020	-178.3477	678.9144	91.2026	-155.7946
168	678.9144	91.2026	-155.7946	686.8944	74.6051	-135.0567
169	686.8944	74.6051	-135.0567	650.0778	59.0885	-116.2577
170	650.0778	59.0885	-116.2577	574.4385	44.7698	-99.5103
171	574.4385	44.7698	-99.5103	466.5312	31.7233	-84.7546
172	466.5312	31.7233	-84.7546	333.3495	19.9799	-70.6721
173	333.3495	19.9799	-70.6721	182.2079	9.5735	-56.9622
174	182.2079	9.5735	-56.9622	20.5620	0.5628	-44.0763
175	20.5620	0.5628	-44.0763	-144.2101	-7.0506	-33.3696
176	-144.2101	-7.0506	-33.3696	-305.0809	-13.2826	-24.8132
177	-305.0809	-13.2826	-24.8132	-455.7595	-18.1794	-18.3605
178	-455.7595	-18.1794	-18.3605	-590.8051	-21.8101	-13.9486
179	-590.8051	-21.8101	-13.9486	-705.6326	-24.2535	-11.5040
180	-705.6326	-24.2535	-11.5040	-799.2250	96.4003	-169.7010
181	-799.2250	96.4003	-169.7010	-428.5120	197.8267	-300.9420
182	-428.5120	197.8267	-300.9420	-110.2755	177.3185	-272.6807
183	-110.2755	177.3185	-272.6807	150.5151	157.1360	-244.5631
184	150.5151	157.1360	-244.5631	353.3119	137.4644	-217.8321
185	353.3119	137.4644	-217.8321	499.3279	118.5369	-192.6355
186	499.3279	118.5369	-192.6355	591.2270	100.5079	-169.1133
187	591.2270	100.5079	-169.1133	633.0222	83.5609	-147.3914
188	633.0222	83.5609	-147.3914	629.9656	67.7970	-127.5699
189	629.9656	67.7970	-127.5699	588.1786	53.3256	-109.7516
190	588.1786	53.3256	-109.7516	514.4577	40.2038	-93.9436
191	514.4577	40.2038	-93.9436	416.1053	28.5219	-79.5726
192	416.1053	28.5219	-79.5726	300.8081	18.2973	-65.5499
193	300.8081	18.2973	-65.5499	176.3948	9.5518	-51.7416
194	176.3948	9.5518	-51.7416	50.6110	2.3170	-39.5881
195	50.6110	2.3170	-39.5881	-69.2193	-3.4247	-29.5583
196	-69.2193	-3.4247	-29.5583	-133.0272	-19.0507	-6.0451
197	-133.0272	-19.0507	-6.0451	4.8313	1.6011	-0.0544
198	4.8313	1.6011	-0.0544	7.9543	1.6009	-0.0453
199	7.9543	1.6009	-0.0453	11.0772	1.6011	-0.0303
200	11.0772	1.6011	-0.0303	-652.6686	20.6491	-29.9705
201	-652.6686	20.6491	-29.9705	-787.9415	175.5825	-194.4849
202	-787.9415	175.5825	-194.4849	-548.3477	167.5217	-184.9529
203	-548.3477	167.5217	-184.9529	-320.6429	159.0091	-174.9471
204	-320.6429	159.0091	-174.9471	-106.9164	140.6240	-154.2525
205	-106.9164	140.6240	-154.2525	87.4245	130.7590	-143.1551
206	87.4245	130.7590	-143.1551	261.7787	109.6996	-118.7438
207	261.7787	109.6996	-118.7438	408.4012	98.5405	-105.1053
208	408.4012	98.5405	-105.1053	530.4844	86.9501	-90.6893
209	530.4844	86.9501	-90.6893	629.4298	60.3441	-51.5943
210	629.4298	60.3441	-51.5943	703.8995	47.0405	-31.6049
211	703.8995	47.0405	-31.6049	-26.0833	2.0553	-0.2093
212	-26.0833	2.0553	-0.2093	-23.1848	2.0567	-0.2324
213	-23.1848	2.0567	-0.2324	-20.2847	2.0560	-0.2473
214	-20.2847	2.0560	-0.2473	-17.3865	2.0542	-0.2656
215	-17.3865	2.0542	-0.2656	-14.4895	2.0545	-0.2826
216	-14.4895	2.0545	-0.2826	-11.5919	2.0550	-0.2916
217	-11.5919	2.0550	-0.2916	-8.6938	2.0549	-0.3016
218	-8.6938	2.0549	-0.3016	-5.7956	2.0552	-0.3104
219	-5.7956	2.0552	-0.3104	-2.8973	2.0550	-0.3140
220	-2.8973	2.0550	-0.3140	-0.0005	2.0546	-0.3145

ENVOL. MAX. FLECTORES TREN TREN SW/2, EC-1 en via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.1368	197.4111	-415.5055	320.6748	186.7213	-401.9511
2	320.6748	186.7213	-401.9511	603.3334	156.7293	-346.3809
3	603.3334	156.7293	-346.3809	846.4283	141.7125	-317.9744
4	846.4283	141.7125	-317.9744	1047.2732	111.6804	-261.7913
5	1047.2732	111.6804	-261.7913	1212.9712	83.8927	-212.2401
6	1212.9712	83.8927	-212.2401	1338.2366	68.8583	-183.1408
7	1338.2366	68.8583	-183.1408	1422.7136	38.8713	-126.4117
8	1422.7136	38.8713	-126.4117	1471.1422	11.3921	-76.4041
9	1471.1422	11.3921	-76.4041	1479.0873	-3.6101	-47.0550
10	1479.0873	-3.6101	-47.0550	1447.7239	-33.6385	9.7786
11	1447.7239	-33.6385	9.7786	1381.6777	-45.9210	32.2720
12	1381.6777	-45.9210	32.2720	1272.8717	-75.9272	88.9299
13	1272.8717	-75.9272	88.9299	1129.3818	-102.9940	138.6305
14	1129.3818	-102.9940	138.6305	947.7040	-114.7062	160.6060
15	947.7040	-114.7062	160.6060	729.1581	-144.6923	216.6533
16	729.1581	-144.6923	216.6533	476.6543	-171.1201	265.5292
17	476.6543	-171.1201	265.5292	211.1704	7.5888	0.5969
18	211.1704	7.5888	0.5969	223.5792	7.5922	0.8708
19	223.5792	7.5922	0.8708	235.9900	7.5914	1.1590
20	235.9900	7.5914	1.1590	248.3643	-10.4357	-3.3289
21	248.3643	-10.4357	-3.3289	191.4240	-28.4618	-7.8171
22	191.4240	-28.4618	-7.8171	134.5266	-28.4631	-7.5659
23	134.5266	-28.4631	-7.5659	326.4984	164.4890	-350.0132
24	326.4984	164.4890	-350.0132	619.9022	134.4812	-294.2944
25	619.9022	134.4812	-294.2944	853.2747	106.0405	-244.5305
26	853.2747	106.0405	-244.5305	1029.5701	75.9983	-188.0937
27	1029.5701	75.9983	-188.0937	1146.0928	47.7444	-138.4288
28	1146.0928	47.7444	-138.4288	1205.7471	17.7459	-81.6288
29	1205.7471	17.7459	-81.6288	1207.7316	-10.2340	-32.4338
30	1207.7316	-10.2340	-32.4338	1230.5071	38.8246	-23.6901
31	1230.5071	38.8246	-23.6901	1272.4224	10.9969	25.3447
32	1272.4224	10.9969	25.3447	1258.3604	-18.9966	82.2801
33	1258.3604	-18.9966	82.2801	1187.4216	-47.0806	131.9265
34	1187.4216	-47.0806	131.9265	1058.0204	-75.3918	182.0537
35	1058.0204	-75.3918	182.0537	870.9651	-105.3989	238.5302
36	870.9651	-105.3989	238.5302	624.6952	-133.9498	288.7112
37	624.6952	-133.9498	288.7112	320.4145	-163.9333	344.4265
38	320.4145	-163.9333	344.4265	211.1449	7.7518	1.4338
39	211.1449	7.7518	1.4338	226.6439	7.7512	1.7704
40	226.6439	7.7512	1.7704	261.7640	11.1086	2.1999
41	261.7640	11.1086	2.1999	245.1209	-8.3325	-1.4711
42	245.1209	-8.3325	-1.4711	228.4557	-8.3323	-1.1065
43	228.4557	-8.3323	-1.1065	346.3174	163.7552	-348.2396
44	346.3174	163.7552	-348.2396	638.3976	133.7640	-292.4922
45	638.3976	133.7640	-292.4922	870.3317	103.7641	-236.3420
46	870.3317	103.7641	-236.3420	1045.1610	75.3013	-186.1999
47	1045.1610	75.3013	-186.1999	1160.2056	47.1171	-136.4935
48	1160.2056	47.1171	-136.4935	1218.6143	17.1278	-79.6756
49	1218.6143	17.1278	-79.6756	1219.1707	-10.8328	-30.4510
50	1219.1707	-10.8328	-30.4510	1215.1213	40.3297	-23.5473
51	1215.1213	40.3297	-23.5473	1262.5024	12.2364	25.4708
52	1262.5024	12.2364	25.4708	1252.0094	-16.1120	75.1852
53	1252.0094	-16.1120	75.1852	1183.6232	-46.1298	132.0507
54	1183.6232	-46.1298	132.0507	1056.7969	-74.6758	182.2153
55	1056.7969	-74.6758	182.2153	871.0665	-104.6796	238.6897
56	871.0665	-104.6796	238.6897	626.0481	-133.4541	288.9229
57	626.0481	-133.4541	288.9229	322.6027	-163.4516	344.6418
58	322.6027	-163.4516	344.6418	208.8094	7.6135	1.3043
59	208.8094	7.6135	1.3043	224.0320	7.6128	1.6374
60	224.0320	7.6128	1.6374	259.8896	11.0138	2.0542
61	259.8896	11.0138	2.0542	243.3241	-8.2863	-1.7297
62	243.3241	-8.2863	-1.7297	226.7549	-8.2859	-1.3680
63	226.7549	-8.2859	-1.3680	346.2862	163.8493	-349.0508
64	346.2862	163.8493	-349.0508	638.4308	133.8607	-293.3040
65	638.4308	133.8607	-293.3040	870.5176	103.8633	-237.1540
66	870.5176	103.8633	-237.1540	1045.6665	75.4521	-187.0072
67	1045.6665	75.4521	-187.0072	1161.1622	47.3064	-137.2816
68	1161.1622	47.3064	-137.2816	1219.9128	17.3117	-80.4588
69	1219.9128	17.3117	-80.4588	1221.1506	-10.6145	-31.2136
70	1221.1506	-10.6145	-31.2136	1210.7533	40.3079	-23.4643
71	1210.7533	40.3079	-23.4643	1258.1458	12.1985	25.5109
72	1258.1458	12.1985	25.5109	1247.6719	-16.1063	75.1849
73	1247.6719	-16.1063	75.1849	1179.2925	-46.1064	132.0492
74	1179.2925	-46.1064	132.0492	1052.5901	-74.6492	182.1663
75	1052.5901	-74.6492	182.1663	866.9559	-104.6832	238.6313
76	866.9559	-104.6832	238.6313	621.9456	-133.4515	288.8177
77	621.9456	-133.4515	288.8177	318.5775	-163.4666	344.5345
78	318.5775	-163.4666	344.5345	146.2222	5.3312	0.7386
79	146.2222	5.3312	0.7386	199.6728	30.2459	6.9005
80	199.6728	30.2459	6.9005	260.1592	10.9240	3.5050
81	260.1592	10.9240	3.5050	243.3616	-8.3993	0.1424
82	243.3616	-8.3993	0.1424	226.5589	-8.3994	0.5044
83	226.5589	-8.3994	0.5044	351.3467	163.0036	-326.3759
84	351.3467	163.0036	-326.3759	641.8876	133.0042	-270.6257
85	641.8876	133.0042	-270.6257	872.7983	104.9353	-221.4925
86	872.7983	104.9353	-221.4925	1046.9536	74.9228	-165.0202
87	1046.9536	74.9228	-165.0202	1163.3263	47.1072	-115.9695
88	1163.3263	47.1072	-115.9695	1222.7925	19.5754	-67.3964
89	1222.7925	19.5754	-67.3964	1226.8419	-7.6926	-19.3788
90	1226.8419	-7.6926	-19.3788	1179.5002	37.3524	6.2307
91	1179.5002	37.3524	6.2307	1219.7878	9.1866	55.9644
92	1219.7878	9.1866	55.9644	1202.0776	-19.2300	106.2619
93	1202.0776	-19.2300	106.2619	1127.4813	-49.1959	163.0384
94	1127.4813	-49.1959	163.0384	993.2696	-77.8062	213.6198
95	993.2696	-77.8062	213.6198	801.2324	-107.8178	269.9919
96	801.2324	-107.8178	269.9919	549.1244	-137.8157	326.0237
97	549.1244	-137.8157	326.0237	238.8304	-166.6194	376.0743
98	238.8304	-166.6194	376.0743	153.1927	30.6511	0.2422
99	153.1927	30.6511	0.2422	214.5096	30.6531	0.5249
100	214.5096	30.6531	0.5249	275.3260	10.3105	4.2415
101	275.3260	10.3105	4.2415	257.2610	-10.0309	7.9658
102	257.2610	-10.0309	7.9658	239.6954	-10.0315	8.3003
103	239.6954	-10.0315	8.3003	352.8842	137.7289	-296.0074
104	352.8842	137.7289	-296.0074	558.2900	107.7368	-240.4028
105	558.2900	107.7368	-240.4028	721.3804	79.6154	-190.6259
106	721.3804	79.6154	-190.6259	839.9281	49.6224	-134.5851
107	839.9281	49.6224	-134.5851	916.4020	36.7660	-112.7943
108	916.4020	36.7660	-112.7943	947.0430	9.2232	-64.2521
109	947.0430	9.2232	-64.2521	936.1859	-18.0167	-16.4883
110	936.1859	-18.0167	-16.4883	885.2384	-44.9205	30.6745
111	885.2384	-44.9205	30.6745	913.3325	19.6165	37.3615
112	913.3325	19.6165	37.3615	911.5488	-10.3811	93.5787
113	911.5488	-10.3811	93.5787	865.6954	-38.9705	143.2710

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
114	865.6954	-38.9705	143.2710	776.2148	-69.0043	199.3674
115	776.2148	-69.0043	199.3674	640.8723	-84.0058	227.8158
116	640.8723	-84.0058	227.8158	459.3228	-112.8338	277.7301
117	459.3228	-112.8338	277.7301	232.9449	-142.8351	333.1873
118	232.9449	-142.8351	333.1873	168.7045	6.9662	9.0457
119	168.7045	6.9662	9.0457	208.1863	35.3737	-36.5465
120	208.1863	35.3737	-36.5465	266.1378	12.9156	-13.6257
121	266.1378	12.9156	-13.6257	245.4577	-9.5396	9.3190
122	245.4577	-9.5396	9.3190	228.7482	-9.5390	9.6378
123	228.7482	-9.5390	9.6378	326.9866	137.3531	-296.3895
124	326.9866	137.3531	-296.3895	531.7281	107.3548	-240.8208
125	531.7281	107.3548	-240.8208	693.5116	79.1264	-191.3198
126	693.5116	79.1264	-191.3198	811.2357	49.1273	-135.3194
127	811.2357	49.1273	-135.3194	886.0383	36.1357	-113.8083
128	886.0383	36.1357	-113.8083	914.6188	8.4277	-65.5412
129	914.6188	8.4277	-65.5412	901.3984	-18.9633	-18.0452
130	901.3984	-18.9633	-18.0452	927.1786	25.3958	31.7036
131	927.1786	25.3958	31.7036	959.0157	12.8229	53.4546
132	959.0157	12.8229	53.4546	945.9868	-15.0615	102.6216
133	945.9868	-15.0615	102.6216	890.9165	-45.0592	158.8525
134	890.9165	-45.0592	158.8525	792.7639	-73.2467	207.9985
135	792.7639	-73.2467	207.9985	649.9984	-88.2653	236.4604
136	649.9984	-88.2653	236.4604	460.9243	-116.6976	285.8876
137	460.9243	-116.6976	285.8876	227.7622	-146.7103	341.3416
138	227.7622	-146.7103	341.3416	223.9578	9.3843	13.4875
139	223.9578	9.3843	13.4875	240.3598	9.3820	13.7999
140	240.3598	9.3820	13.7999	259.9857	-12.0119	-1.5915
141	259.9857	-12.0119	-1.5915	203.0925	-33.4052	-17.0040
142	203.0925	-33.4052	-17.0040	147.5793	-5.9129	5.1906
143	147.5793	-5.9129	5.1906	327.3732	130.8991	-285.5505
144	327.3732	130.8991	-285.5505	549.8259	115.9020	-257.4525
145	549.8259	115.9020	-257.4525	724.8245	87.3012	-207.2681
146	724.8245	87.3012	-207.2681	852.2185	57.2795	-151.1852
147	852.2185	57.2795	-151.1852	933.3228	28.9571	-101.6076
148	933.3228	28.9571	-101.6076	967.5645	-1.0393	-45.3025
149	967.5645	-1.0393	-45.3025	955.3286	-14.1294	-24.0801
150	955.3286	-14.1294	-24.0801	1020.8434	35.1232	-16.0247
151	1020.8434	35.1232	-16.0247	1056.1766	7.6105	32.0868
152	1056.1766	7.6105	32.0868	1047.0352	-20.1960	80.6005
153	1047.0352	-20.1960	80.6005	992.5140	-50.2200	137.0098
154	992.5140	-50.2200	137.0098	891.3383	-63.3156	158.7807
155	891.3383	-63.3156	158.7807	741.1445	-91.6329	208.7526
156	741.1445	-91.6329	208.7526	545.8969	-121.6326	264.6384
157	545.8969	-121.6326	264.6384	302.5524	-151.6384	320.2185
158	302.5524	-151.6384	320.2185	211.1391	8.6166	3.3598
159	211.1391	8.6166	3.3598	226.6437	8.6166	3.6631
160	226.6437	8.6166	3.6631	242.1300	-9.2718	-0.2254
161	242.1300	-9.2718	-0.2254	187.7838	-27.1599	-4.1272
162	187.7838	-27.1599	-4.1272	149.0894	-5.4641	-1.7538
163	149.0894	-5.4641	-1.7538	304.0477	165.8450	-350.6677
164	304.0477	165.8450	-350.6677	600.2525	135.8374	-294.9811
165	600.2525	135.8374	-294.9811	836.5640	107.4877	-245.0999
166	836.5640	107.4877	-245.0999	1015.9086	77.5058	-188.6868
167	1015.9086	77.5058	-188.6868	1136.2678	49.3918	-138.8992
168	1136.2678	49.3918	-138.8992	1199.2725	19.3806	-82.1050
169	1199.2725	19.3806	-82.1050	1205.7568	-8.4707	-32.7791
170	1205.7568	-8.4707	-32.7791	1229.0739	35.6479	-17.7922
171	1229.0739	35.6479	-17.7922	1269.3402	8.1965	30.4603
172	1269.3402	8.1965	30.4603	1253.9810	-19.5879	79.4062
173	1253.9810	-19.5879	79.4062	1181.5786	-47.6369	128.9562

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
174	1181.5786	-47.6369	128.9562	1050.8213	-75.9284	179.0282
175	1050.8213	-75.9284	179.0282	862.6584	-105.9350	235.4911
176	862.6584	-105.9350	235.4911	615.4687	-134.4009	285.6245
177	615.4687	-134.4009	285.6245	310.1754	-164.3922	341.3270
178	310.1754	-164.3922	341.3270	108.6100	23.2050	7.5252
179	108.6100	23.2050	7.5252	155.0203	23.2075	7.7284
180	155.0203	23.2075	7.7284	201.3589	8.2668	3.0248
181	201.3589	8.2668	3.0248	188.2628	-6.6740	-1.6576
182	188.2628	-6.6740	-1.6576	175.2498	-6.6732	-1.3849
183	175.2498	-6.6732	-1.3849	332.1986	157.1567	-333.6574
184	332.1986	157.1567	-333.6574	612.1520	129.1039	-283.8065
185	612.1520	129.1039	-283.8065	836.0836	101.3177	-234.1942
186	836.0836	101.3177	-234.1942	1007.0050	71.3043	-177.8169
187	1007.0050	71.3043	-177.8169	1123.9792	43.8317	-128.3347
188	1123.9792	43.8317	-128.3347	1188.2671	16.6238	-79.3649
189	1188.2671	16.6238	-79.3649	1201.4766	-10.2379	-30.9891
190	1201.4766	-10.2379	-30.9891	1165.2844	-32.9735	7.1001
191	1165.2844	-32.9735	7.1001	1157.5923	2.6287	44.7523
192	1157.5923	2.6287	44.7523	1145.9379	-25.7141	93.7629
193	1145.9379	-25.7141	93.7629	1079.1294	-55.7068	150.3254
194	1079.1294	-55.7068	150.3254	957.1737	-69.2786	172.6978
195	957.1737	-69.2786	172.6978	778.2615	-99.2703	228.9879
196	778.2615	-99.2703	228.9879	543.5934	-128.0450	278.6789
197	543.5934	-128.0450	278.6789	252.8973	-158.0379	334.2314
198	252.8973	-158.0379	334.2314	160.0186	32.3727	9.0600
199	160.0186	32.3727	9.0600	223.1573	32.3759	9.3606
200	223.1573	32.3759	9.3606	286.3571	11.1107	4.3351
201	286.3571	11.1107	4.3351	272.0920	-10.1574	-0.6793
202	272.0920	-10.1574	-0.6793	257.7714	-10.1569	-0.3584
203	257.7714	-10.1569	-0.3584	243.4496	-10.1536	-0.1410
204	243.4496	-10.1536	-0.1410	229.1385	-10.1508	0.0959
205	229.1385	-10.1508	0.0959	214.8333	-10.1500	0.2915
206	214.8333	-10.1500	0.2915	200.5224	-10.1515	0.4128
207	200.5224	-10.1515	0.4128	194.0370	123.3372	-104.0215
208	194.0370	123.3372	-104.0215	353.5064	110.8783	-80.0062
209	353.5064	110.8783	-80.0062	483.1774	80.8767	-24.7100
210	483.1774	80.8767	-24.7100	586.0562	67.8447	0.1591
211	586.0562	67.8447	0.1591	660.3856	37.8488	55.8727
212	660.3856	37.8488	55.8727	704.3790	22.8272	83.9936
213	704.3790	22.8272	83.9936	720.5644	-7.1796	139.4727
214	720.5644	-7.1796	139.4727	703.7049	-22.1643	167.6895
215	703.7049	-22.1643	167.6895	659.5303	-37.1535	195.8832
216	659.5303	-37.1535	195.8832	584.1912	-67.1557	251.3095
217	584.1912	-67.1557	251.3095	479.1640	-82.1683	279.3287
218	479.1640	-82.1683	279.3287	345.5439	-112.1662	334.8097
219	345.5439	-112.1662	334.8097	179.7896	-127.1566	362.5209
220	179.7896	-127.1566	362.5209	0.4320	-127.1547	362.5593

ENVOL. MIN. FLECTORES TREN TREN SW/2, EC-1 en via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.0001	7.4984	-1.6745	-45.3400	-27.7364	-6.3772
2	-45.3400	-27.7364	-6.3772	-90.6867	-27.7337	-6.4626
3	-90.6867	-27.7337	-6.4626	-136.0201	-27.7310	-6.6051
4	-136.0201	-27.7310	-6.6051	-181.3495	-27.7298	-6.8050
5	-181.3495	-27.7298	-6.8050	-226.6883	-27.7216	-7.0614
6	-226.6883	-27.7216	-7.0614	-272.0005	-27.7175	-7.3748
7	-272.0005	-27.7175	-7.3748	-317.3120	-27.7386	-7.7459
8	-317.3120	-27.7386	-7.7459	-362.6815	-27.7429	-8.1733
9	-362.6815	-27.7429	-8.1733	-408.0147	-27.7406	-8.6578
10	-408.0147	-27.7406	-8.6578	-453.3514	-27.7518	-9.2000
11	-453.3514	-27.7518	-9.2000	-498.6987	-27.7348	-9.7999
12	-498.6987	-27.7348	-9.7999	-543.9943	-27.7010	-10.4551
13	-543.9943	-27.7010	-10.4551	-589.2699	-27.6917	-11.1656
14	-589.2699	-27.6917	-11.1656	-634.5529	-27.7051	-11.9371
15	-634.5529	-27.7051	-11.9371	-679.8507	-27.7158	-12.7652
16	-679.8507	-27.7158	-12.7652	-725.1359	-27.7047	-13.6458
17	-725.1359	-27.7047	-13.6458	-888.3766	-206.8767	267.6599
18	-888.3766	-206.8767	267.6599	-1252.7654	-232.2202	305.6887
19	-1252.7654	-232.2202	305.6887	-1642.0768	-244.1077	323.5167
20	-1642.0768	-244.1077	323.5167	-2055.7339	1.8208	-32.6557
21	-2055.7339	1.8208	-32.6557	-1556.1948	248.2802	-391.0266
22	-1556.1948	248.2802	-391.0266	-1087.8296	225.5383	-357.9080
23	-1087.8296	225.5383	-357.9080	-776.4408	30.5065	12.9933
24	-776.4408	30.5065	12.9933	-715.4491	30.5168	11.8457
25	-715.4491	30.5168	11.8457	-654.4301	30.5344	10.7899
26	-654.4301	30.5344	10.7899	-593.3971	30.5331	9.8319
27	-593.3971	30.5331	9.8319	-532.3549	30.5304	8.9659
28	-532.3549	30.5304	8.9659	-471.2930	30.5360	8.1936
29	-471.2930	30.5360	8.1936	-410.2265	30.5379	7.5163
30	-410.2265	30.5379	7.5163	-349.1638	30.5513	6.9320
31	-349.1638	30.5513	6.9320	-377.3018	-28.4359	-9.2466
32	-377.3018	-28.4359	-9.2466	-434.1563	-28.4375	-9.8712
33	-434.1563	-28.4375	-9.8712	-490.9694	-28.4284	-10.5835
34	-490.9694	-28.4284	-10.5835	-547.8058	-28.4352	-11.3813
35	-547.8058	-28.4352	-11.3813	-604.6715	-28.4407	-12.2682
36	-604.6715	-28.4407	-12.2682	-661.5266	-28.4419	-13.2423
37	-661.5266	-28.4419	-13.2423	-758.8608	-209.2557	321.4965
38	-758.8608	-209.2557	321.4965	-1198.3909	-231.8792	352.6990
39	-1198.3909	-231.8792	352.6990	-1672.1985	-242.6815	366.6064
40	-1672.1985	-242.6815	366.6064	-2170.0920	10.1248	-20.9621
41	-2170.0920	10.1248	-20.9621	-1645.4197	251.2862	-389.8221
42	-1645.4197	251.2862	-389.8221	-1154.3171	239.7231	-374.5595
43	-1154.3171	239.7231	-374.5595	-770.2076	30.2818	12.9021
44	-770.2076	30.2818	12.9021	-709.6463	30.2845	11.7650
45	-709.6463	30.2845	11.7650	-649.0756	30.2966	10.7186
46	-649.0756	30.2966	10.7186	-588.4774	30.2975	9.7663
47	-588.4774	30.2975	9.7663	-527.8934	30.2803	8.9082
48	-527.8934	30.2803	8.9082	-467.3464	30.2710	8.1437
49	-467.3464	30.2710	8.1437	-406.7888	30.2787	7.4704
50	-406.7888	30.2787	7.4704	-346.2362	30.2846	6.8910
51	-346.2362	30.2846	6.8910	-378.6661	-28.2318	-8.8014
52	-378.6661	-28.2318	-8.8014	-435.0856	-28.2130	-9.4272
53	-435.0856	-28.2130	-9.4272	-491.4846	-28.2057	-10.1416
54	-491.4846	-28.2057	-10.1416	-547.8704	-28.2004	-10.9422
55	-547.8704	-28.2004	-10.9422	-604.2384	-28.1911	-11.8292
56	-604.2384	-28.1911	-11.8292	-660.5989	-28.1860	-12.8016
57	-660.5989	-28.1860	-12.8016	-757.4903	-209.8067	323.4505
58	-757.4903	-209.8067	323.4505	-1197.8140	-232.3656	354.5204
59	-1197.8140	-232.3656	354.5204	-1672.4558	-243.1299	368.3454
60	-1672.4558	-243.1299	368.3454	-2173.6555	9.9855	-20.0095
61	-2173.6555	9.9855	-20.0095	-1650.7920	251.3770	-389.5910
62	-1650.7920	251.3770	-389.5910	-1159.3478	239.7928	-374.3441
63	-1159.3478	239.7928	-374.3441	-767.3975	30.2199	13.8867
64	-767.3975	30.2199	13.8867	-706.9860	30.2261	12.7528
65	-706.9860	30.2261	12.7528	-646.5477	30.2343	11.7113
66	-646.5477	30.2343	11.7113	-586.1084	30.2225	10.7648
67	-586.1084	30.2225	10.7648	-525.6874	30.2043	9.9094
68	-525.6874	30.2043	9.9094	-465.2929	30.2132	9.1467
69	-465.2929	30.2132	9.1467	-404.8751	30.2309	8.4786
70	-404.8751	30.2309	8.4786	-344.4297	30.2258	7.9037
71	-344.4297	30.2258	7.9037	-375.1680	-27.9240	-8.5170
72	-375.1680	-27.9240	-8.5170	-431.0012	-27.9247	-9.1382
73	-431.0012	-27.9247	-9.1382	-486.8500	-27.9329	-9.8466
74	-486.8500	-27.9329	-9.8466	-542.7063	-27.9268	-10.6386
75	-542.7063	-27.9268	-10.6386	-598.5314	-27.9142	-11.5163
76	-598.5314	-27.9142	-11.5163	-654.3250	-27.9160	-12.4796
77	-654.3250	-27.9160	-12.4796	-747.4870	-209.4240	322.9272
78	-747.4870	-209.4240	322.9272	-1184.6510	-231.9047	354.1553
79	-1184.6510	-231.9047	354.1553	-1656.9808	-242.6263	368.0800
80	-1656.9808	-242.6263	368.0800	-2154.6582	9.1752	-9.3263
81	-2154.6582	9.1752	-9.3263	-1632.9780	248.9465	-365.3217
82	-1632.9780	248.9465	-365.3217	-1145.5867	237.2388	-348.7905
83	-1145.5867	237.2388	-348.7905	-766.9089	30.6841	7.3188
84	-766.9089	30.6841	7.3188	-705.5490	30.6826	6.1881
85	-705.5490	30.6826	6.1881	-644.1908	30.6815	5.1488
86	-644.1908	30.6815	5.1488	-582.8205	30.6822	4.2028
87	-582.8205	30.6822	4.2028	-521.4572	30.6843	3.3529
88	-521.4572	30.6843	3.3529	-460.0830	30.6763	2.5996
89	-460.0830	30.6763	2.5996	-398.7444	30.6632	1.9383
90	-398.7444	30.6632	1.9383	-337.3949	30.6624	1.8096
91	-337.3949	30.6624	1.8096	-276.0382	30.6641	1.3396
92	-276.0382	30.6641	1.3396	-299.7341	-19.4869	-16.6604
93	-299.7341	-19.4869	-16.6604	-338.6865	-19.4791	-17.1506
94	-338.6865	-19.4791	-17.1506	-377.6508	-19.4955	-17.7002
95	-377.6508	-19.4955	-17.7002	-416.6333	-19.5037	-18.3110
96	-416.6333	-19.5037	-18.3110	-455.6082	-19.4996	-18.9836
97	-455.6082	-19.4996	-18.9836	-701.6464	-196.2230	325.1245
98	-701.6464	-196.2230	325.1245	-1119.4417	-218.5245	357.0423
99	-1119.4417	-218.5245	357.0423	-1568.3149	-229.1727	370.9609
100	-1568.3149	-229.1727	370.9609	-1985.7397	0.8688	12.6998
101	-1985.7397	0.8688	12.6998	-1494.7688	238.7470	-356.2868
102	-1494.7688	238.7470	-356.2868	-1089.7552	226.0109	-336.8950
103	-1089.7552	226.0109	-336.8950	-783.0665	35.3725	-30.3544
104	-783.0665	35.3725	-30.3544	-721.1322	35.3569	-31.3671
105	-721.1322	35.3569	-31.3671	-659.2280	35.3460	-32.2955
106	-659.2280	35.3460	-32.2955	-597.3037	35.3585	-33.1416
107	-597.3037	35.3585	-33.1416	-535.3662	35.3749	-33.9063
108	-535.3662	35.3749	-33.9063	-473.4169	35.3773	-34.5845
109	-473.4169	35.3773	-34.5845	-411.4564	35.3775	-35.1802
110	-411.4564	35.3775	-35.1802	-349.4823	35.3831	-35.6930
111	-349.4823	35.3831	-35.6930	-287.4966	35.3840	-36.1193
112	-287.4966	35.3840	-36.1193	-319.1270	-23.2282	-26.6138
113	-319.1270	-23.2282	-26.6138	-359.7465	-23.2288	-27.0723
114	-359.7465	-23.2288	-27.0723	-400.3585	-23.2253	-27.5833

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	-400.3585	-23.2253	-27.5833	-440.9583	-23.2294	-28.1505
116	-440.9583	-23.2294	-28.1505	-481.5743	-23.2398	-28.7702
117	-481.5743	-23.2398	-28.7702	-752.6772	-185.7816	297.7415
118	-752.6772	-185.7816	297.7415	-1098.8521	-209.9014	334.3190
119	-1098.8521	-209.9014	334.3190	-1474.9761	-221.4564	351.1977
120	-1474.9761	-221.4564	351.1977	-1810.6478	6.0045	0.6521
121	-1810.6478	6.0045	0.6521	-1337.9624	220.4319	-326.6021
122	-1337.9624	220.4319	-326.6021	-960.8387	207.8304	-307.4664
123	-960.8387	207.8304	-307.4664	-615.8771	181.7520	-267.2236
124	-615.8771	181.7520	-267.2236	-475.0505	23.2078	-24.8302
125	-475.0505	23.2078	-24.8302	-434.4023	23.1960	-25.4423
126	-434.4023	23.1960	-25.4423	-393.7820	23.1899	-25.9974
127	-393.7820	23.1899	-25.9974	-353.1436	23.2088	-26.4996
128	-353.1436	23.2088	-26.4996	-312.4772	23.2292	-26.9503
129	-312.4772	23.2292	-26.9503	-271.7766	23.2278	-27.3422
130	-271.7766	23.2278	-27.3422	-259.1207	-26.2780	-32.9700
131	-259.1207	-26.2780	-32.9700	-305.0509	-26.2843	-33.3513
132	-305.0509	-26.2843	-33.3513	-351.0214	-26.2938	-33.7958
133	-351.0214	-26.2938	-33.7958	-396.9791	-26.2913	-34.2999
134	-396.9791	-26.2913	-34.2999	-442.9384	-26.2902	-34.8629
135	-442.9384	-26.2902	-34.8629	-488.9035	-26.2867	-35.4899
136	-488.9035	-26.2867	-35.4899	-534.8426	-26.2799	-36.1803
137	-534.8426	-26.2799	-36.1803	-797.2680	-186.5649	295.9932
138	-797.2680	-186.5649	295.9932	-1151.9729	-211.0226	332.0237
139	-1151.9729	-211.0226	332.0237	-1533.9421	-222.7613	348.5978
140	-1533.9421	-222.7613	348.5978	-1863.1604	-2.9861	-0.3427
141	-1863.1604	-2.9861	-0.3427	-1360.2253	227.3496	-366.5986
142	-1360.2253	227.3496	-366.5986	-963.1428	215.1414	-348.9450
143	-963.1428	215.1414	-348.9450	-601.4122	189.8136	-310.9067
144	-601.4122	189.8136	-310.9067	-487.5435	22.8382	-21.5029
145	-487.5435	22.8382	-21.5029	-446.4066	22.8368	-22.1479
146	-446.4066	22.8368	-22.1479	-405.2811	22.8348	-22.7375
147	-405.2811	22.8348	-22.7375	-364.1298	22.8320	-23.2712
148	-364.1298	22.8320	-23.2712	-323.0026	22.8326	-23.7465
149	-323.0026	22.8326	-23.7465	-281.8455	22.8468	-24.1654
150	-281.8455	22.8468	-24.1654	-337.6526	-33.3867	-17.8433
151	-337.6526	-33.3867	-17.8433	-397.7147	-33.3939	-18.3479
152	-397.7147	-33.3939	-18.3479	-457.8063	-33.3936	-18.9379
153	-457.8063	-33.3936	-18.9379	-517.8705	-33.3847	-19.6181
154	-517.8705	-33.3847	-19.6181	-577.9286	-33.3859	-20.3748
155	-577.9286	-33.3859	-20.3748	-637.9709	-33.3855	-21.2173
156	-637.9709	-33.3855	-21.2173	-698.0323	-33.3877	-22.1451
157	-698.0323	-33.3877	-22.1451	-809.0726	-204.4099	318.8151
158	-809.0726	-204.4099	318.8151	-1190.4856	-216.5856	334.8530
159	-1190.4856	-216.5856	334.8530	-1604.4617	-239.9341	367.2726
160	-1604.4617	-239.9341	367.2726	-2047.1648	3.7085	-13.0628
161	-2047.1648	3.7085	-13.0628	-1545.9800	247.5732	-393.0757
162	-1545.9800	247.5732	-393.0757	-1077.1368	224.7389	-360.3076
163	-1077.1368	224.7389	-360.3076	-641.8392	200.6246	-325.7223
164	-641.8392	200.6246	-325.7223	-541.1272	23.2256	12.1824
165	-541.1272	23.2256	12.1824	-494.6743	23.2262	11.3846
166	-494.6743	23.2262	11.3846	-448.2520	23.2169	10.6607
167	-448.2520	23.2169	10.6607	-401.8452	23.2095	10.0071
168	-401.8452	23.2095	10.0071	-355.4517	23.2137	9.4205
169	-355.4517	23.2137	9.4205	-309.0135	23.2158	8.9093
170	-309.0135	23.2158	8.9093	-301.1556	-27.1714	-4.9104
171	-301.1556	-27.1714	-4.9104	-355.5197	-27.1888	-5.4127
172	-355.5197	-27.1888	-5.4127	-409.8975	-27.1832	-6.0030
173	-409.8975	-27.1832	-6.0030	-464.2488	-27.1629	-6.6784
174	-464.2488	-27.1629	-6.6784	-518.5692	-27.1639	-7.4362

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	-518.5692	-27.1639	-7.4362	-572.9078	-27.1665	-8.2754
176	-572.9078	-27.1665	-8.2754	-627.2307	-27.1644	-9.1990
177	-627.2307	-27.1644	-9.1990	-720.8689	-207.0967	321.8261
178	-720.8689	-207.0967	321.8261	-1150.1411	-218.4824	337.0807
179	-1150.1411	-218.4824	337.0807	-1615.7444	-240.2548	367.3550
180	-1615.7444	-240.2548	367.3550	-2114.1045	8.7523	-16.0905
181	-2114.1045	8.7523	-16.0905	-1615.6128	245.2771	-379.8976
182	-1615.6128	245.2771	-379.8976	-1145.8691	233.3543	-364.0611
183	-1145.8691	233.3543	-364.0611	-786.9268	32.3523	16.1185
184	-786.9268	32.3523	16.1185	-723.8447	32.3561	14.9831
185	-723.8447	32.3561	14.9831	-660.7571	32.3559	13.9410
186	-660.7571	32.3559	13.9410	-597.6491	32.3648	12.9971
187	-597.6491	32.3648	12.9971	-534.5192	32.3657	12.1498
188	-534.5192	32.3657	12.1498	-471.4008	32.3609	11.3911
189	-471.4008	32.3609	11.3911	-408.2800	32.3796	10.7312
190	-408.2800	32.3796	10.7312	-345.1152	32.3919	10.1341
191	-345.1152	32.3919	10.1341	-281.9652	32.3841	9.6574
192	-281.9652	32.3841	9.6574	-218.8245	32.3775	9.3350
193	-218.8245	32.3775	9.3350	-155.6906	32.3766	9.0743
194	-155.6906	32.3766	9.0743	-92.5560	32.3774	8.8710
195	-92.5560	32.3774	8.8710	-29.4079	32.3794	8.7743
196	-29.4079	32.3794	8.7743	-246.3142	-163.3680	259.3394
197	-246.3142	-163.3680	259.3394	-591.6683	-186.7674	296.6699
198	-591.6683	-186.7674	296.6699	-968.9377	-197.9626	313.5424
199	-968.9377	-197.9626	313.5424	-1375.4504	-219.2865	345.9579
200	-1375.4504	-219.2865	345.9579	-1799.6899	21.7826	-4.6733
201	-1799.6899	21.7826	-4.6733	-1426.6882	247.8515	-327.6902
202	-1426.6882	247.8515	-327.6902	-1084.6293	232.8521	-301.7501
203	-1084.6293	232.8521	-301.7501	-813.6361	33.9328	14.5520
204	-813.6361	33.9328	14.5520	-765.8110	33.9047	13.7692
205	-765.8110	33.9047	13.7692	-718.0067	33.9141	13.1097
206	-718.0067	33.9141	13.1097	-670.1583	33.9114	12.7073
207	-670.1583	33.9114	12.7073	-622.3432	33.9091	11.8930
208	-622.3432	33.9091	11.8930	-574.5071	33.9208	11.0807
209	-574.5071	33.9208	11.0807	-526.6591	33.9502	10.6804
210	-526.6591	33.9502	10.6804	-478.7520	33.9774	10.1969
211	-478.7520	33.9774	10.1969	-430.8777	33.9633	9.6703
212	-430.8777	33.9633	9.6703	-383.0256	33.9745	9.2863
213	-383.0256	33.9745	9.2863	-335.1006	33.9739	9.0408
214	-335.1006	33.9739	9.0408	-287.2265	33.9491	8.7340
215	-287.2265	33.9491	8.7340	-239.3728	33.9523	8.4542
216	-239.3728	33.9523	8.4542	-191.4888	33.9555	8.3059
217	-191.4888	33.9555	8.3059	-143.6222	33.9593	8.1416
218	-143.6222	33.9593	8.1416	-95.7346	33.9629	7.9971
219	-95.7346	33.9629	7.9971	-47.8609	33.9576	7.9388
220	-47.8609	33.9576	7.9388	-0.0006	2.0962	-0.3197

ENVOL. MAX. CORTANTES TREN TREN SW/2, EC-1 en via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.1311	201.7224	-429.6481	309.2742	188.9239	-408.7867
2	309.2742	188.9239	-408.7867	537.3655	164.0802	-366.5500
3	537.3655	164.0802	-366.5500	747.1145	152.0602	-344.7502
4	747.1145	152.0602	-344.7502	844.8065	128.9391	-301.5710
5	844.8065	128.9391	-301.5710	887.7393	106.5506	-257.2780
6	887.7393	106.5506	-257.2780	978.9916	94.9796	-234.5031
7	978.9916	94.9796	-234.5031	968.4237	71.3611	-190.0780
8	968.4237	71.3611	-190.0780	930.9288	46.9605	-145.6340
9	930.9288	46.9605	-145.6340	929.5455	34.5029	-122.8425
10	929.5455	34.5029	-122.8425	220.9814	13.4226	-124.2798
11	220.9814	13.4226	-124.2798	146.0945	8.0389	-111.0081
12	146.0945	8.0389	-111.0081	149.1176	7.5956	-0.5360
13	149.1176	7.5956	-0.5360	161.5288	7.5909	-0.3413
14	161.5288	7.5909	-0.3413	173.9357	7.5958	-0.1299
15	173.9357	7.5958	-0.1299	186.3538	7.5994	0.0970
16	186.3538	7.5994	0.0970	198.7703	7.5921	0.3386
17	198.7703	7.5921	0.3386	211.1704	7.5888	0.5969
18	211.1704	7.5888	0.5969	223.5792	7.5922	0.8708
19	223.5792	7.5922	0.8708	235.9900	7.5914	1.1590
20	235.9900	7.5914	1.1590	-905.4222	112.7692	-263.2321
21	-905.4222	112.7692	-263.2321	-1458.6123	279.6371	-443.7225
22	-1458.6123	279.6371	-443.7225	-1021.2816	259.1096	-410.5797
23	-1021.2816	259.1096	-410.5797	-606.6658	237.0875	-376.7791
24	-606.6658	237.0875	-376.7791	-223.2373	213.6357	-342.1414
25	-223.2373	213.6357	-342.1414	120.7802	188.8991	-304.7621
26	120.7802	188.8991	-304.7621	417.6143	162.9774	-264.2354
27	417.6143	162.9774	-264.2354	660.2355	136.0827	-220.6390
28	660.2355	136.0827	-220.6390	842.6727	108.3872	-175.1084
29	842.6727	108.3872	-175.1084	960.1079	80.0027	-129.3102
30	960.1079	80.0027	-129.3102	1009.2693	51.1990	-83.3662
31	1009.2693	51.1990	-83.3662	-288.0423	30.5551	6.4422
32	-288.0423	30.5551	6.4422	-226.9488	30.5455	6.0457
33	-226.9488	30.5455	6.0457	-165.8399	30.5436	5.7436
34	-165.8399	30.5436	5.7436	-104.7520	30.5428	5.5364
35	-104.7520	30.5428	5.5364	-43.6740	30.5463	5.4217
36	-43.6740	30.5463	5.4217	17.4101	30.5448	5.4018
37	17.4101	30.5448	5.4018	78.4895	30.5462	5.4759
38	78.4895	30.5462	5.4759	139.5704	30.5522	5.6435
39	139.5704	30.5522	5.6435	200.6532	30.5518	5.9049
40	200.6532	30.5518	5.9049	-884.9314	112.0333	-262.4417
41	-884.9314	112.0333	-262.4417	-1584.4072	283.8842	-441.9532
42	-1584.4072	283.8842	-441.9532	-1114.9839	262.5022	-409.3430
43	-1114.9839	262.5022	-409.3430	-674.2112	239.7221	-375.9663
44	-674.2112	239.7221	-375.9663	-269.8805	215.6205	-341.6334
45	-269.8805	215.6205	-341.6334	90.4386	190.3118	-304.4420
46	90.4386	190.3118	-304.4420	399.6849	163.9287	-263.9970
47	399.6849	163.9287	-263.9970	651.4773	136.6514	-220.3903
48	651.4773	136.6514	-220.3903	840.4099	108.6028	-174.7639
49	840.4099	108.6028	-174.7639	962.1738	79.9881	-128.8015
50	962.1738	79.9881	-128.8015	1013.9331	50.9828	-82.6456
51	1013.9331	50.9828	-82.6456	-285.6851	30.2908	6.4045
52	-285.6851	30.2908	6.4045	-225.1118	30.3063	6.0111
53	-225.1118	30.3063	6.0111	-164.4943	30.3161	5.7106
54	-164.4943	30.3161	5.7106	-103.8829	30.3141	5.5034
55	-103.8829	30.3141	5.5034	-43.2617	30.3110	5.3905
56	-43.2617	30.3110	5.3905	17.3647	30.3073	5.3716
57	17.3647	30.3073	5.3716	77.9861	30.3097	5.4449
58	77.9861	30.3097	5.4449	138.6215	30.3143	5.6121
59	138.6215	30.3143	5.6121	199.2595	30.3135	5.8724
60	199.2595	30.3135	5.8724	-883.2465	112.1995	-262.6205
61	-883.2465	112.1995	-262.6205	-1590.9110	284.0327	-441.7024
62	-1590.9110	284.0327	-441.7024	-1120.7235	262.6128	-409.1118
63	-1120.7235	262.6128	-409.1118	-679.2749	239.7943	-375.7565
64	-679.2749	239.7943	-375.7565	-274.3743	215.6672	-341.4629
65	-274.3743	215.6672	-341.4629	86.4350	190.3192	-304.3248
66	86.4350	190.3192	-304.3248	396.1001	163.9017	-263.9473
67	396.1001	163.9017	-263.9473	648.1529	136.5927	-220.4253
68	648.1529	136.5927	-220.4253	837.3436	108.5428	-174.9021
69	837.3436	108.5428	-174.9021	959.3094	79.8782	-129.0545
70	959.3094	79.8782	-129.0545	1011.2405	50.8642	-83.0242
71	1011.2405	50.8642	-83.0242	-283.9868	30.2274	7.4233
72	-283.9868	30.2274	7.4233	-223.5390	30.2400	7.0314
73	-223.5390	30.2400	7.0314	-163.0903	30.2411	6.7317
74	-163.0903	30.2411	6.7317	-102.6567	30.2370	6.5262
75	-102.6567	30.2370	6.5262	-42.2020	30.2391	6.4165
76	-42.2020	30.2391	6.4165	18.2645	30.2472	6.3976
77	18.2645	30.2472	6.3976	78.7407	30.2491	6.4721
78	78.7407	30.2491	6.4721	139.2087	30.2451	6.6397
79	139.2087	30.2451	6.6397	199.6728	30.2459	6.9005
80	199.6728	30.2459	6.9005	-871.4939	111.8007	-250.7350
81	-871.4939	111.8007	-250.7350	-1575.9609	282.0087	-421.5704
82	-1575.9609	282.0087	-421.5704	-1108.2511	260.3137	-386.1469
83	-1108.2511	260.3137	-386.1469	-670.4771	237.2383	-350.1915
84	-670.4771	237.2383	-350.1915	-270.3254	212.8774	-313.5959
85	-270.3254	212.8774	-313.5959	84.8306	187.3321	-274.5101
86	84.8306	187.3321	-274.5101	388.0925	160.7662	-232.6333
87	388.0925	160.7662	-232.6333	633.3260	133.2869	-188.1581
88	633.3260	133.2869	-188.1581	815.5496	105.2132	-142.3485
89	815.5496	105.2132	-142.3485	931.0294	76.6080	-96.8363
90	931.0294	76.6080	-96.8363	977.3882	47.6629	-51.6343
91	977.3882	47.6629	-51.6343	482.2881	31.8612	-112.1540
92	482.2881	31.8612	-112.1540	-214.6970	30.6555	0.5274
93	-214.6970	30.6555	0.5274	-153.3773	30.6500	0.2450
94	-153.3773	30.6500	0.2450	-92.0636	30.6501	0.0559
95	-92.0636	30.6501	0.0559	-30.7394	30.6512	-0.0392
96	-30.7394	30.6512	-0.0392	30.5666	30.6482	-0.0394
97	30.5666	30.6482	-0.0394	91.8821	30.6492	0.0549
98	91.8821	30.6492	0.0549	153.1927	30.6511	0.2422
99	153.1927	30.6511	0.2422	214.5096	30.6531	0.5249
100	214.5096	30.6531	0.5249	-574.5739	96.7112	-227.5791
101	-574.5739	96.7112	-227.5791	-1466.2821	263.2129	-398.8958
102	-1466.2821	263.2129	-398.8958	-1076.4478	238.7451	-358.0176
103	-1076.4478	238.7451	-358.0176	-693.7545	226.0126	-338.0941
104	-693.7545	226.0126	-338.0941	-372.1617	199.6264	-296.8517
105	-372.1617	199.6264	-296.8517	-89.8755	172.1675	-254.2286
106	-89.8755	172.1675	-254.2286	147.3717	143.8162	-209.7155
107	147.3717	143.8162	-209.7155	360.9866	129.3667	-187.2434
108	360.9866	129.3667	-187.2434	496.8884	100.0583	-142.5426
109	496.8884	100.0583	-142.5426	578.0287	70.3239	-97.7619
110	578.0287	70.3239	-97.7619	602.7953	40.3814	-52.9153
111	602.7953	40.3814	-52.9153	-287.4966	35.3840	-36.1193
112	-287.4966	35.3840	-36.1193	-225.5269	35.3828	-36.4648
113	-225.5269	35.3828	-36.4648	-163.5671	35.3827	-36.7263

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
114	-163.5671	35.3827	-36.7263	-101.6049	35.3857	-36.9040
115	-101.6049	35.3857	-36.9040	-39.6276	35.3811	-36.9994
116	-39.6276	35.3811	-36.9994	22.3298	35.3726	-37.0119
117	22.3298	35.3726	-37.0119	84.2828	35.3708	-36.9402
118	84.2828	35.3708	-36.9402	146.2298	35.3731	-36.7852
119	146.2298	35.3731	-36.7852	208.1863	35.3737	-36.5465
120	208.1863	35.3737	-36.5465	-603.4728	94.6545	-232.5032
121	-603.4728	94.6545	-232.5032	-1284.1044	256.2842	-389.4433
122	-1284.1044	256.2842	-389.4433	-927.6876	232.7180	-348.9253
123	-927.6876	232.7180	-348.9253	-565.4969	220.4332	-329.1655
124	-565.4969	220.4332	-329.1655	-271.9349	194.9344	-288.5467
125	-271.9349	194.9344	-288.5467	-14.2245	168.3279	-246.6523
126	-14.2245	168.3279	-246.6523	201.9489	140.7754	-202.9685
127	201.9489	140.7754	-202.9685	403.9922	126.6741	-180.9058
128	403.9922	126.6741	-180.9058	524.4010	98.0641	-137.1241
129	524.4010	98.0641	-137.1241	592.9944	68.9272	-93.2625
130	592.9944	68.9272	-93.2625	607.7590	39.4631	-49.3090
131	607.7590	39.4631	-49.3090	616.2191	24.6708	-26.8876
132	616.2191	24.6708	-26.8876	-149.7729	23.2095	-28.1954
133	-149.7729	23.2095	-28.1954	-109.1137	23.2129	-28.3713
134	-109.1137	23.2129	-28.3713	-68.4512	23.2089	-28.4893
135	-68.4512	23.2089	-28.4893	-27.7931	23.2072	-28.5523
136	-27.7931	23.2072	-28.5523	12.8712	23.2108	-28.5626
137	12.8712	23.2108	-28.5626	53.5365	23.2156	-28.5185
138	53.5365	23.2156	-28.5185	94.2139	23.2207	-28.4189
139	94.2139	23.2207	-28.4189	134.8936	23.2229	-28.2649
140	134.8936	23.2229	-28.2649	-674.6940	97.3604	-244.7161
141	-674.6940	97.3604	-244.7161	-1295.3445	261.9346	-424.1223
142	-1295.3445	261.9346	-424.1223	-922.9767	239.2182	-387.3597
143	-922.9767	239.2182	-387.3597	-575.4462	215.1445	-350.0110
144	-575.4462	215.1445	-350.0110	-230.5006	202.6288	-331.2335
145	-230.5006	202.6288	-331.2335	44.0030	176.7157	-291.0105
146	44.0030	176.7157	-291.0105	276.4019	149.7919	-247.0006
147	276.4019	149.7919	-247.0006	461.5077	122.0015	-201.4943
148	461.5077	122.0015	-201.4943	594.9619	93.5117	-155.1414
149	594.9619	93.5117	-155.1414	712.3831	79.0387	-131.2269
150	712.3831	79.0387	-131.2269	735.8628	49.7997	-83.9023
151	735.8628	49.7997	-83.9023	-199.5301	22.8431	-24.8300
152	-199.5301	22.8431	-24.8300	-158.3972	22.8347	-25.0764
153	-158.3972	22.8347	-25.0764	-117.2469	22.8405	-25.2680
154	-117.2469	22.8405	-25.2680	-76.0896	22.8426	-25.4021
155	-76.0896	22.8426	-25.4021	-34.9298	22.8418	-25.4797
156	-34.9298	22.8418	-25.4797	6.2238	22.8455	-25.5005
157	6.2238	22.8455	-25.5005	47.3848	22.8464	-25.4641
158	47.3848	22.8464	-25.4641	88.5337	22.8435	-25.3700
159	88.5337	22.8435	-25.3700	129.6792	22.8441	-25.2192
160	129.6792	22.8441	-25.2192	-935.9828	110.5716	-267.9800
161	-935.9828	110.5716	-267.9800	-1456.7441	279.2620	-445.1146
162	-1456.7441	279.2620	-445.1146	-1014.1450	258.4866	-412.4111
163	-1014.1450	258.4866	-412.4111	-597.9328	236.3172	-378.9913
164	-597.9328	236.3172	-378.9913	-215.4510	212.8250	-344.6672
165	-215.4510	212.8250	-344.6672	126.0237	188.1281	-307.5363
166	126.0237	188.1281	-307.5363	419.5889	162.3379	-267.1784
167	419.5889	162.3379	-267.1784	658.9556	135.5921	-223.6609
168	658.9556	135.5921	-223.6609	838.5015	108.0522	-178.1003
169	838.5015	108.0522	-178.1003	953.8528	79.9124	-132.1876
170	953.8528	79.9124	-132.1876	1001.9444	51.3271	-86.0627
171	1001.9444	51.3271	-86.0627	407.9138	27.0346	-125.9425
172	407.9138	27.0346	-125.9425	-169.8327	23.2019	7.8081
173	-169.8327	23.2019	7.8081	-123.4294	23.2084	7.5827

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
174	-123.4294	23.2084	7.5827	-77.0197	23.2127	7.4282
175	-77.0197	23.2127	7.4282	-30.6180	23.2134	7.3443
176	-30.6180	23.2134	7.3443	15.8034	23.2101	7.3354
177	15.8034	23.2101	7.3354	62.2092	23.2053	7.3946
178	62.2092	23.2053	7.3946	108.6100	23.2050	7.5252
179	108.6100	23.2050	7.5252	155.0203	23.2075	7.7284
180	155.0203	23.2075	7.7284	-837.5380	110.1640	-256.0822
181	-837.5380	110.1640	-256.0822	-1564.1289	279.0208	-433.5328
182	-1564.1289	279.0208	-433.5328	-1112.3862	256.8712	-399.8338
183	-1112.3862	256.8712	-399.8338	-690.1509	233.3528	-365.4376
184	-690.1509	233.3528	-365.4376	-304.8647	208.5683	-330.1874
185	-304.8647	208.5683	-330.1874	36.4632	182.6464	-292.1611
186	36.4632	182.6464	-292.1611	327.3469	155.7299	-250.9441
187	327.3469	155.7299	-250.9441	562.1129	128.0272	-206.8452
188	562.1129	128.0272	-206.8452	736.2114	99.7308	-161.9202
189	736.2114	99.7308	-161.9202	846.4187	70.9835	-116.7354
190	846.4187	70.9835	-116.7354	890.8242	41.9965	-71.3297
191	890.8242	41.9965	-71.3297	-281.9652	32.3841	9.6574
192	-281.9652	32.3841	9.6574	-218.8245	32.3775	9.3350
193	-218.8245	32.3775	9.3350	-155.6906	32.3766	9.0743
194	-155.6906	32.3766	9.0743	-92.5560	32.3774	8.8710
195	-92.5560	32.3774	8.8710	-29.4079	32.3794	8.7743
196	-29.4079	32.3794	8.7743	33.7390	32.3818	8.7782
197	33.7390	32.3818	8.7782	96.8847	32.3763	8.8757
198	96.8847	32.3763	8.8757	160.0186	32.3727	9.0600
199	160.0186	32.3727	9.0600	223.1573	32.3759	9.3606
200	223.1573	32.3759	9.3606	-1777.3953	33.5421	-25.3577
201	-1777.3953	33.5421	-25.3577	-1426.6882	247.8515	-327.6902
202	-1426.6882	247.8515	-327.6902	-1084.6293	232.8521	-301.7501
203	-1084.6293	232.8521	-301.7501	-769.9990	217.8541	-275.0723
204	-769.9990	217.8541	-275.0723	-487.7717	187.8557	-220.6855
205	-487.7717	187.8557	-220.6855	-233.9542	172.8568	-193.5479
206	-233.9542	172.8568	-193.5479	-9.9221	142.8521	-138.6240
207	-9.9221	142.8521	-138.6240	183.0983	127.8530	-110.9562
208	183.0983	127.8530	-110.9562	348.8176	112.8519	-83.1558
209	348.8176	112.8519	-83.1558	481.2650	82.8396	-27.8619
210	481.2650	82.8396	-27.8619	586.0562	67.8447	0.1591
211	586.0562	67.8447	0.1591	660.3856	37.8488	55.8727
212	660.3856	37.8488	55.8727	-383.0256	33.9745	9.2863
213	-383.0256	33.9745	9.2863	-335.1006	33.9739	9.0408
214	-335.1006	33.9739	9.0408	-287.2265	33.9491	8.7340
215	-287.2265	33.9491	8.7340	-239.3728	33.9523	8.4542
216	-239.3728	33.9523	8.4542	-191.4888	33.9555	8.3059
217	-191.4888	33.9555	8.3059	-143.6222	33.9593	8.1416
218	-143.6222	33.9593	8.1416	-95.7346	33.9629	7.9971
219	-95.7346	33.9629	7.9971	-47.8609	33.9576	7.9388
220	-47.8609	33.9576	7.9388	0.0099	33.9552	7.9285

ENVOL. MIN. CORTANTES TREN TREN SW/2, EC-1 en via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0032	-27.7355	-6.3486	-45.3400	-27.7364	-6.3772
2	-45.3400	-27.7364	-6.3772	-90.6867	-27.7337	-6.4626
3	-90.6867	-27.7337	-6.4626	-136.0201	-27.7310	-6.6051
4	-136.0201	-27.7310	-6.6051	-181.3495	-27.7298	-6.8050
5	-181.3495	-27.7298	-6.8050	-226.6883	-27.7216	-7.0614
6	-226.6883	-27.7216	-7.0614	-272.0005	-27.7175	-7.3748
7	-272.0005	-27.7175	-7.3748	561.9978	-37.4672	59.7477
8	561.9978	-37.4672	59.7477	693.6638	-51.3866	81.4700
9	693.6638	-51.3866	81.4700	705.7280	-59.1396	94.0937
10	705.7280	-59.1396	94.0937	681.6104	-83.1781	73.5551
11	681.6104	-83.1781	73.5551	556.8500	-96.7417	96.0807
12	556.8500	-96.7417	96.0807	417.8699	-124.0540	140.1946
13	417.8699	-124.0540	140.1946	244.1908	-151.6382	184.1119
14	244.1908	-151.6382	184.1119	8.6477	-165.5190	206.0320
15	8.6477	-165.5190	206.0320	-241.3163	-193.4252	248.7735
16	-241.3163	-193.4252	248.7735	-528.0319	-219.8030	288.2597
17	-528.0319	-219.8030	288.2597	-872.6857	-232.2188	307.0269
18	-872.6857	-232.2188	307.0269	-1216.9309	-255.4689	344.9218
19	-1216.9309	-255.4689	344.9218	-1572.2395	-276.6270	382.2858
20	-1572.2395	-276.6270	382.2858	-933.7311	-115.6871	223.5335
21	-933.7311	-115.6871	223.5335	191.4240	-28.4618	-7.8171
22	191.4240	-28.4618	-7.8171	134.5266	-28.4631	-7.5659
23	134.5266	-28.4631	-7.5659	77.6273	-28.4649	-7.4028
24	77.6273	-28.4649	-7.4028	20.7304	-28.4632	-7.3273
25	20.7304	-28.4632	-7.3273	-36.1638	-28.4551	-7.3389
26	-36.1638	-28.4551	-7.3389	-93.0438	-28.4459	-7.4383
27	-93.0438	-28.4459	-7.4383	-149.9097	-28.4411	-7.6253
28	-149.9097	-28.4411	-7.6253	-206.7783	-28.4448	-7.9001
29	-206.7783	-28.4448	-7.9001	452.4925	-30.3797	120.5741
30	452.4925	-30.3797	120.5741	978.0319	-50.4865	72.3455
31	978.0319	-50.4865	72.3455	912.1717	-79.0363	118.1933
32	912.1717	-79.0363	118.1933	778.5243	-106.9171	163.8271
33	778.5243	-106.9171	163.8271	580.9503	-134.0589	208.0974
34	580.9503	-134.0589	208.0974	324.5850	-160.2242	249.3322
35	324.5850	-160.2242	249.3322	15.4097	-185.3386	287.4388
36	15.4097	-185.3386	287.4388	-339.9346	-209.2629	322.3420
37	-339.9346	-209.2629	322.3420	-734.1754	-231.8783	354.1844
38	-734.1754	-231.8783	354.1844	-1159.4475	-253.1238	384.8840
39	-1159.4475	-253.1238	384.8840	-1607.3907	-272.9023	414.8820
40	-1607.3907	-272.9023	414.8820	-951.2156	-111.8639	262.7056
41	-951.2156	-111.8639	262.7056	185.7615	-28.2216	-7.3190
42	185.7615	-28.2216	-7.3190	129.3181	-28.2209	-7.0766
43	129.3181	-28.2209	-7.0766	72.8789	-28.2228	-6.9209
44	72.8789	-28.2228	-6.9209	16.4374	-28.2248	-6.8521
45	16.4374	-28.2248	-6.8521	-39.9977	-28.2210	-6.8702
46	-39.9977	-28.2210	-6.8702	-96.4241	-28.2155	-6.9750
47	-96.4241	-28.2155	-6.9750	-152.8470	-28.2220	-7.1663
48	-152.8470	-28.2220	-7.1663	-209.3059	-28.2255	-7.4443
49	-209.3059	-28.2255	-7.4443	-265.7525	-28.2249	-7.8102
50	-265.7525	-28.2249	-7.8102	987.7073	-51.1178	73.8774
51	987.7073	-51.1178	73.8774	921.1094	-79.7015	119.9393
52	921.1094	-79.7015	119.9393	786.3274	-107.5987	165.7396
53	786.3274	-107.5987	165.7396	587.4318	-134.7390	210.1132
54	587.4318	-134.7390	210.1132	329.6958	-160.8839	251.3885
55	329.6958	-160.8839	251.3885	19.1952	-185.9523	289.4707
56	19.1952	-185.9523	289.4707	-337.2997	-209.8099	324.2932
57	-337.2997	-209.8099	324.2932	-732.4647	-232.3721	356.0092
58	-732.4647	-232.3721	356.0092	-1158.3760	-253.5359	386.5382
59	-1158.3760	-253.5359	386.5382	-1606.6750	-273.2286	416.3475
60	-1606.6750	-273.2286	416.3475	-948.1790	-111.6176	263.3120
61	-948.1790	-111.6176	263.3120	183.4034	-27.9384	-7.0469
62	183.4034	-27.9384	-7.0469	127.5471	-27.9369	-6.8077
63	127.5471	-27.9369	-6.8077	71.6968	-27.9422	-6.6543
64	71.6968	-27.9422	-6.6543	15.8300	-27.9458	-6.5867
65	15.8300	-27.9458	-6.5867	-40.0147	-27.9413	-6.6038
66	-40.0147	-27.9413	-6.6038	-95.8809	-27.9380	-6.7085
67	-95.8809	-27.9380	-6.7085	-151.7311	-27.9481	-6.8991
68	-151.7311	-27.9481	-6.8991	-207.6229	-27.9476	-7.1758
69	-207.6229	-27.9476	-7.1758	-263.4855	-27.9342	-7.5382
70	-263.4855	-27.9342	-7.5382	986.9866	-51.1305	73.1510
71	986.9866	-51.1305	73.1510	921.0859	-79.6439	119.1444
72	921.0859	-79.6439	119.1444	787.3347	-107.4874	164.9211
73	787.3347	-107.4874	164.9211	589.8521	-134.5544	209.3147
74	589.8521	-134.5544	209.3147	333.9517	-160.6508	250.6400
75	333.9517	-160.6508	250.6400	25.6753	-185.6476	288.8112
76	25.6753	-185.6476	288.8112	-328.2160	-209.4175	323.7527
77	-328.2160	-209.4175	323.7527	-720.3927	-231.9089	355.6209
78	-720.3927	-231.9089	355.6209	-1143.0054	-252.9874	386.3263
79	-1143.0054	-252.9874	386.3263	-1587.7390	-272.6026	416.3220
80	-1587.7390	-272.6026	416.3220	-951.1810	-111.4080	259.9749
81	-951.1810	-111.4080	259.9749	128.6445	-19.4783	-15.2136
82	128.6445	-19.4783	-15.2136	89.7032	-19.4772	-15.0457
83	89.7032	-19.4772	-15.0457	50.7636	-19.4762	-14.9373
84	50.7636	-19.4762	-14.9373	11.8269	-19.4771	-14.8888
85	11.8269	-19.4771	-14.8888	-27.1142	-19.4764	-14.9007
86	-27.1142	-19.4764	-14.9007	-66.0495	-19.4764	-14.9723
87	-66.0495	-19.4764	-14.9723	-104.9845	-19.4785	-15.1044
88	-104.9845	-19.4785	-15.1044	-143.9272	-19.4826	-15.2955
89	-143.9272	-19.4826	-15.2955	960.5541	-24.8117	55.2030
90	960.5541	-24.8117	55.2030	964.6133	-53.3485	99.6659
91	964.6133	-53.3485	99.6659	900.7413	-81.3691	144.0436
92	900.7413	-81.3691	144.0436	772.2787	-108.6227	188.2831
93	772.2787	-108.6227	188.2831	583.7534	-135.0237	231.2668
94	583.7534	-135.0237	231.2668	340.7444	-160.3879	271.3737
95	340.7444	-160.3879	271.3737	49.4994	-184.5871	308.5641
96	49.4994	-184.5871	308.5641	-283.2128	-207.5459	342.8286
97	-283.2128	-207.5459	342.8286	-650.3020	-229.1674	374.3724
98	-650.3020	-229.1674	374.3724	-1044.5781	-249.4209	405.1079
99	-1044.5781	-249.4209	405.1079	-1458.3735	-268.2198	435.2812
100	-1458.3735	-268.2198	435.2812	-1008.9973	-110.6633	256.3693
101	-1008.9973	-110.6633	256.3693	127.6774	-23.2324	-25.1992
102	127.6774	-23.2324	-25.1992	87.0520	-23.2318	-25.0545
103	87.0520	-23.2318	-25.0545	46.4257	-23.2310	-24.9646
104	46.4257	-23.2310	-24.9646	5.7985	-23.2334	-24.9295
105	5.7985	-23.2334	-24.9295	-34.8328	-23.2373	-24.9479
106	-34.8328	-23.2373	-24.9479	-75.4610	-23.2387	-25.0215
107	-75.4610	-23.2387	-25.0215	-116.0873	-23.2339	-25.1511
108	-116.0873	-23.2339	-25.1511	-156.7092	-23.2271	-25.3347
109	-156.7092	-23.2271	-25.3347	627.8787	-34.2716	56.7922
110	627.8787	-34.2716	56.7922	638.0399	-63.5966	101.8550
111	638.0399	-63.5966	101.8550	554.2390	-78.0389	124.7747
112	554.2390	-78.0389	124.7747	459.1752	-106.3823	169.6827
113	459.1752	-106.3823	169.6827	315.1436	-133.9088	214.2793
114	315.1436	-133.9088	214.2793	126.4611	-160.4143	258.1469

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	126.4611	-160.4143	258.1469	-134.7940	-173.2525	278.9313
116	-134.7940	-173.2525	278.9313	-402.0700	-198.0039	317.7034
117	-402.0700	-198.0039	317.7034	-698.8698	-221.4576	354.1259
118	-698.8698	-221.4576	354.1259	-1018.7885	-243.5073	389.8862
119	-1018.7885	-243.5073	389.8862	-1407.6913	-253.9822	406.5717
120	-1407.6913	-253.9822	406.5717	-677.6517	-97.3786	224.0675
121	-677.6517	-97.3786	224.0675	154.5144	-26.2897	-32.3378
122	154.5144	-26.2897	-32.3378	108.5474	-26.2902	-32.1607
123	108.5474	-26.2902	-32.1607	62.5810	-26.2906	-32.0452
124	62.5810	-26.2906	-32.0452	16.6140	-26.2871	-31.9918
125	16.6140	-26.2871	-31.9918	-29.3442	-26.2889	-32.0001
126	-29.3442	-26.2889	-32.0001	-75.3292	-26.2901	-32.0715
127	-75.3292	-26.2901	-32.0715	-121.2958	-26.2747	-32.2032
128	-121.2958	-26.2747	-32.2032	-167.2327	-26.2691	-32.3968
129	-167.2327	-26.2691	-32.3968	616.5952	-34.4559	58.4437
130	616.5952	-34.4559	58.4437	620.8632	-63.6605	102.8356
131	620.8632	-63.6605	102.8356	534.3660	-78.1035	125.4331
132	534.3660	-78.1035	125.4331	434.3342	-106.5135	169.7487
133	434.3342	-106.5135	169.7487	285.2087	-134.1775	213.7760
134	285.2087	-134.1775	213.7760	90.9425	-160.8999	257.0771
135	90.9425	-160.8999	257.0771	-173.9123	-173.8742	277.5507
136	-173.9123	-173.8742	277.5507	-448.2906	-198.9498	315.7710
137	-448.2906	-198.9498	315.7710	-753.2670	-222.7570	351.6774
138	-753.2670	-222.7570	351.6774	-1082.4058	-245.1927	386.9285
139	-1082.4058	-245.1927	386.9285	-1477.9178	-255.8596	403.3016
140	-1477.9178	-255.8596	403.3016	-695.9645	-99.5685	229.8905
141	-695.9645	-99.5685	229.8905	203.0925	-33.4052	-17.0040
142	203.0925	-33.4052	-17.0040	142.9935	-33.4029	-16.7645
143	142.9935	-33.4029	-16.7645	82.9034	-33.4011	-16.6086
144	82.9034	-33.4011	-16.6086	22.8156	-33.4010	-16.5340
145	22.8156	-33.4010	-16.5340	-37.2765	-33.3972	-16.5435
146	-37.2765	-33.3972	-16.5435	-97.3594	-33.3922	-16.6353
147	-97.3594	-33.3922	-16.6353	-157.4377	-33.3913	-16.8130
148	-157.4377	-33.3913	-16.8130	-217.5135	-33.3908	-17.0708
149	-217.5135	-33.3908	-17.0708	-277.5817	-33.3905	-17.4159
150	-277.5817	-33.3905	-17.4159	693.2933	-53.6357	79.9169
151	693.2933	-53.6357	79.9169	638.4647	-82.7289	127.2716
152	638.4647	-82.7289	127.2716	527.0103	-111.2942	173.9635
153	527.0103	-111.2942	173.9635	361.8227	-139.1363	219.6736
154	361.8227	-139.1363	219.6736	122.7694	-152.7096	241.9711
155	122.7694	-152.7096	241.9711	-138.6445	-179.1260	282.9349
156	-138.6445	-179.1260	282.9349	-440.7292	-204.4107	319.6794
157	-440.7292	-204.4107	319.6794	-777.1298	-228.4364	353.4616
158	-777.1298	-228.4364	353.4616	-1140.6169	-251.0714	386.1472
159	-1140.6169	-251.0714	386.1472	-1565.9606	-261.8330	401.1153
160	-1565.9606	-261.8330	401.1153	-721.1840	-101.7754	236.6861
161	-721.1840	-101.7754	236.6861	187.7838	-27.1599	-4.1272
162	187.7838	-27.1599	-4.1272	133.4639	-27.1605	-3.8798
163	133.4639	-27.1605	-3.8798	79.1409	-27.1612	-3.7163
164	79.1409	-27.1612	-3.7163	24.8208	-27.1581	-3.6365
165	24.8208	-27.1581	-3.6365	-29.4883	-27.1591	-3.6396
166	-29.4883	-27.1591	-3.6396	-83.8145	-27.1686	-3.7271
167	-83.8145	-27.1686	-3.7271	-138.1559	-27.1742	-3.8989
168	-138.1559	-27.1742	-3.8989	-192.4933	-27.1707	-4.1528
169	-192.4933	-27.1707	-4.1528	439.5629	-29.5640	120.8753
170	439.5629	-29.5640	120.8753	971.2244	-49.5709	70.7110
171	971.2244	-49.5709	70.7110	909.0614	-77.8306	116.8947
172	909.0614	-77.8306	116.8947	780.5092	-105.5199	162.8748
173	780.5092	-105.5199	162.8748	589.2493	-132.4668	207.4710
174	589.2493	-132.4668	207.4710	340.3660	-158.4670	249.0305

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	340.3660	-158.4670	249.0305	39.7448	-183.3870	287.4417
176	39.7448	-183.3870	287.4417	-306.1503	-207.1053	322.6146
177	-306.1503	-207.1053	322.6146	-690.1471	-229.5368	354.7028
178	-690.1471	-229.5368	354.7028	-1104.5923	-250.6176	385.6281
179	-1104.5923	-250.6176	385.6281	-1541.3525	-270.2419	415.8545
180	-1541.3525	-270.2419	415.8545	-969.8263	-111.0709	262.7388
181	-969.8263	-111.0709	262.7388	188.2628	-6.6740	-1.6576
182	188.2628	-6.6740	-1.6576	175.2498	-6.6732	-1.3849
183	175.2498	-6.6732	-1.3849	162.2334	-6.6733	-1.1320
184	162.2334	-6.6733	-1.1320	149.2194	-6.6751	-0.8979
185	149.2194	-6.6751	-0.8979	136.1979	-6.6779	-0.6826
186	136.1979	-6.6779	-0.6826	123.1722	-6.6782	-0.4880
187	123.1722	-6.6782	-0.4880	110.1481	-6.6806	-0.3129
188	110.1481	-6.6806	-0.3129	194.9402	-11.3430	102.0999
189	194.9402	-11.3430	102.0999	919.6599	-30.1790	37.5495
190	919.6599	-30.1790	37.5495	930.8929	-58.4578	83.0838
191	930.8929	-58.4578	83.0838	879.3912	-86.1157	128.5771
192	879.3912	-86.1157	128.5771	768.9155	-112.8876	173.7675
193	768.9155	-112.8876	173.7675	604.3931	-138.7059	217.8090
194	604.3931	-138.7059	217.8090	356.0524	-151.2050	239.1765
195	356.0524	-151.2050	239.1765	98.4035	-175.2367	278.7385
196	98.4035	-175.2367	278.7385	-195.7516	-197.9739	315.2272
197	-195.7516	-197.9739	315.2272	-518.9540	-219.2939	348.8384
198	-518.9540	-219.2939	348.8384	-947.1839	-219.2895	347.7869
199	-947.1839	-219.2895	347.7869	-524.5262	-220.7105	456.7282
200	-524.5262	-220.7105	456.7282	-958.9601	-107.0506	258.0078
201	-958.9601	-107.0506	258.0078	272.0920	-10.1574	-0.6793
202	272.0920	-10.1574	-0.6793	257.7714	-10.1569	-0.3584
203	257.7714	-10.1569	-0.3584	243.4496	-10.1536	-0.1410
204	243.4496	-10.1536	-0.1410	229.1385	-10.1508	0.0959
205	229.1385	-10.1508	0.0959	214.8333	-10.1500	0.2915
206	214.8333	-10.1500	0.2915	200.5224	-10.1515	0.4128
207	200.5224	-10.1515	0.4128	186.2040	-10.1465	0.6557
208	186.2040	-10.1465	0.6557	171.9027	-10.1486	0.8987
209	171.9027	-10.1486	0.8987	157.5785	-10.1586	1.0201
210	157.5785	-10.1586	1.0201	143.2504	-10.1598	1.1628
211	143.2504	-10.1598	1.1628	210.3639	-16.4855	136.9438
212	210.3639	-16.4855	136.9438	267.8420	-23.6437	152.8972
213	267.8420	-23.6437	152.8972	392.5240	-39.6477	187.3810
214	392.5240	-39.6477	187.3810	411.5237	-48.4902	206.2859
215	411.5237	-48.4902	206.2859	409.6326	-57.9411	226.1682
216	409.6326	-57.9411	226.1682	444.5648	-78.6279	268.0559
217	444.5648	-78.6279	268.0559	381.0408	-89.8546	290.5788
218	381.0408	-89.8546	290.5788	322.5399	-114.1303	337.8707
219	322.5399	-114.1303	337.8707	179.7896	-127.1566	362.5209
220	179.7896	-127.1566	362.5209	0.4320	-127.1547	362.5593

ENVOL. MAX. TORSORES TREN TREN SW/2, EC-1 en via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0084	-0.0035	0.6613	14.0670	-0.5803	2.0273
2	14.0670	-0.5803	2.0273	78.7993	-3.4524	6.9734
3	78.7993	-3.4524	6.9734	121.9639	-5.7465	10.6758
4	121.9639	-5.7465	10.6758	236.6249	-12.0363	20.3976
5	236.6249	-12.0363	20.3976	372.4398	-20.5597	33.4333
6	372.4398	-20.5597	33.4333	423.9340	-25.6582	41.4951
7	423.9340	-25.6582	41.4951	561.9978	-37.4672	59.7477
8	561.9978	-37.4672	59.7477	693.6638	-51.3866	81.4700
9	693.6638	-51.3866	81.4700	705.7280	-59.1396	94.0937
10	705.7280	-59.1396	94.0937	796.2970	-76.1285	121.0885
11	796.2970	-76.1285	121.0885	760.7487	-85.3842	136.3715
12	760.7487	-85.3842	136.3715	786.2339	-105.2824	168.4922
13	786.2339	-105.2824	168.4922	768.3535	-126.9907	203.9027
14	768.3535	-126.9907	203.9027	627.7470	-138.4691	223.2468
15	627.7470	-138.4691	223.2468	513.3090	-162.6353	263.3582
16	513.3090	-162.6353	263.3582	340.1910	-188.3710	305.8071
17	340.1910	-188.3710	305.8071	66.1969	-201.1726	327.0441
18	66.1969	-201.1726	327.0441	-213.9848	-225.9893	368.7619
19	-213.9848	-225.9893	368.7619	-540.7603	-249.7186	409.8434
20	-540.7603	-249.7186	409.8434	-933.7311	-115.6871	223.5335
21	-933.7311	-115.6871	223.5335	-817.2281	27.7444	17.5765
22	-817.2281	27.7444	17.5765	-679.7979	24.7519	20.2612
23	-679.7979	24.7519	20.2612	-526.3445	20.6780	25.7362
24	-526.3445	20.6780	25.7362	-361.0465	15.4284	34.0765
25	-361.0465	15.4284	34.0765	-188.8443	8.9448	45.3504
26	-188.8443	8.9448	45.3504	-15.2148	1.1562	59.6122
27	-15.2148	1.1562	59.6122	153.8696	-7.9815	76.8961
28	153.8696	-7.9815	76.8961	311.9955	-18.5004	97.2189
29	311.9955	-18.5004	97.2189	452.4925	-30.3797	120.5741
30	452.4925	-30.3797	120.5741	568.6190	-43.6592	146.9363
31	568.6190	-43.6592	146.9363	653.7026	-58.2720	176.2564
32	653.7026	-58.2720	176.2564	701.4139	-74.2281	208.4637
33	701.4139	-74.2281	208.4637	706.5282	-91.4641	243.4319
34	706.5282	-91.4641	243.4319	664.2853	-110.4146	280.0266
35	664.2853	-110.4146	280.0266	567.1989	-130.9440	316.5738
36	567.1989	-130.9440	316.5738	408.3591	-152.9536	352.9290
37	408.3591	-152.9536	352.9290	181.6610	-176.4154	389.1327
38	181.6610	-176.4154	389.1327	-118.2716	-201.1498	426.9515
39	-118.2716	-201.1498	426.9515	-495.5755	-227.0410	466.6727
40	-495.5755	-227.0410	466.6727	-951.2156	-111.8639	262.7056
41	-951.2156	-111.8639	262.7056	-865.5674	29.4012	17.6426
42	-865.5674	29.4012	17.6426	-756.5586	27.5671	20.6318
43	-756.5586	27.5671	20.6318	-625.5847	24.6049	26.3424
44	-625.5847	24.6049	26.3424	-476.5168	20.3804	34.8548
45	-476.5168	20.3804	34.8548	-314.1560	14.8138	46.2405
46	-314.1560	14.8138	46.2405	-143.9610	7.8018	60.5619
47	-143.9610	7.8018	60.5619	27.8623	-0.7319	77.8637
48	27.8623	-0.7319	77.8637	194.4749	-10.8445	98.1750
49	194.4749	-10.8445	98.1750	348.4825	-22.5962	121.5040
50	348.4825	-22.5962	121.5040	482.0755	-36.0161	147.7972
51	482.0755	-36.0161	147.7972	587.1155	-51.1190	177.0119
52	587.1155	-51.1190	177.0119	655.4061	-67.8828	209.0858
53	655.4061	-67.8828	209.0858	678.9880	-86.2540	243.9330
54	678.9880	-86.2540	243.9330	650.5119	-106.1472	280.4101
55	650.5119	-106.1472	280.4101	563.1424	-127.5654	316.8452
56	563.1424	-127.5654	316.8452	410.6085	-150.3380	353.1032
57	410.6085	-150.3380	353.1032	187.3750	-174.4622	389.2466
58	187.3750	-174.4622	389.2466	-111.3255	-199.7591	427.0526
59	-111.3255	-199.7591	427.0526	-489.1510	-226.1496	466.8137
60	-489.1510	-226.1496	466.8137	-948.1790	-111.6176	263.3120
61	-948.1790	-111.6176	263.3120	-867.0262	29.5032	18.6278
62	-867.0262	29.5032	18.6278	-760.0222	27.7466	21.5857
63	-760.0222	27.7466	21.5857	-630.3489	24.8253	27.2394
64	-630.3489	24.8253	27.2394	-482.0346	20.6440	35.6767
65	-482.0346	20.6440	35.6767	-319.9901	15.1098	46.9760
66	-319.9901	15.1098	46.9760	-149.7968	8.1159	61.2056
67	-149.7968	8.1159	61.2056	22.2669	-0.4122	78.4155
68	22.2669	-0.4122	78.4155	189.2497	-10.5319	98.6393
69	189.2497	-10.5319	98.6393	343.6780	-22.2994	121.8851
70	343.6780	-22.2994	121.8851	477.6658	-35.7517	148.1056
71	477.6658	-35.7517	148.1056	583.0310	-50.8657	177.2534
72	583.0310	-50.8657	177.2534	651.6140	-67.6571	209.2789
73	651.6140	-67.6571	209.2789	675.4407	-86.0228	244.0928
74	675.4407	-86.0228	244.0928	647.1754	-105.9841	280.5496
75	647.1754	-105.9841	280.5496	559.8853	-127.4071	316.9658
76	559.8853	-127.4071	316.9658	407.3219	-150.2469	353.2113
77	407.3219	-150.2469	353.2113	184.0294	-174.3877	389.3242
78	184.0294	-174.3877	389.3242	-114.7898	-199.7343	427.0854
79	-114.7898	-199.7343	427.0854	-492.7308	-226.1546	466.7766
80	-492.7308	-226.1546	466.7766	-951.1810	-111.4080	259.9749
81	-951.1810	-111.4080	259.9749	-868.4507	29.9349	12.2734
82	-868.4507	29.9349	12.2734	-760.4639	28.1406	15.6989
83	-760.4639	28.1406	15.6989	-629.8585	25.1675	22.1140
84	-629.8585	25.1675	22.1140	-480.8149	20.8909	31.6189
85	-480.8149	20.8909	31.6189	-318.4437	15.2264	44.2916
86	-318.4437	15.2264	44.2916	-148.4762	8.0831	60.1951
87	-148.4762	8.0831	60.1951	22.6116	-0.6214	79.3701
88	22.6116	-0.6214	79.3701	187.7258	-10.9501	101.8279
89	187.7258	-10.9501	101.8279	339.2391	-22.9499	127.5500
90	339.2391	-22.9499	127.5500	469.1511	-36.6470	156.4464
91	469.1511	-36.6470	156.4464	569.2178	-52.0288	188.4243
92	569.2178	-52.0288	188.4243	631.2915	-69.0723	223.3697
93	631.2915	-69.0723	223.3697	647.3721	-87.7430	261.1260
94	647.3721	-87.7430	261.1260	610.2201	-107.9397	300.4595
95	610.2201	-107.9397	300.4595	513.1710	-129.6407	339.5930
96	513.1710	-129.6407	339.5930	350.3085	-152.6868	378.3015
97	350.3085	-152.6868	378.3015	116.2657	-177.0549	416.5580
98	116.2657	-177.0549	416.5580	-193.4440	-202.6078	456.0983
99	-193.4440	-202.6078	456.0983	-582.0498	-229.1865	497.1201
100	-582.0498	-229.1865	497.1201	-1008.9973	-110.6633	256.3693
101	-1008.9973	-110.6633	256.3693	257.2610	-10.0309	7.9658
102	257.2610	-10.0309	7.9658	239.6954	-10.0315	8.3003
103	239.6954	-10.0315	8.3003	222.1263	-10.0315	8.6108
104	222.1263	-10.0315	8.6108	204.5596	-10.0296	8.8979
105	204.5596	-10.0296	8.8979	186.9966	-10.0294	9.1617
106	186.9966	-10.0294	9.1617	-203.9169	12.4261	26.4947
107	-203.9169	12.4261	26.4947	-111.0025	7.9385	37.1507
108	-111.0025	7.9385	37.1507	51.1615	-2.4167	61.4925
109	51.1615	-2.4167	61.4925	204.6544	-14.6382	89.4107
110	204.6544	-14.6382	89.4107	341.8632	-28.7708	120.7663
111	341.8632	-28.7708	120.7663	369.8431	-36.5441	137.9359
112	369.8431	-36.5441	137.9359	453.1291	-53.5118	174.1808
113	453.1291	-53.5118	174.1808	315.1436	-133.9088	214.2793

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
114	315.1436	-133.9088	214.2793	126.4611	-160.4143	258.1469
115	126.4611	-160.4143	258.1469	-134.7940	-173.2525	278.9313
116	-134.7940	-173.2525	278.9313	295.7534	-126.7863	321.5079
117	295.7534	-126.7863	321.5079	140.0921	-151.2572	364.7466
118	140.0921	-151.2572	364.7466	-78.5679	-177.0347	407.1096
119	-78.5679	-177.0347	407.1096	-379.2799	-190.3754	427.7632
120	-379.2799	-190.3754	427.7632	-677.6517	-97.3786	224.0675
121	-677.6517	-97.3786	224.0675	-55.2157	9.3946	11.5563
122	-55.2157	9.3946	11.5563	-38.7894	9.3942	11.4930
123	-38.7894	9.3942	11.4930	-22.3638	9.3944	11.4516
124	-22.3638	9.3944	11.4516	-5.9383	9.3945	11.4324
125	-5.9383	9.3945	11.4324	-146.6928	7.9300	16.7094
126	-146.6928	7.9300	16.7094	-2.0252	0.4444	36.2143
127	-2.0252	0.4444	36.2143	68.3923	-3.9297	47.4062
128	68.3923	-3.9297	47.4062	206.3590	-13.9907	72.4875
129	206.3590	-13.9907	72.4875	335.6450	-25.8271	101.0246
130	335.6450	-25.8271	101.0246	449.0547	-39.4713	132.8387
131	449.0547	-39.4713	132.8387	456.3163	-46.9560	150.2357
132	456.3163	-46.9560	150.2357	517.9771	-63.2764	186.6449
133	517.9771	-63.2764	186.6449	544.2178	-81.3493	225.7778
134	544.2178	-81.3493	225.7778	528.3677	-101.1104	267.3671
135	528.3677	-101.1104	267.3671	404.9186	-111.6089	289.3025
136	404.9186	-111.6089	289.3025	295.8083	-133.7365	332.8022
137	295.8083	-133.7365	332.8022	130.3405	-157.3152	375.2465
138	130.3405	-157.3152	375.2465	-95.2885	-182.2162	416.6956
139	-95.2885	-182.2162	416.6956	-402.6024	-195.1180	436.8521
140	-402.6024	-195.1180	436.8521	-695.9645	-99.5685	229.8905
141	-695.9645	-99.5685	229.8905	158.2257	-5.9123	4.9790
142	158.2257	-5.9123	4.9790	147.5793	-5.9129	5.1906
143	147.5793	-5.9129	5.1906	136.9283	-5.9155	5.3879
144	136.9283	-5.9155	5.3879	126.2744	-5.9158	5.5697
145	126.2744	-5.9158	5.5697	-141.8152	7.4284	16.5736
146	-141.8152	7.4284	16.5736	3.6796	0.2244	33.9902
147	3.6796	0.2244	33.9902	151.8330	-8.5708	54.6205
148	151.8330	-8.5708	54.6205	296.2759	-19.0251	78.3430
149	296.2759	-19.0251	78.3430	342.5328	-24.8887	91.5701
150	342.5328	-24.8887	91.5701	456.8282	-37.8767	119.7890
151	456.8282	-37.8767	119.7890	548.3945	-52.5958	150.7852
152	548.3945	-52.5958	150.7852	610.1058	-69.0293	184.4323
153	610.1058	-69.0293	184.4323	634.9286	-87.1236	220.6032
154	634.9286	-87.1236	220.6032	122.7694	-152.7096	241.9711
155	122.7694	-152.7096	241.9711	-138.6445	-179.1260	282.9349
156	-138.6445	-179.1260	282.9349	-440.7292	-204.4107	319.6794
157	-440.7292	-204.4107	319.6794	195.7290	-162.6786	357.6098
158	195.7290	-162.6786	357.6098	-39.4240	-187.3930	396.3444
159	-39.4240	-187.3930	396.3444	-361.9009	-200.2030	415.7596
160	-361.9009	-200.2030	415.7596	-721.1840	-101.7754	236.6861
161	-721.1840	-101.7754	236.6861	-648.4528	22.1246	17.0618
162	-648.4528	22.1246	17.0618	-550.9217	20.1718	20.2316
163	-550.9217	20.1718	20.2316	-432.7498	17.1067	26.0690
164	-432.7498	17.1067	26.0690	-297.8423	12.8318	34.6520
165	-297.8423	12.8318	34.6520	-150.9922	7.2465	46.0561
166	-150.9922	7.2465	46.0561	2.4546	0.2786	60.3442
167	2.4546	0.2786	60.3442	156.4977	-8.1422	77.5602
168	156.4977	-8.1422	77.5602	304.5519	-18.0779	97.7348
169	304.5519	-18.0779	97.7348	439.5629	-29.5640	120.8753
170	439.5629	-29.5640	120.8753	554.1738	-42.6349	146.9688
171	554.1738	-42.6349	146.9688	640.8947	-57.3038	175.9816
172	640.8947	-57.3038	175.9816	692.1329	-73.5662	207.8212
173	692.1329	-73.5662	207.8212	700.3884	-91.3795	242.3970
174	700.3884	-91.3795	242.3970	658.6279	-110.7028	278.5977
175	658.6279	-110.7028	278.5977	560.3992	-131.4951	314.7484
176	560.3992	-131.4951	314.7484	399.5756	-153.6576	350.7235
177	399.5756	-153.6576	350.7235	170.7759	-177.1289	386.5831
178	170.7759	-177.1289	386.5831	-130.8486	-201.8297	424.1158
179	-130.8486	-201.8297	424.1158	-509.0954	-227.6517	463.6262
180	-509.0954	-227.6517	463.6262	-969.8263	-111.0709	262.7388
181	-969.8263	-111.0709	262.7388	-885.7719	31.3751	20.8234
182	-885.7719	31.3751	20.8234	-772.8016	29.4002	23.7860
183	-772.8016	29.4002	23.7860	-637.8185	26.2129	29.4871
184	-637.8185	26.2129	29.4871	-484.9654	21.7126	38.0311
185	-484.9654	21.7126	38.0311	-319.2455	15.7967	49.4975
186	-319.2455	15.7967	49.4975	-146.3199	8.3670	63.9667
187	-146.3199	8.3670	63.9667	27.4116	-0.6615	81.4882
188	27.4116	-0.6615	81.4882	194.9402	-11.3430	102.0999
189	194.9402	-11.3430	102.0999	348.7745	-23.7261	125.8114
190	348.7745	-23.7261	125.8114	481.0099	-37.8419	152.6131
191	481.0099	-37.8419	152.6131	583.6505	-53.6703	182.4098
192	583.6505	-53.6703	182.4098	648.6899	-71.1798	214.9839
193	648.6899	-71.1798	214.9839	668.4426	-90.3163	250.4650
194	668.4426	-90.3163	250.4650	560.8266	-100.4805	269.6330
195	560.8266	-100.4805	269.6330	478.7284	-121.9068	306.8370
196	478.7284	-121.9068	306.8370	333.8044	-144.7620	343.7599
197	333.8044	-144.7620	343.7599	120.9049	-168.9175	380.3876
198	120.9049	-168.9175	380.3876	-164.1423	-194.2808	417.5950
199	-164.1423	-194.2808	417.5950	-524.5262	-220.7105	456.7282
200	-524.5262	-220.7105	456.7282	-958.9601	-107.0506	258.0078
201	-958.9601	-107.0506	258.0078	-884.6494	33.0330	19.5284
202	-884.6494	33.0330	19.5284	-815.0477	32.1384	21.1314
203	-815.0477	32.1384	21.1314	-739.9913	30.8821	24.0103
204	-739.9913	30.8821	24.0103	-616.2744	27.3040	33.1704
205	-616.2744	27.3040	33.1704	-528.0656	24.9676	38.9608
206	-528.0656	24.9676	38.9608	-375.5582	19.0403	54.0429
207	-375.5582	19.0403	54.0429	-282.2794	15.4268	62.6932
208	-282.2794	15.4268	62.6932	-191.4346	11.3524	72.4256
209	-191.4346	11.3524	72.4256	-26.2242	1.7540	95.2848
210	-26.2242	1.7540	95.2848	54.6170	-3.7954	108.1763
211	54.6170	-3.7954	108.1763	210.3639	-16.4855	136.9438
212	210.3639	-16.4855	136.9438	267.8420	-23.6437	152.8972
213	267.8420	-23.6437	152.8972	392.5240	-39.6477	187.3810
214	392.5240	-39.6477	187.3810	411.5237	-48.4902	206.2859
215	411.5237	-48.4902	206.2859	409.6326	-57.9411	226.1682
216	409.6326	-57.9411	226.1682	444.5648	-78.6279	268.0559
217	444.5648	-78.6279	268.0559	381.0408	-89.8546	290.5788
218	381.0408	-89.8546	290.5788	322.5399	-114.1303	337.8707
219	322.5399	-114.1303	337.8707	179.7896	-127.1566	362.5209
220	179.7896	-127.1566	362.5209	0.4320	-127.1547	362.5593

ENVOL. MIN. TORSORES TREN TREN SW/2, EC-1 en via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.1311	201.7224	-429.6481	309.2742	188.9239	-408.7867
2	309.2742	188.9239	-408.7867	537.3655	164.0802	-366.5500
3	537.3655	164.0802	-366.5500	747.1145	152.0602	-344.7502
4	747.1145	152.0602	-344.7502	614.3795	93.7193	-301.8828
5	614.3795	93.7193	-301.8828	603.3239	73.5910	-261.3907
6	603.3239	73.5910	-261.3907	632.8305	64.3104	-241.0069
7	632.8305	64.3104	-241.0069	543.2892	47.3164	-203.4866
8	543.2892	47.3164	-203.4866	424.3867	32.3337	-169.3069
9	424.3867	32.3337	-169.3069	377.6638	25.5559	-153.2571
10	377.6638	25.5559	-153.2571	220.9814	13.4226	-124.2798
11	220.9814	13.4226	-124.2798	146.0945	8.0389	-111.0081
12	146.0945	8.0389	-111.0081	-26.6288	-1.4146	-87.3728
13	-26.6288	-1.4146	-87.3728	-195.0881	-9.2260	-67.2175
14	-195.0881	-9.2260	-67.2175	-286.0974	-12.5301	-58.6137
15	-286.0974	-12.5301	-58.6137	-442.1624	-18.0580	-43.7113
16	-442.1624	-18.0580	-43.7113	-580.1852	-22.1713	-32.1712
17	-580.1852	-22.1713	-32.1712	-660.7476	-23.7670	-28.0567
18	-660.7476	-23.7670	-28.0567	-767.7854	-26.0770	-21.5224
19	-767.7854	-26.0770	-21.5224	-849.7892	-27.3454	-18.1824
20	-849.7892	-27.3454	-18.1824	-905.4222	112.7692	-263.2321
21	-905.4222	112.7692	-263.2321	-452.8924	226.0306	-466.1840
22	-452.8924	226.0306	-466.1840	-79.8269	199.8333	-426.0244
23	-79.8269	199.8333	-426.0244	214.3835	174.7256	-387.7799
24	214.3835	174.7256	-387.7799	433.7072	150.8036	-351.6208
25	433.7072	150.8036	-351.6208	583.1251	128.1602	-317.5158
26	583.1251	128.1602	-317.5158	668.2653	106.9004	-283.6786
27	668.2653	106.9004	-283.6786	695.5104	87.1103	-249.7973
28	695.5104	87.1103	-249.7973	671.8297	68.8611	-216.0059
29	671.8297	68.8611	-216.0059	604.6783	52.2551	-183.4541
30	604.6783	52.2551	-183.4541	501.9318	37.2904	-153.7761
31	501.9318	37.2904	-153.7761	371.4878	23.9939	-127.0304
32	371.4878	23.9939	-127.0304	221.2229	12.3453	-103.2531
33	221.2229	12.3453	-103.2531	58.6532	2.3104	-82.4906
34	58.6532	2.3104	-82.4906	-108.9356	-6.1636	-64.7390
35	-108.9356	-6.1636	-64.7390	-274.6848	-13.1234	-49.9651
36	-274.6848	-13.1234	-49.9651	-432.2968	-18.6486	-38.1138
37	-432.2968	-18.6486	-38.1138	-576.3006	-22.8239	-29.1167
38	-576.3006	-22.8239	-29.1167	-702.1530	-25.7523	-22.8941
39	-702.1530	-25.7523	-22.8941	-806.3794	-27.5550	-19.3590
40	-806.3794	-27.5550	-19.3590	-884.9314	112.0333	-262.4417
41	-884.9314	112.0333	-262.4417	-430.7155	225.3242	-464.4381
42	-430.7155	225.3242	-464.4381	-59.7327	199.1640	-424.2099
43	-59.7327	199.1640	-424.2099	232.1671	174.1100	-385.9578
44	232.1671	174.1100	-385.9578	449.0645	150.2327	-349.8458
45	449.0645	150.2327	-349.8458	596.0682	127.6949	-315.8409
46	596.0682	127.6949	-315.8409	678.9666	106.4991	-282.1414
47	678.9666	106.4991	-282.1414	704.2211	86.8156	-248.4264
48	704.2211	86.8156	-248.4264	678.7919	68.6747	-214.8098
49	678.7919	68.6747	-214.8098	610.2279	52.1304	-182.4200
50	610.2279	52.1304	-182.4200	506.3629	37.2518	-152.8941
51	506.3629	37.2518	-152.8941	375.0989	24.0058	-126.2798
52	375.0989	24.0058	-126.2798	224.2502	12.4180	-102.6128
53	224.2502	12.4180	-102.6128	61.3423	2.4386	-81.9376
54	61.3423	2.4386	-81.9376	-106.3728	-5.9839	-64.2497
55	-106.3728	-5.9839	-64.2497	-272.0712	-12.9026	-49.5159
56	-272.0712	-12.9026	-49.5159	-429.5255	-18.3964	-37.6845
57	-429.5255	-18.3964	-37.6845	-573.3127	-22.5392	-28.6908
58	-573.3127	-22.5392	-28.6908	-698.9563	-25.4607	-22.4614
59	-698.9563	-25.4607	-22.4614	-803.0640	-27.2682	-18.9158
60	-803.0640	-27.2682	-18.9158	-883.2465	112.1995	-262.6205
61	-883.2465	112.1995	-262.6205	-430.9722	225.4391	-465.2405
62	-430.9722	225.4391	-465.2405	-60.1589	199.3526	-424.9754
63	-60.1589	199.3526	-424.9754	231.8163	174.3763	-386.6559
64	231.8163	174.3763	-386.6559	449.1371	150.5994	-350.4519
65	449.1371	150.5994	-350.4519	596.8809	128.1205	-316.3333
66	596.8809	128.1205	-316.3333	680.9081	107.0456	-282.5042
67	680.9081	107.0456	-282.5042	707.5220	87.4426	-248.6493
68	707.5220	87.4426	-248.6493	683.8566	69.3595	-214.8912
69	683.8566	69.3595	-214.8912	617.2503	52.8924	-182.3726
70	617.2503	52.8924	-182.3726	515.4902	38.0389	-152.7231
71	515.4902	38.0389	-152.7231	386.4698	24.8638	-126.0056
72	386.4698	24.8638	-126.0056	237.8819	13.3192	-102.2478
73	237.8819	13.3192	-102.2478	77.0499	3.3526	-81.5031
74	77.0499	3.3526	-81.5031	-88.9597	-5.0786	-63.7664
75	-88.9597	-5.0786	-63.7664	-253.4653	-12.0262	-49.0017
76	-253.4653	-12.0262	-49.0017	-410.4081	-17.5696	-37.1586
77	-410.4081	-17.5696	-37.1586	-554.5449	-21.8053	-28.1729
78	-554.5449	-21.8053	-28.1729	-681.5618	-24.8307	-21.9657
79	-681.5618	-24.8307	-21.9657	-788.1952	-26.7694	-18.4556
80	-788.1952	-26.7694	-18.4556	-871.4939	111.8007	-250.7350
81	-871.4939	111.8007	-250.7350	-424.9988	224.9363	-443.2921
82	-424.9988	224.9363	-443.2921	-58.3860	199.5598	-404.3269
83	-58.3860	199.5598	-404.3269	232.0619	175.3443	-367.1312
84	232.0619	175.3443	-367.1312	450.8728	152.4016	-331.8174
85	450.8728	152.4016	-331.8174	603.4485	130.7732	-298.2944
86	603.4485	130.7732	-298.2944	695.5713	110.5369	-264.7687
87	695.5713	110.5369	-264.7687	733.6045	91.7274	-231.1264
88	733.6045	91.7274	-231.1264	724.1774	74.4467	-197.7104
89	724.1774	74.4467	-197.7104	674.3998	58.6926	-165.8779
90	674.3998	58.6926	-165.8779	591.4056	44.5082	-137.3517
91	591.4056	44.5082	-137.3517	482.2881	31.8612	-112.1540
92	482.2881	31.8612	-112.1540	354.1862	20.7438	-90.2695
93	354.1862	20.7438	-90.2695	214.0368	11.1174	-71.6503
94	214.0368	11.1174	-71.6503	68.6399	2.9503	-56.2077
95	68.6399	2.9503	-56.2077	-75.6517	-3.8049	-43.8293
96	-75.6517	-3.8049	-43.8293	-213.0417	-9.2222	-34.3700
97	-213.0417	-9.2222	-34.3700	-338.4277	-13.3734	-27.6609
98	-338.4277	-13.3734	-27.6609	-447.5927	-16.3609	-23.5094
99	-447.5927	-16.3609	-23.5094	-537.2655	-18.2940	-21.7098
100	-537.2655	-18.2940	-21.7098	-574.5739	96.7112	-227.5791
101	-574.5739	96.7112	-227.5791	-1466.2821	263.2129	-398.8958
102	-1466.2821	263.2129	-398.8958	-1076.4478	238.7451	-358.0176
103	-1076.4478	238.7451	-358.0176	-693.7545	226.0126	-338.0941
104	-693.7545	226.0126	-338.0941	-372.1617	199.6264	-296.8517
105	-372.1617	199.6264	-296.8517	478.6699	106.0343	-258.6392
106	478.6699	106.0343	-258.6392	515.4680	86.2552	-221.5101
107	515.4680	86.2552	-221.5101	584.8731	76.9882	-203.0696
108	584.8731	76.9882	-203.0696	544.4435	59.6983	-169.8483
109	544.4435	59.6983	-169.8483	471.9705	44.1022	-140.4933
110	471.9705	44.1022	-140.4933	374.0917	30.2319	-114.9368
111	374.0917	30.2319	-114.9368	338.7336	23.9450	-103.3400
112	338.7336	23.9450	-103.3400	205.5453	12.6498	-83.3786
113	205.5453	12.6498	-83.3786	65.4060	3.0337	-66.9204
114	65.4060	3.0337	-66.9204	-75.1833	-4.9352	-53.7935

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	-75.1833	-4.9352	-53.7935	-150.9707	-8.3205	-48.5188
116	-150.9707	-8.3205	-48.5188	-285.9753	-13.9532	-40.1065
117	-285.9753	-13.9532	-40.1065	84.2828	35.3708	-36.9402
118	84.2828	35.3708	-36.9402	146.2298	35.3731	-36.7852
119	146.2298	35.3731	-36.7852	208.1863	35.3737	-36.5465
120	208.1863	35.3737	-36.5465	-603.4728	94.6545	-232.5032
121	-603.4728	94.6545	-232.5032	-253.1331	186.1474	-392.3942
122	-253.1331	186.1474	-392.3942	-2.5637	161.0699	-353.9559
123	-2.5637	161.0699	-353.9559	230.0206	149.0016	-335.3832
124	230.0206	149.0016	-335.3832	369.2549	125.8741	-298.1552
125	369.2549	125.8741	-298.1552	454.1318	104.1667	-261.0207
126	454.1318	104.1667	-261.0207	489.4927	84.0073	-224.3491
127	489.4927	84.0073	-224.3491	555.7323	74.5399	-206.1753
128	555.7323	74.5399	-206.1753	512.1713	56.9037	-173.4879
129	512.1713	56.9037	-173.4879	435.9159	41.0265	-144.6867
130	435.9159	41.0265	-144.6867	333.6778	26.9150	-119.6999
131	333.6778	26.9150	-119.6999	293.0163	20.5268	-108.4146
132	293.0163	20.5268	-108.4146	154.8291	9.0641	-89.0285
133	154.8291	9.0641	-89.0285	9.6827	-0.6576	-73.1241
134	9.6827	-0.6576	-73.1241	-135.6461	-8.6735	-60.5057
135	-135.6461	-8.6735	-60.5057	-216.9011	-12.0622	-55.5052
136	-216.9011	-12.0622	-55.5052	-355.7603	-17.6516	-47.5003
137	-355.7603	-17.6516	-47.5003	-479.0107	-21.7283	-42.1959
138	-479.0107	-21.7283	-42.1959	-582.4094	-24.4217	-39.3271
139	-582.4094	-24.4217	-39.3271	-647.7567	-25.2896	-39.1487
140	-647.7567	-25.2896	-39.1487	-674.6940	97.3604	-244.7161
141	-674.6940	97.3604	-244.7161	-1295.3445	261.9346	-424.1223
142	-1295.3445	261.9346	-424.1223	-922.9767	239.2182	-387.3597
143	-922.9767	239.2182	-387.3597	-575.4462	215.1445	-350.0110
144	-575.4462	215.1445	-350.0110	-230.5006	202.6288	-331.2335
145	-230.5006	202.6288	-331.2335	44.0030	176.7157	-291.0105
146	44.0030	176.7157	-291.0105	276.4019	149.7919	-247.0006
147	276.4019	149.7919	-247.0006	518.7431	68.3171	-210.9263
148	518.7431	68.3171	-210.9263	467.8965	50.5431	-179.1686
149	467.8965	50.5431	-179.1686	467.0374	42.3166	-164.1335
150	467.0374	42.3166	-164.1335	352.6376	27.2355	-137.0522
151	352.6376	27.2355	-137.0522	215.7726	13.9487	-113.0172
152	215.7726	13.9487	-113.0172	63.7913	2.4443	-92.0228
153	63.7913	2.4443	-92.0228	-96.0605	-7.3087	-74.0278
154	-96.0605	-7.3087	-74.0278	-187.0797	-11.5391	-66.2659
155	-187.0797	-11.5391	-66.2659	-352.2648	-18.7673	-52.7752
156	-352.2648	-18.7673	-52.7752	-507.4285	-24.4011	-42.1327
157	-507.4285	-24.4011	-42.1327	-647.2983	-28.5492	-34.2755
158	-647.2983	-28.5492	-34.2755	-767.6553	-31.3409	-29.1469
159	-767.6553	-31.3409	-29.1469	-848.4911	-32.2649	-28.1687
160	-848.4911	-32.2649	-28.1687	-935.9828	110.5716	-267.9800
161	-935.9828	110.5716	-267.9800	-481.6847	227.4925	-466.6143
162	-481.6847	227.4925	-466.6143	-106.1296	201.5032	-426.2275
163	-106.1296	201.5032	-426.2275	191.8199	176.5864	-387.7969
164	191.8199	176.5864	-387.7969	415.9924	152.8680	-351.4979
165	415.9924	152.8680	-351.4979	571.2682	130.4172	-317.2993
166	571.2682	130.4172	-317.2993	663.2546	109.3589	-283.4027
167	663.2546	109.3589	-283.4027	698.1223	89.7526	-249.4653
168	698.1223	89.7526	-249.4653	682.6482	71.6580	-215.5759
169	682.6482	71.6580	-215.5759	624.0574	55.1555	-182.8640
170	624.0574	55.1555	-182.8640	529.9273	40.2789	-152.9690
171	529.9273	40.2789	-152.9690	407.9138	27.0346	-125.9425
172	407.9138	27.0346	-125.9425	265.4999	15.3891	-101.8445
173	265.4999	15.3891	-101.8445	109.9115	5.3155	-80.7319
174	109.9115	5.3155	-80.7319	-51.8023	-3.2325	-62.6016

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	-51.8023	-3.2325	-62.6016	-213.0389	-10.3104	-47.4360
176	-213.0389	-10.3104	-47.4360	-367.8513	-15.9935	-35.2028
177	-367.8513	-15.9935	-35.2028	-511.0922	-20.3811	-25.8497
178	-511.0922	-20.3811	-25.8497	-638.4914	-23.5663	-19.3260
179	-638.4914	-23.5663	-19.3260	-746.8322	-25.6674	-15.5694
180	-746.8322	-25.6674	-15.5694	-837.5380	110.1640	-256.0822
181	-837.5380	110.1640	-256.0822	-418.8403	221.3417	-455.8480
182	-418.8403	221.3417	-455.8480	-71.2020	196.6734	-415.8470
183	-71.2020	196.6734	-415.8470	205.2829	173.2748	-377.8253
184	205.2829	173.2748	-377.8253	415.5739	151.2384	-341.9385
185	415.5739	151.2384	-341.9385	628.4468	125.7364	-296.7172
186	628.4468	125.7364	-296.7172	327.3469	155.7299	-250.9441
187	327.3469	155.7299	-250.9441	562.1129	128.0272	-206.8452
188	562.1129	128.0272	-206.8452	736.2114	99.7308	-161.9202
189	736.2114	99.7308	-161.9202	846.4187	70.9835	-116.7354
190	846.4187	70.9835	-116.7354	890.8242	41.9965	-71.3297
191	890.8242	41.9965	-71.3297	868.8109	12.9956	-25.9683
192	868.8109	12.9956	-25.9683	-10.6231	1.5774	-0.0314
193	-10.6231	1.5774	-0.0314	-7.5493	1.5768	-0.0441
194	-7.5493	1.5768	-0.0441	-4.4724	1.5771	-0.0540
195	-4.4724	1.5771	-0.0540	-1.3950	1.5771	-0.0587
196	-1.3950	1.5771	-0.0587	1.6823	1.5774	-0.0584
197	1.6823	1.5774	-0.0584	4.7591	1.5773	-0.0536
198	4.7591	1.5773	-0.0536	7.8351	1.5771	-0.0446
199	7.8351	1.5771	-0.0446	10.9116	1.5772	-0.0299
200	10.9116	1.5772	-0.0299	-1777.3953	33.5421	-25.3577
201	-1777.3953	33.5421	-25.3577	-1426.6882	247.8515	-327.6902
202	-1426.6882	247.8515	-327.6902	-1084.6293	232.8521	-301.7501
203	-1084.6293	232.8521	-301.7501	-769.9990	217.8541	-275.0723
204	-769.9990	217.8541	-275.0723	-487.7717	187.8557	-220.6855
205	-487.7717	187.8557	-220.6855	-233.9542	172.8568	-193.5479
206	-233.9542	172.8568	-193.5479	-9.9221	142.8521	-138.6240
207	-9.9221	142.8521	-138.6240	183.0983	127.8530	-110.9562
208	183.0983	127.8530	-110.9562	348.8176	112.8519	-83.1558
209	348.8176	112.8519	-83.1558	481.2650	82.8396	-27.8619
210	481.2650	82.8396	-27.8619	-29.5647	2.0972	-0.1799
211	-29.5647	2.0972	-0.1799	-26.6705	2.1009	-0.2124
212	-26.6705	2.1009	-0.2124	-23.7062	2.1023	-0.2361
213	-23.7062	2.1023	-0.2361	-20.7418	2.1022	-0.2511
214	-20.7418	2.1022	-0.2511	-17.7782	2.1022	-0.2705
215	-17.7782	2.1022	-0.2705	-14.8159	2.1018	-0.2877
216	-14.8159	2.1018	-0.2877	-11.8531	2.1023	-0.2970
217	-11.8531	2.1023	-0.2970	-8.8892	2.1027	-0.3073
218	-8.8892	2.1027	-0.3073	-5.9255	2.1017	-0.3160
219	-5.9255	2.1017	-0.3160	-2.9625	2.1011	-0.3196
220	-2.9625	2.1011	-0.3196	-0.0005	2.1008	-0.3202

ENVOL. MAX. FLECTORES TREN TREN SIN CARGA, EC-1 en via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0128	14.6201	-38.0743	27.4342	15.9947	-35.1178
2	27.4342	15.9947	-35.1178	51.7020	13.4946	-30.4856
3	51.7020	13.4946	-30.4856	72.6698	12.2441	-28.1161
4	72.6698	12.2441	-28.1161	90.1188	9.7448	-23.4311
5	90.1188	9.7448	-23.4311	104.3882	7.2417	-18.7264
6	104.3882	7.2417	-18.7264	115.2327	5.9913	-16.2971
7	115.2327	5.9913	-16.2971	122.6852	3.4942	-11.5648
8	122.6852	3.4942	-11.5648	126.9610	0.9969	-6.8254
9	126.9610	0.9969	-6.8254	127.7005	-0.2514	-4.3742
10	127.7005	-0.2514	-4.3742	125.1601	-2.7526	0.3677
11	125.1601	-2.7526	0.3677	119.4195	-4.0059	2.8130
12	119.4195	-4.0059	2.8130	110.0556	-6.5101	7.5397
13	110.0556	-6.5101	7.5397	97.5064	-9.0115	12.2523
14	97.5064	-9.0115	12.2523	81.6406	-10.2617	14.6565
15	81.6406	-10.2617	14.6565	62.2756	-12.7602	19.3297
16	62.2756	-12.7602	19.3297	39.7351	-15.2617	23.9762
17	39.7351	-15.2617	23.9762	13.7477	-16.5147	26.3009
18	13.7477	-16.5147	26.3009	-0.0092	-0.0003	0.0550
19	-0.0092	-0.0003	0.0550	-0.0097	-0.0003	0.0550
20	-0.0097	-0.0003	0.0550	-0.0104	0.0000	0.0281
21	-0.0104	0.0000	0.0281	-0.0100	0.0003	0.0012
22	-0.0100	0.0003	0.0012	-0.0093	0.0003	0.0012
23	-0.0093	0.0003	0.0012	-0.0086	0.0003	0.0012
24	-0.0086	0.0003	0.0012	-0.0080	0.0003	0.0011
25	-0.0080	0.0003	0.0011	20.6744	15.4632	-23.2793
26	20.6744	15.4632	-23.2793	48.6269	12.9622	-18.6437
27	48.6269	12.9622	-18.6437	71.5681	10.4628	-13.9687
28	71.5681	10.4628	-13.9687	89.5093	7.9598	-9.2622
29	89.5093	7.9598	-9.2622	102.4330	5.4578	-4.5321
30	102.4330	5.4578	-4.5321	110.3551	2.9579	0.2140
31	110.3551	2.9579	0.2140	113.2610	0.4577	4.9684
32	113.2610	0.4577	4.9684	111.1666	-2.0419	9.7237
33	111.1666	-2.0419	9.7237	104.0610	-4.5413	14.4717
34	104.0610	-4.5413	14.4717	91.9561	-7.0398	19.2047
35	91.9561	-7.0398	19.2047	74.8462	-9.5413	23.9158
36	74.8462	-9.5413	23.9158	52.7281	-12.0404	28.5965
37	52.7281	-12.0404	28.5965	25.6080	-14.5400	33.2390
38	25.6080	-14.5400	33.2390	12.2856	2.6911	0.5653
39	12.2856	2.6911	0.5653	17.6666	2.6915	0.5883
40	17.6666	2.6915	0.5883	23.0502	0.9789	0.2286
41	23.0502	0.9789	0.2286	21.5848	-0.7336	-0.1282
42	21.5848	-0.7336	-0.1282	20.1174	-0.7337	-0.0961
43	20.1174	-0.7337	-0.0961	18.6498	-0.7336	-0.0663
44	18.6498	-0.7336	-0.0663	17.1823	-0.7337	-0.0387
45	17.1823	-0.7337	-0.0387	22.0089	15.4014	-23.1394
46	22.0089	15.4014	-23.1394	49.8464	12.9014	-18.5016
47	49.8464	12.9014	-18.5016	72.6798	10.4031	-13.8251
48	72.6798	10.4031	-13.8251	90.5080	7.9043	-9.1172
49	90.5080	7.9043	-9.1172	103.3284	5.4044	-4.3854
50	103.3284	5.4044	-4.3854	111.1436	2.9055	0.3622
51	111.1436	2.9055	0.3622	113.9494	0.4042	5.1178
52	113.9494	0.4042	5.1178	111.7370	-2.0990	9.8739
53	111.7370	-2.0990	9.8739	104.5194	-4.6022	14.6231
54	104.5194	-4.6022	14.6231	92.2825	-7.1033	19.3573
55	92.2825	-7.1033	19.3573	75.0400	-9.6038	24.0686
56	75.0400	-9.6038	24.0686	52.7850	-12.1048	28.7492
57	52.7850	-12.1048	28.7492	25.5243	-14.6037	33.3918
58	25.5243	-14.6037	33.3918	12.4504	2.7235	0.5667
59	12.4504	2.7235	0.5667	17.8975	2.7235	0.5901
60	17.8975	2.7235	0.5901	23.3444	0.9897	0.2165
61	23.3444	0.9897	0.2165	21.8561	-0.7441	-0.1542
62	21.8561	-0.7441	-0.1542	20.3683	-0.7443	-0.1216
63	20.3683	-0.7443	-0.1216	18.8801	-0.7444	-0.0915
64	18.8801	-0.7444	-0.0915	17.3920	-0.7442	-0.0636
65	17.3920	-0.7442	-0.0636	21.4957	15.4100	-23.1319
66	21.4957	15.4100	-23.1319	49.3407	12.9087	-18.4948
67	49.3407	12.9087	-18.4948	72.1776	10.4097	-13.8187
68	72.1776	10.4097	-13.8187	90.0171	7.9093	-9.1116
69	90.0171	7.9093	-9.1116	102.8445	5.4058	-4.3805
70	102.8445	5.4058	-4.3805	110.6598	2.9046	0.3658
71	110.6598	2.9046	0.3658	113.4687	0.4061	5.1199
72	113.4687	0.4061	5.1199	111.2738	-2.0933	9.8756
73	111.2738	-2.0933	9.8756	104.0739	-4.5947	14.6245
74	104.0739	-4.5947	14.6245	91.8661	-7.0965	19.3580
75	91.8661	-7.0965	19.3580	74.6463	-9.5961	24.0679
76	74.6463	-9.5961	24.0679	52.4221	-12.0967	28.7483
77	52.4221	-12.0967	28.7483	25.1857	-14.5969	33.3909
78	25.1857	-14.5969	33.3909	12.6646	2.7524	0.6582
79	12.6646	2.7524	0.6582	18.1666	2.7522	0.6820
80	18.1666	2.7522	0.6820	23.6702	0.9939	0.3465
81	23.6702	0.9939	0.3465	22.1421	-0.7643	0.0140
82	22.1421	-0.7643	0.0140	20.6133	-0.7643	0.0469
83	20.6133	-0.7643	0.0469	19.0842	-0.7645	0.0776
84	19.0842	-0.7645	0.0776	17.5548	-0.7646	0.1057
85	17.5548	-0.7646	0.1057	21.5049	15.1022	-20.1831
86	21.5049	15.1022	-20.1831	48.7409	12.6010	-15.5464
87	48.7409	12.6010	-15.5464	70.9674	10.1026	-10.8719
88	70.9674	10.1026	-10.8719	88.1929	7.6047	-6.1670
89	88.1929	7.6047	-6.1670	100.4099	5.1030	-1.4384
90	100.4099	5.1030	-1.4384	107.6120	2.6023	3.3035
91	107.6120	2.6023	3.3035	109.8103	0.1049	8.0530
92	109.8103	0.1049	8.0530	107.0049	-2.3922	12.8018
93	107.0049	-2.3922	12.8018	99.1965	-4.8896	17.5421
94	99.1965	-4.8896	17.5421	86.3796	-7.3923	22.2677
95	86.3796	-7.3923	22.2677	68.5509	-9.8940	26.9699
96	68.5509	-9.8940	26.9699	45.7193	-12.3915	31.6404
97	45.7193	-12.3915	31.6404	17.8787	-14.8909	36.2719
98	17.8787	-14.8909	36.2719	13.9193	2.7857	0.0782
99	13.9193	2.7857	0.0782	19.4921	2.7859	0.1038
100	19.4921	2.7859	0.1038	25.0242	0.9371	0.4136
101	25.0242	0.9371	0.4136	23.3861	-0.9117	0.7242
102	23.3861	-0.9117	0.7242	21.7893	-0.9118	0.7545
103	21.7893	-0.9118	0.7545	20.1918	-0.9115	0.7827
104	20.1918	-0.9115	0.7827	18.5956	-0.9112	0.8088
105	18.5956	-0.9112	0.8088	16.9990	-0.9117	0.8328
106	16.9990	-0.9117	0.8328	28.9819	11.0827	-13.7990
107	28.9819	11.0827	-13.7990	47.2059	9.8326	-11.4566
108	47.2059	9.8326	-11.4566	61.4249	7.3328	-6.8012
109	61.4249	7.3328	-6.8012	71.8873	4.8305	-2.1288
110	71.8873	4.8305	-2.1288	78.5873	2.3281	2.5554
111	78.5873	2.3281	2.5554	81.4699	1.0803	4.9536
112	81.4699	1.0803	4.9536	80.3523	-1.4172	9.6448
113	80.3523	-1.4172	9.6448	75.4804	-3.9181	14.3324

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
114	75.4804	-3.9181	14.3324	66.8468	-6.4198	19.0107
115	66.8468	-6.4198	19.0107	54.3971	-7.6690	21.3838
116	54.3971	-7.6690	21.3838	37.9436	-10.1679	26.0283
117	37.9436	-10.1679	26.0283	17.7356	-12.6673	30.6483
118	17.7356	-12.6673	30.6483	13.2701	3.2095	-3.3380
119	13.2701	3.2095	-3.3380	18.8917	3.2096	-3.3164
120	18.8917	3.2096	-3.3164	24.1509	1.1720	-1.2365
121	24.1509	1.1720	-1.2365	22.2742	-0.8658	0.8456
122	22.2742	-0.8658	0.8456	20.7577	-0.8657	0.8746
123	20.7577	-0.8657	0.8746	19.2415	-0.8657	0.9015
124	19.2415	-0.8657	0.9015	17.7243	-0.8655	0.9263
125	17.7243	-0.8655	0.9263	23.8025	12.7009	-17.0839
126	23.8025	12.7009	-17.0839	44.3030	10.2016	-12.4556
127	44.3030	10.2016	-12.4556	60.9850	8.9480	-10.0931
128	60.9850	8.9480	-10.0931	73.6514	6.4457	-5.4200
129	73.6514	6.4457	-5.4200	82.5630	3.9469	-0.7327
130	82.5630	3.9469	-0.7327	87.7213	1.4453	3.9646
131	87.7213	1.4453	3.9646	89.0546	0.1949	6.3754
132	89.0546	0.1949	6.3754	86.3910	-2.3017	11.0765
133	86.3910	-2.3017	11.0765	79.9738	-4.8002	15.7712
134	79.9738	-4.8002	15.7712	69.7966	-7.3015	20.4542
135	69.7966	-7.3015	20.4542	55.8016	-8.5524	22.8297
136	55.8016	-8.5524	22.8297	37.8011	-11.0520	27.4753
137	37.8011	-11.0520	27.4753	16.0429	-13.5527	32.0937
138	16.0429	-13.5527	32.0937	8.5755	2.1134	-2.5867
139	8.5755	2.1134	-2.5867	12.2782	2.1137	-2.5728
140	12.2782	2.1137	-2.5728	15.6753	0.7879	-1.0607
141	15.6753	0.7879	-1.0607	14.4021	-0.5380	0.4531
142	14.4021	-0.5380	0.4531	13.4330	-0.5381	0.4725
143	13.4330	-0.5381	0.4725	12.4634	-0.5382	0.4904
144	12.4634	-0.5382	0.4904	11.4938	-0.5382	0.5070
145	11.4938	-0.5382	0.5070	23.3754	13.7522	-21.4928
146	23.3754	13.7522	-21.4928	45.6532	11.2511	-16.8625
147	45.6532	11.2511	-16.8625	63.9207	8.7492	-12.2036
148	63.9207	8.7492	-12.2036	78.1847	6.2473	-7.5230
149	78.1847	6.2473	-7.5230	88.3149	4.9985	-5.1167
150	88.3149	4.9985	-5.1167	94.3188	2.4996	-0.4075
151	94.3188	2.4996	-0.4075	96.3134	0.0000	4.3066
152	96.3134	0.0000	4.3066	94.3062	-2.4990	9.0202
153	94.3062	-2.4990	9.0202	88.2934	-5.0003	13.7298
154	88.2934	-5.0003	13.7298	78.1460	-6.2519	16.1366
155	78.1460	-6.2519	16.1366	63.8678	-8.7517	20.8176
156	63.8678	-8.7517	20.8176	45.5872	-11.2517	25.4762
157	45.5872	-11.2517	25.4762	23.2981	-13.7510	30.1067
158	23.2981	-13.7510	30.1067	8.5433	2.2044	-2.4482
159	8.5433	2.2044	-2.4482	12.5139	2.2043	-2.4336
160	12.5139	2.2043	-2.4336	16.4893	0.8385	-1.3145
161	16.4893	0.8385	-1.3145	15.4415	-0.5273	-0.1922
162	15.4415	-0.5273	-0.1922	14.3869	-0.5274	-0.1692
163	14.3869	-0.5274	-0.1692	13.3326	-0.5274	-0.1479
164	13.3326	-0.5274	-0.1479	12.2778	-0.5275	-0.1282
165	12.2778	-0.5275	-0.1282	29.7493	14.9913	-23.5744
166	29.7493	14.9913	-23.5744	56.7705	12.4932	-18.9251
167	56.7705	12.4932	-18.9251	78.7876	9.9949	-14.2387
168	78.7876	9.9949	-14.2387	95.7979	7.4952	-9.5215
169	95.7979	7.4952	-9.5215	107.7966	4.9945	-4.7824
170	107.7966	4.9945	-4.7824	114.7886	2.4967	-0.0295
171	114.7886	2.4967	-0.0295	116.7812	0.0011	4.7308
172	116.7812	0.0011	4.7308	113.7717	-2.5017	9.4907
173	113.7717	-2.5017	9.4907	105.7439	-5.0054	14.2421

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
174	105.7439	-5.0054	14.2421	92.7073	-7.5062	18.9784
175	92.7073	-7.5062	18.9784	74.6629	-10.0082	23.6897
176	74.6629	-10.0082	23.6897	51.6059	-12.5072	28.3694
177	51.6059	-12.5072	28.3694	23.5472	-15.0050	33.0097
178	23.5472	-15.0050	33.0097	10.1859	2.1767	0.7183
179	10.1859	2.1767	0.7183	14.5387	2.1767	0.7373
180	14.5387	2.1767	0.7373	18.8840	0.7752	0.2900
181	18.8840	0.7752	0.2900	17.6558	-0.6258	-0.1552
182	17.6558	-0.6258	-0.1552	16.4356	-0.6259	-0.1296
183	16.4356	-0.6259	-0.1296	15.2149	-0.6262	-0.1058
184	15.2149	-0.6262	-0.1058	13.9938	-0.6262	-0.0839
185	13.9938	-0.6262	-0.0839	14.5455	14.7814	-21.7830
186	14.5455	14.7814	-21.7830	41.1549	12.2802	-17.1583
187	41.1549	12.2802	-17.1583	63.0065	9.7795	-12.4979
188	63.0065	9.7795	-12.4979	80.0975	7.2778	-7.8077
189	80.0975	7.2778	-7.8077	92.4324	4.7766	-3.0961
190	92.4324	4.7766	-3.0961	100.0040	2.2783	1.6400
191	100.0040	2.2783	1.6400	102.8183	-0.2195	6.3743
192	102.8183	-0.2195	6.3743	100.8758	-2.7186	11.0876
193	100.8758	-2.7186	11.0876	94.1788	-5.2182	15.8086
194	94.1788	-5.2182	15.8086	82.7191	-6.4696	18.2457
195	82.7191	-6.4696	18.2457	66.4407	-8.9706	22.9404
196	66.4407	-8.9706	22.9404	45.4086	-11.4707	27.5957
197	45.4086	-11.4707	27.5957	19.6160	-13.9701	32.2243
198	19.6160	-13.9701	32.2243	14.9771	3.0301	0.8759
199	14.9771	3.0301	0.8759	20.8866	3.0303	0.9040
200	20.8866	3.0303	0.9040	26.8021	1.0399	0.4201
201	26.8021	1.0399	0.4201	25.4673	-0.9507	-0.0628
202	25.4673	-0.9507	-0.0628	24.1269	-0.9510	-0.0328
203	24.1269	-0.9510	-0.0328	22.7862	-0.9505	-0.0123
204	22.7862	-0.9505	-0.0123	21.4468	-0.9499	0.0098
205	21.4468	-0.9499	0.0098	20.1081	-0.9504	0.0281
206	20.1081	-0.9504	0.0281	18.7683	-0.9509	0.0395
207	18.7683	-0.9509	0.0395	20.0257	10.3961	-8.7080
208	20.0257	10.3961	-8.7080	33.4704	9.1442	-6.3850
209	33.4704	9.1442	-6.3850	44.1389	6.6437	-1.7743
210	44.1389	6.6437	-1.7743	52.5076	5.3937	0.5646
211	52.5076	5.3937	0.5646	58.3329	2.8934	5.2116
212	58.3329	2.8934	5.2116	61.6329	1.6433	7.5576
213	61.6329	1.6433	7.5576	62.6138	-0.8571	12.1825
214	62.6138	-0.8571	12.1825	60.8427	-2.1049	14.5366
215	60.8427	-2.1049	14.5366	56.7961	-3.3547	16.8885
216	56.7961	-3.3547	16.8885	50.1493	-5.8561	21.5081
217	50.1493	-5.8561	21.5081	41.0307	-7.1065	23.8444
218	41.0307	-7.1065	23.8444	29.5293	-9.6068	28.4689
219	29.5293	-9.6068	28.4689	15.3493	-10.8566	30.7787
220	15.3493	-10.8566	30.7787	0.0365	-10.8561	30.7819

ENVOL. MIN. FLECTORES TREN TREN SIN CARGA, EC-1 en via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0007	-0.0003	0.0551	0.0002	-0.0003	0.0551
2	0.0002	-0.0003	0.0551	-0.0003	-0.0003	0.0551
3	-0.0003	-0.0003	0.0551	-0.0009	-0.0003	0.0551
4	-0.0009	-0.0003	0.0551	-0.0014	-0.0003	0.0551
5	-0.0014	-0.0003	0.0551	-0.0020	-0.0003	0.0551
6	-0.0020	-0.0003	0.0551	-0.0025	-0.0003	0.0551
7	-0.0025	-0.0003	0.0551	-0.0031	-0.0003	0.0551
8	-0.0031	-0.0003	0.0551	-0.0036	-0.0003	0.0551
9	-0.0036	-0.0003	0.0551	-0.0042	-0.0003	0.0551
10	-0.0042	-0.0003	0.0551	-0.0048	-0.0003	0.0551
11	-0.0048	-0.0003	0.0551	-0.0053	-0.0003	0.0551
12	-0.0053	-0.0003	0.0551	-0.0059	-0.0003	0.0551
13	-0.0059	-0.0003	0.0551	-0.0064	-0.0003	0.0551
14	-0.0064	-0.0003	0.0551	-0.0070	-0.0003	0.0551
15	-0.0070	-0.0003	0.0551	-19.7470	-16.1044	18.0662
16	-19.7470	-16.1044	18.0662	-47.7551	-18.6052	22.6064
17	-47.7551	-18.6052	22.6064	-79.2004	-19.8555	24.8176
18	-79.2004	-19.8555	24.8176	-114.0240	-22.3555	29.2785
19	-114.0240	-22.3555	29.2785	-152.0278	-24.8554	33.6942
20	-152.0278	-24.8554	33.6942	-193.8617	0.9297	-4.9303
21	-193.8617	0.9297	-4.9303	-141.2083	25.4646	-41.2768
22	-141.2083	25.4646	-41.2768	-93.2281	22.9643	-36.8750
23	-93.2281	22.9643	-36.8750	-68.4055	2.6883	1.2129
24	-68.4055	2.6883	1.2129	-63.0320	2.6879	1.1119
25	-63.0320	2.6879	1.1119	-57.6581	2.6874	1.0189
26	-57.6581	2.6874	1.0189	-52.2826	2.6895	0.9345
27	-52.2826	2.6895	0.9345	-46.9044	2.6916	0.8582
28	-46.9044	2.6916	0.8582	-41.5244	2.6913	0.7901
29	-41.5244	2.6913	0.7901	-36.1454	2.6903	0.7304
30	-36.1454	2.6903	0.7304	-30.7658	2.6904	0.6790
31	-30.7658	2.6904	0.6790	-25.3829	2.6912	0.6358
32	-25.3829	2.6912	0.6358	-20.0012	2.6919	0.6009
33	-20.0012	2.6919	0.6009	-14.6177	2.6918	0.5742
34	-14.6177	2.6918	0.5742	-9.2366	2.6912	0.5559
35	-9.2366	2.6912	0.5559	-3.8559	2.6912	0.5459
36	-3.8559	2.6912	0.5459	-26.9627	-15.4671	27.2262
37	-26.9627	-15.4671	27.2262	-60.9365	-17.9670	31.7411
38	-60.9365	-17.9670	31.7411	-99.9156	-20.4671	36.2000
39	-99.9156	-20.4671	36.2000	-143.9009	-22.9672	40.5951
40	-143.9009	-22.9672	40.5951	-192.5710	1.2179	-0.2775
41	-192.5710	1.2179	-0.2775	-139.4384	25.4030	-41.1465
42	-139.4384	25.4030	-41.1465	-91.5634	22.9030	-36.7418
43	-91.5634	22.9030	-36.7418	-69.1940	2.7207	1.2217
44	-69.1940	2.7207	1.2217	-63.7529	2.7206	1.1195
45	-63.7529	2.7206	1.1195	-58.3123	2.7212	1.0255
46	-58.3123	2.7212	1.0255	-52.8682	2.7218	0.9399
47	-52.8682	2.7218	0.9399	-47.4270	2.7213	0.8627
48	-47.4270	2.7213	0.8627	-41.9854	2.7210	0.7941
49	-41.9854	2.7210	0.7941	-36.5452	2.7196	0.7337
50	-36.5452	2.7196	0.7337	-31.1085	2.7193	0.6816
51	-31.1085	2.7193	0.6816	-25.6663	2.7197	0.6380
52	-25.6663	2.7197	0.6380	-20.2257	2.7208	0.6027
53	-20.2257	2.7208	0.6027	-14.7803	2.7231	0.5756
54	-14.7803	2.7231	0.5756	-9.3348	2.7234	0.5570
55	-9.3348	2.7234	0.5570	-3.8890	2.7231	0.5468
56	-3.8890	2.7231	0.5468	-26.6033	-15.4923	27.4330
57	-26.6033	-15.4923	27.4330	-60.6395	-17.9924	31.9485
58	-60.6395	-17.9924	31.9485	-99.6829	-20.4921	36.4074
59	-99.6829	-20.4921	36.4074	-143.7348	-22.9923	40.8026
60	-143.7348	-22.9923	40.8026	-192.7693	1.2084	-0.1678
61	-192.7693	1.2084	-0.1678	-139.9402	25.4087	-41.1357
62	-139.9402	25.4087	-41.1357	-92.0736	22.9089	-36.7318
63	-92.0736	22.9089	-36.7318	-69.8281	2.7506	1.3177
64	-69.8281	2.7506	1.3177	-64.3322	2.7506	1.2145
65	-64.3322	2.7506	1.2145	-58.8311	2.7510	1.1198
66	-58.8311	2.7510	1.1198	-53.3340	2.7509	1.0337
67	-53.3340	2.7509	1.0337	-47.8354	2.7501	0.9557
68	-47.8354	2.7501	0.9557	-42.3389	2.7494	0.8864
69	-42.3389	2.7494	0.8864	-36.8420	2.7502	0.8255
70	-36.8420	2.7502	0.8255	-31.3426	2.7515	0.7733
71	-31.3426	2.7515	0.7733	-25.8412	2.7516	0.7296
72	-25.8412	2.7516	0.7296	-20.3421	2.7506	0.6939
73	-20.3421	2.7506	0.6939	-14.8414	2.7501	0.6667
74	-14.8414	2.7501	0.6667	-9.3435	2.7506	0.6481
75	-9.3435	2.7506	0.6481	-3.8419	2.7516	0.6379
76	-3.8419	2.7516	0.6379	-24.7324	-15.3874	27.4945
77	-24.7324	-15.3874	27.4945	-58.5470	-17.8876	32.0130
78	-58.5470	-17.8876	32.0130	-97.3678	-20.3878	36.4757
79	-97.3678	-20.3878	36.4757	-141.1938	-22.8878	40.8746
80	-141.1938	-22.8878	40.8746	-189.8819	1.1074	1.3386
81	-189.8819	1.1074	1.3386	-137.5272	25.1022	-38.1943
82	-137.5272	25.1022	-38.1943	-90.2570	22.6017	-33.7870
83	-90.2570	22.6017	-33.7870	-69.7094	2.7882	0.7215
84	-69.7094	2.7882	0.7215	-64.1329	2.7882	0.6188
85	-64.1329	2.7882	0.6188	-58.5555	2.7885	0.5245
86	-58.5555	2.7885	0.5245	-52.9783	2.7886	0.4383
87	-52.9783	2.7886	0.4383	-47.4003	2.7885	0.3611
88	-47.4003	2.7885	0.3611	-41.8232	2.7875	0.2925
89	-41.8232	2.7875	0.2925	-36.2474	2.7871	0.2323
90	-36.2474	2.7871	0.2323	-30.6713	2.7881	0.1807
91	-30.6713	2.7881	0.1807	-25.0934	2.7877	0.1380
92	-25.0934	2.7877	0.1380	-19.5200	2.7870	0.1038
93	-19.5200	2.7870	0.1038	-13.9454	2.7866	0.0782
94	-13.9454	2.7866	0.0782	-8.3721	2.7857	0.0613
95	-8.3721	2.7857	0.0613	-2.8019	2.7785	0.1171
96	-2.8019	2.7785	0.1171	-12.0405	-14.8629	29.2337
97	-12.0405	-14.8629	29.2337	-44.8222	-17.3631	33.7724
98	-44.8222	-17.3631	33.7724	-82.6129	-19.8638	38.2571
99	-82.6129	-19.8638	38.2571	-125.4107	-22.3638	42.6797
100	-125.4107	-22.3638	42.6797	-166.8220	-0.0157	4.2477
101	-166.8220	-0.0157	4.2477	-119.3551	22.3325	-34.1681
102	-119.3551	22.3325	-34.1681	-81.9774	19.8325	-29.7211
103	-81.9774	19.8325	-29.7211	-71.0594	3.2088	-2.7547
104	-71.0594	3.2088	-2.7547	-65.4401	3.2078	-2.8465
105	-65.4401	3.2078	-2.8465	-59.8216	3.2077	-2.9309
106	-59.8216	3.2077	-2.9309	-54.2010	3.2073	-3.0076
107	-54.2010	3.2073	-3.0076	-48.5822	3.2077	-3.0767
108	-48.5822	3.2077	-3.0767	-42.9608	3.2092	-3.1383
109	-42.9608	3.2092	-3.1383	-37.3380	3.2099	-3.1925
110	-37.3380	3.2099	-3.1925	-31.7140	3.2108	-3.2390
111	-31.7140	3.2108	-3.2390	-26.0887	3.2105	-3.2776
112	-26.0887	3.2105	-3.2776	-20.4659	3.2099	-3.3089
113	-20.4659	3.2099	-3.3089	-14.8431	3.2098	-3.3326
114	-14.8431	3.2098	-3.3326	-9.2210	3.2105	-3.3489

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	-9.2210	3.2105	-3.3489	-3.5954	3.2104	-3.3575
116	-3.5954	3.2104	-3.3575	-24.3964	-13.1756	22.3041
117	-24.3964	-13.1756	22.3041	-49.8633	-15.6754	26.8365
118	-49.8633	-15.6754	26.8365	-79.0871	-18.1754	31.3321
119	-79.0871	-18.1754	31.3321	-112.1277	-19.4254	33.4947
120	-112.1277	-19.4254	33.4947	-142.5096	1.0124	0.2653
121	-142.5096	1.0124	0.2653	-96.3079	21.4503	-32.9532
122	-96.3079	21.4503	-32.9532	-60.4751	18.9504	-28.4762
123	-60.4751	18.9504	-28.4762	-46.9398	2.1121	-2.1994
124	-46.9398	2.1121	-2.1994	-43.2400	2.1122	-2.2601
125	-43.2400	2.1122	-2.2601	-39.5406	2.1116	-2.3157
126	-39.5406	2.1116	-2.3157	-35.8423	2.1113	-2.3663
127	-35.8423	2.1113	-2.3663	-32.1441	2.1125	-2.4122
128	-32.1441	2.1125	-2.4122	-28.4410	2.1132	-2.4529
129	-28.4410	2.1132	-2.4529	-24.7388	2.1127	-2.4886
130	-24.7388	2.1127	-2.4886	-21.0371	2.1135	-2.5195
131	-21.0371	2.1135	-2.5195	-17.3330	2.1137	-2.5453
132	-17.3330	2.1137	-2.5453	-13.6322	2.1131	-2.5665
133	-13.6322	2.1131	-2.5665	-9.9316	2.1129	-2.5824
134	-9.9316	2.1129	-2.5824	-6.2305	2.1124	-2.5932
135	-6.2305	2.1124	-2.5932	-7.5881	-11.9588	18.2278
136	-7.5881	-11.9588	18.2278	-31.5464	-14.4590	22.7839
137	-31.5464	-14.4590	22.7839	-59.2615	-16.9592	27.3054
138	-59.2615	-16.9592	27.3054	-90.7330	-19.4592	31.7870
139	-90.7330	-19.4592	31.7870	-126.0215	-20.7092	33.9323
140	-126.0215	-20.7092	33.9323	-157.1115	0.8967	-1.7043
141	-157.1115	0.8967	-1.7043	-106.4090	22.5024	-37.3296
142	-106.4090	22.5024	-37.3296	-67.8608	20.0019	-32.8674
143	-67.8608	20.0019	-32.8674	-51.0145	2.2032	-2.0071
144	-51.0145	2.2032	-2.0071	-47.0473	2.2029	-2.0749
145	-47.0473	2.2029	-2.0749	-43.0787	2.2041	-2.1372
146	-43.0787	2.2041	-2.1372	-39.1087	2.2055	-2.1941
147	-39.1087	2.2055	-2.1941	-35.1378	2.2050	-2.2457
148	-35.1378	2.2050	-2.2457	-31.1686	2.2048	-2.2914
149	-31.1686	2.2048	-2.2914	-27.1965	2.2049	-2.3317
150	-27.1965	2.2049	-2.3317	-23.2266	2.2050	-2.3670
151	-23.2266	2.2050	-2.3670	-19.2544	2.2052	-2.3960
152	-19.2544	2.2052	-2.3960	-15.2847	2.2046	-2.4199
153	-15.2847	2.2046	-2.4199	-11.3138	2.2048	-2.4383
154	-11.3138	2.2048	-2.4383	-7.3427	2.2049	-2.4513
155	-7.3427	2.2049	-2.4513	-12.3260	-12.7386	18.5201
156	-12.3260	-12.7386	18.5201	-37.7811	-15.2386	23.0680
157	-37.7811	-15.2386	23.0680	-67.2415	-17.7385	27.5777
158	-67.2415	-17.7385	27.5777	-100.7078	-20.2384	32.0442
159	-100.7078	-20.2384	32.0442	-138.3031	-21.4884	34.1698
160	-138.3031	-21.4884	34.1698	-180.2126	1.7517	-3.7335
161	-180.2126	1.7517	-3.7335	-128.4013	24.9916	-41.6394
162	-128.4013	24.9916	-41.6394	-81.3524	22.4916	-37.2183
163	-81.3524	22.4916	-37.2183	-55.1038	2.1779	1.2366
164	-55.1038	2.1779	1.2366	-50.7488	2.1786	1.1550
165	-50.7488	2.1786	1.1550	-46.3927	2.1780	1.0802
166	-46.3927	2.1780	1.0802	-42.0393	2.1770	1.0124
167	-42.0393	2.1770	1.0124	-37.6866	2.1771	0.9509
168	-37.6866	2.1771	0.9509	-33.3340	2.1767	0.8961
169	-33.3340	2.1767	0.8961	-28.9818	2.1766	0.8482
170	-28.9818	2.1766	0.8482	-24.6280	2.1765	0.8074
171	-24.6280	2.1765	0.8074	-20.2771	2.1760	0.7730
172	-20.2771	2.1760	0.7730	-15.9273	2.1761	0.7449
173	-15.9273	2.1761	0.7449	-11.5758	2.1768	0.7238
174	-11.5758	2.1768	0.7238	-7.2233	2.1768	0.7091

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	-7.2233	2.1768	0.7091	-2.8716	2.1768	0.7014
176	-2.8716	2.1768	0.7014	-21.0682	-15.6534	27.4361
177	-21.0682	-15.6534	27.4361	-55.4242	-18.1532	31.9600
178	-55.4242	-18.1532	31.9600	-94.7873	-20.6534	36.4271
179	-94.7873	-20.6534	36.4271	-139.1580	-23.1537	40.8293
180	-139.1580	-23.1537	40.8293	-189.1840	0.8147	0.5258
181	-189.1840	0.8147	0.5258	-139.4949	24.7833	-39.7747
182	-139.4949	24.7833	-39.7747	-93.8471	22.2832	-35.3669
183	-93.8471	22.2832	-35.3669	-73.6544	3.0271	1.5368
184	-73.6544	3.0271	1.5368	-67.7498	3.0279	1.4307
185	-67.7498	3.0279	1.4307	-61.8453	3.0289	1.3331
186	-61.8453	3.0289	1.3331	-55.9390	3.0296	1.2441
187	-55.9390	3.0296	1.2441	-50.0294	3.0299	1.1650
188	-50.0294	3.0299	1.1650	-44.1217	3.0309	1.0940
189	-44.1217	3.0309	1.0940	-38.2134	3.0320	1.0320
190	-38.2134	3.0320	1.0320	-32.3008	3.0312	0.9765
191	-32.3008	3.0312	0.9765	-26.3917	3.0294	0.9320
192	-26.3917	3.0294	0.9320	-20.4810	3.0287	0.9018
193	-20.4810	3.0287	0.9018	-14.5730	3.0295	0.8774
194	-14.5730	3.0295	0.8774	-8.6629	3.0304	0.8583
195	-8.6629	3.0304	0.8583	-2.7548	3.0236	0.9119
196	-2.7548	3.0236	0.9119	-0.6684	-0.6266	0.0360
197	-0.6684	-0.6266	0.0360	-26.7202	-15.8335	31.2385
198	-26.7202	-15.8335	31.2385	-60.9022	-18.3330	35.7585
199	-60.9022	-18.3330	35.7585	-99.8472	-20.8333	40.2137
200	-99.8472	-20.8333	40.2137	-143.1097	-0.2194	6.7040
201	-143.1097	-0.2194	6.7040	-111.9243	20.3945	-26.8034
202	-111.9243	20.3945	-26.8034	-83.7862	19.1446	-24.6334
203	-83.7862	19.1446	-24.6334	-72.9471	3.0424	1.3915
204	-72.9471	3.0424	1.3915	-68.6599	3.0417	1.3207
205	-68.6599	3.0417	1.3207	-64.3730	3.0427	1.2616
206	-64.3730	3.0427	1.2616	-60.0841	3.0440	1.2255
207	-60.0841	3.0440	1.2255	-55.7954	3.0425	1.1525
208	-55.7954	3.0425	1.1525	-51.5094	3.0422	1.0798
209	-51.5094	3.0422	1.0798	-47.2168	3.0452	1.0437
210	-47.2168	3.0452	1.0437	-42.9238	3.0459	1.0003
211	-42.9238	3.0459	1.0003	-38.6323	3.0448	0.9532
212	-38.6323	3.0448	0.9532	-34.3392	3.0452	0.9194
213	-34.3392	3.0452	0.9194	-30.0452	3.0461	0.8968
214	-30.0452	3.0461	0.8968	-25.7512	3.0443	0.8695
215	-25.7512	3.0443	0.8695	-21.4609	3.0436	0.8447
216	-21.4609	3.0436	0.8447	-17.1686	3.0450	0.8310
217	-17.1686	3.0450	0.8310	-12.8760	3.0452	0.8163
218	-12.8760	3.0452	0.8163	-8.5831	3.0448	0.8034
219	-8.5831	3.0448	0.8034	-4.2909	3.0444	0.7981
220	-4.2909	3.0444	0.7981	-0.0001	0.1614	-0.0247

ENVOL. MAX. CORTANTES TREN TREN SIN CARGA, EC-1 en via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0122	17.2442	-37.4263	27.4342	15.9947	-35.1178
2	27.4342	15.9947	-35.1178	51.7020	13.4946	-30.4856
3	51.7020	13.4946	-30.4856	72.6698	12.2441	-28.1161
4	72.6698	12.2441	-28.1161	90.1188	9.7448	-23.4311
5	90.1188	9.7448	-23.4311	104.3882	7.2417	-18.7264
6	104.3882	7.2417	-18.7264	115.2327	5.9913	-16.2971
7	115.2327	5.9913	-16.2971	122.6852	3.4942	-11.5648
8	122.6852	3.4942	-11.5648	126.9610	0.9969	-6.8254
9	126.9610	0.9969	-6.8254	-0.0042	-0.0003	0.0551
10	-0.0042	-0.0003	0.0551	-0.0048	-0.0003	0.0551
11	-0.0048	-0.0003	0.0551	-0.0053	-0.0003	0.0551
12	-0.0053	-0.0003	0.0551	-0.0059	-0.0003	0.0551
13	-0.0059	-0.0003	0.0551	-0.0064	-0.0003	0.0551
14	-0.0064	-0.0003	0.0551	-0.0070	-0.0003	0.0551
15	-0.0070	-0.0003	0.0551	-0.0075	-0.0003	0.0550
16	-0.0075	-0.0003	0.0550	-0.0081	-0.0003	0.0550
17	-0.0081	-0.0003	0.0550	-0.0086	-0.0003	0.0550
18	-0.0086	-0.0003	0.0550	-0.0092	-0.0003	0.0550
19	-0.0092	-0.0003	0.0550	-0.0097	-0.0003	0.0550
20	-0.0097	-0.0003	0.0550	-193.8617	0.9297	-4.9303
21	-193.8617	0.9297	-4.9303	-141.2083	25.4646	-41.2768
22	-141.2083	25.4646	-41.2768	-93.2281	22.9643	-36.8750
23	-93.2281	22.9643	-36.8750	-50.2542	20.4643	-32.4028
24	-50.2542	20.4643	-32.4028	-12.2860	17.9641	-27.8682
25	-12.2860	17.9641	-27.8682	20.6744	15.4632	-23.2793
26	20.6744	15.4632	-23.2793	48.6269	12.9622	-18.6437
27	48.6269	12.9622	-18.6437	71.5681	10.4628	-13.9687
28	71.5681	10.4628	-13.9687	89.5093	7.9598	-9.2622
29	89.5093	7.9598	-9.2622	102.4330	5.4578	-4.5321
30	102.4330	5.4578	-4.5321	110.3551	2.9579	0.2140
31	110.3551	2.9579	0.2140	-25.3829	2.6912	0.6358
32	-25.3829	2.6912	0.6358	-20.0012	2.6919	0.6009
33	-20.0012	2.6919	0.6009	-14.6177	2.6918	0.5742
34	-14.6177	2.6918	0.5742	-9.2366	2.6912	0.5559
35	-9.2366	2.6912	0.5559	-3.8559	2.6912	0.5459
36	-3.8559	2.6912	0.5459	1.5245	2.6911	0.5441
37	1.5245	2.6911	0.5441	6.9054	2.6908	0.5506
38	6.9054	2.6908	0.5506	12.2856	2.6911	0.5653
39	12.2856	2.6911	0.5653	17.6666	2.6915	0.5883
40	17.6666	2.6915	0.5883	-192.5710	1.2179	-0.2775
41	-192.5710	1.2179	-0.2775	-139.4384	25.4030	-41.1465
42	-139.4384	25.4030	-41.1465	-91.5634	22.9030	-36.7418
43	-91.5634	22.9030	-36.7418	-48.6975	20.4034	-32.2672
44	-48.6975	20.4034	-32.2672	-10.8397	17.9029	-27.7304
45	-10.8397	17.9029	-27.7304	22.0089	15.4014	-23.1394
46	22.0089	15.4014	-23.1394	49.8464	12.9014	-18.5016
47	49.8464	12.9014	-18.5016	72.6798	10.4031	-13.8251
48	72.6798	10.4031	-13.8251	90.5080	7.9043	-9.1172
49	90.5080	7.9043	-9.1172	103.3284	5.4044	-4.3854
50	103.3284	5.4044	-4.3854	111.1436	2.9055	0.3622
51	111.1436	2.9055	0.3622	-25.6663	2.7197	0.6380
52	-25.6663	2.7197	0.6380	-20.2257	2.7208	0.6027
53	-20.2257	2.7208	0.6027	-14.7803	2.7231	0.5756
54	-14.7803	2.7231	0.5756	-9.3348	2.7234	0.5570
55	-9.3348	2.7234	0.5570	-3.8890	2.7231	0.5468
56	-3.8890	2.7231	0.5468	1.5573	2.7228	0.5452
57	1.5573	2.7228	0.5452	7.0034	2.7230	0.5518
58	7.0034	2.7230	0.5518	12.4504	2.7235	0.5667
59	12.4504	2.7235	0.5667	17.8975	2.7235	0.5901
60	17.8975	2.7235	0.5901	-192.7693	1.2084	-0.1678
61	-192.7693	1.2084	-0.1678	-139.9402	25.4087	-41.1357
62	-139.9402	25.4087	-41.1357	-92.0736	22.9089	-36.7318
63	-92.0736	22.9089	-36.7318	-49.2112	20.4095	-32.2579
64	-49.2112	20.4095	-32.2579	-11.3547	17.9102	-27.7220
65	-11.3547	17.9102	-27.7220	21.4957	15.4100	-23.1319
66	21.4957	15.4100	-23.1319	49.3407	12.9087	-18.4948
67	49.3407	12.9087	-18.4948	72.1776	10.4097	-13.8187
68	72.1776	10.4097	-13.8187	90.0171	7.9093	-9.1116
69	90.0171	7.9093	-9.1116	102.8445	5.4058	-4.3805
70	102.8445	5.4058	-4.3805	110.6598	2.9046	0.3658
71	110.6598	2.9046	0.3658	-25.8412	2.7516	0.7296
72	-25.8412	2.7516	0.7296	-20.3421	2.7506	0.6939
73	-20.3421	2.7506	0.6939	-14.8414	2.7501	0.6667
74	-14.8414	2.7501	0.6667	-9.3435	2.7506	0.6481
75	-9.3435	2.7506	0.6481	-3.8419	2.7516	0.6379
76	-3.8419	2.7516	0.6379	1.6597	2.7520	0.6363
77	1.6597	2.7520	0.6363	7.1625	2.7526	0.6430
78	7.1625	2.7526	0.6430	12.6646	2.7524	0.6582
79	12.6646	2.7524	0.6582	18.1666	2.7522	0.6820
80	18.1666	2.7522	0.6820	-189.8819	1.1074	1.3386
81	-189.8819	1.1074	1.3386	-137.5272	25.1022	-38.1943
82	-137.5272	25.1022	-38.1943	-90.2570	22.6017	-33.7870
83	-90.2570	22.6017	-33.7870	-47.9951	20.1019	-29.3112
84	-47.9951	20.1019	-29.3112	-10.7424	17.6027	-24.7740
85	-10.7424	17.6027	-24.7740	21.5049	15.1022	-20.1831
86	21.5049	15.1022	-20.1831	48.7409	12.6010	-15.5464
87	48.7409	12.6010	-15.5464	70.9674	10.1026	-10.8719
88	70.9674	10.1026	-10.8719	88.1929	7.6047	-6.1670
89	88.1929	7.6047	-6.1670	100.4099	5.1030	-1.4384
90	100.4099	5.1030	-1.4384	-30.6713	2.7881	0.1807
91	-30.6713	2.7881	0.1807	-25.0934	2.7877	0.1380
92	-25.0934	2.7877	0.1380	-19.5200	2.7870	0.1038
93	-19.5200	2.7870	0.1038	-13.9454	2.7866	0.0782
94	-13.9454	2.7866	0.0782	-8.3721	2.7857	0.0613
95	-8.3721	2.7857	0.0613	-2.7992	2.7856	0.0527
96	-2.7992	2.7856	0.0527	2.7736	2.7856	0.0525
97	2.7736	2.7856	0.0525	8.3464	2.7856	0.0611
98	8.3464	2.7856	0.0611	13.9193	2.7857	0.0782
99	13.9193	2.7857	0.0782	19.4921	2.7859	0.1038
100	19.4921	2.7859	0.1038	25.0242	0.9371	0.4136
101	25.0242	0.9371	0.4136	-119.3551	22.3325	-34.1681
102	-119.3551	22.3325	-34.1681	-81.9774	19.8325	-29.7211
103	-81.9774	19.8325	-29.7211	-48.4174	18.5824	-27.5175
104	-48.4174	18.5824	-27.5175	-18.8607	16.0826	-22.9800
105	-18.8607	16.0826	-22.9800	6.9387	13.5827	-18.4058
106	6.9387	13.5827	-18.4058	28.9819	11.0827	-13.7990
107	28.9819	11.0827	-13.7990	47.2059	9.8326	-11.4566
108	47.2059	9.8326	-11.4566	61.4249	7.3328	-6.8012
109	61.4249	7.3328	-6.8012	71.8873	4.8305	-2.1288
110	71.8873	4.8305	-2.1288	-31.7140	3.2108	-3.2390
111	-31.7140	3.2108	-3.2390	-26.0887	3.2105	-3.2776
112	-26.0887	3.2105	-3.2776	-20.4659	3.2099	-3.3089
113	-20.4659	3.2099	-3.3089	-14.8431	3.2098	-3.3326

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
114	-14.8431	3.2098	-3.3326	-9.2210	3.2105	-3.3489
115	-9.2210	3.2105	-3.3489	-3.5954	3.2104	-3.3575
116	-3.5954	3.2104	-3.3575	2.0261	3.2094	-3.3586
117	2.0261	3.2094	-3.3586	7.6480	3.2095	-3.3521
118	7.6480	3.2095	-3.3521	13.2701	3.2095	-3.3380
119	13.2701	3.2095	-3.3380	18.8917	3.2096	-3.3164
120	18.8917	3.2096	-3.3164	24.1509	1.1720	-1.2365
121	24.1509	1.1720	-1.2365	-96.3079	21.4503	-32.9532
122	-96.3079	21.4503	-32.9532	-60.4751	18.9504	-28.4762
123	-60.4751	18.9504	-28.4762	-28.4594	17.6999	-26.2449
124	-28.4594	17.6999	-26.2449	-0.4509	15.1994	-21.6820
125	-0.4509	15.1994	-21.6820	23.8025	12.7009	-17.0839
126	23.8025	12.7009	-17.0839	44.3030	10.2016	-12.4556
127	44.3030	10.2016	-12.4556	60.9850	8.9480	-10.0931
128	60.9850	8.9480	-10.0931	73.6514	6.4457	-5.4200
129	73.6514	6.4457	-5.4200	82.5630	3.9469	-0.7327
130	82.5630	3.9469	-0.7327	-21.0371	2.1135	-2.5195
131	-21.0371	2.1135	-2.5195	-17.3330	2.1137	-2.5453
132	-17.3330	2.1137	-2.5453	-13.6322	2.1131	-2.5665
133	-13.6322	2.1131	-2.5665	-9.9316	2.1129	-2.5824
134	-9.9316	2.1129	-2.5824	-6.2305	2.1124	-2.5932
135	-6.2305	2.1124	-2.5932	-2.5299	2.1126	-2.5989
136	-2.5299	2.1126	-2.5989	1.1717	2.1129	-2.5999
137	1.1717	2.1129	-2.5999	4.8733	2.1130	-2.5958
138	4.8733	2.1130	-2.5958	8.5755	2.1134	-2.5867
139	8.5755	2.1134	-2.5867	12.2782	2.1137	-2.5728
140	12.2782	2.1137	-2.5728	-157.1115	0.8967	-1.7043
141	-157.1115	0.8967	-1.7043	-106.4090	22.5024	-37.3296
142	-106.4090	22.5024	-37.3296	-67.8608	20.0019	-32.8674
143	-67.8608	20.0019	-32.8674	-33.3189	17.5014	-28.3552
144	-33.3189	17.5014	-28.3552	-2.9068	16.2514	-26.0892
145	-2.9068	16.2514	-26.0892	23.3754	13.7522	-21.4928
146	23.3754	13.7522	-21.4928	45.6532	11.2511	-16.8625
147	45.6532	11.2511	-16.8625	63.9207	8.7492	-12.2036
148	63.9207	8.7492	-12.2036	78.1847	6.2473	-7.5230
149	78.1847	6.2473	-7.5230	88.3149	4.9985	-5.1167
150	88.3149	4.9985	-5.1167	94.3188	2.4996	-0.4075
151	94.3188	2.4996	-0.4075	-19.2544	2.2052	-2.3960
152	-19.2544	2.2052	-2.3960	-15.2847	2.2046	-2.4199
153	-15.2847	2.2046	-2.4199	-11.3138	2.2048	-2.4383
154	-11.3138	2.2048	-2.4383	-7.3427	2.2049	-2.4513
155	-7.3427	2.2049	-2.4513	-3.3706	2.2049	-2.4588
156	-3.3706	2.2049	-2.4588	0.6007	2.2052	-2.4609
157	0.6007	2.2052	-2.4609	4.5728	2.2049	-2.4573
158	4.5728	2.2049	-2.4573	8.5433	2.2044	-2.4482
159	8.5433	2.2044	-2.4482	12.5139	2.2043	-2.4336
160	12.5139	2.2043	-2.4336	-180.2126	1.7517	-3.7335
161	-180.2126	1.7517	-3.7335	-128.4013	24.9916	-41.6394
162	-128.4013	24.9916	-41.6394	-81.3524	22.4916	-37.2183
163	-81.3524	22.4916	-37.2183	-39.3098	19.9924	-32.7288
164	-39.3098	19.9924	-32.7288	-2.2745	17.4920	-28.1780
165	-2.2745	17.4920	-28.1780	29.7493	14.9913	-23.5744
166	29.7493	14.9913	-23.5744	56.7705	12.4932	-18.9251
167	56.7705	12.4932	-18.9251	78.7876	9.9949	-14.2387
168	78.7876	9.9949	-14.2387	95.7979	7.4952	-9.5215
169	95.7979	7.4952	-9.5215	107.7966	4.9945	-4.7824
170	107.7966	4.9945	-4.7824	114.7886	2.4967	-0.0295
171	114.7886	2.4967	-0.0295	-20.2771	2.1760	0.7730
172	-20.2771	2.1760	0.7730	-15.9273	2.1761	0.7449
173	-15.9273	2.1761	0.7449	-11.5758	2.1768	0.7238

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
174	-11.5758	2.1768	0.7238	-7.2233	2.1768	0.7091
175	-7.2233	2.1768	0.7091	-2.8716	2.1768	0.7014
176	-2.8716	2.1768	0.7014	1.4818	2.1768	0.7004
177	1.4818	2.1768	0.7004	5.8339	2.1764	0.7060
178	5.8339	2.1764	0.7060	10.1859	2.1767	0.7183
179	10.1859	2.1767	0.7183	14.5387	2.1767	0.7373
180	14.5387	2.1767	0.7373	-189.1840	0.8147	0.5258
181	-189.1840	0.8147	0.5258	-139.4949	24.7833	-39.7747
182	-139.4949	24.7833	-39.7747	-93.8471	22.2832	-35.3669
183	-93.8471	22.2832	-35.3669	-52.9581	19.7833	-30.8944
184	-52.9581	19.7833	-30.8944	-16.8265	17.2832	-26.3643
185	-16.8265	17.2832	-26.3643	14.5455	14.7814	-21.7830
186	14.5455	14.7814	-21.7830	41.1549	12.2802	-17.1583
187	41.1549	12.2802	-17.1583	63.0065	9.7795	-12.4979
188	63.0065	9.7795	-12.4979	80.0975	7.2778	-7.8077
189	80.0975	7.2778	-7.8077	92.4324	4.7766	-3.0961
190	92.4324	4.7766	-3.0961	-32.3008	3.0312	0.9765
191	-32.3008	3.0312	0.9765	-26.3917	3.0294	0.9320
192	-26.3917	3.0294	0.9320	-20.4810	3.0287	0.9018
193	-20.4810	3.0287	0.9018	-14.5730	3.0295	0.8774
194	-14.5730	3.0295	0.8774	-8.6629	3.0304	0.8583
195	-8.6629	3.0304	0.8583	-2.7531	3.0307	0.8492
196	-2.7531	3.0307	0.8492	3.1576	3.0308	0.8494
197	3.1576	3.0308	0.8494	9.0681	3.0303	0.8586
198	9.0681	3.0303	0.8586	14.9771	3.0301	0.8759
199	14.9771	3.0301	0.8759	20.8866	3.0303	0.9040
200	20.8866	3.0303	0.9040	26.8021	1.0399	0.4201
201	26.8021	1.0399	0.4201	-111.9243	20.3945	-26.8034
202	-111.9243	20.3945	-26.8034	-83.7862	19.1446	-24.6334
203	-83.7862	19.1446	-24.6334	-57.9337	17.8949	-22.4048
204	-57.9337	17.8949	-22.4048	-34.7811	15.3951	-17.8663
205	-34.7811	15.3951	-17.8663	-13.9958	14.1452	-15.5999
206	-13.9958	14.1452	-15.5999	4.3071	11.6458	-11.0199
207	4.3071	11.6458	-11.0199	20.0257	10.3961	-8.7080
208	20.0257	10.3961	-8.7080	33.4704	9.1442	-6.3850
209	33.4704	9.1442	-6.3850	44.1389	6.6437	-1.7743
210	44.1389	6.6437	-1.7743	52.5076	5.3937	0.5646
211	52.5076	5.3937	0.5646	-38.6323	3.0448	0.9532
212	-38.6323	3.0448	0.9532	-34.3392	3.0452	0.9194
213	-34.3392	3.0452	0.9194	-30.0452	3.0461	0.8968
214	-30.0452	3.0461	0.8968	-25.7512	3.0443	0.8695
215	-25.7512	3.0443	0.8695	-21.4609	3.0436	0.8447
216	-21.4609	3.0436	0.8447	-17.1686	3.0450	0.8310
217	-17.1686	3.0450	0.8310	-12.8760	3.0452	0.8163
218	-12.8760	3.0452	0.8163	-8.5831	3.0448	0.8034
219	-8.5831	3.0448	0.8034	-4.2909	3.0444	0.7981
220	-4.2909	3.0444	0.7981	0.0008	3.0443	0.7973

ENVOL. MIN. CORTANTES TREN TREN SIN CARGA, EC-1 en via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0007	-0.0003	0.0551	1.1723	-0.0483	0.1689
2	1.1723	-0.0483	0.1689	6.5666	-0.2877	0.5811
3	6.5666	-0.2877	0.5811	10.1637	-0.4789	0.8896
4	10.1637	-0.4789	0.8896	19.7187	-1.0029	1.6998
5	19.7187	-1.0029	1.6998	31.0366	-1.7143	2.7861
6	31.0366	-1.7143	2.7861	35.3274	-2.1385	3.4580
7	35.3274	-2.1385	3.4580	46.8328	-3.1223	4.9790
8	46.8328	-3.1223	4.9790	57.8064	-4.2825	6.7892
9	57.8064	-4.2825	6.7892	58.8103	-4.9275	7.8412
10	58.8103	-4.9275	7.8412	66.3577	-6.3441	10.0907
11	66.3577	-6.3441	10.0907	59.2506	-7.3534	1.9073
12	59.2506	-7.3534	1.9073	44.4214	-9.8540	6.5550
13	44.4214	-9.8540	6.5550	26.4086	-12.3543	11.1819
14	26.4086	-12.3543	11.1819	5.0791	-13.6040	13.4930
15	5.0791	-13.6040	13.4930	-19.7470	-16.1044	18.0662
16	-19.7470	-16.1044	18.0662	-47.7551	-18.6052	22.6064
17	-47.7551	-18.6052	22.6064	-79.2004	-19.8555	24.8176
18	-79.2004	-19.8555	24.8176	-114.0240	-22.3555	29.2785
19	-114.0240	-22.3555	29.2785	-152.0278	-24.8554	33.6942
20	-152.0278	-24.8554	33.6942	-84.3765	-10.0379	19.5935
21	-84.3765	-10.0379	19.5935	-0.0100	0.0003	0.0012
22	-0.0100	0.0003	0.0012	-0.0093	0.0003	0.0012
23	-0.0093	0.0003	0.0012	-0.0086	0.0003	0.0012
24	-0.0086	0.0003	0.0012	-0.0080	0.0003	0.0011
25	-0.0080	0.0003	0.0011	-0.0073	0.0003	0.0011
26	-0.0073	0.0003	0.0011	-0.0066	0.0003	0.0011
27	-0.0066	0.0003	0.0011	-0.0059	0.0003	0.0011
28	-0.0059	0.0003	0.0011	12.5508	-0.6691	8.3031
29	12.5508	-0.6691	8.3031	26.2599	-1.6797	10.2486
30	26.2599	-1.6797	10.2486	38.2409	-2.8384	12.4488
31	38.2409	-2.8384	12.4488	47.7665	-4.1459	14.9012
32	47.7665	-4.1459	14.9012	54.1150	-5.6021	17.6008
33	54.1150	-5.6021	17.6008	44.9200	-7.9694	13.4219
34	44.9200	-7.9694	13.4219	25.9660	-10.4677	18.0588
35	25.9660	-10.4677	18.0588	2.0041	-12.9676	22.6628
36	2.0041	-12.9676	22.6628	-26.9627	-15.4671	27.2262
37	-26.9627	-15.4671	27.2262	-60.9365	-17.9670	31.7411
38	-60.9365	-17.9670	31.7411	-99.9156	-20.4671	36.2000
39	-99.9156	-20.4671	36.2000	-143.9009	-22.9672	40.5951
40	-143.9009	-22.9672	40.5951	-85.6389	-9.6600	24.2209
41	-85.6389	-9.6600	24.2209	21.5848	-0.7336	-0.1282
42	21.5848	-0.7336	-0.1282	20.1174	-0.7337	-0.0961
43	20.1174	-0.7337	-0.0961	18.6498	-0.7336	-0.0663
44	18.6498	-0.7336	-0.0663	17.1823	-0.7337	-0.0387
45	17.1823	-0.7337	-0.0387	15.7137	-0.7340	-0.0133
46	15.7137	-0.7340	-0.0133	14.2452	-0.7337	0.0097
47	14.2452	-0.7337	0.0097	12.7774	-0.7334	0.0304
48	12.7774	-0.7334	0.0304	11.3096	-0.7334	0.0489
49	11.3096	-0.7334	0.0489	26.5424	-1.6983	10.3529
50	26.5424	-1.6983	10.3529	38.5710	-2.8616	12.5653
51	38.5710	-2.8616	12.5653	48.1171	-4.1768	15.0287
52	48.1171	-4.1768	15.0287	54.4535	-5.6383	17.7373
53	54.4535	-5.6383	17.7373	45.4549	-7.9914	13.6266
54	45.4549	-7.9914	13.6266	26.4445	-10.4920	18.2645
55	26.4445	-10.4920	18.2645	2.4248	-12.9922	22.8692
56	2.4248	-12.9922	22.8692	-26.6033	-15.4923	27.4330
57	-26.6033	-15.4923	27.4330	-60.6395	-17.9924	31.9485
58	-60.6395	-17.9924	31.9485	-99.6829	-20.4921	36.4074
59	-99.6829	-20.4921	36.4074	-143.7348	-22.9923	40.8026
60	-143.7348	-22.9923	40.8026	-86.3013	-9.6775	24.3462
61	-86.3013	-9.6775	24.3462	21.8561	-0.7441	-0.1542
62	21.8561	-0.7441	-0.1542	20.3683	-0.7443	-0.1216
63	20.3683	-0.7443	-0.1216	18.8801	-0.7444	-0.0915
64	18.8801	-0.7444	-0.0915	17.3920	-0.7442	-0.0636
65	17.3920	-0.7442	-0.0636	15.9039	-0.7441	-0.0380
66	15.9039	-0.7441	-0.0380	14.4159	-0.7440	-0.0147
67	14.4159	-0.7440	-0.0147	12.9275	-0.7437	0.0063
68	12.9275	-0.7437	0.0063	11.4411	-0.7438	0.0251
69	11.4411	-0.7438	0.0251	26.1805	-1.6755	10.3913
70	26.1805	-1.6755	10.3913	38.2358	-2.8422	12.5961
71	38.2358	-2.8422	12.5961	47.7999	-4.1581	15.0521
72	47.7999	-4.1581	15.0521	54.1482	-5.6213	17.7548
73	54.1482	-5.6213	17.7548	46.6699	-7.8853	13.6810
74	46.6699	-7.8853	13.6810	27.8780	-10.3863	18.3209
75	27.8780	-10.3863	18.3209	4.0758	-12.8874	22.9279
76	4.0758	-12.8874	22.9279	-24.7324	-15.3874	27.4945
77	-24.7324	-15.3874	27.4945	-58.5470	-17.8876	32.0130
78	-58.5470	-17.8876	32.0130	-97.3678	-20.3878	36.4757
79	-97.3678	-20.3878	36.4757	-141.1938	-22.8878	40.8746
80	-141.1938	-22.8878	40.8746	-86.4775	-9.6545	24.0469
81	-86.4775	-9.6545	24.0469	22.1421	-0.7643	0.0140
82	22.1421	-0.7643	0.0140	20.6133	-0.7643	0.0469
83	20.6133	-0.7643	0.0469	19.0842	-0.7645	0.0776
84	19.0842	-0.7645	0.0776	17.5548	-0.7646	0.1057
85	17.5548	-0.7646	0.1057	16.0256	-0.7648	0.1315
86	16.0256	-0.7648	0.1315	14.4958	-0.7651	0.1551
87	14.4958	-0.7651	0.1551	12.9659	-0.7645	0.1763
88	12.9659	-0.7645	0.1763	11.4372	-0.7641	0.1949
89	11.4372	-0.7641	0.1949	25.9354	-1.7343	10.8308
90	25.9354	-1.7343	10.8308	37.6343	-2.9224	13.2698
91	37.6343	-2.9224	13.2698	46.7301	-4.2606	15.9744
92	46.7301	-4.2606	15.9744	52.5048	-5.7467	18.9354
93	52.5048	-5.7467	18.9354	54.2392	-7.3802	22.1404
94	54.2392	-7.3802	22.1404	38.5000	-9.8633	20.0240
95	38.5000	-9.8633	20.0240	15.7336	-12.3630	24.6483
96	15.7336	-12.3630	24.6483	-12.0405	-14.8629	29.2337
97	-12.0405	-14.8629	29.2337	-44.8222	-17.3631	33.7724
98	-44.8222	-17.3631	33.7724	-82.6129	-19.8638	38.2571
99	-82.6129	-19.8638	38.2571	-125.4107	-22.3638	42.6797
100	-125.4107	-22.3638	42.6797	-91.7881	-9.5915	23.7179
101	-91.7881	-9.5915	23.7179	23.3861	-0.9117	0.7242
102	23.3861	-0.9117	0.7242	21.7893	-0.9118	0.7545
103	21.7893	-0.9118	0.7545	20.1918	-0.9115	0.7827
104	20.1918	-0.9115	0.7827	18.5956	-0.9112	0.8088
105	18.5956	-0.9112	0.8088	16.9990	-0.9117	0.8328
106	16.9990	-0.9117	0.8328	15.4020	-0.9121	0.8547
107	15.4020	-0.9121	0.8547	13.8048	-0.9121	0.8744
108	13.8048	-0.9121	0.8744	12.2075	-0.9120	0.8918
109	12.2075	-0.9120	0.8918	14.3494	-0.9873	7.2196
110	14.3494	-0.9873	7.2196	26.6757	-2.2144	9.8787
111	26.6757	-2.2144	9.8787	29.5589	-2.8899	11.3362
112	29.5589	-2.8899	11.3362	39.0412	-4.4251	6.1996
113	39.0412	-4.4251	6.1996	28.9102	-6.9248	10.8281
114	28.9102	-6.9248	10.8281	15.0217	-9.4256	15.4402

ENVOL. MIN. CORTANTES TREN TREN SIN CARGA, EC-1 en via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0007	-0.0003	0.0551	1.1723	-0.0483	0.1689
2	1.1723	-0.0483	0.1689	6.5666	-0.2877	0.5811
3	6.5666	-0.2877	0.5811	10.1637	-0.4789	0.8896
4	10.1637	-0.4789	0.8896	19.7187	-1.0029	1.6998
5	19.7187	-1.0029	1.6998	31.0366	-1.7143	2.7861
6	31.0366	-1.7143	2.7861	35.3274	-2.1385	3.4580
7	35.3274	-2.1385	3.4580	46.8328	-3.1223	4.9790
8	46.8328	-3.1223	4.9790	57.8064	-4.2825	6.7892
9	57.8064	-4.2825	6.7892	58.8103	-4.9275	7.8412
10	58.8103	-4.9275	7.8412	66.3577	-6.3441	10.0907
11	66.3577	-6.3441	10.0907	59.2506	-7.3534	1.9073
12	59.2506	-7.3534	1.9073	44.4214	-9.8540	6.5550
13	44.4214	-9.8540	6.5550	26.4086	-12.3543	11.1819
14	26.4086	-12.3543	11.1819	5.0791	-13.6040	13.4930
15	5.0791	-13.6040	13.4930	-19.7470	-16.1044	18.0662
16	-19.7470	-16.1044	18.0662	-47.7551	-18.6052	22.6064
17	-47.7551	-18.6052	22.6064	-79.2004	-19.8555	24.8176
18	-79.2004	-19.8555	24.8176	-114.0240	-22.3555	29.2785
19	-114.0240	-22.3555	29.2785	-152.0278	-24.8554	33.6942
20	-152.0278	-24.8554	33.6942	-84.3765	-10.0379	19.5935
21	-84.3765	-10.0379	19.5935	-0.0100	0.0003	0.0012
22	-0.0100	0.0003	0.0012	-0.0093	0.0003	0.0012
23	-0.0093	0.0003	0.0012	-0.0086	0.0003	0.0012
24	-0.0086	0.0003	0.0012	-0.0080	0.0003	0.0011
25	-0.0080	0.0003	0.0011	-0.0073	0.0003	0.0011
26	-0.0073	0.0003	0.0011	-0.0066	0.0003	0.0011
27	-0.0066	0.0003	0.0011	-0.0059	0.0003	0.0011
28	-0.0059	0.0003	0.0011	12.5508	-0.6691	8.3031
29	12.5508	-0.6691	8.3031	26.2599	-1.6797	10.2486
30	26.2599	-1.6797	10.2486	38.2409	-2.8384	12.4488
31	38.2409	-2.8384	12.4488	47.7665	-4.1459	14.9012
32	47.7665	-4.1459	14.9012	54.1150	-5.6021	17.6008
33	54.1150	-5.6021	17.6008	44.9200	-7.9694	13.4219
34	44.9200	-7.9694	13.4219	25.9660	-10.4677	18.0588
35	25.9660	-10.4677	18.0588	2.0041	-12.9676	22.6628
36	2.0041	-12.9676	22.6628	-26.9627	-15.4671	27.2262
37	-26.9627	-15.4671	27.2262	-60.9365	-17.9670	31.7411
38	-60.9365	-17.9670	31.7411	-99.9156	-20.4671	36.2000
39	-99.9156	-20.4671	36.2000	-143.9009	-22.9672	40.5951
40	-143.9009	-22.9672	40.5951	-85.6389	-9.6600	24.2209
41	-85.6389	-9.6600	24.2209	21.5848	-0.7336	-0.1282
42	21.5848	-0.7336	-0.1282	20.1174	-0.7337	-0.0961
43	20.1174	-0.7337	-0.0961	18.6498	-0.7336	-0.0663
44	18.6498	-0.7336	-0.0663	17.1823	-0.7337	-0.0387
45	17.1823	-0.7337	-0.0387	15.7137	-0.7340	-0.0133
46	15.7137	-0.7340	-0.0133	14.2452	-0.7337	0.0097
47	14.2452	-0.7337	0.0097	12.7774	-0.7334	0.0304
48	12.7774	-0.7334	0.0304	11.3096	-0.7334	0.0489
49	11.3096	-0.7334	0.0489	26.5424	-1.6983	10.3529
50	26.5424	-1.6983	10.3529	38.5710	-2.8616	12.5653
51	38.5710	-2.8616	12.5653	48.1171	-4.1768	15.0287
52	48.1171	-4.1768	15.0287	54.4535	-5.6383	17.7373
53	54.4535	-5.6383	17.7373	45.4549	-7.9914	13.6266
54	45.4549	-7.9914	13.6266	26.4445	-10.4920	18.2645
55	26.4445	-10.4920	18.2645	2.4248	-12.9922	22.8692
56	2.4248	-12.9922	22.8692	-26.6033	-15.4923	27.4330
57	-26.6033	-15.4923	27.4330	-60.6395	-17.9924	31.9485
58	-60.6395	-17.9924	31.9485	-99.6829	-20.4921	36.4074
59	-99.6829	-20.4921	36.4074	-143.7348	-22.9923	40.8026
60	-143.7348	-22.9923	40.8026	-86.3013	-9.6775	24.3462
61	-86.3013	-9.6775	24.3462	21.8561	-0.7441	-0.1542
62	21.8561	-0.7441	-0.1542	20.3683	-0.7443	-0.1216
63	20.3683	-0.7443	-0.1216	18.8801	-0.7444	-0.0915
64	18.8801	-0.7444	-0.0915	17.3920	-0.7442	-0.0636
65	17.3920	-0.7442	-0.0636	15.9039	-0.7441	-0.0380
66	15.9039	-0.7441	-0.0380	14.4159	-0.7440	-0.0147
67	14.4159	-0.7440	-0.0147	12.9275	-0.7437	0.0063
68	12.9275	-0.7437	0.0063	11.4411	-0.7438	0.0251
69	11.4411	-0.7438	0.0251	26.1805	-1.6755	10.3913
70	26.1805	-1.6755	10.3913	38.2358	-2.8422	12.5961
71	38.2358	-2.8422	12.5961	47.7999	-4.1581	15.0521
72	47.7999	-4.1581	15.0521	54.1482	-5.6213	17.7548
73	54.1482	-5.6213	17.7548	46.6699	-7.8853	13.6810
74	46.6699	-7.8853	13.6810	27.8780	-10.3863	18.3209
75	27.8780	-10.3863	18.3209	4.0758	-12.8874	22.9279
76	4.0758	-12.8874	22.9279	-24.7324	-15.3874	27.4945
77	-24.7324	-15.3874	27.4945	-58.5470	-17.8876	32.0130
78	-58.5470	-17.8876	32.0130	-97.3678	-20.3878	36.4757
79	-97.3678	-20.3878	36.4757	-141.1938	-22.8878	40.8746
80	-141.1938	-22.8878	40.8746	-86.4775	-9.6545	24.0469
81	-86.4775	-9.6545	24.0469	22.1421	-0.7643	0.0140
82	22.1421	-0.7643	0.0140	20.6133	-0.7643	0.0469
83	20.6133	-0.7643	0.0469	19.0842	-0.7645	0.0776
84	19.0842	-0.7645	0.0776	17.5548	-0.7646	0.1057
85	17.5548	-0.7646	0.1057	16.0256	-0.7648	0.1315
86	16.0256	-0.7648	0.1315	14.4958	-0.7651	0.1551
87	14.4958	-0.7651	0.1551	12.9659	-0.7645	0.1763
88	12.9659	-0.7645	0.1763	11.4372	-0.7641	0.1949
89	11.4372	-0.7641	0.1949	25.9354	-1.7343	10.8308
90	25.9354	-1.7343	10.8308	37.6343	-2.9224	13.2698
91	37.6343	-2.9224	13.2698	46.7301	-4.2606	15.9744
92	46.7301	-4.2606	15.9744	52.5048	-5.7467	18.9354
93	52.5048	-5.7467	18.9354	54.2392	-7.3802	22.1404
94	54.2392	-7.3802	22.1404	38.5000	-9.8633	20.0240
95	38.5000	-9.8633	20.0240	15.7336	-12.3630	24.6483
96	15.7336	-12.3630	24.6483	-12.0405	-14.8629	29.2337
97	-12.0405	-14.8629	29.2337	-44.8222	-17.3631	33.7724
98	-44.8222	-17.3631	33.7724	-82.6129	-19.8638	38.2571
99	-82.6129	-19.8638	38.2571	-125.4107	-22.3638	42.6797
100	-125.4107	-22.3638	42.6797	-91.7881	-9.5915	23.7179
101	-91.7881	-9.5915	23.7179	23.3861	-0.9117	0.7242
102	23.3861	-0.9117	0.7242	21.7893	-0.9118	0.7545
103	21.7893	-0.9118	0.7545	20.1918	-0.9115	0.7827
104	20.1918	-0.9115	0.7827	18.5956	-0.9112	0.8088
105	18.5956	-0.9112	0.8088	16.9990	-0.9117	0.8328
106	16.9990	-0.9117	0.8328	15.4020	-0.9121	0.8547
107	15.4020	-0.9121	0.8547	13.8048	-0.9121	0.8744
108	13.8048	-0.9121	0.8744	12.2075	-0.9120	0.8918
109	12.2075	-0.9120	0.8918	14.3494	-0.9873	7.2196
110	14.3494	-0.9873	7.2196	26.6757	-2.2144	9.8787
111	26.6757	-2.2144	9.8787	29.5589	-2.8899	11.3362
112	29.5589	-2.8899	11.3362	39.0412	-4.4251	6.1996
113	39.0412	-4.4251	6.1996	28.9102	-6.9248	10.8281
114	28.9102	-6.9248	10.8281	15.0217	-9.4256	15.4402

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	15.0217	-9.4256	15.4402	-2.6852	-10.6759	17.7397
116	-2.6852	-10.6759	17.7397	-24.3964	-13.1756	22.3041
117	-24.3964	-13.1756	22.3041	-49.8633	-15.6754	26.8365
118	-49.8633	-15.6754	26.8365	-79.0871	-18.1754	31.3321
119	-79.0871	-18.1754	31.3321	-112.1277	-19.4254	33.4947
120	-112.1277	-19.4254	33.4947	-61.9026	-8.4030	20.0180
121	-61.9026	-8.4030	20.0180	22.2742	-0.8658	0.8456
122	22.2742	-0.8658	0.8456	20.7577	-0.8657	0.8746
123	20.7577	-0.8657	0.8746	19.2415	-0.8657	0.9015
124	19.2415	-0.8657	0.9015	17.7243	-0.8655	0.9263
125	17.7243	-0.8655	0.9263	16.2087	-0.8655	0.9492
126	16.2087	-0.8655	0.9492	14.6923	-0.8656	0.9700
127	14.6923	-0.8656	0.9700	13.1763	-0.8656	0.9887
128	13.1763	-0.8656	0.9887	14.1424	-0.9388	5.7773
129	14.1424	-0.9388	5.7773	25.9167	-1.9766	8.2121
130	25.9167	-1.9766	8.2121	36.3736	-3.1839	10.9447
131	36.3736	-3.1839	10.9447	37.5110	-3.8496	12.4440
132	37.5110	-3.8496	12.4440	40.8794	-5.7088	6.6943
133	40.8794	-5.7088	6.6943	28.5008	-8.2088	11.3236
134	28.5008	-8.2088	11.3236	12.3652	-10.7088	15.9335
135	12.3652	-10.7088	15.9335	-7.5881	-11.9588	18.2278
136	-7.5881	-11.9588	18.2278	-31.5464	-14.4590	22.7839
137	-31.5464	-14.4590	22.7839	-59.2615	-16.9592	27.3054
138	-59.2615	-16.9592	27.3054	-90.7330	-19.4592	31.7870
139	-90.7330	-19.4592	31.7870	-126.0215	-20.7092	33.9323
140	-126.0215	-20.7092	33.9323	-67.5201	-8.8013	20.8407
141	-67.5201	-8.8013	20.8407	14.4021	-0.5380	0.4531
142	14.4021	-0.5380	0.4531	13.4330	-0.5381	0.4725
143	13.4330	-0.5381	0.4725	12.4634	-0.5382	0.4904
144	12.4634	-0.5382	0.4904	11.4938	-0.5382	0.5070
145	11.4938	-0.5382	0.5070	10.5245	-0.5382	0.5221
146	10.5245	-0.5382	0.5221	9.5546	-0.5385	0.5360
147	9.5546	-0.5385	0.5360	8.5844	-0.5385	0.5486
148	8.5844	-0.5385	0.5486	18.4671	-1.1452	6.0711
149	18.4671	-1.1452	6.0711	23.3930	-1.6558	7.1890
150	23.3930	-1.6558	7.1890	34.3013	-2.7996	9.5986
151	34.3013	-2.7996	9.5986	43.2758	-4.1055	12.2636
152	43.2758	-4.1055	12.2636	39.6327	-6.4875	6.9954
153	39.6327	-6.4875	6.9954	26.4430	-8.9883	11.6238
154	26.4430	-8.9883	11.6238	9.1229	-10.2385	13.9398
155	9.1229	-10.2385	13.9398	-12.3260	-12.7386	18.5201
156	-12.3260	-12.7386	18.5201	-37.7811	-15.2386	23.0680
157	-37.7811	-15.2386	23.0680	-67.2415	-17.7385	27.5777
158	-67.2415	-17.7385	27.5777	-100.7078	-20.2384	32.0442
159	-100.7078	-20.2384	32.0442	-138.3031	-21.4884	34.1698
160	-138.3031	-21.4884	34.1698	-68.0486	-8.9111	21.4986
161	-68.0486	-8.9111	21.4986	15.4415	-0.5273	-0.1922
162	15.4415	-0.5273	-0.1922	14.3869	-0.5274	-0.1692
163	14.3869	-0.5274	-0.1692	13.3326	-0.5274	-0.1479
164	13.3326	-0.5274	-0.1479	12.2778	-0.5275	-0.1282
165	12.2778	-0.5275	-0.1282	11.2232	-0.5276	-0.1101
166	11.2232	-0.5276	-0.1101	10.1683	-0.5274	-0.0936
167	10.1683	-0.5274	-0.0936	9.1143	-0.5271	-0.0788
168	9.1143	-0.5271	-0.0788	19.9788	-1.1535	8.3253
169	19.9788	-1.1535	8.3253	32.5772	-2.1597	10.2576
170	32.5772	-2.1597	10.2576	43.4636	-3.3138	12.4400
171	43.4636	-3.3138	12.4400	51.9157	-4.6165	14.8708
172	51.9157	-4.6165	14.8708	57.2085	-6.0695	17.5462
173	57.2085	-6.0695	17.5462	51.9740	-8.1526	13.6008
174	51.9740	-8.1526	13.6008	32.6219	-10.6529	18.2494

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	32.6219	-10.6529	18.2494	8.2810	-13.1535	22.8636
176	8.2810	-13.1535	22.8636	-21.0682	-15.6534	27.4361
177	-21.0682	-15.6534	27.4361	-55.4242	-18.1532	31.9600
178	-55.4242	-18.1532	31.9600	-94.7873	-20.6534	36.4271
179	-94.7873	-20.6534	36.4271	-139.1580	-23.1537	40.8293
180	-139.1580	-23.1537	40.8293	-91.0033	-9.7386	24.2631
181	-91.0033	-9.7386	24.2631	17.6558	-0.6258	-0.1552
182	17.6558	-0.6258	-0.1552	16.4356	-0.6259	-0.1296
183	16.4356	-0.6259	-0.1296	15.2149	-0.6262	-0.1058
184	15.2149	-0.6262	-0.1058	13.9938	-0.6262	-0.0839
185	13.9938	-0.6262	-0.0839	12.7730	-0.6263	-0.0639
186	12.7730	-0.6263	-0.0639	11.5516	-0.6264	-0.0455
187	11.5516	-0.6264	-0.0455	10.3299	-0.6265	-0.0291
188	10.3299	-0.6265	-0.0291	9.1080	-0.6265	-0.0144
189	9.1080	-0.6265	-0.0144	24.6548	-1.6284	10.7417
190	24.6548	-1.6284	10.7417	36.8692	-2.8534	12.9901
191	36.8692	-2.8534	12.9901	46.5098	-4.2308	15.4944
192	46.5098	-4.2308	15.4944	52.8645	-5.7586	18.2379
193	52.8645	-5.7586	18.2379	55.2343	-7.4348	21.2295
194	55.2343	-7.4348	21.2295	47.2797	-8.3355	17.4333
195	47.2797	-8.3355	17.4333	27.3704	-10.8340	22.0728
196	27.3704	-10.8340	22.0728	2.7056	-13.3340	26.6741
197	2.7056	-13.3340	26.6741	-26.7202	-15.8335	31.2385
198	-26.7202	-15.8335	31.2385	-60.9022	-18.3330	35.7585
199	-60.9022	-18.3330	35.7585	-99.8472	-20.8333	40.2137
200	-99.8472	-20.8333	40.2137	-86.0514	-9.2128	23.7527
201	-86.0514	-9.2128	23.7527	25.4673	-0.9507	-0.0628
202	25.4673	-0.9507	-0.0628	24.1269	-0.9510	-0.0328
203	24.1269	-0.9510	-0.0328	22.7862	-0.9505	-0.0123
204	22.7862	-0.9505	-0.0123	21.4468	-0.9499	0.0098
205	21.4468	-0.9499	0.0098	20.1081	-0.9504	0.0281
206	20.1081	-0.9504	0.0281	18.7683	-0.9509	0.0395
207	18.7683	-0.9509	0.0395	17.4285	-0.9503	0.0622
208	17.4285	-0.9503	0.0622	16.0889	-0.9495	0.0850
209	16.0889	-0.9495	0.0850	14.7491	-0.9497	0.0961
210	14.7491	-0.9497	0.0961	13.4080	-0.9501	0.1095
211	13.4080	-0.9501	0.1095	15.0507	-1.1781	11.7063
212	15.0507	-1.1781	11.7063	20.4056	-1.8003	13.0486
213	20.4056	-1.8003	13.0486	31.6292	-3.1936	15.9531
214	31.6292	-3.1936	15.9531	33.6580	-3.9655	17.5460
215	33.6580	-3.9655	17.5460	33.8718	-4.7905	19.2229
216	33.8718	-4.7905	19.2229	37.3119	-6.5969	22.7610
217	37.3119	-6.5969	22.7610	32.1519	-7.5818	24.6653
218	32.1519	-7.5818	24.6653	27.4441	-9.7106	28.6678
219	27.4441	-9.7106	28.6678	15.3493	-10.8566	30.7787
220	15.3493	-10.8566	30.7787	0.0365	-10.8561	30.7819

ENVOL. MAX. TORSORES TREN TREN SIN CARGA, EC-1 en via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0007	-0.0003	0.0551	1.1723	-0.0483	0.1689
2	1.1723	-0.0483	0.1689	6.5666	-0.2877	0.5811
3	6.5666	-0.2877	0.5811	10.1637	-0.4789	0.8896
4	10.1637	-0.4789	0.8896	19.7187	-1.0029	1.6998
5	19.7187	-1.0029	1.6998	31.0366	-1.7143	2.7861
6	31.0366	-1.7143	2.7861	35.3274	-2.1385	3.4580
7	35.3274	-2.1385	3.4580	46.8328	-3.1223	4.9790
8	46.8328	-3.1223	4.9790	57.8064	-4.2825	6.7892
9	57.8064	-4.2825	6.7892	58.8103	-4.9275	7.8412
10	58.8103	-4.9275	7.8412	66.3577	-6.3441	10.0907
11	66.3577	-6.3441	10.0907	63.3946	-7.1151	11.3643
12	63.3946	-7.1151	11.3643	65.5210	-8.7752	14.0410
13	65.5210	-8.7752	14.0410	64.0295	-10.5818	16.9919
14	64.0295	-10.5818	16.9919	52.3109	-11.5358	18.6038
15	52.3109	-11.5358	18.6038	42.7746	-13.5510	21.9465
16	42.7746	-13.5510	21.9465	28.3402	-15.6968	25.5389
17	28.3402	-15.6968	25.5389	5.4207	-16.8129	27.4335
18	5.4207	-16.8129	27.4335	-18.8109	-19.1224	31.3675
19	-18.8109	-19.1224	31.3675	-48.6111	-21.5282	35.5229
20	-48.6111	-21.5282	35.5229	-84.3765	-10.0379	19.5935
21	-84.3765	-10.0379	19.5935	-78.1598	2.6536	1.6082
22	-78.1598	2.6536	1.6082	-69.4463	2.5296	1.8627
23	-69.4463	2.5296	1.8627	-58.6152	2.3036	2.3387
24	-58.6152	2.3036	2.3387	-46.0095	1.9659	3.0444
25	-46.0095	1.9659	3.0444	-32.0587	1.5076	3.9876
26	-32.0587	1.5076	3.9876	-17.2599	0.9197	5.1753
27	-17.2599	0.9197	5.1753	-2.1808	0.1960	6.6125
28	-2.1808	0.1960	6.6125	12.5508	-0.6691	8.3031
29	12.5508	-0.6691	8.3031	26.2599	-1.6797	10.2486
30	26.2599	-1.6797	10.2486	38.2409	-2.8384	12.4488
31	38.2409	-2.8384	12.4488	47.7665	-4.1459	14.9012
32	47.7665	-4.1459	14.9012	54.1150	-5.6021	17.6008
33	54.1150	-5.6021	17.6008	56.5682	-7.2026	20.5407
34	56.5682	-7.2026	20.5407	54.4498	-8.9457	23.7117
35	54.4498	-8.9457	23.7117	47.1069	-10.8281	27.1027
36	47.1069	-10.8281	27.1027	33.9509	-12.8426	30.7009
37	33.9509	-12.8426	30.7009	14.4658	-14.9800	34.4915
38	14.4658	-14.9800	34.4915	-11.7843	-17.2338	38.4595
39	-11.7843	-17.2338	38.4595	-45.1311	-19.5913	42.5889
40	-45.1311	-19.5913	42.5889	-85.6389	-9.6600	24.2209
41	-85.6389	-9.6600	24.2209	-79.0322	2.6848	1.6214
42	-79.0322	2.6848	1.6214	-70.1652	2.5565	1.8806
43	-70.1652	2.5565	1.8806	-59.1591	2.3263	2.3644
44	-59.1591	2.3263	2.3644	-46.3734	1.9825	3.0807
45	-46.3734	1.9825	3.0807	-32.2494	1.5184	4.0365
46	-32.2494	1.5184	4.0365	-17.2931	0.9227	5.2379
47	-17.2931	0.9227	5.2379	-2.0807	0.1914	6.6893
48	-2.0807	0.1914	6.6893	12.7566	-0.6809	8.3939
49	12.7566	-0.6809	8.3939	26.5424	-1.6983	10.3529
50	26.5424	-1.6983	10.3529	38.5710	-2.8616	12.5653
51	38.5710	-2.8616	12.5653	48.1171	-4.1768	15.0287
52	48.1171	-4.1768	15.0287	54.4535	-5.6383	17.7373
53	54.4535	-5.6383	17.7373	56.8691	-7.2467	20.6846
54	56.8691	-7.2467	20.6846	54.6783	-8.9958	23.8609
55	54.6783	-8.9958	23.8609	47.2418	-10.8839	27.2554
56	47.2418	-10.8839	27.2554	33.9730	-12.9011	30.8550
57	33.9730	-12.9011	30.8550	14.3623	-15.0408	34.6459
58	14.3623	-15.0408	34.6459	-12.0231	-17.2973	38.6132
59	-12.0231	-17.2973	38.6132	-45.5098	-19.6560	42.7412
60	-45.5098	-19.6560	42.7412	-86.3013	-9.6775	24.3462
61	-86.3013	-9.6775	24.3462	-79.7964	2.7157	1.7186
62	-79.7964	2.7157	1.7186	-70.8756	2.5875	1.9734
63	-70.8756	2.5875	1.9734	-59.8144	2.3559	2.4516
64	-59.8144	2.3559	2.4516	-46.9726	2.0119	3.1606
65	-46.9726	2.0119	3.1606	-32.7920	1.5456	4.1084
66	-32.7920	1.5456	4.1084	-17.7840	0.9498	5.3014
67	-17.7840	0.9498	5.3014	-2.5229	0.2171	6.7443
68	-2.5229	0.2171	6.7443	12.3577	-0.6565	8.4404
69	12.3577	-0.6565	8.4404	26.1805	-1.6755	10.3913
70	26.1805	-1.6755	10.3913	38.2358	-2.8422	12.5961
71	38.2358	-2.8422	12.5961	47.7999	-4.1581	15.0521
72	47.7999	-4.1581	15.0521	54.1482	-5.6213	17.7548
73	54.1482	-5.6213	17.7548	56.5746	-7.2295	20.6972
74	56.5746	-7.2295	20.6972	54.3918	-8.9795	23.8690
75	54.3918	-8.9795	23.8690	46.9576	-10.8706	27.2599
76	46.9576	-10.8706	27.2599	33.6924	-12.8901	30.8569
77	33.6924	-12.8901	30.8569	14.0787	-15.0320	34.6461
78	14.0787	-15.0320	34.6461	-12.2994	-17.2871	38.6121
79	-12.2994	-17.2871	38.6121	-45.7712	-19.6462	42.7393
80	-45.7712	-19.6462	42.7393	-86.4775	-9.6545	24.0469
81	-86.4775	-9.6545	24.0469	-79.8191	2.7512	1.1341
82	-79.8191	2.7512	1.1341	-70.8018	2.6202	1.4245
83	-70.8018	2.6202	1.4245	-59.6503	2.3833	1.9640
84	-59.6503	2.3833	1.9640	-46.7364	2.0310	2.7621
85	-46.7364	2.0310	2.7621	-32.5215	1.5540	3.8261
86	-32.5215	1.5540	3.8261	-17.5294	0.9447	5.1622
87	-17.5294	0.9447	5.1622	-2.3500	0.1966	6.7745
88	-2.3500	0.1966	6.7745	12.3681	-0.6952	8.6644
89	12.3681	-0.6952	8.6644	25.9354	-1.7343	10.8308
90	25.9354	-1.7343	10.8308	37.6343	-2.9224	13.2698
91	37.6343	-2.9224	13.2698	46.7301	-4.2606	15.9744
92	46.7301	-4.2606	15.9744	52.5048	-5.7467	18.9354
93	52.5048	-5.7467	18.9354	54.2392	-7.3802	22.1404
94	54.2392	-7.3802	22.1404	51.2614	-9.1546	25.5739
95	51.2614	-9.1546	25.5739	42.9382	-11.0685	29.2194
96	42.9382	-11.0685	29.2194	28.7024	-13.1109	33.0556
97	28.7024	-13.1109	33.0556	8.0639	-15.2751	37.0614
98	8.0639	-15.2751	37.0614	-19.3759	-17.5518	41.2131
99	-19.3759	-17.5518	41.2131	-53.9047	-19.9292	45.4861
100	-53.9047	-19.9292	45.4861	-91.7881	-9.5915	23.7179
101	-91.7881	-9.5915	23.7179	23.3861	-0.9117	0.7242
102	23.3861	-0.9117	0.7242	21.7893	-0.9118	0.7545
103	21.7893	-0.9118	0.7545	20.1918	-0.9115	0.7827
104	20.1918	-0.9115	0.7827	18.5956	-0.9112	0.8088
105	18.5956	-0.9112	0.8088	16.9990	-0.9117	0.8328
106	16.9990	-0.9117	0.8328	-22.2482	1.3467	1.9163
107	-22.2482	1.3467	1.9163	-13.8004	0.9626	2.8077
108	-13.8004	0.9626	2.8077	0.6273	0.0705	4.8587
109	0.6273	0.0705	4.8587	14.3494	-0.9873	7.2196
110	14.3494	-0.9873	7.2196	26.6757	-2.2144	9.8787
111	26.6757	-2.2144	9.8787	29.5589	-2.8899	11.3362
112	29.5589	-2.8899	11.3362	37.1824	-4.3678	14.4215
113	37.1824	-4.3678	14.4215	41.5330	-6.0107	17.7646

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
114	41.5330	-6.0107	17.7646	41.9576	-7.8162	21.3472
115	41.9576	-7.8162	21.3472	32.8156	-8.7750	23.2462
116	32.8156	-8.7750	23.2462	24.4891	-10.8039	27.1431
117	24.4891	-10.8039	27.1431	10.7751	-12.9733	31.2218
118	10.7751	-12.9733	31.2218	-8.6959	-15.2689	35.4583
119	-8.6959	-15.2689	35.4583	-35.1031	-16.4599	37.6095
120	-35.1031	-16.4599	37.6095	-61.9026	-8.4030	20.0180
121	-61.9026	-8.4030	20.0180	22.2742	-0.8658	0.8456
122	22.2742	-0.8658	0.8456	20.7577	-0.8657	0.8746
123	20.7577	-0.8657	0.8746	19.2415	-0.8657	0.9015
124	19.2415	-0.8657	0.9015	17.7243	-0.8655	0.9263
125	17.7243	-0.8655	0.9263	-17.4869	0.9419	1.0842
126	-17.4869	0.9419	1.0842	-4.7717	0.3083	2.7139
127	-4.7717	0.3083	2.7139	1.7335	-0.0667	3.6529
128	1.7335	-0.0667	3.6529	14.1424	-0.9388	5.7773
129	14.1424	-0.9388	5.7773	25.9167	-1.9766	8.2121
130	25.9167	-1.9766	8.2121	36.3736	-3.1839	10.9447
131	36.3736	-3.1839	10.9447	37.5110	-3.8496	12.4440
132	37.5110	-3.8496	12.4440	43.4028	-5.3115	15.5988
133	43.4028	-5.3115	15.5988	46.0886	-6.9374	19.0070
134	46.0886	-6.9374	19.0070	44.9135	-8.7269	22.6483
135	44.9135	-8.7269	22.6483	34.1963	-9.6796	24.5745
136	34.1963	-9.6796	24.5745	24.3352	-11.7003	28.5171
137	24.3352	-11.7003	28.5171	9.0976	-13.8623	32.6303
138	9.0976	-13.8623	32.6303	-11.9064	-16.1547	36.8885
139	-11.9064	-16.1547	36.8885	-39.8677	-17.3461	39.0420
140	-39.8677	-17.3461	39.0420	-67.5201	-8.8013	20.8407
141	-67.5201	-8.8013	20.8407	14.4021	-0.5380	0.4531
142	14.4021	-0.5380	0.4531	13.4330	-0.5381	0.4725
143	13.4330	-0.5381	0.4725	12.4634	-0.5382	0.4904
144	12.4634	-0.5382	0.4904	11.4938	-0.5382	0.5070
145	11.4938	-0.5382	0.5070	-21.2108	1.0994	0.9151
146	-21.2108	1.0994	0.9151	-8.2810	0.5027	2.3507
147	-8.2810	0.5027	2.3507	5.1445	-0.2433	4.0719
148	5.1445	-0.2433	4.0719	18.4671	-1.1452	6.0711
149	18.4671	-1.1452	6.0711	23.3930	-1.6558	7.1890
150	23.3930	-1.6558	7.1890	34.3013	-2.7996	9.5986
151	34.3013	-2.7996	9.5986	43.2758	-4.1055	12.2636
152	43.2758	-4.1055	12.2636	49.6165	-5.5757	15.1756
153	49.6165	-5.5757	15.1756	52.6302	-7.2078	18.3236
154	52.6302	-7.2078	18.3236	45.3955	-8.0826	20.0168
155	45.3955	-8.0826	20.0168	40.5134	-9.9456	23.4953
156	40.5134	-9.9456	23.4953	30.6150	-11.9568	27.1794
157	30.6150	-11.9568	27.1794	15.1939	-14.1036	31.0562
158	15.1939	-14.1036	31.0562	-6.1570	-16.3784	35.1152
159	-6.1570	-16.3784	35.1152	-34.9829	-17.5592	37.1908
160	-34.9829	-17.5592	37.1908	-68.0486	-8.9111	21.4986
161	-68.0486	-8.9111	21.4986	-62.8373	2.1440	1.5874
162	-62.8373	2.1440	1.5874	-55.2099	2.0215	1.8621
163	-55.2099	2.0215	1.8621	-45.4982	1.7982	2.3540
164	-45.4982	1.7982	2.3540	-34.0284	1.4643	3.0711
165	-34.0284	1.4643	3.0711	-21.2220	1.0098	4.0209
166	-21.2220	1.0098	4.0209	-7.5683	0.4261	5.2099
167	-7.5683	0.4261	5.2099	6.3726	-0.2932	6.6434
168	6.3726	-0.2932	6.6434	19.9788	-1.1535	8.3253
169	19.9788	-1.1535	8.3253	32.5772	-2.1597	10.2576
170	32.5772	-2.1597	10.2576	43.4636	-3.3138	12.4400
171	43.4636	-3.3138	12.4400	51.9157	-4.6165	14.8708
172	51.9157	-4.6165	14.8708	57.2085	-6.0695	17.5462
173	57.2085	-6.0695	17.5462	58.6211	-7.6707	20.4593

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
174	58.6211	-7.6707	20.4593	55.4669	-9.4142	23.6026
175	55.4669	-9.4142	23.6026	47.1002	-11.2957	26.9648
176	47.1002	-11.2957	26.9648	32.9289	-13.3109	30.5346
177	32.9289	-13.3109	30.5346	12.4433	-15.4469	34.2994
178	12.4433	-15.4469	34.2994	-14.7860	-17.6997	38.2445
179	-14.7860	-17.6997	38.2445	-49.0888	-20.0572	42.3551
180	-49.0888	-20.0572	42.3551	-91.0033	-9.7386	24.2631
181	-91.0033	-9.7386	24.2631	-84.4449	2.9915	1.9474
182	-84.4449	2.9915	1.9474	-75.1012	2.8570	2.2032
183	-75.1012	2.8570	2.2032	-63.5952	2.6135	2.6844
184	-63.5952	2.6135	2.6844	-50.2978	2.2513	3.4004
185	-50.2978	2.2513	3.4004	-35.6723	1.7608	4.3590
186	-35.6723	1.7608	4.3590	-20.2435	1.1330	5.5684
187	-20.2435	1.1330	5.5684	-4.6050	0.3619	7.0331
188	-4.6050	0.3619	7.0331	10.5911	-0.5574	8.7570
189	10.5911	-0.5574	8.7570	24.6548	-1.6284	10.7417
190	24.6548	-1.6284	10.7417	36.8692	-2.8534	12.9901
191	36.8692	-2.8534	12.9901	46.5098	-4.2308	15.4944
192	46.5098	-4.2308	15.4944	52.8645	-5.7586	18.2379
193	52.8645	-5.7586	18.2379	55.2343	-7.4348	21.2295
194	55.2343	-7.4348	21.2295	46.5719	-8.3288	22.8631
195	46.5719	-8.3288	22.8631	39.8971	-10.2206	26.2080
196	39.8971	-10.2206	26.2080	27.5813	-12.2439	29.7579
197	27.5813	-12.2439	29.7579	9.1286	-14.3917	33.5126
198	9.1286	-14.3917	33.5126	-15.8396	-16.6529	37.4552
199	-15.8396	-16.6529	37.4552	-47.6054	-19.0173	41.5639
200	-47.6054	-19.0173	41.5639	-86.0514	-9.2128	23.7527
201	-86.0514	-9.2128	23.7527	-80.3682	3.0015	1.7951
202	-80.3682	3.0015	1.7951	-74.5479	2.9395	1.9342
203	-74.5479	2.9395	1.9342	-68.1876	2.8443	2.1806
204	-68.1876	2.8443	2.1806	-57.8333	2.5634	2.9618
205	-57.8333	2.5634	2.9618	-50.1592	2.3703	3.4508
206	-50.1592	2.3703	3.4508	-37.0289	1.8778	4.7288
207	-37.0289	1.8778	4.7288	-28.7629	1.5710	5.4553
208	-28.7629	1.5710	5.4553	-20.6627	1.2236	6.2722
209	-20.6627	1.2236	6.2722	-6.1300	0.4014	8.1997
210	-6.1300	0.4014	8.1997	1.1995	-0.0784	9.2841
211	1.1995	-0.0784	9.2841	15.0507	-1.1781	11.7063
212	15.0507	-1.1781	11.7063	20.4056	-1.8003	13.0486
213	20.4056	-1.8003	13.0486	31.6292	-3.1936	15.9531
214	31.6292	-3.1936	15.9531	33.6580	-3.9655	17.5460
215	33.6580	-3.9655	17.5460	33.8718	-4.7905	19.2229
216	33.8718	-4.7905	19.2229	37.3119	-6.5969	22.7610
217	37.3119	-6.5969	22.7610	32.1519	-7.5818	24.6653
218	32.1519	-7.5818	24.6653	27.4441	-9.7106	28.6678
219	27.4441	-9.7106	28.6678	15.3493	-10.8566	30.7787
220	15.3493	-10.8566	30.7787	0.0365	-10.8561	30.7819

ENVOL. MIN. TORSORES TREN TREN SIN CARGA, EC-1 en via 2

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	0.0126	14.8141	-38.1105	23.4628	13.5646	-35.8045
2	23.4628	13.5646	-35.8045	43.7581	11.0647	-31.1798
3	43.7581	11.0647	-31.1798	60.7554	9.8134	-28.8228
4	60.7554	9.8134	-28.8228	74.2328	7.3122	-24.1553
5	74.2328	7.3122	-24.1553	84.5294	4.8118	-19.4730
6	84.5294	4.8118	-19.4730	91.4053	3.5621	-17.0713
7	91.4053	3.5621	-17.0713	94.8873	1.0633	-12.3714
8	94.8873	1.0633	-12.3714	95.1881	-1.4342	-7.6694
9	95.1881	-1.4342	-7.6694	91.9591	-2.6838	-5.2606
10	91.9591	-2.6838	-5.2606	85.4390	-5.1852	-0.5663
11	85.4390	-5.1852	-0.5663	-0.0053	-0.0003	0.0551
12	-0.0053	-0.0003	0.0551	-0.0059	-0.0003	0.0551
13	-0.0059	-0.0003	0.0551	-0.0064	-0.0003	0.0551
14	-0.0064	-0.0003	0.0551	-0.0070	-0.0003	0.0551
15	-0.0070	-0.0003	0.0551	-0.0075	-0.0003	0.0550
16	-0.0075	-0.0003	0.0550	-0.0081	-0.0003	0.0550
17	-0.0081	-0.0003	0.0550	-0.0086	-0.0003	0.0550
18	-0.0086	-0.0003	0.0550	-0.0092	-0.0003	0.0550
19	-0.0092	-0.0003	0.0550	-0.0097	-0.0003	0.0550
20	-0.0097	-0.0003	0.0550	-172.0841	0.0145	-5.2755
21	-172.0841	0.0145	-5.2755	-124.4251	22.9686	-42.0665
22	-124.4251	22.9686	-42.0665	-81.4348	20.4683	-37.6426
23	-81.4348	20.4683	-37.6426	-43.4515	17.9687	-33.1561
24	-43.4515	17.9687	-33.1561	-10.4730	15.4686	-28.6150
25	-10.4730	15.4686	-28.6150	17.4976	12.9678	-24.0271
26	17.4976	12.9678	-24.0271	40.4622	10.4662	-19.4001
27	40.4622	10.4662	-19.4001	58.4168	7.9649	-14.7415
28	58.4168	7.9649	-14.7415	71.3623	5.4641	-10.0592
29	71.3623	5.4641	-10.0592	79.2948	2.9637	-5.3609
30	79.2948	2.9637	-5.3609	82.2289	0.4642	-0.6540
31	82.2289	0.4642	-0.6540	-0.0032	0.0003	0.0011
32	-0.0032	0.0003	0.0011	-0.0025	0.0003	0.0011
33	-0.0025	0.0003	0.0011	-0.0018	0.0003	0.0011
34	-0.0018	0.0003	0.0011	-0.0012	0.0003	0.0011
35	-0.0012	0.0003	0.0011	-0.0005	0.0003	0.0011
36	-0.0005	0.0003	0.0011	0.0002	0.0003	0.0011
37	0.0002	0.0003	0.0011	0.0009	0.0003	0.0011
38	0.0009	0.0003	0.0011	0.0015	0.0003	0.0011
39	0.0015	0.0003	0.0011	0.0022	0.0003	0.0011
40	0.0022	0.0003	0.0011	-171.1888	0.3139	-0.5709
41	-171.1888	0.3139	-0.5709	-123.0377	22.9105	-41.8904
42	-123.0377	22.9105	-41.8904	-80.1479	20.4104	-37.4643
43	-80.1479	20.4104	-37.4643	-42.2666	17.9106	-32.9761
44	-42.2666	17.9106	-32.9761	-9.3924	15.4097	-28.4331
45	-9.3924	15.4097	-28.4331	18.4708	12.9093	-23.8437
46	18.4708	12.9093	-23.8437	41.3275	10.4100	-19.2153
47	41.3275	10.4100	-19.2153	59.1724	7.9108	-14.5556
48	59.1724	7.9108	-14.5556	72.0198	5.4128	-9.8724
49	72.0198	5.4128	-9.8724	79.8559	2.9126	-5.1729
50	79.8559	2.9126	-5.1729	82.6761	0.4105	-0.4652
51	82.6761	0.4105	-0.4652	0.0009	-0.0001	0.0000
52	0.0009	-0.0001	0.0000	0.0007	-0.0001	0.0000
53	0.0007	-0.0001	0.0000	0.0005	-0.0001	0.0000
54	0.0005	-0.0001	0.0000	0.0003	-0.0001	0.0000
55	0.0003	-0.0001	0.0000	0.0001	-0.0001	0.0000
56	0.0001	-0.0001	0.0000	-0.0001	-0.0001	0.0000
57	-0.0001	-0.0001	0.0000	-0.0002	-0.0001	0.0000
58	-0.0002	-0.0001	0.0000	-0.0004	-0.0001	0.0000
59	-0.0004	-0.0001	0.0000	-0.0006	-0.0001	0.0000
60	-0.0006	-0.0001	0.0000	-170.3477	0.2559	-0.4420
61	-170.3477	0.2559	-0.4420	-122.7500	22.7899	-41.8396
62	-122.7500	22.7899	-41.8396	-80.1205	20.2903	-37.4132
63	-80.1205	20.2903	-37.4132	-42.4936	17.7908	-32.9249
64	-42.4936	17.7908	-32.9249	-9.8715	15.2908	-28.3828
65	-9.8715	15.2908	-28.3828	17.7448	12.7904	-23.7942
66	17.7448	12.7904	-23.7942	40.3549	10.2896	-19.1670
67	40.3549	10.2896	-19.1670	57.9562	7.7898	-14.5088
68	57.9562	7.7898	-14.5088	70.5508	5.2922	-9.8275
69	70.5508	5.2922	-9.8275	78.1465	2.7908	-5.1307
70	78.1465	2.7908	-5.1307	80.7352	0.2887	-0.4261
71	80.7352	0.2887	-0.4261	-1.8872	0.2014	-0.0130
72	-1.8872	0.2014	-0.0130	-1.4845	0.2014	-0.0157
73	-1.4845	0.2014	-0.0157	-1.0819	0.2014	-0.0176
74	-1.0819	0.2014	-0.0176	-0.6792	0.2014	-0.0190
75	-0.6792	0.2014	-0.0190	-0.2765	0.2014	-0.0197
76	-0.2765	0.2014	-0.0197	0.1263	0.2014	-0.0198
77	0.1263	0.2014	-0.0198	0.5291	0.2014	-0.0193
78	0.5291	0.2014	-0.0193	0.9320	0.2014	-0.0182
79	0.9320	0.2014	-0.0182	1.3348	0.2014	-0.0164
80	1.3348	0.2014	-0.0164	1.7296	0.0723	-0.0085
81	1.7296	0.0723	-0.0085	-121.2187	22.6332	-40.1230
82	-121.2187	22.6332	-40.1230	-78.8851	20.1331	-35.6945
83	-78.8851	20.1331	-35.6945	-41.5595	17.6325	-31.2048
84	-41.5595	17.6325	-31.2048	-9.2430	15.1327	-26.6614
85	-9.2430	15.1327	-26.6614	18.0672	12.6329	-22.0722
86	18.0672	12.6329	-22.0722	40.3669	10.1335	-17.4445
87	40.3669	10.1335	-17.4445	57.6606	7.6336	-12.7868
88	57.6606	7.6336	-12.7868	69.9452	5.1335	-8.1060
89	69.9452	5.1335	-8.1060	77.2236	2.6343	-3.4100
90	77.2236	2.6343	-3.4100	-2.2737	0.2074	-0.0558
91	-2.2737	0.2074	-0.0558	-1.8589	0.2075	-0.0590
92	-1.8589	0.2075	-0.0590	-1.4439	0.2074	-0.0615
93	-1.4439	0.2074	-0.0615	-11.1901	2.2421	-0.0801
94	-11.1901	2.2421	-0.0801	-6.7055	2.2421	-0.0939
95	-6.7055	2.2421	-0.0939	-2.2208	2.2420	-0.1007
96	-2.2208	2.2420	-0.1007	2.2634	2.2417	-0.1007
97	2.2634	2.2417	-0.1007	6.7471	2.2416	-0.0938
98	6.7471	2.2416	-0.0938	11.2314	2.2418	-0.0800
99	11.2314	2.2418	-0.0800	1.4586	0.2072	-0.0615
100	1.4586	0.2072	-0.0615	1.8566	0.0694	-0.0038
101	1.8566	0.0694	-0.0038	-102.8271	19.3250	-37.4299
102	-102.8271	19.3250	-37.4299	-70.7086	16.8250	-32.9642
103	-70.7086	16.8250	-32.9642	-42.4075	15.5751	-30.7491
104	-42.4075	15.5751	-30.7491	-18.1110	13.0752	-26.2072
105	-18.1110	13.0752	-26.2072	2.4299	10.5749	-21.6353
106	2.4299	10.5749	-21.6353	19.2127	8.0749	-17.0382
107	19.2127	8.0749	-17.0382	32.1788	6.8250	-14.7125
108	32.1788	6.8250	-14.7125	41.1396	4.3243	-10.0806
109	41.1396	4.3243	-10.0806	46.3424	1.8240	-5.4391
110	46.3424	1.8240	-5.4391	-31.7140	3.2108	-3.2390
111	-31.7140	3.2108	-3.2390	-26.0887	3.2105	-3.2776
112	-26.0887	3.2105	-3.2776	-20.4659	3.2099	-3.3089
113	-20.4659	3.2099	-3.3089	-14.8431	3.2098	-3.3326
114	-14.8431	3.2098	-3.3326	-9.2210	3.2105	-3.3489

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	-9.2210	3.2105	-3.3489	-3.5954	3.2104	-3.3575
116	-3.5954	3.2104	-3.3575	2.0261	3.2094	-3.3586
117	2.0261	3.2094	-3.3586	7.6480	3.2095	-3.3521
118	7.6480	3.2095	-3.3521	13.2701	3.2095	-3.3380
119	13.2701	3.2095	-3.3380	18.8917	3.2096	-3.3164
120	18.8917	3.2096	-3.3164	24.1509	1.1720	-1.2365
121	24.1509	1.1720	-1.2365	-76.2738	18.0416	-37.1460
122	-76.2738	18.0416	-37.1460	-46.4012	15.5417	-32.6460
123	-46.4012	15.5417	-32.6460	-20.3458	14.2917	-30.3997
124	-20.3458	14.2917	-30.3997	1.7042	11.7913	-25.8298
125	1.7042	11.7913	-25.8298	19.9973	9.2916	-21.2328
126	19.9973	9.2916	-21.2328	34.5365	6.7915	-16.6136
127	34.5365	6.7915	-16.6136	45.2560	5.5405	-14.2685
128	45.2560	5.5405	-14.2685	51.9675	3.0403	-9.6207
129	51.9675	3.0403	-9.6207	54.9238	0.5397	-4.9662
130	54.9238	0.5397	-4.9662	-21.0371	2.1135	-2.5195
131	-21.0371	2.1135	-2.5195	-17.3330	2.1137	-2.5453
132	-17.3330	2.1137	-2.5453	-13.6322	2.1131	-2.5665
133	-13.6322	2.1131	-2.5665	-9.9316	2.1129	-2.5824
134	-9.9316	2.1129	-2.5824	-6.2305	2.1124	-2.5932
135	-6.2305	2.1124	-2.5932	-2.5299	2.1126	-2.5989
136	-2.5299	2.1126	-2.5989	1.1717	2.1129	-2.5999
137	1.1717	2.1129	-2.5999	4.8733	2.1130	-2.5958
138	4.8733	2.1130	-2.5958	8.5755	2.1134	-2.5867
139	8.5755	2.1134	-2.5867	12.2782	2.1137	-2.5728
140	12.2782	2.1137	-2.5728	-133.8434	-0.1790	-1.8951
141	-133.8434	-0.1790	-1.8951	-82.1550	18.5140	-39.1244
142	-82.1550	18.5140	-39.1244	-50.7825	16.0139	-34.6338
143	-50.7825	16.0139	-34.6338	-23.4157	13.5138	-30.1027
144	-23.4157	13.5138	-30.1027	-0.1790	12.2640	-27.8280
145	-0.1790	12.2640	-27.8280	18.9295	9.7639	-23.2325
146	18.9295	9.7639	-23.2325	34.0312	7.2640	-18.6133
147	34.0312	7.2640	-18.6133	45.1260	4.7649	-13.9760
148	45.1260	4.7649	-13.9760	52.2168	2.2645	-9.3263
149	52.2168	2.2645	-9.3263	55.1758	1.0129	-6.9606
150	55.1758	1.0129	-6.9606	-23.2266	2.2050	-2.3670
151	-23.2266	2.2050	-2.3670	-19.2544	2.2052	-2.3960
152	-19.2544	2.2052	-2.3960	-15.2847	2.2046	-2.4199
153	-15.2847	2.2046	-2.4199	-11.3138	2.2048	-2.4383
154	-11.3138	2.2048	-2.4383	-7.3427	2.2049	-2.4513
155	-7.3427	2.2049	-2.4513	-3.3706	2.2049	-2.4588
156	-3.3706	2.2049	-2.4588	0.6007	2.2052	-2.4609
157	0.6007	2.2052	-2.4609	4.5728	2.2049	-2.4573
158	4.5728	2.2049	-2.4573	8.5433	2.2044	-2.4482
159	8.5433	2.2044	-2.4482	12.5139	2.2043	-2.4336
160	12.5139	2.2043	-2.4336	-175.1826	1.5575	-3.8263
161	-175.1826	1.5575	-3.8263	-110.0836	22.3417	-42.0863
162	-110.0836	22.3417	-42.0863	-68.3336	19.8412	-37.6412
163	-68.3336	19.8412	-37.6412	-31.5924	17.3414	-33.1356
164	-31.5924	17.3414	-33.1356	0.1427	14.8418	-28.5774
165	0.1427	14.8418	-28.5774	26.8683	12.3408	-23.9741
166	26.8683	12.3408	-23.9741	48.5875	9.8425	-19.3335
167	48.5875	9.8425	-19.3335	65.3046	7.3440	-14.6632
168	65.3046	7.3440	-14.6632	77.0126	4.8426	-9.9709
169	77.0126	4.8426	-9.9709	83.7105	2.3425	-5.2646
170	83.7105	2.3425	-5.2646	85.4020	-0.1567	-0.5527
171	85.4020	-0.1567	-0.5527	4.8981	-0.5268	-0.0358
172	4.8981	-0.5268	-0.0358	3.8445	-0.5268	-0.0290
173	3.8445	-0.5268	-0.0290	2.7908	-0.5270	-0.0239
174	2.7908	-0.5270	-0.0239	1.7366	-0.5270	-0.0204

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	1.7366	-0.5270	-0.0204	0.6804	-0.5254	-0.0185
176	0.6804	-0.5254	-0.0185	-0.3717	-0.5271	-0.0183
177	-0.3717	-0.5271	-0.0183	-1.4258	-0.5271	-0.0197
178	-1.4258	-0.5271	-0.0197	-2.4798	-0.5270	-0.0227
179	-2.4798	-0.5270	-0.0227	-3.5339	-0.5270	-0.0273
180	-3.5339	-0.5270	-0.0273	1.1207	0.0458	-0.0018
181	1.1207	0.0458	-0.0018	-127.6896	22.9188	-40.3577
182	-127.6896	22.9188	-40.3577	-85.6777	20.4189	-35.9350
183	-85.6777	20.4189	-35.9350	-48.4236	17.9188	-31.4529
184	-48.4236	17.9188	-31.4529	-15.9293	15.4191	-26.9187
185	-15.9293	15.4191	-26.9187	11.8084	12.9189	-22.3391
186	11.8084	12.9189	-22.3391	34.7840	10.4184	-17.7218
187	34.7840	10.4184	-17.7218	53.0008	7.9183	-13.0735
188	53.0008	7.9183	-13.0735	66.4603	5.4178	-8.4012
189	66.4603	5.4178	-8.4012	75.1610	2.9158	-3.7122
190	75.1610	2.9158	-3.7122	0.3522	-0.0331	-0.0002
191	0.3522	-0.0331	-0.0002	-1.3022	0.1499	-0.0016
192	-1.3022	0.1499	-0.0016	-1.0222	0.1517	-0.0030
193	-1.0222	0.1517	-0.0030	-0.7262	0.1517	-0.0043
194	-0.7262	0.1517	-0.0043	-0.4302	0.1518	-0.0052
195	-0.4302	0.1518	-0.0052	-0.1346	0.1522	-0.0057
196	-0.1346	0.1522	-0.0057	0.1619	0.1517	-0.0056
197	0.1619	0.1517	-0.0056	0.4579	0.1517	-0.0052
198	0.4579	0.1517	-0.0052	0.7539	0.1517	-0.0043
199	0.7539	0.1517	-0.0043	1.0499	0.1517	-0.0029
200	1.0499	0.1517	-0.0029	1.3296	0.0514	-0.0037
201	1.3296	0.0514	-0.0037	-111.9243	20.3945	-26.8034
202	-111.9243	20.3945	-26.8034	-83.7862	19.1446	-24.6334
203	-83.7862	19.1446	-24.6334	-57.9337	17.8949	-22.4048
204	-57.9337	17.8949	-22.4048	-34.7811	15.3951	-17.8663
205	-34.7811	15.3951	-17.8663	-13.9958	14.1452	-15.5999
206	-13.9958	14.1452	-15.5999	4.3071	11.6458	-11.0199
207	4.3071	11.6458	-11.0199	20.0257	10.3961	-8.7080
208	20.0257	10.3961	-8.7080	33.4704	9.1442	-6.3850
209	33.4704	9.1442	-6.3850	44.1389	6.6437	-1.7743
210	44.1389	6.6437	-1.7743	-2.7790	0.1970	-0.0169
211	-2.7790	0.1970	-0.0169	-2.5012	0.1971	-0.0200
212	-2.5012	0.1971	-0.0200	-2.2232	0.1972	-0.0221
213	-2.2232	0.1972	-0.0221	-1.9452	0.1971	-0.0236
214	-1.9452	0.1971	-0.0236	-1.6673	0.1971	-0.0254
215	-1.6673	0.1971	-0.0254	-1.3895	0.1971	-0.0270
216	-1.3895	0.1971	-0.0270	-1.1116	0.1971	-0.0279
217	-1.1116	0.1971	-0.0279	-0.8336	0.1971	-0.0288
218	-0.8336	0.1971	-0.0288	-0.5558	0.1970	-0.0296
219	-0.5558	0.1970	-0.0296	-0.2779	0.1970	-0.0300
220	-0.2779	0.1970	-0.0300	-0.0001	0.1970	-0.0300

ENVOLVENTE MAXIMOS FLECTORES TREN IPF-B, l=30 m, via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.0026	-0.0007	-0.2073	-65.5037	-38.3042	-123.9604
2	274.8488	159.3572	494.3250	-518.6086	-138.6422	-435.0526
3	518.1885	138.6358	435.5483	-729.9902	-120.9169	-384.9447
4	729.6081	120.9041	385.6455	-908.9204	-100.1866	-326.4991
5	908.5978	100.1943	327.3735	-1056.2512	-79.4757	-268.2737
6	1055.9880	79.4462	269.2856	-1171.3464	-61.7214	-218.8243
7	1171.1473	61.7254	219.9543	-1254.3167	-41.0192	-160.9210
8	1254.1606	41.0646	162.1324	-1305.8901	-20.5268	-104.0401
9	1305.7766	20.5378	105.2982	-1325.1445	-2.8182	-54.8897
10	1325.0632	2.8239	56.1749	-1312.5298	17.9017	2.8369
11	1312.5004	-17.9400	-1.5588	-1268.1956	35.6573	51.9815
12	1268.2317	-35.6710	-50.7420	-1191.1907	56.3872	109.7889
13	1191.2744	-56.4237	-108.6245	-1082.4966	77.1454	167.7053
14	1082.6584	-77.1479	-166.6382	-942.1632	94.6661	216.3166
15	942.3581	-94.6459	-215.3706	-769.4804	115.3650	274.5453
16	769.7230	-115.3641	-273.7676	-565.1999	136.0832	333.0049
17	565.6530	-134.2722	-326.4785	-331.8064	151.7765	376.3621
18	374.7502	-99.5858	-252.0168	-230.1306	75.1524	201.7441
19	265.4886	-31.4425	-94.4060	-202.0481	46.1578	136.5949
20	231.3831	-6.8834	-34.5579	-208.0996	21.5981	76.6454
21	229.6460	-26.2612	11.5598	-177.1338	26.2606	-11.6616
22	197.2389	-9.5652	56.2671	-160.1180	27.5618	-4.6711
23	210.5862	18.7678	129.3276	-230.7687	-41.0144	-179.4165
24	276.1987	89.6329	310.1553	-431.7365	-67.0580	-246.4595
25	470.0069	108.6019	368.9602	-662.7518	-85.2350	-302.6010
26	718.1646	127.4594	326.1520	-949.0331	-104.6017	-261.9804
27	948.7275	104.5819	263.1400	-1132.7001	-81.1018	-196.7684
28	1132.4678	81.0922	198.1464	-1269.3690	-57.0939	-129.7400
29	1269.2452	57.0867	131.2752	-1359.1252	-33.5851	-64.9408
30	1359.0293	33.5900	66.5772	-1401.6627	-10.0613	-0.2027
31	1401.6522	10.0202	1.8961	-1396.7906	13.5314	64.5398
32	1396.8572	-13.5203	-62.8589	-1344.6619	37.5186	131.2014
33	1344.8167	-37.5217	-129.5746	-1245.4385	61.0756	196.1189
34	1245.6492	-61.0597	-194.6139	-1098.8430	84.6156	261.2779
35	1099.1487	-84.5989	-259.9450	-904.9195	108.1669	326.7461
36	905.3013	-108.1718	-325.6353	-663.9366	132.1651	394.1945
37	678.0128	-104.0923	-367.8273	-445.4155	127.6563	434.8253
38	487.0994	-86.3106	-312.1853	-341.7630	61.0926	258.7435
39	392.1419	-12.6018	-127.8048	-348.9560	30.5980	179.3468
40	392.1127	15.7296	-54.4412	-405.5695	6.2884	104.7661
41	437.2851	-28.4258	9.1075	-372.3720	32.4477	-10.3860
42	392.5955	-15.7512	55.2848	-343.0801	33.7545	-3.7451
43	395.6573	12.5082	128.8836	-402.6704	5.4948	-77.3384
44	452.1220	42.9601	208.6785	-557.2763	-62.2344	-246.8289
45	600.0739	103.5679	369.8235	-782.9390	-80.7774	-305.6632
46	843.1348	122.0762	328.9199	-1062.1794	-98.6241	-262.5149
47	1061.8628	98.6345	263.8496	-1234.0079	-75.1506	-197.4571
48	1233.7675	75.1681	198.9800	-1358.8708	-51.1666	-130.5571
49	1358.7119	51.1677	132.2309	-1436.7689	-27.6540	-65.8727
50	1436.7026	27.6743	67.6305	-1467.4951	-4.1421	-1.2306
51	1467.5198	4.1069	3.0234	-1450.8313	19.4435	63.4403
52	1450.9086	-19.4568	-61.6759	-1386.8058	43.4656	130.0365
53	1386.9753	-43.5111	-128.3483	-1275.5505	67.0770	194.9205
54	1275.7792	-67.0803	-193.3640	-1116.8213	90.6544	260.0566
55	1117.1436	-90.6604	-258.6902	-910.6818	114.2274	325.5235
56	911.0580	-114.2359	-324.4067	-657.4590	138.2448	392.9858
57	678.2742	-99.2312	-371.3403	-455.3016	122.8024	438.3691
58	498.1134	-81.1701	-316.2123	-368.3683	54.8980	263.5851
59	419.8737	-6.2385	-132.7065	-389.3946	24.2414	184.2593
60	433.3611	22.1679	-59.2511	-459.7017	0.4526	109.2081
61	491.9553	-29.4497	8.1054	-423.8376	34.0671	-9.7715
62	444.4233	-17.3920	54.6871	-391.6545	35.3886	-3.1781
63	444.8718	10.8240	128.1957	-448.5228	7.1720	-76.6805
64	498.8163	41.2043	207.8106	-595.2574	-60.6747	-245.9558
65	638.8667	101.8944	368.7515	-818.3421	-79.1056	-304.6089
66	876.0230	118.1794	327.4393	-1087.2278	-94.7381	-261.0558
67	1086.9250	94.7320	262.4242	-1251.2021	-71.2620	-196.0515
68	1250.9543	71.3060	197.6079	-1368.2948	-47.3187	-129.2034
69	1368.1475	47.3052	130.8860	-1438.4380	-23.7961	-64.5500
70	1438.3484	23.7487	66.3110	-1461.2424	-0.2165	0.0684
71	1461.2339	0.2206	1.7025	-1436.7263	23.3313	64.7384
72	1436.8223	-23.3499	-62.9995	-1364.9796	47.3532	131.3411
73	1365.1587	-47.3339	-129.6754	-1246.1539	70.8785	196.2230
74	1246.3824	-70.8582	-194.7132	-1079.9614	94.4242	261.3820
75	1080.2731	-94.4707	-260.0764	-866.2975	118.0377	326.8847
76	866.6732	-118.0475	-325.8359	-605.5664	142.0451	394.3959
77	629.5985	-99.8535	-371.9138	-405.5075	123.4078	438.9183
78	449.5175	-81.6986	-316.5533	-320.1034	55.3367	263.5619
79	372.6320	-6.6442	-132.6823	-341.3576	24.6405	184.2150
80	385.8635	21.7766	-59.2941	-411.4154	0.8725	109.1271
81	443.7484	-22.6178	-16.3466	-389.1931	27.2707	14.5759
82	409.7729	-10.5927	30.4663	-370.5751	28.5966	21.0633
83	424.1042	17.5611	105.0693	-441.2249	0.4425	-53.5340
84	492.1440	47.7324	187.7433	-601.5605	-67.0510	-228.1896
85	645.6737	107.8904	356.6445	-837.2232	-85.0847	-292.6843
86	884.3792	116.8710	346.6709	-1093.0217	-93.4154	-280.3321
87	1092.6857	93.4279	281.7165	-1254.4177	-69.9409	-215.3636
88	1254.1549	69.9453	216.9191	-1368.8157	-45.9431	-148.4938
89	1368.6333	45.9542	150.1857	-1436.2894	-22.4532	-83.8370
90	1436.1824	22.4611	85.6045	-1456.5737	1.0668	-19.1811
91	1456.5139	-1.0717	20.9447	-1429.5248	24.6217	45.5768
92	1429.5474	-24.5959	-43.8405	-1355.2354	48.1357	110.4844
93	1355.3641	-48.1105	-108.8490	-1233.9570	72.1189	177.2459
94	1234.1500	-72.1133	-175.7517	-1065.4034	95.6696	242.5810
95	1065.6780	-95.6807	-241.2874	-849.5762	119.2303	308.2995
96	849.9392	-119.2187	-307.2695	-586.6275	142.7575	374.4228
97	628.8005	-94.5892	-347.2729	-414.7131	118.1172	414.4355
98	458.7007	-69.8132	-282.7031	-358.9333	43.6933	235.2425
99	396.2102	-5.4579	-135.7336	-367.2939	23.4611	187.2808
100	412.8802	23.0083	-63.3386	-440.3840	-0.0882	111.3764
101	469.6775	-28.4783	-18.8530	-410.7132	33.3940	15.2723
102	420.8944	-18.5657	26.4481	-374.6173	34.3174	18.6302
103	412.1504	6.3260	97.0887	-409.4358	9.4263	-52.0049
104	448.4904	33.0588	177.8812	-492.5628	-17.3087	-132.7912
105	528.8563	56.7644	267.2125	-664.1540	-72.0087	-300.2286
106	714.1502	105.5590	353.4901	-880.9764	-84.0953	-292.5854
107	880.6448	84.0940	293.5852	-1011.1044	-65.3432	-240.0388
108	1010.8408	65.3311	241.1596	-1104.2349	-43.8477	-180.1928
109	1104.0363	43.8346	181.4020	-1161.2169	-22.0773	-119.3296
110	1161.0641	22.0531	120.5954	-1181.6506	-0.2972	-58.5437
111	1181.5769	0.2819	59.8151	-1165.7792	18.2133	-7.3419
112	1165.7554	-18.1844	8.5858	-1112.9658	39.9318	53.4630
113	1113.0220	-39.9141	-52.2675	-1023.7976	61.4203	113.5307
114	1023.9011	-61.4351	-112.4353	-898.4614	83.1882	174.5315

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	898.6239	-83.2066	-173.5695	-736.4220	101.9531	227.1059
116	736.6471	-101.9202	-226.3132	-537.6333	123.4263	287.8017
117	565.8446	-75.6847	-317.9612	-414.0191	97.4361	380.2153
118	446.3618	-58.1934	-280.5085	-375.2078	31.4910	242.8935
119	407.9221	10.8712	-136.8442	-413.1779	4.8798	181.9400
120	439.2639	35.4557	-75.6444	-486.4913	-13.7786	114.7547
121	503.4191	-29.2981	-23.6552	-440.7195	35.2240	17.6003
122	448.6234	-20.3008	24.2115	-399.3066	36.0519	20.8637
123	429.8402	4.9183	95.4103	-424.6574	10.8331	-50.3284
124	453.1160	22.8314	148.9615	-479.2835	-7.0795	-103.8742
125	519.8763	49.7882	242.4242	-650.2700	-64.8124	-277.1354
126	702.3982	109.2719	366.6206	-875.7285	-87.8152	-305.7638
127	875.4290	87.8071	306.7403	-1012.3939	-69.0450	-253.2074
128	1012.1362	68.9948	254.3200	-1112.0166	-47.5075	-193.3902
129	1111.7911	47.5150	194.5966	-1175.4355	-25.7622	-132.5360
130	1175.3018	25.7484	133.8104	-1202.3999	-4.2502	-72.7562
131	1202.3167	4.2385	74.0456	-1193.0901	14.5067	-20.6091
132	1193.0728	-14.4516	21.8982	-1146.8184	36.1933	40.1427
133	1146.8601	-36.1971	-38.9076	-1064.2402	57.7058	100.1608
134	1064.3431	-57.7001	-99.0142	-945.4184	79.4548	161.1051
135	945.5571	-79.4625	-160.0989	-789.9226	98.2160	213.6295
136	790.1323	-98.2236	-212.7693	-597.6475	119.7388	274.2621
137	617.2769	-82.9567	-309.2918	-452.7089	104.7126	371.5426
138	482.3027	-72.5049	-287.0084	-372.6128	48.0001	250.4410
139	413.8267	-9.7608	-155.4712	-382.9730	25.5111	200.5853
140	426.4729	12.2547	-103.1554	-433.1635	7.7634	143.4493
141	466.9673	-33.4473	7.7267	-398.1116	37.7138	-12.5981
142	405.1707	-22.3233	55.4471	-350.4124	38.5218	-9.0686
143	379.7590	3.7195	127.6179	-371.8719	12.4789	-81.2346
144	398.7390	22.2639	180.4101	-434.0818	-43.0989	-229.5968
145	472.2866	82.1578	348.6396	-598.8485	-60.3406	-286.7442
146	664.5560	114.4524	348.3498	-850.2135	-92.5961	-286.4033
147	849.9214	92.5752	287.3671	-997.0776	-70.3751	-223.9632
148	996.8165	70.4081	225.0859	-1105.8151	-48.5184	-163.1296
149	1105.6335	48.4751	164.3448	-1175.5535	-29.2774	-109.6189
150	1175.4512	29.2901	110.9281	-1206.8120	-7.3687	-48.9079
151	1206.7612	7.3588	50.2319	-1199.4275	14.8363	13.0666
152	1199.4312	-14.8034	-11.7638	-1153.6876	36.7351	73.9047
153	1153.7583	-36.7543	-72.6344	-1069.4681	58.9524	135.9550
154	1069.6036	-58.9660	-134.7780	-946.2544	78.1684	189.5326
155	946.4454	-78.1790	-188.4876	-784.4486	100.1301	250.8395
156	784.7013	-100.1090	-249.9718	-584.0599	122.3065	313.4295
157	592.9145	-89.7258	-338.1628	-412.2927	111.6742	400.6964
158	443.7241	-70.5355	-288.1640	-337.4510	45.4892	245.0684
159	368.9756	-2.4528	-133.1638	-349.9953	18.6506	179.5599
160	379.6095	22.7589	-69.3707	-406.0175	-2.4614	112.4527
161	430.8071	-25.8581	7.6783	-370.9065	29.9571	-11.0465
162	390.2251	-13.2387	55.8629	-345.7434	31.2407	-4.3209
163	393.0815	15.1686	129.0581	-405.4207	2.8334	-77.5110
164	445.6650	35.2361	179.2697	-544.2020	-53.9992	-216.9340
165	598.1014	101.8014	353.0813	-777.1943	-78.4285	-286.6864
166	825.2990	117.8164	321.5842	-1036.8206	-94.9535	-257.3510
167	1036.5265	94.9920	258.6391	-1201.3511	-71.5166	-192.2381
168	1201.1099	71.5336	193.7069	-1318.9033	-47.5308	-125.2910
169	1318.7568	47.5104	126.9109	-1389.4603	-23.9987	-60.5481
170	1389.3621	23.9964	62.2275	-1412.7483	-0.4518	4.1772
171	1412.7461	0.4795	-2.4908	-1388.8058	23.0627	68.9553
172	1388.9202	-23.0528	-67.2705	-1317.6537	47.0595	135.6256
173	1317.8359	-47.0764	-134.0456	-1199.2742	70.6531	200.6123
174	1199.5129	-70.6709	-199.1714	-1033.3929	94.2453	265.8514

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	1033.7122	-94.2447	-264.6074	-820.1297	117.8221	331.4194
176	820.5266	-117.8364	-330.4399	-559.7408	141.8385	399.0226
177	582.0319	-102.8290	-357.6812	-351.8923	126.4016	424.6875
178	389.3950	-89.4775	-315.5342	-241.7054	64.4590	261.1741
179	296.5166	-15.9312	-129.4471	-246.6511	33.9324	181.0091
180	293.0237	12.4750	-55.7018	-299.9922	9.1376	106.1277
181	333.5452	-17.0605	4.3021	-293.2446	20.6711	-5.4929
182	313.9420	-4.4626	49.0277	-288.1154	22.0173	1.2366
183	341.2098	22.8461	120.3438	-368.6507	-5.2910	-70.0748
184	419.9632	51.9821	197.6321	-539.5770	-70.2309	-234.6681
185	584.0789	112.6638	366.0352	-781.6774	-89.6509	-300.7872
186	808.9090	107.9659	316.5990	-997.7215	-84.9268	-251.3728
187	997.4255	84.9092	252.5862	-1141.4789	-61.8257	-187.3714
188	1141.2689	61.8306	188.7545	-1240.4036	-38.7238	-123.5284
189	1240.2606	38.7184	125.0074	-1294.3213	-15.5946	-59.7511
190	1294.2521	15.5761	61.2782	-1303.3112	7.9823	5.8075
191	1303.3169	-7.9906	-4.0862	-1267.3295	31.1257	69.3858
192	1267.3929	-31.1076	-68.0841	-1186.2239	54.2524	133.5272
193	1186.3470	-54.2264	-132.3936	-1060.2153	77.7785	199.5614
194	1060.4495	-77.7997	-198.2442	-889.2445	97.9621	255.1355
195	889.5673	-97.9648	-253.9878	-673.0061	121.1163	319.6488
196	673.3050	-121.1200	-319.0032	-411.6464	144.2582	384.7893
197	456.5847	-92.0236	-330.5449	-252.0049	115.5787	397.9715
198	292.4217	-73.3108	-280.2126	-201.2440	46.7733	228.1092
199	243.6526	-9.1885	-128.5810	-208.6154	26.7432	178.8391
200	259.9538	18.8598	-57.0457	-279.6096	3.7743	105.9619
201	312.1989	-5.9916	-2.9960	-296.5744	11.0711	1.5798
202	307.9880	12.5393	60.6601	-316.7255	0.1511	-24.3540
203	332.6886	31.9946	107.1362	-368.8531	-19.3055	-70.8049
204	391.5845	54.1923	156.8194	-459.0491	-41.5044	-120.4937
205	492.1828	79.6992	213.9700	-609.2299	-98.6846	-237.2037
206	609.1282	98.6678	237.4925	-735.3119	-79.9810	-183.9563
207	735.2107	79.9881	184.3545	-837.2885	-64.3016	-139.5316
208	837.0755	64.3061	140.8961	-915.8050	-48.6127	-96.0963
209	915.7361	48.5858	96.6437	-969.9336	-29.8895	-43.1822
210	969.8929	29.8461	43.7688	-1000.6183	-14.1509	1.0346
211	1000.6172	14.1640	-0.0663	-1007.3971	4.5246	53.4249
212	1007.4598	-4.5374	-52.5088	-990.2709	20.2309	97.3112
213	990.3303	-20.2513	-96.7532	-949.6636	38.9466	150.2002
214	949.7355	-38.9242	-149.7043	-884.6479	54.6113	194.4956
215	884.8656	-54.5869	-193.5306	-796.4592	70.2779	238.3317
216	796.5857	-70.2913	-237.9114	-684.0218	88.9809	291.3869
217	684.1883	-88.9793	-290.9925	-547.8610	104.6657	335.8476
218	548.1791	-104.6700	-335.2920	-388.2721	123.3597	388.7551
219	388.5658	-123.3481	-388.4375	-204.3041	139.0378	433.3705
220	204.4389	-139.0326	-433.3042	0.3784	123.3908	322.5188

ENVOLVENTE MAXIMOS CORTANTES TREN IPF-B, l=30 m, via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.1755	177.0676	544.8102	-273.5848	-159.5147	-494.9940
2	261.8547	159.9828	497.3485	-497.9733	-139.6720	-439.8150
3	466.0335	141.0478	444.4986	-675.0139	-123.5802	-394.9300
4	625.8283	125.8643	401.8474	-795.2797	-105.7578	-345.2858
5	731.8047	108.9678	354.3503	-870.2255	-89.0276	-298.4853
6	795.3407	93.1037	309.6200	-919.5596	-75.8472	-260.9726
7	836.0795	80.8358	274.1260	-920.8009	-61.1994	-219.2469
8	831.4157	67.0888	234.3647	-892.4365	-47.6622	-180.1058
9	799.7404	54.3785	197.1494	-857.1797	-37.3971	-149.2627
10	763.6401	44.9370	168.2122	-784.7262	-25.8549	-114.8296
11	692.6873	34.1734	135.6666	-588.6650	-18.7611	-67.2601
12	500.2983	27.8810	89.9773	-533.8531	-13.1657	-47.7885
13	451.1243	23.0264	72.3849	-476.7487	-8.3110	-30.1955
14	401.4466	18.9118	56.6860	-420.3419	-4.1965	-14.4971
15	354.0054	15.4894	42.9004	-367.2992	-0.7740	-0.7113
16	311.2533	12.7086	31.0413	-320.0041	2.0067	11.1476
17	275.3087	10.5252	21.1417	-280.4849	4.1903	21.0475
18	247.9249	8.9208	13.2329	-250.4837	5.7946	28.9562
19	230.5563	7.8328	7.3411	-231.3330	6.8825	34.8479
20	224.2209	7.2134	3.5015	77.0993	-9.6452	-19.1793
21	-1741.8638	223.3905	563.3847	1243.6321	-243.1391	-600.0544
22	-1253.6646	243.4585	600.7581	801.6004	-220.5374	-536.0157
23	-829.0505	221.5159	539.8468	422.3226	-198.4804	-475.0025
24	-466.7714	200.2079	481.8500	104.9057	-177.1005	-416.8794
25	-165.3165	179.6235	426.6173	-152.5705	-156.4916	-361.4899
26	77.7086	159.8935	374.0156	-352.9707	-136.7658	-309.0246
27	265.5291	141.0938	324.2375	-499.9351	-118.0278	-259.8374
28	402.1511	123.3427	277.6478	-597.9116	-100.3721	-213.8077
29	492.3515	106.7178	234.1355	-652.0547	-83.8769	-170.8252
30	541.5066	91.2568	193.6077	-668.0094	-68.5621	-130.8015
31	555.4821	77.0058	155.9949	-425.9586	-55.3636	-70.3118
32	314.5286	64.8784	97.8785	-426.2685	-46.8807	-46.2002
33	318.9965	57.4545	76.1299	-415.9033	-39.4573	-24.4712
34	315.7513	51.0933	56.7581	-399.9301	-33.0963	-5.1186
35	309.7062	45.7474	39.7807	-383.1960	-27.7522	11.8392
36	305.4450	41.3906	25.2277	-370.2210	-23.3933	26.3726
37	307.1562	37.9731	13.1378	-365.0964	-19.9757	38.4430
38	318.5133	35.4396	3.5629	-371.3909	-17.4431	47.9985
39	342.5780	33.7264	-3.4379	-392.0309	-15.7302	54.9800
40	381.6902	32.7545	-7.8041	-78.3132	-25.7328	5.0448
41	-1897.5256	228.5642	556.1467	1390.4998	-248.0353	-598.9665
42	-1400.4094	248.3529	599.4296	938.2958	-225.4192	-534.6624
43	-965.9758	226.4068	538.2386	549.3313	-203.3626	-473.3635
44	-594.2577	205.1099	479.9504	222.5302	-182.0047	-414.9452
45	-283.5845	184.5600	424.4227	-44.1430	-161.4194	-359.2600
46	-31.4329	164.8595	371.5293	-253.6891	-141.7422	-306.5036
47	165.5052	146.1308	321.4693	-409.8907	-123.0754	-257.0350
48	311.3813	128.4369	274.6118	-517.2338	-105.4719	-210.7390
49	411.0138	111.8514	230.8544	-580.8793	-89.0165	-167.5143
50	469.7869	96.4554	190.1074	-606.5730	-73.7666	-127.2734
51	493.5899	82.2433	152.3007	-365.7090	-61.5709	-65.8969
52	253.9082	71.1330	93.3260	-378.2042	-53.1333	-41.6175
53	270.6465	63.7497	71.4366	-380.1744	-45.7489	-19.7496
54	279.8488	57.4142	51.9592	-376.6937	-39.4094	-0.2948
55	286.3919	52.1008	34.9097	-372.6141	-34.0985	16.7328
56	294.8756	47.7697	20.3152	-372.4356	-29.7682	31.3045
57	309.4591	44.3802	8.2174	-380.2333	-26.3775	43.3800
58	333.7950	41.8686	-1.3385	-399.5439	-23.8652	52.9134
59	370.9109	40.1722	-8.2909	-433.2701	-22.1693	59.8437
60	423.1238	39.2108	-12.5885	-125.3936	-31.2384	9.0880
61	-1922.8818	227.8258	556.0339	1416.9022	-247.2466	-598.8764
62	-1426.9750	247.5690	599.3017	966.6024	-224.6401	-534.5583
63	-994.4518	225.6421	538.1161	579.5058	-202.6098	-473.2681
64	-624.5880	204.3606	479.8403	254.5257	-181.2595	-414.8644
65	-315.7123	183.8364	424.3328	-10.4147	-160.7098	-359.2014
66	-65.2764	164.1591	371.4655	-218.3403	-141.0531	-306.4721
67	130.0906	145.4405	321.4334	-372.9905	-122.3926	-257.0307
68	274.4446	127.7858	274.6001	-478.9174	-104.8331	-210.7591
69	372.6993	111.2245	230.8631	-541.2689	-88.3934	-167.5535
70	430.2135	95.8224	190.1314	-565.7315	-73.1522	-127.3272
71	452.8491	81.6561	152.3296	-323.8089	-61.0675	-66.2295
72	212.1793	70.6290	93.6294	-335.4308	-52.6322	-41.9391
73	228.0811	63.2781	71.7231	-336.6299	-45.2788	-20.0560
74	236.5298	56.9524	52.2201	-332.4233	-38.9583	-0.5756
75	242.3615	51.6536	35.1326	-327.6743	-33.6611	16.4893
76	250.1752	47.3424	20.4972	-326.8560	-29.3459	31.1030
77	264.1122	43.9613	8.3488	-334.0303	-25.9649	43.2290
78	287.7939	41.4616	-1.2629	-352.7169	-23.4662	52.8181
79	324.2375	39.7720	-8.2818	-385.7770	-21.7757	59.8145
80	375.7142	38.8162	-12.6469	-78.3848	-30.7533	7.9623
81	-1935.2247	228.2068	566.1344	1428.6997	-247.4899	-610.5242
82	-1438.7349	247.8140	610.9067	977.6438	-224.8696	-546.2511
83	-1005.5127	225.8720	549.6510	589.9257	-202.8369	-484.7726
84	-635.0521	204.6009	491.0853	264.3435	-181.5092	-425.9372
85	-325.5637	184.1078	435.0340	-1.3190	-161.0010	-369.5635
86	-74.3611	164.4910	381.3337	-210.2062	-141.4212	-315.8297
87	122.0263	145.8638	330.1799	-366.2146	-122.8723	-265.1312
88	267.8778	128.3027	281.9812	-474.0341	-105.4178	-217.3881
89	368.1685	111.8758	236.6781	-538.9856	-89.1394	-172.5362
90	428.4634	96.6534	194.2185	-566.9113	-74.0744	-130.5312
91	454.7215	82.6582	154.5792	-326.3197	-61.9849	-67.7000
92	215.5370	71.6258	94.1213	-340.8190	-53.6187	-42.4135
93	234.4753	64.3309	71.2144	-345.1517	-46.3230	-19.5310
94	246.1420	58.0697	50.7571	-344.3079	-40.0672	0.9050
95	255.3400	52.8235	32.7978	-343.0155	-34.8204	18.8415
96	266.5091	48.5519	17.4111	-345.6283	-30.5476	34.2052
97	283.6250	45.2027	4.6901	-356.0489	-27.1994	46.9034
98	310.1221	42.7144	-5.2680	-377.5659	-24.7103	56.8392
99	348.7495	41.0123	-12.3466	-412.7904	-23.0091	63.8937
100	401.4834	40.0140	-16.4250	-144.1559	-30.7058	15.8416
101	-1831.1467	215.0067	510.5864	1426.3182	-233.0125	-560.4633
102	-1430.8553	233.1648	559.8083	1047.2769	-211.9327	-499.3980
103	-1066.4049	212.7015	500.9911	715.1323	-194.1925	-447.9698
104	-748.2292	195.6408	451.7829	437.7870	-174.3850	-390.9841
105	-483.8352	176.5739	396.9748	209.1010	-155.3634	-336.6085
106	-266.7435	158.3312	344.7611	26.3663	-137.2190	-284.8624
107	-94.0179	141.0274	295.1580	-125.4839	-122.6417	-242.8897
108	49.6717	127.3155	255.3264	-227.9779	-106.4321	-196.1878
109	146.0796	111.9898	210.7696	-296.1240	-91.3065	-152.1635
110	210.3533	97.7913	168.9020	-121.6917	-78.7697	-75.5697
111	34.3705	86.1833	94.4850	-171.4340	-70.4313	-49.2133
112	84.9213	78.7700	70.3436	-208.9961	-63.0179	-25.0931
113	125.6297	72.2705	48.4853	-238.3388	-56.5203	-3.2581
114	160.3558	66.6859	28.9620	-263.2891	-50.9352	16.2442

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	192.7969	61.9891	11.8369	-287.5124	-46.2366	33.3474
116	226.4110	58.1288	-2.8125	-314.3700	-42.3748	47.9745
117	264.3011	55.0787	-14.9056	-346.9253	-39.3267	60.0458
118	309.1883	52.7917	-24.3530	-387.8113	-37.0398	69.4709
119	363.3283	51.2054	-31.0658	-439.1741	-35.4544	76.1617
120	428.4216	50.2542	-34.9474	-194.2631	-42.2531	19.3594
121	-1643.2542	211.5450	526.0942	1249.6342	-228.2619	-574.0558
122	-1253.4011	228.3809	573.6320	878.0217	-207.1518	-513.2792
123	-895.7739	207.8560	515.0240	552.7921	-189.3409	-462.0181
124	-584.1319	190.7126	465.9140	281.8288	-169.4359	-405.0928
125	-325.9256	171.5111	411.1074	59.4616	-150.2725	-350.6703
126	-115.0740	153.1106	358.7946	-116.7684	-131.9523	-298.7832
127	51.0669	135.6142	308.9968	-261.3733	-117.2008	-256.6667
128	187.3172	121.7128	268.9754	-356.2838	-100.7715	-209.6737
129	275.8579	106.1854	224.0842	-416.0666	-85.4373	-165.2932
130	331.4527	91.7589	181.8246	-445.5020	-71.2378	-123.5776
131	358.9780	78.4923	142.2565	-284.4867	-62.2653	-61.5449
132	198.4036	70.4562	82.4165	-307.9403	-54.7016	-37.1901
133	224.6393	63.8109	60.2996	-322.5377	-48.0604	-15.0886
134	244.2895	58.0791	40.5026	-332.1727	-42.3292	4.6910
135	261.1190	53.2501	23.0925	-340.5424	-37.4976	22.0855
136	278.6429	49.2776	8.1602	-351.1167	-33.5266	37.0021
137	300.0694	46.1295	-4.2093	-367.0319	-30.3793	49.3561
138	328.2209	43.7578	-13.9212	-391.0340	-28.0074	59.0518
139	365.4621	42.1030	-20.8652	-425.3778	-26.3527	65.9791
140	413.6071	41.0969	-24.9410	-166.2906	-35.7156	11.2680
141	-1685.9176	213.3407	523.1590	1279.0344	-230.9989	-569.8029
142	-1282.4742	231.1017	569.3650	892.5272	-209.4938	-508.2375
143	-910.5889	210.1981	510.1287	559.6277	-188.5139	-448.6678
144	-591.9586	189.8835	452.8762	273.2580	-170.9289	-398.8785
145	-319.0129	173.0275	405.4009	43.2866	-151.3349	-344.3098
146	-101.2411	154.2169	353.1313	-137.9105	-132.5743	-292.6245
147	69.2657	136.2913	303.7409	-273.4523	-114.7608	-243.8197
148	195.9172	119.3781	257.2263	-367.1735	-97.9845	-197.8865
149	282.8442	103.4973	213.5823	-438.0621	-84.7631	-161.0063
150	349.2286	91.2330	179.0017	-462.5851	-70.1214	-120.5205
151	371.6753	77.5411	140.8131	-286.0968	-59.4979	-54.0881
152	195.6242	67.8951	76.6891	-303.2582	-51.6974	-30.1776
153	215.7333	61.0511	55.1168	-311.0415	-44.8539	-8.6214
154	228.9398	55.1561	35.9138	-313.6456	-38.9585	10.5659
155	239.3065	50.1948	19.1090	-315.0815	-33.9962	27.3540
156	250.6639	46.1433	4.7343	-319.1440	-29.9448	41.7119
157	266.5462	42.9506	-7.1738	-329.2836	-26.7523	53.6033
158	290.0968	40.5731	-16.5795	-348.5505	-24.3741	62.9924
159	323.9758	38.9564	-23.4502	-379.5224	-22.7586	69.8463
160	370.3149	38.0355	-27.7467	-85.0806	-32.7931	12.6409
161	-1746.8363	221.4093	557.9390	1254.5760	-240.2382	-597.1603
162	-1264.3943	240.5530	597.8405	818.0161	-217.6150	-533.0489
163	-844.9235	218.5807	536.8650	443.8532	-195.5274	-471.9848
164	-487.5094	197.2274	478.8276	131.3376	-174.1012	-413.8378
165	-190.7954	176.6052	423.5895	-121.3612	-153.4589	-358.4654
166	47.5698	156.8499	371.0203	-317.0850	-133.7206	-306.0552
167	230.7573	138.0525	321.3150	-459.4429	-114.9833	-256.9634
168	362.7710	120.2863	274.8372	-552.8039	-97.3081	-211.0641
169	448.3502	103.6171	231.4805	-602.2855	-80.7701	-168.2517
170	492.8429	88.1370	191.1317	-613.5997	-65.4516	-128.4179
171	502.1577	73.8951	153.7163	-371.6879	-52.0488	-68.5588
172	261.3181	61.5510	96.2532	-366.4345	-43.5500	-44.5715
173	260.1871	54.1258	74.6219	-350.4570	-36.1259	-22.9564
174	251.3098	47.7606	55.3682	-328.8367	-29.7593	-3.7186

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	239.6146	42.4210	38.5009	-306.4597	-24.4192	13.1297
176	229.7118	38.0762	24.0366	-287.8703	-20.0739	27.5770
177	225.8004	34.6785	12.0156	-277.1621	-16.6760	39.5812
178	231.5454	32.1669	2.4741	-277.8862	-14.1651	49.1053
179	249.9837	30.4753	-4.5334	-292.9411	-12.4741	56.0951
180	283.4088	29.5268	-8.9583	11.7178	-22.4620	7.2648
181	-1814.4635	216.8606	544.1275	1340.3987	-236.0120	-586.3947
182	-1350.4451	236.3515	586.9652	922.0229	-213.7267	-523.2100
183	-949.0929	214.7355	526.8054	564.5067	-192.0271	-462.9334
184	-607.9937	193.7870	469.4463	266.6290	-171.0358	-405.4306
185	-325.3922	173.6177	414.7476	26.1513	-150.8750	-350.6164
186	-98.5860	154.3295	362.6309	-160.0566	-131.6479	-298.9676
187	75.8719	136.0363	313.5894	-295.9316	-113.4564	-250.5128
188	202.2418	118.8218	267.6545	-386.1221	-96.3804	-205.1328
189	285.4760	102.7583	224.7219	-435.9488	-80.4870	-162.7272
190	331.0858	87.8858	184.7037	-451.2073	-65.8207	-123.2335
191	344.9946	74.2760	147.5922	-225.6161	-56.0774	-66.6899
192	121.0396	65.5744	93.2739	-231.8309	-48.0169	-42.8686
193	131.7367	58.5549	71.7637	-228.8349	-41.0009	-21.3711
194	135.9592	52.5575	52.6714	-221.3593	-35.0036	-2.2928
195	138.3035	47.5399	35.9110	-213.9189	-29.9844	14.4410
196	142.9887	43.4785	21.4433	-210.6796	-25.9233	28.8859
197	153.7788	40.3108	9.4294	-215.2924	-22.7554	40.8773
198	173.9073	37.9778	-0.1020	-230.8696	-20.4226	50.3878
199	205.9451	36.4141	-7.1373	-259.8575	-18.8594	57.3955
200	251.7405	35.5337	-11.5416	-26.3347	-21.6633	34.1464
201	-1481.5574	183.4297	374.1445	1181.8828	-203.5730	-415.8326
202	-1187.2859	203.7602	416.1738	910.6082	-188.0682	-371.0474
203	-925.4455	188.6452	373.8782	671.2685	-172.9567	-328.8432
204	-695.4661	173.9534	333.6716	464.2374	-155.2674	-280.0896
205	-497.5131	156.7348	286.5628	287.7588	-141.0425	-241.6096
206	-329.2833	143.0122	250.2096	140.5719	-124.3254	-196.6724
207	-189.7916	126.8218	207.0300	21.6693	-111.1353	-162.2100
208	-77.8454	114.1906	174.0666	-71.2240	-98.4972	-129.2670
209	9.5378	102.1468	143.0611	-139.2551	-83.4505	-89.6003
210	73.1168	87.7111	105.1264	124.1227	-72.1574	-55.5725
211	-193.3680	77.0756	72.7827	93.6209	-64.3834	-36.2703
212	-164.4039	69.9710	55.1694	74.6844	-57.2877	-18.6931
213	-145.3482	63.5811	39.2856	64.6272	-50.8933	-2.8427
214	-133.4376	57.8614	25.1406	60.8006	-45.1655	11.3180
215	-125.9160	52.8843	12.6424	60.2895	-40.1927	23.8099
216	-119.7539	48.6474	1.8586	60.1035	-35.9578	34.5608
217	-111.9027	45.1637	-7.1754	57.1631	-32.4746	43.6004
218	-99.2067	42.4474	-14.5140	48.2908	-29.7577	50.9318
219	-78.4794	40.4935	-20.0911	30.3284	-27.8014	56.4881
220	-46.5070	39.3124	-23.8366	0.0286	-26.6209	23.8392

ENVOLVENTE MAXIMOS TORSORES TREN IPF-B, l=30 m, via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.1796	144.2829	563.1518	-219.9784	-126.7300	-513.3355
2	208.2268	127.1967	515.6225	-390.7390	-106.8860	-458.0890
3	358.7812	108.2640	462.6377	-514.1555	-90.7964	-413.0691
4	464.9545	93.0888	419.7842	-580.8131	-72.9823	-363.2226
5	517.3185	76.1878	372.0169	-602.1397	-56.2476	-316.1521
6	527.2423	60.3399	326.9509	-597.8877	-43.0834	-278.3034
7	514.3892	48.0668	291.0516	-545.5350	-28.4304	-236.1726
8	456.1303	34.2966	250.8177	-463.5310	-14.8700	-196.5587
9	373.3344	21.7793	213.0651	-377.4675	-4.7979	-165.1784
10	283.9681	12.3261	183.5233	-251.7307	6.7560	-130.1406
11	159.7511	1.5888	150.3056	-129.7052	15.2183	-102.8166
12	46.6601	-5.7799	124.8005	16.1922	24.4970	-72.2521
13	-50.8338	-12.1752	96.0769	121.2817	30.6337	-44.0916
14	-119.9456	-16.4214	69.8686	180.1463	21.9970	-26.9179
15	-194.4839	-8.4516	54.6188	220.3319	23.1670	-12.4296
16	-276.1203	-11.2207	42.0235	306.4944	25.9360	0.1652
17	-351.1643	-13.3801	31.3382	385.0659	28.0956	10.8508
18	-417.6165	-14.9925	22.5872	454.1581	29.7079	19.6018
19	-474.0872	-16.0819	15.8116	512.4105	30.7972	26.3774
20	-519.5332	-16.7005	11.0396	859.9509	14.2687	-26.7174
21	-1116.5129	179.8989	578.4052	705.2469	-199.6475	-615.0749
22	-469.2032	191.3724	616.7837	121.2905	-168.4513	-552.0412
23	-148.7561	169.4265	556.9209	-153.8132	-146.3910	-492.0766
24	109.3401	148.1174	499.8065	-367.0471	-125.0100	-434.8360
25	306.6075	127.5331	445.3040	-520.3328	-104.4012	-380.1767
26	445.4453	107.8009	393.2670	-616.5422	-84.6732	-328.2759
27	529.0753	89.0052	343.8936	-659.3248	-65.9392	-279.4937
28	561.5279	71.2648	297.5486	-653.1530	-48.2942	-233.7088
29	549.7574	54.9347	254.1238	-605.9177	-32.0938	-190.8137
30	498.9549	39.8668	213.5278	-522.6969	-17.1721	-150.7213
31	474.2612	31.3190	175.7148	-479.2563	-8.8043	-113.3880
32	385.9612	19.6884	140.6913	-366.8860	2.6181	-78.8252
33	272.7942	8.8251	108.3996	-232.0363	13.2631	-46.9793
34	132.1913	-1.6101	78.7802	-18.2597	16.6522	-26.7432
35	-71.9651	-4.0080	60.7856	97.9712	22.0046	-9.1889
36	-175.7335	-8.3614	45.5003	210.4478	26.3581	6.0962
37	-273.5316	-11.7823	32.5279	315.0865	29.7789	19.0683
38	-361.6807	-14.3119	21.9181	408.2935	32.3085	29.6781
39	-437.1246	-16.0244	13.7278	487.1627	34.0211	37.8686
40	-284.8691	-9.7225	8.0716	618.9889	10.4262	-7.8984
41	-843.8976	171.6867	573.3610	450.6477	-191.1578	-616.1811
42	-460.5572	191.4713	618.0887	112.2266	-168.5376	-553.3217
43	-139.9286	169.5249	558.1723	-162.9299	-146.4807	-493.2972
44	117.9715	148.2227	500.9756	-375.9082	-125.1175	-435.9703
45	314.8229	127.6763	446.3710	-528.7588	-104.5358	-381.2079
46	453.1442	107.9725	394.2229	-624.4789	-84.8553	-329.1971
47	536.2606	89.2437	344.7349	-666.8526	-66.1883	-280.3004
48	642.0044	67.3262	298.3231	-725.6127	-44.3612	-234.4502
49	628.4972	50.1587	254.8952	-674.9540	-27.3238	-191.5550
50	569.4354	34.8513	214.2966	-582.9882	-12.1625	-151.4625
51	474.3520	21.0170	176.4573	-458.6411	1.4888	-114.1056
52	422.1378	13.7002	141.3685	-390.9810	8.6074	-79.4811
53	309.7285	3.5209	109.0498	-258.2932	18.5639	-47.6110
54	158.5532	-6.8667	79.4230	-40.2297	23.6036	-27.7493
55	-50.0644	-10.9101	61.7990	89.8976	28.9135	-10.1903
56	-167.6487	-15.2386	46.5067	216.1421	33.2420	5.1078
57	-279.1277	-18.6295	33.5166	334.4025	36.6328	18.1026
58	-380.8676	-21.1384	22.8771	441.1615	39.1418	28.7469
59	-469.8202	-22.8321	14.6403	533.4988	40.8354	36.9894
60	-543.6727	-23.7944	8.8718	890.4504	22.8054	-8.3704
61	-882.7164	172.7361	572.8628	486.8945	-192.1569	-615.7055
62	-496.9848	192.4741	617.5641	146.7794	-169.5452	-552.8206
63	-174.6550	170.5496	557.6390	-130.1292	-147.5173	-492.7914
64	85.0122	149.2696	500.4526	-344.9182	-126.1685	-435.4767
65	283.7012	128.7372	445.8699	-499.6518	-105.6106	-380.7384
66	423.9322	109.0692	393.7542	-597.3891	-85.9632	-328.7607
67	509.3339	90.3373	344.3040	-642.0487	-67.2894	-279.9017
68	550.7549	72.2629	297.8861	-644.2033	-49.3102	-234.0451
69	598.7207	51.7553	254.4289	-648.3785	-28.9242	-191.1191
70	580.4299	33.1301	213.9061	-590.5888	-10.4599	-151.1014
71	481.2535	18.6480	176.1419	-460.8779	3.8479	-113.8201
72	349.1970	5.7169	141.0706	-302.2182	16.5631	-79.2122
73	194.8127	-5.9172	108.6506	-124.6684	27.9831	-47.2407
74	25.6714	-16.5139	78.8664	111.3157	33.4780	-27.1834
75	-80.6658	-14.5672	61.0717	127.7843	32.5640	-9.4830
76	-204.5640	-18.8442	45.7497	260.2350	36.8411	5.8447
77	-322.9452	-22.2229	32.7124	385.3745	40.2197	18.8885
78	-431.6305	-24.7207	22.0062	499.0522	42.7169	29.5998
79	-526.5919	-26.2046	13.6941	596.9856	44.2010	37.9184
80	-607.0757	-27.1616	7.8298	956.7515	25.9914	-8.8004
81	-1149.3339	202.8356	575.8517	693.5625	-222.1187	-620.2413
82	-637.5399	220.1606	621.7935	231.7664	-197.2162	-557.1383
83	-80.3196	191.5626	561.9103	-266.6357	-168.5275	-497.0315
84	226.7183	170.0842	504.6599	-528.3775	-146.9925	-439.5117
85	467.1236	149.5990	449.8243	-724.9726	-126.4922	-384.3537
86	649.2691	129.9668	397.2407	-864.7703	-106.8970	-331.7365
87	776.5711	111.3446	347.0979	-951.7091	-88.3531	-282.0495
88	853.3407	93.7890	299.7963	-990.4576	-70.9041	-235.2036
89	884.5664	77.3660	255.2893	-986.3497	-54.6296	-191.1475
90	875.7971	62.1488	213.5219	-945.2203	-39.5698	-149.8343
91	832.9912	48.1497	174.4599	-873.2753	-25.7788	-111.2290
92	763.0922	35.3633	138.1258	-777.5126	-13.2039	-75.3636
93	671.1350	23.9247	104.5325	-563.5308	-2.3256	-46.1319
94	464.4784	14.0732	77.6207	-474.6168	3.9310	-26.0159
95	385.6134	8.8210	59.8774	-385.2520	9.1827	-8.2667
96	308.7135	4.5528	44.5709	-299.8130	13.4504	7.0456
97	237.7727	1.2059	31.7945	-222.1747	16.7980	19.8286
98	176.2126	-1.2858	21.6454	-155.6309	19.2898	29.9842
99	126.7832	-2.9903	14.2408	-102.7938	20.9938	37.3940
100	91.4545	-3.9882	9.6993	168.4660	3.8533	-4.4956
101	-648.4651	171.8371	544.1233	319.1939	-189.8429	-593.9996
102	-323.7808	190.0001	594.8343	15.7518	-168.7680	-534.4232
103	-34.9264	169.5306	537.4051	-240.7921	-151.0216	-484.3838
104	207.6453	152.4756	489.4792	-442.5424	-131.2198	-428.6803
105	396.4424	133.4165	435.8610	-595.6473	-112.2060	-375.4950
106	537.9479	115.1766	384.7252	-702.7966	-94.0644	-324.8262
107	635.0756	97.8694	336.1077	-779.0394	-79.4837	-283.8393
108	703.1666	84.1414	297.1557	-805.9174	-63.2580	-238.0172
109	723.9551	68.8151	253.3755	-798.4359	-48.1318	-194.7697
110	712.5921	54.5986	212.1864	-761.4482	-34.1447	-154.1460
111	674.0684	41.5469	173.6343	-715.5271	-23.5442	-122.3318
112	628.9457	31.9022	143.9300	-634.7711	-11.8467	-86.7779
113	551.3444	21.1074	110.5411	-492.3632	-1.5909	-60.1522
114	414.3205	11.7496	86.1245	-421.0984	4.0021	-40.9773

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	350.5443	7.0392	69.2262	-349.0750	8.7111	-24.0733
116	287.9155	3.1986	54.6743	-279.7271	12.5522	-9.5165
117	229.5959	0.1563	42.5484	-216.0816	15.5953	2.6147
118	178.2838	-2.1295	32.9392	-160.7673	17.8810	12.2305
119	136.2235	-3.7197	25.9350	-115.9279	19.4710	19.2401
120	105.1164	-4.6725	21.6314	135.4693	0.9258	-25.0816
121	-689.7781	176.8483	559.3899	356.8853	-193.5652	-607.3510
122	-360.6984	193.6867	608.1251	46.0387	-172.4576	-547.7720
123	-63.8429	173.1602	550.6385	-218.4146	-154.6451	-497.6324
124	187.0220	156.0108	502.5643	-428.5906	-134.7341	-441.7427
125	384.4453	136.8111	448.7186	-590.1787	-115.5725	-388.2817
126	534.5188	118.4248	397.2768	-705.6562	-97.2665	-337.2649
127	639.9104	100.9195	348.2715	-789.4934	-82.5061	-295.9413
128	715.3831	86.9900	308.9606	-823.5822	-66.0487	-249.6595
129	743.0867	71.4673	264.6967	-822.5345	-50.7192	-205.9054
130	737.8682	57.0337	222.9864	-791.1447	-36.5126	-164.7406
131	704.5657	43.7568	183.8829	-749.8767	-25.7189	-132.4782
132	663.7436	33.9364	153.7360	-672.8994	-13.8078	-96.3604
133	589.5457	22.9136	119.7746	-529.5294	-4.0320	-68.7925
134	451.2261	14.0579	94.4261	-462.0471	1.6931	-49.2791
135	390.9319	9.2220	77.1988	-393.2870	6.5297	-32.0463
136	331.3287	5.2493	62.3477	-326.7288	10.5026	-17.1895
137	275.6194	2.0995	49.9562	-265.5087	13.6524	-4.7917
138	226.6388	-0.2825	40.1196	-212.3570	16.0342	5.0510
139	186.7284	-1.9440	32.9454	-169.5403	17.6955	12.2308
140	157.7120	-2.9534	28.5358	96.2390	-0.9867	-30.8636
141	-595.5773	154.5860	554.2084	294.4431	-172.2443	-600.8521
142	-297.9249	172.3469	601.7760	13.7252	-150.7390	-540.6486
143	-31.8322	151.4349	543.7538	-213.3657	-129.7507	-482.2923
144	180.9856	131.1242	487.5757	-393.9319	-112.1696	-433.5778
145	348.1282	114.2661	441.0179	-518.0928	-92.5735	-379.9267
146	460.0897	95.4514	389.5289	-593.4722	-73.8088	-329.0215
147	524.7799	77.5233	340.7671	-623.1954	-55.9928	-280.8453
148	545.6029	60.6159	294.7396	-611.0986	-39.2223	-235.3996
149	526.7138	44.7296	251.4293	-576.1611	-25.9954	-198.8548
150	487.2741	32.4657	217.0413	-494.8615	-11.3541	-158.5601
151	403.8965	18.7751	178.8965	-386.0120	2.1098	-120.9847
152	295.4817	6.2861	143.4840	-255.1312	14.3546	-86.1418
153	255.1611	1.3769	110.8458	-167.7847	15.8854	-55.6046
154	179.6358	0.4680	82.6963	-165.8974	15.7303	-36.2660
155	140.0453	-1.6961	65.7297	-122.4126	17.8944	-19.2954
156	101.8496	-3.4543	51.1416	-81.0556	19.6527	-4.7026
157	81.8447	-4.0971	38.9561	-59.8893	20.2950	7.4871
158	69.2733	-4.3351	29.1956	-46.8942	20.5330	17.2515
159	22.2710	-5.9508	21.9199	3.0177	22.1488	24.5313
160	38.9794	-4.9280	17.1164	261.1599	1.8216	-23.0057
161	-1149.3481	183.6314	575.4257	732.6514	-202.4603	-614.6471
162	-539.5026	195.8443	616.2851	182.5487	-172.9063	-551.4935
163	-209.4850	173.8719	556.2888	-102.1588	-150.8186	-491.4089
164	58.4777	152.5192	499.0899	-325.2229	-129.3930	-434.0998
165	265.7298	131.8965	444.5557	-488.4597	-108.7502	-379.4321
166	414.6373	112.1397	392.5517	-594.7193	-89.0104	-327.5852
167	508.3670	93.3430	343.2727	-647.6237	-70.2738	-278.9210
168	550.9297	75.5799	297.0838	-651.5369	-52.6017	-233.3109
169	547.0455	58.9081	253.8799	-611.5548	-36.0611	-190.6508
170	502.1105	43.4256	213.5465	-533.4309	-20.7402	-150.8326
171	422.9365	29.2649	176.0096	-424.4092	-6.7633	-113.7810
172	314.0575	16.2612	141.2139	-288.8013	6.0335	-79.4576
173	182.5144	4.5450	109.1115	-133.9920	17.5250	-47.8005
174	37.1782	-5.7468	79.6806	87.6813	19.9197	-27.7852

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	-164.7666	-6.6179	61.9020	196.0090	24.6195	-10.2899
176	-217.3824	-8.3320	46.7246	252.0522	26.3340	4.8864
177	-313.7141	-11.7164	33.8805	355.1520	29.7183	17.7301
178	-400.7968	-14.2278	23.3760	447.2612	32.2306	28.2328
179	-475.1887	-15.9185	15.2614	525.0318	33.9201	36.3456
180	-534.5872	-16.8653	9.5843	877.3864	18.7391	-8.3822
181	-1326.1190	191.0713	555.1922	902.3559	-210.2227	-597.4595
182	-536.7453	197.2479	598.8909	184.5944	-174.6231	-535.1361
183	-211.6743	175.6319	539.8385	-96.6385	-152.9235	-475.9660
184	53.1328	154.6853	483.4706	-318.2264	-131.9341	-419.4552
185	259.4554	134.5061	429.6513	-482.4069	-111.7634	-365.5199
186	409.9611	115.2154	378.3029	-592.3080	-92.5338	-314.6401
187	508.1392	96.9128	329.9060	-651.8866	-74.3329	-266.8299
188	558.3060	79.6935	284.5081	-665.8653	-57.2521	-221.9868
189	565.1914	63.6279	241.9945	-639.3401	-41.3566	-180.0015
190	534.5706	48.7438	202.2813	-578.3425	-26.6787	-140.8108
191	494.2571	33.1952	165.3920	-507.1961	-11.3607	-104.3897
192	402.8395	20.8348	131.0655	-392.1302	0.7474	-70.5143
193	292.2029	9.7623	99.3971	-175.5984	7.9807	-42.4648
194	98.6845	0.2341	73.6319	-82.0196	17.3208	-23.3022
195	0.1576	-5.2141	56.6490	26.1471	23.8803	-6.3219
196	-96.7399	-10.7986	41.8949	135.0084	28.4326	8.4354
197	-191.4936	-13.6344	29.4168	231.6167	29.9979	20.9148
198	-271.7239	-14.3438	19.2275	316.8301	31.9000	31.1032
199	-325.1900	-12.5713	11.4437	366.8309	30.1263	38.8875
200	-374.7626	-13.4202	5.9953	626.0987	19.4411	19.7538
201	-669.4937	154.3252	384.7340	410.8598	-174.4685	-426.4213
202	-416.2173	174.6482	427.8950	180.5822	-158.9562	-382.7687
203	-195.2313	159.5295	386.2835	-17.8898	-143.8410	-341.2487
204	-5.8594	144.8414	346.6270	-184.3183	-126.1554	-293.0451
205	162.8172	127.1128	300.3043	-330.8014	-111.4205	-255.3510
206	325.9159	111.6438	264.2970	-470.3963	-92.9570	-210.7608
207	421.9198	95.4170	221.5056	-545.7528	-79.7305	-176.6826
208	625.7740	75.3662	189.8422	-720.0985	-59.6728	-145.0427
209	664.8273	62.9187	159.3066	-739.2327	-44.2224	-105.8446
210	673.0806	48.4595	121.8150	-571.8954	-22.1733	-77.1623
211	502.6302	27.0986	95.0252	-532.4364	-14.3663	-58.6788
212	468.6972	20.0975	78.1344	-488.0905	-7.4067	-41.7788
213	417.4138	13.6740	62.6831	-427.7514	-0.9840	-26.3192
214	358.9285	7.9877	48.8701	-361.2446	4.7021	-12.5093
215	296.1116	3.0175	36.9289	-291.6167	9.7007	-0.5657
216	232.1420	-1.2500	26.4167	-221.4324	13.9405	9.9551
217	169.6275	-4.7382	17.5934	-154.0007	17.4281	18.7783
218	111.9316	-7.4582	10.5240	-92.4682	20.1480	25.8487
219	62.2595	-9.4062	5.1071	-40.0494	22.0968	31.2722
220	23.8642	-10.5797	1.4017	-0.0020	23.2699	-1.4026

ENVOLVENTE MINIMOS FLECTORES TREN IPF-B, l=30 m, via 1

ESFUERZOS EN EXTREMO DE BARRA

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
1	-0.1813	151.1023	561.0693	-167.5823	-95.2232	-387.1468
2	-42.2519	-25.8270	16.9922	84.4799	25.8270	-16.9922
3	-84.4977	-25.8250	16.8860	126.7254	25.8250	-16.8860
4	-126.7416	-25.8179	16.7265	168.9565	25.8179	-16.7265
5	-168.9764	-25.8218	16.5138	211.1981	25.8218	-16.5138
6	-211.2146	-25.8096	16.2490	253.4159	25.8096	-16.2489
7	-253.4363	-25.8148	15.9300	295.6416	25.8148	-15.9301
8	-295.6598	-25.8336	15.5573	337.9015	25.8336	-15.5572
9	-337.9186	-25.8305	15.1339	388.7236	33.5273	-24.7565
10	-388.7231	-33.5392	24.2770	445.2738	35.5397	-18.5232
11	-445.2728	-35.5220	17.9908	504.3348	36.5202	-15.0844
12	-504.3469	-36.5014	14.4988	566.2720	38.4988	-8.7025
13	-566.2808	-38.4911	8.0673	630.7167	40.4894	-2.2448
14	-630.7383	-40.4808	1.5563	697.8003	41.4798	1.4294
15	-697.8108	-41.4976	-2.1777	767.6904	43.4992	8.0634
16	-767.6960	-43.4983	-8.8571	840.1114	45.5002	14.7782
17	-840.2661	-47.3235	-21.5631	918.3912	48.3222	24.6580
18	-960.9800	-100.5173	-149.5393	1127.1458	102.5163	155.5445
19	-1162.0911	-146.2205	-263.7151	1402.2543	148.2211	269.7655
20	-1431.1287	-187.4916	-372.9666	1737.6934	148.6619	281.7596
21	-1752.4369	220.3810	556.1251	1255.5775	-235.6290	-581.6949
22	-1276.4023	218.9324	535.7506	897.3706	-177.8608	-406.9700
23	-948.4727	131.5305	281.4432	685.4575	-131.5315	-281.1870
24	-731.4435	82.9193	149.9968	565.6391	-82.9202	-149.7591
25	-604.3855	41.3670	27.1632	521.6624	-41.3686	-26.9446
26	-577.4776	-0.8566	3.6017	579.1887	0.8554	-3.4033
27	-579.2017	-0.8468	2.7015	580.8873	0.8457	-2.5228
28	-580.8842	-0.8447	1.7973	582.5655	0.8443	-1.6377
29	-582.5766	-0.8362	0.8916	584.2451	0.8357	-0.7516
30	-584.2344	-0.8428	-0.0151	585.9076	0.8392	0.1360
31	-585.9016	-0.8079	-0.9280	587.5102	0.8080	1.0290
32	-587.4980	-0.8140	-1.8384	589.1223	0.8151	1.9205
33	-589.1170	-0.8162	-2.7565	604.2372	18.4280	14.4329
34	-604.2181	-18.4358	-15.2877	643.4581	20.4365	21.1141
35	-643.4557	-20.4505	-21.9907	686.7161	22.4521	27.8594
36	-686.7074	-22.4455	-28.7614	733.9440	24.4464	34.6771
37	-747.5520	-52.5179	-61.1398	854.9135	54.5177	67.1089
38	-896.0506	-95.8654	-190.2034	1090.0801	97.8644	196.2325
39	-1139.8323	-146.3551	-328.0387	1434.8149	148.3547	334.1338
40	-1477.2644	-194.6797	-460.3770	1869.5834	157.1136	365.9190
41	-1907.8278	225.5425	548.8978	1409.4138	-200.5087	-451.5609
42	-1430.3525	183.8129	405.3179	1062.6582	-183.8132	-405.0007
43	-1115.8661	137.5489	278.9860	840.7140	-137.5494	-278.6917
44	-890.7236	89.0996	146.8945	712.4885	-89.0984	-146.6228
45	-755.7678	47.7583	23.5293	660.2212	-47.7598	-23.2796
46	-720.8138	6.4558	0.2299	707.8877	-6.4581	-0.0022
47	-707.8893	6.4560	-0.8733	694.9677	-6.4530	1.0782
48	-694.9668	6.4373	-1.9492	682.0865	-6.4367	2.1318
49	-682.0847	6.4370	-3.0108	669.1997	-6.4357	3.1715
50	-669.1984	6.4202	-4.0510	656.3580	-6.4203	4.1903
51	-656.3597	6.4369	-5.0740	643.4760	-6.4394	5.1900
52	-643.4660	6.4579	-6.0740	630.5465	-6.4614	6.1681
53	-630.5580	6.4940	-7.0566	626.4005	12.0010	17.9747
54	-626.3901	-12.0103	-18.8654	652.7935	14.0092	24.6931
55	-652.7860	-14.0012	-25.5875	683.1599	16.0007	31.4558
56	-683.1335	-15.9967	-32.3492	717.4921	17.9969	38.2653
57	-737.8289	-57.0068	-59.9903	854.2098	59.0075	65.9595
58	-896.4676	-100.6395	-188.5526	1100.1251	102.6395	194.5818
59	-1150.9987	-151.2998	-326.3146	1455.9756	153.2991	332.4097
60	-1499.2322	-199.7071	-458.7336	1901.0891	162.1997	364.2725
61	-1933.1156	224.8051	548.7874	1437.7917	-199.8253	-451.8522
62	-1459.0903	183.1495	405.6141	1092.8616	-183.1508	-405.2964
63	-1146.7119	136.9438	279.4226	872.8810	-136.9419	-279.1272
64	-923.7313	88.5640	147.5518	746.6392	-88.5642	-147.2783
65	-790.7242	47.3456	24.3889	696.0443	-47.3472	-24.1385
66	-754.1248	8.2690	1.5145	737.5886	-8.2668	-1.2870
67	-737.5939	8.2690	0.3690	721.0507	-8.2659	-0.1633
68	-721.0385	8.2375	-0.7525	704.5645	-8.2357	0.9357
69	-704.5630	8.2452	-1.8464	688.0615	-8.2472	2.0075
70	-688.0464	8.2766	-2.9149	671.4813	-8.2790	3.0530
71	-671.4731	8.2872	-3.9539	654.8958	-8.2887	4.0699
72	-654.9064	8.2975	-4.9681	638.3102	-8.2971	5.0626
73	-638.3351	8.2897	-5.9684	629.4223	10.1807	17.0937
74	-629.4269	-10.1969	-17.9918	652.1918	12.1968	23.8168
75	-652.1922	-12.1742	-24.7082	678.8965	14.1725	30.5742
76	-678.8829	-14.1611	-31.4630	709.5510	16.1599	37.3774
77	-733.1008	-58.3566	-60.0050	852.1349	60.3559	65.9724
78	-895.5913	-102.0563	-188.8504	1102.0040	104.0567	194.8769
79	-1153.9047	-152.7515	-326.6850	1461.6754	154.7518	332.7769
80	-1505.4674	-201.1720	-459.1038	1910.3828	163.7945	363.1262
81	-1945.2559	225.1790	559.0459	1452.0272	-200.4137	-458.8522
82	-1473.2931	183.7382	412.4196	1105.7388	-183.7394	-412.0994
83	-1159.8759	137.5797	285.0538	884.6532	-137.5804	-284.7570
84	-936.1016	89.4031	150.0724	757.2444	-89.4012	-149.7997
85	-801.8041	48.5623	21.2465	704.6524	-48.5620	-20.9956
86	-752.1769	16.7753	-32.7673	718.6041	-16.7769	32.9964
87	-718.5653	16.7700	-33.8890	685.0148	-16.7719	34.0946
88	-684.9649	16.7681	-34.9509	651.4220	-16.7686	35.1336
89	-651.3804	16.7631	-35.9656	617.8475	-16.7595	36.1252
90	-617.7986	16.7500	-36.9325	584.2856	-16.7493	37.0694
91	-584.2216	16.7545	-37.8368	550.6946	-16.7558	37.9505
92	-550.6310	16.7397	-38.6940	517.1375	-16.7363	38.7844
93	-517.0880	16.7233	-39.4969	483.6353	-16.7191	39.5637
94	-483.5744	16.7170	-40.2501	459.5672	1.8323	62.3284
95	-459.5138	-1.8285	-62.9885	465.5222	3.8285	68.7899
96	-465.4707	-3.8345	-69.4202	475.4927	5.8354	75.2630
97	-517.1706	-53.9987	-102.2976	627.5289	55.9985	108.1864
98	-670.9456	-104.3091	-240.1467	881.9347	106.3084	246.0889
99	-918.5535	-144.5471	-346.2221	1210.0198	146.5470	352.2240
100	-1254.8723	-193.0137	-477.2432	1659.0563	157.5120	377.8256
101	-1833.6953	213.2617	506.1771	1483.9514	-192.4727	-411.0606
102	-1494.6730	177.6433	368.1341	1183.7643	-177.6430	-367.8235
103	-1221.7772	136.9999	251.2371	981.9944	-136.9999	-250.9481
104	-1021.4606	94.5130	124.5102	856.0433	-94.5131	-124.2425
105	-892.6896	55.0606	-10.4785	796.3152	-55.0597	10.7244
106	-846.6070	21.5042	-64.0578	808.9592	-21.5049	64.2806
107	-808.8693	21.5094	-65.1614	771.2029	-21.5089	65.3624
108	-771.1207	21.5237	-66.2104	733.4453	-21.5247	66.3894
109	-733.3609	21.5302	-67.2077	695.6561	-21.5348	67.3649
110	-695.5589	21.5537	-68.1572	657.8196	-21.5561	68.2924
111	-657.7408	21.5724	-69.0516	619.9722	-21.5717	69.1642
112	-619.8804	21.5434	-69.8906	582.1723	-21.5426	69.9820
113	-582.0925	21.5298	-70.6882	544.3961	-21.5308	70.7568
114	-544.3137	21.5430	-71.4312	535.4142	-1.3196	88.8275

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
115	-535.3298	1.3369	-89.4736	533.8937	-0.3362	92.4286
116	-533.8137	0.3083	-93.0480	535.6271	1.6918	98.9001
117	-563.4655	-49.4343	-68.7462	651.8315	51.4340	74.6311
118	-683.7407	-90.6759	-174.5596	843.7757	92.6756	180.4810
119	-875.9941	-135.0393	-287.0060	1113.2170	136.0400	290.1014
120	-1138.7456	-176.3746	-397.1631	1468.0785	142.1559	299.6573
121	-1646.1299	209.7938	521.6988	1254.4906	-185.5049	-423.1937
122	-1262.9452	170.5799	380.4373	964.3947	-170.5797	-380.2104
123	-995.4153	129.6060	263.3117	768.5692	-129.6059	-263.1002
124	-797.4518	95.9501	164.1322	629.5131	-95.9504	-163.9371
125	-670.4856	53.2421	25.3002	577.2944	-53.2412	-25.1202
126	-629.7204	8.7765	-64.2336	614.3591	-8.7766	64.3968
127	-614.2936	8.7839	-65.0680	598.9095	-8.7882	65.2155
128	-598.8312	8.8212	-65.8821	583.3802	-8.8227	66.0137
129	-583.2868	8.8165	-66.6731	567.8446	-8.8158	66.7874
130	-567.7713	8.8259	-67.4479	552.3134	-8.8269	67.5481
131	-552.2347	8.8392	-68.1981	536.7528	-8.8374	68.2813
132	-536.6780	8.7991	-68.9333	521.2686	-8.7960	69.0006
133	-521.1928	8.8038	-69.6479	512.4139	8.1348	82.9056
134	-512.3381	-8.1432	-83.5441	527.9599	10.1433	89.3419
135	-527.8675	-10.1388	-89.9679	546.5253	11.1381	92.9270
136	-546.4378	-11.1373	-93.5567	568.2848	13.1367	99.4161
137	-587.5557	-49.9157	-64.3524	676.7684	51.9148	70.2472
138	-705.9443	-84.1281	-154.9764	854.5172	86.1267	160.9105
139	-895.2542	-124.3700	-256.3463	1113.8014	125.3688	259.4579
140	-1156.7614	-163.1349	-357.6568	1465.5739	127.5474	260.2974
141	-1689.7061	211.6184	518.8897	1282.5328	-227.5907	-561.0531
142	-1290.1937	212.1975	517.1789	969.8563	-171.1884	-376.4873
143	-999.7408	128.9501	257.2497	767.6451	-128.9508	-257.0287
144	-794.9897	94.2078	157.4603	625.4267	-94.2073	-157.2573
145	-664.0417	55.1482	38.0791	564.7726	-55.1500	-37.8928
146	-630.8269	1.0358	-23.6310	628.9502	-1.0387	23.8015
147	-628.9366	1.0526	-24.5071	627.0307	-1.0520	24.6608
148	-626.9907	1.0270	-25.3873	625.1352	-1.0254	25.5250
149	-625.1065	1.0585	-26.2526	623.1883	-1.0604	26.3741
150	-623.1695	1.0521	-27.1317	621.2691	-1.0527	27.2376
151	-621.2384	1.0557	-27.9981	619.3271	-1.0546	28.0845
152	-619.2955	1.0333	-28.8557	621.7847	16.0027	29.9434
153	-621.7536	-15.9853	-30.7372	651.7069	17.9833	36.5545
154	-651.6707	-17.9777	-37.3625	684.9083	18.9775	40.3428
155	-684.8664	-18.9702	-41.1641	721.3776	20.9709	47.0460
156	-721.3387	-20.9818	-47.8782	761.0665	22.9815	53.8001
157	-769.5676	-55.5633	-29.2549	871.1252	57.5641	35.2189
158	-902.1339	-98.7054	-148.2075	1080.9341	100.7066	154.2185
159	-1111.9711	-143.7425	-266.8827	1371.5154	144.7419	270.0804
160	-1400.5732	-186.1499	-381.3824	1737.5184	149.2059	290.4443
161	-1757.4807	218.3611	550.5819	1266.2551	-232.6980	-578.7069
162	-1286.2870	215.9785	532.7467	902.3836	-174.7241	-404.7614
163	-950.3548	128.3130	279.3367	693.6972	-128.3126	-279.1094
164	-734.4910	90.2411	177.0648	553.9821	-90.2409	-176.8558
165	-608.3507	42.4326	40.7678	523.4717	-42.4319	-40.5747
166	-571.9592	3.0487	6.0253	565.8584	-3.0468	-5.8506
167	-565.8708	3.0280	5.1448	559.8152	-3.0264	-4.9866
168	-559.8163	3.0197	4.2782	553.7680	-3.0205	-4.1374
169	-553.7767	3.0278	3.4113	547.7153	-3.0288	-3.2873
170	-547.7068	3.0311	2.5625	541.6339	-3.0298	-2.4575
171	-541.6409	3.0173	1.7317	535.6112	-3.0154	-1.6424
172	-535.6334	3.0008	0.8925	529.6258	-3.0015	-0.8207
173	-529.6402	3.0107	0.0702	531.0210	13.9406	11.0771
174	-531.0217	-13.9242	-11.8396	561.2437	15.9223	17.6510

Barra	Momento1	Cortante1	Torsor1	Momento2	Cortante2	Torsor2
175	-561.2527	-15.9181	-18.4237	595.4648	17.9184	24.2762
176	-595.4749	-17.9152	-25.0482	633.6607	19.9162	30.9477
177	-655.4806	-58.9157	-72.3989	775.6670	60.9168	78.3528
178	-812.6266	-97.8390	-187.9856	1010.6616	99.8392	193.9991
179	-1064.8456	-148.3729	-326.6377	1363.9464	150.3718	332.7186
180	-1409.6045	-196.7783	-459.4242	1804.0601	159.2407	364.9819
181	-1822.0693	214.5082	538.5262	1371.4042	-190.4879	-442.4459
182	-1392.7728	174.2833	397.5576	1052.8234	-174.2821	-397.2421
183	-1106.5159	129.4159	274.7551	854.0799	-129.4157	-274.4626
184	-905.9089	82.7233	146.4000	744.5444	-82.7235	-146.1306
185	-789.4922	40.2879	14.6079	710.8996	-40.2873	-14.3583
186	-738.5071	21.9689	-1.3108	695.6391	-21.9726	1.5374
187	-695.6402	21.9867	-2.3616	652.7427	-21.9923	2.5657
188	-652.7516	21.9889	-3.3594	609.8558	-21.9877	3.5400
189	-609.8574	21.9906	-4.2862	566.9609	-21.9881	4.4441
190	-566.9649	21.9962	-5.1464	524.0454	-21.9995	5.2886
191	-524.0391	22.0052	-6.0326	481.1065	-22.0064	6.1484
192	-481.0941	21.9923	-6.6938	438.1910	-21.9896	6.7702
193	-438.1880	21.9805	-7.2475	395.3097	-21.9815	7.3096
194	-395.3017	21.9915	-7.8865	352.3988	-21.9925	7.9348
195	-352.3879	21.9961	-8.4941	337.3011	-2.8468	29.4817
196	-337.2899	2.8455	-29.8643	334.5016	-0.8459	35.6616
197	-379.0308	-51.3842	-89.8696	481.9116	53.3845	95.7111
198	-521.8025	-95.6505	-213.7417	710.9200	97.6511	219.6266
199	-752.7639	-135.2366	-319.7518	1020.4769	139.2364	331.4396
200	-1071.0457	-184.8406	-454.4291	1466.4932	184.0203	475.0899
201	-1508.2736	151.4170	275.4415	1263.5867	-167.7105	-309.9318
202	-1275.4558	144.0995	246.5079	1072.2706	-144.1006	-246.2434
203	-1088.4893	111.9567	162.8939	930.6237	-111.9535	-162.7132
204	-953.5457	77.0671	76.3618	844.8750	-77.0604	-76.1677
205	-878.2524	38.8712	-17.6114	823.4390	-38.8684	17.7744
206	-823.4306	38.8846	-18.1192	768.5914	-38.8857	18.2190
207	-768.5811	38.8836	-18.6001	713.7357	-38.8883	18.7991
208	-713.7094	38.8846	-19.8845	658.8731	-38.8863	20.0853
209	-658.8540	38.9052	-20.4589	603.9894	-38.9068	20.5562
210	-603.9670	38.9237	-20.9070	549.0695	-38.9258	21.0273
211	-549.0511	38.9212	-21.5437	494.1601	-38.9193	21.6728
212	-494.1510	38.9247	-22.1105	439.2626	-38.9315	22.2041
213	-439.2517	38.9523	-22.4482	384.3161	-38.9548	22.5095
214	-384.3044	38.9243	-22.7069	329.4225	-38.9188	22.7832
215	-329.4030	38.9190	-23.1422	274.5209	-38.9178	23.2115
216	-274.5114	38.9219	-23.3544	219.6265	-38.9224	23.3909
217	-219.6207	38.9250	-23.5186	164.7311	-38.9263	23.5601
218	-164.7073	38.9277	-23.7281	109.8070	-38.9281	23.7632
219	-109.7881	38.9238	-23.8534	54.9033	-38.9221	23.8672
220	-54.8973	38.9174	-23.8843	0.1530	0.2229	129.0471

ESTUDIO DE LOS ESFUERZOS INDUCIDOS EN PILOTES POR CARGA DEL TERRAPLÉN EN LOS ESTRIBOS DEL VIADUCTO DE CORNELLÁ

FE DE ERRATAS

1. En la página 25 las fórmulas de momento máximo son las siguientes:

$M_{max}=3,53x2,8x1,25x(1+13+2,5)^2/10=336$ mT

$M_{max}=3,53x2,8x1,25x13^2/8=261$ mT

2. En la página 46 (conclusiones) en el tercer párrafo hay que cambiar "...obtenidos mediante el cálculo analítico resulta no obstante..." por "...obtenidos mediante el cálculo analítico. No obstante, resulta ..."

ESTUDIO DE LOS ESFUERZOS INDUCIDOS EN PILOTES POR CARGA DEL TERRAPLÉN EN LOS ESTRIBOS DEL VIADUCTO DE CORNELLÁ

ÍNDICE

1. Objeto del informe .....
2. Caracterización de los materiales del cimiento del viaducto de Cornellá .....
2.1. Datos de proyecto .....
2.2. Datos obtenidos durante la fase de obra .....
2.2.1. Resultados de los reconocimientos .....
2.2.2. Situación del freático según los sondeos. .....
2.2.3. Parámetros a partir de los datos del terrapién de prueba .....
2.2.3.1. Datos de auscultación.....
2.2.3.2. Ajuste del módulo de deformación con elementos finitos.....
3. Esfuerzos inducidos en los pilotes por las cargas del terraplén .....
3.1. Solución de viga cargadero pilotada. Estimación del rozamiento negativo ..
3.2. Empujes horizontales en los pilotes .....
3.3. Estimación de asientos .....
4. Cálculo mediante elementos finitos .....
4.1. Introducción .....
4.2. Descripción del modelo .....
4.3. Resultados del modelo de la solución a ejecutar .....
5. Conclusiones .....

1. Objeto del informe

Este informe tiene por objeto el estudio desde el punto de vista geotécnico de la propuesta efectuada por la empresa Pedelta para los estribos del viaducto de Cornellá en el tramo Sant Joan Despí – Hospitalet dentro de la Línea de Alta Velocidad Madrid-Barcelona.

El estudio se centrará en las acciones que influyen sobre los pilotes debido al sistema constructivo adoptado. Este sistema puede resumirse básicamente en la construcción del cargadero de los estribos apoyados en el terreno natural y no sobre el relleno como estaba previsto.

El proyecto proponía la construcción del relleno en el que una vez se hubieran producido los asientos correspondientes se pasaría a ejecutar el cargadero sobre él. Este sistema varía sustancialmente al construir un muro para apoyar el cargadero y posteriormente construir el relleno puesto que los pilotes se encontrarán construidos al ejecutar dicha obra.

Con objeto de estudiar tanto los fenómenos de rozamiento negativo como los empujes laterales a que puedan estar sometidos los pilotes se realiza el presente informe.

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2. Caracterización de los materiales del cimiento del viaducto de Cornellá

En este apartado se aportan todos los parámetros obtenidos tanto en fase de proyecto como de obra para poder calibrar los parámetros que se emplean posteriormente en el cálculo.

2.1. Datos de proyecto

El perfil definido en proyecto describe los siguientes materiales en ambos estribos:

Estribo de entrada:

0 m – 4 m : G3b. Limos arenosos de llanura de inundación

4 m – 10 m : G2c. Limos arcillosos con pequeños niveles de arena

10 m – 14 m: G1c. Arcilla limosa con niveles de arena limosa

A partir de 14 m: G1b. Arenas con niveles de gravillas

Estribo de salida:

0 m – 3 m : G3b. Limos arenosos de llanura de inundación

3 m – 10 m : G2a. Grava y gravilla en matriz arenosa

10 m – 23 m : G2c. Limos arcillosos con pequeños niveles de aren

A partir de 23 m : G2a. Grava y gravilla en matriz arenosa

El resumen de parámetros para estos materiales recogidos en proyecto se indican en la siguiente tabla:

GRUPO	IDENTIFICACIÓN			RESISTENCIA				DEFORMABILIDAD		
	γ_d (t/m^3)	γ (t/m^3)	w (%)	ϕ' (º)	c' (kp/m^2)	RCS (kg/cm^2)	S_u (kg/cm^2)	E (kg/cm^2)	E_{edo} (kg/cm^2)	υ
G1b	1,6 a 1,7	1,9 a 2,1	20 a 25	32 a 37	0 a 0,1	-	-	250 a 340	370 - 500	0,33
G1c	1,6 a 1,6	2 a 2	21 a 25	25 a 30	0 a 0,4	2 a 2	0,9 a 2	40 a 160	60 a 240	0,33
G2a	2 a 2,1	2 a 2,2	5	30 a 35	-	-	-	207 a 300	310 - 450	0,33
G2c	1,5 a 1,6	1,9 a 2	20 a 25	32 a 35	0 a 0,3	1 a 2	0,5 a 1	40 a 200	65 a 300	0,33
G3b	1,6 a 1,7	1,8 a 2	16 a 20	22 a 27	0 a 0,5	1 a 1	0,4 a 1	40 a 70	60 a 105	0,33

2.2. Datos obtenidos durante la fase de obra

Durante esta fase se ha efectuado una campaña adicional de reconocimientos y se ha realizado una zona de pruebas en la que se ha construido un relleno instrumentado del cual se tiene un seguimiento mensual.

La estratigrafía que se deduce de los nuevos sondeos para los estribos del viaducto es la siguiente:

Estribo de entrada

0 m – 0,6 m : Rellenos

0,6 m – 2 m : Arcillas limosas-limos arcillosos

2 m – 3 m: Arenas-Arenas limosas

3 m – 13 m: Arcillas limosas-limos arcillosos

13 m – 25 m: Arenas limosas

A partir de 25 m: Gravas arenosas

Estribo de salida

0 m – 1,4 m : Arcillas limosas-limos arcillosos

1,4 m – 4,6 m Arenas-Arenas limosas

4,6 m – 12,4 m: Arcillas limosas-limos arcillosos

12,4 m – 13,4 m: Arenas-Arenas limosas

13,4 m – 17,2 m: Arcillas limosas-limos arcillosos

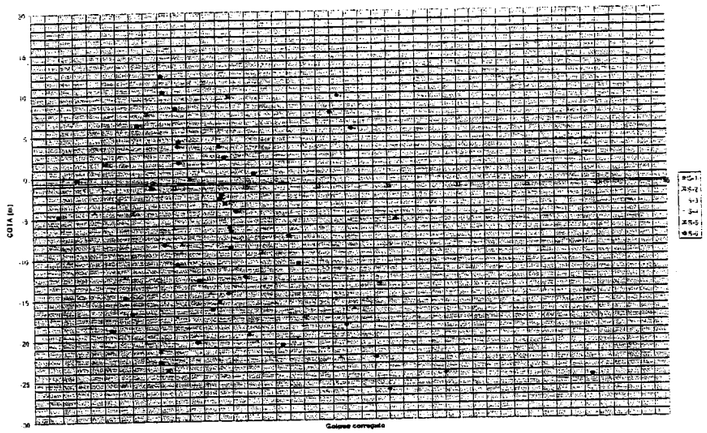
13,4 m – 17,2 m: Arenas-Arenas limosas

A partir de 17,2 m: Gravas arenosas

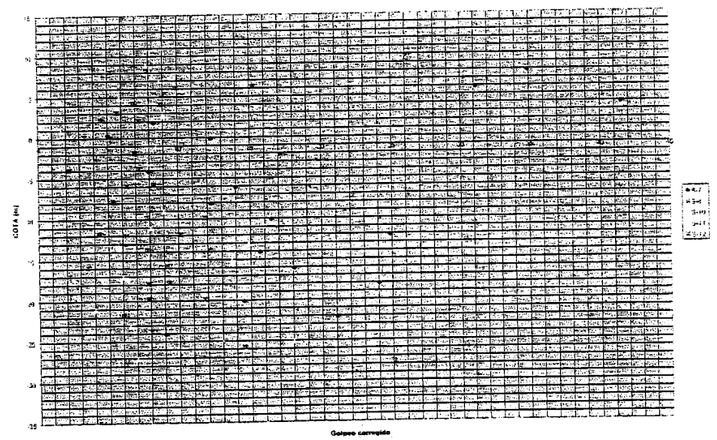
2.2.1. Resultados de los reconocimientos

De los sondeos ejecutados en la nueva campaña se han obtenido resultados de ensayos de golpeo SPT y de resistencia al corte sin drenaje mediante ensayos de molinete (vane-test). Estos ensayos se han estudiado dividiendo los sondeos en dos en función de su distancia a los estribos, aplicando en el caso del SPT la correspondiente corrección por profundidad.

N corregido-estribo entrada.

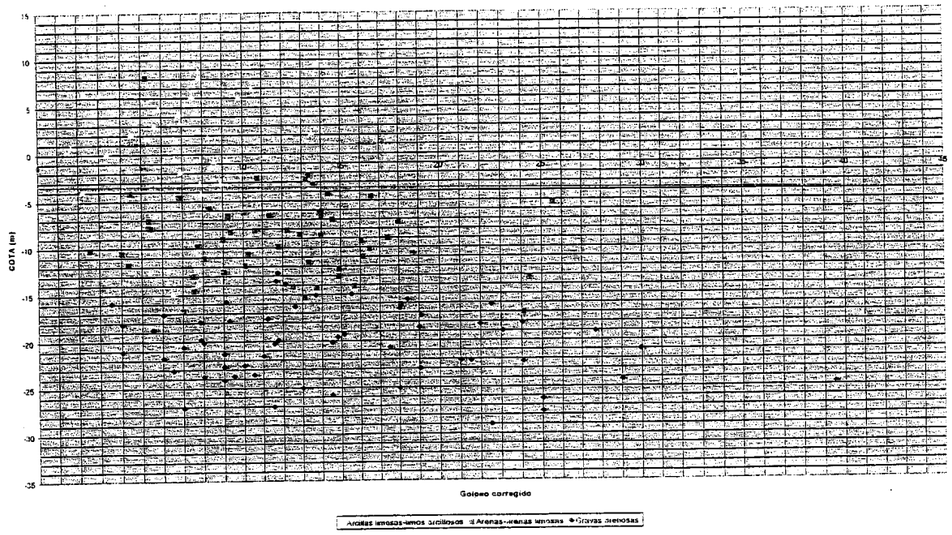


N corregido-estribo salida.



Por materiales el golpeo se distribuye de la siguiente forma:

GOLPEO POR MATERIALES



De estos golpeos se pueden deducir los siguientes parámetros a partir de correlaciones y bibliografía:

Arcillas limosas-limos arcillosos

Promedio = 9.

- Consistencia media a dura (Terzaghi & Peck, 1948).
- Resistencia a la compresión entre 1 y 2 kg/cm^2, más próximas en este caso a 1 kg/cm^2 que a 2 kg/cm^2 (Terzaghi & Peck, 1948).
- Módulo de deformación del orden de 1500 a 2000 T/m^2 (ROM 0.5-94)

Arenas-arenas limosas

Promedio = 12

- Compacidad medio densa (Meyerhoff, 1955).
- Ángulo de rozamiento de 35° a 40 ° y cohesión de 0,1 a 0,2 kg/cm^2 (ROM 0.5-94).

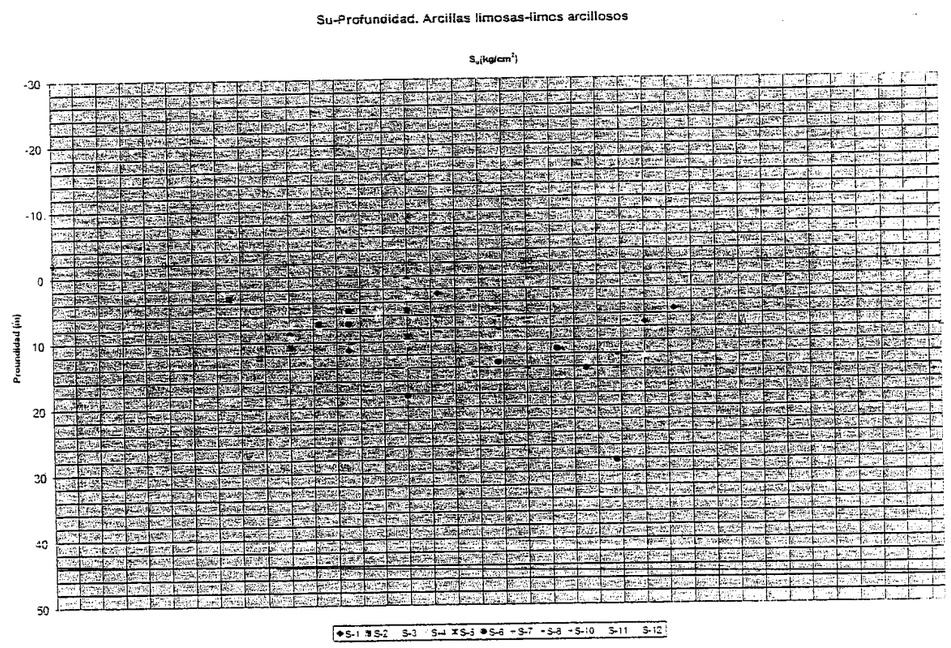
- Módulo de deformación del orden de 1500 a 2000 T/m^2 (ROM 0.5-94)

Gravas arenosas

Promedio = 15

- Compacidad medio densa (Meyerhoff, 1955).
- Ángulo de rozamiento de 35° a 40 ° y cohesión de 0,1 a 0,2 kg/cm^2 (ROM 0.5-94).
- Módulo de deformación del orden de 1500 a 2000 T/m^2 (ROM 0.5-94)

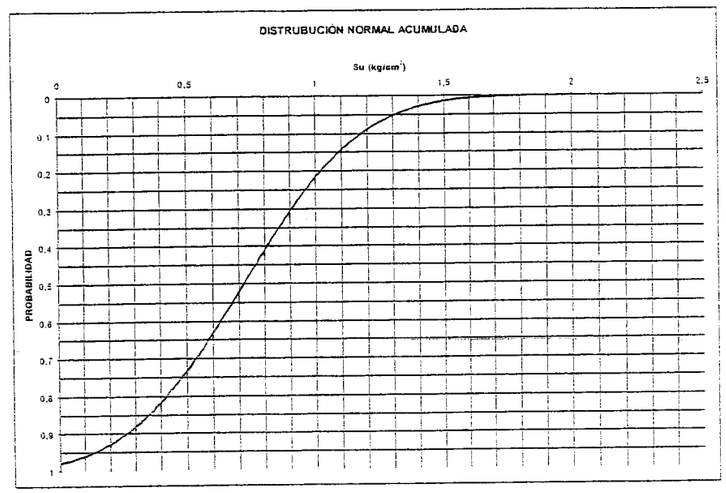
La resistencia al corte sin drenaje de los materiales cohesivos (arcillas limosas-limos arcillosos) se representa a continuación:



Promedio de los resultados: 0,71

Desviación estándar: 0,35

Con estos datos estadísticos es posible definir la curva correspondiente a la distribución normal acumulada para este parámetro.



Considerando la resistencia al corte sin drenaje como la mitad de la compresión simple se tendría una resistencia de 1,4 kg/cm^2 con una desviación estándar de 0,6 kg/cm^2. La media se encuentra en el rango de los valores indicados a partir de la clasificación de la consistencia para estos materiales. No obstante existe una desviación muy elevada habiéndose registrado numerosos ensayos con resistencia al corte sin drenaje de 0,4 kg/cm^2 lo que equivale a compresiones simples inferiores a 1 kg/cm^2.

2.2.2. Situación del freático según los sondeos.

El nivel freático detectado en los sondeos se recoge en la siguiente tabla expresado por su cota absoluta:

SONDEO	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	S-10	S-11	S-12
COTA	-3,5	-5,0	4,3	-4,3	-4,3	-4,7	-4,7	-5,4	-4,1	-4,7	-3,9

Cota promedio: –3,7 metros

2.2.3. Parámetros a partir de los datos del terraplén de prueba

Estratigrafía:

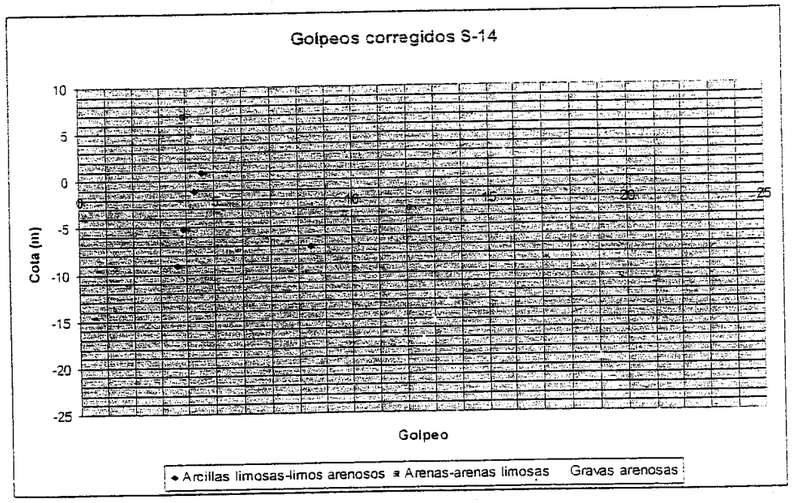
0 m – 7 m: Arenas – Arenas limosas

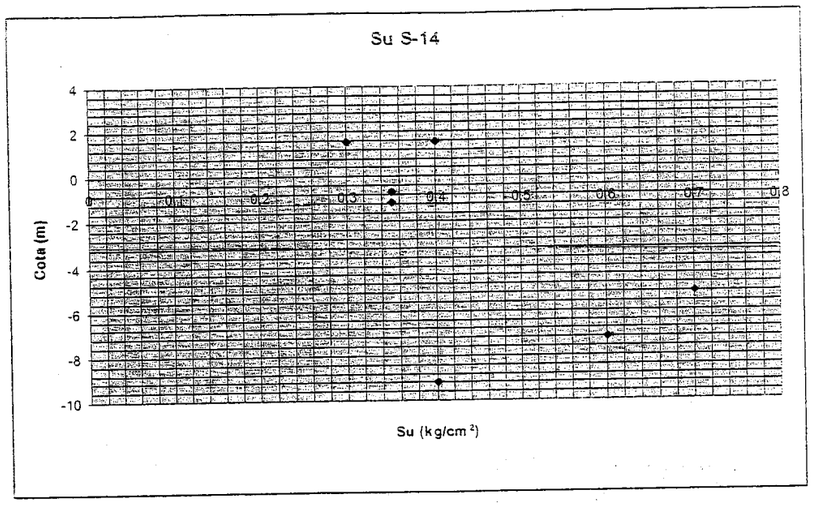
7 m – 21 m: Arcillas limosas – limos arcillosos

A partir de 21 m: Gravas arenosas

Datos de sondeos próximos:

Sondeo más próximo ejecutado en su totalidad S-14. Resto de sondeos (S-702+908 y S-702+932) ejecutados en sus 15 primeros metros a destroza.





Datos bastante más reducidos que los obtenidos en los sondeos del viaducto, si bien se cuenta con menor número de datos.

2.2.3.1. Datos de auscultación

Se toman los datos de las secciones situadas en la zona de mechas y precarga puesto que está donde los asientos parecen haber llegado a valores sensiblemente estables.

Auscultación en la zona de drenes y precarga de 4 metros:

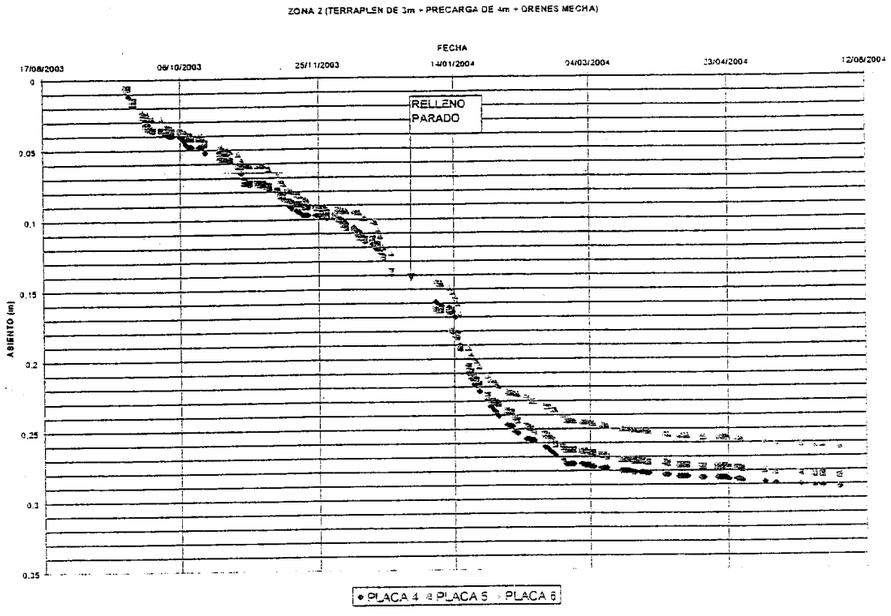
Placas de asiento: P-4, P-5 y P-6

Células hidráulicas: C-4, C-5 y C-6

Extensómetros de varilla: E-3 y E-4

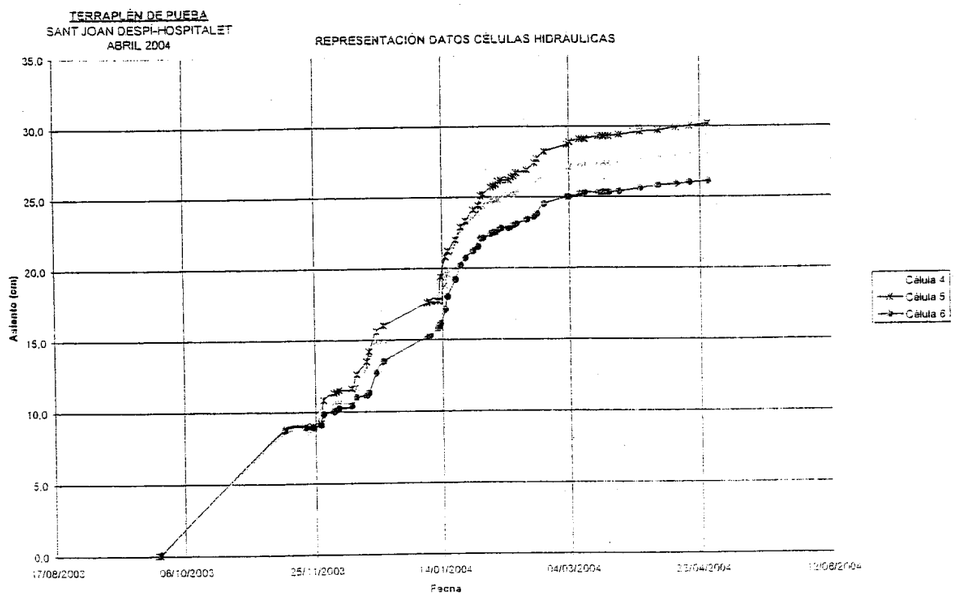
Valor absoluto de asientos. Placas de asiento y células hidráulicas.

Placas de asiento.



Rango de asientos entre 26 y 29 cm.

Células hidráulicas.



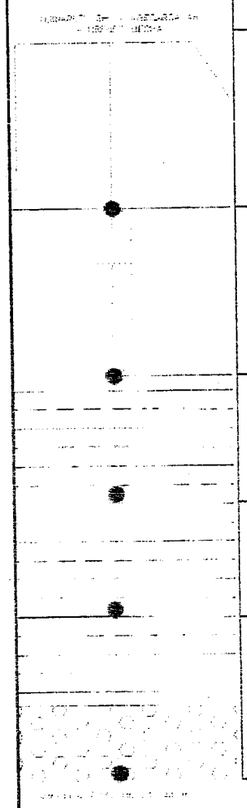
Rango de asientos entre 26,1 y 30,2 cm.

Rango de asientos para su comparación con los modelos de elementos finitos se considera comprendido entre 26 y 29 cm..

Asiento relativo para cada estrato. Extensómetros.

Debido a que su colocación ha sido posterior a las placas y células de asiento los extensómetros se emplean para conocer qué zonas son las más comprimidas en el cimiento:

ASIENTOS RELATIVOS MEDIDOS EN LOS EXTENSÓMETROS DE VARILLA



EV-3	EV-4	
DESPLAZAMIENTO DE VARILLAS RESPECTO AL TOTAL	DESPLAZAMIENTO DE VARILLAS RESPECTO AL TOTAL	PROMEDIO AMBAS SECCIONES
17,1%	11,9%	14,5%
24,1%	14,6%	19,4%
8,2%	25,4%	16,8%
42,2%	28,3%	35,3%
8,4%	19,8%	14,1%
100,0%	100,0%	100,0%

% Terraplén 14,5%
% Cimiento 85,5%

Porcentaje referido al movimiento del cimiento (descontando la parte de terraplén)

Arenas-arenas limosas	22,6%
Arcillas limosas-limos arcillosos	69,1%
Gravas arenosas	8,2%
	100,0%

Se observa que el nivel más compresible es el formado por las arcillas y los limos.

2.2.3.2. Ajuste del módulo de deformación con elementos finitos

Con este modelo se pretende ajustar el módulo de los materiales en función de los parámetros obtenidos mediante la auscultación.

Los materiales definidos han sido: relleno del terraplén (7 metros), arenas- arenas limosas (7 metros), Arcillas limosas-limos arcillosos (14 metros), gravas arenosas (hasta el límite del modelo).

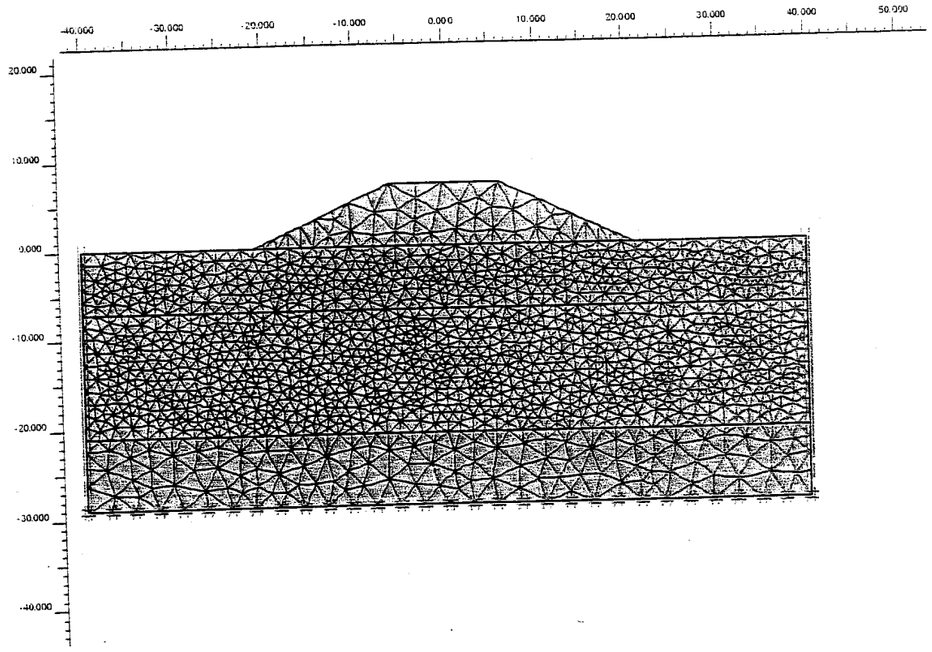


Figura 1: Modelo efectuado para el terraplén de prueba.

Mediante una única fase de construcción se pretende ajustar el asiento final (sin tener en cuenta procesos de consolidación) en el cimiento consiguiendo, además, que los módulos asignados a las arenas y a las arcillas generen la distribución de asientos en cada estrato que se deduce de los Extensómetros.

Después de varios tanteos con distintos módulos de deformación y coeficiente de Poisson de 0,33 se han obtenido con este modelo una deformación en coronación de 29,7 cm valor que no puede contrastarse con la auscultación en la cual es el cimiento el que se encuentra instrumentado.

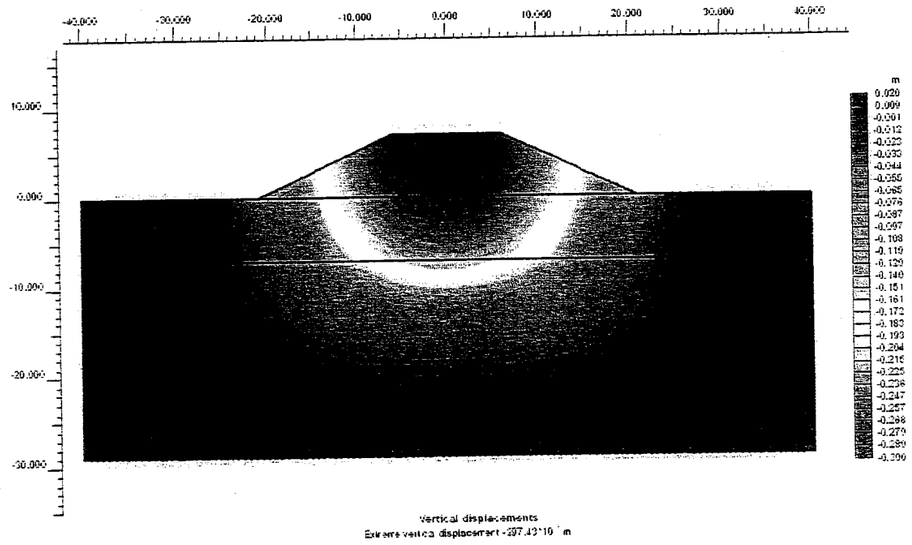


Figura 2: Movimientos verticales en el modelo

Resultan más significativos los valores medidos en el cimiento del relleno y a las distintas cotas en las que se sitúan los techos y bases de los estratos de los materiales que forman éste. De modo gráfico se han representado los valores de las deformaciones volumétricas obtenidas en el modelo en el cual se aprecia que las deformaciones más importantes se producen en el estrato de arcillas limosas-limos arcillosos estando así de acuerdo con los datos de los extensómetros.

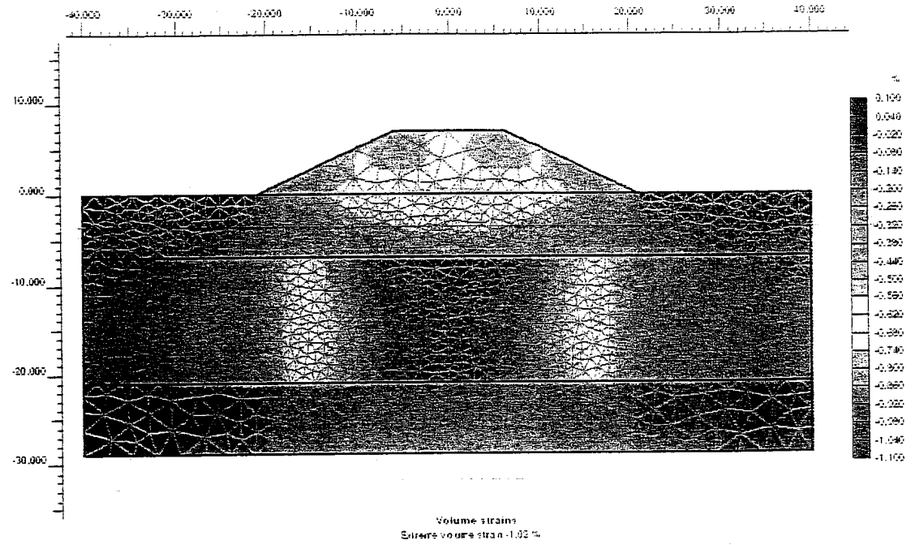


Figura 3: Distribución de las deformaciones volumétricas en el modelo

Los valores de los desplazamientos verticales en el modelo a partir de la cota 0 tomada como referencia del terreno son los siguientes:

Profundidad (m)	Movimiento vertical (m)	Acortamiento de la capa (cm)
7,000	-0,297	2,7
5,540	-0,296	
4,080	-0,293	
4,080	-0,293	
3,132	-0,290	
3,132	-0,290	
1,603	-0,282	
1,603	-0,282	
0,000	-0,271	
0,000	-0,271	
-0,599	-0,266	6,1
-0,599	-0,266	
-1,155	-0,261	
-1,155	-0,261	
-1,646	-0,257	
-1,646	-0,257	
-2,080	-0,253	
-2,080	-0,253	
-2,558	-0,249	
-2,558	-0,249	

Profundidad (m)	Movimiento vertical (m)	Acortamiento de la capa (cm)
-3,112	-0,244	
-3,112	-0,244	
-3,718	-0,239	
-3,718	-0,239	
-3,929	-0,237	
-3,929	-0,237	
-4,601	-0,231	
-4,601	-0,231	
-4,739	-0,230	
-4,739	-0,230	
-5,410	-0,224	
-5,410	-0,224	
-7,000	-0,210	
-7,000	-0,210	
-8,191	-0,192	18,6
-8,191	-0,192	
-8,949	-0,181	
-8,949	-0,181	
-9,157	-0,178	
-9,157	-0,178	
-9,672	-0,170	
-9,672	-0,170	
-10,148	-0,164	
-10,148	-0,164	
-10,300	-0,161	
-10,300	-0,161	
-11,248	-0,148	
-11,248	-0,148	
-11,600	-0,143	
-11,600	-0,143	
-12,142	-0,135	
-12,142	-0,135	
-12,546	-0,130	
-12,546	-0,130	
-13,197	-0,121	
-13,197	-0,121	
-13,264	-0,120	
-13,264	-0,120	
-13,971	-0,110	
-13,971	-0,110	
-14,405	-0,105	
-14,405	-0,105	
-14,921	-0,098	
-14,921	-0,098	
-15,209	-0,094	
-15,209	-0,094	
-15,988	-0,084	
-15,988	-0,084	
-16,024	-0,083	

Profundidad (m)	Movimiento vertical (m)	Acortamiento de la capa (cm)
-16,024	-0,083	
-17,022	-0,071	
-17,022	-0,071	
-17,041	-0,070	
-17,041	-0,070	
-18,051	-0,058	
-18,051	-0,058	
-18,137	-0,057	
-18,137	-0,057	
-18,885	-0,048	
-18,885	-0,048	
-19,678	-0,039	
-19,678	-0,039	
-19,760	-0,038	
-19,760	-0,038	
-21,000	-0,024	
-21,000	-0,024	
-22,724	-0,013	
-22,737	-0,013	
-23,284	-0,010	
-23,284	-0,010	
-25,247	-0,010	
-25,247	-0,010	
-25,960	-0,008	
-25,965	-0,008	
-27,216	-0,005	
-27,216	-0,005	
-29,000	0,000	

	Terraplén
	Arenas-arenas limosas
	Arcillas limosas-limos arcillosos
	Gravas arenosas

Comparando los valores con los obtenidos en los extensómetros se comprueba que el ajuste del modelo ha diferido en un 1% (respecto al acortamiento de los distintos estratos previo descuento de la parte correspondiente al cuerpo del terraplén).

	Espesor (m)	Acortamiento (cm)	Porcentaje en modelo	Porcentaje en extensómetros
Arenas-arenas limosas	7	6,1	22,5%	22,6%
Arcillas limosas-limos arcillosos	14	18,6	68,6%	69,1%
Gravas arenosas	8	2,4	8,8%	8,2%

El asiento total desde la cota de cimiento (descontando cuerpo del terraplén) ha sido de 27,1 cm que se corresponde con el rango medido con placas de asiento y células hidráulicas con lo que el modelo se encontraría suficientemente ajustado.

Los módulos de deformación asignados a los materiales han sido los siguientes:

Arcillas limosas – limos arenosos: 610 T/m^2

Arenas-Arenas limosas: 1100 T/m^2

Gravas arenosas: 2200 T/m^2

2.2.3.3. *Extrapolación del modelo a las secciones próximas a los estribos*

Con el fin de extrapolar los resultados obtenidos en el terraplén de prueba es necesario comprobar si los materiales que se presentan en las proximidades del viaducto son similares a los que se tienen en aquél.

Aunque existe un número limitado de datos de campo en la zona del terraplén de prueba, las resistencias al corte sin drenaje obtenidas están en el entorno de los 0,35

kg/cm^2, valor que se correspondería con el promedio menos la desviación en los ensayos efectuados en las proximidades del viaducto.

De esta manera los materiales del viaducto serían algo más consistentes que los del terraplén de prueba, si bien pudieran llegar a presentarse en especial si se examinan los dos sondeos más próximos a cada estribo (S-1 y S-2 para el de entrada y S-11 y S-12 para el de salida), en los cuales los valores de resistencia al corte son algo más reducidos que la media pero presentan igualmente un valor superior a los de la zona de prueba. No obstante, puesto es difícil cuantificar el porcentaje de ganancia de módulo con este aumento de resistencia se opta por adoptar el módulo obtenido en el terraplén de prueba. En el caso de las arenas y las gravas se propone adoptar igualmente el valor de módulo obtenido en el citado terraplén.

3. Esfuerzos inducidos en los pilotes por las cargas del terraplén

A continuación se efectúan las comprobaciones del efecto que supone sobre la cimentación de los estribos la construcción del terraplén. Se han hecho varias comprobaciones:

- Se han estimado los esfuerzos inducidos por rozamiento negativo.
- Se han estimado los esfuerzos y movimientos provocados por el empuje lateral del cimiento sobre los pilotes.

Las comprobaciones se han efectuado sobre la propuesta que realmente se pretende construir y que consiste básicamente en la ejecución del cargadero del estribo de acuerdo con el proyecto (el diámetro y número final de pilotes quedaría pendiente para el apartado de conclusiones dentro de este informe) pero no realizar la espera (al menos de no totalmente) hasta que se produzcan la totalidad de asientos en el estribo.

Asimismo se ha efectuado una comprobación previa para la alternativa número 3 del estudio efectuado por Pedelta que se incluye en el apéndice 1.

3.1. Solución de viga cargadero pilotada. Estimación del rozamiento negativo

Aplicando el método simplificado, teniendo en cuenta la reducción por el reajuste de tensiones de acuerdo con las teorías de Zeevaert y Jiménez Salas ("Geotecnia y Cimientos III, págs. 447 a 451 Jiménez Salas et alt.)

$$P_{neg} = \pi B \cdot L K_h \operatorname{tg} \delta (dL \div Po) \beta/2$$

Diámetro B = 1,25 m

Longitud de pilote supuesta L = 10 m en suelo cemento ÷ 13 m en terreno natural blando y 12 en arenas y gravas

Longitud con movilización total del rozamiento negativo h = 10÷15 m

$K_h \operatorname{tg}\delta = 0,25$ componente vertical negativa movilizada del empuje de tierras horizontal

Densidad media del suelo = d = 0,95 suelo cemento = 2,2

Sobrecarga en superficie con terraplén a un solo lado del encepado, P_o= 2x12,5 /2 T/m^2 promediando entre la densidad del suelo cemento y la del resto del terraplén, ya que el incremento de tensión baja en el centro del borde de una carga rectangular es la mitad de la presión de tierras, pero debido a que en el lado del intradós hay otro terraplén de suelo cemento con talud 1(H):1(V), y el incremento de tensión a la profundidad del centro del estrato blando es algo menor, se puede reajustar dicho valor (formula de carga trapecial pag 212 y ábaco de Fadum pag 222) a

P_o= 1,32x12,5 = 16,5 T/m^2.

Coeficiente reductor por reajuste tensional (tabla 3.5.3): β = 0,443 para esbeltez de 20 y separación 2,5 diámetros. Por ser dos pilotes de borde y dos de esquina se adopta

β = (0,443 +1)/2 = 0,722

P_{neg} = 3,14 x 1,25 x 23 x 0,25 x 0.722 x 0,5 (0,95 x 25 + 16,5) = 328 T

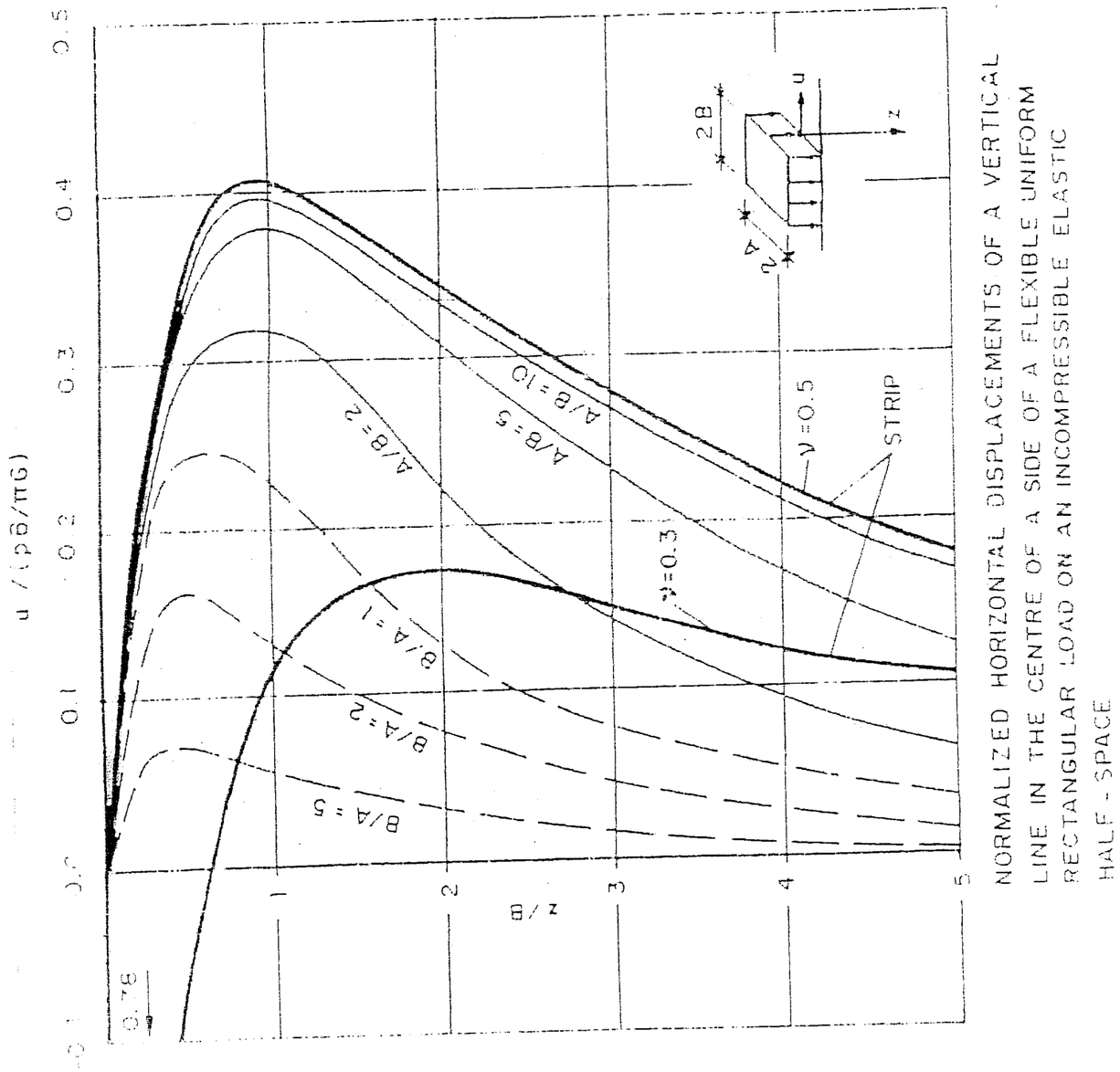
Para el suelo cemento podria plantearse el reducir un poco el coeficiente 0,25 ya que es un material donde el producto del empuje activo por el rozamiento es menor. Suponiendo ϕ =50° resulta K = tg(45°-ϕ/2) => tgϕ = 0,158; en cambio para un suelo arcilloso o limoso con ϕ=25°, resultaria K = tg^2(45°-ϕ/2) => tgϕ = 0,189 La diferencia es pequeña y no se tiene en cuenta la variación de la calidad del relleno

La carga total del pilote, sumando la carga debida al reparto dentro del encepado, sería 328 +361 = 689 T

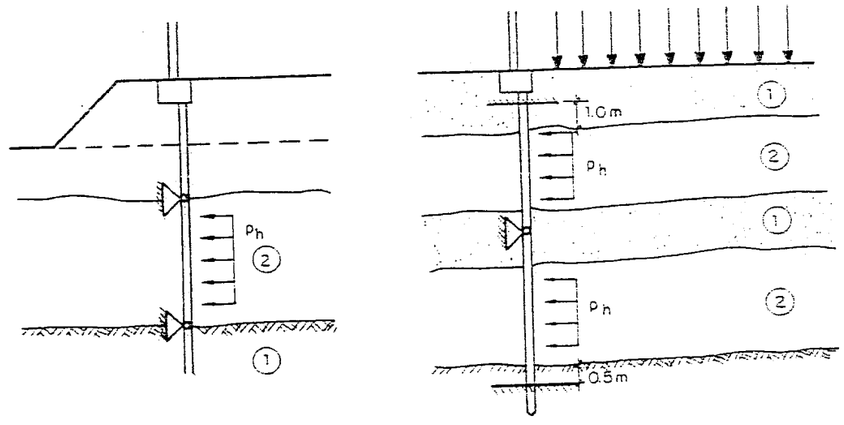
El tope estructural o capacidad de carga del pilote sería 1,227 m^2 x 6 Mpa = 736 T

3.2. Empujes horizontales en los pilotes

El cálculo de la flexión parásita de un pilote por una sobrecarga en superficie, es complejo porque influye la interacción entre estructura y suelo. Si el pilote es muy flexible, sigue la deformación horizontal que la sobrecarga transmite al suelo, que se representa de modo aproximado en la figura adjunta, según la teoría de la elasticidad, para cargas de planta rectangular de diferente esbeltez("Bending of piles due to nearby surface loads in elastic soil" L. Cañizo y M. Merino. IX Congr. Intern. Soil Mech, sesión 10, Tokio, jul 1977). La flexión de un pilote muy delgado se podría calcular para que adquiriese esa deformada y esa flecha, teniendo en cuenta su rigidez, pues apenas afectaría al campo de deformaciones.



a) DEFINICION DE EMPUJES



① ESTRATO CONSISTENTE

② ESTRATO BLANDO

b) COACCIONES ESTRUCTURALES DE CALCULO

Método de De Beer y Wallays (1972).

Debe tenerse en cuenta que el empuje horizontal del terraplén del trasdós se ve contrarrestado por el terraplén reducido del intradós, pues un pilote que tiene carga vertical simétrica a ambos lados no flecta. Utilizando el ábaco de Fadum (pag 222) y asimilando el terraplén del trasdós a una carga rectangular de 12,5 m de altura y una planta de 2b= 33 m de ancho y 2a= 60 m de largo y el terraplén del intradós a una carga rectangular de 12,5 m de altura (con densidad 2,2) y una planta de 2b= 28 m de ancho y 2a= 8 m de largo, en el eje del estribo la diferencia de las tensiones verticales que le viene de cada carga lateral, resultan a una profundidad de z= 8 m

para a/b = 1,88 a/z = 3,75 resulta un coeficiente de influencia 0,236

para a/b = 0,29 a/z = 0,5 resulta un coeficiente de influencia 0,054

$\Delta P_v = 2 \times 2,0 \times 12,5 \times 0,236 - 2 \times 2,2 \times 12,5 \times 0,054 = 8,83\ T/m^2$

Empleando el ábaco de Jelinek (pag 228) de carga triangular sobre un rectángulo para la cuña del intradós el resultado es similar.

Según la teoría elástica se podría considerar un empuje horizontal que resulta bastante reducido, del orden de $\Delta P_h = K\ \Delta P_v$. Tschebotarioff propone para pilote no deformable un coeficiente de empuje horizontal $K_o = 0,4$. Se tendría entonces:

$\Delta P_h = 8,83 \times 0,4 = 3,53\ T/m^2$

Se adopta aquí como ancho eficaz de la carga el valor de 2,8 veces el diámetro del pilote, intermedio entre el 2,5 más usual y el conservador de 3,0 de las normas alemanas. Dicho ancho coincide con la cuarta parte del ancho del tablero.

Adoptando como luz de flexión del tramo de pilote que recibe empujes un criterio similar al de De Beer y Wallays ("Geotecnia y Cimientos III" Fig. 3.107), como pilote semiempotrado en el suelo cemento y dentro de dos diámetros de una capa granular, con el clásico valor $pL^2/10$ de flexión con empotramiento elástico, o bien la fórmula teórica de viga biapoyada con luz el espesor estricto de la capa blanda, suponiendo ésta de 13 m:

$M_{max} = 3,53 \times 2,5 \times 1,25 \times (1+13+2,5)^2 / 10 = 300\ m\ T$

Como viga biapoyada se reduce bastante:

$M_{max} = 3,53 \times 2,5 \times 1,25 \times 13^2 / 8 = 233\ m\ T$

Como consecuencia de lo anterior, para la capa arcillosa de 13 m se propone un momento flector pésimo de 300 m T, con una compresión mínima sin sobrecarga viva del orden de 328 x 0,8 + 161= 423 T, minorando el rozamiento negativo anterior para no quedar del lado de la seguridad en el cálculo de la armadura. Ello conduce a una armadura circular del orden de 20 ϕ 32. Lo aconsejable es no reforzar la armadura con simetría radial, sino sólo en el sentido de la flexión, como si fuese una sección cuasi-rectangular, cuidando la orientación al colocar la jaula de armaduras. El coste relativo de incrementar el refuerzo es pequeño.

3.3. Estimación de asientos

Extrapolando los asientos de 30 cm del terraplén experimental de 7 m de altura, los asientos a largo plazo en la base del terraplén y el eje del apoyo del estribo sería del orden de 35 cm, de los cuales la quinta parte se ha generado al iniciar la construcción del tablero.

El pilote punzonaría la capa de arenas y gravas flojas, cuyos parámetros de cálculo son E = 22 MPa, N_{SPT} = 15, rozamiento ϕ= 30º. En la parte alta donde se genera el rozamiento negativo el suelo cemento y el suelo natural deslizarían a lo largo del pilote, pues se alcanza la plastificación. Por ello el asiento del terraplén no coincide con el del pilote, que será bastante menor.

El cálculo del asiento del pilote es complejo en este caso, pues consta de dos sumandos. Un sumando es el asiento del propio estrato de grava donde se empotra debido a la consolidación producida por el peso del terraplén como si no hubiese pilotes, que según los datos del terraplén experimental se puede calcular por el método de terreno multicapa de Steinbrenner del orden de 6 a 9 cm. Se adjunta un

cuadro con el cálculo realizado, variando los espesores de las capas del terreno en cada punto, pero manteniendo los módulos de elasticidad deducidos en el apartado 2.2.3.2. Para el terraplén experimental se maneja el asiento en el centro (suma de cuatro rectángulos parciales) y para el estribo el asiento en el centro de un lado (suma de dos rectángulos parciales).

Terraplén de prueba	Viaducto CORNELLÁ			Método de Steinbrenner								
s= pb f /E	p T/m²	E T/m²	b (m)	a	z	A/b	z/b	f	Fi-f2	s cm	%	Medido
centro rectangulo	p = 7x1,9											
< 7 m arena limosa	53,2	1100	10,5	20	7	1,90	0,67	0,13	0,13	**6,6**	0,22	0,226
< 21 m arcilla limosa	53,2	610	10,5	20	21	1,90	2,00	0,35	0,22	**20,1**	0,67	0,691
< 50 m grava arenosa	53,2	2200	10,5	20	50	1,90	4,76	0,48	0,13	**3,3**	0,11	0,082
										30,0	1,00	1,00

Estribo 1	Viaducto CORNELLÁ										
centro borde	p = 12,5x2										
< 13 m arcilla limosa	50	610	17	50	13	2,94	0,76	0,154	0,15	**21,5**	0,59
< 25 m arena limosa	50	1100	17	50	25	2,94	1,47	0,28	0,13	**9,7**	0,27
< 55 m grava arenosa	50	2200	17	50	55	2,94	3,24	0,42	0,14	**5,4**	0,15
										36,6	1,00

Estribo 2	Viaducto CORNELLÁ										
centro borde	p = 12,5x2										
< 4 m arena lim	50	1100	17	50	4	2,94	0,24	0,047	0,05	**3,6**	0,11
< 17 m arcill limos	50	610	17	50	17	2,94	1,00	0,2	0,15	**21,3**	0,64
< 50 m grava arenos	50	2200	17	50	55	2,94	3,24	0,42	0,22	**8,5**	0,25
										33,5	1,00

El otro sumando es lo que asienta propiamente el pilote considerado como un pilote corto que trabaja mayoritariamente por punta y que se empotra 8 diámetros en dicha capa, que puede rondar los 3 cm como pilote aislado y los 6 cm como grupo de pilotes, según los cálculos siguientes.

Siguiendo "Geotecnia y cimientos II" de Jiménez Salas, se obtienen resultados similares para el pilote aislado con el ábaco de la Fig 15.90.

En este caso se toma E= 2200 T/m² para las gravas, carga incluyendo el rozamiento negativo P = 689 T, longitud del empotramiento en la capa de gravas L = 10m, diámetro B= 1,25 m, coeficiente del ábaco I_p = 0,11.

Valor del asiento: $S = P\ I_p / E\ B = 2,5$ cm

Si se utiliza el ábaco de la Fig 15.94 con relación de rigideces entre hormigón y suelo 1500, ya sumado el acortamiento del pilote, se obtiene para L/B =8 $I_p = 0,14$

Valor del asiento: $S = P\ I_p / E\ B = 3,5$ cm

Si se utiliza el ábaco de la Fig 15.96 con un estrato rígido a h = 50 m de la cara superior de la capa de gravas, se obtiene para L/h= 10/50= 0,2 un valor $I_p = 1,20$

Valor del asiento: $S = P\ I_p / E\ L = 3,7$ cm

Dicho asiento del pilote aislado, sin su propio acortamiento de 0,4 cm, debe multiplicarse por la razón de asientos o coeficiente de grupo, que para un grupo de tres pilotes en fila separados 2,5 diámetros entre sí, es del orden 1,9 veces el asiento del pilote aislado (Fig 3.53 de "Geotecnia y cimientos III"). Es decir, la viga cargadero asentaría o se hundiría dentro de la capa de grava 1,9x3,1 = 5,9 cm.

De los dos sumandos anteriores debe tenerse en cuenta que parte del asiento no lo sufriría el tablero del viaducto, por haberse producido antes. La consolidación parcial debida al peso del terraplén junto al estribo durante un mes o mes y medio es de algo menos de la mitad del asiento final, luego del descenso de 9 cm del techo de la capa de gravas antes indicado, puede pensarse que puede haber 5 cm de asiento diferido, a sumar a los 6 cm debidos a la carga del pilote. Estas cifras pueden tener un error del orden del 30 %, pues los modelos matemáticos empleados son poco perfectos.

Estimación del asiento de la pila contigua

Utilizando la fórmula y ábaco de Morgan y Poulos (1968) ("Geotecnia y Cimentación II" pag. 1001. Jiménez Salas et alt.):

$s = P\ Ip / Es\ B = 3,3$ cm

P = carga del pilote = 1032 t

Es = módulo de Young del suelo en punta (supuesto homogéneo) = 22 Mpa

B = diámetro = 2 m

Ip = coeficiente de influencia = 0,16

Para esbeltez (sin capa superior de limo flojo) y relación de rigideces entre hormigón y suelo de 1500.

El asiento del grupo, teniendo en cuenta las fórmulas de Meyerhof o de Vesic, para grupo de cuatro pilotes es 1,9 veces mayor, teniendo en cuenta que 0,3 cm corresponden al acortamiento del hormigón del pilote, el asiento sería de 6,0 cm. Conviene recordar que en el Proyecto se estimaba para cimentación por zapata del orden de 12 cm, motivo que reforzaba la decisión de pilotar las pilas.

El sistema constructivo previsto es con una viga cimbra que apoya en la pila y no en el suelo, por lo que el peso del hormigón del primer vano, que representa el 32% de la carga máxima, apenas influirá en el asiento diferencial entre estribo y pila, pero sí el peso propio del segundo vano, así como en su caso, la sobrecarga.

4. Cálculo mediante elementos finitos

4.1. Introducción

Con objeto de comprobar el comportamiento global de la solución se ha procedido a analizar mediante un modelo de elementos finitos, a partir de los datos obtenidos tanto en el terraplén de prueba (fundamentalmente el módulo de deformación, fundamental en este análisis) como de la caracterización geotécnica de proyecto.

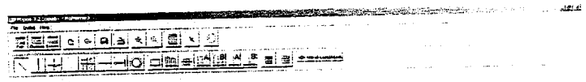
La ventaja que tiene este modelo es que permite analizar una cantidad más elevada de factores que no se pueden tener en cuenta mediante el empleo de métodos analíticos como son:

- Geometrías complicadas.
- Posibilidad de emplear varias fases de cálculo en la que puedan contemplarse las diferentes etapas constructivas.
- La posibilidad de obtener secciones transversales en las que se evalúen los distintos parámetros obtenidos con el fin de poder compararlos con los datos de auscultación colocada para seguir el comportamiento del relleno.

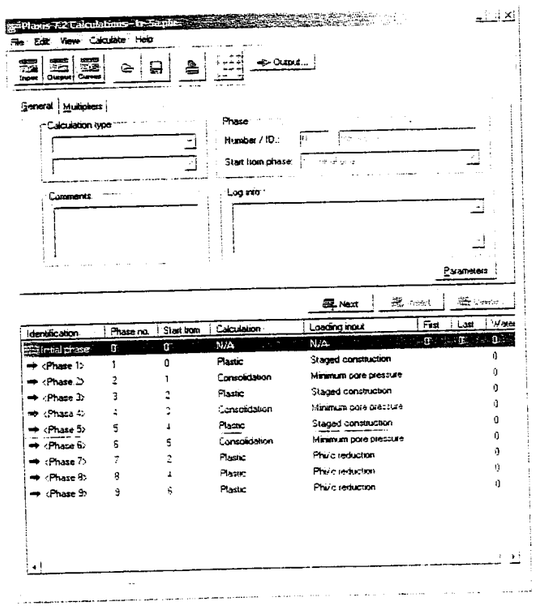
El programa de elementos finitos empleado ha sido el código PLAXIS (versión 7.2). Se trata de un programa diseñado específicamente para aplicaciones geotécnicas en el que es posible emplear elementos triangulares con distinto número de nodos para los suelos, elementos barra para las posibles estructuras existentes (pantallas, muros, etc) y elementos muelle para simular anclajes o estampidores. El programa incorpora, además, unos elementos que denomina de interfaz y que permite asignar propiedades específicas al contacto entre el terreno y las estructuras.

El programa se encuentra dividido en tres módulos distintos, habituales en la mayoría de programas de elementos finitos:

a) Módulo de definición (Input): en él se introduce la geometría, las características de los materiales, las condiciones de contorno y las condiciones iniciales del modelo.



b) Módulo de cálculo (Calculations): en el que se realiza el cálculo del modelo por el método indicado en el módulo de definición.



c) Módulo de salidas (Output y Curves): en el que se muestran los resultados obtenidos en el cálculo y se ayuda a interpretarlos.

El proceso de cálculo genérico será el siguiente:

- *Módulo de definición (Input):*

  - Definición de la geometría del terraplén y la encepados, muros y pilotes con su correspondiente estratigrafía y fases de cálculo y elementos viga, muelle o interfaz necesario para simular los distintos componentes del modelo.

  - Definición en el contorno del modelo de las coacciones al movimiento; estas coacciones deben estar lo suficientemente alejadas de éste como para conseguir no afectar de forma significativa a la zona a estudiar.

  - Definición de posibles cargas estáticas que se puedan existir en el modelo.

  - Definición de los parámetros geotécnicos y modelos de comportamiento deducidos a partir de los datos existentes para los terrenos definidos con la geometría.

  - Generación automática y posterior refino manual de la malla de elementos que se empleará en el cálculo. El refino se emplea para aumentar el número de elementos del modelo general o para generar mayor número de elementos en zonas que requieren de mayor precisión que el resto del modelo.

  - Definición de las condiciones de contorno y condiciones iniciales tanto hidráulicas (nivel freático, contornos impermeables y presiones intersticiales iniciales (en condiciones estáticas o con flujo de agua), como debidas al peso del terreno tensiones totales.

- *Módulo de cálculo (Calculations):*

  - Definición de las etapas constructivas necesarias (construcción de terraplén, excavaciones, construcción de pantallas, pilotes o niveles de anclaje, etc).

  - Definición del tipo de cálculo (tensional, de consolidación en el cual se emplean formulaciones acopladas que permiten compatibilizar las condiciones

hidráulicas con las tensionales, o de redefinición de la malla de elemento entre fases constructivas).

  - Cálculo del modelo, definiendo puntos de control dentro de éste en los que se desea que se midan parámetros como tensiones totales o efectivas, presiones intersticiales o movimientos.

- *Módulo de salidas (Output y Curves)*

  - Análisis de los distintos datos que se obtienen: movimientos verticales u horizontales, tensiones totales o efectivas, excesos de presión intersticial, zonas plastificadas, esfuerzos y movimientos en los elementos viga, etc.

4.2. Descripción del modelo

Además del modelo para predecir el asiento del terraplén de prueba, se han efectuado dos modelos:

  - El primero basado en la geometría que está prevista ejecutar realmente.
  - El segundo como comprobación de la sección tipo propuesta en el estudio de Pedelta dentro del anexo de cálculo como alternativa 2, se incluye en el apéndice 1.

Los elementos previstos para el cálculo han sido elementos triangulares de 6 nodos en el caso del terreno y elementos barra tanto para pilotes como encepado y muro en el primer caso.

En el caso de la solución a ejecutar puesto que únicamente se cuenta con una hilera de apoyos sin encepado, ha sido posible modelizar estos mediante una franja de terreno que representaría el pilote y dos elementos viga en cada extremo que permitirían colocar elementos interfaz entre pilote y terreno haciendo de esta forma

que no sean solidarios con el resto del terreno, permitiendo además medir desplazamientos y esfuerzos en dichos elementos. Con este método se pretende conseguir simular el efecto de la punta del pilote puesto que en el caso de emplear únicamente elementos viga se produciría un efecto de "clavado" a modo de aguja del elemento en el terreno que la realidad no se presenta.

La construcción del relleno se ha simulado considerando una fase 0 de generación de tensiones en el terreno. El resto de fases serían las siguientes:

Modelo de la solución a ejecutar.

En este modelo se ha empleado una única fase de construcción de terraplén y pilotes puesto que la fase de encepado y muro y la fase sin relleno de trasdós pierden su sentido.

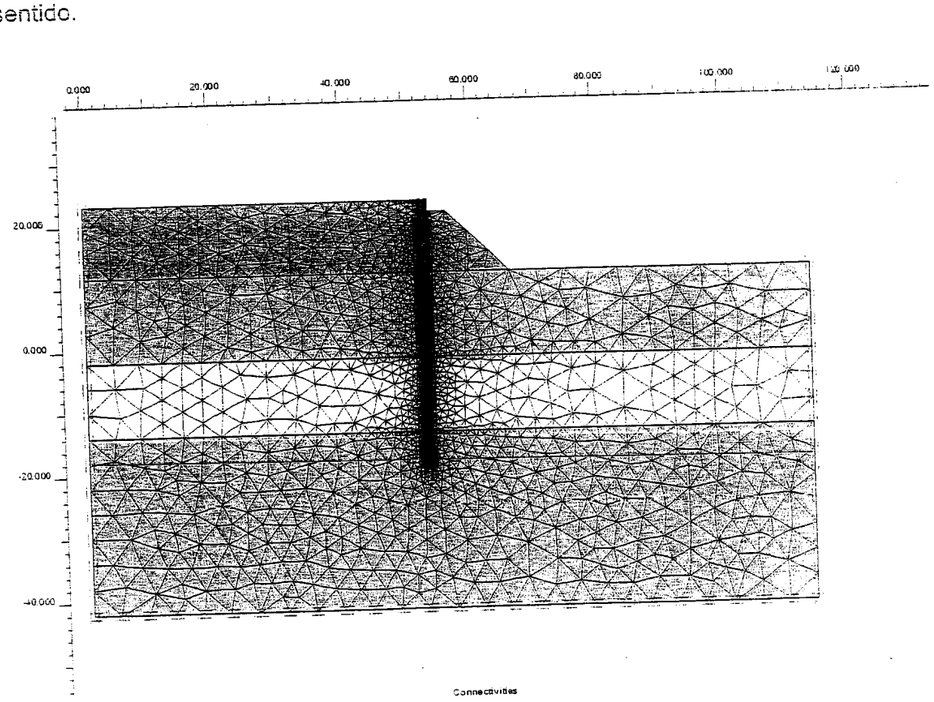


Figura 4: Mallado de la solución a ejecutar

Se ha efectuado un refino en el mallado para la zona del pilote con objeto de obtener una densidad suficiente que garantice una densidad y calidad de los elementos suficiente. Asimismo se han situado en la zona de contacto terreno - pilote elementos de interfaz con objeto de no hacer solidario el terreno con el pilote, reproduciendo un ángulo de rozamiento entre hormigón y suelo.

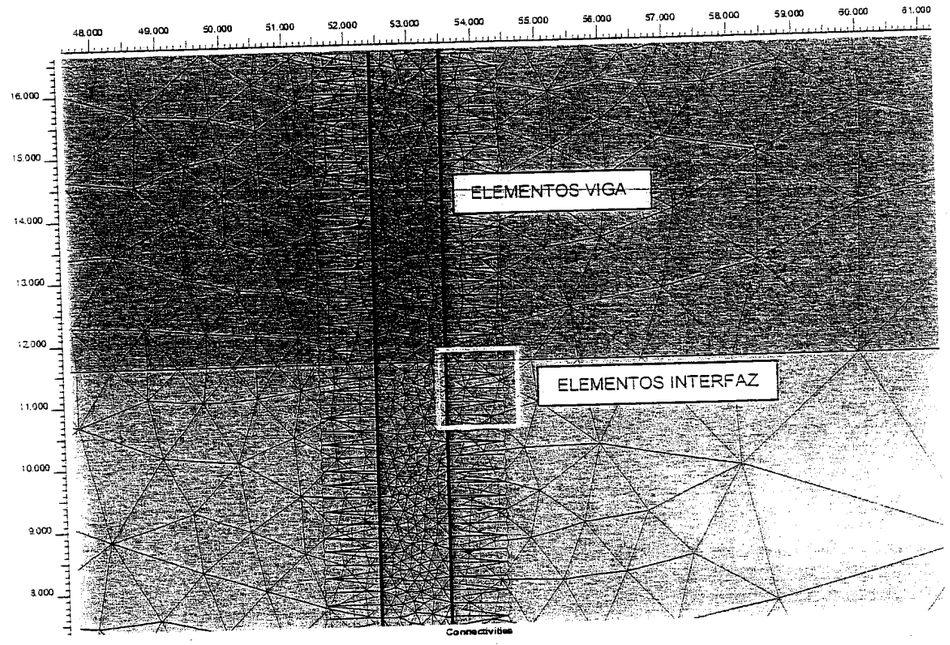


Figura 5: Detalle del mallado entre terreno y pilote

Se ha incluido una segunda fase en la que se produce la carga del pilote con un valor de 350 T distribuidas en una franja de 3,5 metros (ancho eficaz de un pilote) que supone una carga en el modelo de 350 / 3,5 = 100 T.

El modelo de Boussinesq de semiespacio elástico homogéneo e indefinido se corrige con el método de Steinbrenner, asimilándolo de modo aproximado a tres capas homogéneas, cada una con módulo de elasticidad diferente, sobre fondo rígido. Dado

que en la realidad la rigidez del terreno aumenta algo con la profundidad, y que el ancho del terraplén tiene un bulbo de presiones que alcanza aproximadamente los 50 a 55 m de profundidad, se ha adoptado el fondo rígido a dicha profundidad.

En el modelo bidimensional de elementos finitos, el cálculo correspondería a un terraplén de anchura infinita, lo que es irreal. Por ello se utiliza un coeficiente de corrección de 0,44 para tener en cuenta el asiento real aproximado de un terraplén de anchura limitada, mediante el cálculo analítico del asiento bajo la esquina de una sobrecarga de planta rectangular, aplicando el principio de superposición.

El área de punta de pilote teniendo, en cuenta que el programa empleado únicamente permite elementos viga de longitud infinita, sería necesario representarla mediante un ancho equivalente al pilote de 1,25 m. Esta área vendría representada por 4 (pilotes) x $3{,}14 \times 0{,}625^2$ (área del pilote) / 14 m (ancho eficaz de los 4 pilotes) = 0,35 m. Los asientos ante carga vertical del tablero que se obtendrán en el modelo se multiplicarán por 0,70 porque considera una carga de tablero más ancho de lo real, calculado con faja estrecha y Steinbrenner.

Así mismo, la inercia de los pilotes es necesario representarla mediante un inercia ficticia:

Inercia pilotes: $4 \times 3{,}14 \times 1{,}25^4 / 64 = 0{,}479\ m^4$, equivalente a un espesor medio de 0,74 m en una viga

Se puede dar la rigidez del modelo con un elemento es $0{,}034\ m^4/ml = 0{,}479 / 14$. La flexión obtenida en el modelo se multiplicará por el ancho eficaz.

Para la carga de un tablero, se compara el asiento de la carga real del tablero repartida en cuatro rectángulos, con un área conjunta de 14 m por 10 m, respecto al asiento de un tablero de ancho de 100 m, 50 m a cada lado, ya que al considerar el estrato rígido el resto de la carga de anchura infinita no afecta al bulbo de presiones. De ese modo se estima el coeficiente de equivalencia de aproximadamente 0,7 para el paso de dos dimensiones a tres dimensiones en lo relativo al acortamiento de la capa de gravas o asiento de la punta del pilote.

	p t/m2	E t/m2	b (m)	a	z	a/b	z/b	F	fi-f2	s cm
Carga tablero 3D										
pie pilote 5 m	8	2200	7	5	5	0,71	0,71	0,142	0,14	**0,361**
substrato gravas 35 m	8	2200	7	5	35	0,71	5,00	0,36	0,22	**0,555**
										0,916
Carga tablero 2D										
pie pilote 5 m	8	2200	5	50	5	10,00	1,00	0,2	0,2	**0,364**
substrato gravas 35 m	8	2200	5	50	35	10,00	7,00	0,56	0,46	**0,836**
										1,200

El asiento que se produce en los laterales del pilote es debido al "agarre" que se produce entre terreno y pilote de manera que este último arrastra al terreno más próximo.

4.3. Resultados del modelo de la solución a ejecutar

Pasan a indicarse a continuación los resultados obtenidos en el modelo empleado para simular el comportamiento del pilote. Además de los resultados generales obtenidos, han controlado tres secciones concretas:

- Asiento del terreno natural.
- Asiento del estrato de gravas.
- Movimiento horizontal en cabeza de pilote.

El asiento del punto con mayor movimiento vertical del modelo ha sido de 33,8 cm incluyendo el relleno, si se toma una sección vertical se puede observar que el asiento a cota de terreno natural ha sido de 33,3 cm asiento similar al que se obtiene por métodos analíticos en los cuales es posible tener en cuenta el efecto tridimensional.

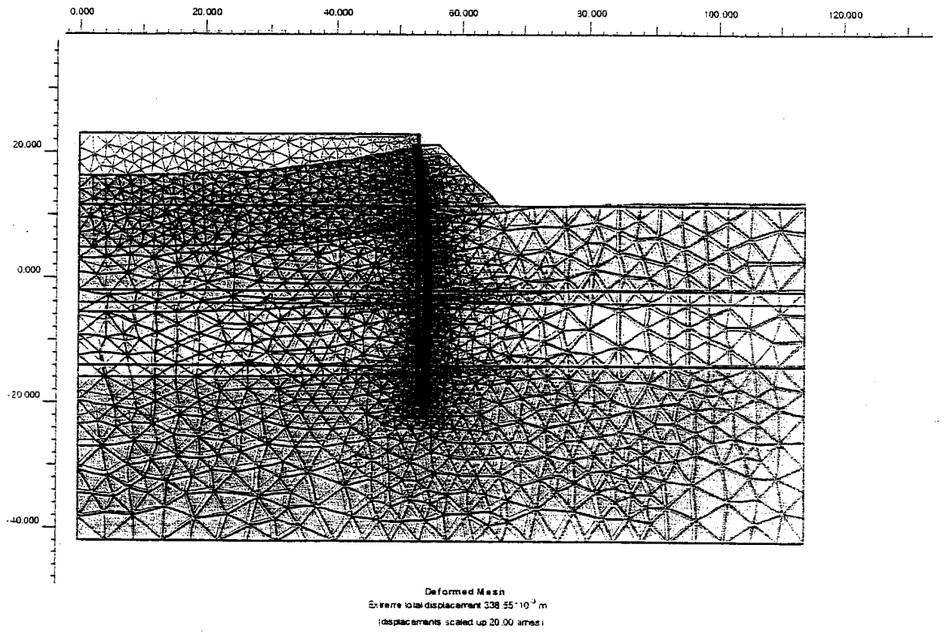


Figura 6: Malla deformada ampliada 20 veces para permitir apreciar los movimientos que se producen en el modelo

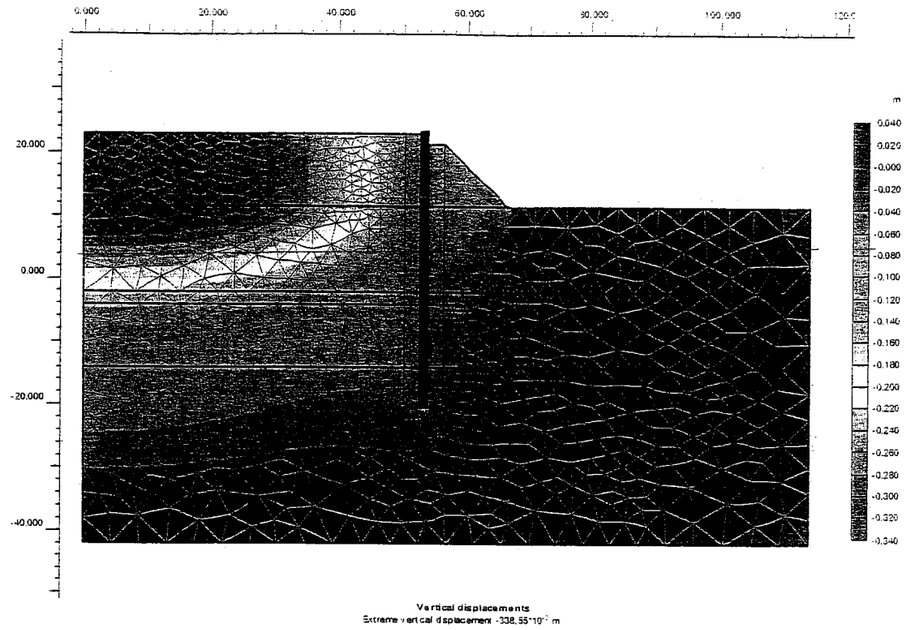


Figura 7: Distribución de los asientos en el modelo

El asiento en el estrato de gravas está comprendido entre 7 y 8 cm conforme la sección en la que se observe se sitúe más próxima a la zona del pilotaje.

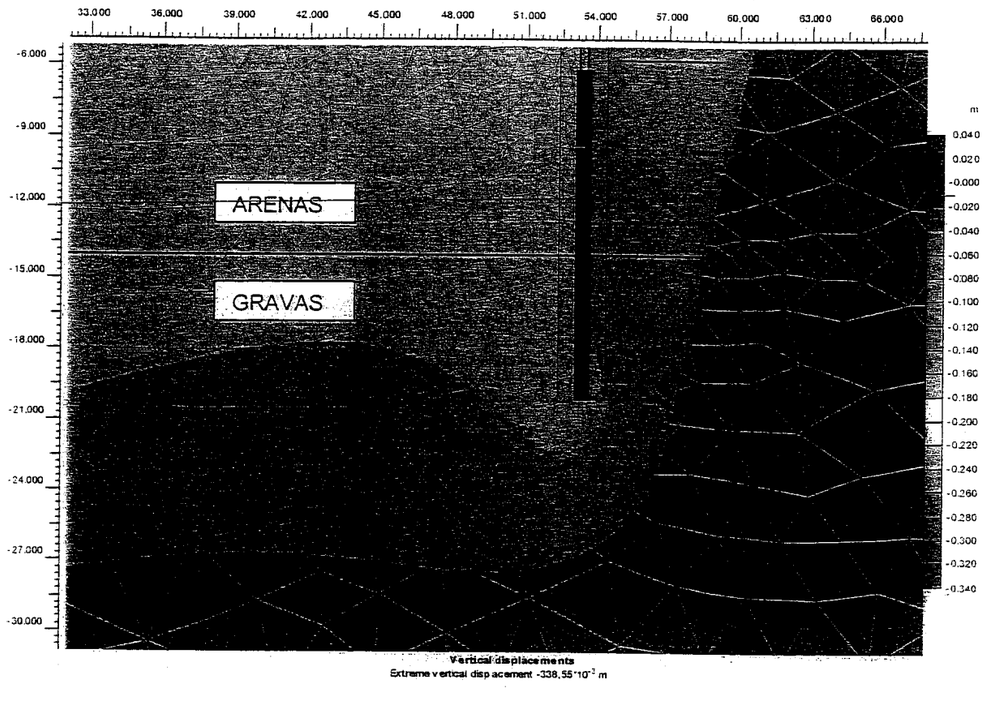


Figura 8: Movimiento vertical en la zona de gravas

Los movimientos horizontales en el modelo se observa que se concentran en el nivel de arcillas y limos llegando a un máximo de 9,6 cm, suponiendo suelo isótropo.

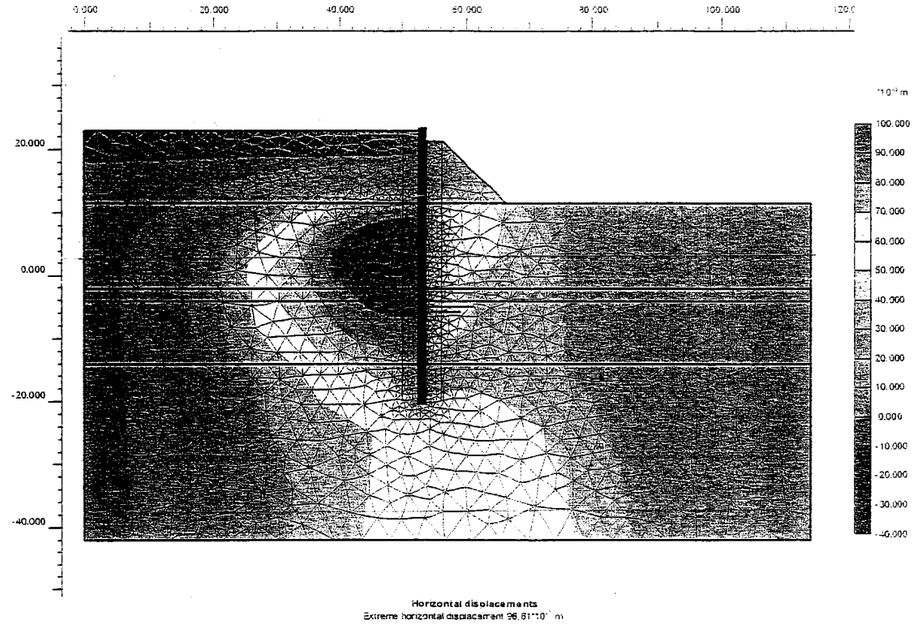


Figura 9: Movimiento horizontal en el modelo

El movimiento horizontal se recoge en la siguiente figura, y ha tenido un valor en la zona de cabeza de 2,4 cm, suponiendo suelo isótropo:

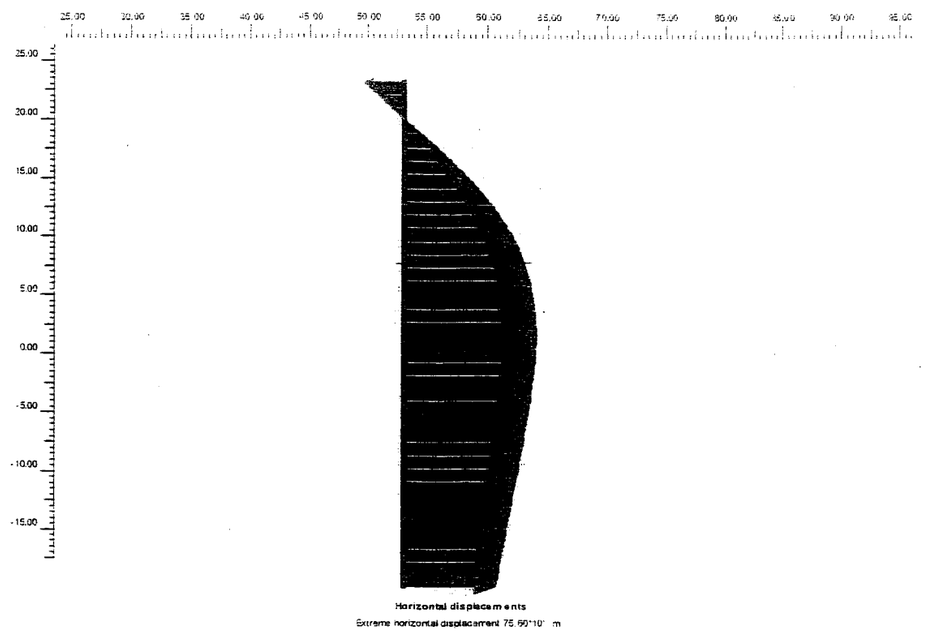


Figura 10: Movimiento horizontal en el pilote

El movimiento horizontal máximo en el pilote, que gira muy ligeramente, se produce en la zona de arcillas con un valor de 7,6 cm.

Si únicamente se consideran los movimientos horizontales en los extremos del pilote (-2,4 en cabeza y 5,3 m en pie) la flecha que se obtiene a partir de una línea que uniera ambos puntos en el centro de éste sería de 3,8 cm.

La flecha de una viga de la rigidez del pilote con sobrecarga uniforme de p = 2,8 x 3,53 x 1,25 = 12,3 t/m^2, se iguala a 3,8 cm para una luz biapoyada de 17 m. Con sobrecarga triangular y luz de 25 m la carga sería 1,2 t/m^2, es decir la tercera parte de la considerada analíticamente.

El cálculo de la interacción entre una hilera de pilotes bastante rígidos y un terreno que les empuja intentando "penetrar" entre ellos, no es fácil de reproducir ni analíticamente ni mediante elementos finitos en dos dimensiones

Pero si el pilote es muy rígido, mantendrá su eje casi recto y crea un fuerte reajuste elastoplástico de las tensiones a su alrededor, de modo que recibe empuje del terreno blando en su parte central y en los extremos se "clava" en el terreno movilizando un empuje pasivo, apoyándose o incluso empotrándose en él, sobre todo cuando dichos extremos son de suelo más duro o corresponden a una condición de borde como es un encepado rígido. La magnitud de la presión que reciba del terreno blando depende de esa interacción y se reduce a medida que se haya desplazado lateralmente en conjunto el pilote.

La representación en dos dimensiones en el cálculo elástico realizado por el método de elementos finitos no puede representar bien ese reajuste elastoplástico, y será por ello una simple aproximación. El efecto tridimensional se puede paliar calculando con la rigidez real de los pilotes dividida por su ancho eficaz, pero aquí el área afectada por el "bulbo de presiones horizontales" de la flexión del pilote no se tiene en cuenta, porque las deformaciones horizontales que crean están a una profundidad tan limitada, de menos de 13 m del estrato blando, que apenas influye un aumento hipotético de la anchura del terraplén (dos dimensiones). El momento flector que da el cálculo numérico debe corregirse necesariamente para tener en cuenta el peso real del terraplén, pero no la forma o profundidad.

El resultado de flexión es conservador porque no se considera el reajuste elastoplástico que contribuiría a aumentar el movimiento horizontal del pilote y a reducir la luz de flexión. Por ese motivo se adoptan los valores del modelo analítico

pero el cálculo numérico resulta útil porque lo acota y no difiere demasiado del mismo. Los esfuerzos obtenidos en el pilote han sido de 136,96 x 3,5 = 479 T para el rozamiento negativo y de 54,7 x 3,5 = 191 T·m para la flexión.

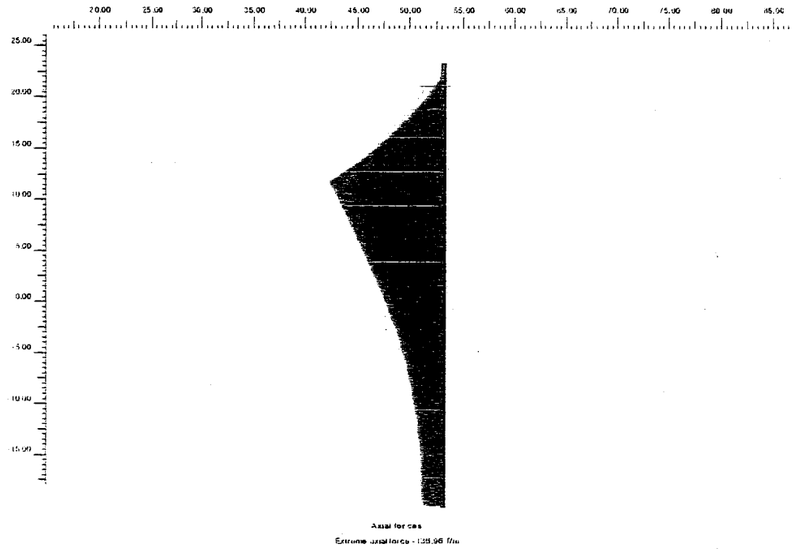


Figura 11: Rozamiento negativo en el pilote

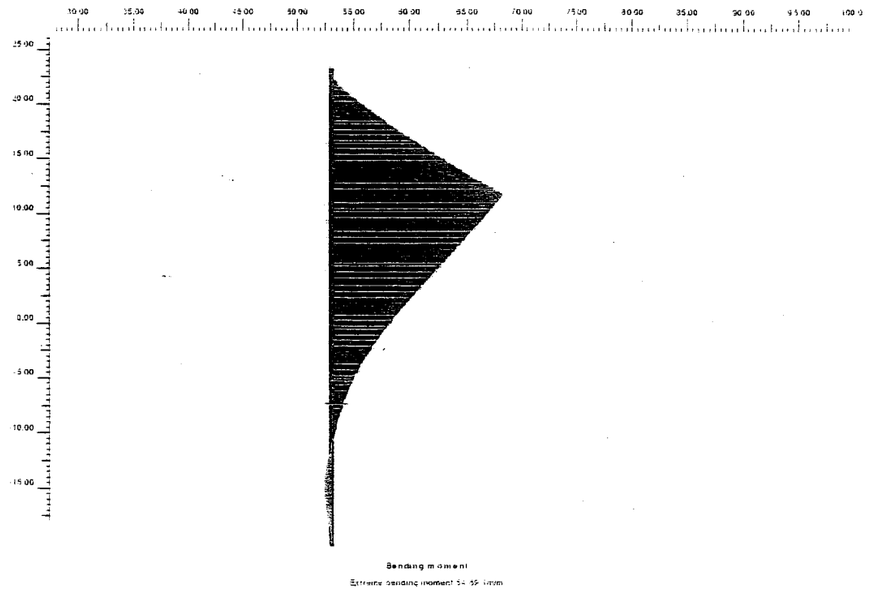


Figura 12: Flexión en el pilote

Por último una vez se carga el pilote en la segunda fase del modelo, el movimiento vertical experimentado por la punta del pilote ha sido de 5,5 cm. Este asiento tal y como se ha comentado es necesario multiplicarlo por 0,7 con lo que se obtendría un asiento de 3,8 cm

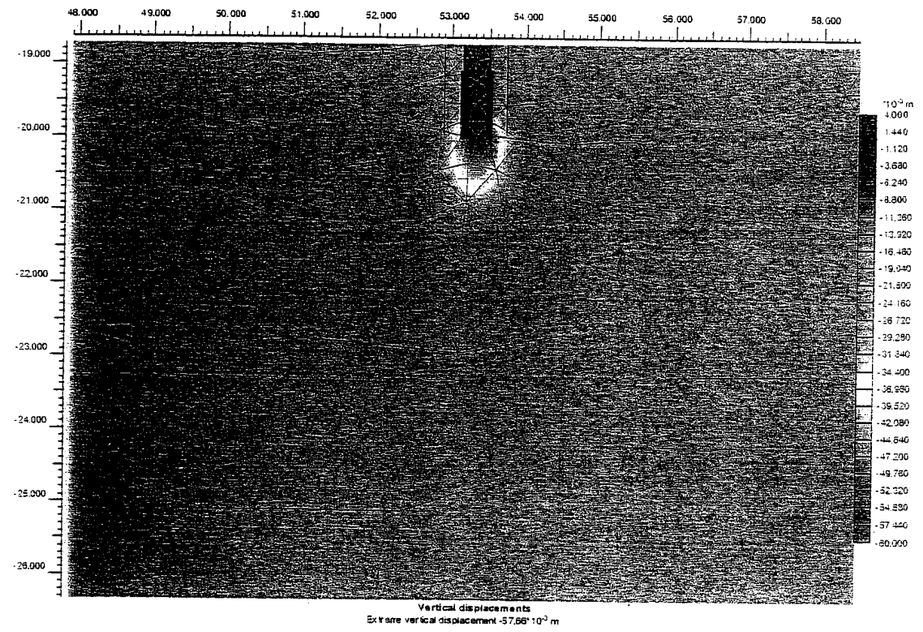


Figura 13: Movimiento vertical debido a la carga del viaducto

5. Conclusiones

A partir de los datos del terreno obtenidos en proyecto y construcción se ha procedido a caracterizar el terreno, ha sido de especial utilidad los datos de la instrumentación realizada en el terraplén de prueba efectuado a partir del cual se han deducido los parámetros deformacionales del terreno, dato fundamental para posteriores aplicaciones. En esta instrumentación no se ha contado, sin embargo, con medidas de los movimientos transversales al terraplén, en especial en el cimiento.

Con los datos geotécnicos definidos se ha procedido a una estimación analítica de los esfuerzos parásitos que se generan sobre los pilotes obteniéndose un refuerzo del armado longitudinal de los pilotes, comprobándose que la solución de 4 pilotes de 125 cm de diámetro en una hilera con encepado o cargadero sobre el suelo cemento sería válida desde el punto de vista resistente, reforzando la armadura del Proyecto, en que se suponía que los pilotes se construían mas tarde y no sufrían flexiones parásitas.

Los cálculos realizados conducen a unos esfuerzos pésimos sin mayorar en los pilotes de 689 t de carga vertical y 300 m·t de flexión. La reproducción mediante elementos finitos de estos fenómenos se encuentra en el rango de valores obtenidos mediante el cálculo analítico resulta, no obstante dada la dificultad de simular el efecto tridimensional de los pilotes en un modelo bi-dimensional se ha optado por adoptar los valores obtenidos mediante expresiones analíticas.

El asiento en la viga cargadero y en la punta de los pilotes del estribo sería del orden de 9 cm debido al peso del terraplén, 3 cm debido al rozamiento negativo y 3 cm debido al tablero, del cual la mitad debida al peso propio no influyen en el asiento diferencial. Puede estimarse que el 40% del asiento se produce antes de hormigonar

el tablero, con lo cual el asiento máximo del estribo que influiría en la distorsión angular del primer vano sería =0,6x (9 +3) +1,5 = 8,7 cm. El de la pila sin sobrecarga (máxima distorsión) sería debido solo al peso del tablero del segundo vano, es decir, unos 2 cm. Por lo tanto el asiento diferencial sería del orden de 7 cm, magnitud superior al asiento máximo de la pila. La distorsión de 7 cm / 3300 cm = 1/470 resulta algo excesiva para una estructura hiperestática.

Respecto al movimiento horizontal, menos fiable de calcular, en parte debido al coeficiente de anisotropía de los suelos naturalmente consolidados, que se puede estimar de 1,5 a 2,0 y en parte debido a que un pilote rígido altera bastante el campo de deformaciones horizontales que crea el peso del terraplén. Se estima que su magnitud oscilaría entre 5 y 7 cm, tanto por el cálculo de elementos finitos como por estimaciones analíticas. Este efecto puede ser perjudicial, ya que se suma a las variaciones de longitud térmicas.

Añadir una precarga de 2 m más de altura al terraplén sería poco eficaz, pues solo representa un 6% más de aumento de peso, y al aumentar la altura se reduce la estabilidad a corto plazo, que debería comprobarse previamente.

Lo más eficaz sería retrasar al menos un mes el comienzo de los pilotes, para, a tenor de la rapidez de producirse los asientos que se ha observado en el terraplén experimental, aumentar la disipación de presiones intersticiales del 40 a 50% hasta el 70%, ya que reduciría el asiento diferencial diferido antes calculado a la mitad, además de reduciría bastante los efectos parásitos de rozamiento negativo y flexión.

Conviene efectuar un control de los asientos de todas las pilas al final de la construcción del viaducto, con solo el peso muerto, y en especial de ambos estribos

desde el momento que se alcanza su altura total. Así mismo se propone la instalación de inclinómetros en los pilotes de los estribos para controlar el movimiento de estos.

Madrid, junio de 2004

APÉNDICE 1

CÁLCULOS PREVIOS

COMPROBACIÓN PREVIA DE LA ALTERNATIVA 3 DEL ESTUDIO DE PEDELTA

Rozamiento negativo en los pilotes

Aplicando el método simplificado, teniendo en cuenta la reducción por el reajuste de tensiones de acuerdo con las teorías de Zeevaert y Jiménez Salas ("Geotecnia y Cimientos III, págs. 447 a 451 Jiménez Salas et alt.)

$$Pneg = \pi B \cdot L K_h \, tg \, \delta \, (dL + Po) \, \beta/2$$

Diámetro B = 2 m

Longitud de pilote supuesta L = 25 m

Longitud con movilización total del rozamiento negativo h = 13 m

$K_h \, tg\delta = 0,25$ componente vertical negativa movilizada del empuje de tierras horizontal

Densidad media del suelo = d = 0,95

Sobrecarga en superficie con terrapién a un solo lado del encepado, P_o= 1,95x12,5 /2 t/m^2, ya que el incremento de tensión baja en el centro del borde de una carga rectangular es la mitad de la presión de tierras, pero debido a que en el lado del intradós hay otro terraplén más corto y bajo, y el incremento de tensión a la profundidad del centro del estrato blando es algo menor, se puede reajustar dicho valor (formula de carga trapecial pag 212 y ábaco de Fadum pag 222) a

P_o= 1,35x12,2 = 16,5 t/m2.

Coeficiente reductor por reajuste tensional (tabla 3.5.3)

β = 0,571 para esbeltez de 12,5 y separación 2,5 diámetros. Por ser dos pilotes de borde y cuatro de esquina se adopta $\beta = (0,571 + 2)/3 = 0,857$

Pneg = 3,14 x 2 x 13 x 0,25 x 0.857 x 0,5 (0,95 x 24 + 16,5) = 344 t

La carga total del pilote, sumando la carga debida al reparto dentro del encepado, sería 344 + 950 +485 = 1780 t

El tope estructural o capacidad de carga del pilote sería 3,14 m^2 x 6 Mpa = 1880 t

Empujes horizontales en los pilotes

El empuje horizontal que el terraplén del trasdós se ve contrarrestado por el terraplén reducido de suelo cemento del intradós, pues un pilote que tiene carga vertical simétrica a ambos lados no flecta. Utilizando el ábaco de Fadum (pag 222) y asimilando el terraplén del trasdós a una carga rectangular de 12,5 m de altura y una planta de 2b= 33 m de ancho y 2a= 60 m de largo y el terraplén del intradós a una carga rectangular de 8,5 m de altura y una planta de 2b= 28 m de ancho (conviene que dicho terraplén tenga un talud tendido hacia los laterales y mantenga la cota máxima en lo posible) y 2a= 8 m de largo, en el eje del estribo la diferencia de las tensiones verticales que le viene de cada carga lateral, resultan a una profundidad de z= 8 m

para a/b = 1,88 a/z = 3,75 resulta un coeficiente de influencia 0,236

para a/b = 0,28 a/z = 0,5 resulta un coeficiente de influencia 0,058

$\Delta Pv = 2 \times 1,95 \, (12,5 \times 0,236 - 8,5 \times 0,058) = 9,58$ t/m^2

Según la teoría elástica se podría considerar un empuje horizontal que resulta bastante reducido, del orden de $\Delta Ph = K \, \Delta Pv$. Tschebotarioff propone para pilote no deformable un coeficiente de empuje horizontal Ko = 0,4. Se tendría entonces

$\Delta Ph = 9,58 \times 0,4 = 3.83$ t/m2

Un punto a considerar es el ancho eficaz de la carga. Según Tschebotarioff puede tomarse el diámetro estricto del pilote, pero Jiménez Salas y otros autores proponen el doble. Las normas alemanas consideran hasta tres diámetros, pero como alternativa a otros parámetros (separación entre pilotes, espesor del suelo blando, etc.) de los cuales aceptan que se tome el menor valor; no parece razonable adoptar aquí un valor conservador que dicha norma no exige con carácter general y que se aleja bastante de otros autores.

Se adopta aquí el valor de dos diámetros y medio, que coincide con la separación entre pilotes.

El otro punto a decidir es la luz de flexión del tramo de pilote que recibe empujes. En el encepado el pilote está empotrado. De Beer y Wallays ("Geotecnia y Cimientos III" Fig. 3.107) proponen un metro mas arriba del contacto entre capas y en el apoyo inferior consideran medio metro, o bien suponen el pilote biarticulado con luz de flexión el espesor estricto de la capa. Como dicho valor de un metro no lo relacionan con el diámetro del pilote, es más prudente utilizar la teoría del coeficiente de balasto con un valor doble del diámetro para el empotramiento equivalente en un terreno granular o de un diámetro en la roca. Como alternativa se toma el clásico valor $pL^2/10$ de flexión con empotramiento elástico, o bien la fórmula teórica añadiendo dos diámetros más a la luz.

Según ello se tendría para pilote de 200 cm y estrato blando de 13 m. Esta última cifra corresponde a ambos estribos según los datos de obra y a los datos de proyecto para el estribo de entrada; en el estribo de salida según el proyecto se presenta una capa floja de 13 m pero a mayor profundidad, donde ayuda menos el terraplén del intradós, pero también se reduce algo la influencia del terraplén del trasdós.

Mmax = 3,83 x 2,5 x 2 x $(13 + 4)^2$ / 10 = 552 m t

Como viga biapoyada se reduce bastante,

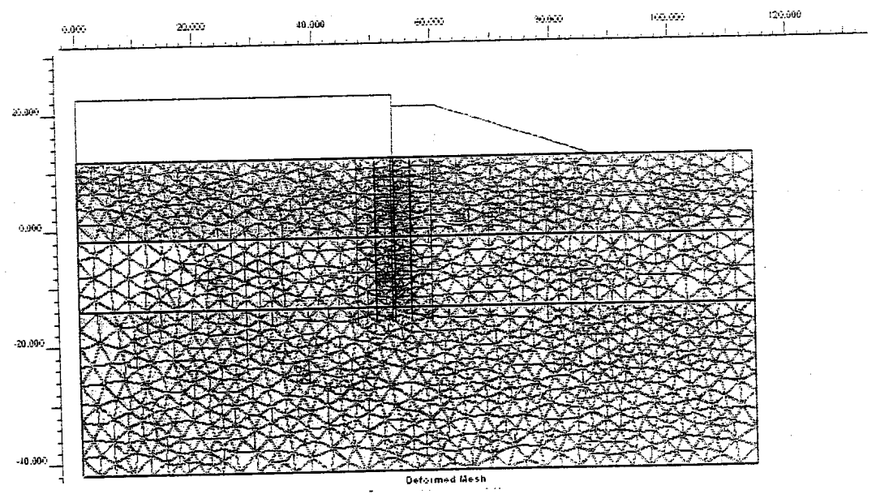
Mmax = 3,83 x 2,5 x 2 x 13^2 / 8 = 404 m t

Como consecuencia de lo anterior, para la capa arcillosa de 13 m se propone un momento flector pésimo de 500 m t, con una compresión mínima del orden de 531-485= 46 t con sobrecarga viva, pues en la parte alta del pilote el rozamiento negativo es mínimo. Ello conduce a una armadura circular del orden de 60 ϕ 32. Lo aconsejable es no reforzar la armadura con simetría radial, sino sólo en el sentido de la flexión, como si fuese una sección cuasirectangular, cuidando la orientación al colocar la jaula de armaduras. El coste relativo de incrementar el refuerzo es pequeño.

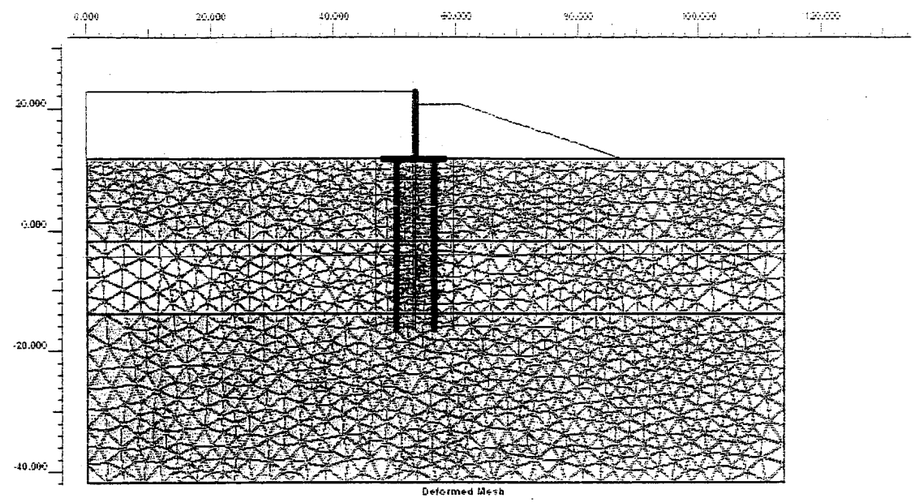
Modelo previo de la alternativa 2 del estudio de Pedelta.

- Una primera de construcción de pilotes, encepado y muro.
- Una segunda en la que se ejecuta el relleno tanto anterior como posterior al estribo.
- Por último se ha planteado una fase equivalente a la segunda puesto que su comienzo se produce al final de la fase 1 pero en la cual únicamente se considera el relleno de trasdós quedando, por tanto, el muro en el intradós visto.

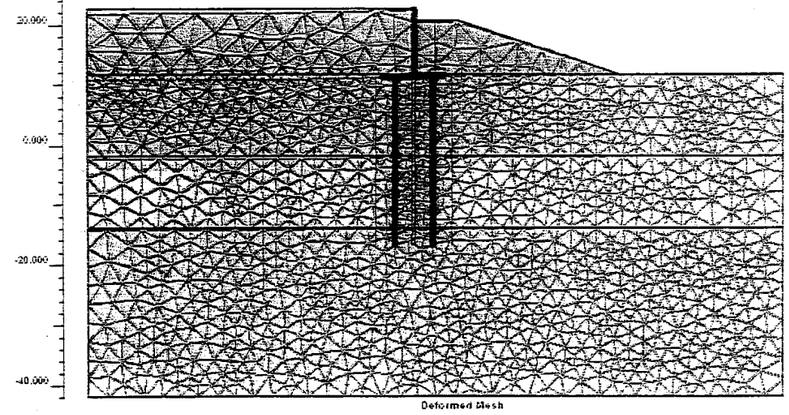
Es en las dos últimas fases donde se estudiaran los efectos de la carga sobre los pilotes. Las fases en que se ha dividido el modelo se indican a continuación:



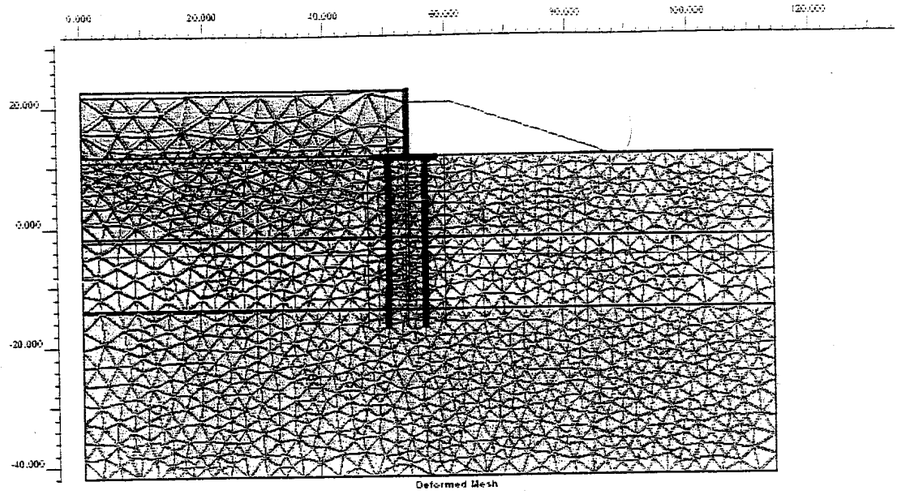
Fase 0. Terreno natural



Fase 1. Construcción de los pilotes, encepado y muro



Fase 2. Ejecución del terraplén a ambos lados del muro



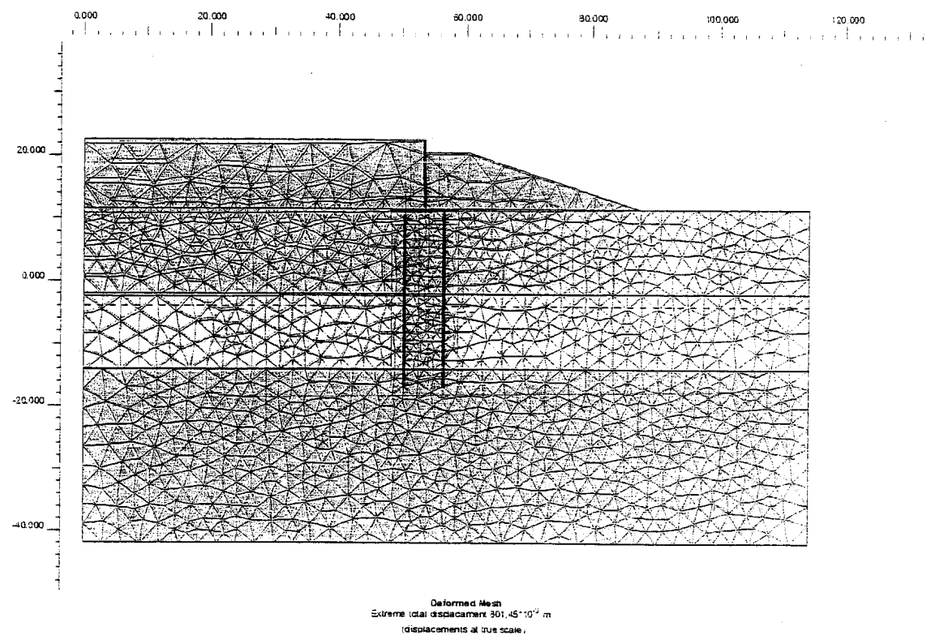
Fase 3. Ejecución del terraplén únicamente en el trasdós (fase de partida: fase 1)

Los pilotes han sido de 2 metros de diámetro, planteados en la alternativa 2, (6 pilotes de 2 metros de diámetro distribuidos en dos filas) con una separación entre ejes en planta de 5,1 metros (2,55 diámetros). Las rigideces tanto a flexión (EI) como axil (EA) se ha dividido entre la separación de estos con objeto de obtener una rigidez equivalente, puesto que el modelo generado es bidimensional y tiene la limitación de interpretar los elementos viga infinitos en sentido transversal.

Los datos empleados para el terreno son los obtenidos en el terraplén de prueba como ya se indicó anteriormente.

El resultado que se obtiene en los distintos casos para el movimiento horizontal y vertical en pilotes y encepado es el siguiente:

Caso de cálculo con relleno en trasdós e intradós.

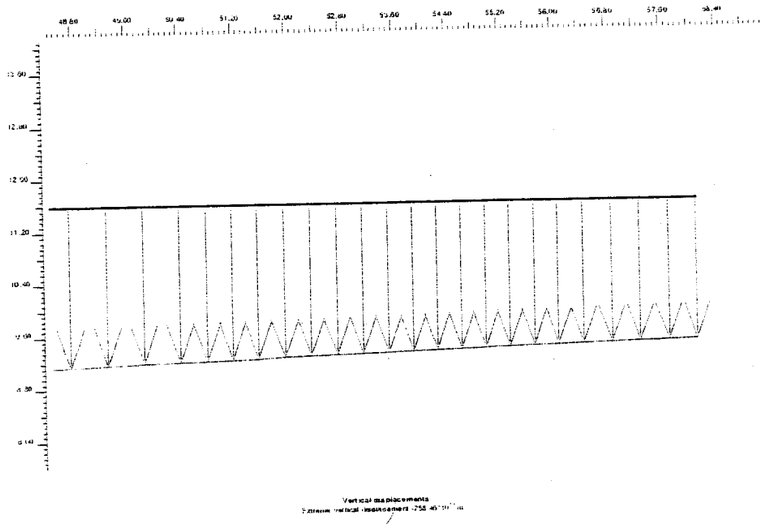


Deformación del terreno con cargas en trasdós e intradós

El asiento máximo en el modelo se produce en la zona más alejada del estribo con un valor de 80 cm. Puesto que se trata de un relleno de mayor altura (del orden del doble) y anchura que, además, tiene un espesor mayor de materiales compresibles que el terraplén de prueba, este movimiento máximo está dentro del rango esperable para el asiento en esta zona.

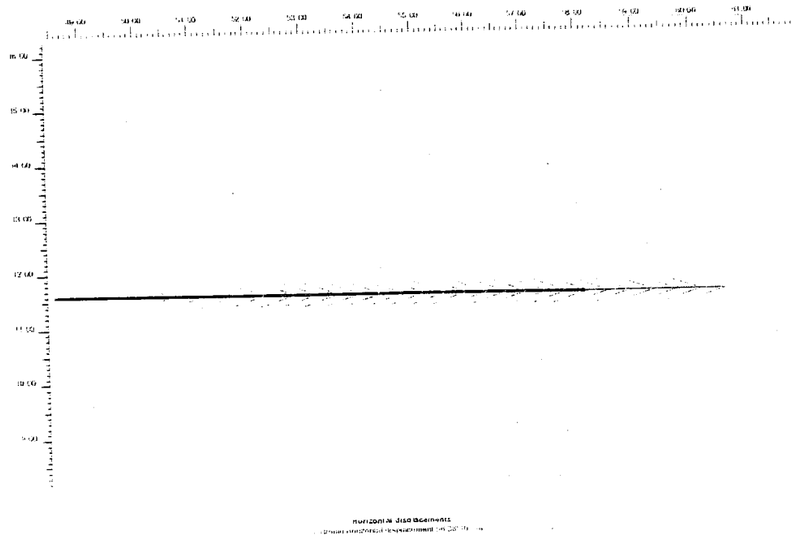
Como se ha indicado en otros puntos del informe se ha estudiado la situación a largo plazo sin considerar la consolidación que haría que estos fenómenos no se produjeran de manera instantánea sino que se dilataran a lo largo del tiempo.

Los movimientos que se producen en el encepado en primer lugar de asiento con una mayor magnitud de éste en la zona de trasdós debido principalmente a la asimetría del estribo. Esto da lugar a un giro hacia la zona de trasdós.



Asiento en el encepado

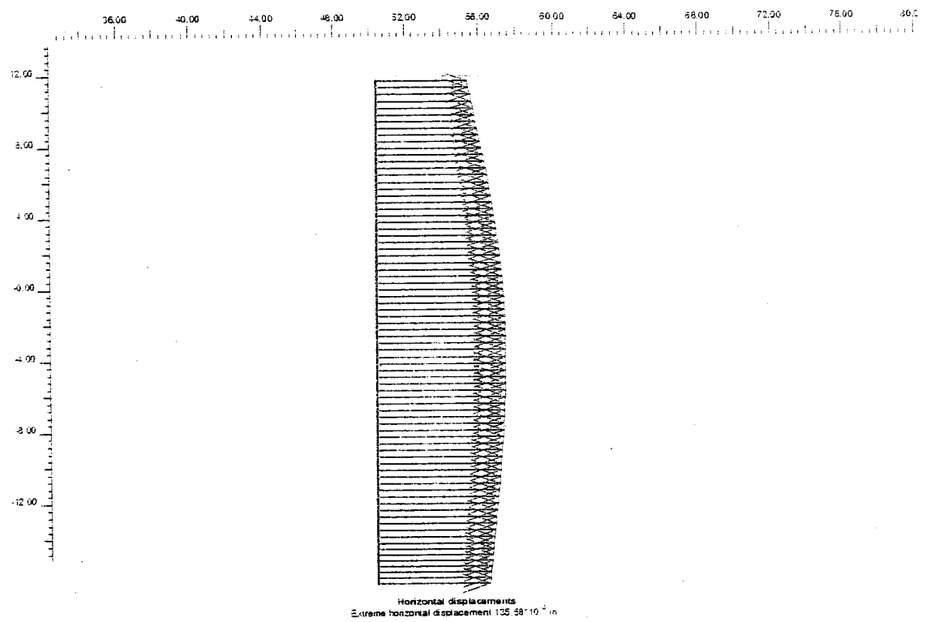
Así mismo se comprueba que se produce un movimiento horizontal significativo en el encepado:



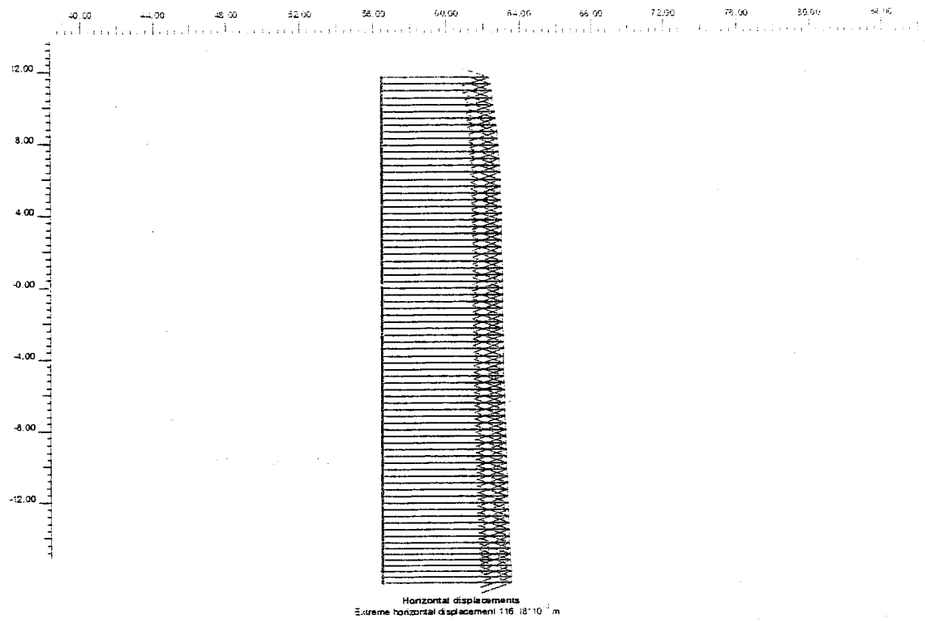
Movimiento horizontal en el encepado

Los desplazamientos máximos en ambos casos han sido de 26 cm en vertical y 9 en horizontal.

En el pilote los movimientos en horizontal y vertical son también importantes apreciándose cierto efecto de apantallamiento de los movimientos en los pilotes situados en el lado de trasdós con los situados en el intradós



Desplazamientos horizontales en los pilotes de trasdós



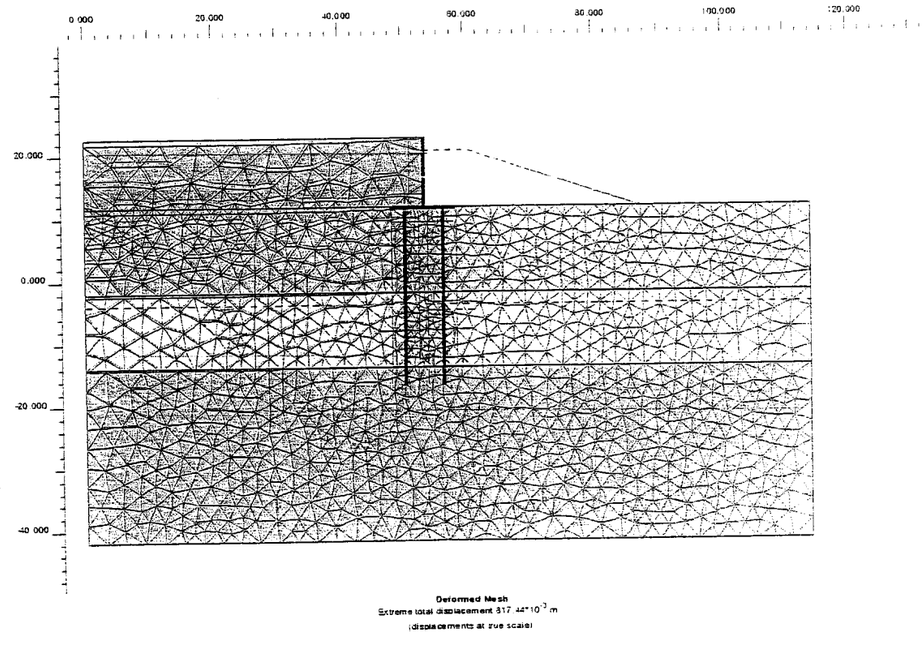
Desplazamientos horizontales en los pilotes de intradós

Tomando el pilote de trasdós como referencia se observa que se produce un movimiento horizontal máximo de 14 cm en la zona central y de 9 cm en cabeza acompañando de esta forma al encepado.

El movimiento vertical del pilote de trasdós ha sido de 25 cm en cabeza asiento que se interpreta como consecuencia del "agarre" del terreno al pilote. De esta forma, el pilote acompañaría al terreno en su proceso de asiento.

Los movimientos tanto en encepado como en punta de pilotes verticales y horizontales resultarían incompatibles con la construcción del tablero previsto por lo que las soluciones debieran orientarse hacia un cargadero situado en el terrapién

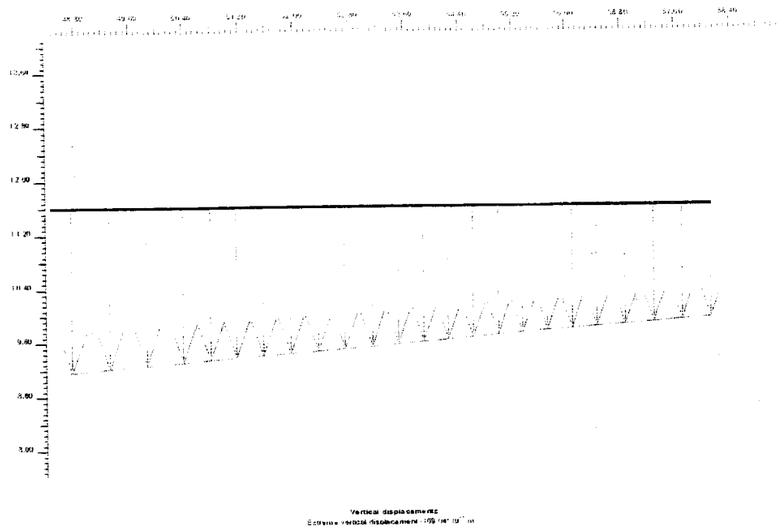
Caso de cálculo con relleno en trasdós.



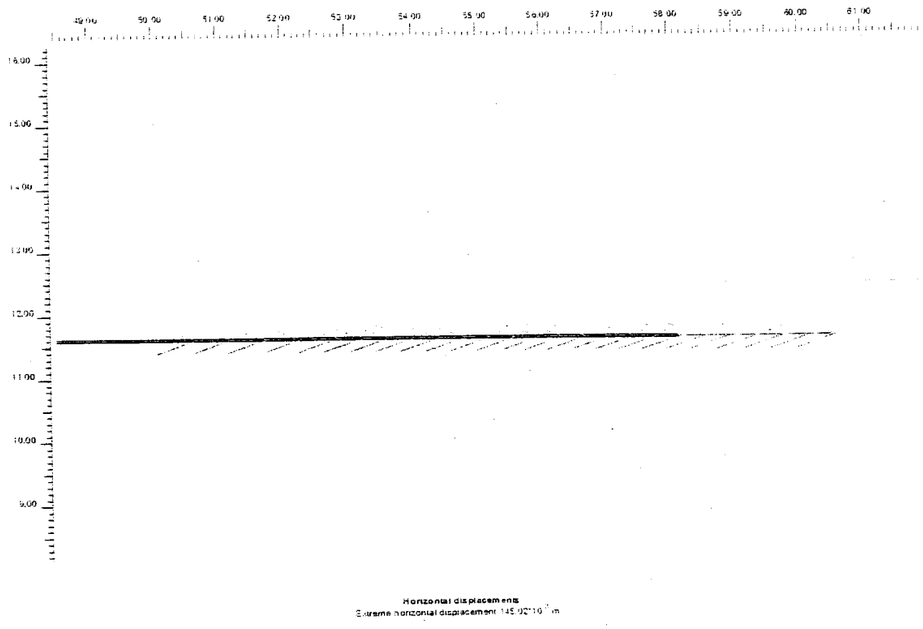
Deformación del terreno con cargas en trasdós

El asiento máximo en el modelo se produce en la zona más alejada del estribo con un valor de 81 cm que se puede considerar casi idéntico al caso anterior.

Los movimientos tanto horizontales como verticales son del mismo sentido que los registrados en el caso anterior pero de menor magnitud.



Asiento en el encepado



Movimiento horizontal en el encepado

Los desplazamientos máximos en ambos casos han sido de 16 cm en vertical y 14 en horizontal, se recogen a continuación los movimientos en el encepado:

En el pilote los movimientos en horizontal y vertical son elevados apreciándose cierto efecto de apantallamiento de los movimientos en los pilotes situados en el lado de trasdós con los situados en el intradós

Desplazamientos horizontales en los pilotes de trasdós

Tomando el pilote de trasdós como referencia, se observa que se produce un movimiento horizontal máximo de 17 cm en la zona central y de 14 cm en cabeza, acompañando de esta forma al encepado, el aumento de estas magnitudes tiene sentido debido a que ha desaparecido el efecto de la carga de intradós.

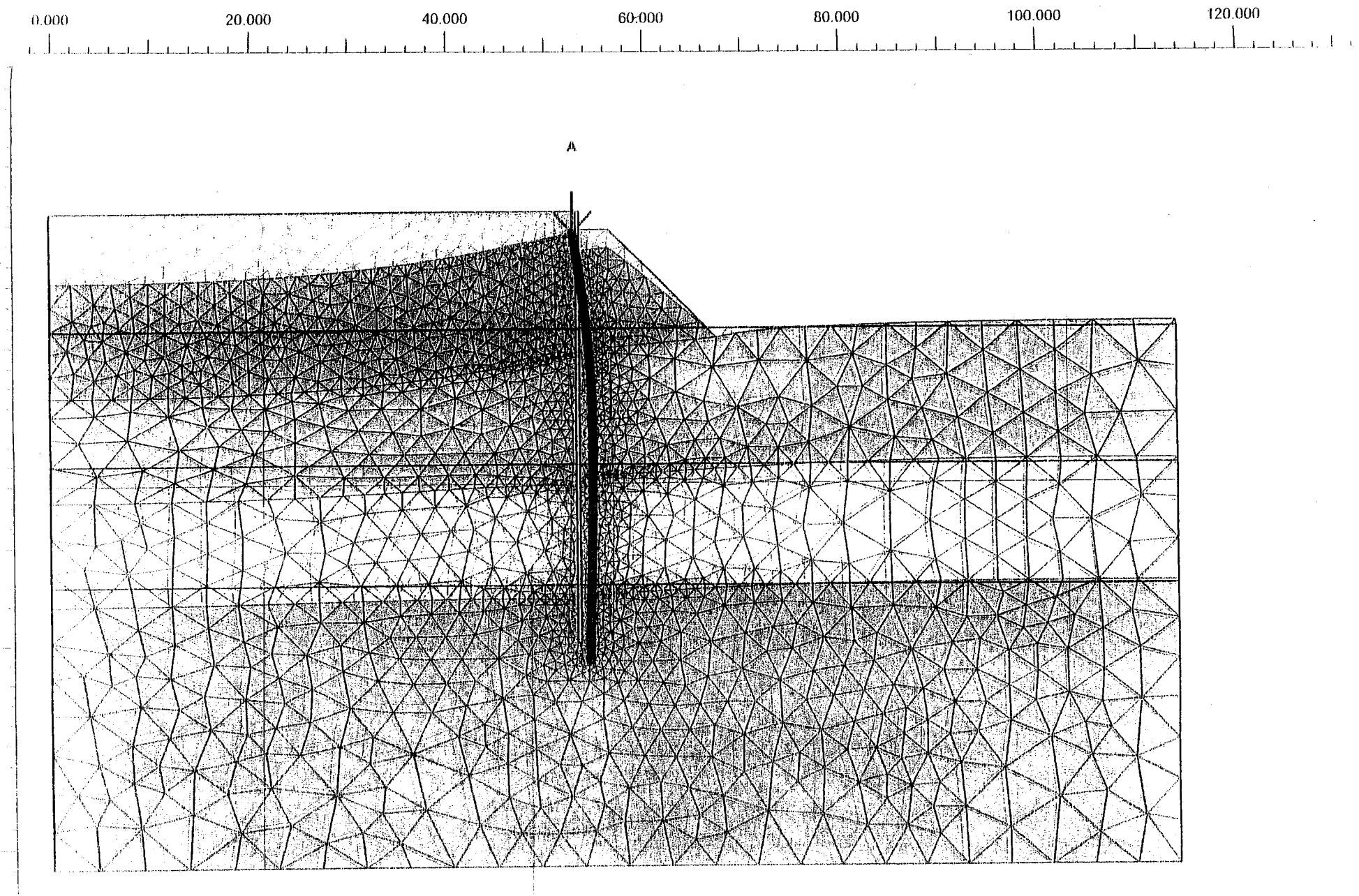
El movimiento vertical del pilote de trasdós ha sido de 15 cm en cabeza asiento que se interpreta de igual forma que en el caso anterior.

Es decir, si se analizan mediante elementos finitos las deformaciones, el asiento del terraplén induce en pilotes y encepado un movimiento horizontal y de asiento muy considerable, incompatible con la construcción del tablero y que en principio nana

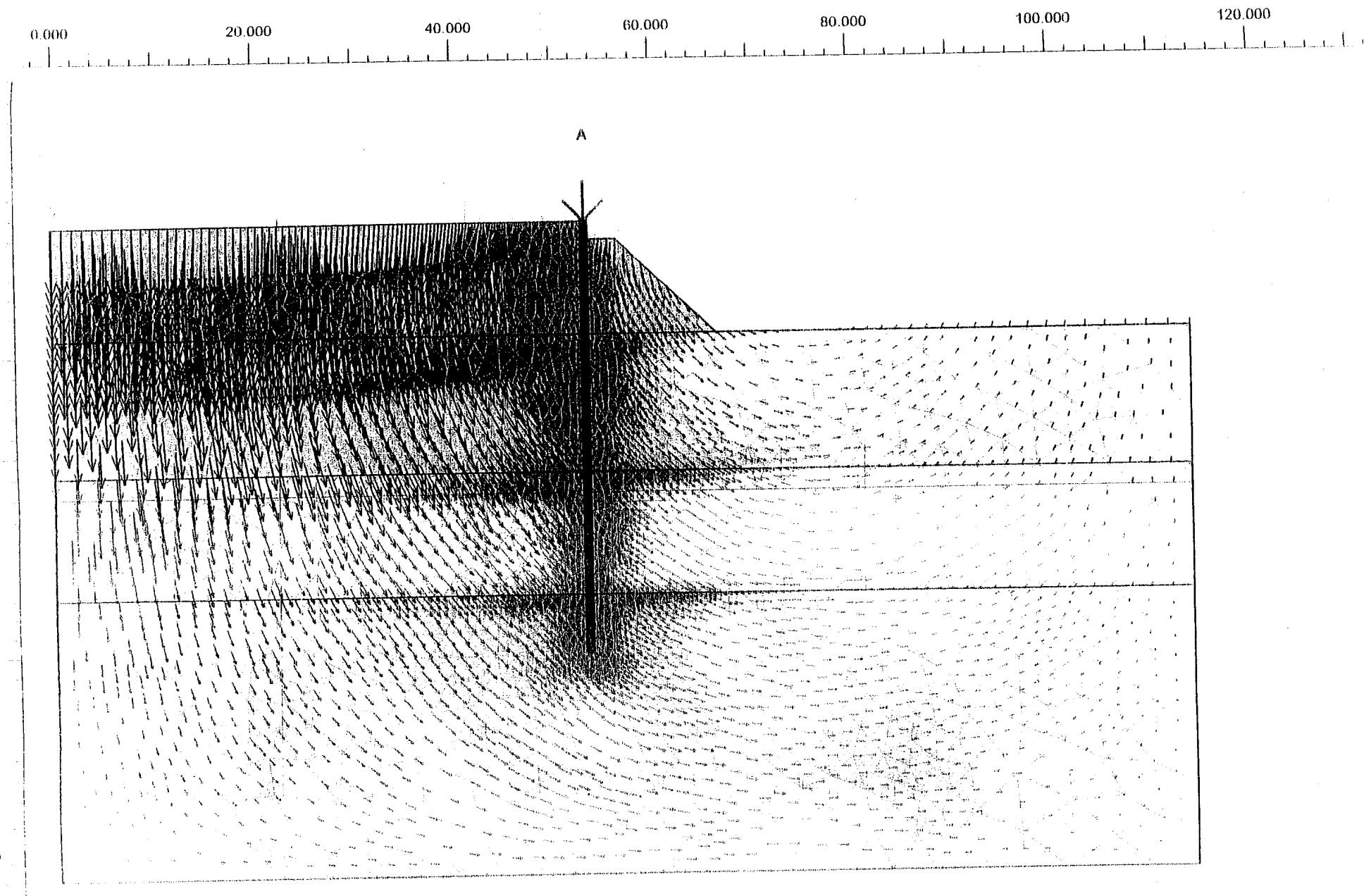
inviable la solución con apoyo del encepado en terreno natural, recomendándose finalmente la opción de situar un cargadero en coronación del terraplén una vez ejecutado éste.

APÉNDICE 2

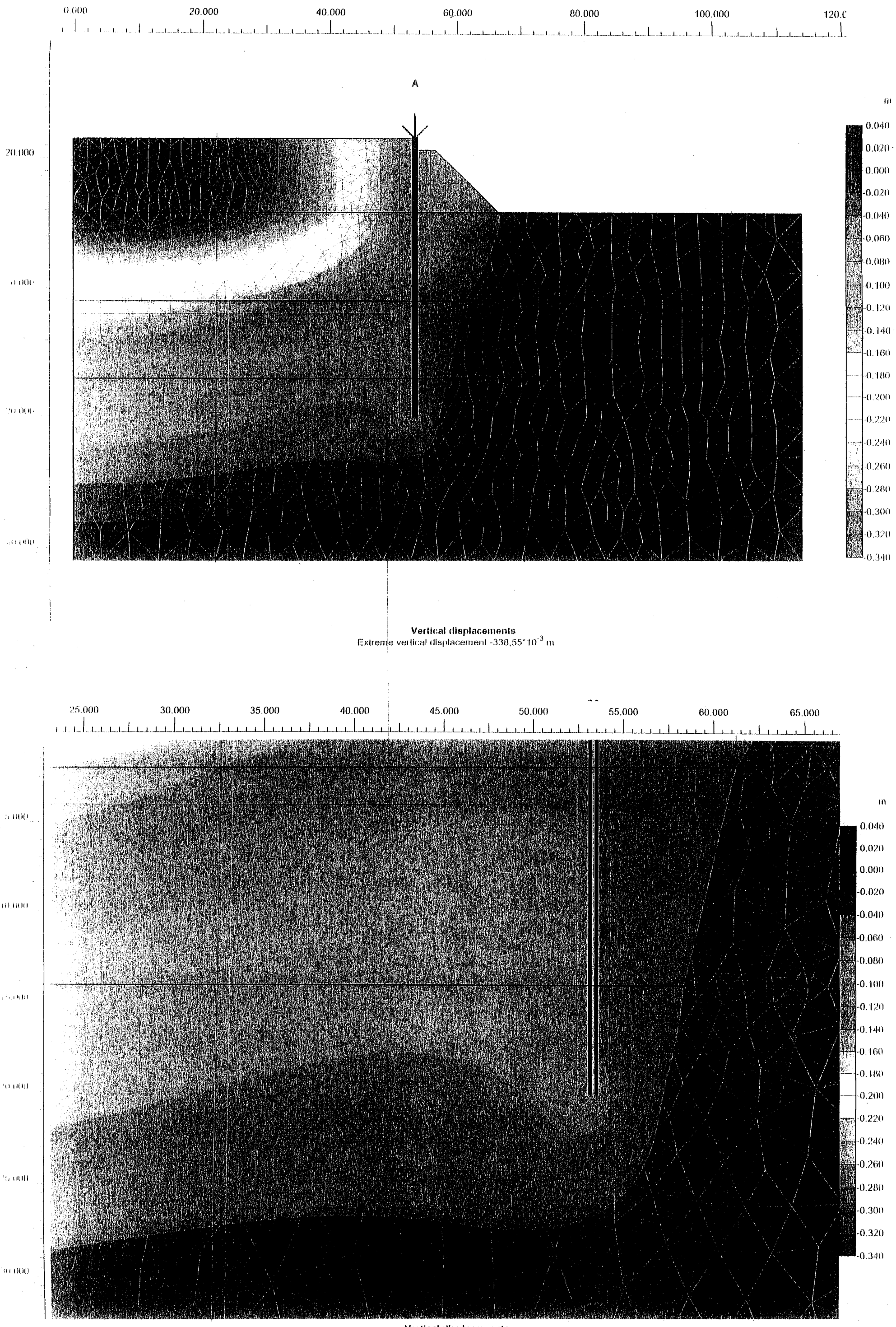
SALIDAS DE ORDENADOR DE LA SOLUCIÓN A EJECUTAR

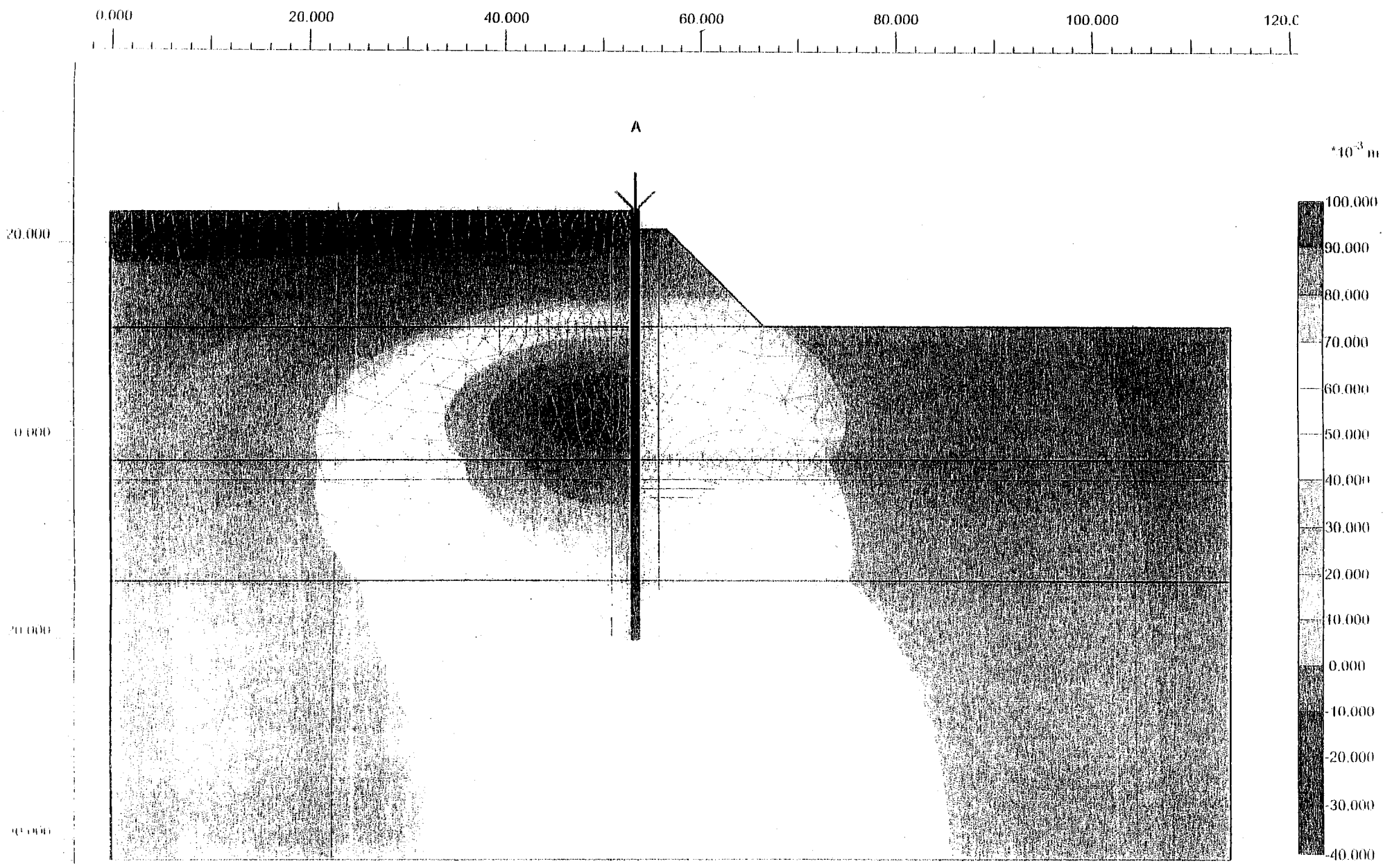


Deformed Mesh
Extreme total displacement $338{,}55*10^{-3}$ m
(displacements scaled up 20,00 times)

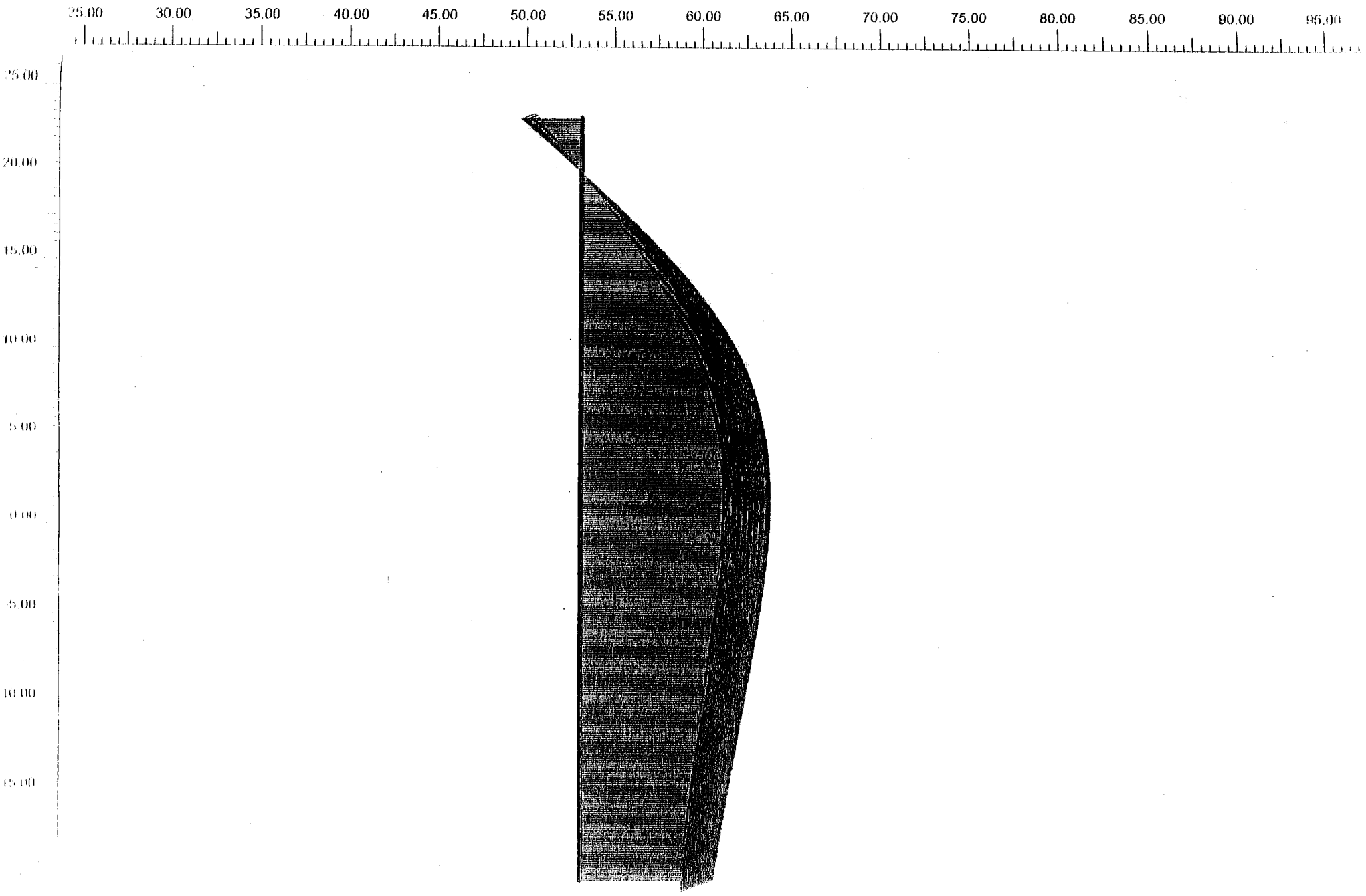


Total displacements
Extreme total displacement $338{,}55*10^{-3}$ m

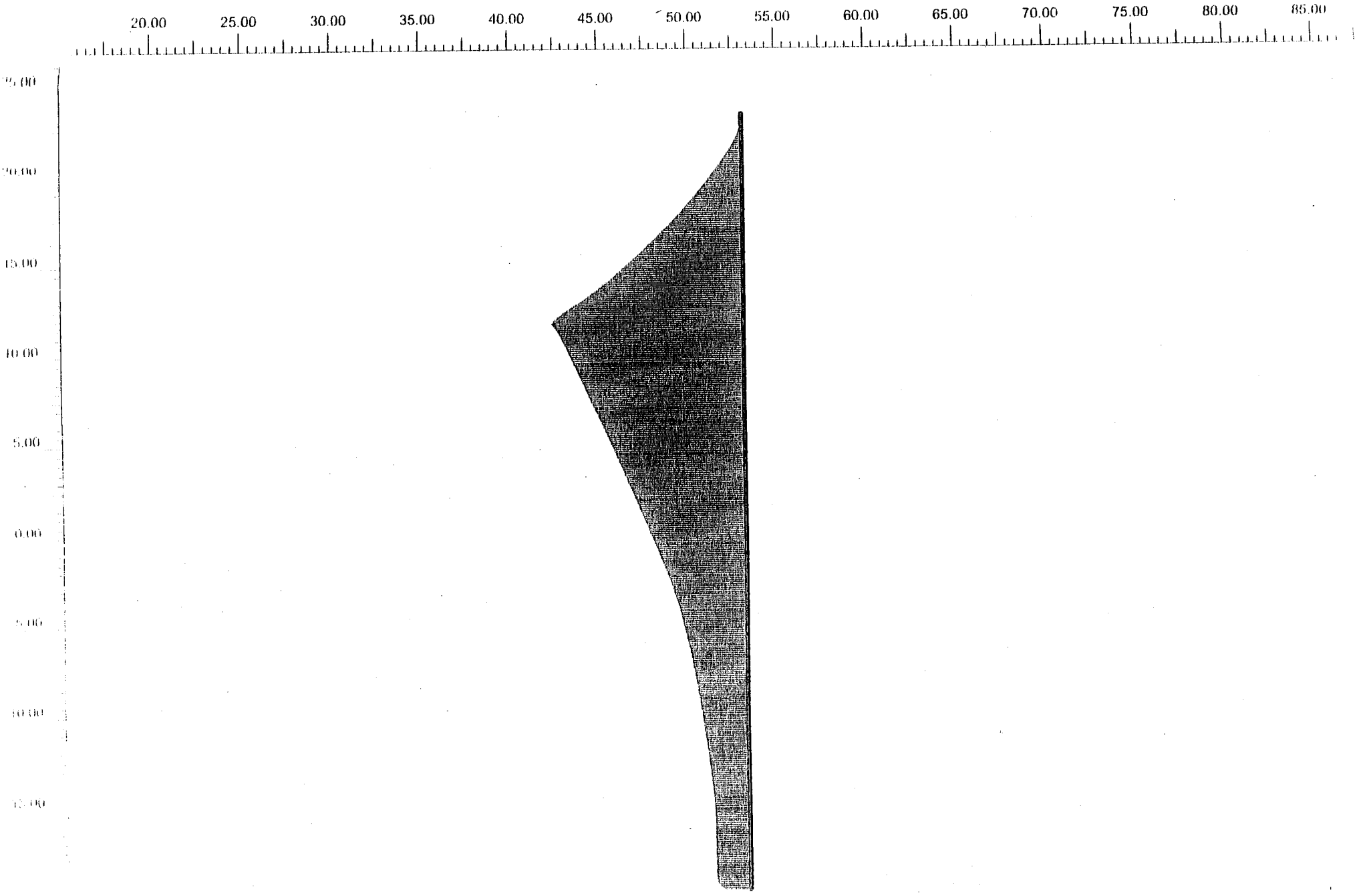

0.000
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120.0
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m
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-0.140
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-0.180
-0.200
-0.220
-0.240
-0.260
-0.280
-0.300
-0.320
-0.340
20.000
0.000
Vertical displacements
Extreme vertical displacement -338,55*10-3 m
25.000
30.000
35.000
40.000
45.000
50.000
55.000
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65.000
m
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-0.020
-0.040
-0.060
-0.080
-0.100
-0.120
-0.140
-0.160
-0.180
-0.200
-0.220
-0.240
-0.260
-0.280
-0.300
-0.320
-0.340
Vertical displacements
Extreme vertical displacement -338,55*10-3 m



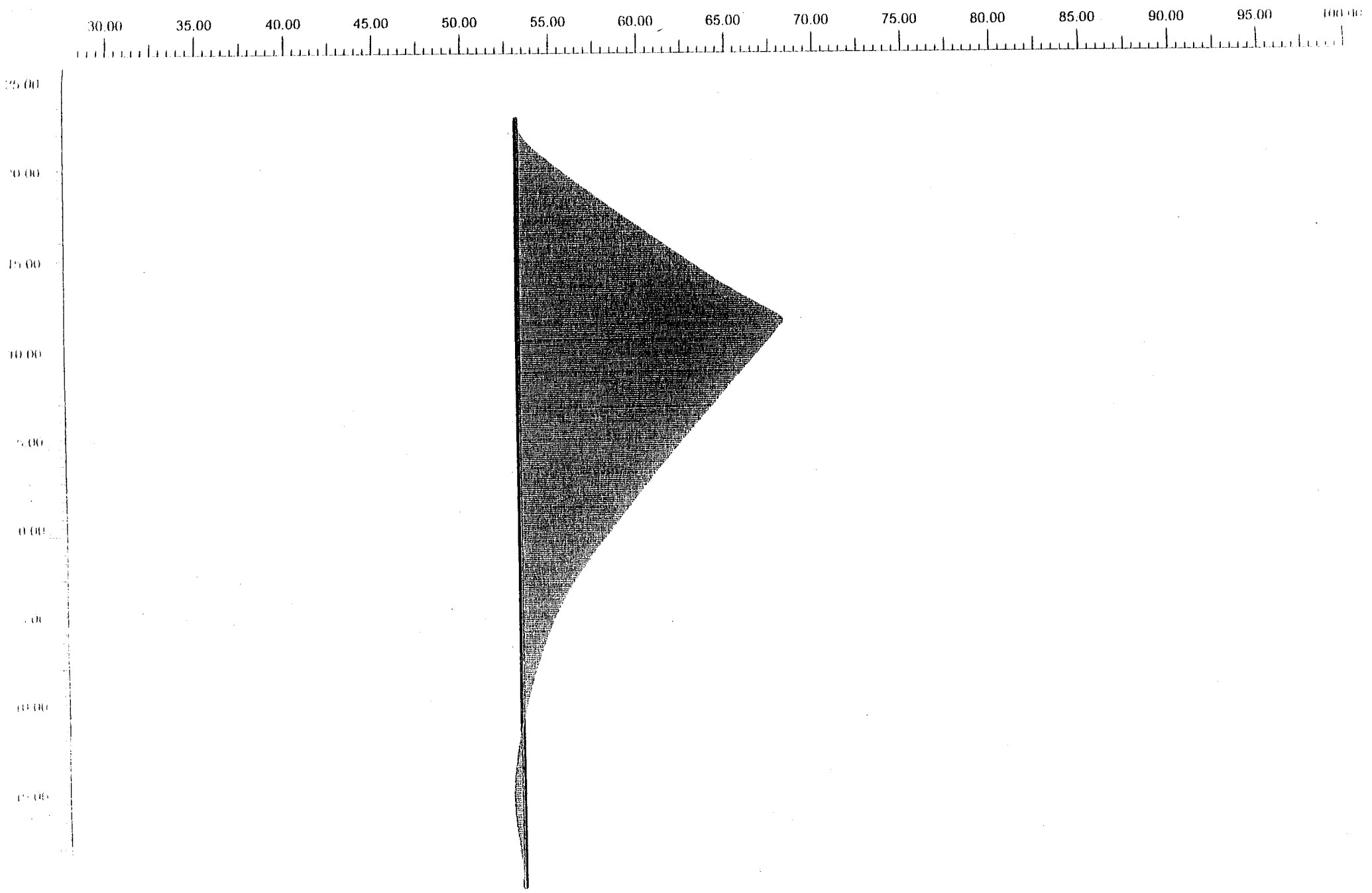
Horizontal displacements
Extreme horizontal displacement $96{,}61 * 10^{-3}$ m



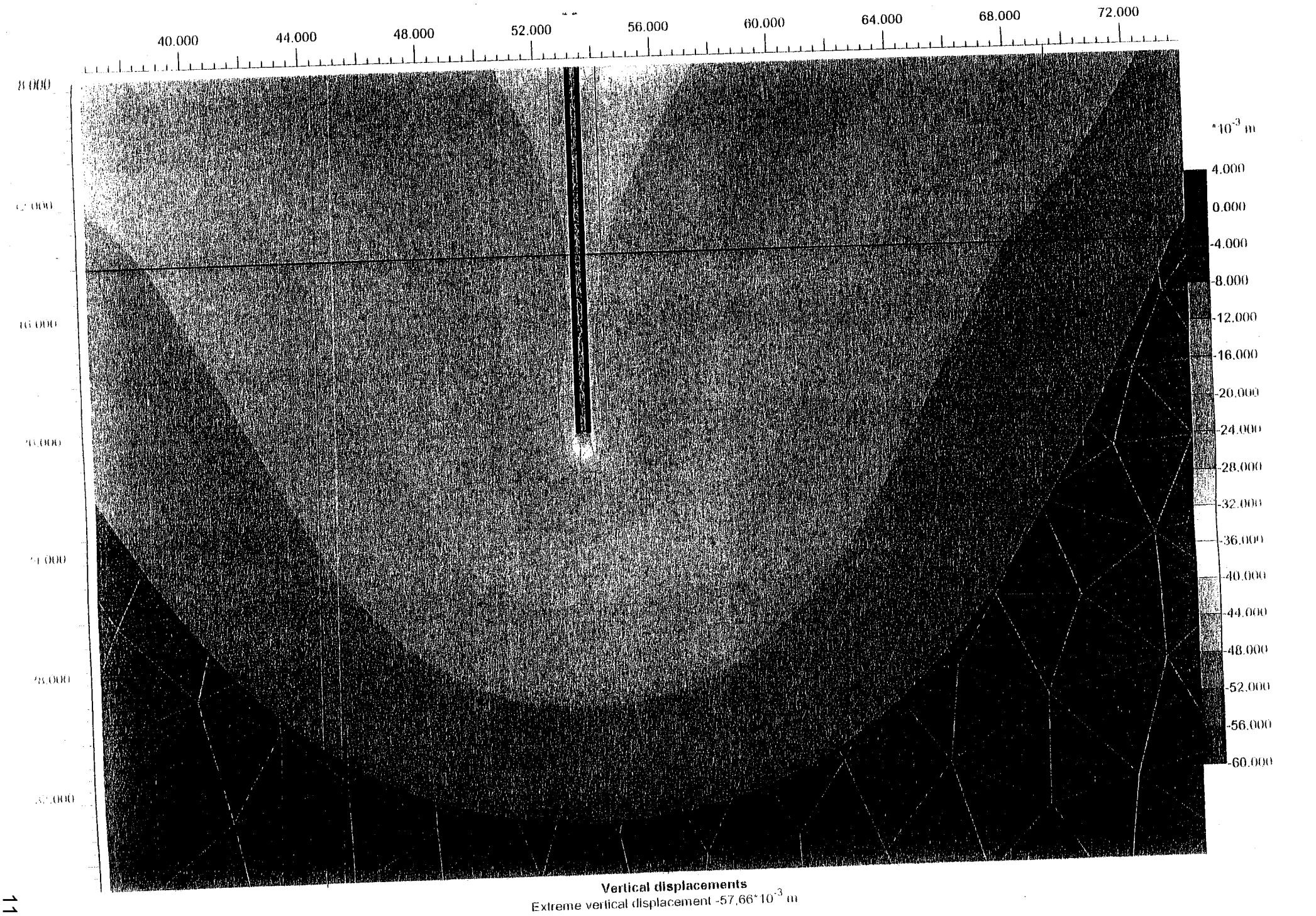
Horizontal displacements
Extreme horizontal displacement $75{,}60 * 10^{-3}$ m



Axial forces
Extreme axial force -136,96 T/m



Bending moment
Extreme bending moment 54,69 Tm/m



Vertical displacements
Extreme vertical displacement -57,66*10^{-3} m

Project description : estribo entrada
Date : 25/06/2004
User name : ICYFSA
Project name : estribo nueva geom
Output : Beam displacements
Step : 1 Page : 1

Beam	Element	Node	X [m]	Y [m]	Ux [10^{-3} m]	Uy [10^{-3} m]
1	1 pilote	9347	53,150	23,100	-24,290	-103,924
		9346	53,150	22,992	-23,431	-103,924
		9353	53,150	22,883	-22,572	-103,924
	2 pilote	9353	53,150	22,883	-22,572	-103,924
		9352	53,150	22,775	-21,714	-103,924
		9376	53,150	22,666	-20,855	-103,924
	3 pilote	9376	53,150	22,666	-20,855	-103,924
		9377	53,150	22,558	-19,996	-103,924
		9382	53,150	22,449	-19,137	-103,924
	4 pilote	9382	53,150	22,449	-19,137	-103,924
		9384	53,150	22,341	-18,278	-103,924
		9647	53,150	22,232	-17,420	-103,923
	5 pilote	9647	53,150	22,232	-17,420	-103,923
		9646	53,150	22,124	-16,561	-103,923
		9650	53,150	22,015	-15,702	-103,923
	6 pilote	9650	53,150	22,015	-15,702	-103,923
		9652	53,150	21,907	-14,844	-103,923
		9792	53,150	21,798	-13,985	-103,922
	7 pilote	9792	53,150	21,798	-13,985	-103,922
		9791	53,150	21,690	-13,127	-103,922
		9795	53,150	21,581	-12,270	-103,921
	8	9795	53,150	21,581	-12,270	-103,921

Plaxis - Finite Element Code for Soil and Rock Analyses

Project description : estribo entrada
Date : 25/06/2004
User name : ICYFSA
Project name : estribo nueva geom
Output : Beam displacements
Step : 1 Page : 2

Beam	Element	Node	X [m]	Y [m]	Ux [10^{-3} m]	Uy [10^{-3} m]
	pilote	9797	53,150	21,473	-11,412	-103,920
		9919	53,150	21,364	-10,555	-103,919
	9 pilote	9919	53,150	21,364	-10,555	-103,919
		9918	53,150	21,256	-9,699	-103,919
		9922	53,150	21,147	-8,843	-103,917
	10 pilote	9922	53,150	21,147	-8,843	-103,917
		9924	53,150	21,039	-7,988	-103,916
		10016	53,150	20,930	-7,133	-103,915
	11 pilote	10016	53,150	20,930	-7,133	-103,915
		10011	53,150	20,822	-6,279	-103,914
		10012	53,150	20,713	-5,426	-103,912
	12 pilote	10012	53,150	20,713	-5,426	-103,912
		10014	53,150	20,605	-4,574	-103,910
		10108	53,150	20,496	-3,723	-103,909
	13 pilote	10108	53,150	20,496	-3,723	-103,909
		10070	53,150	20,388	-2,873	-103,907
		10069	53,150	20,279	-2,024	-103,905
	14 pilote	10069	53,150	20,279	-2,024	-103,905
		10068	53,150	20,171	-1,176	-103,903
		10084	53,150	20,062	-0,330	-103,900
	15 pilote	10084	53,150	20,062	-0,330	-103,900
		10083	53,150	19,954	0,515	-103,898
		10087	53,150	19,845	1,359	-103,895

Beam	Element	Node	X [m]	Y [m]	Ux [10^{-3} m]	Uy [10^{-3} m]
	16 pilote	10087	53,150	19,845	1,359	-103,895
		10082	53,150	19,737	2,202	-103,893
		10094	53,150	19,628	3,042	-103,890
	17 pilote	10094	53,150	19,628	3,042	-103,890
		10090	53,150	19,520	3,881	-103,887
		10091	53,150	19,411	4,719	-103,884
	18 pilote	10091	53,150	19,411	4,719	-103,884
		9975	53,150	19,303	5,554	-103,881
		9973	53,150	19,194	6,388	-103,877
	19 pilote	9973	53,150	19,194	6,388	-103,877
		9968	53,150	19,086	7,220	-103,874
		9967	53,150	18,977	8,050	-103,870
	20 pilote	9967	53,150	18,977	8,050	-103,870
		9909	53,150	18,869	8,878	-103,866
		9908	53,150	18,760	9,704	-103,862
	21 pilote	9908	53,150	18,760	9,704	-103,862
		9903	53,150	18,652	10,527	-103,858
		9904	53,150	18,543	11,348	-103,854
	22 pilote	9904	53,150	18,543	11,348	-103,854
		9779	53,150	18,435	12,167	-103,849
		9777	53,150	18,326	12,983	-103,845
	23 pilote	9777	53,150	18,326	12,983	-103,845
		9773	53,150	18,218	13,797	-103,840

Beam	Element	Node	X [m]	Y [m]	Ux [10^{-3} m]	Uy [10^{-3} m]
		9774	53,150	18,109	14,609	-103,835
	24 pilote	9774	53,150	18,109	14,609	-103,835
		9686	53,150	18,001	15,417	-103,830
		9685	53,150	17,892	16,223	-103,825
	25 pilote	9685	53,150	17,892	16,223	-103,825
		9683	53,150	17,784	17,026	-103,820
		9681	53,150	17,675	17,826	-103,814
	26 pilote	9681	53,150	17,675	17,826	-103,814
		9680	53,150	17,567	18,623	-103,808
		9758	53,150	17,458	19,417	-103,802
	27 pilote	9758	53,150	17,458	19,417	-103,802
		9536	53,150	17,350	20,208	-103,796
		9534	53,150	17,242	20,996	-103,790
	28 pilote	9534	53,150	17,242	20,996	-103,790
		9533	53,150	17,133	21,780	-103,784
		9623	53,150	17,025	22,561	-103,777
	29 pilote	9623	53,150	17,025	22,561	-103,777
		9317	53,150	16,916	23,339	-103,770
		9315	53,150	16,808	24,113	-103,763
	30 pilote	9315	53,150	16,808	24,113	-103,763
		9311	53,150	16,699	24,883	-103,756
		9312	53,150	16,591	25,650	-103,749
	31	9312	53,150	16,591	25,650	-103,749

Beam	Element	Node	X [m]	Y [m]	Ux [10^{-3} m]	Uy [10^{-3} m]
	pilote	9225	53,150	16,482	26,413	-103,741
		9223	53,150	16,374	27,172	-103,734
	32 pilote	9223	53,150	16,374	27,172	-103,734
		9221	53,150	16,265	27,927	-103,726
		9220	53,150	16,157	28,678	-103,718
	33 pilote	9220	53,150	16,157	28,678	-103,718
		9126	53,150	16,048	29,425	-103,710
		9125	53,150	15,940	30,168	-103,701
	34 pilote	9125	53,150	15,940	30,168	-103,701
		8937	53,150	15,831	30,907	-103,693
		8935	53,150	15,723	31,641	-103,684
	35 pilote	8935	53,150	15,723	31,641	-103,684
		8930	53,150	15,614	32,371	-103,675
		8929	53,150	15,506	33,096	-103,666
	36 pilote	8929	53,150	15,506	33,096	-103,666
		8922	53,150	15,397	33,817	-103,656
		8921	53,150	15,289	34,533	-103,647
	37 pilote	8921	53,150	15,289	34,533	-103,647
		8916	53,150	15,180	35,245	-103,637
		8917	53,150	15,072	35,951	-103,627
	38 pilote	8917	53,150	15,072	35,951	-103,627
		8733	53,150	14,963	36,653	-103,617
		8731	53,150	14,855	37,350	-103,607

Beam	Element	Node	X [m]	Y [m]	Ux [10^{-3} m]	Uy [10^{-3} m]
	39 pilote	8731	53,150	14,855	37,350	-103,607
		8730	53,150	14,746	38,041	-103,596
		8771	53,150	14,638	38,728	-103,585
	40 pilote	8771	53,150	14,638	38,728	-103,585
		8726	53,150	14,529	39,409	-103,574
		8727	53,150	14,421	40,085	-103,563
	41 pilote	8727	53,150	14,421	40,085	-103,563
		8728	53,150	14,312	40,756	-103,552
		8862	53,150	14,204	41,421	-103,540
	42 pilote	8862	53,150	14,204	41,421	-103,540
		8478	53,150	14,095	42,080	-103,528
		8476	53,150	13,987	42,734	-103,516
	43 pilote	8476	53,150	13,987	42,734	-103,516
		8468	53,150	13,878	43,383	-103,504
		8467	53,150	13,770	44,025	-103,492
	44 pilote	8467	53,150	13,770	44,025	-103,492
		8462	53,150	13,661	44,662	-103,479
		8463	53,150	13,553	45,292	-103,466
	45 pilote	8463	53,150	13,553	45,292	-103,466
		8449	53,150	13,444	45,917	-103,453
		8447	53,150	13,336	46,535	-103,440
	46 pilote	8447	53,150	13,336	46,535	-103,440
		8445	53,150	13,227	47,147	-103,426

Beam	Element	Node	X [m]	Y [m]	Ux [10^{-3} m]	Uy [10^{-3} m]
		8444	53,150	13,119	47,753	-103,412
	47 pilote	8444	53,150	13,119	47,753	-103,412
		8439	53,150	13,010	48,352	-103,398
		8440	53,150	12,902	48,945	-103,384
	48 pilote	8440	53,150	12,902	48,945	-103,384
		8198	53,150	12,793	49,531	-103,369
		8196	53,150	12,685	50,111	-103,354
	49 pilote	8196	53,150	12,685	50,111	-103,354
		8194	53,150	12,576	50,683	-103,339
		8193	53,150	12,468	51,248	-103,323
	50 pilote	8193	53,150	12,468	51,248	-103,323
		8188	53,150	12,359	51,807	-103,308
		8189	53,150	12,251	52,358	-103,292
	51 pilote	8189	53,150	12,251	52,358	-103,292
		7940	53,150	12,142	52,901	-103,275
		7938	53,150	12,034	53,437	-103,259
	52 pilote	7938	53,150	12,034	53,437	-103,259
		7937	53,150	11,925	53,966	-103,242
		8177	53,150	11,817	54,486	-103,225
	53 pilote	8177	53,150	11,817	54,486	-103,225
		8174	53,150	11,708	54,998	-103,208
		8172	53,150	11,600	55,501	-103,191
	54	8172	53,150	11,600	55,501	-103,191

Beam	Element	Node	X [m]	Y [m]	Ux [10^{-3} m]	Uy [10^{-3} m]
	pilote	8168	53,150	11,492	55,994	-103,174
		8169	53,150	11,384	56,479	-103,157
	55 pilote	8169	53,150	11,384	56,479	-103,157
		7591	53,150	11,276	56,958	-103,140
		7589	53,150	11,168	57,429	-103,123
	56 pilote	7589	53,150	11,168	57,429	-103,123
		7588	53,150	11,060	57,892	-103,106
		7919	53,150	10,952	58,349	-103,090
	57 pilote	7919	53,150	10,952	58,349	-103,090
		7832	53,150	10,844	58,798	-103,073
		7831	53,150	10,737	59,240	-103,057
	58 pilote	7831	53,150	10,737	59,240	-103,057
		7830	53,150	10,629	59,675	-103,041
		7876	53,150	10,521	60,103	-103,025
	59 pilote	7876	53,150	10,521	60,103	-103,025
		7875	53,150	10,413	60,524	-103,009
		8007	53,150	10,305	60,937	-102,993
	60 pilote	8007	53,150	10,305	60,937	-102,993
		7829	53,150	10,197	61,344	-102,977
		7827	53,150	10,089	61,744	-102,961
	61 pilote	7827	53,150	10,089	61,744	-102,961
		7823	53,150	9,981	62,137	-102,945
		7824	53,150	9,873	62,523	-102,929

Project description : estribo entrada
Date : 25/06/2004
User name : ICYFSA
Project name : estribo nueva geom
Output : Beam displacements
Step : 1
Page : 9

Beam	Element	Node	X [m]	Y [m]	Ux [10^{-3} m]	Uy [10^{-3} m]
	62 pilote	7824	53,150	9,873	62,523	-102,929
		7456	53,150	9,765	62,903	-102,914
		7454	53,150	9,657	63,276	-102,898
	63 pilote	7454	53,150	9,657	63,276	-102,898
		7450	53,150	9,549	63,642	-102,883
		7451	53,150	9,441	64,002	-102,867
	64 pilote	7451	53,150	9,441	64,002	-102,867
		7426	53,150	9,333	64,355	-102,852
		7424	53,150	9,225	64,701	-102,837
	65 pilote	7424	53,150	9,225	64,701	-102,837
		7420	53,150	9,117	65,041	-102,822
		7421	53,150	9,010	65,375	-102,807
	66 pilote	7421	53,150	9,010	65,375	-102,807
		6843	53,150	8,902	65,702	-102,792
		6841	53,150	8,794	66,023	-102,777
	67 pilote	6841	53,150	8,794	66,023	-102,777
		6790	53,150	8,686	66,337	-102,762
		6789	53,150	8,578	66,646	-102,748
	68 pilote	6789	53,150	8,578	66,646	-102,748
		6784	53,150	8,470	66,948	-102,733
		6785	53,150	8,362	67,244	-102,718
	69 pilote	6785	53,150	8,362	67,244	-102,718
		6770	53,150	8,254	67,534	-102,704

Plaxis - Finite Element Code for Soil and Rock Analyses

Project description : estribo entrada
Date : 25/06/2004
User name : ICYFSA
Project name : estribo nueva geom
Output : Beam displacements
Step : 1
Page : 2

Beam	Element	Node	X [m]	Y [m]	Ux [10^{-3} m]	Uy [10^{-3} m]
		6768	53,150	8,146	67,818	-102,690
	70 pilote	6768	53,150	8,146	67,818	-102,690
		6764	53,150	8,038	68,096	-102,675
		6765	53,150	7,930	68,368	-102,661
	71 pilote	6765	53,150	7,930	68,368	-102,661
		6648	53,150	7,822	68,635	-102,647
		6647	53,150	7,714	68,895	-102,633
	72 pilote	6647	53,150	7,714	68,895	-102,633
		6646	53,150	7,606	69,149	-102,619
		6760	53,150	7,498	69,398	-102,605
	73 pilote	6760	53,150	7,498	69,398	-102,605
		6644	53,150	7,390	69,641	-102,591
		6643	53,150	7,283	69,879	-102,577
	74 pilote	6643	53,150	7,283	69,879	-102,577
		6642	53,150	7,175	70,111	-102,564
		6753	53,150	7,067	70,337	-102,550
	75 pilote	6753	53,150	7,067	70,337	-102,550
		6422	53,150	6,959	70,558	-102,537
		6421	53,150	6,851	70,773	-102,523
	76 pilote	6421	53,150	6,851	70,773	-102,523
		6420	53,150	6,743	70,983	-102,510
		6452	53,150	6,635	71,187	-102,496
	77	6452	53,150	6,635	71,187	-102,496

Beam	Element	Node	X [m]	Y [m]	Ux [10^{-3} m]	Uy [10^{-3} m]
	pilote	6426	53,150	6,527	71,387	-102,483
		6425	53,150	6,419	71,580	-102,470
	78	6425	53,150	6,419	71,580	-102,470
	pilote	6424	53,150	6,311	71,769	-102,457
		6576	53,150	6,203	71,953	-102,444
	79	6576	53,150	6,203	71,953	-102,444
	piiote	6293	53,150	6,095	72,131	-102,431
		6291	53,150	5,987	72,304	-102,418
	80	6291	53,150	5,987	72,304	-102,418
	pilote	6287	53,150	5,879	72,473	-102,406
		6288	53,150	5,771	72,636	-102,393
	81	6288	53,150	5,771	72,636	-102,393
	pilote	6042	53,150	5,663	72,794	-102,381
		6040	53,150	5,556	72,947	-102,368
	82	6040	53,150	5,556	72,947	-102,368
	pilote	6039	53,150	5,448	73,096	-102,356
		6187	53,150	5,340	73,240	-102,343
	83	6187	53,150	5,340	73,240	-102,343
	pilote	5846	53,150	5,232	73,379	-102,331
		5844	53,150	5,124	73,513	-102,319
	84	5844	53,150	5,124	73,513	-102,319
	pilote	5842	53,150	5,016	73,643	-102,307
		5841	53,150	4,908	73,767	-102,295

PEDELTA
INGENIERÍA DE ESTRUCTURAS

NOTA TÉCNICA SOBRE LA VERIFICACIÓN DE LAS PILAS 9 Y 10 DEL VIADUCTO DE CORNELLÀ (P.K. 702+174) SITUADO EN EL TRAMO: SANT JOAN DESPÍ-L'HOSPITALET DE LLOBREGAT DE LA L.A.V. MADRID-ZARAGOZA-BARCELONA-FRONTERA FRANCESA.

ESTEYCO - CICSA - ICYFSA
U. T. E.
Registro de ENTRADA
Nº Reg. 1.247
Fecha 16/05/05
HOS - D - V - C - 26.0

PEDELTA
INGENIERÍA DE ESTRUCTURAS

NOTA TÉCNICA SOBRE LA VERIFICACIÓN DE LAS PILAS 9 Y 10 DEL VIADUCTO DE CORNELLÀ (P.K. 702+174) SITUADO EN EL TRAMO: SANT JOAN DESPÍ-L'HOSPITALET DE LLOBREGAT DE LA L.A.V. MADRID-ZARAGOZA-BARCELONA-FRONTERA FRANCESA.

1. ANTECEDENTES Y OBJETO

Durante la ejecución de la subestructura del Viaducto de Cornellà, se detectó que el hormigón de los alzados de las pilas 9 y 10 no alcanzaba en los ensayos a 28 días la resistencia característica establecida en proyecto (HA-35). En consecuencia, se ensayaron las probetas de reserva a 60 días. Estas últimas mostraron un incremento en la resistencia del hormigón, pero sin todavía alcanzar la resistencia mínima requerida en proyecto.

Por esta razón, se ha realizado un recálculo de comprobación de las pilas 9 y 10 con un hormigón de resistencia característica igual a la resistencia estimada según la norma EHE. De esta forma, se determinará si a pesar de reducción de dicha resistencia, las pilas con su configuración actual mantienen el coeficiente de seguridad global establecido por la normativa vigente.

2. DESCRIPCIÓN DE LOS CÁLCULOS.

En primer lugar se ha estimado de acuerdo con el artículo *** de la EHE la resistencia estimada del hormigón, tanto para la pila 9 como para la pila 10. Esta determinación se ha hecho a partir de los resultados de los ensayos de las probetas a 60 días.

Posteriormente, se ha verificado el ELU de agotamiento por tensiones normales y el ELU de agotamiento de la sección por tensiones tangenciales. Ambos estados se han comprobado a partir de los esfuerzos de cálculo dados en la memoria del proyecto constructivo del viaducto.

3. DETERMINACIÓN DE LA RESISTENCIA ESTIMADA

A partir de los ensayos de resistencia efectuados sobre el hormigón de las pilas a la edad de 60 días se ha calculado la resistencia estimada según el artículo 88 de la EHE. **Las resistencias obtenidas (ver apéndice 1) para cada una de las pilas han sido: 31,8 N/mm^2 en la pila 9 y 26,3 N/mm^2 para la pila 10.**

Estas resistencias estimadas se han tomado como resistencias características para las comprobaciones llevadas a cabo en este informe.

4. ELU DE AGOTAMIENTO POR TENSIONES NORMALES.

Ambas pilas poseen una sección rectangular de 6 metros de ancho por 1,3 m de espesor con un armado formado por redondos de diámetro 20 cada 10 centímetros, resultando 61 redondos en la cara mayor y 11 en las laterales. La altura de las pilas es de 10,81 m para la pila 9 y 10,64 m para la pila 10.

Los esfuerzos solicitantes, axil y momentos flectores (transversales y longitudinales) concomitantes se han tomado del proyecto constructivo (ver apéndice 2). A estos esfuerzos se les ha añadido el incremento de flector por efectos de 2º orden, ya que la esbeltez de la pila según el eje transversal es superior a 35.

Por lo tanto, según el artículo 43 de la instrucción EHE, se debe comprobar el ELU de inestabilidad. Por ello se ha calculado el incremento de momento flector longitudinal según el método general establecido en el artículo 43.5.1 de dicha norma (ver apéndice 3).

PILA 9 **HA-31,8**

	ESFUERZOS EN BASE DEL PILAR					C.S.
HIPÓTESIS	N	Mtrasv	Mlong 1er orden	Mlong 2º orden	Mlong total	γ
1	51742	13000	19321	11637	30958	**1.00**
2	20705	13000	11388	4961	16349	**1.32**
3	43261	34471	12554	8143	20697	**1.23**
4	30315	35767	11388	6617	18005	**1.24**

Cuadro 1. Coeficiente de Seguridad (Mu/Md) en la pila 9

PEDELTA
INGENIERÍA DE ESTRUCTURAS

Posteriormente, se ha verificado el ELU de agotamiento por tensiones normales en la sección base de ambas pilas para la terna de esfuerzos N, Mt, Ml. Para ello se ha utilizado el programa "Prontuario Informático del Hormigón Estructural 3.0"

En los cuadros 1 y 2 se exponen los coeficientes de seguridad alcanzados en la comprobación de cada una de las hipótesis de carga analizadas:

PILA 10 **HA-26,3**

	ESFUERZOS EN BASE DEL PILAR					C.S.
HIPÓTESIS	N	Mtrasv	Mlong 1er orden	Mlong 2º orden	Mlong total	γ
1	45804	10700	16347	11753	28100	**1.01**
2	16705	10700	9327	4941	14268	**1.38**
3	38403	29413	10290	8460	18750	**1.23**
4	25930	30482	9327	6615	15942	**1.27**

Cuadro 2. Coeficiente de Seguridad (Mu/Md) en la pila 10

El cálculo detallado del momento último de las secciones puede consultarse en el apéndice 4.

5. ELU DE AGOTAMIENTO POR TENSIONES TANGENCIALES.

Las secciones críticas de las pilas 9 y 10 también se han comprobado frente a esfuerzo cortante. Para ello se ha partido de los esfuerzos solicitantes aportados en el proyecto constructivo (ver apéndice 2). La resistencia a cortante de las secciones transversales se ha calculado de acuerdo con el artículo 44 de la EHE, mediante el programa "Prontuario Informático del Hormigón Estructural 3.0".

PILA 9 **HA-31,8**

	ESFUERZOS EN BASE DEL PILAR			C.S.
HIPÓTESIS	Nd	Vd	Vu	γ
1	51742	1791	7425	**4.15**
2	20705	1071	3038	**2.84**
3	43261	1071	6188	**5.78**
4	30315	1071	4388	**4.10**

Cuadro 3. Coeficiente de Seguridad (Vu/Vd) en la pila 9

En los cuadros 3 y 4 se muestran los coeficientes de seguridad obtenidos frente a esfuerzos cortantes. El cálculo detallado del cortante último de las secciones puede consultarse en el apéndice 5.

PILA 10 **HA-26,3**

	ESFUERZOS EN BASE DEL PILAR			C.S.
HIPÓTESIS	Nd	Vd	Vu	γ
1	45804	1573	6638	**4.22**
2	16705	913	2363	**2.59**
3	38403	914	5513	**6.03**
4	25930	913	3713	**4.07**

Cuadro 4. Coeficiente de Seguridad (Vu/Vd) en la pila 10

6. CONCLUSIONES

Se considera que en el presente documento se ha justificado adecuadamente la validez de las pilas 9 y 10 del Viaducto de Cornellà, puesto que éstas, con las características actuales de sus materiales, cumplen los estados límites últimos que prescribe la EHE.

Barcelona, 5 de mayo de 2005

Juan V. Tirado Gascón
Ingeniero de Caminos, Canales y Puertos

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APÉNDICE 1. RESULTADOS DE LOS ENSAYOS DEL HORMIGÓN

RESULTADOS DE LOS ENSAYOS EN PROBETAS A 60 DÍAS EN LAS PILAS 9 Y 10

PILA	EMPRESA AUTORA DEL ENSAYO	RESISTENCIA PROBETA A 60 DÍAS
9	INTEMAC	32.7
9	INTEMAC	33.1
9	INTEMAC	31.8
9	INTEMAC	33.5
9	APPLUS	35.9
9	APPLUS	35.5
9	APPLUS	35.4

PILA	EMPRESA AUTORA DEL ENSAYO	RESISTENCIA PROBETA A 60 DÍAS
10	INTEMAC	29.1
10	INTEMAC	27.3
10	INTEMAC	30.1
10	INTEMAC	26.3
10	APPLUS	35.1
10	APPLUS	35.1
10	APPLUS	33.4
10	APPLUS	34.1

PRONTUARIO INFORMÁTICO DEL HORMIGÓN ESTRUCTURAL 3.0
Cátedra de Hormigón Estructural ETSICCPM - IECA

Obra: VIADUCTO DE CORNELLÀ. PILA 9
Fecha: 05/05/2005
Hora: 15:54:53

Control estadístico del hormigón

1 Datos

fck de proyecto [MPa] = 35

Fabricación del hormigón : En central clase A con sello de calidad

Número de amasadas = 7

Amasada	fci [MPa]
1	32.7
2	33.1
3	31.8
4	33.5
5	35.9
6	35.5
7	35.4

2 Resultados

Resistencia media fcm [MPa] = 34.0

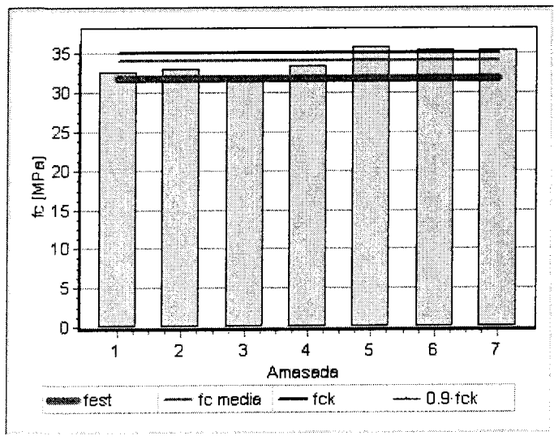
Resistencia estimada fest [MPa] = 31.8

Recorrido relativo del lote [MPa] = 0.12

Recorrido relativo máximo [MPa] = 0.39

Kn = 1.00

El lote se aceptará sin perjuicio de las sanciones contractuales previstas (art 88.5)



PRONTUARIO INFORMÁTICO DEL HORMIGÓN ESTRUCTURAL 3.0
Cátedra de Hormigón Estructural ETSICCPM - IECA

Obra: VIADUCTO DE CORNELLÀ. PILA 10
Fecha: 05/05/2005
Hora: 15:56:38

PEDELTA
INGENIERÍA DE ESTRUCTURAS

Control estadístico del hormigón

1 Datos

fck de proyecto [MPa] = 35

Fabricación del hormigón : En central clase A con sello de calidad

Número de amasadas = 8

Amasada	fci [MPa]
1	29.1
2	27.3
3	30.1
4	26.3
5	35.1
6	35.1
7	34.6
8	34.1

2 Resultados

Resistencia media fcm [MPa] = 31.5

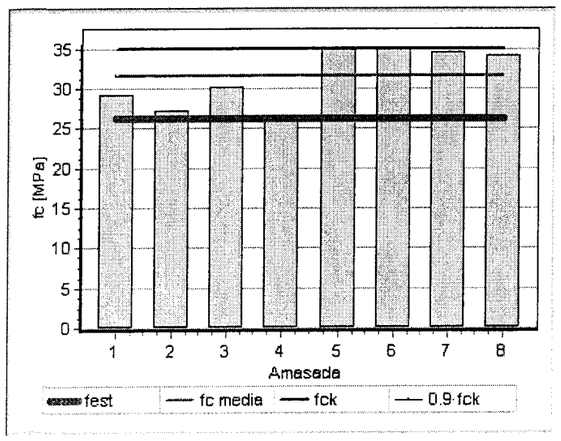
Resistencia estimada fest [MPa] = 26.3

Recorrido relativo del lote [MPa] = 0.28

Recorrido relativo máximo [MPa] = 0.40

Kn = 1.00

El lote no es inmediatamente aceptable.
Se habrán de realizar estudios y ensayos (art 88.5)



APÉNDICE 2. ESFUERZOS SOLICITANTES OBTENIDOS DEL PROYECTO CONSTRUCTIVO

CÁLCULOS PROYECTO

23/04/02

RESUMEN DE ACCIONES Y ESFUERZOS EN PILAS Y ESTRIBOS

PILA 9

ACCIONES			ESFUERZOS					HIP. 1, ELU max Fz, conc max Mx, max FX						HIP. 2, ELU min Fz, conc max Mx, max Fx						HIP. 3, ELU max Mx, conc max Fz, max Fx						HIP. 4, ELU max Mx, conc min Fz, max Fx					
altura pila	11.03	m																													
longitud vano	40.00	m	Fx	Fy	Fz	Mx	My	coefic.	Fx	Fy	Fz	Mx	My	coefic.	Fx	Fy	Fz	Mx	My	coefic.	Fx	Fy	Fz	Mx	My	coefic.	Fx	Fy	Fz	Mx	My
			kN	kN	kN	kNm	kNm		kN	kN	kN	kNm	kNm		kN	kN	kN	kNm	kNm		kN	kN	kN	kNm	kNm		kN	kN	kN	kNm	kNm
ACCIONES VERTICALES (Fz)																															
peso propio tablero	25	kN/m3			15703			1.35	0	0	21199	0	0	1.00	0	0	15703	0	0	1.35	0	0	21199	0	0	1.00	0	0	15703	0	0
carga muerta (med)	150	kN/m			6104			0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0
carga muerta (max)	180	kN/m			7325			1.35	0	0	9888	0	0	0.00	0	0	0	0	0	1.35	0	0	9888	0	0	0.00	0	0	0	0	0
carga muerta (min)	120	kN/m			4883			0.00	0	0	0	0	0	1.00	0	0	4883	0	0	0.00	0	0	0	0	0	1.00	0	0	4883	0	0
tren B (max R)					11184			1.50	0	0	16778	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0
tren B (max R)					-758			0.00	0	0	0	0	0	1.50	0	0	-1137	0	0	1.50	0	0	8388	18873	0	1.50	0	0	8388	18873	0
tren B (min R)					5592	12582		0.00	0	0	0	0	0	0.00	0	0	0	0	0	1.50	0	0	0	0	0	0.00	0	0	0	0	0
tren B (max T)					49			0.00	0	0	0	0	0	1.00	0	0	49	0	0	0.00	0	0	42	0	0	-1.00	0	0	42	0	0
pretensado hiperestatido (t=0)					42			1.00	0	0	42	0	0	0.00	0	0	0	0	0	1.00	0	0	0	0	0	0.90	0	0	83	0	0
pretensado hiperestatido (t=oo)	0.85				103			0.90	0	0	93	0	0	0.00	0	0	0	0	0	0.90	0	0	900	0	0	-0.90	0	0	-900	0	0
gradiente temperatura (DT = 10ºC)	10	º			1000			0.90	0	0	900	0	0	-0.90	0	0	-900	0	0	0.90	0	0	2844	0	0	1.00	0	0	2107	0	0
asiento diferencial (2 cm)	0.02	m			2107			1.35	0	0	2844	0	0	1.00	0	0	2107	0	0	1.35	0	0	2844	0	0						
peso propio pila	181	kN/m																													
ACCIONES HORIZONTALES LONGITUDINALES (Fx)																															
cabeza de pila																															
acortamiento elástico	-180E-6		0					0.50	0	0	0	0	0	0.50	0	0	0	0	0	0.50	0	0	0	0	0	0.50	0	0	0	0	0
fluencia	-427E-6		0					0.50	0	0	0	0	0	0.50	0	0	0	0	0	0.50	0	0	0	0	0	0.50	0	0	0	0	0
retracción	-317E-6		0					0.50	0	0	0	0	0	0.50	0	0	0	0	0	0.50	0	0	0	0	0	0.50	0	0	0	0	0
variación temperatura (DT=20ºC)	200E-6		0					0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0
variación temperatura (DT=-20ºC)	-200E-6		0					1.00	0	0	0	0	0	0.90	0	0	0	0	0	0.90	0	0	0	0	0	0.90	0	0	0	0	0
frenado (7268 kN)	7268	kN	0					1.50	0	0	0	0	0	1.50	0	0	0	0	0	1.50	0	0	0	0	0	1.50	0	0	0	0	0
rozamiento apoyos (max. 5%) +-	5	%	1713					1.00	1713	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0
rozamiento apoyos (min., 1%) +-	1	%	199					0.00	0	0	0	0	0	5.00	993	0	0	0	0	5.00	993	0	0	0	0	5.00	993	0	0	0	0
viento longitudinal tablero	1.9	kN/m	0					0.90	0	0	0	0	0	0.90	0	0	0	0	0	0.90	0	0	0	0	0	0.90	0	0	0	0	0
base de pila							0	0.50	0	0	0	0	0	0.50	0	0	0	0	0	0.50	0	0	0	0	0	0.50	0	0	0	0	0
acortamiento elástico							0	0.50	0	0	0	0	0	0.50	0	0	0	0	0	0.50	0	0	0	0	0	0.50	0	0	0	0	0
fluencia							0	0.50	0	0	0	0	0	0.50	0	0	0	0	0	0.50	0	0	0	0	0	0.50	0	0	0	0	0
retracción							0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0
variación temperatura (20°)							0	0.90	0	0	0	0	0	0.90	0	0	0	0	0	0.90	0	0	0	0	0	0.90	0	0	0	0	0
variación temperatura (-20°)							0	1.50	0	0	0	0	0	1.50	0	0	0	0	0	1.50	0	0	0	0	0	1.50	0	0	0	0	0
frenado	7268	kN					18691	1.00	1713	0	0	0	18891	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0
rozamiento apoyos (max. 5%) +-	5	%	1713				2192	0.00	0	0	0	0	0	5.00	993	0	0	0	10958	5.00	993	0	0	0	10958	5.00	993	0	0	0	10958
rozamiento apoyos (min., 1%) +-	1	%	199				0	0.90	0	0	0	0	0	0.90	0	0	0	0	0	0.90	0	0	0	0	0	5.00	993	0	0	0	0
viento longitudinal tablero	1.9	kN/m					0	0.90	0	0	0	0	0	0.90	0	0	0	0	0	0.90	0	0	0	0	0	0.90	0	0	0	0	0
viento longitudinal pilas	7.85	kN/m	87				478	0.90	78	0	0	0	430	0.90	78	0	0	0	430	0.90	78	0	0	0	430	0.90	78	0	0	0	430
ACCIONES HORIZONTALES TRANSVERSALES (Fy)																															
cabeza de la pila																															
viento transv. tablero (a 3,00m de base tablero)	7.61	kN/m		304		913		0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.90	0	274	0	822	0	0.90	0	274	0	822	0
fuerza centrífuga (a 4,60 m de base tablero)	18.6	kN/m		744		3422		0.90	0	670	0	3080	0	0.90	0	670	0	3080	0	0.90	0	670	0	3080	0	0.90	0	670	0	3080	0
fuerza de lazo (a 2,75 m de base tablero)	100	kN		100		275		0.90	0	90	0	248	0	0.90	0	90	0	248	0	0.90	0	90	0	248	0	0.90	0	90	0	248	0
ripado	36	kN/m/m		0		1440		0.90	0	0	0	1296	0	0.90	0	0	0	1296	0	0.90	0	0	0	0	0	0.90	0	0	0	1296	0
(descarrilamiento)								0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0
									0	0	0	0	0		0	0	0	0	0		0	0	0	0	0			0	0	0	0
base de la pila				304		4271		0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.90	0	274	0	3844	0	0.90	0	274	0	3844	0
viento transversal tablero				10		54		0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.90	0	9	0	49	0	0.90	0	9	0	49	0
viento transversal pilas	0.89	kN/m		744		11829		0.90	0	670	0	10466	0	0.90	0	670	0	10466	0	0.90	0	670	0	10466	0	0.90	0	670	0	10466	0
fuerza centrífuga (a 4,60 m de base tablero)	18.6	kN/m		100		1378		0.90	0	90	0	1240	0	0.90	0	90	0	1240	0	0.90	0	90	0	1240	0	0.90	0	90	0	1240	0
fuerza de lazo (a 2,75 m de base tablero)	100	kN		0		1440		0.90	0	0	0	1296	0	0.90	0	0	0	1296	0	0.90	0	0	0	1296	0	0.90	0	0	0	1296	0
ripado	36	kN/m/m																													
					EN CABEZA:			Σ	1713	760	48898	4624	0	Σ	993	760	18598	4624	0	Σ	993	1034	40417	24319	0	Σ	993	1034	28209	24319	0
					EN BASE:			Σ	1791	760	51742	13002	19321	Σ	1071	760	20705	13002	11388	Σ	1072	1042	43261	34471	12554	Σ	1071	1042	30315	35767	11388

023

pilas_cornella.xls

RESUMEN DE ACCIONES Y ESFUERZOS EN PILAS Y ESTRIBOS

PILA 10

23/04/02

ACCIONES			ESFUERZOS					HIP. 1, ELU max Fz, conc max Mx, max FX						HIP. 2, ELU min Fz, conc max Mx, max Fx						HIP. 3, ELU max Mx, conc max Fz, max Fx						HIP. 4, ELU max Mx, conc min Fz, max Fx					
altura pila	10.65	m																													
longitud vano	33.00	m	Fx	Fy	Fz	Mx	My	coefic.	Fx	Fy	Fz	Mx	My	coefic.	Fx	Fy	Fz	Mx	My	coefic.	Fx	Fy	Fz	Mx	My	coefic.	Fx	Fy	Fz	Mx	My
			kN	kN	kN	kNm	kNm		kN	kN	kN	kNm	kNm		kN	kN	kN	kNm	kNm		kN	kN	kN	kNm	kNm		kN	kN	kN	kNm	kNm
ACCIONES VERTICALES (Fz)																															
peso propio tablero	25	kN/m3			14244			1.35	0	0	19226	0	0	1.00	0	0	14244	0	0	1.35	0	0	19226	0	0	1.00	0	0	14244	0	0
carga muerta (med)	150	kN/m			5457			0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0
carga muerta (max)	180	kN/m			6548			1.35	0	0	8840	0	0	0.00	0	0	0	0	0	1.35	0	0	8840	0	0	0.00	0	0	0	0	0
carga muerta (min)	120	kN/m			4366			0.00	0	0	0	0	0	1.00	0	0	4366	0	0	0.00	0	0	0	0	0	1.00	0	0	4366	0	0
tren B (max R)					9868			1.50	0	0	14802	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0
tren B (max R)					-1132			0.00	0	0	0	0	0	1.50	0	0	-1698	0	0	1.50	0	0	7401	16652	0	1.50	0	0	7401	16652	0
tren B (min R)					4934	11102		0.00	0	0	0	0	0	0.00	0	0	0	0	0	1.50	0	0	0	0	0	0.00	0	0	0	0	0
tren B (max T)					-840			0.00	0	0	0	0	0	1.00	0	0	-840	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0
pretensado hiperestatido (t=0)					-714			1.00	0	0	-714	0	0	0.00	0	0	0	0	0	1.00	0	0	-714	0	0	1.00	0	0	-714	0	0
pretensado hiperestatido (t=oo)	0.85				-556			0.00	0	0	0	0	0	0.90	0	0	-500	0	0	0.00	0	0	0	0	0	1.00	0	0	0	0	0
gradiente temperatura (DT = 10ºC)	10	º			1000			0.90	0	0	900	0	0	-0.90	0	0	-900	0	0	0.90	0	0	900	0	0	-0.90	0	0	-900	0	0
asiento diferencial (2 cm)	0.02	m			2034			1.35	0	0	2746	0	0	1.00	0	0	2034	0	0	1.35	0	0	2746	0	0	-1.00	0	0	2034	0	0
peso propio pila	191	kN/m																													
ACCIONES HORIZONTALES LONGITUDINALES (Fx)																															
cabeza de pila																															
acortamiento elástico	-180E-6																														
fluencia	-427E-6		0					0.50	0	0	0	0	0	0.50	0	0	0	0	0	0.50	0	0	0	0	0	0.50	0	0	0	0	0
retracción	-317E-6		0					0.50	0	0	0	0	0	0.50	0	0	0	0	0	0.50	0	0	0	0	0	0.50	0	0	0	0	0
variación temperatura (DT=20ºC)	200E-6		0					0.50	0	0	0	0	0	0.50	0	0	0	0	0	0.50	0	0	0	0	0	0.50	0	0	0	0	0
variación temperatura (DT=-20ºC)	-200E-6		0					0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0
frenado (7268 kN)	7268	kN	0					1.00	0	0	0	0	0	0.90	0	0	0	0	0	0.90	0	0	0	0	0	0.90	0	0	0	0	0
rozamiento apoyos (max. 5%) +-	5	%	1497					1.50	0	0	0	0	0	1.50	0	0	0	0	0	1.50	0	0	0	0	0	1.50	0	0	0	0	0
rozamiento apoyos (min., 1%) +-	1	%	168					1.00	1497	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0
viento longitudinal tablero	1.9	kN/m	0					0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.90	0	0	0	0	0
base de pila							0	0.90	0	0	0	0	0	5.00	838	0	0	0	0	0.00	0	0	0	0	0	1.50	0	0	0	0	0
acortamiento elástico							0							0.90	0	0	0	0	0	5.00	838	0	0	0	0	0.00	0	0	0	0	0
fluencia							0													0.00	0	0	0	0	0	5.00	838	0	0	0	0
retracción							0	0.50	0	0	0	0	0													0.90	0	0	0	0	0
variación temperatura (20°)							0	0.50	0	0	0	0	0	0.50	0	0	0	0	0												
variación temperatura (-20°)							0	0.50	0	0	0	0	0	0.50	0	0	0	0	0	0.50	0	0	0	0	0	0.50	0	0	0	0	0
frenado	7266	kN					0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.50	0	0	0	0	0	0.50	0	0	0	0	0
rozamiento apoyos (max. 5%) +-	5	%					0	0.90	0	0	0	0	0	0.90	0	0	0	0	0	0.00	0	0	0	0	0	0.50	0	0	0	0	0
rozamiento apoyos (min., 1%) +-	1	%	1497				15946	1.50	0	0	0	0	0	0.90	0	0	0	0	0	0.90	0	0	0	0	0	0.00	0	0	0	0	0
viento longitudinal tablero	1	%	168				1785	1.00	1497	0	0	0	15946	0.00	0	0	0	0	0	1.50	0	0	0	0	0	0.90	0	0	0	0	0
viento longitudinal pilas	1.9	kN/m					0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	1.50	0	0	0	0	0
	7.85	kN/m	84				445	0.90	0	0	0	0	0	5.00	838	0	0	0	8927	5.00	838	0	0	0	8927	0.00	0	0	0	0	0
ACCIONES HORIZONTALES TRANSVERSALES (Fy)								0.90	75	0	0	0	401	0.90	75	0	0	0	401	0.90	75	0	0	0	401	0.90	75	0	0	0	401
cabeza de la pila																															
viento transv. tablero (a 3,00m de base tablero)	7.61	kN/m		251		753																									
fuerza centrífuga (a 4,60 m de base tablero)	18.6	kN/m		614		2823		0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.90	0	226	0	676	0	0.90	0	226	0	678	0
fuerza de lazo (a 2,75 m de base tablero)	100	kN		100		275		0.90	0	552	0	2541	0	0.90	0	552	0	2541	0	0.90	0	552	0	2541	0	0.90	0	552	0	2541	0
ripado	36	kN/m/m		0		1188		0.90	0	90	0	248	0	0.90	0	90	0	248	0	0.90	0	90	0	248	0	0.90	0	90	0	248	0
(descarrilamiento)								0.90	0	0	0	1069	0	0.90	0	0	0	1069	0	0.90	0	0	0	1069	0	0.90	0	0	0	1069	0
								0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0
base de la pila				251		3428																									
viento transversal tablero				9		50		0.00	0	0	0	0	0	0.00	0	0	0	0	0		0	0	0	0	0			0	0	0	0
viento transversal pilas	0.89	kN/m		614		8360		0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.90	0	226	0	3085	0	0.90	0	226	0	3085	0
fuerza centrífuga (a 4,60 m de base tablero)	18.6	kN/m		100		1340		0.90	0	90	0	8424	0	0.90	0	90	0	8424	0	0.90	0	90	0	8424	0	0.90	0	90	0	8424	0
fuerza de lazo (a 2,75 m de base tablero)	100	kN		0		1186		0.90	0	0	0	1206	0	0.90	0	90	0	1206	0	0.90	0	90	0	1206	0	0.90	0	90	0	1206	0
ripado	36	kN/m/m						0.90	0	0	0	1069	0	0.90	0	0	0	1069	0	0.90	0	0	0	1069	0	0.90	0	0	0	1069	0
					EN CABEZA:			Σ	1497	642	43058	3858	0	Σ	838	642	14671	3858	0	Σ	838	868	35657	21188	0	Σ	838	868	23896	21188	0
					EN BASE:			Σ	1573	642	45804	10700	16347	Σ	913	642	16705	10700	9327	Σ	914	877	38403	29413	10290	Σ	913	877	25930	30482	9327

025

pilas_cornella.xls

APÉNDICE 3. MOMENTO DE 2º ORDEN CALCULADO CON EL MÉTODO GENERAL DE LA EHE

VIADUCTO DE CORNELLÀ PILA 9

Esfuerzos considerando los efectos de 2º orden

Calculados usando el método general definido en EHE, Art. 43.5.1

Esbeltez mecánica en cada una de las direcciones

λx	57.57
λx	17.32

Datos de pandeo

Coef pandeo x	2.0	Altura pila	10.81
Coef pandeo y	1.0	lo	21.62
β	1	ix	0.3755
ε_y	0.00207	Ac	7.8
ε	0.004	Fck	300
Canto pila	1.3	Fcd	200
φ	1.8	Ec	285767.91
N_{sg}	2495.60	Ix	1.1

Nota sobre direcciones:
x = sentido transversal
y = sentido longitudinal

Excentricidad de pandeo y momento en base de fuste para los diferentes estados de carga (ELU)

Caso de carga	Nus	Axil	Momento	υ	ee_x	α_x	$1/r_x$	υ_{gx}	$1/r_{lx}$	ψ_x	$e_{tot\,x}$	ΔMx	Momento
ELU PILA 9 HIP 1	BASE	5174.20	1936.10	0.33	0.374	1.594	0.003	0.037	0.00045	1.0744	0.19629	1159.70	3095.80
ELU PILA 9 HIP 2	BASE	2070.50	1157.80	0.13	0.559	2.238	0.003	0.037	0.00067	1.08987	0.18017	477.09	1634.89
ELU PILA 9 HIP 3	BASE	4326.10	1157.80	0.28	0.268	1.224	0.003	0.037	0.00032	1.07386	0.19101	911.86	2069.66
ELU PILA 9 HIP 4	BASE	3031.50	1157.80	0.19	0.382	1.621	0.003	0.037	0.00046	1.08292	0.18034	642.70	1800.50

Los estados de carga considerados corresponden a las combinaciones que generan máximo axil y máximo momento flector en cada uno de los fustes

VIADUCTO DE CORNELLÀ PILA 10

Esfuerzos considerando los efectos de 2º orden

Calculados usando el método general definido en EHE, Art. 43.5.1

Esbeltez mecánica en cada una de las direcciones

λx	56.67
λx	17.05

Datos de pandeo

Coef pandeo x	2.0	Altura pila	10.64
Coef pandeo y	1.0	lo	21.28
β	1	ix	0.3755
ε_y	0.00207	Ac	7.8
ε	0.004	Fck	263
Canto pila	1.3	Fcd	175.333333
φ	1.8	Ec	276174.536
N_{sg}	2495.60	Ix	1.1

Nota sobre direcciones:
x = sentido transversal
y = sentido longitudinal

Excentricidad de pandeo y momento en base de fuste para los diferentes estados de carga (ELU)

Caso de carga	Nus	Axil	Momento	υ	ee_x	α_x	$1/r_x$	υ_{gx}	$1/r_{tx}$	ψ_x	$e_{tot\,x}$	ΔMx	Momento
ELU PILA 10 HIP 1	BASE	4580.40	1742.90	0.33	0.381	1.607	0.003	0.037	0.00047	1.07468	0.19073	1003.78	2746.68
ELU PILA 10 HIP 2	BASE	1670.50	1011.60	0.12	0.606	2.390	0.003	0.037	0.00076	1.09111	0.17684	387.58	1399.18
ELU PILA 10 HIP 3	BASE	3840.30	1011.60	0.28	0.263	1.200	0.004	0.037	0.00033	1.07349	0.18613	789.14	1800.74
ELU PILA 10 HIP 4	BASE	2593.00	1011.60	0.19	0.390	1.641	0.003	0.037	0.00049	1.08347	0.17509	538.44	1550.04

Los estados de carga considerados corresponden a las combinaciones que generan máximo axil y máximo momento flector en cada uno de los fustes

PEDELTA

APÉNDICE 4. RESISTENCIA ÚLTIMA A FLEXIÓN COMPUESTA ESVIADA DE LA SECCIÓN BASE DE LAS PILAS 9 Y 10

PRONTUARIO INFORMÁTICO DEL HORMIGÓN ESTRUCTURAL 3.0
Cátedra de Hormigón Estructural ETSICCPM - IECA

Obra: VIADUCTO DE CORNELLÀ. PILA 9.
Fecha: 05/05/2005
Hora: 16:24:49

Características mecánicas de las secciones

1 Datos

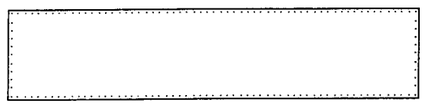
- Materiales

Tipo de hormigón : HA-31.8
Tipo de acero : B-500-S
fck [MPa] = 31.80
fyk [MPa] = 500.00
γc = 1.50
γs = 1.15

- Sección

Sección : PILA
b [m] = 6.00
h [m] = 1.30
r [m] = 0.050

n° barras horizontales = 61
n° barras verticales = 11
ϕ [mm] = 20



2 Resultados

	Sección bruta	Sección homogeneizada
A [m²]	7.8000	8.103
Ix [m4]	1.0990	1.1973
Iy [m4]	23.4000	24.5309
xc [m]	0.38	0.38
yc [m]	1.73	1.74
xg [m]	3.00	3.00
yg [m]	0.65	0.65

	Sección fisurada
Ix [m4]	0.1760
Mfis [kN·m]	5546.8
yfis [m]	0.21

Obra: VIADUCTO DE CORNELLÀ. PILA 9. HIP 1
Fecha: 05/05/2005
Hora: 16:26:09

Cálculo de secciones a flexión compuesta esviada

1 Datos

- Materiales

Tipo de hormigón : HA-31.8
Tipo de acero : B-500-S
fck [MPa] = 31.80
fyk [MPa] = 500.00
γc = 1.50
γs = 1.15

- Sección

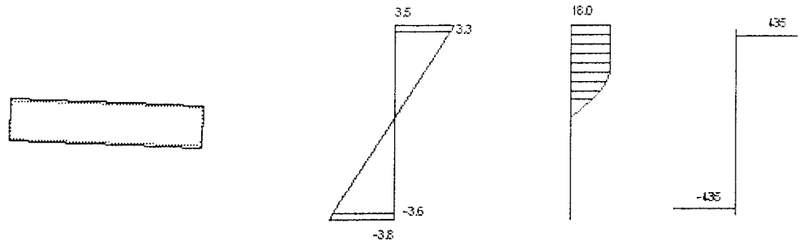
Sección : PILA
b [m] = 6.00
h [m] = 1.30
r [m] = 0.050

n° barras horizontales = 61
n° barras verticales = 11

2 Comprobación

ϕ [mm] = 20
Nd [kN] = 51742
Mxd [kN·m] = 31103
Myd [kN·m] = 13000

Nu [kN] = 51742
Mxu [kN·m] = 31026.0
Myu [kN·m] = 12954.0
γ = 1.00



Plano de deformación de agotamiento

x [m] = 0.73
ß [°] = 2.0
1/r [1/m]·1.E-3 = 4.8
εs ·1.E-3 = 3.5
εi ·1.E-3 = -3.8

Deformación y tensión de armaduras superior e inferior

Profundidad [m]	Deformación ·1.E-3	Tensión [MPa]
0.05	3.3	435
1.46	-3.6	-435

PRONTUARIO INFORMÁTICO DEL HORMIGÓN ESTRUCTURAL 3.0

Cátedra de Hormigón Estructural ETSICCPM - IECA

Obra: VIADUCTO DE CORNELLÀ. PILA 9. HIP 2
Fecha: 05/05/2005
Hora: 16:26:57

Cálculo de secciones a flexión compuesta esviada

1 Datos

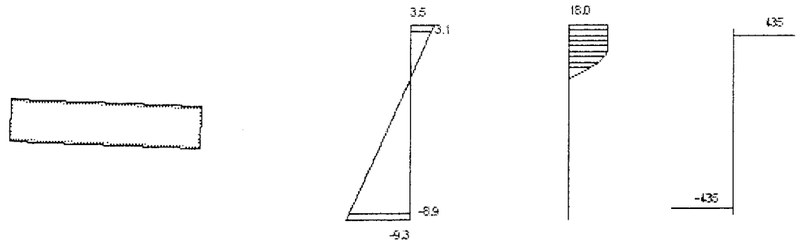
- Materiales

Tipo de hormigón : HA-31.8
Tipo de acero : B-500-S
fck [MPa] = 31.80
fyk [MPa] = 500.00
γc = 1.50
γs = 1.15

- Sección

Sección : PILA
b [m] = 6.00
h [m] = 1.30
r [m] = 0.050

n° barras horizontales = 61
n° barras verticales = 11



Plano de deformación de agotamiento

x [m] = 0.42
ß [°] = 2.4
1/r [1/m]·1.E-3 = 8.3
εs ·1.E-3 = 3.5
εi ·1.E-3 = -9.3

Deformación y tensión de armaduras superior e inferior

Profundidad [m]	Deformación ·1.E-3	Tensión [MPa]
0.05	3.1	435
1.50	-8.9	-435

2 Comprobación

ϕ [mm] = 20
Nd [kN] = 20705
Mxd [kN·m] = 16318
Myd [kN·m] = 13000

Nu [kN] = 20705
Mxu [kN·m] = 21837.0
Myu [kN·m] = 17401.0
γ = 1.34

PRONTUARIO INFORMÁTICO DEL HORMIGÓN ESTRUCTURAL 3.0
Cátedra de Hormigón Estructural ETSICCPM - IECA

Obra: VIADUCTO DE CORNELLÀ. PILA 9. HIP 3
Fecha: 05/05/2005
Hora: 16:28:15

Cálculo de secciones a flexión compuesta esviada

1 Datos

- Materiales

Tipo de hormigón : HA-31.8
Tipo de acero : B-500-S
fck [MPa] = 31.80
fyk [MPa] = 500.00
γc = 1.50
γs = 1.15

- Sección

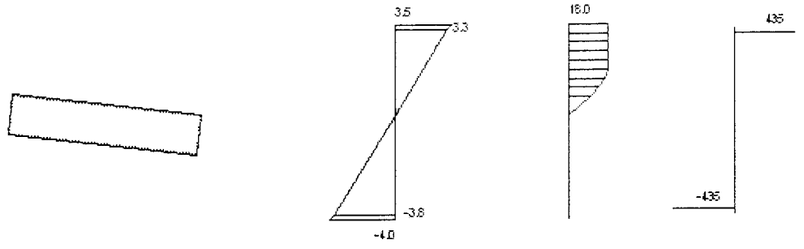
Sección : PILA
b [m] = 6.00
h [m] = 1.30
r [m] = 0.050

n° barras horizontales = 61
n° barras verticales = 11

2 Comprobación

ϕ [mm] = 20
Nd [kN] = 43261
Mxd [kN·m] = 20545
Myd [kN·m] = 34471

Nu [kN] = 43261
Mxu [kN·m] = 26023.0
Myu [kN·m] = 43664.0
γ = 1.27



Plano de deformación de agotamiento

x [m] = 0.92
ß [°] = 6.4
1/r [1/m]·1.E-3 = 3.8
εs ·1.E-3 = 3.5
εi ·1.E-3 = -4.0

Deformación y tensión de armaduras superior e inferior

Profundidad [m]	Deformación ·1.E-3	Tensión [MPa]
0.06	3.3	435
1.91	-3.8	-435

PRONTUARIO INFORMÁTICO DEL HORMIGÓN ESTRUCTURAL 3.0
Cátedra de Hormigón Estructural ETSICCPM - IECA

Obra: VIADUCTO DE CORNELLÀ. PILA 9. HIP 4
Fecha: 05/05/2005
Hora: 16:29:08

Cálculo de secciones a flexión compuesta esviada

1 Datos

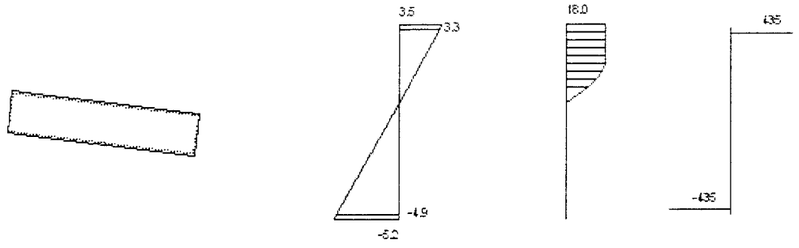
- Materiales

Tipo de hormigón : HA-31.8
Tipo de acero : B-500-S
fck [MPa] = 31.80
fyk [MPa] = 500.00
γc = 1.50
γs = 1.15

- Sección

Sección : PILA
b [m] = 6.00
h [m] = 1.30
r [m] = 0.050

n° barras horizontales = 61
n° barras verticales = 11



Plano de deformación de agotamiento

x [m] = 0.82
ß [°] = 7.0
1/r [1/m]·1.E-3 = 4.3
εs ·1.E-3 = 3.5
εi ·1.E-3 = -5.2

Deformación y tensión de armaduras superior e inferior

Profundidad [m]	Deformación ·1.E-3	Tensión [MPa]
0.06	3.3	435
1.96	-4.9	-435

2 Comprobación

ϕ [mm] = 20
Nd [kN] = 30315
Mxd [kN·m] = 17939
Myd [kN·m] = 35767

Nu [kN] = 30315
Mxu [kN·m] = 22662.0
Myu [kN·m] = 45183.0
γ = 1.26

PRONTUARIO INFORMÁTICO DEL HORMIGÓN ESTRUCTURAL 3.0
Cátedra de Hormigón Estructural ETSICCPM - IECA

Obra: VIADUCTO DE CORNELLÀ. PILA 10.
Fecha: 05/05/2005
Hora: 16:31:28

Características mecánicas de las secciones

1 Datos

- Materiales

Tipo de hormigón : HA-26.3
Tipo de acero : B-500-S
fck [MPa] = 26.30
fyk [MPa] = 500.00
γc = 1.50
γs = 1.15

- Sección

Sección : PILA
b [m] = 6.00
h [m] = 1.30
r [m] = 0.050

n° barras horizontales = 61
n° barras verticales = 11
ϕ [mm] = 20



2 Resultados

	Sección bruta	Sección homogeneizada
A [m²]	7.8000	8.119
Ix [m4]	1.0990	1.2024
Iy [m4]	23.4000	24.5884
ix [m]	0.38	0.38
iy [m]	1.73	1.74
x'g [m]	3.00	3.00
y'g [m]	0.65	0.65

	Sección fisurada
Ix [m4]	0.1840
Mfis [kN·m]	4907.7
y'fis [m]	0.21

PRONTUARIO INFORMÁTICO DEL HORMIGÓN ESTRUCTURAL 3.0

Cátedra de Hormigón Estructural ETSICCPM - IECA

Obra: VIADUCTO DE CORNELLÀ. PILA 10. HIP 1
Fecha: 05/05/2005
Hora: 16:30:50

Cálculo de secciones a flexión compuesta esviada

1 Datos

- Materiales

Tipo de hormigón : HA-26.3
Tipo de acero : B-500-S
fck [MPa] = 26.30
fyk [MPa] = 500.00
γc = 1.50
γs = 1.15

- Sección

Sección : PILA
b [m] = 6.00
h [m] = 1.30
r [m] = 0.050

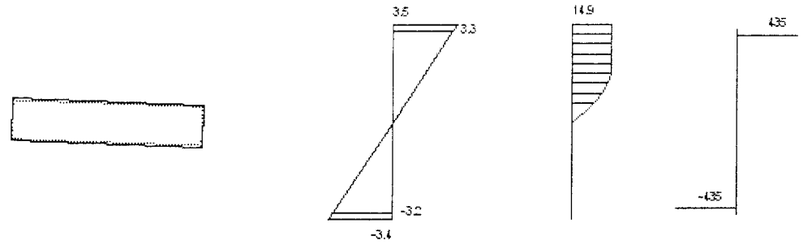
n° barras horizontales = 61
n° barras verticales = 11



2 Comprobación

ϕ [mm] = 20
Nd [kN] = 45804
Mxd [kN·m] = 27467
Myd [kN·m] = 10700

Nu [kN] = 45804
Mxu [kN·m] = 27857.0
Myu [kN·m] = 10861.0
γ = 1.01



Plano de deformación de agotamiento

x [m] = 0.76
ß [°] = 2.0
1/r [1/m]·1.E-3 = 4.6
εs ·1.E-3 = 3.5
εi ·1.E-3 = -3.4

Deformación y tensión de armaduras superior e inferior

Profundidad [m]	Deformación ·1.E-3	Tensión [MPa]
0.05	3.3	435
1.46	-3.2	-435

PRONTUARIO INFORMÁTICO DEL HORMIGÓN ESTRUCTURAL 3.0
Cátedra de Hormigón Estructural ETSICCPM - IECA

Obra: VIADUCTO DE CORNELLÀ. PILA 10. HIP 2
Fecha: 05/05/2005
Hora: 16:32:11

Cálculo de secciones a flexión compuesta esviada

1 Datos

- Materiales

Tipo de hormigón : HA-26.3
Tipo de acero : B-500-S
fck [MPa] = 26.30
fyk [MPa] = 500.00
γc = 1.50
γs = 1.15

- Sección

Sección : PILA
b [m] = 6.00
h [m] = 1.30
r [m] = 0.050

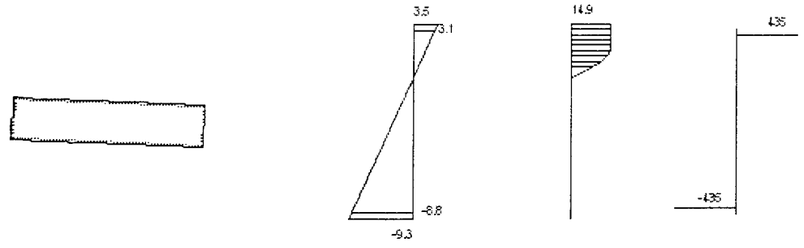
n° barras horizontales = 61
n° barras verticales = 11



2 Comprobación

ϕ [mm] = 20
Nd [kN] = 16705
Mxd [kN·m] = 13992
Myd [kN·m] = 10700

Nu [kN] = 16705
Mxu [kN·m] = 19741.0
Myu [kN·m] = 15097.0
γ = 1.41



Plano de deformación de agotamiento

x [m] = 0.43
ß [°] = 2.4
1/r [1/m]·1.E-3 = 8.2
εs ·1.E-3 = 3.5
εi ·1.E-3 = -9.3

Deformación y tensión de armaduras superior e inferior

Profundidad [m]	Deformación ·1.E-3	Tensión [MPa]
0.05	3.1	435
1.50	-8.8	-435

Obra: VIADUCTO DE CORNELLÀ. PILA 10. HIP 3
Fecha: 05/05/2005
Hora: 16:33:17

Cálculo de secciones a flexión compuesta esviada

1 Datos

- Materiales

Tipo de hormigón : HA-26.3
Tipo de acero : B-500-S
fck [MPa] = 26.30
fyk [MPa] = 500.00
γc = 1.50
γs = 1.15

- Sección

Sección : PILA
b [m] = 6.00
h [m] = 1.30
r [m] = 0.050

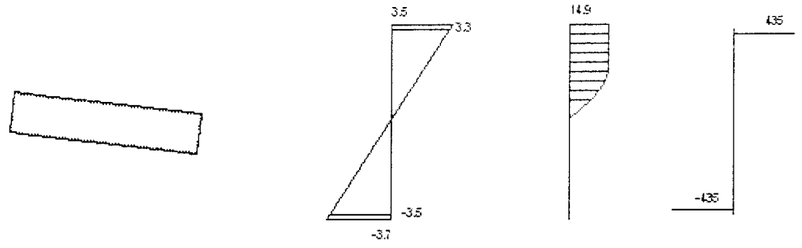
n° barras horizontales = 61
n° barras verticales = 11



2 Comprobación

ϕ [mm] = 20
Nd [kN] = 38403
Mxd [kN·m] = 18007
Myd [kN·m] = 29413

Nu [kN] = 38403
Mxu [kN·m] = 23393.0
Myu [kN·m] = 38211.0
γ = 1.30



Plano de deformación de agotamiento

x [m] = 0.95
ß [°] = 6.5
1/r [1/m]·1.E-3 = 3.7
εs ·1.E-3 = 3.5
εi ·1.E-3 = -3.7

Deformación y tensión de armaduras superior e inferior

Profundidad [m]	Deformación ·1.E-3	Tensión [MPa]
0.06	3.3	435
1.91	-3.5	-435

PRONTUARIO INFORMÁTICO DEL HORMIGÓN ESTRUCTURAL 3.0
Cátedra de Hormigón Estructural ETSICCPM - IECA

Obra: VIADUCTO DE CORNELLÀ. PILA 10. HIP 4
Fecha: 05/05/2005
Hora: 16:34:58

Cálculo de secciones a flexión compuesta esviada

1 Datos

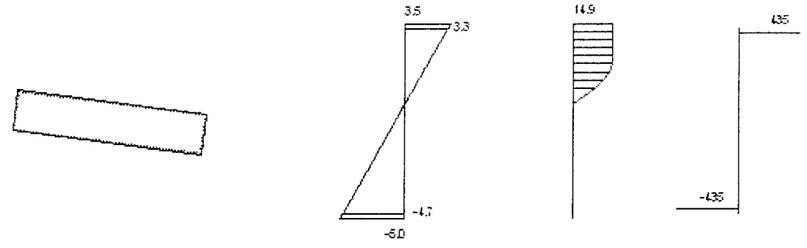
- Materiales

Tipo de hormigón : HA-26.3
Tipo de acero : B-500-S
fck [MPa] = 26.30
fyk [MPa] = 500.00
γc = 1.50
γs = 1.15

- Sección

Sección : PILA
b [m] = 6.00
h [m] = 1.30
r [m] = 0.050

n° barras horizontales = 61
n° barras verticales = 11



Plano de deformación de agotamiento

x [m] = 0.85
ß [°] = 7.2
1/r [1/m]·1.E-3 = 4.1
εs ·1.E-3 = 3.5
εi ·1.E-3 = -5.0

Deformación y tensión de armaduras superior e inferior

Profundidad [m]	Deformación ·1.E-3	Tensión [MPa]
0.06	3.3	435
1.99	-4.7	-435

2 Comprobación

ϕ [mm] = 20
Nd [kN] = 25930
Mxd [kN·m] = 15500
Myd [kN·m] = 30482

Nu [kN] = 25930
Mxu [kN·m] = 20445.0
Myu [kN·m] = 40206.0
γ = 1.32

PEDELTA
INGENIERÍA DE ESTRUCTURAS

APÉNDICE 5. RESISTENCIA ÚLTIMA DE LA SECCIÓN BASE DE LAS PILAS 9 Y 10 FRENTE A ESFUERZOS CORTANTES

PRONTUARIO INFORMÁTICO DEL HORMIGÓN ESTRUCTURAL 3.0
Cátedra de Hormigón Estructural ETSICCPM - IECA

Obra: VIADUCTO DE CORNELLÀ. PILA 9.
Fecha: 06/05/2005
Hora: 11:24:16

Cálculo de secciones a cortante

1 Datos

- Materiales

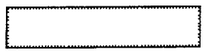
```
Tipo de hormigón : HA-31.8
Tipo de acero    : B-500-S
fck [MPa]        = 31.80
fyk [MPa]        = 500.00
γc               = 1.50
γs               = 1.15
```

- Tipo de elemento estructural

```
Tipo : elemento sin armadura a cortante
```

- Sección

```
Sección : PILA
b0  [m] = 6.00
h   [m] = 1.30
```



2 Comprobación

```
ρl [·1.E-3] = 0
Nd [kN]     = 51742.0
Vu [kN]     = 7425.0
```

Obra: VIADUCTO DE CORNELLÀ. PILA 9.
Fecha: 06/05/2005
Hora: 11:25:55

Cálculo de secciones a cortante

1 Datos

- Materiales

```
Tipo de hormigón : HA-31.8
Tipo de acero    : B-500-S
fck [MPa]        = 31.80
fyk [MPa]        = 500.00
γc               = 1.50
γs               = 1.15
```

- Tipo de elemento estructural

```
Tipo : elemento sin armadura a cortante
```

- Sección

```
Sección : PILA
b0  [m] = 6.00
h   [m] = 1.30
```



2 Comprobación

```
ρl [·1.E-3] = 0
Nd [kN]     = 20705.0
Vu [kN]     = 3037.5
```

PRONTUARIO INFORMÁTICO DEL HORMIGÓN ESTRUCTURAL 3.0
Cátedra de Hormigón Estructural ETSICCPM - IECA

Obra: VIADUCTO DE CORNELLÀ. PILA 9.
Fecha: 06/05/2005
Hora: 11:26:47

Cálculo de secciones a cortante

1 Datos

- Materiales

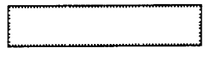
```
Tipo de hormigón : HA-31.8
Tipo de acero    : B-500-S
fck [MPa]        = 31.80
fyk [MPa]        = 500.00
γc               = 1.50
γs               = 1.15
```

- Tipo de elemento estructural

```
Tipo : elemento sin armadura a cortante
```

- Sección

```
Sección : PILA
b0  [m] = 6.00
h   [m] = 1.30
```



2 Comprobación

```
ρl [·1.E-3] = 0
Nd [kN]     = 43261.0
Vu [kN]     = 6187.5
```

Obra: VIADUCTO DE CORNELLÀ. PILA 9.
Fecha: 06/05/2005
Hora: 11:27:43

Cálculo de secciones a cortante

1 Datos

- Materiales

```
Tipo de hormigón : HA-31.8
Tipo de acero    : B-500-S
fck [MPa]        = 31.80
fyk [MPa]        = 500.00
γc               = 1.50
γs               = 1.15
```

- Tipo de elemento estructural

```
Tipo : elemento sin armadura a cortante
```

- Sección

```
Sección : PILA
b0  [m] = 6.00
h   [m] = 1.30
```



2 Comprobación

```
ρl [·1.E-3] = 0
Nd [kN]     = 30315.0
Vu [kN]     = 4387.5
```


Obra: VIADUCTO DE CORNELLÀ. PILA 10. HIP 1
Fecha: 05/05/2005
Hora: 16:58:31

Cálculo de secciones a cortante

1 Datos

- Materiales

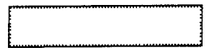
```
Tipo de hormigón : HA-26.3
Tipo de acero    : B-500-S
fck [MPa]        = 26.30
fyk [MPa]        = 500.00
γc               = 1.50
γs               = 1.15
```

- Tipo de elemento estructural

```
Tipo : elemento sin armadura a cortante
```

- Sección

```
Sección : PILA
b0  [m] = 6.00
h   [m] = 1.30
```



2 Comprobación

```
ρl [·1.E-3] = 0
Nd [kN]     = 45804.0
Vu [kN]     = 6637.5
```

Obra: VIADUCTO DE CORNELLÀ. PILA 10. HIP 2
Fecha: 05/05/2005
Hora: 17:00:12

Cálculo de secciones a cortante

1 Datos

- Materiales

```
Tipo de hormigón : HA-26.3
Tipo de acero    : B-500-S
fck [MPa]        = 26.30
fyk [MPa]        = 500.00
γc               = 1.50
γs               = 1.15
```

- Tipo de elemento estructural

```
Tipo : elemento sin armadura a cortante
```

- Sección

```
Sección : PILA
b0  [m] = 6.00
h   [m] = 1.30
```



2 Comprobación

```
ρl [·1.E-3] = 0
Nd [kN]     = 16705.0
Vu [kN]     = 2362.5
```

PRONTUARIO INFORMÁTICO DEL HORMIGÓN ESTRUCTURAL 3.0
Cátedra de Hormigón Estructural ETSICCPM - IECA

Obra: VIADUCTO DE CORNELLÀ. PILA 10. HIP 3
Fecha: 05/05/2005
Hora: 17:00:51

Cálculo de secciones a cortante

1 Datos

- Materiales

```
Tipo de hormigón : HA-26.3
Tipo de acero    : B-500-S
fck [MPa]        = 26.30
fyk [MPa]        = 500.00
γc               = 1.50
γs               = 1.15
```

- Tipo de elemento estructural

```
Tipo : elemento sin armadura a cortante
```

- Sección

```
Sección : PILA
b0  [m] = 6.00
h   [m] = 1.30
```



2 Comprobación

```
ρl [·1.E-3] = 0
Nd [kN]     = 38403.0
Vu [kN]     = 5512.5
```

Obra: VIADUCTO DE CORNELLÀ. PILA 10. HIP 4
Fecha: 05/05/2005
Hora: 17:01:28

Cálculo de secciones a cortante

1 Datos

- Materiales

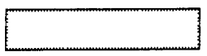
```
Tipo de hormigón : HA-26.3
Tipo de acero    : B-500-S
fck [MPa]        = 26.30
fyk [MPa]        = 500.00
γc               = 1.50
γs               = 1.15
```

- Tipo de elemento estructural

```
Tipo : elemento sin armadura a cortante
```

- Sección

```
Sección : PILA
b0  [m] = 6.00
h   [m] = 1.30
```



2 Comprobación

```
ρl [·1.E-3] = 0
Nd [kN]     = 25930.0
Vu [kN]     = 3712.5
```