# *ANEJO Nº 6. ESTRUCTURAS*

# 4. Cálculos

# *A. VIADUCTOS*

# *VIADUCTO CAN TORRES*

# *4.2 VIADUCTO CAN TORRES*

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# HIPÓTESIS SIMPLES

Cambios realizados después de lister.

- cambio cota de cimentación pila 1 y 2.
- cambio tensado cable de pretensado 11 y 12 de servicio para dejar paso a las barras de anclaje de la unión raiz-tablero.

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS 1

hipo 1 peso propio

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 269.44 | -0.15 | 0.28 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -179.44 | 0.15 | -0.28 | 0.69 | 1009.97 |
| 2 | 8 | 0.00 | 179.44 | -0.15 | 0.28 | -0.69 | -1009.97 |
| 2 | 9 | 0.00 | -89.44 | 0.15 | -0.28 | 1.37 | 1614.94 |
| 3 | 9 | 0.00 | 89.44 | -0.15 | 0.28 | -1.37 | -1614.94 |
| 3 | 10 | 0.00 | 0.56 | 0.15 | -0.28 | 2.06 | 1814.91 |
| 4 | 10 | 0.00 | -0.56 | -0.15 | 0.28 | -2.06 | -1814.92 |
| 4 | 11 | 0.00 | 90.56 | 0.15 | -0.28 | 2.75 | 1609.89 |
| 5 | 11 | 0.00 | -90.56 | -0.15 | 0.28 | -2.75 | -1609.89 |
| 5 | 12 | 0.00 | 180.56 | 0.15 | -0.28 | 3.44 | 999.86 |
| 6 | 12 | 0.00 | -180.56 | -0.15 | 0.28 | -3.44 | -999.86 |
| 6 | 13 | 0.00 | 270.56 | 0.15 | -0.28 | 4.12 | -15.17 |
| 7 | 13 | 0.00 | -270.56 | -0.15 | 0.28 | -4.12 | 15.17 |
| 7 | 14 | 0.00 | 360.56 | 0.15 | -0.28 | 4.81 | -1435.20 |
| 8 | 14 | 0.00 | -360.56 | -0.15 | 0.28 | -4.81 | 1435.20 |
| 8 | 15 | 0.00 | 450.56 | 0.15 | -0.28 | 5.50 | -3260.23 |
| 9 | 15 | 0.00 | 446.22 | 0.11 | -0.34 | -5.50 | 3260.23 |
| 9 | 23 | 0.00 | -356.22 | -0.11 | 0.34 | 4.99 | -1454.73 |
| 10 | 23 | 0.00 | 356.22 | 0.11 | -0.34 | -4.99 | 1454.73 |
| 10 | 24 | 0.00 | -266.22 | -0.11 | 0.34 | 4.48 | -54.22 |
| 11 | 24 | 0.00 | 266.22 | 0.11 | -0.34 | -4.48 | 54.22 |
| 11 | 25 | 0.00 | -176.22 | -0.11 | 0.34 | 3.97 | 941.28 |
| 12 | 25 | 0.00 | 176.22 | 0.11 | -0.34 | -3.97 | -941.28 |
| 12 | 26 | 0.00 | -86.22 | -0.11 | 0.34 | 3.46 | 1531.79 |
| 13 | 26 | 0.00 | 86.22 | 0.11 | -0.34 | -3.46 | -1531.79 |
| 13 | 27 | 0.00 | 3.78 | -0.11 | 0.34 | 2.95 | 1717.29 |
| 14 | 27 | 0.00 | -3.78 | 0.11 | -0.34 | -2.95 | -1717.29 |
| 14 | 28 | 0.00 | 93.78 | -0.11 | 0.34 | 2.44 | 1497.79 |
| 15 | 28 | 0.00 | -93.78 | 0.11 | -0.34 | -2.44 | -1497.79 |
| 15 | 29 | 0.00 | 183.78 | -0.11 | 0.34 | 1.93 | 873.29 |
| 16 | 29 | 0.00 | -183.78 | 0.11 | -0.34 | -1.93 | -873.29 |
| 16 | 30 | 0.00 | 273.78 | -0.11 | 0.34 | 1.42 | -156.20 |
| 17 | 30 | 0.00 | -273.78 | 0.11 | -0.34 | -1.42 | 156.20 |
| 17 | 31 | 0.00 | 363.78 | -0.11 | 0.34 | 0.91 | -1590.70 |
| 18 | 31 | 0.00 | -363.78 | 0.11 | -0.34 | -0.91 | 1590.70 |
| 18 | 32 | 0.00 | 453.78 | -0.11 | 0.34 | 0.40 | -3430.20 |
| 19 | 32 | 0.00 | 451.93 | 0.01 | 0.03 | -0.40 | 3430.20 |
| 19 | 40 | 0.00 | -361.93 | -0.01 | -0.03 | 0.36 | -1599.01 |
| 20 | 40 | 0.00 | 361.93 | 0.01 | 0.03 | -0.36 | 1599.01 |
| 20 | 41 | 0.00 | -271.93 | -0.01 | -0.03 | 0.32 | -172.81 |
| 21 | 41 | 0.00 | 271.93 | 0.01 | 0.03 | -0.32 | 172.81 |
| 21 | 42 | 0.00 | -181.93 | -0.01 | -0.03 | 0.28 | 848.38 |
| 22 | 42 | 0.00 | 181.93 | 0.01 | 0.03 | -0.28 | -848.38 |
| 22 | 43 | 0.00 | -91.93 | -0.01 | -0.03 | 0.23 | 1464.57 |
| 23 | 43 | 0.00 | 91.93 | 0.01 | 0.03 | -0.23 | -1464.57 |
| 23 | 44 | 0.00 | -1.93 | -0.01 | -0.03 | 0.19 | 1675.76 |
| 24 | 44 | 0.00 | 1.93 | 0.01 | 0.03 | -0.19 | -1675.76 |
| 24 | 45 | 0.00 | 88.07 | -0.01 | -0.03 | 0.15 | 1481.96 |
| 25 | 45 | 0.00 | -88.07 | 0.01 | 0.03 | -0.15 | -1481.96 |
| 25 | 46 | 0.00 | 178.07 | -0.01 | -0.03 | 0.11 | 883.15 |
| 26 | 46 | 0.00 | -178.07 | 0.01 | 0.03 | -0.11 | -883.15 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 26 | 47 | 0.00 | 268.07 | -0.01 | -0.03 | 0.06 | -120.66 |
| 27 | 47 | 0.00 | -268.07 | 0.01 | 0.03 | -0.06 | 120.66 |
| 27 | 48 | 0.00 | 358.07 | -0.01 | -0.03 | 0.02 | -1529.47 |
| 28 | 48 | 0.00 | -358.07 | 0.01 | 0.03 | -0.02 | 1529.47 |
| 28 | 49 | 0.00 | 448.07 | -0.01 | -0.03 | -0.02 | -3343.28 |
| 29 | 49 | 0.00 | 449.33 | 0.00 | 0.01 | 0.02 | 3343.28 |
| 29 | 59 | 0.00 | -359.33 | 0.00 | -0.01 | -0.03 | -1523.80 |
| 30 | 59 | 0.00 | 359.33 | 0.00 | 0.01 | 0.03 | 1523.80 |
| 30 | 60 | 0.00 | -269.33 | 0.00 | -0.01 | -0.04 | -109.32 |
| 31 | 60 | 0.00 | 269.33 | 0.00 | 0.01 | 0.04 | 109.32 |
| 31 | 61 | 0.00 | -179.33 | 0.00 | -0.01 | -0.05 | 900.16 |
| 32 | 61 | 0.00 | 179.33 | 0.00 | 0.01 | 0.05 | -900.16 |
| 32 | 62 | 0.00 | -89.33 | 0.00 | -0.01 | -0.05 | 1504.64 |
| 33 | 62 | 0.00 | 89.33 | 0.00 | 0.01 | 0.05 | -1504.64 |
| 33 | 63 | 0.00 | 0.67 | 0.00 | -0.01 | -0.06 | 1704.12 |
| 34 | 63 | 0.00 | -0.67 | 0.00 | 0.01 | 0.06 | -1704.12 |
| 34 | 64 | 0.00 | 90.67 | 0.00 | -0.01 | -0.07 | 1498.60 |
| 35 | 64 | 0.00 | -90.67 | 0.00 | 0.01 | 0.07 | -1498.60 |
| 35 | 65 | 0.00 | 180.67 | 0.00 | -0.01 | -0.08 | 888.08 |
| 36 | 65 | 0.00 | -180.67 | 0.00 | 0.01 | 0.08 | -888.08 |
| 36 | 66 | 0.00 | 270.67 | 0.00 | -0.01 | -0.08 | -127.44 |
| 37 | 66 | 0.00 | -270.67 | 0.00 | 0.01 | 0.08 | 127.44 |
| 37 | 67 | 0.00 | 360.67 | 0.00 | -0.01 | -0.09 | -1547.96 |
| 38 | 67 | 0.00 | -360.67 | 0.00 | 0.01 | 0.09 | 1547.96 |
| 38 | 68 | 0.00 | 450.67 | 0.00 | -0.01 | -0.10 | -3373.48 |
| 39 | 68 | 0.00 | 450.34 | 0.00 | -0.01 | 0.10 | 3373.48 |
| 39 | 78 | 0.00 | -360.34 | 0.00 | 0.01 | -0.08 | -1549.47 |
| 40 | 78 | 0.00 | 360.34 | 0.00 | -0.01 | 0.08 | 1549.47 |
| 40 | 79 | 0.00 | -270.34 | 0.00 | 0.01 | -0.05 | -130.45 |
| 41 | 79 | 0.00 | 270.34 | 0.00 | -0.01 | 0.05 | 130.45 |
| 41 | 80 | 0.00 | -180.34 | 0.00 | 0.01 | -0.03 | 883.56 |
| 42 | 80 | 0.00 | 180.34 | 0.00 | -0.01 | 0.03 | -883.56 |
| 42 | 81 | 0.00 | -90.34 | 0.00 | 0.01 | -0.01 | 1492.58 |
| 43 | 81 | 0.00 | 90.34 | 0.00 | -0.01 | 0.01 | -1492.58 |
| 43 | 82 | 0.00 | -0.34 | 0.00 | 0.01 | 0.01 | 1696.59 |
| 44 | 82 | 0.00 | 0.34 | 0.00 | -0.01 | -0.01 | -1696.59 |
| 44 | 83 | 0.00 | 89.66 | 0.00 | 0.01 | 0.03 | 1495.61 |
| 45 | 83 | 0.00 | -89.66 | 0.00 | -0.01 | -0.03 | -1495.61 |
| 45 | 84 | 0.00 | 179.66 | 0.00 | 0.01 | 0.06 | 889.62 |
| 46 | 84 | 0.00 | -179.66 | 0.00 | -0.01 | -0.06 | -889.62 |
| 46 | 85 | 0.00 | 269.66 | 0.00 | 0.01 | 0.08 | -121.36 |
| 47 | 85 | 0.00 | -269.66 | 0.00 | -0.01 | -0.08 | 121.36 |
| 47 | 86 | 0.00 | 359.66 | 0.00 | 0.01 | 0.10 | -1537.35 |
| 48 | 86 | 0.00 | -359.66 | 0.00 | -0.01 | -0.10 | 1537.35 |
| 48 | 87 | 0.00 | 449.66 | 0.00 | 0.01 | 0.12 | -3358.33 |
| 49 | 87 | 0.00 | 448.55 | -0.02 | 0.03 | -0.12 | 3358.33 |
| 49 | 97 | 0.00 | -358.55 | 0.02 | -0.03 | 0.21 | -1542.37 |
| 50 | 97 | 0.00 | 358.55 | -0.02 | 0.03 | -0.21 | 1542.37 |
| 50 | 98 | 0.00 | -268.55 | 0.02 | -0.03 | 0.29 | -131.41 |
| 51 | 98 | 0.00 | 268.55 | -0.02 | 0.03 | -0.29 | 131.41 |
| 51 | 99 | 0.00 | -178.55 | 0.02 | -0.03 | 0.38 | 874.56 |
| 52 | 99 | 0.00 | 178.55 | -0.02 | 0.03 | -0.38 | -874.56 |
| 52 | 100 | 0.00 | -88.55 | 0.02 | -0.03 | 0.46 | 1475.52 |
| 53 | 100 | 0.00 | 88.55 | -0.02 | 0.03 | -0.46 | -1475.52 |
| 53 | 101 | 0.00 | 1.45 | 0.02 | -0.03 | 0.55 | 1671.48 |
| 54 | 101 | 0.00 | -1.45 | -0.02 | 0.03 | -0.55 | -1671.48 |
| 54 | 102 | 0.00 | 91.45 | 0.02 | -0.03 | 0.63 | 1462.44 |
| 55 | 102 | 0.00 | -91.45 | -0.02 | 0.03 | -0.63 | -1462.44 |
| 55 | 103 | 0.00 | 181.45 | 0.02 | -0.03 | 0.72 | 848.40 |
| 56 | 103 | 0.00 | -181.45 | -0.02 | 0.03 | -0.72 | -848.40 |
| 56 | 104 | 0.00 | 271.45 | 0.02 | -0.03 | 0.80 | -170.64 |
| 57 | 104 | 0.00 | -271.45 | -0.02 | 0.03 | -0.80 | 170.64 |
| 57 | 105 | 0.00 | 361.45 | 0.02 | -0.03 | 0.89 | -1594.67 |
| 58 | 105 | 0.00 | -361.45 | -0.02 | 0.03 | -0.89 | 1594.67 |
| 58 | 106 | 0.00 | 451.45 | 0.02 | -0.03 | 0.97 | -3423.71 |
| 59 | 106 | 0.00 | 453.92 | -0.06 | 0.32 | -0.97 | 3423.71 |
| 59 | 115 | 0.00 | -363.92 | 0.06 | -0.32 | 1.25 | -1583.55 |
| 60 | 115 | 0.00 | 363.92 | -0.06 | 0.32 | -1.25 | 1583.55 |
| 60 | 116 | 0.00 | -273.92 | 0.06 | -0.32 | 1.54 | -148.39 |
| 61 | 116 | 0.00 | 273.92 | -0.06 | 0.32 | -1.54 | 148.39 |
| 61 | 117 | 0.00 | -183.92 | 0.06 | -0.32 | 1.82 | 881.77 |
| 62 | 117 | 0.00 | 183.92 | -0.06 | 0.32 | -1.82 | -881.77 |
| 62 | 118 | 0.00 | -93.92 | 0.06 | -0.32 | 2.10 | 1506.93 |
| 63 | 118 | 0.00 | 93.92 | -0.06 | 0.32 | -2.10 | -1506.93 |
| 63 | 119 | 0.00 | -3.92 | 0.06 | -0.32 | 2.39 | 1727.09 |
| 64 | 119 | 0.00 | 3.92 | -0.06 | 0.32 | -2.39 | -1727.09 |
| 64 | 120 | 0.00 | 86.08 | 0.06 | -0.32 | 2.67 | 1542.25 |
| 65 | 120 | 0.00 | -86.08 | -0.06 | 0.32 | -2.67 | -1542.25 |
| 65 | 121 | 0.00 | 176.08 | 0.06 | -0.32 | 2.95 | 952.41 |
| 66 | 121 | 0.00 | -176.08 | -0.06 | 0.32 | -2.95 | -952.41 |
| 66 | 122 | 0.00 | 266.08 | 0.06 | -0.32 | 3.24 | -42.43 |
| 67 | 122 | 0.00 | -266.08 | -0.06 | 0.32 | -3.24 | 42.43 |
| 67 | 123 | 0.00 | 356.08 | 0.06 | -0.32 | 3.52 | -1442.27 |
| 68 | 123 | 0.00 | -356.08 | -0.06 | 0.32 | -3.52 | 1442.27 |
| 68 | 124 | 0.00 | 446.08 | 0.06 | -0.32 | 3.80 | -3247.11 |
| 69 | 124 | 0.00 | 450.20 | 0.11 | -0.35 | -3.80 | 3247.11 |
| 69 | 133 | 0.00 | -360.20 | -0.11 | 0.35 | 3.33 | -1423.72 |
| 70 | 133 | 0.00 | 360.20 | 0.11 | -0.35 | -3.33 | 1423.72 |
| 70 | 134 | 0.00 | -270.20 | -0.11 | 0.35 | 2.85 | -5.33 |
| 71 | 134 | 0.00 | 270.20 | 0.11 | -0.35 | -2.85 | 5.33 |
| 71 | 135 | 0.00 | -180.20 | -0.11 | 0.35 | 2.38 | 1008.06 |
| 72 | 135 | 0.00 | 180.20 | 0.11 | -0.35 | -2.38 | -1008.06 |
| 72 | 136 | 0.00 | -90.20 | -0.11 | 0.35 | 1.90 | 1616.45 |
| 73 | 136 | 0.00 | 90.20 | 0.11 | -0.35 | -1.90 | -1616.45 |
| 73 | 137 | 0.00 | -0.20 | -0.11 | 0.35 | 1.43 | 1819.83 |
| 74 | 137 | 0.00 | 0.20 | 0.11 | -0.35 | -1.43 | -1819.84 |
| 74 | 138 | 0.00 | 89.80 | -0.11 | 0.35 | 0.95 | 1618.22 |
| 75 | 138 | 0.00 | -89.80 | 0.11 | -0.35 | -0.95 | -1618.22 |
| 75 | 139 | 0.00 | 179.80 | -0.11 | 0.35 | 0.48 | 1011.61 |
| 76 | 139 | 0.00 | -179.80 | 0.11 | -0.35 | -0.48 | -1011.61 |
| 76 | 140 | 0.00 | 269.80 | -0.11 | 0.35 | 0.00 | 0.00 |
| 77 | 16 | 1117.51 | 0.00 | 0.27 | 0.00 | -2.57 | 0.00 |
| 77 | 17 | -1059.67 | 0.00 | -0.27 | 0.00 | 1.16 | 0.00 |
| 78 | 17 | 1059.67 | 0.00 | 0.27 | 0.00 | -1.16 | 0.00 |
| 78 | 18 | -998.67 | 0.00 | -0.27 | 0.00 | -0.17 | 0.00 |
| 79 | 33 | 1151.31 | 0.00 | -0.10 | 0.00 | 1.11 | 0.00 |
| 79 | 34 | -1068.60 | 0.00 | 0.10 | 0.00 | -0.32 | 0.00 |
| 80 | 34 | 1068.60 | 0.00 | -0.10 | 0.00 | 0.32 | 0.00 |
| 80 | 35 | -1007.60 | 0.00 | 0.10 | 0.00 | 0.19 | 0.00 |
| 81 | 50 | 1339.34 | 0.00 | -0.01 | 0.00 | 0.26 | 0.00 |
| 81 | 51 | -1288.75 | 0.00 | 0.01 | 0.00 | -0.23 | 0.00 |
| 82 | 51 | 1288.75 | 0.00 | -0.01 | 0.00 | 0.23 | 0.00 |
| 82 | 52 | -1169.41 | 0.00 | 0.01 | 0.00 | -0.16 | 0.00 |
| 83 | 52 | 1169.41 | 0.00 | -0.01 | 0.00 | 0.16 | 0.00 |
| 83 | 53 | -1060.29 | 0.00 | 0.01 | 0.00 | -0.08 | 0.00 |
| 84 | 53 | 1060.29 | 0.00 | -0.01 | 0.00 | 0.08 | 0.00 |
| 84 | 54 | -999.29 | 0.00 | 0.01 | 0.00 | -0.04 | 0.00 |
| 85 | 69 | 1381.97 | 0.00 | -0.01 | 0.00 | 0.24 | 0.00 |
| 85 | 70 | -1292.36 | 0.00 | 0.01 | 0.00 | -0.19 | 0.00 |
| 86 | 70 | 1292.36 | 0.00 | -0.01 | 0.00 | 0.19 | 0.00 |
| 86 | 71 | -1173.02 | 0.00 | 0.01 | 0.00 | -0.12 | 0.00 |
| 87 | 71 | 1173.02 | 0.00 | -0.01 | 0.00 | 0.12 | 0.00 |
| 87 | 72 | -1063.90 | 0.00 | 0.01 | 0.00 | -0.06 | 0.00 |
| 88 | 72 | 1063.90 | 0.00 | -0.01 | 0.00 | 0.06 | 0.00 |
| 88 | 73 | -1002.90 | 0.00 | 0.01 | 0.00 | -0.02 | 0.00 |
| 89 | 88 | 1302.06 | 0.00 | -0.01 | 0.00 | 0.35 | 0.00 |
| 89 | 89 | -1289.56 | 0.00 | 0.01 | 0.00 | -0.33 | 0.00 |
| 90 | 89 | 1289.56 | 0.00 | -0.01 | 0.00 | 0.33 | 0.00 |
| 90 | 90 | -1170.22 | 0.00 | 0.01 | 0.00 | -0.19 | 0.00 |
| 91 | 90 | 1170.22 | 0.00 | -0.01 | 0.00 | 0.19 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 91 | 91 | -1061.10 | 0.00 | 0.01 | 0.00 | -0.05 | 0.00 |
| 92 | 91 | 1061.10 | 0.00 | -0.01 | 0.00 | 0.05 | 0.00 |
| 92 | 92 | -1000.10 | 0.00 | 0.01 | 0.00 | 0.02 | 0.00 |
| 93 | 107 | 1188.86 | 0.00 | -0.04 | 0.00 | 0.49 | 0.00 |
| 93 | 108 | -1177.39 | 0.00 | 0.04 | 0.00 | -0.45 | 0.00 |
| 94 | 108 | 1177.39 | 0.00 | -0.04 | 0.00 | 0.45 | 0.00 |
| 94 | 109 | -1068.27 | 0.00 | 0.04 | 0.00 | -0.01 | 0.00 |
| 95 | 109 | 1068.27 | 0.00 | -0.04 | 0.00 | 0.01 | 0.00 |
| 95 | 110 | -1007.27 | 0.00 | 0.04 | 0.00 | 0.21 | 0.00 |
| 96 | 125 | 1179.76 | 0.00 | 0.17 | 0.00 | -2.31 | 0.00 |
| 96 | 126 | -1168.28 | 0.00 | -0.17 | 0.00 | 2.14 | 0.00 |
| 97 | 126 | 1168.28 | 0.00 | 0.17 | 0.00 | -2.14 | 0.00 |
| 97 | 127 | -1059.16 | 0.00 | -0.17 | 0.00 | 0.46 | 0.00 |
| 98 | 127 | 1059.16 | 0.00 | 0.17 | 0.00 | -0.46 | 0.00 |
| 98 | 128 | -998.16 | 0.00 | -0.17 | 0.00 | -0.39 | 0.00 |
| 99 | 2 | 167.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -167.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 167.77 | 0.00 | -0.15 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -167.77 | 0.00 | 0.15 | 0.00 | 0.26 | 0.00 |
| 101 | 19 | 472.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -472.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 472.50 | 0.00 | 0.27 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -472.50 | 0.00 | -0.27 | 0.00 | -0.46 | 0.00 |
| 103 | 36 | 476.97 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -476.97 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 476.87 | 0.00 | -0.10 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -476.87 | 0.00 | 0.10 | 0.00 | 0.18 | 0.00 |
| 105 | 55 | 472.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -472.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 472.77 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -472.77 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 107 | 74 | 474.56 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -474.56 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 474.58 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -474.58 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 109 | 93 | 473.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -473.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 473.17 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -473.17 | 0.00 | 0.01 | 0.00 | 0.02 | 0.00 |
| 111 | 111 | 476.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -476.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 476.70 | 0.00 | -0.04 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -476.70 | 0.00 | 0.04 | 0.00 | 0.08 | 0.00 |
| 113 | 129 | 472.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -472.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 472.31 | 0.00 | 0.17 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -472.31 | 0.00 | -0.17 | 0.00 | -0.29 | 0.00 |
| 115 | 141 | 167.97 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -167.97 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 167.93 | 0.00 | -0.11 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -167.93 | 0.00 | 0.11 | 0.00 | 0.18 | 0.00 |
| 117 | 6 | 335.54 | 0.00 | -0.15 | 0.00 | 0.13 | 0.00 |
| 117 | 7 | -335.54 | 0.00 | 0.15 | 0.00 | 0.02 | 0.00 |
| 118 | 145 | 335.90 | 0.00 | -0.11 | 0.00 | -0.06 | 0.00 |
| 118 | 146 | -335.90 | 0.00 | 0.11 | 0.00 | 0.17 | 0.00 |
| 119 | 3 | 0.00 | 167.77 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -167.77 | 0.00 | 0.00 | 0.00 | 713.03 |
| 120 | 1 | 0.15 | -167.77 | 0.00 | 0.00 | 0.00 | -712.75 |
| 120 | 5 | -0.15 | 167.77 | 0.00 | 0.00 | 0.00 | -0.26 |
| 121 | 20 | 0.00 | 472.41 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | -472.41 | 0.00 | 0.00 | 0.00 | 873.96 |
| 122 | 15 | -0.27 | -472.50 | 0.00 | 0.00 | 0.00 | -874.59 |
| 122 | 22 | 0.27 | 472.50 | 0.00 | 0.00 | 0.00 | 0.45 |
| 123 | 37 | 0.00 | 476.98 | 0.01 | 0.00 | 0.00 | -0.01 |
| 123 | 32 | 0.00 | -476.98 | -0.01 | 0.00 | 0.00 | 882.39 |
| 124 | 32 | 0.10 | -476.87 | 0.00 | 0.00 | 0.00 | -882.03 |
| 124 | 39 | -0.10 | 476.87 | 0.00 | 0.00 | 0.00 | -0.18 |
| 125 | 56 | 0.00 | 472.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.00 | -472.75 | 0.00 | 0.00 | 0.00 | 874.59 |
| 126 | 49 | 0.01 | -472.77 | 0.00 | 0.00 | 0.00 | -874.63 |
| 126 | 58 | -0.01 | 472.77 | 0.00 | 0.00 | 0.00 | -0.02 |
| 127 | 75 | 0.00 | 474.56 | 0.00 | 0.00 | -0.01 | -0.01 |
| 127 | 68 | 0.00 | -474.56 | 0.00 | 0.00 | -0.01 | 877.94 |
| 128 | 68 | 0.01 | -474.58 | 0.00 | 0.00 | -0.01 | -877.95 |
| 128 | 77 | -0.01 | 474.58 | 0.00 | 0.00 | 0.00 | -0.01 |
| 129 | 94 | 0.00 | 473.19 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | -473.19 | 0.00 | 0.00 | 0.00 | 875.37 |
| 130 | 87 | 0.01 | -473.18 | 0.00 | 0.00 | 0.00 | -875.34 |
| 130 | 96 | -0.01 | 473.18 | 0.00 | 0.00 | 0.00 | -0.02 |
| 131 | 112 | 0.00 | 476.81 | -0.01 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | -476.81 | 0.01 | 0.00 | 0.00 | 882.10 |
| 132 | 106 | 0.04 | -476.70 | 0.00 | 0.00 | 0.00 | -881.81 |
| 132 | 114 | -0.04 | 476.70 | 0.00 | 0.00 | 0.00 | -0.08 |
| 133 | 130 | 0.00 | 472.10 | 0.00 | 0.00 | -0.01 | 0.00 |
| 133 | 124 | 0.00 | -472.10 | 0.00 | 0.00 | -0.01 | 873.38 |
| 134 | 124 | -0.17 | -472.31 | 0.00 | 0.00 | -0.01 | -874.06 |
| 134 | 132 | 0.17 | 472.31 | 0.00 | 0.00 | 0.00 | 0.29 |
| 135 | 142 | 0.00 | 167.97 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -167.97 | 0.00 | 0.00 | 0.00 | 713.88 |
| 136 | 140 | 0.11 | -167.93 | 0.00 | 0.00 | 0.00 | -713.53 |
| 136 | 144 | -0.11 | 167.93 | 0.00 | 0.00 | 0.00 | -0.18 |
| 137 | 2 | 0.00 | -167.77 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 167.77 | 0.00 | 0.00 | 0.00 | -713.03 |
| 138 | 7 | -0.15 | 167.77 | 0.00 | 0.00 | 0.00 | 713.01 |
| 138 | 4 | 0.15 | -167.77 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -472.41 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 472.41 | 0.00 | 0.00 | 0.00 | -873.96 |
| 140 | 18 | 0.27 | 472.50 | 0.00 | 0.00 | 0.00 | 874.13 |
| 140 | 21 | -0.27 | -472.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -476.97 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 476.97 | 0.00 | 0.00 | 0.00 | -882.40 |
| 142 | 35 | -0.10 | 476.87 | 0.00 | 0.00 | 0.00 | 882.21 |
| 142 | 38 | 0.10 | -476.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -472.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | 472.75 | 0.00 | 0.00 | 0.00 | -874.59 |
| 144 | 54 | -0.01 | 472.77 | 0.00 | 0.00 | 0.00 | 874.63 |
| 144 | 57 | 0.01 | -472.77 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | -474.56 | 0.00 | 0.00 | 0.00 | 0.01 |
| 145 | 73 | 0.00 | 474.56 | 0.00 | 0.00 | 0.00 | -877.94 |
| 146 | 73 | -0.01 | 474.58 | 0.00 | 0.00 | 0.00 | 877.96 |
| 146 | 76 | 0.01 | -474.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | -473.17 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | 473.17 | 0.00 | 0.00 | 0.00 | -875.38 |
| 148 | 92 | -0.01 | 473.17 | 0.00 | 0.00 | 0.00 | 875.35 |
| 148 | 95 | 0.01 | -473.17 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | -476.81 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 476.81 | 0.00 | 0.00 | 0.00 | -882.10 |
| 150 | 110 | -0.04 | 476.69 | 0.00 | 0.00 | 0.00 | 881.88 |
| 150 | 113 | 0.04 | -476.69 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -472.10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 472.10 | 0.00 | 0.00 | 0.00 | -873.38 |
| 152 | 128 | 0.17 | 472.31 | 0.00 | 0.00 | 0.00 | 873.77 |
| 152 | 131 | -0.17 | -472.31 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -167.97 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 167.97 | 0.00 | 0.00 | 0.00 | -713.88 |
| 154 | 146 | -0.11 | 167.93 | 0.00 | 0.00 | 0.00 | 713.71 |
| 154 | 143 | 0.11 | -167.93 | 0.00 | 0.00 | 0.00 | 0.00 |

HIPOTESIS 2

hipo 2 carga muerta (limite inferior)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 128.35 | -0.05 | 0.09 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -85.47 | 0.05 | -0.09 | 0.21 | 481.09 |
| 2 | 8 | 0.00 | 85.47 | -0.05 | 0.09 | -0.21 | -481.09 |
| 2 | 9 | 0.00 | -42.58 | 0.05 | -0.09 | 0.42 | 769.20 |
| 3 | 9 | 0.00 | 42.58 | -0.05 | 0.09 | -0.42 | -769.20 |
| 3 | 10 | 0.00 | 0.30 | 0.05 | -0.09 | 0.63 | 864.33 |
| 4 | 10 | 0.00 | -0.30 | -0.05 | 0.09 | -0.63 | -864.33 |
| 4 | 11 | 0.00 | 43.19 | 0.05 | -0.09 | 0.83 | 766.47 |
| 5 | 11 | 0.00 | -43.19 | -0.05 | 0.09 | -0.83 | -766.47 |
| 5 | 12 | 0.00 | 86.07 | 0.05 | -0.09 | 1.04 | 475.63 |
| 6 | 12 | 0.00 | -86.07 | -0.05 | 0.09 | -1.04 | -475.63 |
| 6 | 13 | 0.00 | 128.96 | 0.05 | -0.09 | 1.25 | -8.19 |
| 7 | 13 | 0.00 | -128.96 | -0.05 | 0.09 | -1.25 | 8.19 |
| 7 | 14 | 0.00 | 171.84 | 0.05 | -0.09 | 1.46 | -684.99 |
| 8 | 14 | 0.00 | -171.84 | -0.05 | 0.09 | -1.46 | 684.99 |
| 8 | 15 | 0.00 | 214.73 | 0.05 | -0.09 | 1.67 | -1554.78 |
| 9 | 15 | 0.00 | 212.74 | 0.03 | -0.10 | -1.67 | 1554.78 |
| 9 | 23 | 0.00 | -169.85 | -0.03 | 0.10 | 1.51 | -693.95 |
| 10 | 23 | 0.00 | 169.85 | 0.03 | -0.10 | -1.51 | 693.95 |
| 10 | 24 | 0.00 | -126.97 | -0.03 | 0.10 | 1.36 | -26.11 |
| 11 | 24 | 0.00 | 126.97 | 0.03 | -0.10 | -1.36 | 26.11 |
| 11 | 25 | 0.00 | -84.08 | -0.03 | 0.10 | 1.20 | 448.75 |
| 12 | 25 | 0.00 | 84.08 | 0.03 | -0.10 | -1.20 | -448.75 |
| 12 | 26 | 0.00 | -41.20 | -0.03 | 0.10 | 1.05 | 730.63 |
| 13 | 26 | 0.00 | 41.20 | 0.03 | -0.10 | -1.05 | -730.63 |
| 13 | 27 | 0.00 | 1.69 | -0.03 | 0.10 | 0.89 | 819.52 |
| 14 | 27 | 0.00 | -1.69 | 0.03 | -0.10 | -0.89 | -819.52 |
| 14 | 28 | 0.00 | 44.57 | -0.03 | 0.10 | 0.74 | 715.43 |
| 15 | 28 | 0.00 | -44.57 | 0.03 | -0.10 | -0.74 | -715.43 |
| 15 | 29 | 0.00 | 87.46 | -0.03 | 0.10 | 0.58 | 418.36 |
| 16 | 29 | 0.00 | -87.46 | 0.03 | -0.10 | -0.58 | -418.36 |
| 16 | 30 | 0.00 | 130.34 | -0.03 | 0.10 | 0.43 | -71.69 |
| 17 | 30 | 0.00 | -130.34 | 0.03 | -0.10 | -0.43 | 71.69 |
| 17 | 31 | 0.00 | 173.23 | -0.03 | 0.10 | 0.27 | -754.72 |
| 18 | 31 | 0.00 | -173.23 | 0.03 | -0.10 | -0.27 | 754.72 |
| 18 | 32 | 0.00 | 216.11 | -0.03 | 0.10 | 0.12 | -1630.74 |
| 19 | 32 | 0.00 | 215.20 | 0.00 | 0.01 | -0.12 | 1630.74 |
| 19 | 40 | 0.00 | -172.31 | 0.00 | -0.01 | 0.10 | -758.85 |
| 20 | 40 | 0.00 | 172.31 | 0.00 | 0.01 | -0.10 | 758.85 |
| 20 | 41 | 0.00 | -129.43 | 0.00 | -0.01 | 0.09 | -79.94 |
| 21 | 41 | 0.00 | 129.43 | 0.00 | 0.01 | -0.09 | 79.94 |
| 21 | 42 | 0.00 | -86.54 | 0.00 | -0.01 | 0.08 | 405.98 |
| 22 | 42 | 0.00 | 86.54 | 0.00 | 0.01 | -0.08 | -405.99 |
| 22 | 43 | 0.00 | -43.66 | 0.00 | -0.01 | 0.07 | 698.93 |
| 23 | 43 | 0.00 | 43.66 | 0.00 | 0.01 | -0.07 | -698.93 |
| 23 | 44 | 0.00 | -0.77 | 0.00 | -0.01 | 0.05 | 798.89 |
| 24 | 44 | 0.00 | 0.77 | 0.00 | 0.01 | -0.05 | -798.89 |
| 24 | 45 | 0.00 | 42.11 | 0.00 | -0.01 | 0.04 | 705.87 |
| 25 | 45 | 0.00 | -42.11 | 0.00 | 0.01 | -0.04 | -705.87 |
| 25 | 46 | 0.00 | 85.00 | 0.00 | -0.01 | 0.03 | 419.87 |
| 26 | 46 | 0.00 | -85.00 | 0.00 | 0.01 | -0.03 | -419.87 |
| 26 | 47 | 0.00 | 127.88 | 0.00 | -0.01 | 0.02 | -59.12 |
| 27 | 47 | 0.00 | -127.88 | 0.00 | 0.01 | -0.02 | 59.12 |
| 27 | 48 | 0.00 | 170.77 | 0.00 | -0.01 | 0.01 | -731.09 |
| 28 | 48 | 0.00 | -170.77 | 0.00 | 0.01 | -0.01 | 731.09 |
| 28 | 49 | 0.00 | 213.65 | 0.00 | -0.01 | -0.01 | -1596.04 |
| 29 | 49 | 0.00 | 214.15 | 0.00 | 0.00 | 0.01 | 1596.04 |
| 29 | 59 | 0.00 | -171.26 | 0.00 | 0.00 | -0.01 | -728.88 |
| 30 | 59 | 0.00 | 171.26 | 0.00 | 0.00 | 0.01 | 728.88 |
| 30 | 60 | 0.00 | -128.38 | 0.00 | 0.00 | -0.01 | -54.69 |
| 31 | 60 | 0.00 | 128.38 | 0.00 | 0.00 | 0.01 | 54.69 |
| 31 | 61 | 0.00 | -85.49 | 0.00 | 0.00 | -0.01 | 426.51 |
| 32 | 61 | 0.00 | 85.49 | 0.00 | 0.00 | 0.01 | -426.51 |
| 32 | 62 | 0.00 | -42.61 | 0.00 | 0.00 | -0.02 | 714.72 |
| 33 | 62 | 0.00 | 42.61 | 0.00 | 0.00 | 0.02 | -714.72 |
| 33 | 63 | 0.00 | 0.28 | 0.00 | 0.00 | -0.02 | 809.96 |
| 34 | 63 | 0.00 | -0.28 | 0.00 | 0.00 | 0.02 | -809.96 |
| 34 | 64 | 0.00 | 43.16 | 0.00 | 0.00 | -0.02 | 712.21 |
| 35 | 64 | 0.00 | -43.16 | 0.00 | 0.00 | 0.02 | -712.21 |
| 35 | 65 | 0.00 | 86.05 | 0.00 | 0.00 | -0.02 | 421.48 |
| 36 | 65 | 0.00 | -86.05 | 0.00 | 0.00 | 0.02 | -421.48 |
| 36 | 66 | 0.00 | 128.93 | 0.00 | 0.00 | -0.02 | -62.23 |
| 37 | 66 | 0.00 | -128.93 | 0.00 | 0.00 | 0.02 | 62.23 |
| 37 | 67 | 0.00 | 171.82 | 0.00 | 0.00 | -0.03 | -738.93 |
| 38 | 67 | 0.00 | -171.82 | 0.00 | 0.00 | 0.03 | 738.93 |
| 38 | 68 | 0.00 | 214.70 | 0.00 | 0.00 | -0.03 | -1608.60 |
| 39 | 68 | 0.00 | 214.59 | 0.00 | 0.00 | 0.03 | 1608.60 |
| 39 | 78 | 0.00 | -171.71 | 0.00 | 0.00 | -0.02 | -739.43 |
| 40 | 78 | 0.00 | 171.71 | 0.00 | 0.00 | 0.02 | 739.43 |
| 40 | 79 | 0.00 | -128.82 | 0.00 | 0.00 | -0.02 | -63.25 |
| 41 | 79 | 0.00 | 128.82 | 0.00 | 0.00 | 0.02 | 63.25 |
| 41 | 80 | 0.00 | -85.94 | 0.00 | 0.00 | -0.01 | 419.96 |
| 42 | 80 | 0.00 | 85.94 | 0.00 | 0.00 | 0.01 | -419.96 |
| 42 | 81 | 0.00 | -43.05 | 0.00 | 0.00 | 0.00 | 710.18 |
| 43 | 81 | 0.00 | 43.05 | 0.00 | 0.00 | 0.00 | -710.18 |
| 43 | 82 | 0.00 | -0.17 | 0.00 | 0.00 | 0.00 | 807.42 |
| 44 | 82 | 0.00 | 0.17 | 0.00 | 0.00 | 0.00 | -807.42 |
| 44 | 83 | 0.00 | 42.72 | 0.00 | 0.00 | 0.01 | 711.68 |
| 45 | 83 | 0.00 | -42.72 | 0.00 | 0.00 | -0.01 | -711.68 |
| 45 | 84 | 0.00 | 85.60 | 0.00 | 0.00 | 0.02 | 422.95 |
| 46 | 84 | 0.00 | -85.60 | 0.00 | 0.00 | -0.02 | -422.95 |
| 46 | 85 | 0.00 | 128.49 | 0.00 | 0.00 | 0.03 | -58.76 |
| 47 | 85 | 0.00 | -128.49 | 0.00 | 0.00 | -0.03 | 58.76 |
| 47 | 86 | 0.00 | 171.37 | 0.00 | 0.00 | 0.03 | -733.45 |
| 48 | 86 | 0.00 | -171.37 | 0.00 | 0.00 | -0.03 | 733.45 |
| 48 | 87 | 0.00 | 214.26 | 0.00 | 0.00 | 0.04 | -1601.12 |
| 49 | 87 | 0.00 | 213.81 | -0.01 | 0.01 | -0.04 | 1601.12 |
| 49 | 97 | 0.00 | -170.93 | 0.01 | -0.01 | 0.06 | -735.46 |
| 50 | 97 | 0.00 | 170.93 | -0.01 | 0.01 | -0.06 | 735.46 |
| 50 | 98 | 0.00 | -128.04 | 0.01 | -0.01 | 0.09 | -62.78 |
| 51 | 98 | 0.00 | 128.04 | -0.01 | 0.01 | -0.09 | 62.78 |
| 51 | 99 | 0.00 | -85.16 | 0.01 | -0.01 | 0.11 | 416.92 |
| 52 | 99 | 0.00 | 85.16 | -0.01 | 0.01 | -0.11 | -416.92 |
| 52 | 100 | 0.00 | -42.27 | 0.01 | -0.01 | 0.14 | 703.63 |
| 53 | 100 | 0.00 | 42.27 | -0.01 | 0.01 | -0.14 | -703.63 |
| 53 | 101 | 0.00 | 0.61 | 0.01 | -0.01 | 0.16 | 797.36 |
| 54 | 101 | 0.00 | -0.61 | -0.01 | 0.01 | -0.16 | -797.36 |
| 54 | 102 | 0.00 | 43.50 | 0.01 | -0.01 | 0.19 | 698.11 |
| 55 | 102 | 0.00 | -43.50 | -0.01 | 0.01 | -0.19 | -698.11 |
| 55 | 103 | 0.00 | 86.38 | 0.01 | -0.01 | 0.21 | 405.87 |
| 56 | 103 | 0.00 | -86.38 | -0.01 | 0.01 | -0.21 | -405.87 |
| 56 | 104 | 0.00 | 129.27 | 0.01 | -0.01 | 0.24 | -79.34 |
| 57 | 104 | 0.00 | -129.27 | -0.01 | 0.01 | -0.24 | 79.34 |
| 57 | 105 | 0.00 | 172.15 | 0.01 | -0.01 | 0.26 | -757.54 |
| 58 | 105 | 0.00 | -172.15 | -0.01 | 0.01 | -0.26 | 757.54 |
| 58 | 106 | 0.00 | 215.04 | 0.01 | -0.01 | 0.29 | -1628.72 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 59 | 106 | 0.00 | 216.18 | -0.02 | 0.10 | -0.29 | 1628.72 |
| 59 | 115 | 0.00 | -173.29 | 0.02 | -0.10 | 0.38 | -752.41 |
| 60 | 115 | 0.00 | 173.29 | -0.02 | 0.10 | -0.38 | 752.41 |
| 60 | 116 | 0.00 | -130.41 | 0.02 | -0.10 | 0.46 | -69.07 |
| 61 | 116 | 0.00 | 130.41 | -0.02 | 0.10 | -0.46 | 69.07 |
| 61 | 117 | 0.00 | -87.52 | 0.02 | -0.10 | 0.55 | 421.28 |
| 62 | 117 | 0.00 | 87.52 | -0.02 | 0.10 | -0.55 | -421.28 |
| 62 | 118 | 0.00 | -44.64 | 0.02 | -0.10 | 0.64 | 718.65 |
| 63 | 118 | 0.00 | 44.64 | -0.02 | 0.10 | -0.64 | -718.65 |
| 63 | 119 | 0.00 | -1.75 | 0.02 | -0.10 | 0.72 | 823.03 |
| 64 | 119 | 0.00 | 1.75 | -0.02 | 0.10 | -0.72 | -823.03 |
| 64 | 120 | 0.00 | 41.13 | 0.02 | -0.10 | 0.81 | 734.44 |
| 65 | 120 | 0.00 | -41.13 | -0.02 | 0.10 | -0.81 | -734.44 |
| 65 | 121 | 0.00 | 84.02 | 0.02 | -0.10 | 0.89 | 452.86 |
| 66 | 121 | 0.00 | -84.02 | -0.02 | 0.10 | -0.89 | -452.86 |
| 66 | 122 | 0.00 | 126.90 | 0.02 | -0.10 | 0.98 | -21.70 |
| 67 | 122 | 0.00 | -126.90 | -0.02 | 0.10 | -0.98 | 21.70 |
| 67 | 123 | 0.00 | 169.79 | 0.02 | -0.10 | 1.07 | -689.25 |
| 68 | 123 | 0.00 | -169.79 | -0.02 | 0.10 | -1.07 | 689.25 |
| 68 | 124 | 0.00 | 212.67 | 0.02 | -0.10 | 1.15 | -1549.77 |
| 69 | 124 | 0.00 | 214.59 | 0.03 | -0.11 | -1.15 | 1549.77 |
| 69 | 133 | 0.00 | -171.70 | -0.03 | 0.11 | 1.01 | -680.61 |
| 70 | 133 | 0.00 | 171.70 | 0.03 | -0.11 | -1.01 | 680.61 |
| 70 | 134 | 0.00 | -128.82 | -0.03 | 0.11 | 0.87 | -4.43 |
| 71 | 134 | 0.00 | 128.82 | 0.03 | -0.11 | -0.87 | 4.43 |
| 71 | 135 | 0.00 | -85.93 | -0.03 | 0.11 | 0.72 | 478.76 |
| 72 | 135 | 0.00 | 85.93 | 0.03 | -0.11 | -0.72 | -478.76 |
| 72 | 136 | 0.00 | -43.05 | -0.03 | 0.11 | 0.58 | 768.97 |
| 73 | 136 | 0.00 | 43.05 | 0.03 | -0.11 | -0.58 | -768.97 |
| 73 | 137 | 0.00 | -0.16 | -0.03 | 0.11 | 0.43 | 866.20 |
| 74 | 137 | 0.00 | 0.16 | 0.03 | -0.11 | -0.43 | -866.20 |
| 74 | 138 | 0.00 | 42.72 | -0.03 | 0.11 | 0.29 | 770.45 |
| 75 | 138 | 0.00 | -42.72 | 0.03 | -0.11 | -0.29 | -770.45 |
| 75 | 139 | 0.00 | 85.61 | -0.03 | 0.11 | 0.14 | 481.72 |
| 76 | 139 | 0.00 | -85.61 | 0.03 | -0.11 | -0.14 | -481.72 |
| 76 | 140 | 0.00 | 128.49 | -0.03 | 0.11 | 0.00 | 0.00 |
| 77 | 16 | 427.47 | 0.00 | 0.08 | 0.00 | -0.78 | 0.00 |
| 77 | 17 | -427.47 | 0.00 | -0.08 | 0.00 | 0.35 | 0.00 |
| 78 | 17 | 427.47 | 0.00 | 0.08 | 0.00 | -0.35 | 0.00 |
| 78 | 18 | -427.47 | 0.00 | -0.08 | 0.00 | -0.05 | 0.00 |
| 79 | 33 | 431.31 | 0.00 | -0.03 | 0.00 | 0.34 | 0.00 |
| 79 | 34 | -431.31 | 0.00 | 0.03 | 0.00 | -0.10 | 0.00 |
| 80 | 34 | 431.31 | 0.00 | -0.03 | 0.00 | 0.10 | 0.00 |
| 80 | 35 | -431.31 | 0.00 | 0.03 | 0.00 | 0.06 | 0.00 |
| 81 | 50 | 427.80 | 0.00 | 0.00 | 0.00 | 0.08 | 0.00 |
| 81 | 51 | -427.80 | 0.00 | 0.00 | 0.00 | -0.07 | 0.00 |
| 82 | 51 | 427.80 | 0.00 | 0.00 | 0.00 | 0.07 | 0.00 |
| 82 | 52 | -427.80 | 0.00 | 0.00 | 0.00 | -0.05 | 0.00 |
| 83 | 52 | 427.80 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 |
| 83 | 53 | -427.80 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 84 | 53 | 427.80 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| 84 | 54 | -427.80 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 85 | 69 | 429.30 | 0.00 | 0.00 | 0.00 | 0.07 | 0.00 |
| 85 | 70 | -429.30 | 0.00 | 0.00 | 0.00 | -0.06 | 0.00 |
| 86 | 70 | 429.30 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 |
| 86 | 71 | -429.30 | 0.00 | 0.00 | 0.00 | -0.04 | 0.00 |
| 87 | 71 | 429.30 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 |
| 87 | 72 | -429.30 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 88 | 72 | 429.30 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| 88 | 73 | -429.30 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 89 | 88 | 428.07 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 |
| 89 | 89 | -428.07 | 0.00 | 0.00 | 0.00 | -0.10 | 0.00 |
| 90 | 89 | 428.07 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 |
| 90 | 90 | -428.07 | 0.00 | 0.00 | 0.00 | -0.06 | 0.00 |
| 91 | 90 | 428.07 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 |
| 91 | 91 | -428.07 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 92 | 91 | 428.07 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| 92 | 92 | -428.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 93 | 107 | 431.22 | 0.00 | -0.01 | 0.00 | 0.15 | 0.00 |
| 93 | 108 | -431.22 | 0.00 | 0.01 | 0.00 | -0.14 | 0.00 |
| 94 | 108 | 431.22 | 0.00 | -0.01 | 0.00 | 0.14 | 0.00 |
| 94 | 109 | -431.22 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| 95 | 109 | 431.22 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 95 | 110 | -431.22 | 0.00 | 0.01 | 0.00 | 0.07 | 0.00 |
| 96 | 125 | 427.26 | 0.00 | 0.05 | 0.00 | -0.70 | 0.00 |
| 96 | 126 | -427.26 | 0.00 | -0.05 | 0.00 | 0.65 | 0.00 |
| 97 | 126 | 427.26 | 0.00 | 0.05 | 0.00 | -0.65 | 0.00 |
| 97 | 127 | -427.26 | 0.00 | -0.05 | 0.00 | 0.14 | 0.00 |
| 98 | 127 | 427.26 | 0.00 | 0.05 | 0.00 | -0.14 | 0.00 |
| 98 | 128 | -427.26 | 0.00 | -0.05 | 0.00 | -0.12 | 0.00 |
| 99 | 2 | 64.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -64.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 64.18 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -64.18 | 0.00 | 0.05 | 0.00 | 0.08 | 0.00 |
| 101 | 19 | 213.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -213.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 213.75 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -213.75 | 0.00 | -0.08 | 0.00 | -0.14 | 0.00 |
| 103 | 36 | 215.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -215.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 215.64 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -215.64 | 0.00 | 0.03 | 0.00 | 0.05 | 0.00 |
| 105 | 55 | 213.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -213.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 213.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -213.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 74 | 214.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -214.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 214.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -214.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 93 | 214.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -214.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 214.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -214.03 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 111 | 111 | 215.63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -215.63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 215.59 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -215.59 | 0.00 | 0.01 | 0.00 | 0.02 | 0.00 |
| 113 | 129 | 213.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -213.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 213.66 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -213.66 | 0.00 | -0.05 | 0.00 | -0.09 | 0.00 |
| 115 | 141 | 64.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -64.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 64.24 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -64.24 | 0.00 | 0.03 | 0.00 | 0.05 | 0.00 |
| 117 | 6 | 128.35 | 0.00 | -0.05 | 0.00 | 0.04 | 0.00 |
| 117 | 7 | -128.35 | 0.00 | 0.05 | 0.00 | 0.01 | 0.00 |
| 118 | 145 | 128.49 | 0.00 | -0.03 | 0.00 | -0.02 | 0.00 |
| 118 | 146 | -128.49 | 0.00 | 0.03 | 0.00 | 0.05 | 0.00 |
| 119 | 3 | 0.00 | 64.18 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -64.18 | 0.00 | 0.00 | 0.00 | 272.75 |
| 120 | 1 | 0.05 | -64.18 | 0.00 | 0.00 | 0.00 | -272.66 |
| 120 | 5 | -0.05 | 64.18 | 0.00 | 0.00 | 0.00 | -0.08 |
| 121 | 20 | 0.00 | 213.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | -213.72 | 0.00 | 0.00 | 0.00 | 395.38 |
| 122 | 15 | -0.08 | -213.75 | 0.00 | 0.00 | 0.00 | -395.57 |
| 122 | 22 | 0.08 | 213.75 | 0.00 | 0.00 | 0.00 | 0.14 |
| 123 | 37 | 0.00 | 215.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | -215.67 | 0.00 | 0.00 | 0.00 | 398.99 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 124 | 32 | 0.03 | -215.64 | 0.00 | 0.00 | 0.00 | -398.88 |
| 124 | 39 | -0.03 | 215.64 | 0.00 | 0.00 | 0.00 | -0.05 |
| 125 | 56 | 0.00 | 213.90 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.00 | -213.90 | 0.00 | 0.00 | 0.00 | 395.71 |
| 126 | 49 | 0.00 | -213.90 | 0.00 | 0.00 | 0.00 | -395.72 |
| 126 | 58 | 0.00 | 213.90 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 75 | 0.00 | 214.65 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.00 | -214.65 | 0.00 | 0.00 | 0.00 | 397.10 |
| 128 | 68 | 0.00 | -214.65 | 0.00 | 0.00 | 0.00 | -397.10 |
| 128 | 77 | 0.00 | 214.65 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 94 | 0.00 | 214.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | -214.04 | 0.00 | 0.00 | 0.00 | 395.96 |
| 130 | 87 | 0.00 | -214.03 | 0.00 | 0.00 | 0.00 | -395.95 |
| 130 | 96 | 0.00 | 214.03 | 0.00 | 0.00 | 0.00 | -0.01 |
| 131 | 112 | 0.00 | 215.63 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | -215.63 | 0.00 | 0.00 | 0.00 | 398.91 |
| 132 | 106 | 0.01 | -215.59 | 0.00 | 0.00 | 0.00 | -398.82 |
| 132 | 114 | -0.01 | 215.59 | 0.00 | 0.00 | 0.00 | -0.02 |
| 133 | 130 | 0.00 | 213.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | -213.60 | 0.00 | 0.00 | 0.00 | 395.16 |
| 134 | 124 | -0.05 | -213.66 | 0.00 | 0.00 | 0.00 | -395.37 |
| 134 | 132 | 0.05 | 213.66 | 0.00 | 0.00 | 0.00 | 0.09 |
| 135 | 142 | 0.00 | 64.25 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -64.25 | 0.00 | 0.00 | 0.00 | 273.07 |
| 136 | 140 | 0.03 | -64.24 | 0.00 | 0.00 | 0.00 | -272.96 |
| 136 | 144 | -0.03 | 64.24 | 0.00 | 0.00 | 0.00 | -0.06 |
| 137 | 2 | 0.00 | -64.18 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 64.18 | 0.00 | 0.00 | 0.00 | -272.75 |
| 138 | 7 | -0.05 | 64.18 | 0.00 | 0.00 | 0.00 | 272.74 |
| 138 | 4 | 0.05 | -64.18 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -213.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 213.72 | 0.00 | 0.00 | 0.00 | -395.38 |
| 140 | 18 | 0.08 | 213.75 | 0.00 | 0.00 | 0.00 | 395.43 |
| 140 | 21 | -0.08 | -213.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -215.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 215.67 | 0.00 | 0.00 | 0.00 | -398.99 |
| 142 | 35 | -0.03 | 215.64 | 0.00 | 0.00 | 0.00 | 398.93 |
| 142 | 38 | 0.03 | -215.64 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -213.90 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | 213.90 | 0.00 | 0.00 | 0.00 | -395.71 |
| 144 | 54 | 0.00 | 213.90 | 0.00 | 0.00 | 0.00 | 395.72 |
| 144 | 57 | 0.00 | -213.90 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | -214.64 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 214.64 | 0.00 | 0.00 | 0.00 | -397.10 |
| 146 | 73 | 0.00 | 214.65 | 0.00 | 0.00 | 0.00 | 397.10 |
| 146 | 76 | 0.00 | -214.65 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | -214.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | 214.03 | 0.00 | 0.00 | 0.00 | -395.97 |
| 148 | 92 | 0.00 | 214.04 | 0.00 | 0.00 | 0.00 | 395.96 |
| 148 | 95 | 0.00 | -214.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | -215.63 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 215.63 | 0.00 | 0.00 | 0.00 | -398.91 |
| 150 | 110 | -0.01 | 215.59 | 0.00 | 0.00 | 0.00 | 398.84 |
| 150 | 113 | 0.01 | -215.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -213.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 213.60 | 0.00 | 0.00 | 0.00 | -395.16 |
| 152 | 128 | 0.05 | 213.66 | 0.00 | 0.00 | 0.00 | 395.28 |
| 152 | 131 | -0.05 | -213.66 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -64.25 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 64.25 | 0.00 | 0.00 | 0.00 | -273.07 |
| 154 | 146 | -0.03 | 64.24 | 0.00 | 0.00 | 0.00 | 273.02 |
| 154 | 143 | 0.03 | -64.24 | 0.00 | 0.00 | 0.00 | 0.00 |



HIPOTESIS 3

hipo 3 carga muerta (limite superior)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 196.23 | -0.07 | 0.13 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -130.67 | 0.07 | -0.13 | 0.32 | 735.52 |
| 2 | 8 | 0.00 | 130.67 | -0.07 | 0.13 | -0.32 | -735.52 |
| 2 | 9 | 0.00 | -65.10 | 0.07 | -0.13 | 0.64 | 1176.00 |
| 3 | 9 | 0.00 | 65.10 | -0.07 | 0.13 | -0.64 | -1176.00 |
| 3 | 10 | 0.00 | 0.46 | 0.07 | -0.13 | 0.96 | 1321.43 |
| 4 | 10 | 0.00 | -0.46 | -0.07 | 0.13 | -0.96 | -1321.43 |
| 4 | 11 | 0.00 | 66.03 | 0.07 | -0.13 | 1.28 | 1171.82 |
| 5 | 11 | 0.00 | -66.03 | -0.07 | 0.13 | -1.28 | -1171.82 |
| 5 | 12 | 0.00 | 131.59 | 0.07 | -0.13 | 1.60 | 727.17 |
| 6 | 12 | 0.00 | -131.59 | -0.07 | 0.13 | -1.60 | -727.17 |
| 6 | 13 | 0.00 | 197.16 | 0.07 | -0.13 | 1.91 | -12.52 |
| 7 | 13 | 0.00 | -197.16 | -0.07 | 0.13 | -1.91 | 12.52 |
| 7 | 14 | 0.00 | 262.72 | 0.07 | -0.13 | 2.23 | -1047.25 |
| 8 | 14 | 0.00 | -262.72 | -0.07 | 0.13 | -2.23 | 1047.25 |
| 8 | 15 | 0.00 | 328.29 | 0.07 | -0.13 | 2.55 | -2377.03 |
| 9 | 15 | 0.00 | 325.24 | 0.05 | -0.16 | -2.55 | 2377.03 |
| 9 | 23 | 0.00 | -259.68 | -0.05 | 0.16 | 2.31 | -1060.95 |
| 10 | 23 | 0.00 | 259.68 | 0.05 | -0.16 | -2.31 | 1060.95 |
| 10 | 24 | 0.00 | -194.11 | -0.05 | 0.16 | 2.08 | -39.92 |
| 11 | 24 | 0.00 | 194.11 | 0.05 | -0.16 | -2.08 | 39.92 |
| 11 | 25 | 0.00 | -128.55 | -0.05 | 0.16 | 1.84 | 686.07 |
| 12 | 25 | 0.00 | 128.55 | 0.05 | -0.16 | -1.84 | -686.07 |
| 12 | 26 | 0.00 | -62.98 | -0.05 | 0.16 | 1.60 | 1117.02 |
| 13 | 26 | 0.00 | 62.98 | 0.05 | -0.16 | -1.60 | -1117.02 |
| 13 | 27 | 0.00 | 2.58 | -0.05 | 0.16 | 1.36 | 1252.93 |
| 14 | 27 | 0.00 | -2.58 | 0.05 | -0.16 | -1.36 | -1252.93 |
| 14 | 28 | 0.00 | 68.15 | -0.05 | 0.16 | 1.13 | 1093.80 |
| 15 | 28 | 0.00 | -68.15 | 0.05 | -0.16 | -1.13 | -1093.80 |
| 15 | 29 | 0.00 | 133.71 | -0.05 | 0.16 | 0.89 | 639.62 |
| 16 | 29 | 0.00 | -133.71 | 0.05 | -0.16 | -0.89 | -639.62 |
| 16 | 30 | 0.00 | 199.28 | -0.05 | 0.16 | 0.65 | -109.60 |
| 17 | 30 | 0.00 | -199.28 | 0.05 | -0.16 | -0.65 | 109.60 |
| 17 | 31 | 0.00 | 264.84 | -0.05 | 0.16 | 0.41 | -1153.87 |
| 18 | 31 | 0.00 | -264.84 | 0.05 | -0.16 | -0.41 | 1153.87 |
| 18 | 32 | 0.00 | 330.41 | -0.05 | 0.16 | 0.18 | -2493.17 |
| 19 | 32 | 0.00 | 329.00 | 0.00 | 0.02 | -0.18 | 2493.17 |
| 19 | 40 | 0.00 | -263.44 | 0.00 | -0.02 | 0.16 | -1160.17 |
| 20 | 40 | 0.00 | 263.44 | 0.00 | 0.02 | -0.16 | 1160.17 |
| 20 | 41 | 0.00 | -197.87 | 0.00 | -0.02 | 0.14 | -122.22 |
| 21 | 41 | 0.00 | 197.87 | 0.00 | 0.02 | -0.14 | 122.22 |
| 21 | 42 | 0.00 | -132.31 | 0.00 | -0.02 | 0.12 | 620.69 |
| 22 | 42 | 0.00 | 132.31 | 0.00 | 0.02 | -0.12 | -620.69 |
| 22 | 43 | 0.00 | -66.74 | 0.00 | -0.02 | 0.10 | 1068.56 |
| 23 | 43 | 0.00 | 66.74 | 0.00 | 0.02 | -0.10 | -1068.56 |
| 23 | 44 | 0.00 | -1.18 | 0.00 | -0.02 | 0.08 | 1221.39 |
| 24 | 44 | 0.00 | 1.18 | 0.00 | 0.02 | -0.08 | -1221.39 |
| 24 | 45 | 0.00 | 64.39 | 0.00 | -0.02 | 0.06 | 1079.17 |
| 25 | 45 | 0.00 | -64.39 | 0.00 | 0.02 | -0.06 | -1079.17 |
| 25 | 46 | 0.00 | 129.95 | 0.00 | -0.02 | 0.05 | 641.91 |
| 26 | 46 | 0.00 | -129.95 | 0.00 | 0.02 | -0.05 | -641.91 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 26 | 47 | 0.00 | 195.52 | 0.00 | -0.02 | 0.03 | -90.39 |
| 27 | 47 | 0.00 | -195.52 | 0.00 | 0.02 | -0.03 | 90.39 |
| 27 | 48 | 0.00 | 261.08 | 0.00 | -0.02 | 0.01 | -1117.73 |
| 28 | 48 | 0.00 | -261.08 | 0.00 | 0.02 | -0.01 | 1117.73 |
| 28 | 49 | 0.00 | 326.65 | 0.00 | -0.02 | -0.01 | -2440.12 |
| 29 | 49 | 0.00 | 327.40 | 0.00 | 0.00 | 0.01 | 2440.12 |
| 29 | 59 | 0.00 | -261.83 | 0.00 | 0.00 | -0.01 | -1114.35 |
| 30 | 59 | 0.00 | 261.83 | 0.00 | 0.00 | 0.01 | 1114.35 |
| 30 | 60 | 0.00 | -196.27 | 0.00 | 0.00 | -0.02 | -83.62 |
| 31 | 60 | 0.00 | 196.27 | 0.00 | 0.00 | 0.02 | 83.62 |
| 31 | 61 | 0.00 | -130.70 | 0.00 | 0.00 | -0.02 | 652.07 |
| 32 | 61 | 0.00 | 130.70 | 0.00 | 0.00 | 0.02 | -652.07 |
| 32 | 62 | 0.00 | -65.14 | 0.00 | 0.00 | -0.02 | 1092.71 |
| 33 | 62 | 0.00 | 65.14 | 0.00 | 0.00 | 0.02 | -1092.71 |
| 33 | 63 | 0.00 | 0.43 | 0.00 | 0.00 | -0.03 | 1238.31 |
| 34 | 63 | 0.00 | -0.43 | 0.00 | 0.00 | 0.03 | -1238.31 |
| 34 | 64 | 0.00 | 65.99 | 0.00 | 0.00 | -0.03 | 1088.87 |
| 35 | 64 | 0.00 | -65.99 | 0.00 | 0.00 | 0.03 | -1088.87 |
| 35 | 65 | 0.00 | 131.56 | 0.00 | 0.00 | -0.03 | 644.39 |
| 36 | 65 | 0.00 | -131.56 | 0.00 | 0.00 | 0.03 | -644.39 |
| 36 | 66 | 0.00 | 197.12 | 0.00 | 0.00 | -0.04 | -95.14 |
| 37 | 66 | 0.00 | -197.12 | 0.00 | 0.00 | 0.04 | 95.14 |
| 37 | 67 | 0.00 | 262.69 | 0.00 | 0.00 | -0.04 | -1129.71 |
| 38 | 67 | 0.00 | -262.69 | 0.00 | 0.00 | 0.04 | 1129.71 |
| 38 | 68 | 0.00 | 328.25 | 0.00 | 0.00 | -0.04 | -2459.32 |
| 39 | 68 | 0.00 | 328.08 | 0.00 | 0.00 | 0.04 | 2459.32 |
| 39 | 78 | 0.00 | -262.51 | 0.00 | 0.00 | -0.03 | -1130.49 |
| 40 | 78 | 0.00 | 262.51 | 0.00 | 0.00 | 0.03 | 1130.49 |
| 40 | 79 | 0.00 | -196.95 | 0.00 | 0.00 | -0.02 | -96.69 |
| 41 | 79 | 0.00 | 196.95 | 0.00 | 0.00 | 0.02 | 96.69 |
| 41 | 80 | 0.00 | -131.38 | 0.00 | 0.00 | -0.01 | 642.06 |
| 42 | 80 | 0.00 | 131.38 | 0.00 | 0.00 | 0.01 | -642.06 |
| 42 | 81 | 0.00 | -65.82 | 0.00 | 0.00 | 0.00 | 1085.76 |
| 43 | 81 | 0.00 | 65.82 | 0.00 | 0.00 | 0.00 | -1085.76 |
| 43 | 82 | 0.00 | -0.25 | 0.00 | 0.00 | 0.01 | 1234.43 |
| 44 | 82 | 0.00 | 0.25 | 0.00 | 0.00 | -0.01 | -1234.43 |
| 44 | 83 | 0.00 | 65.31 | 0.00 | 0.00 | 0.02 | 1088.05 |
| 45 | 83 | 0.00 | -65.31 | 0.00 | 0.00 | -0.02 | -1088.05 |
| 45 | 84 | 0.00 | 130.88 | 0.00 | 0.00 | 0.03 | 646.63 |
| 46 | 84 | 0.00 | -130.88 | 0.00 | 0.00 | -0.03 | -646.63 |
| 46 | 85 | 0.00 | 196.44 | 0.00 | 0.00 | 0.04 | -89.83 |
| 47 | 85 | 0.00 | -196.44 | 0.00 | 0.00 | -0.04 | 89.83 |
| 47 | 86 | 0.00 | 262.01 | 0.00 | 0.00 | 0.05 | -1121.34 |
| 48 | 86 | 0.00 | -262.01 | 0.00 | 0.00 | -0.05 | 1121.34 |
| 48 | 87 | 0.00 | 327.57 | 0.00 | 0.00 | 0.06 | -2447.88 |
| 49 | 87 | 0.00 | 326.89 | -0.01 | 0.01 | -0.06 | 2447.88 |
| 49 | 97 | 0.00 | -261.32 | 0.01 | -0.01 | 0.10 | -1124.41 |
| 50 | 97 | 0.00 | 261.32 | -0.01 | 0.01 | -0.10 | 1124.41 |
| 50 | 98 | 0.00 | -195.76 | 0.01 | -0.01 | 0.14 | -95.98 |
| 51 | 98 | 0.00 | 195.76 | -0.01 | 0.01 | -0.14 | 95.98 |
| 51 | 99 | 0.00 | -130.19 | 0.01 | -0.01 | 0.17 | 637.40 |
| 52 | 99 | 0.00 | 130.19 | -0.01 | 0.01 | -0.17 | -637.40 |
| 52 | 100 | 0.00 | -64.63 | 0.01 | -0.01 | 0.21 | 1075.75 |
| 53 | 100 | 0.00 | 64.63 | -0.01 | 0.01 | -0.21 | -1075.75 |
| 53 | 101 | 0.00 | 0.94 | 0.01 | -0.01 | 0.25 | 1219.05 |
| 54 | 101 | 0.00 | -0.94 | -0.01 | 0.01 | -0.25 | -1219.05 |
| 54 | 102 | 0.00 | 66.50 | 0.01 | -0.01 | 0.29 | 1067.31 |
| 55 | 102 | 0.00 | -66.50 | -0.01 | 0.01 | -0.29 | -1067.31 |
| 55 | 103 | 0.00 | 132.07 | 0.01 | -0.01 | 0.33 | 620.52 |
| 56 | 103 | 0.00 | -132.07 | -0.01 | 0.01 | -0.33 | -620.52 |
| 56 | 104 | 0.00 | 197.63 | 0.01 | -0.01 | 0.37 | -121.30 |
| 57 | 104 | 0.00 | -197.63 | -0.01 | 0.01 | -0.37 | 121.30 |
| 57 | 105 | 0.00 | 263.20 | 0.01 | -0.01 | 0.40 | -1158.17 |
| 58 | 105 | 0.00 | -263.20 | -0.01 | 0.01 | -0.40 | 1158.17 |
| 58 | 106 | 0.00 | 328.76 | 0.01 | -0.01 | 0.44 | -2490.08 |
| 59 | 106 | 0.00 | 330.51 | -0.03 | 0.15 | -0.44 | 2490.08 |
| 59 | 115 | 0.00 | -264.94 | 0.03 | -0.15 | 0.57 | -1150.32 |
| 60 | 115 | 0.00 | 264.94 | -0.03 | 0.15 | -0.57 | 1150.32 |
| 60 | 116 | 0.00 | -199.38 | 0.03 | -0.15 | 0.71 | -105.60 |
| 61 | 116 | 0.00 | 199.38 | -0.03 | 0.15 | -0.71 | 105.60 |
| 61 | 117 | 0.00 | -133.81 | 0.03 | -0.15 | 0.84 | 644.08 |
| 62 | 117 | 0.00 | 133.81 | -0.03 | 0.15 | -0.84 | -644.08 |
| 62 | 118 | 0.00 | -68.25 | 0.03 | -0.15 | 0.97 | 1098.71 |
| 63 | 118 | 0.00 | 68.25 | -0.03 | 0.15 | -0.97 | -1098.71 |
| 63 | 119 | 0.00 | -2.68 | 0.03 | -0.15 | 1.10 | 1258.30 |
| 64 | 119 | 0.00 | 2.68 | -0.03 | 0.15 | -1.10 | -1258.30 |
| 64 | 120 | 0.00 | 62.88 | 0.03 | -0.15 | 1.24 | 1122.85 |
| 65 | 120 | 0.00 | -62.88 | -0.03 | 0.15 | -1.24 | -1122.85 |
| 65 | 121 | 0.00 | 128.45 | 0.03 | -0.15 | 1.37 | 692.36 |
| 66 | 121 | 0.00 | -128.45 | -0.03 | 0.15 | -1.37 | -692.36 |
| 66 | 122 | 0.00 | 194.01 | 0.03 | -0.15 | 1.50 | -33.18 |
| 67 | 122 | 0.00 | -194.01 | -0.03 | 0.15 | -1.50 | 33.18 |
| 67 | 123 | 0.00 | 259.58 | 0.03 | -0.15 | 1.63 | -1053.76 |
| 68 | 123 | 0.00 | -259.58 | -0.03 | 0.15 | -1.63 | 1053.76 |
| 68 | 124 | 0.00 | 325.14 | 0.03 | -0.15 | 1.76 | -2369.38 |
| 69 | 124 | 0.00 | 328.08 | 0.05 | -0.16 | -1.76 | 2369.38 |
| 69 | 133 | 0.00 | -262.51 | -0.05 | 0.16 | 1.54 | -1040.56 |
| 70 | 133 | 0.00 | 262.51 | 0.05 | -0.16 | -1.54 | 1040.56 |
| 70 | 134 | 0.00 | -196.95 | -0.05 | 0.16 | 1.32 | -6.78 |
| 71 | 134 | 0.00 | 196.95 | 0.05 | -0.16 | -1.32 | 6.78 |
| 71 | 135 | 0.00 | -131.38 | -0.05 | 0.16 | 1.10 | 731.96 |
| 72 | 135 | 0.00 | 131.38 | 0.05 | -0.16 | -1.10 | -731.96 |
| 72 | 136 | 0.00 | -65.82 | -0.05 | 0.16 | 0.88 | 1175.65 |
| 73 | 136 | 0.00 | 65.82 | 0.05 | -0.16 | -0.88 | -1175.65 |
| 73 | 137 | 0.00 | -0.25 | -0.05 | 0.16 | 0.66 | 1324.30 |
| 74 | 137 | 0.00 | 0.25 | 0.05 | -0.16 | -0.66 | -1324.30 |
| 74 | 138 | 0.00 | 65.31 | -0.05 | 0.16 | 0.44 | 1177.91 |
| 75 | 138 | 0.00 | -65.31 | 0.05 | -0.16 | -0.44 | -1177.91 |
| 75 | 139 | 0.00 | 130.88 | -0.05 | 0.16 | 0.22 | 736.48 |
| 76 | 139 | 0.00 | -130.88 | 0.05 | -0.16 | -0.22 | -736.48 |
| 76 | 140 | 0.00 | 196.44 | -0.05 | 0.16 | 0.00 | 0.00 |
| 77 | 16 | 653.53 | 0.00 | 0.12 | 0.00 | -1.20 | 0.00 |
| 77 | 17 | -653.53 | 0.00 | -0.12 | 0.00 | 0.54 | 0.00 |
| 78 | 17 | 653.53 | 0.00 | 0.12 | 0.00 | -0.54 | 0.00 |
| 78 | 18 | -653.53 | 0.00 | -0.12 | 0.00 | -0.08 | 0.00 |
| 79 | 33 | 659.41 | 0.00 | -0.05 | 0.00 | 0.52 | 0.00 |
| 79 | 34 | -659.41 | 0.00 | 0.05 | 0.00 | -0.15 | 0.00 |
| 80 | 34 | 659.41 | 0.00 | -0.05 | 0.00 | 0.15 | 0.00 |
| 80 | 35 | -659.41 | 0.00 | 0.05 | 0.00 | 0.09 | 0.00 |
| 81 | 50 | 654.04 | 0.00 | 0.00 | 0.00 | 0.12 | 0.00 |
| 81 | 51 | -654.04 | 0.00 | 0.00 | 0.00 | -0.10 | 0.00 |
| 82 | 51 | 654.04 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 |
| 82 | 52 | -654.04 | 0.00 | 0.00 | 0.00 | -0.07 | 0.00 |
| 83 | 52 | 654.04 | 0.00 | 0.00 | 0.00 | 0.07 | 0.00 |
| 83 | 53 | -654.04 | 0.00 | 0.00 | 0.00 | -0.04 | 0.00 |
| 84 | 53 | 654.04 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 |
| 84 | 54 | -654.04 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 85 | 69 | 656.33 | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 |
| 85 | 70 | -656.33 | 0.00 | 0.00 | 0.00 | -0.09 | 0.00 |
| 86 | 70 | 656.33 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 |
| 86 | 71 | -656.33 | 0.00 | 0.00 | 0.00 | -0.06 | 0.00 |
| 87 | 71 | 656.33 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 |
| 87 | 72 | -656.33 | 0.00 | 0.00 | 0.00 | -0.03 | 0.00 |
| 88 | 72 | 656.33 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 |
| 88 | 73 | -656.33 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 89 | 88 | 654.46 | 0.00 | -0.01 | 0.00 | 0.16 | 0.00 |
| 89 | 89 | -654.46 | 0.00 | 0.01 | 0.00 | -0.15 | 0.00 |
| 90 | 89 | 654.46 | 0.00 | -0.01 | 0.00 | 0.15 | 0.00 |
| 90 | 90 | -654.46 | 0.00 | 0.01 | 0.00 | -0.09 | 0.00 |
| 91 | 90 | 654.46 | 0.00 | -0.01 | 0.00 | 0.09 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 91 | 91 | -654.46 | 0.00 | 0.01 | 0.00 | -0.02 | 0.00 |
| 92 | 91 | 654.46 | 0.00 | -0.01 | 0.00 | 0.02 | 0.00 |
| 92 | 92 | -654.46 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 93 | 107 | 659.27 | 0.00 | -0.02 | 0.00 | 0.23 | 0.00 |
| 93 | 108 | -659.27 | 0.00 | 0.02 | 0.00 | -0.21 | 0.00 |
| 94 | 108 | 659.27 | 0.00 | -0.02 | 0.00 | 0.21 | 0.00 |
| 94 | 109 | -659.27 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| 95 | 109 | 659.27 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 95 | 110 | -659.27 | 0.00 | 0.02 | 0.00 | 0.10 | 0.00 |
| 96 | 125 | 653.22 | 0.00 | 0.08 | 0.00 | -1.07 | 0.00 |
| 96 | 126 | -653.22 | 0.00 | -0.08 | 0.00 | 1.00 | 0.00 |
| 97 | 126 | 653.22 | 0.00 | 0.08 | 0.00 | -1.00 | 0.00 |
| 97 | 127 | -653.22 | 0.00 | -0.08 | 0.00 | 0.21 | 0.00 |
| 98 | 127 | 653.22 | 0.00 | 0.08 | 0.00 | -0.21 | 0.00 |
| 98 | 128 | -653.22 | 0.00 | -0.08 | 0.00 | -0.18 | 0.00 |
| 99 | 2 | 98.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -98.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 98.11 | 0.00 | -0.07 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -98.11 | 0.00 | 0.07 | 0.00 | 0.12 | 0.00 |
| 101 | 19 | 326.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -326.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 326.79 | 0.00 | 0.12 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -326.79 | 0.00 | -0.12 | 0.00 | -0.21 | 0.00 |
| 103 | 36 | 329.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -329.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 329.68 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -329.68 | 0.00 | 0.05 | 0.00 | 0.08 | 0.00 |
| 105 | 55 | 327.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -327.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 327.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -327.03 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 107 | 74 | 328.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -328.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 328.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -328.17 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 109 | 93 | 327.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -327.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 327.23 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -327.23 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 111 | 111 | 329.66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -329.66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 329.61 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -329.61 | 0.00 | 0.02 | 0.00 | 0.04 | 0.00 |
| 113 | 129 | 326.56 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -326.56 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 326.66 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -326.66 | 0.00 | -0.08 | 0.00 | -0.13 | 0.00 |
| 115 | 141 | 98.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -98.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 98.21 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -98.21 | 0.00 | 0.05 | 0.00 | 0.08 | 0.00 |
| 117 | 6 | 196.23 | 0.00 | -0.07 | 0.00 | 0.06 | 0.00 |
| 117 | 7 | -196.23 | 0.00 | 0.07 | 0.00 | 0.01 | 0.00 |
| 118 | 145 | 196.44 | 0.00 | -0.05 | 0.00 | -0.03 | 0.00 |
| 118 | 146 | -196.44 | 0.00 | 0.05 | 0.00 | 0.08 | 0.00 |
| 119 | 3 | 0.00 | 98.12 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -98.12 | 0.00 | 0.00 | 0.00 | 417.00 |
| 120 | 1 | 0.07 | -98.11 | 0.00 | 0.00 | 0.00 | -416.86 |
| 120 | 5 | -0.07 | 98.11 | 0.00 | 0.00 | 0.00 | -0.12 |
| 121 | 20 | 0.00 | 326.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | -326.75 | 0.00 | 0.00 | 0.00 | 604.48 |
| 122 | 15 | -0.12 | -326.79 | 0.00 | 0.00 | 0.00 | -604.77 |
| 122 | 22 | 0.12 | 326.79 | 0.00 | 0.00 | 0.00 | 0.21 |
| 123 | 37 | 0.00 | 329.73 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | -329.73 | 0.00 | 0.00 | 0.00 | 610.00 |
| 124 | 32 | 0.05 | -329.68 | 0.00 | 0.00 | 0.00 | -609.82 |
| 124 | 39 | -0.05 | 329.68 | 0.00 | 0.00 | 0.00 | -0.09 |
| 125 | 56 | 0.00 | 327.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.00 | -327.01 | 0.00 | 0.00 | 0.00 | 604.98 |
| 126 | 49 | 0.00 | -327.03 | 0.00 | 0.00 | 0.00 | -605.00 |
| 126 | 58 | 0.00 | 327.03 | 0.00 | 0.00 | 0.00 | -0.01 |
| 127 | 75 | 0.00 | 328.17 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.00 | -328.17 | 0.00 | 0.00 | 0.00 | 607.11 |
| 128 | 68 | 0.00 | -328.17 | 0.00 | 0.00 | 0.00 | -607.11 |
| 128 | 77 | 0.00 | 328.17 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 94 | 0.00 | 327.23 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | -327.23 | 0.00 | 0.00 | 0.00 | 605.38 |
| 130 | 87 | 0.01 | -327.23 | 0.00 | 0.00 | 0.00 | -605.36 |
| 130 | 96 | -0.01 | 327.23 | 0.00 | 0.00 | 0.00 | -0.01 |
| 131 | 112 | 0.00 | 329.66 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | -329.66 | 0.00 | 0.00 | 0.00 | 609.88 |
| 132 | 106 | 0.02 | -329.61 | 0.00 | 0.00 | 0.00 | -609.74 |
| 132 | 114 | -0.02 | 329.61 | 0.00 | 0.00 | 0.00 | -0.03 |
| 133 | 130 | 0.00 | 326.56 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | -326.56 | 0.00 | 0.00 | 0.00 | 604.14 |
| 134 | 124 | -0.08 | -326.65 | 0.00 | 0.00 | 0.00 | -604.45 |
| 134 | 132 | 0.08 | 326.65 | 0.00 | 0.00 | 0.00 | 0.13 |
| 135 | 142 | 0.00 | 98.23 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -98.23 | 0.00 | 0.00 | 0.00 | 417.48 |
| 136 | 140 | 0.05 | -98.21 | 0.00 | 0.00 | 0.00 | -417.32 |
| 136 | 144 | -0.05 | 98.21 | 0.00 | 0.00 | 0.00 | -0.08 |
| 137 | 2 | 0.00 | -98.12 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 98.12 | 0.00 | 0.00 | 0.00 | -417.00 |
| 138 | 7 | -0.07 | 98.11 | 0.00 | 0.00 | 0.00 | 416.99 |
| 138 | 4 | 0.07 | -98.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -326.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 326.75 | 0.00 | 0.00 | 0.00 | -604.48 |
| 140 | 18 | 0.12 | 326.79 | 0.00 | 0.00 | 0.00 | 604.56 |
| 140 | 21 | -0.12 | -326.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -329.73 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 329.73 | 0.00 | 0.00 | 0.00 | -610.00 |
| 142 | 35 | -0.05 | 329.68 | 0.00 | 0.00 | 0.00 | 609.91 |
| 142 | 38 | 0.05 | -329.68 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -327.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | 327.01 | 0.00 | 0.00 | 0.00 | -604.98 |
| 144 | 54 | 0.00 | 327.03 | 0.00 | 0.00 | 0.00 | 605.00 |
| 144 | 57 | 0.00 | -327.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | -328.17 | 0.00 | 0.00 | 0.00 | 0.01 |
| 145 | 73 | 0.00 | 328.17 | 0.00 | 0.00 | 0.00 | -607.10 |
| 146 | 73 | 0.00 | 328.17 | 0.00 | 0.00 | 0.00 | 607.12 |
| 146 | 76 | 0.00 | -328.17 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | -327.22 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | 327.22 | 0.00 | 0.00 | 0.00 | -605.38 |
| 148 | 92 | -0.01 | 327.23 | 0.00 | 0.00 | 0.00 | 605.37 |
| 148 | 95 | 0.01 | -327.23 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | -329.66 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 329.66 | 0.00 | 0.00 | 0.00 | -609.88 |
| 150 | 110 | -0.02 | 329.61 | 0.00 | 0.00 | 0.00 | 609.77 |
| 150 | 113 | 0.02 | -329.61 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -326.56 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 326.56 | 0.00 | 0.00 | 0.00 | -604.14 |
| 152 | 128 | 0.08 | 326.66 | 0.00 | 0.00 | 0.00 | 604.31 |
| 152 | 131 | -0.08 | -326.66 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -98.23 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 98.23 | 0.00 | 0.00 | 0.00 | -417.48 |
| 154 | 146 | -0.05 | 98.21 | 0.00 | 0.00 | 0.00 | 417.40 |
| 154 | 143 | 0.05 | -98.21 | 0.00 | 0.00 | 0.00 | 0.00 |

HIPOTESIS 4

hipo 4 desbalastado-1

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | -56.57 | -0.11 | -283.70 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | 37.67 | 0.11 | 236.81 | 0.51 | -212.02 |
| 2 | 8 | 0.00 | -37.67 | -0.11 | -236.81 | -0.51 | 212.02 |
| 2 | 9 | 0.00 | 18.77 | 0.11 | 189.92 | 1.01 | -338.99 |
| 3 | 9 | 0.00 | -18.77 | -0.11 | -189.92 | -1.01 | 338.99 |
| 3 | 10 | 0.00 | -0.13 | 0.11 | 143.03 | 1.52 | -380.91 |
| 4 | 10 | 0.00 | 0.13 | -0.11 | -143.03 | -1.52 | 380.91 |
| 4 | 11 | 0.00 | -19.03 | 0.11 | 96.14 | 2.03 | -337.78 |
| 5 | 11 | 0.00 | 19.03 | -0.11 | -96.14 | -2.03 | 337.78 |
| 5 | 12 | 0.00 | -37.93 | 0.11 | 49.25 | 2.53 | -209.60 |
| 6 | 12 | 0.00 | 37.93 | -0.11 | -49.25 | -2.53 | 209.60 |
| 6 | 13 | 0.00 | -56.83 | 0.11 | 2.36 | 3.04 | 3.64 |
| 7 | 13 | 0.00 | 56.83 | -0.11 | -2.36 | -3.04 | -3.64 |
| 7 | 14 | 0.00 | -75.73 | 0.11 | -44.53 | 3.55 | 301.92 |
| 8 | 14 | 0.00 | 75.73 | -0.11 | 44.53 | -3.55 | -301.92 |
| 8 | 15 | 0.00 | -94.63 | 0.11 | -91.42 | 4.05 | 685.25 |
| 9 | 15 | 0.00 | -93.76 | 4.75 | -301.93 | -4.05 | -685.25 |
| 9 | 23 | 0.00 | 74.86 | -4.75 | 255.04 | -17.33 | 305.86 |
| 10 | 23 | 0.00 | -74.86 | 4.75 | -255.04 | 17.33 | -305.86 |
| 10 | 24 | 0.00 | 55.96 | -4.75 | 208.15 | -38.71 | 11.53 |
| 11 | 24 | 0.00 | -55.96 | 4.75 | -208.15 | 38.71 | -11.53 |
| 11 | 25 | 0.00 | 37.06 | -4.75 | 161.26 | -60.09 | -197.76 |
| 12 | 25 | 0.00 | -37.06 | 4.75 | -161.26 | 60.09 | 197.76 |
| 12 | 26 | 0.00 | 18.16 | -4.75 | 114.37 | -81.48 | -322.00 |
| 13 | 26 | 0.00 | -18.16 | 4.75 | -114.37 | 81.48 | 322.00 |
| 13 | 27 | 0.00 | -0.74 | -4.75 | 67.48 | -102.86 | -361.18 |
| 14 | 27 | 0.00 | 0.74 | 4.75 | -67.48 | 102.86 | 361.18 |
| 14 | 28 | 0.00 | -19.64 | -4.75 | 20.59 | -124.24 | -315.32 |
| 15 | 28 | 0.00 | 19.64 | 4.75 | -20.59 | 124.24 | 315.32 |
| 15 | 29 | 0.00 | -38.54 | -4.75 | -26.30 | -145.62 | -184.40 |
| 16 | 29 | 0.00 | 38.54 | 4.75 | 26.30 | 145.62 | 184.40 |
| 16 | 30 | 0.00 | -57.44 | -4.75 | -73.19 | -167.00 | 31.56 |
| 17 | 30 | 0.00 | 57.44 | 4.75 | 73.19 | 167.00 | -31.56 |
| 17 | 31 | 0.00 | -76.34 | -4.75 | -120.08 | -188.39 | 332.58 |
| 18 | 31 | 0.00 | 76.34 | 4.75 | 120.08 | 188.39 | -332.58 |
| 18 | 32 | 0.00 | -95.24 | -4.75 | -166.97 | -209.77 | 718.64 |
| 19 | 32 | 0.00 | -94.84 | -9.12 | -269.76 | 209.77 | -718.64 |
| 19 | 40 | 0.00 | 75.94 | 9.12 | 222.87 | -168.72 | 334.40 |
| 20 | 40 | 0.00 | -75.94 | -9.12 | -222.87 | 168.72 | -334.40 |
| 20 | 41 | 0.00 | 57.04 | 9.12 | 175.98 | -127.67 | 35.20 |
| 21 | 41 | 0.00 | -57.04 | -9.12 | -175.98 | 127.67 | -35.20 |
| 21 | 42 | 0.00 | 38.14 | 9.12 | 129.09 | -86.62 | -178.95 |
| 22 | 42 | 0.00 | -38.14 | -9.12 | -129.09 | 86.62 | 178.95 |
| 22 | 43 | 0.00 | 19.24 | 9.12 | 82.20 | -45.58 | -308.04 |
| 23 | 43 | 0.00 | -19.24 | -9.12 | -82.20 | 45.58 | 308.04 |
| 23 | 44 | 0.00 | 0.34 | 9.12 | 35.31 | -4.53 | -352.09 |
| 24 | 44 | 0.00 | -0.34 | -9.12 | -35.31 | 4.53 | 352.09 |
| 24 | 45 | 0.00 | -18.56 | 9.12 | -11.58 | 36.52 | -311.09 |
| 25 | 45 | 0.00 | 18.56 | -9.12 | 11.58 | -36.52 | 311.09 |
| 25 | 46 | 0.00 | -37.46 | 9.12 | -58.47 | 77.57 | -185.03 |
| 26 | 46 | 0.00 | 37.46 | -9.12 | 58.47 | -77.57 | 185.03 |
| 26 | 47 | 0.00 | -56.36 | 9.12 | -105.36 | 118.62 | 26.07 |
| 27 | 47 | 0.00 | 56.36 | -9.12 | 105.36 | -118.62 | -26.07 |
| 27 | 48 | 0.00 | -75.26 | 9.12 | -152.25 | 159.67 | 322.23 |
| 28 | 48 | 0.00 | 75.26 | -9.12 | 152.25 | -159.67 | -322.23 |
| 28 | 49 | 0.00 | -94.16 | 9.12 | -199.14 | 200.72 | 703.43 |
| 29 | 49 | 0.00 | -94.38 | -1.92 | -256.12 | -200.72 | -703.43 |
| 29 | 59 | 0.00 | 75.48 | 1.92 | 209.23 | 209.34 | 321.25 |
| 30 | 59 | 0.00 | -75.48 | -1.92 | -209.23 | -209.34 | -321.25 |
| 30 | 60 | 0.00 | 56.58 | 1.92 | 162.34 | 217.96 | 24.13 |
| 31 | 60 | 0.00 | -56.58 | -1.92 | -162.34 | -217.96 | -24.13 |
| 31 | 61 | 0.00 | 37.68 | 1.92 | 115.45 | 226.59 | -187.95 |
| 32 | 61 | 0.00 | -37.68 | -1.92 | -115.45 | -226.59 | 187.95 |
| 32 | 62 | 0.00 | 18.78 | 1.92 | 68.56 | 235.21 | -314.97 |
| 33 | 62 | 0.00 | -18.78 | -1.92 | -68.56 | -235.21 | 314.97 |
| 33 | 63 | 0.00 | -0.12 | 1.92 | 21.67 | 243.84 | -356.95 |
| 34 | 63 | 0.00 | 0.12 | -1.92 | -21.67 | -243.84 | 356.95 |
| 34 | 64 | 0.00 | -19.02 | 1.92 | -25.22 | 252.46 | -313.88 |
| 35 | 64 | 0.00 | 19.02 | -1.92 | 25.22 | -252.46 | 313.88 |
| 35 | 65 | 0.00 | -37.92 | 1.92 | -72.11 | 261.08 | -185.75 |
| 36 | 65 | 0.00 | 37.92 | -1.92 | 72.11 | -261.09 | 185.75 |
| 36 | 66 | 0.00 | -56.82 | 1.92 | -119.00 | 269.71 | 27.42 |
| 37 | 66 | 0.00 | 56.82 | -1.92 | 119.00 | -269.71 | -27.42 |
| 37 | 67 | 0.00 | -75.72 | 1.92 | -165.89 | 278.33 | 325.65 |
| 38 | 67 | 0.00 | 75.72 | -1.92 | 165.89 | -278.33 | -325.65 |
| 38 | 68 | 0.00 | -94.62 | 1.92 | -212.78 | 286.96 | 708.92 |
| 39 | 68 | 0.00 | -94.57 | 2.73 | -230.23 | -286.96 | -708.92 |
| 39 | 78 | 0.00 | 75.67 | -2.73 | 183.34 | 274.65 | 325.87 |
| 40 | 78 | 0.00 | -75.67 | 2.74 | -183.34 | -274.65 | -325.87 |
| 40 | 79 | 0.00 | 56.77 | -2.74 | 136.45 | 262.34 | 27.87 |
| 41 | 79 | 0.00 | -56.77 | 2.74 | -136.45 | -262.34 | -27.87 |
| 41 | 80 | 0.00 | 37.87 | -2.74 | 89.56 | 250.03 | -185.08 |
| 42 | 80 | 0.00 | -37.87 | 2.74 | -89.56 | -250.03 | 185.08 |
| 42 | 81 | 0.00 | 18.97 | -2.74 | 42.67 | 237.72 | -312.99 |
| 43 | 81 | 0.00 | -18.97 | 2.74 | -42.67 | -237.72 | 312.99 |
| 43 | 82 | 0.00 | 0.07 | -2.74 | -4.22 | 225.41 | -355.84 |
| 44 | 82 | 0.00 | -0.07 | 2.74 | 4.22 | -225.41 | 355.84 |
| 44 | 83 | 0.00 | -18.83 | -2.74 | -51.11 | 213.10 | -313.64 |
| 45 | 83 | 0.00 | 18.83 | 2.74 | 51.11 | -213.11 | 313.64 |
| 45 | 84 | 0.00 | -37.73 | -2.74 | -98.00 | 200.79 | -186.39 |
| 46 | 84 | 0.00 | 37.73 | 2.74 | 98.00 | -200.79 | 186.39 |
| 46 | 85 | 0.00 | -56.63 | -2.74 | -144.89 | 188.49 | 25.91 |
| 47 | 85 | 0.00 | 56.63 | 2.74 | 144.89 | -188.49 | -25.91 |
| 47 | 86 | 0.00 | -75.53 | -2.74 | -191.78 | 176.18 | 323.26 |
| 48 | 86 | 0.00 | 75.53 | 2.74 | 191.78 | -176.18 | -323.26 |
| 48 | 87 | 0.00 | -94.43 | -2.74 | -238.67 | 163.87 | 705.66 |
| 49 | 87 | 0.00 | -94.23 | 5.22 | -207.96 | -163.87 | -705.66 |
| 49 | 97 | 0.00 | 75.33 | -5.22 | 161.07 | 140.40 | 324.14 |
| 50 | 97 | 0.00 | -75.33 | 5.22 | -161.07 | -140.40 | -324.14 |
| 50 | 98 | 0.00 | 56.43 | -5.22 | 114.18 | 116.92 | 27.68 |
| 51 | 98 | 0.00 | -56.43 | 5.22 | -114.18 | -116.92 | -27.68 |
| 51 | 99 | 0.00 | 37.53 | -5.22 | 67.29 | 93.45 | -183.74 |
| 52 | 99 | 0.00 | -37.53 | 5.22 | -67.29 | -93.45 | 183.74 |
| 52 | 100 | 0.00 | 18.63 | -5.22 | 20.40 | 69.97 | -310.10 |
| 53 | 100 | 0.00 | -18.63 | 5.22 | -20.40 | -69.97 | 310.10 |
| 53 | 101 | 0.00 | -0.27 | -5.22 | -26.49 | 46.49 | -351.42 |
| 54 | 101 | 0.00 | 0.27 | 5.22 | 26.49 | -46.50 | 351.42 |
| 54 | 102 | 0.00 | -19.17 | -5.22 | -73.38 | 23.02 | -307.68 |
| 55 | 102 | 0.00 | 19.17 | 5.22 | 73.38 | -23.02 | 307.68 |
| 55 | 103 | 0.00 | -38.07 | -5.22 | -120.27 | -0.45 | -178.90 |
| 56 | 103 | 0.00 | 38.07 | 5.22 | 120.27 | 0.45 | 178.90 |
| 56 | 104 | 0.00 | -56.97 | -5.22 | -167.16 | -23.93 | 34.94 |
| 57 | 104 | 0.00 | 56.97 | 5.22 | 167.16 | 23.93 | -34.94 |
| 57 | 105 | 0.00 | -75.87 | -5.22 | -214.05 | -47.41 | 333.82 |
| 58 | 105 | 0.00 | 75.87 | 5.22 | 214.05 | 47.41 | -333.82 |
| 58 | 106 | 0.00 | -94.77 | -5.22 | -260.94 | -70.88 | 717.76 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 59 | 106 | 0.00 | -95.27 | -4.24 | -162.28 | 70.88 | -717.76 |
| 59 | 115 | 0.00 | 76.37 | 4.24 | 115.39 | -51.81 | 331.56 |
| 60 | 115 | 0.00 | -76.37 | -4.24 | -115.39 | 51.81 | -331.56 |
| 60 | 116 | 0.00 | 57.47 | 4.24 | 68.50 | -32.74 | 30.42 |
| 61 | 116 | 0.00 | -57.47 | -4.24 | -68.50 | 32.74 | -30.42 |
| 61 | 117 | 0.00 | 38.57 | 4.24 | 21.61 | -13.67 | -185.68 |
| 62 | 117 | 0.00 | -38.57 | -4.24 | -21.61 | 13.67 | 185.68 |
| 62 | 118 | 0.00 | 19.67 | 4.24 | -25.28 | 5.39 | -316.72 |
| 63 | 118 | 0.00 | -19.67 | -4.24 | 25.28 | -5.39 | 316.72 |
| 63 | 119 | 0.00 | 0.77 | 4.24 | -72.17 | 24.46 | -362.72 |
| 64 | 119 | 0.00 | -0.77 | -4.24 | 72.17 | -24.46 | 362.72 |
| 64 | 120 | 0.00 | -18.13 | 4.24 | -119.06 | 43.53 | -323.66 |
| 65 | 120 | 0.00 | 18.13 | -4.24 | 119.06 | -43.53 | 323.66 |
| 65 | 121 | 0.00 | -37.03 | 4.24 | -165.95 | 62.60 | -199.56 |
| 66 | 121 | 0.00 | 37.03 | -4.24 | 165.95 | -62.60 | 199.56 |
| 66 | 122 | 0.00 | -55.93 | 4.24 | -212.84 | 81.67 | 9.60 |
| 67 | 122 | 0.00 | 55.93 | -4.24 | 212.84 | -81.67 | -9.60 |
| 67 | 123 | 0.00 | -74.83 | 4.24 | -259.73 | 100.73 | 303.80 |
| 68 | 123 | 0.00 | 74.83 | -4.24 | 259.73 | -100.74 | -303.80 |
| 68 | 124 | 0.00 | -93.73 | 4.24 | -306.62 | 119.80 | 683.06 |
| 69 | 124 | 0.00 | -94.57 | 3.33 | -66.03 | -119.81 | -683.06 |
| 69 | 133 | 0.00 | 75.67 | -3.33 | 19.14 | 104.83 | 300.00 |
| 70 | 133 | 0.00 | -75.67 | 3.33 | -19.14 | -104.83 | -300.00 |
| 70 | 134 | 0.00 | 56.77 | -3.33 | -27.75 | 89.85 | 1.99 |
| 71 | 134 | 0.00 | -56.77 | 3.33 | 27.75 | -89.85 | -1.99 |
| 71 | 135 | 0.00 | 37.87 | -3.33 | -74.64 | 74.88 | -210.96 |
| 72 | 135 | 0.00 | -37.87 | 3.33 | 74.64 | -74.88 | 210.96 |
| 72 | 136 | 0.00 | 18.97 | -3.33 | -121.53 | 59.90 | -338.87 |
| 73 | 136 | 0.00 | -18.97 | 3.33 | 121.53 | -59.90 | 338.87 |
| 73 | 137 | 0.00 | 0.07 | -3.33 | -168.42 | 44.93 | -381.73 |
| 74 | 137 | 0.00 | -0.07 | 3.33 | 168.42 | -44.93 | 381.73 |
| 74 | 138 | 0.00 | -18.83 | -3.33 | -215.31 | 29.95 | -339.54 |
| 75 | 138 | 0.00 | 18.83 | 3.33 | 215.31 | -29.95 | 339.54 |
| 75 | 139 | 0.00 | -37.73 | -3.33 | -262.20 | 14.98 | -212.29 |
| 76 | 139 | 0.00 | 37.73 | 3.33 | 262.20 | -14.98 | 212.29 |
| 76 | 140 | 0.00 | -56.63 | -3.33 | -309.09 | 0.00 | 0.00 |
| 77 | 16 | -188.39 | 0.00 | 4.86 | 0.00 | 334.91 | 0.00 |
| 77 | 17 | 188.39 | 0.00 | -4.86 | 0.00 | -360.69 | 0.00 |
| 78 | 17 | -188.39 | 0.00 | 4.86 | 0.00 | 360.69 | 0.00 |
| 78 | 18 | 188.39 | 0.00 | -4.86 | 0.00 | -385.01 | 0.00 |
| 79 | 33 | -190.08 | 0.00 | -13.87 | 0.00 | 634.99 | 0.00 |
| 79 | 34 | 190.08 | 0.00 | 13.87 | 0.00 | -529.83 | 0.00 |
| 80 | 34 | -190.08 | 0.00 | -13.87 | 0.00 | 529.83 | 0.00 |
| 80 | 35 | 190.08 | 0.00 | 13.87 | 0.00 | -460.46 | 0.00 |
| 81 | 50 | -188.54 | 0.00 | 7.21 | 0.00 | 233.93 | 0.00 |
| 81 | 51 | 188.54 | 0.00 | -7.21 | 0.00 | -262.75 | 0.00 |
| 82 | 51 | -188.54 | 0.00 | 7.21 | 0.00 | 262.75 | 0.00 |
| 82 | 52 | 188.54 | 0.00 | -7.21 | 0.00 | -334.81 | 0.00 |
| 83 | 52 | -188.54 | 0.00 | 7.21 | 0.00 | 334.81 | 0.00 |
| 83 | 53 | 188.54 | 0.00 | -7.21 | 0.00 | -406.86 | 0.00 |
| 84 | 53 | -188.54 | 0.00 | 7.21 | 0.00 | 406.86 | 0.00 |
| 84 | 54 | 188.54 | 0.00 | -7.21 | 0.00 | -442.89 | 0.00 |
| 85 | 69 | -189.19 | 0.00 | 4.65 | 0.00 | 286.15 | 0.00 |
| 85 | 70 | 189.19 | 0.00 | -4.65 | 0.00 | -318.71 | 0.00 |
| 86 | 70 | -189.19 | 0.00 | 4.65 | 0.00 | 318.71 | 0.00 |
| 86 | 71 | 189.19 | 0.00 | -4.65 | 0.00 | -365.23 | 0.00 |
| 87 | 71 | -189.19 | 0.00 | 4.65 | 0.00 | 365.23 | 0.00 |
| 87 | 72 | 189.19 | 0.00 | -4.65 | 0.00 | -411.75 | 0.00 |
| 88 | 72 | -189.19 | 0.00 | 4.65 | 0.00 | 411.75 | 0.00 |
| 88 | 73 | 189.19 | 0.00 | -4.65 | 0.00 | -435.01 | 0.00 |
| 89 | 88 | -188.66 | 0.00 | 2.48 | 0.00 | 377.83 | 0.00 |
| 89 | 89 | 188.66 | 0.00 | -2.48 | 0.00 | -380.31 | 0.00 |
| 90 | 89 | -188.66 | 0.00 | 2.48 | 0.00 | 380.31 | 0.00 |
| 90 | 90 | 188.66 | 0.00 | -2.48 | 0.00 | -405.13 | 0.00 |
| 91 | 90 | -188.66 | 0.00 | 2.48 | 0.00 | 405.13 | 0.00 |
| 91 | 91 | 188.66 | 0.00 | -2.48 | 0.00 | -429.94 | 0.00 |
| 92 | 91 | -188.66 | 0.00 | 2.48 | 0.00 | 429.94 | 0.00 |
| 92 | 92 | 188.66 | 0.00 | -2.48 | 0.00 | -442.35 | 0.00 |
| 93 | 107 | -190.04 | 0.00 | -9.45 | 0.00 | 590.64 | 0.00 |
| 93 | 108 | 190.04 | 0.00 | 9.45 | 0.00 | -581.18 | 0.00 |
| 94 | 108 | -190.04 | 0.00 | -9.45 | 0.00 | 581.18 | 0.00 |
| 94 | 109 | 190.04 | 0.00 | 9.45 | 0.00 | -486.64 | 0.00 |
| 95 | 109 | -190.04 | 0.00 | -9.45 | 0.00 | 486.64 | 0.00 |
| 95 | 110 | 190.04 | 0.00 | 9.45 | 0.00 | -439.37 | 0.00 |
| 96 | 125 | -188.30 | 0.00 | 7.57 | 0.00 | 238.63 | 0.00 |
| 96 | 126 | 188.30 | 0.00 | -7.57 | 0.00 | -246.20 | 0.00 |
| 97 | 126 | -188.30 | 0.00 | 7.57 | 0.00 | 246.20 | 0.00 |
| 97 | 127 | 188.30 | 0.00 | -7.57 | 0.00 | -321.85 | 0.00 |
| 98 | 127 | -188.30 | 0.00 | 7.57 | 0.00 | 321.85 | 0.00 |
| 98 | 128 | 188.30 | 0.00 | -7.57 | 0.00 | -359.68 | 0.00 |
| 99 | 2 | -61.68 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | 61.68 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 5.12 | 0.00 | -0.11 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -5.12 | 0.00 | 0.11 | 0.00 | 0.19 | 0.00 |
| 101 | 19 | -198.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | 198.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 9.86 | 0.00 | 4.86 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -9.86 | 0.00 | -4.86 | 0.00 | -8.33 | 0.00 |
| 103 | 36 | -219.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | 219.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 29.41 | 0.00 | -13.87 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -29.41 | 0.00 | 13.87 | 0.00 | 23.75 | 0.00 |
| 105 | 55 | -213.97 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | 213.97 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 25.43 | 0.00 | 7.21 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -25.43 | 0.00 | -7.21 | 0.00 | -12.34 | 0.00 |
| 107 | 74 | -212.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | 212.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 22.98 | 0.00 | 4.65 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -22.98 | 0.00 | -4.65 | 0.00 | -7.96 | 0.00 |
| 109 | 93 | -213.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | 213.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 25.23 | 0.00 | 2.48 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -25.23 | 0.00 | -2.48 | 0.00 | -4.25 | 0.00 |
| 111 | 111 | -213.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | 213.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 23.73 | 0.00 | -9.45 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -23.73 | 0.00 | 9.45 | 0.00 | 16.18 | 0.00 |
| 113 | 129 | -191.36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | 191.36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 3.06 | 0.00 | 7.57 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -3.06 | 0.00 | -7.57 | 0.00 | -12.95 | 0.00 |
| 115 | 141 | -65.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | 65.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 8.72 | 0.00 | -3.33 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -8.72 | 0.00 | 3.33 | 0.00 | 5.70 | 0.00 |
| 117 | 6 | -56.57 | 0.00 | -0.11 | 0.00 | 284.00 | 0.00 |
| 117 | 7 | 56.57 | 0.00 | 0.11 | 0.00 | -283.89 | 0.00 |
| 118 | 145 | -56.63 | 0.00 | -3.33 | 0.00 | 318.12 | 0.00 |
| 118 | 146 | 56.63 | 0.00 | 3.33 | 0.00 | -314.79 | 0.00 |
| 119 | 3 | 0.00 | -61.68 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | 61.68 | 0.00 | 0.00 | 0.00 | -262.15 |
| 120 | 1 | 0.11 | -5.12 | 0.00 | 0.00 | 0.00 | -21.55 |
| 120 | 5 | -0.11 | 5.12 | 0.00 | 0.00 | 0.00 | -0.19 |
| 121 | 20 | 0.00 | -198.25 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | 198.25 | 0.00 | 0.00 | 0.00 | -366.78 |
| 122 | 15 | -4.86 | -9.86 | 0.00 | 0.00 | 0.00 | -26.58 |
| 122 | 22 | 4.86 | 9.86 | 0.00 | 0.00 | 0.00 | 8.33 |
| 123 | 37 | 0.00 | -219.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | 219.49 | 0.00 | 0.00 | 0.00 | -406.07 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 124 | 32 | 13.87 | -29.41 | 0.00 | 0.00 | 0.00 | -30.67 |
| 124 | 39 | -13.87 | 29.41 | 0.00 | 0.00 | 0.00 | -23.75 |
| 125 | 56 | 0.00 | -213.97 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.00 | 213.97 | 0.00 | 0.00 | 0.00 | -395.86 |
| 126 | 49 | -7.20 | -25.43 | 0.00 | 0.00 | 0.00 | -59.40 |
| 126 | 58 | 7.20 | 25.43 | 0.00 | 0.00 | 0.00 | 12.33 |
| 127 | 75 | 0.00 | -212.17 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.00 | 212.17 | 0.00 | 0.00 | 0.00 | -392.53 |
| 128 | 68 | -4.65 | -22.98 | 0.00 | 0.00 | 0.00 | -50.48 |
| 128 | 77 | 4.65 | 22.98 | 0.00 | 0.00 | 0.00 | 7.97 |
| 129 | 94 | 0.00 | -213.89 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | 213.89 | 0.00 | 0.00 | 0.00 | -395.70 |
| 130 | 87 | -2.48 | -25.23 | 0.00 | 0.00 | 0.00 | -50.93 |
| 130 | 96 | 2.48 | 25.23 | 0.00 | 0.00 | 0.00 | 4.25 |
| 131 | 112 | 0.00 | -213.77 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | 213.77 | 0.00 | 0.00 | 0.00 | -395.49 |
| 132 | 106 | 9.45 | -23.73 | 0.00 | 0.00 | 0.00 | -27.73 |
| 132 | 114 | -9.45 | 23.73 | 0.00 | 0.00 | 0.00 | -16.18 |
| 133 | 130 | 0.00 | -191.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | 191.37 | 0.00 | 0.00 | 0.00 | -354.03 |
| 134 | 124 | -7.57 | -3.06 | 0.00 | 0.00 | 0.00 | -18.62 |
| 134 | 132 | 7.57 | 3.06 | 0.00 | 0.00 | 0.00 | 12.95 |
| 135 | 142 | 0.00 | -65.35 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | 65.35 | 0.00 | 0.00 | 0.00 | -277.73 |
| 136 | 140 | 3.33 | -8.72 | 0.00 | 0.00 | 0.00 | -31.37 |
| 136 | 144 | -3.33 | 8.72 | 0.00 | 0.00 | 0.00 | -5.70 |
| 137 | 2 | 0.00 | 61.68 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | -61.68 | 0.00 | 0.00 | 0.00 | 262.15 |
| 138 | 7 | -0.11 | 5.12 | 0.00 | 0.00 | 0.00 | 21.74 |
| 138 | 4 | 0.11 | -5.12 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | 198.26 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | -198.26 | 0.00 | 0.00 | 0.00 | 366.77 |
| 140 | 18 | 4.86 | 9.86 | 0.00 | 0.00 | 0.00 | 18.24 |
| 140 | 21 | -4.86 | -9.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | 219.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | -219.49 | 0.00 | 0.00 | 0.00 | 406.05 |
| 142 | 35 | -13.87 | 29.41 | 0.00 | 0.00 | 0.00 | 54.40 |
| 142 | 38 | 13.87 | -29.41 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | 213.97 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | -213.97 | 0.00 | 0.00 | 0.00 | 395.84 |
| 144 | 54 | 7.21 | 25.43 | 0.00 | 0.00 | 0.00 | 47.05 |
| 144 | 57 | -7.21 | -25.43 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | 212.17 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | -212.17 | 0.00 | 0.00 | 0.00 | 392.51 |
| 146 | 73 | 4.65 | 22.98 | 0.00 | 0.00 | 0.00 | 42.50 |
| 146 | 76 | -4.65 | -22.98 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | 213.89 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | -213.89 | 0.00 | 0.00 | 0.00 | 395.69 |
| 148 | 92 | 2.48 | 25.23 | 0.00 | 0.00 | 0.00 | 46.67 |
| 148 | 95 | -2.48 | -25.23 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | 213.77 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | -213.77 | 0.00 | 0.00 | 0.00 | 395.47 |
| 150 | 110 | -9.46 | 23.73 | 0.00 | 0.00 | 0.00 | 43.90 |
| 150 | 113 | 9.46 | -23.73 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | 191.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | -191.37 | 0.00 | 0.00 | 0.00 | 354.02 |
| 152 | 128 | 7.57 | 3.06 | 0.00 | 0.00 | 0.00 | 5.66 |
| 152 | 131 | -7.57 | -3.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | 65.35 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | -65.35 | 0.00 | 0.00 | 0.00 | 277.73 |
| 154 | 146 | -3.33 | 8.72 | 0.00 | 0.00 | 0.00 | 37.07 |
| 154 | 143 | 3.33 | -8.72 | 0.00 | 0.00 | 0.00 | 0.00 |



HIPOTESIS 5

hipo 5 desbalastado-2

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | -56.57 | 0.15 | 283.62 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | 37.67 | -0.15 | -236.73 | -0.69 | -212.03 |
| 2 | 8 | 0.00 | -37.67 | 0.15 | 236.73 | 0.69 | 212.03 |
| 2 | 9 | 0.00 | 18.77 | -0.15 | -189.84 | -1.38 | -339.01 |
| 3 | 9 | 0.00 | -18.77 | 0.15 | 189.84 | 1.38 | 339.01 |
| 3 | 10 | 0.00 | -0.13 | -0.15 | -142.95 | -2.07 | -380.93 |
| 4 | 10 | 0.00 | 0.13 | 0.15 | 142.95 | 2.07 | 380.93 |
| 4 | 11 | 0.00 | -19.03 | -0.15 | -96.06 | -2.76 | -337.81 |
| 5 | 11 | 0.00 | 19.03 | 0.15 | 96.06 | 2.76 | 337.81 |
| 5 | 12 | 0.00 | -37.93 | -0.15 | -49.17 | -3.45 | -209.64 |
| 6 | 12 | 0.00 | 37.93 | 0.15 | 49.17 | 3.45 | 209.64 |
| 6 | 13 | 0.00 | -56.83 | -0.15 | -2.28 | -4.14 | 3.58 |
| 7 | 13 | 0.00 | 56.83 | 0.15 | 2.28 | 4.14 | -3.58 |
| 7 | 14 | 0.00 | -75.73 | -0.15 | 44.61 | -4.83 | 301.85 |
| 8 | 14 | 0.00 | 75.73 | 0.15 | -44.61 | 4.83 | -301.85 |
| 8 | 15 | 0.00 | -94.63 | -0.15 | 91.50 | -5.52 | 685.18 |
| 9 | 15 | 0.00 | -93.75 | -4.78 | 302.02 | 5.52 | -685.18 |
| 9 | 23 | 0.00 | 74.85 | 4.78 | -255.13 | 16.00 | 305.81 |
| 10 | 23 | 0.00 | -74.85 | -4.78 | 255.13 | -16.00 | -305.81 |
| 10 | 24 | 0.00 | 55.95 | 4.78 | -208.24 | 37.51 | 11.49 |
| 11 | 24 | 0.00 | -55.95 | -4.78 | 208.24 | -37.51 | -11.49 |
| 11 | 25 | 0.00 | 37.05 | 4.78 | -161.35 | 59.03 | -197.78 |
| 12 | 25 | 0.00 | -37.05 | -4.78 | 161.35 | -59.03 | 197.78 |
| 12 | 26 | 0.00 | 18.15 | 4.78 | -114.46 | 80.55 | -322.00 |
| 13 | 26 | 0.00 | -18.15 | -4.78 | 114.46 | -80.55 | 322.00 |
| 13 | 27 | 0.00 | -0.75 | 4.78 | -67.57 | 102.07 | -361.17 |
| 14 | 27 | 0.00 | 0.75 | -4.78 | 67.57 | -102.07 | 361.17 |
| 14 | 28 | 0.00 | -19.65 | 4.78 | -20.68 | 123.59 | -315.29 |
| 15 | 28 | 0.00 | 19.65 | -4.78 | 20.68 | -123.59 | 315.29 |
| 15 | 29 | 0.00 | -38.55 | 4.78 | 26.21 | 145.11 | -184.36 |
| 16 | 29 | 0.00 | 38.55 | -4.78 | -26.21 | -145.11 | 184.36 |
| 16 | 30 | 0.00 | -57.45 | 4.78 | 73.10 | 166.63 | 31.63 |
| 17 | 30 | 0.00 | 57.45 | -4.78 | -73.10 | -166.63 | -31.63 |
| 17 | 31 | 0.00 | -76.35 | 4.78 | 119.99 | 188.15 | 332.66 |
| 18 | 31 | 0.00 | 76.35 | -4.78 | -119.99 | -188.15 | -332.66 |
| 18 | 32 | 0.00 | -95.25 | 4.78 | 166.88 | 209.67 | 718.74 |
| 19 | 32 | 0.00 | -94.84 | 9.12 | 269.75 | -209.67 | -718.74 |
| 19 | 40 | 0.00 | 75.94 | -9.12 | -222.86 | 168.63 | 334.48 |
| 20 | 40 | 0.00 | -75.94 | 9.12 | 222.86 | -168.63 | -334.48 |
| 20 | 41 | 0.00 | 57.04 | -9.12 | -175.97 | 127.59 | 35.26 |
| 21 | 41 | 0.00 | -57.04 | 9.12 | 175.97 | -127.59 | -35.26 |
| 21 | 42 | 0.00 | 38.14 | -9.12 | -129.08 | 86.55 | -178.90 |
| 22 | 42 | 0.00 | -38.14 | 9.12 | 129.08 | -86.55 | 178.90 |
| 22 | 43 | 0.00 | 19.24 | -9.12 | -82.19 | 45.52 | -308.01 |
| 23 | 43 | 0.00 | -19.24 | 9.12 | 82.19 | -45.52 | 308.01 |
| 23 | 44 | 0.00 | 0.34 | -9.12 | -35.30 | 4.48 | -352.07 |
| 24 | 44 | 0.00 | -0.34 | 9.12 | 35.30 | -4.48 | 352.07 |
| 24 | 45 | 0.00 | -18.56 | -9.12 | 11.59 | -36.56 | -311.09 |
| 25 | 45 | 0.00 | 18.56 | 9.12 | -11.59 | 36.56 | 311.09 |
| 25 | 46 | 0.00 | -37.46 | -9.12 | 58.48 | -77.60 | -185.05 |
| 26 | 46 | 0.00 | 37.46 | 9.12 | -58.48 | 77.60 | 185.05 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 26 | 47 | 0.00 | -56.36 | -9.12 | 105.37 | -118.64 | 26.04 |
| 27 | 47 | 0.00 | 56.36 | 9.12 | -105.37 | 118.64 | -26.04 |
| 27 | 48 | 0.00 | -75.26 | -9.12 | 152.26 | -159.67 | 322.18 |
| 28 | 48 | 0.00 | 75.26 | 9.12 | -152.26 | 159.67 | -322.18 |
| 28 | 49 | 0.00 | -94.16 | -9.12 | 199.15 | -200.71 | 703.36 |
| 29 | 49 | 0.00 | -94.38 | 1.92 | 256.12 | 200.71 | -703.36 |
| 29 | 59 | 0.00 | 75.48 | -1.92 | -209.23 | -209.33 | 321.20 |
| 30 | 59 | 0.00 | -75.48 | 1.92 | 209.23 | 209.33 | -321.20 |
| 30 | 60 | 0.00 | 56.58 | -1.92 | -162.34 | -217.95 | 24.08 |
| 31 | 60 | 0.00 | -56.58 | 1.92 | 162.34 | 217.95 | -24.08 |
| 31 | 61 | 0.00 | 37.68 | -1.92 | -115.45 | -226.58 | -187.99 |
| 32 | 61 | 0.00 | -37.68 | 1.92 | 115.45 | 226.58 | 187.99 |
| 32 | 62 | 0.00 | 18.78 | -1.92 | -68.56 | -235.20 | -315.00 |
| 33 | 62 | 0.00 | -18.78 | 1.92 | 68.56 | 235.20 | 315.00 |
| 33 | 63 | 0.00 | -0.12 | -1.92 | -21.67 | -243.82 | -356.97 |
| 34 | 63 | 0.00 | 0.12 | 1.92 | 21.67 | 243.82 | 356.97 |
| 34 | 64 | 0.00 | -19.02 | -1.92 | 25.22 | -252.44 | -313.89 |
| 35 | 64 | 0.00 | 19.02 | 1.92 | -25.22 | 252.44 | 313.89 |
| 35 | 65 | 0.00 | -37.92 | -1.92 | 72.11 | -261.07 | -185.75 |
| 36 | 65 | 0.00 | 37.92 | 1.92 | -72.11 | 261.07 | 185.75 |
| 36 | 66 | 0.00 | -56.82 | -1.92 | 119.00 | -269.69 | 27.43 |
| 37 | 66 | 0.00 | 56.82 | 1.92 | -119.00 | 269.69 | -27.43 |
| 37 | 67 | 0.00 | -75.72 | -1.92 | 165.89 | -278.31 | 325.66 |
| 38 | 67 | 0.00 | 75.72 | 1.92 | -165.89 | 278.31 | -325.66 |
| 38 | 68 | 0.00 | -94.62 | -1.92 | 212.78 | -286.93 | 708.95 |
| 39 | 68 | 0.00 | -94.57 | -2.73 | 230.23 | 286.93 | -708.95 |
| 39 | 78 | 0.00 | 75.67 | 2.73 | -183.34 | -274.63 | 325.89 |
| 40 | 78 | 0.00 | -75.67 | -2.73 | 183.34 | 274.63 | -325.89 |
| 40 | 79 | 0.00 | 56.77 | 2.73 | -136.45 | -262.32 | 27.88 |
| 41 | 79 | 0.00 | -56.77 | -2.73 | 136.45 | 262.33 | -27.88 |
| 41 | 80 | 0.00 | 37.87 | 2.73 | -89.56 | -250.02 | -185.08 |
| 42 | 80 | 0.00 | -37.87 | -2.73 | 89.56 | 250.02 | 185.08 |
| 42 | 81 | 0.00 | 18.97 | 2.73 | -42.67 | -237.72 | -312.99 |
| 43 | 81 | 0.00 | -18.97 | -2.73 | 42.67 | 237.72 | 312.99 |
| 43 | 82 | 0.00 | 0.07 | 2.73 | 4.22 | -225.42 | -355.84 |
| 44 | 82 | 0.00 | -0.07 | -2.73 | -4.22 | 225.42 | 355.84 |
| 44 | 83 | 0.00 | -18.83 | 2.73 | 51.11 | -213.11 | -313.65 |
| 45 | 83 | 0.00 | 18.83 | -2.73 | -51.11 | 213.11 | 313.65 |
| 45 | 84 | 0.00 | -37.73 | 2.73 | 98.00 | -200.81 | -186.41 |
| 46 | 84 | 0.00 | 37.73 | -2.73 | -98.00 | 200.81 | 186.41 |
| 46 | 85 | 0.00 | -56.63 | 2.73 | 144.89 | -188.51 | 25.88 |
| 47 | 85 | 0.00 | 56.63 | -2.73 | -144.89 | 188.51 | -25.88 |
| 47 | 86 | 0.00 | -75.53 | 2.73 | 191.78 | -176.21 | 323.22 |
| 48 | 86 | 0.00 | 75.53 | -2.73 | -191.78 | 176.21 | -323.22 |
| 48 | 87 | 0.00 | -94.43 | 2.73 | 238.67 | -163.90 | 705.62 |
| 49 | 87 | 0.00 | -94.23 | -5.21 | 207.95 | 163.90 | -705.62 |
| 49 | 97 | 0.00 | 75.33 | 5.21 | -161.06 | -140.45 | 324.11 |
| 50 | 97 | 0.00 | -75.33 | -5.21 | 161.06 | 140.45 | -324.11 |
| 50 | 98 | 0.00 | 56.43 | 5.21 | -114.17 | -117.00 | 27.66 |
| 51 | 98 | 0.00 | -56.43 | -5.21 | 114.17 | 117.00 | -27.66 |
| 51 | 99 | 0.00 | 37.53 | 5.21 | -67.28 | -93.55 | -183.74 |
| 52 | 99 | 0.00 | -37.53 | -5.21 | 67.28 | 93.55 | 183.74 |
| 52 | 100 | 0.00 | 18.63 | 5.21 | -20.39 | -70.09 | -310.09 |
| 53 | 100 | 0.00 | -18.63 | -5.21 | 20.39 | 70.09 | 310.09 |
| 53 | 101 | 0.00 | -0.27 | 5.21 | 26.50 | -46.64 | -351.40 |
| 54 | 101 | 0.00 | 0.27 | -5.21 | -26.50 | 46.64 | 351.40 |
| 54 | 102 | 0.00 | -19.17 | 5.21 | 73.39 | -23.19 | -307.65 |
| 55 | 102 | 0.00 | 19.17 | -5.21 | -73.39 | 23.19 | 307.65 |
| 55 | 103 | 0.00 | -38.07 | 5.21 | 120.28 | 0.27 | -178.85 |
| 56 | 103 | 0.00 | 38.07 | -5.21 | -120.28 | -0.27 | 178.85 |
| 56 | 104 | 0.00 | -56.97 | 5.21 | 167.17 | 23.72 | 35.00 |
| 57 | 104 | 0.00 | 56.97 | -5.21 | -167.17 | -23.72 | -35.00 |
| 57 | 105 | 0.00 | -75.87 | 5.21 | 214.06 | 47.17 | 333.89 |
| 58 | 105 | 0.00 | 75.87 | -5.21 | -214.06 | -47.17 | -333.89 |
| 58 | 106 | 0.00 | -94.77 | 5.21 | 260.95 | 70.63 | 717.84 |
| 59 | 106 | 0.00 | -95.28 | 4.25 | 162.19 | -70.62 | -717.84 |
| 59 | 115 | 0.00 | 76.38 | -4.25 | -115.30 | 51.48 | 331.63 |
| 60 | 115 | 0.00 | -76.38 | 4.25 | 115.30 | -51.48 | -331.63 |
| 60 | 116 | 0.00 | 57.48 | -4.25 | -68.41 | 32.33 | 30.46 |
| 61 | 116 | 0.00 | -57.48 | 4.25 | 68.41 | -32.34 | -30.46 |
| 61 | 117 | 0.00 | 38.58 | -4.25 | -21.52 | 13.19 | -185.65 |
| 62 | 117 | 0.00 | -38.58 | 4.25 | 21.52 | -13.19 | 185.65 |
| 62 | 118 | 0.00 | 19.68 | -4.25 | 25.37 | -5.95 | -316.72 |
| 63 | 118 | 0.00 | -19.68 | 4.25 | -25.37 | 5.95 | 316.72 |
| 63 | 119 | 0.00 | 0.78 | -4.25 | 72.26 | -25.10 | -362.73 |
| 64 | 119 | 0.00 | -0.78 | 4.25 | -72.26 | 25.10 | 362.73 |
| 64 | 120 | 0.00 | -18.12 | -4.25 | 119.15 | -44.24 | -323.69 |
| 65 | 120 | 0.00 | 18.12 | 4.25 | -119.15 | 44.24 | 323.69 |
| 65 | 121 | 0.00 | -37.02 | -4.25 | 166.04 | -63.39 | -199.61 |
| 66 | 121 | 0.00 | 37.02 | 4.25 | -166.04 | 63.39 | 199.61 |
| 66 | 122 | 0.00 | -55.92 | -4.25 | 212.93 | -82.53 | 9.53 |
| 67 | 122 | 0.00 | 55.92 | 4.25 | -212.93 | 82.53 | -9.53 |
| 67 | 123 | 0.00 | -74.82 | -4.25 | 259.82 | -101.68 | 303.72 |
| 68 | 123 | 0.00 | 74.82 | 4.25 | -259.82 | 101.68 | -303.72 |
| 68 | 124 | 0.00 | -93.72 | -4.25 | 306.71 | -120.82 | 682.95 |
| 69 | 124 | 0.00 | -94.57 | -3.36 | 66.12 | 120.82 | -682.95 |
| 69 | 133 | 0.00 | 75.67 | 3.36 | -19.23 | -105.72 | 299.91 |
| 70 | 133 | 0.00 | -75.67 | -3.36 | 19.23 | 105.72 | -299.91 |
| 70 | 134 | 0.00 | 56.77 | 3.36 | 27.66 | -90.62 | 1.91 |
| 71 | 134 | 0.00 | -56.77 | -3.36 | -27.66 | 90.62 | -1.91 |
| 71 | 135 | 0.00 | 37.87 | 3.36 | 74.55 | -75.51 | -211.03 |
| 72 | 135 | 0.00 | -37.87 | -3.36 | -74.55 | 75.51 | 211.03 |
| 72 | 136 | 0.00 | 18.97 | 3.36 | 121.44 | -60.41 | -338.92 |
| 73 | 136 | 0.00 | -18.97 | -3.36 | -121.44 | 60.41 | 338.92 |
| 73 | 137 | 0.00 | 0.07 | 3.36 | 168.33 | -45.31 | -381.77 |
| 74 | 137 | 0.00 | -0.07 | -3.36 | -168.33 | 45.31 | 381.77 |
| 74 | 138 | 0.00 | -18.83 | 3.36 | 215.22 | -30.21 | -339.56 |
| 75 | 138 | 0.00 | 18.83 | -3.36 | -215.22 | 30.21 | 339.56 |
| 75 | 139 | 0.00 | -37.73 | 3.36 | 262.11 | -15.10 | -212.31 |
| 76 | 139 | 0.00 | 37.73 | -3.36 | -262.11 | 15.10 | 212.31 |
| 76 | 140 | 0.00 | -56.63 | 3.36 | 309.00 | 0.00 | 0.00 |
| 77 | 16 | -188.39 | 0.00 | -4.94 | 0.00 | -334.22 | 0.00 |
| 77 | 17 | 188.39 | 0.00 | 4.94 | 0.00 | 360.38 | 0.00 |
| 78 | 17 | -188.39 | 0.00 | -4.94 | 0.00 | -360.38 | 0.00 |
| 78 | 18 | 188.39 | 0.00 | 4.94 | 0.00 | 385.06 | 0.00 |
| 79 | 33 | -190.09 | 0.00 | 13.90 | 0.00 | -635.29 | 0.00 |
| 79 | 34 | 190.09 | 0.00 | -13.90 | 0.00 | 529.91 | 0.00 |
| 80 | 34 | -190.09 | 0.00 | 13.90 | 0.00 | -529.91 | 0.00 |
| 80 | 35 | 190.09 | 0.00 | -13.90 | 0.00 | 460.40 | 0.00 |
| 81 | 50 | -188.53 | 0.00 | -7.20 | 0.00 | -234.00 | 0.00 |
| 81 | 51 | 188.53 | 0.00 | 7.20 | 0.00 | 262.81 | 0.00 |
| 82 | 51 | -188.53 | 0.00 | -7.20 | 0.00 | -262.81 | 0.00 |
| 82 | 52 | 188.53 | 0.00 | 7.20 | 0.00 | 334.85 | 0.00 |
| 83 | 52 | -188.53 | 0.00 | -7.20 | 0.00 | -334.85 | 0.00 |
| 83 | 53 | 188.53 | 0.00 | 7.20 | 0.00 | 406.88 | 0.00 |
| 84 | 53 | -188.53 | 0.00 | -7.20 | 0.00 | -406.88 | 0.00 |
| 84 | 54 | 188.53 | 0.00 | 7.20 | 0.00 | 442.90 | 0.00 |
| 85 | 69 | -189.20 | 0.00 | -4.65 | 0.00 | -286.21 | 0.00 |
| 85 | 70 | 189.20 | 0.00 | 4.65 | 0.00 | 318.76 | 0.00 |
| 86 | 70 | -189.20 | 0.00 | -4.65 | 0.00 | -318.76 | 0.00 |
| 86 | 71 | 189.20 | 0.00 | 4.65 | 0.00 | 365.26 | 0.00 |
| 87 | 71 | -189.20 | 0.00 | -4.65 | 0.00 | -365.26 | 0.00 |
| 87 | 72 | 189.20 | 0.00 | 4.65 | 0.00 | 411.77 | 0.00 |
| 88 | 72 | -189.20 | 0.00 | -4.65 | 0.00 | -411.77 | 0.00 |
| 88 | 73 | 189.20 | 0.00 | 4.65 | 0.00 | 435.02 | 0.00 |
| 89 | 88 | -188.65 | 0.00 | -2.48 | 0.00 | -377.92 | 0.00 |
| 89 | 89 | 188.65 | 0.00 | 2.48 | 0.00 | 380.40 | 0.00 |
| 90 | 89 | -188.65 | 0.00 | -2.48 | 0.00 | -380.40 | 0.00 |
| 90 | 90 | 188.65 | 0.00 | 2.48 | 0.00 | 405.18 | 0.00 |
| 91 | 90 | -188.65 | 0.00 | -2.48 | 0.00 | -405.18 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 91 | 91 | 188.65 | 0.00 | 2.48 | 0.00 | 429.96 | 0.00 |
| 92 | 91 | -188.65 | 0.00 | -2.48 | 0.00 | -429.96 | 0.00 |
| 92 | 92 | 188.65 | 0.00 | 2.48 | 0.00 | 442.35 | 0.00 |
| 93 | 107 | -190.05 | 0.00 | 9.47 | 0.00 | -590.77 | 0.00 |
| 93 | 108 | 190.05 | 0.00 | -9.47 | 0.00 | 581.30 | 0.00 |
| 94 | 108 | -190.05 | 0.00 | 9.47 | 0.00 | -581.30 | 0.00 |
| 94 | 109 | 190.05 | 0.00 | -9.47 | 0.00 | 486.64 | 0.00 |
| 95 | 109 | -190.05 | 0.00 | 9.47 | 0.00 | -486.64 | 0.00 |
| 95 | 110 | 190.05 | 0.00 | -9.47 | 0.00 | 439.31 | 0.00 |
| 96 | 125 | -188.30 | 0.00 | -7.61 | 0.00 | -238.01 | 0.00 |
| 96 | 126 | 188.30 | 0.00 | 7.61 | 0.00 | 245.62 | 0.00 |
| 97 | 126 | -188.30 | 0.00 | -7.61 | 0.00 | -245.62 | 0.00 |
| 97 | 127 | 188.30 | 0.00 | 7.61 | 0.00 | 321.73 | 0.00 |
| 98 | 127 | -188.30 | 0.00 | -7.61 | 0.00 | -321.73 | 0.00 |
| 98 | 128 | 188.30 | 0.00 | 7.61 | 0.00 | 359.78 | 0.00 |
| 99 | 2 | 5.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -5.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | -61.68 | 0.00 | 0.15 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | 61.68 | 0.00 | -0.15 | 0.00 | -0.26 | 0.00 |
| 101 | 19 | 9.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -9.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | -198.26 | 0.00 | -4.94 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | 198.26 | 0.00 | 4.94 | 0.00 | 8.45 | 0.00 |
| 103 | 36 | 29.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -29.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | -219.48 | 0.00 | 13.90 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | 219.48 | 0.00 | -13.90 | 0.00 | -23.80 | 0.00 |
| 105 | 55 | 25.44 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -25.44 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | -213.97 | 0.00 | -7.20 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | 213.97 | 0.00 | 7.20 | 0.00 | 12.33 | 0.00 |
| 107 | 74 | 22.98 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -22.98 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | -212.18 | 0.00 | -4.65 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | 212.18 | 0.00 | 4.65 | 0.00 | 7.96 | 0.00 |
| 109 | 93 | 25.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -25.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | -213.88 | 0.00 | -2.48 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | 213.88 | 0.00 | 2.48 | 0.00 | 4.24 | 0.00 |
| 111 | 111 | 23.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -23.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | -213.76 | 0.00 | 9.47 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | 213.76 | 0.00 | -9.47 | 0.00 | -16.21 | 0.00 |
| 113 | 129 | 3.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -3.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | -191.39 | 0.00 | -7.61 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | 191.39 | 0.00 | 7.61 | 0.00 | 13.03 | 0.00 |
| 115 | 141 | 8.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -8.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | -65.34 | 0.00 | 3.36 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | 65.34 | 0.00 | -3.36 | 0.00 | -5.75 | 0.00 |
| 117 | 6 | -56.57 | 0.00 | 0.15 | 0.00 | -284.04 | 0.00 |
| 117 | 7 | 56.57 | 0.00 | -0.15 | 0.00 | 283.88 | 0.00 |
| 118 | 145 | -56.63 | 0.00 | 3.36 | 0.00 | -318.10 | 0.00 |
| 118 | 146 | 56.63 | 0.00 | -3.36 | 0.00 | 314.75 | 0.00 |
| 119 | 3 | 0.00 | 5.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -5.11 | 0.00 | 0.00 | 0.00 | 21.74 |
| 120 | 1 | -0.15 | 61.68 | 0.00 | 0.00 | 0.00 | 261.88 |
| 120 | 5 | 0.15 | -61.68 | 0.00 | 0.00 | 0.00 | 0.26 |
| 121 | 20 | 0.00 | 9.88 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | -9.88 | 0.00 | 0.00 | 0.00 | 18.28 |
| 122 | 15 | 4.94 | 198.26 | 0.00 | 0.00 | 0.00 | 375.24 |
| 122 | 22 | -4.94 | -198.26 | 0.00 | 0.00 | 0.00 | -8.45 |
| 123 | 37 | 0.00 | 29.39 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | -29.39 | 0.00 | 0.00 | 0.00 | 54.38 |
| 124 | 32 | -13.90 | 219.48 | 0.00 | 0.00 | 0.00 | 382.25 |
| 124 | 39 | 13.90 | -219.48 | 0.00 | 0.00 | 0.00 | 23.80 |
| 125 | 56 | 0.00 | 25.44 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.00 | -25.44 | 0.00 | 0.00 | 0.00 | 47.07 |
| 126 | 49 | 7.20 | 213.97 | 0.00 | 0.00 | 0.00 | 408.19 |
| 126 | 58 | -7.20 | -213.97 | 0.00 | 0.00 | 0.00 | -12.33 |
| 127 | 75 | 0.00 | 22.98 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.00 | -22.98 | 0.00 | 0.00 | 0.00 | 42.52 |
| 128 | 68 | 4.65 | 212.17 | 0.00 | 0.00 | 0.00 | 400.49 |
| 128 | 77 | -4.65 | -212.17 | 0.00 | 0.00 | 0.00 | -7.96 |
| 129 | 94 | 0.00 | 25.23 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | -25.23 | 0.00 | 0.00 | 0.00 | 46.68 |
| 130 | 87 | 2.48 | 213.88 | 0.00 | 0.00 | 0.00 | 399.94 |
| 130 | 96 | -2.48 | -213.88 | 0.00 | 0.00 | 0.00 | -4.24 |
| 131 | 112 | 0.00 | 23.71 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | -23.71 | 0.00 | 0.00 | 0.00 | 43.88 |
| 132 | 106 | -9.47 | 213.76 | 0.00 | 0.00 | 0.00 | 379.26 |
| 132 | 114 | 9.47 | -213.76 | 0.00 | 0.00 | 0.00 | 16.21 |
| 133 | 130 | 0.00 | 3.09 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | -3.09 | 0.00 | 0.00 | 0.00 | 5.73 |
| 134 | 124 | 7.61 | 191.39 | 0.00 | 0.00 | 0.00 | 367.10 |
| 134 | 132 | -7.61 | -191.39 | 0.00 | 0.00 | 0.00 | -13.03 |
| 135 | 142 | 0.00 | 8.71 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -8.71 | 0.00 | 0.00 | 0.00 | 37.04 |
| 136 | 140 | -3.36 | 65.34 | 0.00 | 0.00 | 0.00 | 271.96 |
| 136 | 144 | 3.36 | -65.34 | 0.00 | 0.00 | 0.00 | 5.75 |
| 137 | 2 | 0.00 | -5.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 5.11 | 0.00 | 0.00 | 0.00 | -21.74 |
| 138 | 7 | 0.15 | -61.68 | 0.00 | 0.00 | 0.00 | -262.15 |
| 138 | 4 | -0.15 | 61.68 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -9.88 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 9.88 | 0.00 | 0.00 | 0.00 | -18.27 |
| 140 | 18 | -4.94 | -198.27 | 0.00 | 0.00 | 0.00 | -366.79 |
| 140 | 21 | 4.94 | 198.27 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -29.39 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 29.39 | 0.00 | 0.00 | 0.00 | -54.37 |
| 142 | 35 | 13.90 | -219.48 | 0.00 | 0.00 | 0.00 | -406.03 |
| 142 | 38 | -13.90 | 219.48 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -25.44 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | 25.44 | 0.00 | 0.00 | 0.00 | -47.06 |
| 144 | 54 | -7.20 | -213.97 | 0.00 | 0.00 | 0.00 | -395.84 |
| 144 | 57 | 7.20 | 213.97 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | -22.98 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 22.98 | 0.00 | 0.00 | 0.00 | -42.50 |
| 146 | 73 | -4.65 | -212.17 | 0.00 | 0.00 | 0.00 | -392.51 |
| 146 | 76 | 4.65 | 212.17 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | -25.23 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | 25.23 | 0.00 | 0.00 | 0.00 | -46.67 |
| 148 | 92 | -2.48 | -213.88 | 0.00 | 0.00 | 0.00 | -395.68 |
| 148 | 95 | 2.48 | 213.88 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | -23.71 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 23.71 | 0.00 | 0.00 | 0.00 | -43.86 |
| 150 | 110 | 9.47 | -213.76 | 0.00 | 0.00 | 0.00 | -395.45 |
| 150 | 113 | -9.47 | 213.76 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -3.09 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 3.09 | 0.00 | 0.00 | 0.00 | -5.72 |
| 152 | 128 | -7.61 | -191.39 | 0.00 | 0.00 | 0.00 | -354.06 |
| 152 | 131 | 7.61 | 191.39 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -8.71 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 8.71 | 0.00 | 0.00 | 0.00 | -37.04 |
| 154 | 146 | 3.36 | -65.34 | 0.00 | 0.00 | 0.00 | -277.71 |
| 154 | 143 | -3.36 | 65.34 | 0.00 | 0.00 | 0.00 | 0.00 |

HIPOTESIS 6

hipo 6 desbalastado-3

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 0.72 | 0.00 | 0.01 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -0.72 | 0.00 | -0.01 | 0.01 | 3.26 |
| 2 | 8 | 0.00 | 0.72 | 0.00 | 0.01 | -0.01 | -3.26 |
| 2 | 9 | 0.00 | -0.72 | 0.00 | -0.01 | 0.02 | 6.52 |
| 3 | 9 | 0.00 | 0.72 | 0.00 | 0.01 | -0.02 | -6.52 |
| 3 | 10 | 0.00 | -0.72 | 0.00 | -0.01 | 0.04 | 9.77 |
| 4 | 10 | 0.00 | 0.72 | 0.00 | 0.01 | -0.04 | -9.77 |
| 4 | 11 | 0.00 | -0.72 | 0.00 | -0.01 | 0.05 | 13.03 |
| 5 | 11 | 0.00 | 0.72 | 0.00 | 0.01 | -0.05 | -13.03 |
| 5 | 12 | 0.00 | -0.72 | 0.00 | -0.01 | 0.06 | 16.29 |
| 6 | 12 | 0.00 | 0.72 | 0.00 | 0.01 | -0.06 | -16.29 |
| 6 | 13 | 0.00 | -0.72 | 0.00 | -0.01 | 0.07 | 19.55 |
| 7 | 13 | 0.00 | 0.72 | 0.00 | 0.01 | -0.07 | -19.55 |
| 7 | 14 | 0.00 | -0.72 | 0.00 | -0.01 | 0.08 | 22.80 |
| 8 | 14 | 0.00 | 0.72 | 0.00 | 0.01 | -0.08 | -22.80 |
| 8 | 15 | 0.00 | -0.72 | 0.00 | -0.01 | 0.09 | 26.06 |
| 9 | 15 | 0.00 | -2.79 | 0.01 | -0.02 | -0.09 | -26.06 |
| 9 | 23 | 0.00 | 2.79 | -0.01 | 0.02 | 0.06 | 13.52 |
| 10 | 23 | 0.00 | -2.79 | 0.01 | -0.02 | -0.06 | -13.52 |
| 10 | 24 | 0.00 | 2.79 | -0.01 | 0.02 | 0.02 | 0.97 |
| 11 | 24 | 0.00 | -2.79 | 0.01 | -0.02 | -0.02 | -0.97 |
| 11 | 25 | 0.00 | 2.79 | -0.01 | 0.02 | -0.01 | -11.57 |
| 12 | 25 | 0.00 | -2.79 | 0.01 | -0.02 | 0.01 | 11.57 |
| 12 | 26 | 0.00 | 2.79 | -0.01 | 0.02 | -0.05 | -24.12 |
| 13 | 26 | 0.00 | -2.79 | 0.01 | -0.02 | 0.05 | 24.12 |
| 13 | 27 | 0.00 | 2.79 | -0.01 | 0.02 | -0.08 | -36.66 |
| 14 | 27 | 0.00 | -2.79 | 0.01 | -0.02 | 0.08 | 36.66 |
| 14 | 28 | 0.00 | 2.79 | -0.01 | 0.02 | -0.12 | -49.20 |
| 15 | 28 | 0.00 | -2.79 | 0.01 | -0.02 | 0.12 | 49.20 |
| 15 | 29 | 0.00 | 2.79 | -0.01 | 0.02 | -0.15 | -61.75 |
| 16 | 29 | 0.00 | -2.79 | 0.01 | -0.02 | 0.15 | 61.75 |
| 16 | 30 | 0.00 | 2.79 | -0.01 | 0.02 | -0.19 | -74.29 |
| 17 | 30 | 0.00 | -2.79 | 0.01 | -0.02 | 0.19 | 74.29 |
| 17 | 31 | 0.00 | 2.79 | -0.01 | 0.02 | -0.22 | -86.84 |
| 18 | 31 | 0.00 | -2.79 | 0.01 | -0.02 | 0.22 | 86.84 |
| 18 | 32 | 0.00 | 2.79 | -0.01 | 0.02 | -0.26 | -99.38 |
| 19 | 32 | 0.00 | 11.12 | -0.01 | 0.05 | 0.26 | 99.38 |
| 19 | 40 | 0.00 | -11.12 | 0.01 | -0.05 | -0.22 | -49.33 |
| 20 | 40 | 0.00 | 11.12 | -0.01 | 0.05 | 0.22 | 49.33 |
| 20 | 41 | 0.00 | -11.12 | 0.01 | -0.05 | -0.17 | 0.71 |
| 21 | 41 | 0.00 | 11.12 | -0.01 | 0.05 | 0.17 | -0.71 |
| 21 | 42 | 0.00 | -11.12 | 0.01 | -0.05 | -0.13 | 50.76 |
| 22 | 42 | 0.00 | 11.12 | -0.01 | 0.05 | 0.13 | -50.76 |
| 22 | 43 | 0.00 | -11.12 | 0.01 | -0.05 | -0.08 | 100.80 |
| 23 | 43 | 0.00 | 11.12 | -0.01 | 0.05 | 0.08 | -100.80 |
| 23 | 44 | 0.00 | -11.12 | 0.01 | -0.05 | -0.04 | 150.85 |
| 24 | 44 | 0.00 | 11.12 | -0.01 | 0.05 | 0.04 | -150.85 |
| 24 | 45 | 0.00 | -11.12 | 0.01 | -0.05 | 0.00 | 200.90 |
| 25 | 45 | 0.00 | 11.12 | -0.01 | 0.05 | 0.00 | -200.90 |
| 25 | 46 | 0.00 | -11.12 | 0.01 | -0.05 | 0.05 | 250.94 |
| 26 | 46 | 0.00 | 11.12 | -0.01 | 0.05 | -0.05 | -250.94 |
| 26 | 47 | 0.00 | -11.12 | 0.01 | -0.05 | 0.09 | 300.99 |
| 27 | 47 | 0.00 | 11.12 | -0.01 | 0.05 | -0.09 | -300.99 |
| 27 | 48 | 0.00 | -11.12 | 0.01 | -0.05 | 0.14 | 351.03 |
| 28 | 48 | 0.00 | 11.12 | -0.01 | 0.05 | -0.14 | -351.03 |
| 28 | 49 | 0.00 | -11.12 | 0.01 | -0.05 | 0.18 | 401.08 |
| 29 | 49 | 0.00 | -63.24 | 0.00 | -0.01 | -0.18 | -401.08 |
| 29 | 59 | 0.00 | 63.24 | 0.00 | 0.01 | 0.18 | 116.48 |
| 30 | 59 | 0.00 | -63.24 | 0.00 | -0.01 | -0.18 | -116.48 |
| 30 | 60 | 0.00 | 63.24 | 0.00 | 0.01 | 0.17 | -168.11 |
| 31 | 60 | 0.00 | -63.24 | 0.00 | -0.01 | -0.17 | 168.11 |
| 31 | 61 | 0.00 | 63.24 | 0.00 | 0.01 | 0.17 | -452.71 |
| 32 | 61 | 0.00 | -63.24 | 0.00 | -0.01 | -0.17 | 452.71 |
| 32 | 62 | 0.00 | 25.44 | 0.00 | 0.01 | 0.17 | -652.25 |
| 33 | 62 | 0.00 | -25.44 | 0.00 | -0.01 | -0.17 | 652.25 |
| 33 | 63 | 0.00 | -12.36 | 0.00 | 0.01 | 0.17 | -681.70 |
| 34 | 63 | 0.00 | 12.36 | 0.00 | -0.01 | -0.17 | 681.70 |
| 34 | 64 | 0.00 | -50.16 | 0.00 | 0.01 | 0.16 | -541.05 |
| 35 | 64 | 0.00 | 50.16 | 0.00 | -0.01 | -0.16 | 541.05 |
| 35 | 65 | 0.00 | -50.16 | 0.00 | 0.01 | 0.16 | -315.34 |
| 36 | 65 | 0.00 | 50.16 | 0.00 | -0.01 | -0.16 | 315.34 |
| 36 | 66 | 0.00 | -50.16 | 0.00 | 0.01 | 0.16 | -89.64 |
| 37 | 66 | 0.00 | 50.16 | 0.00 | -0.01 | -0.16 | 89.64 |
| 37 | 67 | 0.00 | -50.16 | 0.00 | 0.01 | 0.15 | 136.07 |
| 38 | 67 | 0.00 | 50.16 | 0.00 | -0.01 | -0.15 | -136.07 |
| 38 | 68 | 0.00 | -50.16 | 0.00 | 0.01 | 0.15 | 361.77 |
| 39 | 68 | 0.00 | -10.02 | 0.01 | -0.04 | -0.15 | -361.77 |
| 39 | 78 | 0.00 | 10.02 | -0.01 | 0.04 | 0.13 | 316.69 |
| 40 | 78 | 0.00 | -10.02 | 0.01 | -0.04 | -0.13 | -316.69 |
| 40 | 79 | 0.00 | 10.02 | -0.01 | 0.04 | 0.10 | 271.61 |
| 41 | 79 | 0.00 | -10.02 | 0.01 | -0.04 | -0.10 | -271.61 |
| 41 | 80 | 0.00 | 10.02 | -0.01 | 0.04 | 0.08 | 226.53 |
| 42 | 80 | 0.00 | -10.02 | 0.01 | -0.04 | -0.08 | -226.53 |
| 42 | 81 | 0.00 | 10.02 | -0.01 | 0.04 | 0.05 | 181.45 |
| 43 | 81 | 0.00 | -10.02 | 0.01 | -0.04 | -0.05 | -181.45 |
| 43 | 82 | 0.00 | 10.02 | -0.01 | 0.04 | 0.03 | 136.37 |
| 44 | 82 | 0.00 | -10.02 | 0.01 | -0.04 | -0.03 | -136.37 |
| 44 | 83 | 0.00 | 10.02 | -0.01 | 0.04 | 0.00 | 91.29 |
| 45 | 83 | 0.00 | -10.02 | 0.01 | -0.04 | 0.00 | -91.29 |
| 45 | 84 | 0.00 | 10.02 | -0.01 | 0.04 | -0.02 | 46.21 |
| 46 | 84 | 0.00 | -10.02 | 0.01 | -0.04 | 0.02 | -46.21 |
| 46 | 85 | 0.00 | 10.02 | -0.01 | 0.04 | -0.05 | 1.13 |
| 47 | 85 | 0.00 | -10.02 | 0.01 | -0.04 | 0.05 | -1.13 |
| 47 | 86 | 0.00 | 10.02 | -0.01 | 0.04 | -0.07 | -43.95 |
| 48 | 86 | 0.00 | -10.02 | 0.01 | -0.04 | 0.07 | 43.95 |
| 48 | 87 | 0.00 | 10.02 | -0.01 | 0.04 | -0.10 | -89.03 |
| 49 | 87 | 0.00 | 2.47 | 0.00 | 0.02 | 0.10 | 89.03 |
| 49 | 97 | 0.00 | -2.47 | 0.00 | -0.02 | -0.09 | -77.91 |
| 50 | 97 | 0.00 | 2.47 | 0.00 | 0.02 | 0.09 | 77.91 |
| 50 | 98 | 0.00 | -2.47 | 0.00 | -0.02 | -0.08 | -66.78 |
| 51 | 98 | 0.00 | 2.47 | 0.00 | 0.02 | 0.08 | 66.78 |
| 51 | 99 | 0.00 | -2.47 | 0.00 | -0.02 | -0.07 | -55.65 |
| 52 | 99 | 0.00 | 2.47 | 0.00 | 0.02 | 0.07 | 55.65 |
| 52 | 100 | 0.00 | -2.47 | 0.00 | -0.02 | -0.07 | -44.52 |
| 53 | 100 | 0.00 | 2.47 | 0.00 | 0.02 | 0.07 | 44.52 |
| 53 | 101 | 0.00 | -2.47 | 0.00 | -0.02 | -0.06 | -33.39 |
| 54 | 101 | 0.00 | 2.47 | 0.00 | 0.02 | 0.06 | 33.39 |
| 54 | 102 | 0.00 | -2.47 | 0.00 | -0.02 | -0.05 | -22.26 |
| 55 | 102 | 0.00 | 2.47 | 0.00 | 0.02 | 0.05 | 22.27 |
| 55 | 103 | 0.00 | -2.47 | 0.00 | -0.02 | -0.04 | -11.14 |
| 56 | 103 | 0.00 | 2.47 | 0.00 | 0.02 | 0.04 | 11.14 |
| 56 | 104 | 0.00 | -2.47 | 0.00 | -0.02 | -0.04 | -0.01 |
| 57 | 104 | 0.00 | 2.47 | 0.00 | 0.02 | 0.04 | 0.01 |
| 57 | 105 | 0.00 | -2.47 | 0.00 | -0.02 | -0.03 | 11.12 |
| 58 | 105 | 0.00 | 2.47 | 0.00 | 0.02 | 0.03 | -11.12 |
| 58 | 106 | 0.00 | -2.47 | 0.00 | -0.02 | -0.02 | 22.25 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 59 | 106 | 0.00 | -0.62 | 0.00 | 0.00 | 0.02 | -22.25 |
| 59 | 115 | 0.00 | 0.62 | 0.00 | 0.00 | -0.02 | 19.44 |
| 60 | 115 | 0.00 | -0.62 | 0.00 | 0.00 | 0.02 | -19.44 |
| 60 | 116 | 0.00 | 0.62 | 0.00 | 0.00 | -0.02 | 16.64 |
| 61 | 116 | 0.00 | -0.62 | 0.00 | 0.00 | 0.02 | -16.64 |
| 61 | 117 | 0.00 | 0.62 | 0.00 | 0.00 | -0.02 | 13.83 |
| 62 | 117 | 0.00 | -0.62 | 0.00 | 0.00 | 0.02 | -13.83 |
| 62 | 118 | 0.00 | 0.62 | 0.00 | 0.00 | -0.02 | 11.03 |
| 63 | 118 | 0.00 | -0.62 | 0.00 | 0.00 | 0.02 | -11.03 |
| 63 | 119 | 0.00 | 0.62 | 0.00 | 0.00 | -0.02 | 8.22 |
| 64 | 119 | 0.00 | -0.62 | 0.00 | 0.00 | 0.02 | -8.22 |
| 64 | 120 | 0.00 | 0.62 | 0.00 | 0.00 | -0.02 | 5.42 |
| 65 | 120 | 0.00 | -0.62 | 0.00 | 0.00 | 0.02 | -5.42 |
| 65 | 121 | 0.00 | 0.62 | 0.00 | 0.00 | -0.02 | 2.61 |
| 66 | 121 | 0.00 | -0.62 | 0.00 | 0.00 | 0.02 | -2.61 |
| 66 | 122 | 0.00 | 0.62 | 0.00 | 0.00 | -0.02 | -0.20 |
| 67 | 122 | 0.00 | -0.62 | 0.00 | 0.00 | 0.02 | 0.20 |
| 67 | 123 | 0.00 | 0.62 | 0.00 | 0.00 | -0.02 | -3.00 |
| 68 | 123 | 0.00 | -0.62 | 0.00 | 0.00 | 0.02 | 3.00 |
| 68 | 124 | 0.00 | 0.62 | 0.00 | 0.00 | -0.02 | -5.81 |
| 69 | 124 | 0.00 | 0.16 | 0.00 | 0.00 | 0.02 | 5.81 |
| 69 | 133 | 0.00 | -0.16 | 0.00 | 0.00 | -0.02 | -5.08 |
| 70 | 133 | 0.00 | 0.16 | 0.00 | 0.00 | 0.02 | 5.08 |
| 70 | 134 | 0.00 | -0.16 | 0.00 | 0.00 | -0.02 | -4.35 |
| 71 | 134 | 0.00 | 0.16 | 0.00 | 0.00 | 0.02 | 4.35 |
| 71 | 135 | 0.00 | -0.16 | 0.00 | 0.00 | -0.01 | -3.63 |
| 72 | 135 | 0.00 | 0.16 | 0.00 | 0.00 | 0.01 | 3.63 |
| 72 | 136 | 0.00 | -0.16 | 0.00 | 0.00 | -0.01 | -2.90 |
| 73 | 136 | 0.00 | 0.16 | 0.00 | 0.00 | 0.01 | 2.90 |
| 73 | 137 | 0.00 | -0.16 | 0.00 | 0.00 | -0.01 | -2.18 |
| 74 | 137 | 0.00 | 0.16 | 0.00 | 0.00 | 0.01 | 2.18 |
| 74 | 138 | 0.00 | -0.16 | 0.00 | 0.00 | -0.01 | -1.45 |
| 75 | 138 | 0.00 | 0.16 | 0.00 | 0.00 | 0.01 | 1.45 |
| 75 | 139 | 0.00 | -0.16 | 0.00 | 0.00 | 0.00 | -0.73 |
| 76 | 139 | 0.00 | 0.16 | 0.00 | 0.00 | 0.00 | 0.73 |
| 76 | 140 | 0.00 | -0.16 | 0.00 | 0.00 | 0.00 | 0.00 |
| 77 | 16 | -3.51 | 0.00 | 0.01 | 0.00 | -0.10 | 0.00 |
| 77 | 17 | 3.51 | 0.00 | -0.01 | 0.00 | 0.04 | 0.00 |
| 78 | 17 | -3.51 | 0.00 | 0.01 | 0.00 | -0.04 | 0.00 |
| 78 | 18 | 3.51 | 0.00 | -0.01 | 0.00 | -0.01 | 0.00 |
| 79 | 33 | 13.91 | 0.00 | -0.02 | 0.00 | 0.18 | 0.00 |
| 79 | 34 | -13.91 | 0.00 | 0.02 | 0.00 | -0.04 | 0.00 |
| 80 | 34 | 13.91 | 0.00 | -0.02 | 0.00 | 0.04 | 0.00 |
| 80 | 35 | -13.91 | 0.00 | 0.02 | 0.00 | 0.05 | 0.00 |
| 81 | 50 | -74.36 | 0.00 | 0.01 | 0.00 | -0.25 | 0.00 |
| 81 | 51 | 74.36 | 0.00 | -0.01 | 0.00 | 0.21 | 0.00 |
| 82 | 51 | -74.36 | 0.00 | 0.01 | 0.00 | -0.21 | 0.00 |
| 82 | 52 | 74.36 | 0.00 | -0.01 | 0.00 | 0.10 | 0.00 |
| 83 | 52 | -74.36 | 0.00 | 0.01 | 0.00 | -0.10 | 0.00 |
| 83 | 53 | 74.36 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 84 | 53 | -74.36 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| 84 | 54 | 74.36 | 0.00 | -0.01 | 0.00 | -0.05 | 0.00 |
| 85 | 69 | -60.17 | 0.00 | 0.00 | 0.00 | -0.14 | 0.00 |
| 85 | 70 | 60.17 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 |
| 86 | 70 | -60.17 | 0.00 | 0.00 | 0.00 | -0.10 | 0.00 |
| 86 | 71 | 60.17 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 |
| 87 | 71 | -60.17 | 0.00 | 0.00 | 0.00 | -0.05 | 0.00 |
| 87 | 72 | 60.17 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 88 | 72 | -60.17 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 88 | 73 | 60.17 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 89 | 88 | 12.49 | 0.00 | -0.01 | 0.00 | 0.14 | 0.00 |
| 89 | 89 | -12.49 | 0.00 | 0.01 | 0.00 | -0.13 | 0.00 |
| 90 | 89 | 12.49 | 0.00 | -0.01 | 0.00 | 0.13 | 0.00 |
| 90 | 90 | -12.49 | 0.00 | 0.01 | 0.00 | -0.06 | 0.00 |
| 91 | 90 | 12.49 | 0.00 | -0.01 | 0.00 | 0.06 | 0.00 |
| 91 | 91 | -12.49 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 92 | 91 | 12.49 | 0.00 | -0.01 | 0.00 | -0.01 | 0.00 |
| 92 | 92 | -12.49 | 0.00 | 0.01 | 0.00 | 0.05 | 0.00 |
| 93 | 107 | -3.10 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 93 | 108 | 3.10 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 94 | 108 | -3.10 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 94 | 109 | 3.10 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 95 | 109 | -3.10 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 95 | 110 | 3.10 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 96 | 125 | 0.78 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 96 | 126 | -0.78 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 97 | 126 | 0.78 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 97 | 127 | -0.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 98 | 127 | 0.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 98 | 128 | -0.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 2 | 0.36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -0.36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 0.36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -0.36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 19 | -1.76 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | 1.76 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | -1.75 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | 1.75 | 0.00 | -0.01 | 0.00 | -0.02 | 0.00 |
| 103 | 36 | 6.97 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -6.97 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 6.94 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -6.94 | 0.00 | 0.02 | 0.00 | 0.03 | 0.00 |
| 105 | 55 | -37.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | 37.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | -37.17 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | 37.17 | 0.00 | -0.01 | 0.00 | -0.02 | 0.00 |
| 107 | 74 | -30.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | 30.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | -30.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | 30.08 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 109 | 93 | 6.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -6.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 6.23 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -6.23 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 111 | 111 | -1.55 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | 1.55 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | -1.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | 1.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 129 | 0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 141 | -0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | -0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 117 | 6 | 0.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 117 | 7 | -0.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 118 | 145 | -0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 118 | 146 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 3 | 0.00 | 0.36 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -0.36 | 0.00 | 0.00 | 0.00 | 1.54 |
| 120 | 1 | 0.00 | -0.36 | 0.00 | 0.00 | 0.00 | -1.53 |
| 120 | 5 | 0.00 | 0.36 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 20 | 0.00 | -1.76 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | 1.76 | 0.00 | 0.00 | 0.00 | -3.25 |
| 122 | 15 | -0.01 | 1.75 | 0.00 | 0.00 | 0.00 | 3.22 |
| 122 | 22 | 0.01 | -1.75 | 0.00 | 0.00 | 0.00 | 0.02 |
| 123 | 37 | 0.00 | 6.97 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | -6.97 | 0.00 | 0.00 | 0.00 | 12.89 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 124 | 32 | 0.02 | -6.94 | 0.00 | 0.00 | 0.00 | -12.81 |
| 124 | 39 | -0.02 | 6.94 | 0.00 | 0.00 | 0.00 | -0.03 |
| 125 | 56 | 0.00 | -37.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.00 | 37.20 | 0.00 | 0.00 | 0.00 | -68.81 |
| 126 | 49 | -0.01 | 37.17 | 0.00 | 0.00 | 0.00 | 68.74 |
| 126 | 58 | 0.01 | -37.17 | 0.00 | 0.00 | 0.00 | 0.02 |
| 127 | 75 | 0.00 | -30.09 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.00 | 30.09 | 0.00 | 0.00 | 0.00 | -55.67 |
| 128 | 68 | 0.00 | 30.08 | 0.00 | 0.00 | 0.00 | 55.64 |
| 128 | 77 | 0.00 | -30.08 | 0.00 | 0.00 | 0.00 | 0.01 |
| 129 | 94 | 0.00 | 6.26 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | -6.26 | 0.00 | 0.00 | 0.00 | 11.58 |
| 130 | 87 | 0.01 | -6.23 | 0.00 | 0.00 | 0.00 | -11.52 |
| 130 | 96 | -0.01 | 6.23 | 0.00 | 0.00 | 0.00 | -0.01 |
| 131 | 112 | 0.00 | -1.55 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | 1.55 | 0.00 | 0.00 | 0.00 | -2.87 |
| 132 | 106 | 0.00 | 1.54 | 0.00 | 0.00 | 0.00 | 2.85 |
| 132 | 114 | 0.00 | -1.54 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 130 | 0.00 | 0.39 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | -0.39 | 0.00 | 0.00 | 0.00 | 0.73 |
| 134 | 124 | 0.00 | -0.39 | 0.00 | 0.00 | 0.00 | -0.72 |
| 134 | 132 | 0.00 | 0.39 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 142 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | -0.34 |
| 136 | 140 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | 0.34 |
| 136 | 144 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 2 | 0.00 | -0.36 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 0.36 | 0.00 | 0.00 | 0.00 | -1.54 |
| 138 | 7 | 0.00 | 0.36 | 0.00 | 0.00 | 0.00 | 1.54 |
| 138 | 4 | 0.00 | -0.36 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | 1.76 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | -1.76 | 0.00 | 0.00 | 0.00 | 3.25 |
| 140 | 18 | 0.01 | -1.75 | 0.00 | 0.00 | 0.00 | -3.24 |
| 140 | 21 | -0.01 | 1.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -6.97 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 6.97 | 0.00 | 0.00 | 0.00 | -12.89 |
| 142 | 35 | -0.02 | 6.94 | 0.00 | 0.00 | 0.00 | 12.84 |
| 142 | 38 | 0.02 | -6.94 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | 37.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | -37.20 | 0.00 | 0.00 | 0.00 | 68.81 |
| 144 | 54 | 0.01 | -37.17 | 0.00 | 0.00 | 0.00 | -68.76 |
| 144 | 57 | -0.01 | 37.17 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | 30.09 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | -30.09 | 0.00 | 0.00 | 0.00 | 55.67 |
| 146 | 73 | 0.00 | -30.08 | 0.00 | 0.00 | 0.00 | -55.65 |
| 146 | 76 | 0.00 | 30.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | -6.26 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | 6.26 | 0.00 | 0.00 | 0.00 | -11.58 |
| 148 | 92 | -0.01 | 6.23 | 0.00 | 0.00 | 0.00 | 11.53 |
| 148 | 95 | 0.01 | -6.23 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | 1.55 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | -1.55 | 0.00 | 0.00 | 0.00 | 2.87 |
| 150 | 110 | 0.00 | -1.54 | 0.00 | 0.00 | 0.00 | -2.86 |
| 150 | 113 | 0.00 | 1.54 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -0.39 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 0.39 | 0.00 | 0.00 | 0.00 | -0.73 |
| 152 | 128 | 0.00 | 0.39 | 0.00 | 0.00 | 0.00 | 0.73 |
| 152 | 131 | 0.00 | -0.39 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 | 0.34 |
| 154 | 146 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 | -0.34 |
| 154 | 143 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 |



HIPOTESIS 7

hipo 7 temperatura +

E S F U E R Z O S E N B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 8 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 9 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 9 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 10 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 11 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 12 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 12 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 13 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | 14 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | 15 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9 | 15 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9 | 23 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 | 23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 | 24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11 | 24 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11 | 25 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12 | 25 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12 | 26 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 13 | 26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 13 | 27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 14 | 27 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 14 | 28 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 15 | 28 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 15 | 29 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 16 | 29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 16 | 30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 17 | 30 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 17 | 31 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 18 | 31 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 18 | 32 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 19 | 32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 19 | 40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20 | 40 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20 | 41 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 21 | 41 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 21 | 42 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 22 | 42 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 22 | 43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 23 | 43 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 23 | 44 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 24 | 44 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 24 | 45 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 25 | 45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 25 | 46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 26 | 46 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 26 | 47 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 27 | 47 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 27 | 48 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 28 | 48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 28 | 49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 29 | 49 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 29 | 59 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 31 | 60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 31 | 61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 32 | 61 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 32 | 62 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 33 | 62 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 33 | 63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 34 | 63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 34 | 64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 35 | 64 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 35 | 65 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 36 | 65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 36 | 66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 37 | 66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 37 | 67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 38 | 67 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 38 | 68 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 39 | 68 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 39 | 78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 40 | 78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 40 | 79 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 41 | 79 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 41 | 80 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 42 | 80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 42 | 81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 43 | 81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 43 | 82 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 44 | 82 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 44 | 83 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 45 | 83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 45 | 84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 46 | 84 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 46 | 85 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 47 | 85 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 47 | 86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 48 | 86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 48 | 87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 49 | 87 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 49 | 97 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 50 | 97 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 50 | 98 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 51 | 98 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 51 | 99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 52 | 99 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 52 | 100 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 53 | 100 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 53 | 101 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 54 | 101 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 54 | 102 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 55 | 102 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 55 | 103 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 56 | 103 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 56 | 104 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 57 | 104 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 57 | 105 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 58 | 105 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 58 | 106 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 59 | 106 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 59 | 115 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 60 | 115 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 60 | 116 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 61 | 116 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 61 | 117 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 62 | 117 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 62 | 118 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 63 | 118 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 63 | 119 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 64 | 119 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 64 | 120 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 65 | 120 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 65 | 121 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 66 | 121 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 66 | 122 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 67 | 122 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 67 | 123 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 68 | 123 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 68 | 124 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 69 | 124 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 69 | 133 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 70 | 133 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 70 | 134 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 71 | 134 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 71 | 135 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 72 | 135 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 72 | 136 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 73 | 136 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 73 | 137 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 74 | 137 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 74 | 138 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 75 | 138 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 75 | 139 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 76 | 139 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 76 | 140 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 77 | 16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 77 | 17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 78 | 17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 78 | 18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 79 | 33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 79 | 34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 80 | 34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 80 | 35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 81 | 50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 81 | 51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 82 | 51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 82 | 52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 83 | 52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 83 | 53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 84 | 53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 84 | 54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 85 | 69 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 85 | 70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 86 | 70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 86 | 71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 87 | 71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 87 | 72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 88 | 72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 88 | 73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 89 | 88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 89 | 89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 90 | 89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 90 | 90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 91 | 90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 91 | 91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 92 | 91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 92 | 92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 93 | 107 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 93 | 108 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 94 | 108 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 94 | 109 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95 | 109 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95 | 110 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 96 | 125 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 96 | 126 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 97 | 126 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 97 | 127 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 98 | 127 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 98 | 128 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 55 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 111 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 129 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 141 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 117 | 6 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 117 | 7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 118 | 145 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 118 | 146 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 3 | 0.00 | 0.00 | 0.02 | 0.00 | -0.02 | 0.00 |
| 119 | 1 | 0.00 | 0.00 | -0.02 | 0.00 | -0.02 | 0.00 |
| 120 | 1 | 0.00 | 0.00 | 0.02 | 0.00 | -0.02 | 0.00 |
| 120 | 5 | 0.00 | 0.00 | -0.02 | 0.00 | -0.02 | 0.00 |
| 121 | 20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 |
| 121 | 15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 |
| 122 | 15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 |
| 122 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 |
| 123 | 37 | 0.00 | 0.00 | 0.10 | 0.00 | 0.04 | 0.00 |
| 123 | 32 | 0.00 | 0.00 | -0.10 | 0.00 | 0.04 | 0.00 |
| 124 | 32 | 0.00 | 0.00 | 0.10 | 0.00 | 0.04 | 0.00 |
| 124 | 39 | 0.00 | 0.00 | -0.10 | 0.00 | 0.04 | 0.00 |
| 125 | 56 | 0.00 | 0.00 | -0.05 | 0.00 | 0.04 | 0.00 |
| 125 | 49 | 0.00 | 0.00 | 0.05 | 0.00 | 0.04 | 0.00 |
| 126 | 49 | 0.00 | 0.00 | -0.05 | 0.00 | 0.04 | 0.00 |
| 126 | 58 | 0.00 | 0.00 | 0.05 | 0.00 | 0.04 | 0.00 |
| 127 | 75 | 0.00 | 0.00 | 0.06 | 0.00 | 0.04 | 0.00 |
| 127 | 68 | 0.00 | 0.00 | -0.06 | 0.00 | 0.04 | 0.00 |
| 128 | 68 | 0.00 | 0.00 | 0.06 | 0.00 | 0.04 | 0.00 |
| 128 | 77 | 0.00 | 0.00 | -0.06 | 0.00 | 0.04 | 0.00 |
| 129 | 94 | 0.00 | 0.00 | 0.03 | 0.00 | 0.05 | 0.00 |
| 129 | 87 | 0.00 | 0.00 | -0.03 | 0.00 | 0.05 | 0.00 |
| 130 | 87 | 0.00 | 0.00 | 0.03 | 0.00 | 0.05 | 0.00 |
| 130 | 96 | 0.00 | 0.00 | -0.03 | 0.00 | 0.05 | 0.00 |
| 131 | 112 | 0.00 | 0.00 | 0.01 | 0.00 | -0.01 | 0.00 |
| 131 | 106 | 0.00 | 0.00 | -0.01 | 0.00 | -0.01 | 0.00 |
| 132 | 106 | 0.00 | 0.00 | 0.01 | 0.00 | -0.01 | 0.00 |
| 132 | 114 | 0.00 | 0.00 | -0.01 | 0.00 | -0.01 | 0.00 |
| 133 | 130 | 0.00 | 0.00 | -0.01 | 0.00 | -0.01 | 0.00 |
| 133 | 124 | 0.00 | 0.00 | 0.01 | 0.00 | -0.01 | 0.00 |
| 134 | 124 | 0.00 | 0.00 | -0.01 | 0.00 | -0.01 | 0.00 |
| 134 | 132 | 0.00 | 0.00 | 0.01 | 0.00 | -0.01 | 0.00 |
| 135 | 142 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 136 | 140 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 136 | 144 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 138 | 7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 138 | 4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 140 | 18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 140 | 21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 142 | 35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 142 | 38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 144 | 54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 144 | 57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 146 | 73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 146 | 76 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 148 | 92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 148 | 95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 150 | 110 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 150 | 113 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 152 | 128 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 152 | 131 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 154 | 146 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 154 | 143 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

HIPOTESIS 8

hipo 8 temperatura -

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 8 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 9 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 9 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 10 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 11 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 12 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 12 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 13 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | 14 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | 15 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9 | 15 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9 | 23 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 | 23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 | 24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11 | 24 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11 | 25 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12 | 25 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12 | 26 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 13 | 26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 13 | 27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 14 | 27 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 14 | 28 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 15 | 28 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 15 | 29 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 16 | 29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 16 | 30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 17 | 30 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 17 | 31 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 18 | 31 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 18 | 32 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 19 | 32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 19 | 40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20 | 40 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20 | 41 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 21 | 41 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 21 | 42 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 22 | 42 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 22 | 43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 23 | 43 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 23 | 44 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 24 | 44 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 24 | 45 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 25 | 45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 25 | 46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 26 | 46 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 26 | 47 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 27 | 47 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 27 | 48 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 28 | 48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 28 | 49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 29 | 49 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 29 | 59 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 31 | 60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 31 | 61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 32 | 61 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 32 | 62 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 33 | 62 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 33 | 63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 34 | 63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 34 | 64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 35 | 64 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 35 | 65 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 36 | 65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 36 | 66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 37 | 66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 37 | 67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 38 | 67 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 38 | 68 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 39 | 68 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 39 | 78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 40 | 78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 40 | 79 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 41 | 79 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 41 | 80 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 42 | 80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 42 | 81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 43 | 81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 43 | 82 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 44 | 82 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 44 | 83 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 45 | 83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 45 | 84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 46 | 84 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 46 | 85 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 47 | 85 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 47 | 86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 48 | 86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 48 | 87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 49 | 87 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 49 | 97 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 50 | 97 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 50 | 98 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 51 | 98 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 51 | 99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 52 | 99 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 52 | 100 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 53 | 100 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 53 | 101 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 54 | 101 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 54 | 102 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 55 | 102 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 55 | 103 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 56 | 103 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 56 | 104 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 57 | 104 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 57 | 105 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 58 | 105 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 58 | 106 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 59 | 106 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 59 | 115 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 60 | 115 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 60 | 116 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 61 | 116 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 61 | 117 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 62 | 117 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 62 | 118 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 63 | 118 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 63 | 119 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 64 | 119 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 64 | 120 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 65 | 120 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 65 | 121 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 66 | 121 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 66 | 122 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 67 | 122 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 67 | 123 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 68 | 123 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 68 | 124 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 69 | 124 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 69 | 133 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 70 | 133 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 70 | 134 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 71 | 134 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 71 | 135 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 72 | 135 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 72 | 136 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 73 | 136 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 73 | 137 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 74 | 137 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 74 | 138 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 75 | 138 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 75 | 139 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 76 | 139 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 76 | 140 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 77 | 16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 77 | 17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 78 | 17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 78 | 18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 79 | 33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 79 | 34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 80 | 34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 80 | 35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 81 | 50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 81 | 51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 82 | 51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 82 | 52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 83 | 52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 83 | 53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 84 | 53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 84 | 54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 85 | 69 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 85 | 70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 86 | 70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 86 | 71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 87 | 71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 87 | 72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 88 | 72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 88 | 73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 89 | 88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 89 | 89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 90 | 89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 90 | 90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 91 | 90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 91 | 91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 92 | 91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 92 | 92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 93 | 107 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 93 | 108 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 94 | 108 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 94 | 109 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95 | 109 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95 | 110 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 96 | 125 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 96 | 126 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 97 | 126 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 97 | 127 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 98 | 127 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 98 | 128 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 55 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 111 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 129 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 141 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 117 | 6 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 117 | 7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 118 | 145 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 118 | 146 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 3 | 0.00 | 0.00 | -0.02 | 0.00 | 0.02 | 0.00 |
| 119 | 1 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 | 0.00 |
| 120 | 1 | 0.00 | 0.00 | -0.02 | 0.00 | 0.02 | 0.00 |
| 120 | 5 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 | 0.00 |
| 121 | 20 | 0.00 | 0.00 | 0.00 | 0.00 | -0.04 | 0.00 |
| 121 | 15 | 0.00 | 0.00 | 0.00 | 0.00 | -0.04 | 0.00 |
| 122 | 15 | 0.00 | 0.00 | 0.00 | 0.00 | -0.04 | 0.00 |
| 122 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | -0.04 | 0.00 |
| 123 | 37 | 0.00 | 0.00 | -0.10 | 0.00 | -0.04 | 0.00 |
| 123 | 32 | 0.00 | 0.00 | 0.10 | 0.00 | -0.04 | 0.00 |

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|---|---|---|---|---|---|---|---|
| 124 | 32 | 0.00 | 0.00 | -0.10 | 0.00 | -0.04 | 0.00 |
| 124 | 39 | 0.00 | 0.00 | 0.10 | 0.00 | -0.04 | 0.00 |
| 125 | 56 | 0.00 | 0.00 | 0.05 | 0.00 | -0.04 | 0.00 |
| 125 | 49 | 0.00 | 0.00 | -0.05 | 0.00 | -0.04 | 0.00 |
| 126 | 49 | 0.00 | 0.00 | 0.05 | 0.00 | -0.04 | 0.00 |
| 126 | 58 | 0.00 | 0.00 | -0.05 | 0.00 | -0.04 | 0.00 |
| 127 | 75 | 0.00 | 0.00 | -0.06 | 0.00 | -0.04 | 0.00 |
| 127 | 68 | 0.00 | 0.00 | 0.06 | 0.00 | -0.04 | 0.00 |
| 128 | 68 | 0.00 | 0.00 | -0.06 | 0.00 | -0.04 | 0.00 |
| 128 | 77 | 0.00 | 0.00 | 0.06 | 0.00 | -0.04 | 0.00 |
| 129 | 94 | 0.00 | 0.00 | -0.03 | 0.00 | -0.05 | 0.00 |
| 129 | 87 | 0.00 | 0.00 | 0.03 | 0.00 | -0.05 | 0.00 |
| 130 | 87 | 0.00 | 0.00 | -0.03 | 0.00 | -0.05 | 0.00 |
| 130 | 96 | 0.00 | 0.00 | 0.03 | 0.00 | -0.05 | 0.00 |
| 131 | 112 | 0.00 | 0.00 | -0.01 | 0.00 | 0.01 | 0.00 |
| 131 | 106 | 0.00 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 132 | 106 | 0.00 | 0.00 | -0.01 | 0.00 | 0.01 | 0.00 |
| 132 | 114 | 0.00 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 133 | 130 | 0.00 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 133 | 124 | 0.00 | 0.00 | -0.01 | 0.00 | 0.01 | 0.00 |
| 134 | 124 | 0.00 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 134 | 132 | 0.00 | 0.00 | -0.01 | 0.00 | 0.01 | 0.00 |
| 135 | 142 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 136 | 140 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 136 | 144 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 138 | 7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 138 | 4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 140 | 18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 140 | 21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 142 | 35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 142 | 38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 144 | 54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 144 | 57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 146 | 73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 146 | 76 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 148 | 92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 148 | 95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 150 | 110 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 150 | 113 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 152 | 128 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 152 | 131 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 154 | 146 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 154 | 143 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |



HIPOTESIS 9

hipo 9 gradiente de temperatura

E S F U E R Z O S E N B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 24.78 | -0.03 | 0.07 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -24.78 | 0.03 | -0.07 | 0.15 | 111.51 |
| 2 | 8 | 0.00 | 24.78 | -0.03 | 0.07 | -0.15 | -111.51 |
| 2 | 9 | 0.00 | -24.78 | 0.03 | -0.07 | 0.31 | 223.01 |
| 3 | 9 | 0.00 | 24.78 | -0.03 | 0.07 | -0.31 | -223.01 |
| 3 | 10 | 0.00 | -24.78 | 0.03 | -0.07 | 0.46 | 334.52 |
| 4 | 10 | 0.00 | 24.78 | -0.03 | 0.07 | -0.46 | -334.52 |
| 4 | 11 | 0.00 | -24.78 | 0.03 | -0.07 | 0.61 | 446.02 |
| 5 | 11 | 0.00 | 24.78 | -0.03 | 0.07 | -0.61 | -446.02 |
| 5 | 12 | 0.00 | -24.78 | 0.03 | -0.07 | 0.77 | 557.53 |
| 6 | 12 | 0.00 | 24.78 | -0.03 | 0.07 | -0.77 | -557.53 |
| 6 | 13 | 0.00 | -24.78 | 0.03 | -0.07 | 0.92 | 669.03 |
| 7 | 13 | 0.00 | 24.78 | -0.03 | 0.07 | -0.92 | -669.03 |
| 7 | 14 | 0.00 | -24.78 | 0.03 | -0.07 | 1.07 | 780.54 |
| 8 | 14 | 0.00 | 24.78 | -0.03 | 0.07 | -1.07 | -780.54 |
| 8 | 15 | 0.00 | -24.78 | 0.03 | -0.07 | 1.22 | 892.04 |
| 9 | 15 | 0.00 | -4.53 | 0.03 | -0.08 | -1.22 | -892.04 |
| 9 | 23 | 0.00 | 4.53 | -0.03 | 0.08 | 1.10 | 871.64 |
| 10 | 23 | 0.00 | -4.53 | 0.03 | -0.08 | -1.10 | -871.64 |
| 10 | 24 | 0.00 | 4.53 | -0.03 | 0.08 | 0.97 | 851.24 |
| 11 | 24 | 0.00 | -4.53 | 0.03 | -0.08 | -0.97 | -851.24 |
| 11 | 25 | 0.00 | 4.53 | -0.03 | 0.08 | 0.84 | 830.83 |
| 12 | 25 | 0.00 | -4.53 | 0.03 | -0.08 | -0.84 | -830.83 |
| 12 | 26 | 0.00 | 4.53 | -0.03 | 0.08 | 0.71 | 810.43 |
| 13 | 26 | 0.00 | -4.53 | 0.03 | -0.08 | -0.71 | -810.43 |
| 13 | 27 | 0.00 | 4.53 | -0.03 | 0.08 | 0.59 | 790.03 |
| 14 | 27 | 0.00 | -4.53 | 0.03 | -0.08 | -0.59 | -790.03 |
| 14 | 28 | 0.00 | 4.53 | -0.03 | 0.08 | 0.46 | 769.63 |
| 15 | 28 | 0.00 | -4.53 | 0.03 | -0.08 | -0.46 | -769.62 |
| 15 | 29 | 0.00 | 4.53 | -0.03 | 0.08 | 0.33 | 749.22 |
| 16 | 29 | 0.00 | -4.53 | 0.03 | -0.08 | -0.33 | -749.22 |
| 16 | 30 | 0.00 | 4.53 | -0.03 | 0.08 | 0.20 | 728.82 |
| 17 | 30 | 0.00 | -4.53 | 0.03 | -0.08 | -0.20 | -728.82 |
| 17 | 31 | 0.00 | 4.53 | -0.03 | 0.08 | 0.07 | 708.42 |
| 18 | 31 | 0.00 | -4.53 | 0.03 | -0.08 | -0.07 | -708.42 |
| 18 | 32 | 0.00 | 4.53 | -0.03 | 0.08 | -0.05 | 688.01 |
| 19 | 32 | 0.00 | 1.15 | 0.00 | 0.02 | 0.05 | -688.01 |
| 19 | 40 | 0.00 | -1.15 | 0.00 | -0.02 | -0.05 | 693.21 |
| 20 | 40 | 0.00 | 1.15 | 0.00 | 0.02 | 0.05 | -693.21 |
| 20 | 41 | 0.00 | -1.15 | 0.00 | -0.02 | -0.05 | 698.40 |
| 21 | 41 | 0.00 | 1.15 | 0.00 | 0.02 | 0.05 | -698.40 |
| 21 | 42 | 0.00 | -1.15 | 0.00 | -0.02 | -0.05 | 703.60 |
| 22 | 42 | 0.00 | 1.15 | 0.00 | 0.02 | 0.05 | -703.60 |
| 22 | 43 | 0.00 | -1.15 | 0.00 | -0.02 | -0.05 | 708.79 |
| 23 | 43 | 0.00 | 1.15 | 0.00 | 0.02 | 0.05 | -708.79 |
| 23 | 44 | 0.00 | -1.15 | 0.00 | -0.02 | -0.04 | 713.98 |
| 24 | 44 | 0.00 | 1.15 | 0.00 | 0.02 | 0.04 | -713.98 |
| 24 | 45 | 0.00 | -1.15 | 0.00 | -0.02 | -0.04 | 719.18 |
| 25 | 45 | 0.00 | 1.15 | 0.00 | 0.02 | 0.04 | -719.18 |
| 25 | 46 | 0.00 | -1.15 | 0.00 | -0.02 | -0.04 | 724.37 |
| 26 | 46 | 0.00 | 1.15 | 0.00 | 0.02 | 0.04 | -724.37 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 26 | 47 | 0.00 | -1.15 | 0.00 | -0.02 | -0.04 | 729.57 |
| 27 | 47 | 0.00 | 1.15 | 0.00 | 0.02 | 0.04 | -729.57 |
| 27 | 48 | 0.00 | -1.15 | 0.00 | -0.02 | -0.04 | 734.76 |
| 28 | 48 | 0.00 | 1.15 | 0.00 | 0.02 | 0.04 | -734.76 |
| 28 | 49 | 0.00 | -1.15 | 0.00 | -0.02 | -0.04 | 739.95 |
| 29 | 49 | 0.00 | -0.35 | 0.00 | 0.00 | 0.04 | -739.95 |
| 29 | 59 | 0.00 | 0.35 | 0.00 | 0.00 | -0.04 | 738.36 |
| 30 | 59 | 0.00 | -0.35 | 0.00 | 0.00 | 0.04 | -738.36 |
| 30 | 60 | 0.00 | 0.35 | 0.00 | 0.00 | -0.03 | 736.77 |
| 31 | 60 | 0.00 | -0.35 | 0.00 | 0.00 | 0.03 | -736.77 |
| 31 | 61 | 0.00 | 0.35 | 0.00 | 0.00 | -0.03 | 735.19 |
| 32 | 61 | 0.00 | -0.35 | 0.00 | 0.00 | 0.03 | -735.19 |
| 32 | 62 | 0.00 | 0.35 | 0.00 | 0.00 | -0.03 | 733.60 |
| 33 | 62 | 0.00 | -0.35 | 0.00 | 0.00 | 0.03 | -733.60 |
| 33 | 63 | 0.00 | 0.35 | 0.00 | 0.00 | -0.03 | 732.01 |
| 34 | 63 | 0.00 | -0.35 | 0.00 | 0.00 | 0.03 | -732.01 |
| 34 | 64 | 0.00 | 0.35 | 0.00 | 0.00 | -0.03 | 730.42 |
| 35 | 64 | 0.00 | -0.35 | 0.00 | 0.00 | 0.03 | -730.42 |
| 35 | 65 | 0.00 | 0.35 | 0.00 | 0.00 | -0.03 | 728.83 |
| 36 | 65 | 0.00 | -0.35 | 0.00 | 0.00 | 0.03 | -728.83 |
| 36 | 66 | 0.00 | 0.35 | 0.00 | 0.00 | -0.03 | 727.24 |
| 37 | 66 | 0.00 | -0.35 | 0.00 | 0.00 | 0.03 | -727.24 |
| 37 | 67 | 0.00 | 0.35 | 0.00 | 0.00 | -0.03 | 725.65 |
| 38 | 67 | 0.00 | -0.35 | 0.00 | 0.00 | 0.03 | -725.65 |
| 38 | 68 | 0.00 | 0.35 | 0.00 | 0.00 | -0.03 | 724.06 |
| 39 | 68 | 0.00 | 0.35 | 0.00 | 0.00 | 0.03 | -724.06 |
| 39 | 78 | 0.00 | -0.35 | 0.00 | 0.00 | -0.02 | 725.64 |
| 40 | 78 | 0.00 | 0.35 | 0.00 | 0.00 | 0.02 | -725.64 |
| 40 | 79 | 0.00 | -0.35 | 0.00 | 0.00 | -0.02 | 727.22 |
| 41 | 79 | 0.00 | 0.35 | 0.00 | 0.00 | 0.02 | -727.22 |
| 41 | 80 | 0.00 | -0.35 | 0.00 | 0.00 | -0.02 | 728.79 |
| 42 | 80 | 0.00 | 0.35 | 0.00 | 0.00 | 0.02 | -728.79 |
| 42 | 81 | 0.00 | -0.35 | 0.00 | 0.00 | -0.01 | 730.37 |
| 43 | 81 | 0.00 | 0.35 | 0.00 | 0.00 | 0.01 | -730.37 |
| 43 | 82 | 0.00 | -0.35 | 0.00 | 0.00 | -0.01 | 731.95 |
| 44 | 82 | 0.00 | 0.35 | 0.00 | 0.00 | 0.01 | -731.95 |
| 44 | 83 | 0.00 | -0.35 | 0.00 | 0.00 | -0.01 | 733.53 |
| 45 | 83 | 0.00 | 0.35 | 0.00 | 0.00 | 0.01 | -733.53 |
| 45 | 84 | 0.00 | -0.35 | 0.00 | 0.00 | 0.00 | 735.10 |
| 46 | 84 | 0.00 | 0.35 | 0.00 | 0.00 | 0.00 | -735.10 |
| 46 | 85 | 0.00 | -0.35 | 0.00 | 0.00 | 0.00 | 736.68 |
| 47 | 85 | 0.00 | 0.35 | 0.00 | 0.00 | 0.00 | -736.68 |
| 47 | 86 | 0.00 | -0.35 | 0.00 | 0.00 | 0.00 | 738.26 |
| 48 | 86 | 0.00 | 0.35 | 0.00 | 0.00 | 0.00 | -738.26 |
| 48 | 87 | 0.00 | -0.35 | 0.00 | 0.00 | 0.01 | 739.83 |
| 49 | 87 | 0.00 | -1.14 | 0.00 | -0.01 | -0.01 | -739.83 |
| 49 | 97 | 0.00 | 1.14 | 0.00 | 0.01 | 0.02 | 734.70 |
| 50 | 97 | 0.00 | -1.14 | 0.00 | -0.01 | -0.02 | -734.70 |
| 50 | 98 | 0.00 | 1.14 | 0.00 | 0.01 | 0.02 | 729.56 |
| 51 | 98 | 0.00 | -1.14 | 0.00 | -0.01 | -0.02 | -729.56 |
| 51 | 99 | 0.00 | 1.14 | 0.00 | 0.01 | 0.03 | 724.42 |
| 52 | 99 | 0.00 | -1.14 | 0.00 | -0.01 | -0.03 | -724.42 |
| 52 | 100 | 0.00 | 1.14 | 0.00 | 0.01 | 0.04 | 719.28 |
| 53 | 100 | 0.00 | -1.14 | 0.00 | -0.01 | -0.04 | -719.28 |
| 53 | 101 | 0.00 | 1.14 | 0.00 | 0.01 | 0.05 | 714.14 |
| 54 | 101 | 0.00 | -1.14 | 0.00 | -0.01 | -0.05 | -714.14 |
| 54 | 102 | 0.00 | 1.14 | 0.00 | 0.01 | 0.06 | 709.00 |
| 55 | 102 | 0.00 | -1.14 | 0.00 | -0.01 | -0.06 | -709.00 |
| 55 | 103 | 0.00 | 1.14 | 0.00 | 0.01 | 0.07 | 703.87 |
| 56 | 103 | 0.00 | -1.14 | 0.00 | -0.01 | -0.07 | -703.87 |
| 56 | 104 | 0.00 | 1.14 | 0.00 | 0.01 | 0.07 | 698.73 |
| 57 | 104 | 0.00 | -1.14 | 0.00 | -0.01 | -0.07 | -698.73 |
| 57 | 105 | 0.00 | 1.14 | 0.00 | 0.01 | 0.08 | 693.59 |
| 58 | 105 | 0.00 | -1.14 | 0.00 | -0.01 | -0.08 | -693.59 |
| 58 | 106 | 0.00 | 1.14 | 0.00 | 0.01 | 0.09 | 688.45 |
| 59 | 106 | 0.00 | 4.51 | -0.02 | 0.08 | -0.09 | -688.45 |
| 59 | 115 | 0.00 | -4.51 | 0.02 | -0.08 | 0.16 | 708.74 |
| 60 | 115 | 0.00 | 4.51 | -0.02 | 0.08 | -0.16 | -708.74 |
| 60 | 116 | 0.00 | -4.51 | 0.02 | -0.08 | 0.24 | 729.04 |
| 61 | 116 | 0.00 | 4.51 | -0.02 | 0.08 | -0.24 | -729.04 |
| 61 | 117 | 0.00 | -4.51 | 0.02 | -0.08 | 0.31 | 749.33 |
| 62 | 117 | 0.00 | 4.51 | -0.02 | 0.08 | -0.31 | -749.33 |
| 62 | 118 | 0.00 | -4.51 | 0.02 | -0.08 | 0.38 | 769.62 |
| 63 | 118 | 0.00 | 4.51 | -0.02 | 0.08 | -0.38 | -769.62 |
| 63 | 119 | 0.00 | -4.51 | 0.02 | -0.08 | 0.45 | 789.92 |
| 64 | 119 | 0.00 | 4.51 | -0.02 | 0.08 | -0.45 | -789.92 |
| 64 | 120 | 0.00 | -4.51 | 0.02 | -0.08 | 0.53 | 810.21 |
| 65 | 120 | 0.00 | 4.51 | -0.02 | 0.08 | -0.53 | -810.21 |
| 65 | 121 | 0.00 | -4.51 | 0.02 | -0.08 | 0.60 | 830.50 |
| 66 | 121 | 0.00 | 4.51 | -0.02 | 0.08 | -0.60 | -830.50 |
| 66 | 122 | 0.00 | -4.51 | 0.02 | -0.08 | 0.67 | 850.79 |
| 67 | 122 | 0.00 | 4.51 | -0.02 | 0.08 | -0.67 | -850.79 |
| 67 | 123 | 0.00 | -4.51 | 0.02 | -0.08 | 0.75 | 871.09 |
| 68 | 123 | 0.00 | 4.51 | -0.02 | 0.08 | -0.75 | -871.09 |
| 68 | 124 | 0.00 | -4.51 | 0.02 | -0.08 | 0.82 | 891.38 |
| 69 | 124 | 0.00 | -24.76 | 0.02 | -0.08 | -0.82 | -891.38 |
| 69 | 133 | 0.00 | 24.76 | -0.02 | 0.08 | 0.72 | 779.96 |
| 70 | 133 | 0.00 | -24.76 | 0.02 | -0.08 | -0.72 | -779.96 |
| 70 | 134 | 0.00 | 24.76 | -0.02 | 0.08 | 0.61 | 668.54 |
| 71 | 134 | 0.00 | -24.76 | 0.02 | -0.08 | -0.61 | -668.54 |
| 71 | 135 | 0.00 | 24.76 | -0.02 | 0.08 | 0.51 | 557.11 |
| 72 | 135 | 0.00 | -24.76 | 0.02 | -0.08 | -0.51 | -557.11 |
| 72 | 136 | 0.00 | 24.76 | -0.02 | 0.08 | 0.41 | 445.69 |
| 73 | 136 | 0.00 | -24.76 | 0.02 | -0.08 | -0.41 | -445.69 |
| 73 | 137 | 0.00 | 24.76 | -0.02 | 0.08 | 0.31 | 334.27 |
| 74 | 137 | 0.00 | -24.76 | 0.02 | -0.08 | -0.31 | -334.27 |
| 74 | 138 | 0.00 | 24.76 | -0.02 | 0.08 | 0.20 | 222.85 |
| 75 | 138 | 0.00 | -24.76 | 0.02 | -0.08 | -0.20 | -222.85 |
| 75 | 139 | 0.00 | 24.76 | -0.02 | 0.08 | 0.10 | 111.42 |
| 76 | 139 | 0.00 | -24.76 | 0.02 | -0.08 | -0.10 | -111.42 |
| 76 | 140 | 0.00 | 24.76 | -0.02 | 0.08 | 0.00 | 0.00 |
| 77 | 16 | -29.31 | 0.00 | 0.06 | 0.00 | -0.60 | 0.00 |
| 77 | 17 | 29.31 | 0.00 | -0.06 | 0.00 | 0.27 | 0.00 |
| 78 | 17 | -29.31 | 0.00 | 0.06 | 0.00 | -0.27 | 0.00 |
| 78 | 18 | 29.31 | 0.00 | -0.06 | 0.00 | -0.04 | 0.00 |
| 79 | 33 | 5.69 | 0.00 | -0.03 | 0.00 | 0.31 | 0.00 |
| 79 | 34 | -5.69 | 0.00 | 0.03 | 0.00 | -0.09 | 0.00 |
| 80 | 34 | 5.69 | 0.00 | -0.03 | 0.00 | 0.09 | 0.00 |
| 80 | 35 | -5.69 | 0.00 | 0.03 | 0.00 | 0.05 | 0.00 |
| 81 | 50 | -1.51 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 81 | 51 | 1.51 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 82 | 51 | -1.51 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 82 | 52 | 1.51 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 83 | 52 | -1.51 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| 83 | 53 | 1.51 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 84 | 53 | -1.51 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| 84 | 54 | 1.51 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 85 | 69 | 0.70 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| 85 | 70 | -0.70 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 86 | 70 | 0.70 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| 86 | 71 | -0.70 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 87 | 71 | 0.70 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 87 | 72 | -0.70 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 88 | 72 | 0.70 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 88 | 73 | -0.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 89 | 88 | -1.49 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 |
| 89 | 89 | 1.49 | 0.00 | 0.00 | 0.00 | -0.03 | 0.00 |
| 90 | 89 | -1.49 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 |
| 90 | 90 | 1.49 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 91 | 90 | -1.49 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 91 | 91 | 1.49 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 92 | 91 | -1.49 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 92 | 92 | 1.49 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 93 | 107 | 5.65 | 0.00 | -0.01 | 0.00 | 0.17 | 0.00 |
| 93 | 108 | -5.65 | 0.00 | 0.01 | 0.00 | -0.15 | 0.00 |
| 94 | 108 | 5.65 | 0.00 | -0.01 | 0.00 | 0.15 | 0.00 |
| 94 | 109 | -5.65 | 0.00 | 0.01 | 0.00 | -0.01 | 0.00 |
| 95 | 109 | 5.65 | 0.00 | -0.01 | 0.00 | 0.01 | 0.00 |
| 95 | 110 | -5.65 | 0.00 | 0.01 | 0.00 | 0.06 | 0.00 |
| 96 | 125 | -29.27 | 0.00 | 0.04 | 0.00 | -0.53 | 0.00 |
| 96 | 126 | 29.27 | 0.00 | -0.04 | 0.00 | 0.49 | 0.00 |
| 97 | 126 | -29.27 | 0.00 | 0.04 | 0.00 | -0.49 | 0.00 |
| 97 | 127 | 29.27 | 0.00 | -0.04 | 0.00 | 0.10 | 0.00 |
| 98 | 127 | -29.27 | 0.00 | 0.04 | 0.00 | -0.10 | 0.00 |
| 98 | 128 | 29.27 | 0.00 | -0.04 | 0.00 | -0.09 | 0.00 |
| 99 | 2 | 12.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -12.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 12.39 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -12.39 | 0.00 | 0.03 | 0.00 | 0.06 | 0.00 |
| 101 | 19 | -14.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | 14.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | -14.65 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | 14.65 | 0.00 | -0.06 | 0.00 | -0.11 | 0.00 |
| 103 | 36 | 2.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -2.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 2.83 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -2.83 | 0.00 | 0.03 | 0.00 | 0.05 | 0.00 |
| 105 | 55 | -0.76 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | 0.76 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | -0.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | 0.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 74 | 0.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -0.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 0.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -0.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 93 | -0.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | 0.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | -0.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | 0.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 111 | 2.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -2.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 2.81 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -2.81 | 0.00 | 0.01 | 0.00 | 0.02 | 0.00 |
| 113 | 129 | -14.66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | 14.66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | -14.61 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | 14.61 | 0.00 | -0.04 | 0.00 | -0.07 | 0.00 |
| 115 | 141 | 12.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -12.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 12.38 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -12.38 | 0.00 | 0.02 | 0.00 | 0.04 | 0.00 |
| 117 | 6 | 24.78 | 0.00 | -0.03 | 0.00 | 0.03 | 0.00 |
| 117 | 7 | -24.78 | 0.00 | 0.03 | 0.00 | 0.01 | 0.00 |
| 118 | 145 | 24.76 | 0.00 | -0.02 | 0.00 | -0.02 | 0.00 |
| 118 | 146 | -24.76 | 0.00 | 0.02 | 0.00 | 0.04 | 0.00 |
| 119 | 3 | 0.00 | 12.39 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -12.39 | 0.00 | 0.00 | 0.00 | 52.66 |
| 120 | 1 | 0.03 | -12.39 | 0.00 | 0.00 | 0.00 | -52.59 |
| 120 | 5 | -0.03 | 12.39 | 0.00 | 0.00 | 0.00 | -0.06 |
| 121 | 20 | 0.00 | -14.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | 14.67 | 0.00 | 0.00 | 0.00 | -27.14 |
| 122 | 15 | -0.06 | 14.65 | 0.00 | 0.00 | 0.00 | 26.99 |
| 122 | 22 | 0.06 | -14.65 | 0.00 | 0.00 | 0.00 | 0.11 |
| 123 | 37 | 0.00 | 2.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | -2.86 | 0.00 | 0.00 | 0.00 | 5.29 |
| 124 | 32 | 0.03 | -2.83 | 0.00 | 0.00 | 0.00 | -5.19 |
| 124 | 39 | -0.03 | 2.83 | 0.00 | 0.00 | 0.00 | -0.05 |
| 125 | 56 | 0.00 | -0.76 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.00 | 0.76 | 0.00 | 0.00 | 0.00 | -1.40 |
| 126 | 49 | 0.00 | 0.75 | 0.00 | 0.00 | 0.00 | 1.38 |
| 126 | 58 | 0.00 | -0.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 75 | 0.00 | 0.35 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.00 | -0.35 | 0.00 | 0.00 | 0.00 | 0.65 |
| 128 | 68 | 0.00 | -0.35 | 0.00 | 0.00 | 0.00 | -0.65 |
| 128 | 77 | 0.00 | 0.35 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 94 | 0.00 | -0.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | 0.75 | 0.00 | 0.00 | 0.00 | -1.38 |
| 130 | 87 | 0.00 | 0.74 | 0.00 | 0.00 | 0.00 | 1.38 |
| 130 | 96 | 0.00 | -0.74 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 112 | 0.00 | 2.84 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | -2.84 | 0.00 | 0.00 | 0.00 | 5.26 |
| 132 | 106 | 0.01 | -2.81 | 0.00 | 0.00 | 0.00 | -5.17 |
| 132 | 114 | -0.01 | 2.81 | 0.00 | 0.00 | 0.00 | -0.02 |
| 133 | 130 | 0.00 | -14.66 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | 14.66 | 0.00 | 0.00 | 0.00 | -27.12 |
| 134 | 124 | -0.04 | 14.61 | 0.00 | 0.00 | 0.00 | 26.96 |
| 134 | 132 | 0.04 | -14.61 | 0.00 | 0.00 | 0.00 | 0.07 |
| 135 | 142 | 0.00 | 12.39 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -12.39 | 0.00 | 0.00 | 0.00 | 52.64 |
| 136 | 140 | 0.02 | -12.38 | 0.00 | 0.00 | 0.00 | -52.56 |
| 136 | 144 | -0.02 | 12.38 | 0.00 | 0.00 | 0.00 | -0.04 |
| 137 | 2 | 0.00 | -12.39 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 12.39 | 0.00 | 0.00 | 0.00 | -52.66 |
| 138 | 7 | -0.03 | 12.39 | 0.00 | 0.00 | 0.00 | 52.65 |
| 138 | 4 | 0.03 | -12.39 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | 14.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | -14.67 | 0.00 | 0.00 | 0.00 | 27.14 |
| 140 | 18 | 0.06 | -14.65 | 0.00 | 0.00 | 0.00 | -27.09 |
| 140 | 21 | -0.06 | 14.65 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -2.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 2.86 | 0.00 | 0.00 | 0.00 | -5.29 |
| 142 | 35 | -0.03 | 2.83 | 0.00 | 0.00 | 0.00 | 5.23 |
| 142 | 38 | 0.03 | -2.83 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | 0.76 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | -0.76 | 0.00 | 0.00 | 0.00 | 1.40 |
| 144 | 54 | 0.00 | -0.75 | 0.00 | 0.00 | 0.00 | -1.39 |
| 144 | 57 | 0.00 | 0.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | -0.35 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 0.35 | 0.00 | 0.00 | 0.00 | -0.65 |
| 146 | 73 | 0.00 | 0.35 | 0.00 | 0.00 | 0.00 | 0.65 |
| 146 | 76 | 0.00 | -0.35 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | 0.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | -0.75 | 0.00 | 0.00 | 0.00 | 1.38 |
| 148 | 92 | 0.00 | -0.74 | 0.00 | 0.00 | 0.00 | -1.38 |
| 148 | 95 | 0.00 | 0.74 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | -2.84 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 2.84 | 0.00 | 0.00 | 0.00 | -5.26 |
| 150 | 110 | -0.01 | 2.81 | 0.00 | 0.00 | 0.00 | 5.20 |
| 150 | 113 | 0.01 | -2.81 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | 14.66 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | -14.66 | 0.00 | 0.00 | 0.00 | 27.12 |
| 152 | 128 | 0.04 | -14.61 | 0.00 | 0.00 | 0.00 | -27.03 |
| 152 | 131 | -0.04 | 14.61 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -12.39 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 12.39 | 0.00 | 0.00 | 0.00 | -52.64 |
| 154 | 146 | -0.02 | 12.38 | 0.00 | 0.00 | 0.00 | 52.60 |
| 154 | 143 | 0.02 | -12.38 | 0.00 | 0.00 | 0.00 | 0.00 |

HIPOTESIS 10

hipo 10 fluencia y retraccion

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 8 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 8 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 9 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 9 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 10 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 10 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 11 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 11 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 12 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 12 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 13 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 13 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 14 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | 14 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | 15 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9 | 15 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9 | 23 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 | 23 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 | 24 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11 | 24 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11 | 25 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12 | 25 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12 | 26 | -0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 13 | 26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 13 | 27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 14 | 27 | -0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 14 | 28 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 15 | 28 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 15 | 29 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 16 | 29 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 16 | 30 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 17 | 30 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 17 | 31 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 18 | 31 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 18 | 32 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 19 | 32 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 19 | 40 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20 | 40 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20 | 41 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 21 | 41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 21 | 42 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 22 | 42 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 22 | 43 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 23 | 43 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 23 | 44 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 24 | 44 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 24 | 45 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 25 | 45 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 25 | 46 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 26 | 46 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 26 | 47 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 27 | 47 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 27 | 48 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 28 | 48 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 28 | 49 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 29 | 49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 29 | 59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 59 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 60 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 31 | 60 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 31 | 61 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 32 | 61 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 32 | 62 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 33 | 62 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 33 | 63 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 34 | 63 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 34 | 64 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 35 | 64 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 35 | 65 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 36 | 65 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 36 | 66 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 37 | 66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 37 | 67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 38 | 67 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 38 | 68 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 39 | 68 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 39 | 78 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 40 | 78 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 40 | 79 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 41 | 79 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 41 | 80 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 42 | 80 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 42 | 81 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 43 | 81 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 43 | 82 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 44 | 82 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 44 | 83 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 45 | 83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 45 | 84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 46 | 84 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 46 | 85 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 47 | 85 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 47 | 86 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 48 | 86 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 48 | 87 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 49 | 87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 49 | 97 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 50 | 97 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 50 | 98 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 51 | 98 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 51 | 99 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 52 | 99 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 52 | 100 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 53 | 100 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 53 | 101 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 54 | 101 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 54 | 102 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 55 | 102 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 55 | 103 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 56 | 103 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 56 | 104 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 57 | 104 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 57 | 105 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 58 | 105 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 58 | 106 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 59 | 106 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 59 | 115 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 60 | 115 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 60 | 116 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 61 | 116 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 61 | 117 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 62 | 117 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 62 | 118 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 63 | 118 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 63 | 119 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 64 | 119 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 64 | 120 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 65 | 120 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 65 | 121 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 66 | 121 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 66 | 122 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 67 | 122 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 67 | 123 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 68 | 123 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 68 | 124 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 69 | 124 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 69 | 133 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 70 | 133 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 70 | 134 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 71 | 134 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 71 | 135 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 72 | 135 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 72 | 136 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 73 | 136 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 73 | 137 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 74 | 137 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 74 | 138 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 75 | 138 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 75 | 139 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 76 | 139 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 76 | 140 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 77 | 16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 77 | 17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 78 | 17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 78 | 18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 79 | 33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 79 | 34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 80 | 34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 80 | 35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 81 | 50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 81 | 51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 82 | 51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 82 | 52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 83 | 52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 83 | 53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 84 | 53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 84 | 54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 85 | 69 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 85 | 70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 86 | 70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 86 | 71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 87 | 71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 87 | 72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 88 | 72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 88 | 73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 89 | 88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 89 | 89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 90 | 89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 90 | 90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 91 | 90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 91 | 91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 92 | 91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 92 | 92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 93 | 107 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 93 | 108 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 94 | 108 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 94 | 109 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95 | 109 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95 | 110 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 96 | 125 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 96 | 126 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 97 | 126 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 97 | 127 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 98 | 127 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 98 | 128 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 55 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 111 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 129 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 141 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 117 | 6 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 117 | 7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 118 | 145 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 118 | 146 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 3 | 0.00 | 0.00 | -0.04 | 0.00 | -0.01 | 0.00 |
| 119 | 1 | 0.00 | 0.00 | 0.04 | 0.00 | -0.01 | 0.00 |
| 120 | 1 | 0.00 | 0.00 | -0.04 | 0.00 | -0.01 | 0.00 |
| 120 | 5 | 0.00 | 0.00 | 0.04 | 0.00 | -0.01 | 0.00 |
| 121 | 20 | 0.00 | 0.00 | -0.12 | 0.00 | -0.31 | 0.00 |
| 121 | 15 | 0.00 | 0.00 | 0.12 | 0.00 | -0.31 | 0.00 |
| 122 | 15 | 0.00 | 0.00 | -0.12 | 0.00 | -0.31 | 0.00 |
| 122 | 22 | 0.00 | 0.00 | 0.12 | 0.00 | -0.31 | 0.00 |
| 123 | 37 | 0.00 | 0.00 | 0.01 | 0.00 | -0.21 | 0.00 |
| 123 | 32 | 0.00 | 0.00 | -0.01 | 0.00 | -0.21 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 124 | 32 | 0.00 | 0.00 | 0.01 | 0.00 | -0.21 | 0.00 |
| 124 | 39 | 0.00 | 0.00 | -0.01 | 0.00 | -0.21 | 0.00 |
| 125 | 56 | 0.00 | 0.00 | 0.15 | 0.00 | -0.10 | 0.00 |
| 125 | 49 | 0.00 | 0.00 | -0.15 | 0.00 | -0.10 | 0.00 |
| 126 | 49 | 0.00 | 0.00 | 0.15 | 0.00 | -0.10 | 0.00 |
| 126 | 58 | 0.00 | 0.00 | -0.15 | 0.00 | -0.10 | 0.00 |
| 127 | 75 | 0.00 | 0.00 | -0.22 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.00 | 0.00 | 0.22 | 0.00 | 0.00 | 0.00 |
| 128 | 68 | 0.00 | 0.00 | -0.22 | 0.00 | 0.00 | 0.00 |
| 128 | 77 | 0.00 | 0.00 | 0.22 | 0.00 | 0.00 | 0.00 |
| 129 | 94 | 0.00 | 0.00 | -0.08 | 0.00 | 0.11 | 0.00 |
| 129 | 87 | 0.00 | 0.00 | 0.08 | 0.00 | 0.11 | 0.00 |
| 130 | 87 | 0.00 | 0.00 | -0.08 | 0.00 | 0.11 | 0.00 |
| 130 | 96 | 0.00 | 0.00 | 0.08 | 0.00 | 0.11 | 0.00 |
| 131 | 112 | 0.00 | 0.00 | 0.06 | 0.00 | -0.04 | 0.00 |
| 131 | 106 | 0.00 | 0.00 | -0.06 | 0.00 | -0.04 | 0.00 |
| 132 | 106 | 0.00 | 0.00 | 0.06 | 0.00 | -0.04 | 0.00 |
| 132 | 114 | 0.00 | 0.00 | -0.06 | 0.00 | -0.04 | 0.00 |
| 133 | 130 | 0.00 | 0.00 | -0.06 | 0.00 | -0.06 | 0.00 |
| 133 | 124 | 0.00 | 0.00 | 0.06 | 0.00 | -0.06 | 0.00 |
| 134 | 124 | 0.00 | 0.00 | -0.06 | 0.00 | -0.06 | 0.00 |
| 134 | 132 | 0.00 | 0.00 | 0.06 | 0.00 | -0.06 | 0.00 |
| 135 | 142 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 136 | 140 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 136 | 144 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 138 | 7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 138 | 4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 140 | 18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 140 | 21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 142 | 35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 142 | 38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 144 | 54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 144 | 57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 146 | 73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 146 | 76 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 148 | 92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 148 | 95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 150 | 110 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 150 | 113 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 152 | 128 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 152 | 131 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 154 | 146 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 154 | 143 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |



HIPOTESIS 11

hipo 11 asiento-1

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | -4.99 | 0.01 | -0.02 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | 4.99 | -0.01 | 0.02 | -0.04 | -22.45 |
| 2 | 8 | 0.00 | -4.99 | 0.01 | -0.02 | 0.04 | 22.45 |
| 2 | 9 | 0.00 | 4.99 | -0.01 | 0.02 | -0.08 | -44.90 |
| 3 | 9 | 0.00 | -4.99 | 0.01 | -0.02 | 0.08 | 44.90 |
| 3 | 10 | 0.00 | 4.99 | -0.01 | 0.02 | -0.12 | -67.35 |
| 4 | 10 | 0.00 | -4.99 | 0.01 | -0.02 | 0.12 | 67.34 |
| 4 | 11 | 0.00 | 4.99 | -0.01 | 0.02 | -0.16 | -89.79 |
| 5 | 11 | 0.00 | -4.99 | 0.01 | -0.02 | 0.16 | 89.79 |
| 5 | 12 | 0.00 | 4.99 | -0.01 | 0.02 | -0.20 | -112.24 |
| 6 | 12 | 0.00 | -4.99 | 0.01 | -0.02 | 0.20 | 112.24 |
| 6 | 13 | 0.00 | 4.99 | -0.01 | 0.02 | -0.24 | -134.69 |
| 7 | 13 | 0.00 | -4.99 | 0.01 | -0.02 | 0.24 | 134.69 |
| 7 | 14 | 0.00 | 4.99 | -0.01 | 0.02 | -0.28 | -157.14 |
| 8 | 14 | 0.00 | -4.99 | 0.01 | -0.02 | 0.28 | 157.14 |
| 8 | 15 | 0.00 | 4.99 | -0.01 | 0.02 | -0.32 | -179.59 |
| 9 | 15 | 0.00 | 5.00 | -0.01 | 0.02 | 0.32 | 179.59 |
| 9 | 23 | 0.00 | -5.00 | 0.01 | -0.02 | -0.28 | -157.07 |
| 10 | 23 | 0.00 | 5.00 | -0.01 | 0.02 | 0.28 | 157.07 |
| 10 | 24 | 0.00 | -5.00 | 0.01 | -0.02 | -0.24 | -134.54 |
| 11 | 24 | 0.00 | 5.00 | -0.01 | 0.02 | 0.24 | 134.54 |
| 11 | 25 | 0.00 | -5.00 | 0.01 | -0.02 | -0.20 | -112.02 |
| 12 | 25 | 0.00 | 5.00 | -0.01 | 0.02 | 0.20 | 112.02 |
| 12 | 26 | 0.00 | -5.00 | 0.01 | -0.02 | -0.17 | -89.50 |
| 13 | 26 | 0.00 | 5.00 | -0.01 | 0.02 | 0.17 | 89.50 |
| 13 | 27 | 0.00 | -5.00 | 0.01 | -0.02 | -0.13 | -66.98 |
| 14 | 27 | 0.00 | 5.00 | -0.01 | 0.02 | 0.13 | 66.98 |
| 14 | 28 | 0.00 | -5.00 | 0.01 | -0.02 | -0.09 | -44.46 |
| 15 | 28 | 0.00 | 5.00 | -0.01 | 0.02 | 0.09 | 44.46 |
| 15 | 29 | 0.00 | -5.00 | 0.01 | -0.02 | -0.05 | -21.94 |
| 16 | 29 | 0.00 | 5.00 | -0.01 | 0.02 | 0.05 | 21.94 |
| 16 | 30 | 0.00 | -5.00 | 0.01 | -0.02 | -0.02 | 0.58 |
| 17 | 30 | 0.00 | 5.00 | -0.01 | 0.02 | 0.02 | -0.58 |
| 17 | 31 | 0.00 | -5.00 | 0.01 | -0.02 | 0.02 | 23.10 |
| 18 | 31 | 0.00 | 5.00 | -0.01 | 0.02 | -0.02 | -23.10 |
| 18 | 32 | 0.00 | -5.00 | 0.01 | -0.02 | 0.06 | 45.62 |
| 19 | 32 | 0.00 | -1.27 | 0.00 | -0.01 | -0.06 | -45.62 |
| 19 | 40 | 0.00 | 1.27 | 0.00 | 0.01 | 0.05 | 39.92 |
| 20 | 40 | 0.00 | -1.27 | 0.00 | -0.01 | -0.05 | -39.92 |
| 20 | 41 | 0.00 | 1.27 | 0.00 | 0.01 | 0.05 | 34.22 |
| 21 | 41 | 0.00 | -1.27 | 0.00 | -0.01 | -0.05 | -34.22 |
| 21 | 42 | 0.00 | 1.27 | 0.00 | 0.01 | 0.04 | 28.51 |
| 22 | 42 | 0.00 | -1.27 | 0.00 | -0.01 | -0.04 | -28.51 |
| 22 | 43 | 0.00 | 1.27 | 0.00 | 0.01 | 0.04 | 22.81 |
| 23 | 43 | 0.00 | -1.27 | 0.00 | -0.01 | -0.04 | -22.81 |
| 23 | 44 | 0.00 | 1.27 | 0.00 | 0.01 | 0.03 | 17.11 |
| 24 | 44 | 0.00 | -1.27 | 0.00 | -0.01 | -0.03 | -17.11 |
| 24 | 45 | 0.00 | 1.27 | 0.00 | 0.01 | 0.03 | 11.40 |
| 25 | 45 | 0.00 | -1.27 | 0.00 | -0.01 | -0.03 | -11.40 |
| 25 | 46 | 0.00 | 1.27 | 0.00 | 0.01 | 0.02 | 5.70 |
| 26 | 46 | 0.00 | -1.27 | 0.00 | -0.01 | -0.02 | -5.70 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 26 | 47 | 0.00 | 1.27 | 0.00 | 0.01 | 0.02 | -0.01 |
| 27 | 47 | 0.00 | -1.27 | 0.00 | -0.01 | -0.02 | 0.01 |
| 27 | 48 | 0.00 | 1.27 | 0.00 | 0.01 | 0.01 | -5.71 |
| 28 | 48 | 0.00 | -1.27 | 0.00 | -0.01 | -0.01 | 5.71 |
| 28 | 49 | 0.00 | 1.27 | 0.00 | 0.01 | 0.01 | -11.41 |
| 29 | 49 | 0.00 | 0.32 | 0.00 | 0.00 | -0.01 | 11.41 |
| 29 | 59 | 0.00 | -0.32 | 0.00 | 0.00 | 0.01 | -9.99 |
| 30 | 59 | 0.00 | 0.32 | 0.00 | 0.00 | -0.01 | 9.99 |
| 30 | 60 | 0.00 | -0.32 | 0.00 | 0.00 | 0.01 | -8.57 |
| 31 | 60 | 0.00 | 0.32 | 0.00 | 0.00 | -0.01 | 8.57 |
| 31 | 61 | 0.00 | -0.32 | 0.00 | 0.00 | 0.01 | -7.14 |
| 32 | 61 | 0.00 | 0.32 | 0.00 | 0.00 | -0.01 | 7.14 |
| 32 | 62 | 0.00 | -0.32 | 0.00 | 0.00 | 0.00 | -5.72 |
| 33 | 62 | 0.00 | 0.32 | 0.00 | 0.00 | 0.00 | 5.72 |
| 33 | 63 | 0.00 | -0.32 | 0.00 | 0.00 | 0.00 | -4.30 |
| 34 | 63 | 0.00 | 0.32 | 0.00 | 0.00 | 0.00 | 4.30 |
| 34 | 64 | 0.00 | -0.32 | 0.00 | 0.00 | 0.00 | -2.87 |
| 35 | 64 | 0.00 | 0.32 | 0.00 | 0.00 | 0.00 | 2.87 |
| 35 | 65 | 0.00 | -0.32 | 0.00 | 0.00 | 0.00 | -1.45 |
| 36 | 65 | 0.00 | 0.32 | 0.00 | 0.00 | 0.00 | 1.45 |
| 36 | 66 | 0.00 | -0.32 | 0.00 | 0.00 | 0.00 | -0.03 |
| 37 | 66 | 0.00 | 0.32 | 0.00 | 0.00 | 0.00 | 0.03 |
| 37 | 67 | 0.00 | -0.32 | 0.00 | 0.00 | 0.00 | 1.40 |
| 38 | 67 | 0.00 | 0.32 | 0.00 | 0.00 | 0.00 | -1.40 |
| 38 | 68 | 0.00 | -0.32 | 0.00 | 0.00 | 0.00 | 2.82 |
| 39 | 68 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 | -2.82 |
| 39 | 78 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | 2.47 |
| 40 | 78 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 | -2.47 |
| 40 | 79 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | 2.12 |
| 41 | 79 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 | -2.12 |
| 41 | 80 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | 1.77 |
| 42 | 80 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 | -1.77 |
| 42 | 81 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | 1.41 |
| 43 | 81 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 | -1.41 |
| 43 | 82 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | 1.06 |
| 44 | 82 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 | -1.06 |
| 44 | 83 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | 0.71 |
| 45 | 83 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 | -0.71 |
| 45 | 84 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | 0.36 |
| 46 | 84 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 | -0.36 |
| 46 | 85 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | 0.01 |
| 47 | 85 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 | -0.01 |
| 47 | 86 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | -0.35 |
| 48 | 86 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 | 0.35 |
| 48 | 87 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | -0.70 |
| 49 | 87 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.70 |
| 49 | 97 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | -0.61 |
| 50 | 97 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.61 |
| 50 | 98 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | -0.52 |
| 51 | 98 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.52 |
| 51 | 99 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | -0.44 |
| 52 | 99 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.44 |
| 52 | 100 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | -0.35 |
| 53 | 100 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.35 |
| 53 | 101 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | -0.26 |
| 54 | 101 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.26 |
| 54 | 102 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | -0.17 |
| 55 | 102 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.17 |
| 55 | 103 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | -0.09 |
| 56 | 103 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.09 |
| 56 | 104 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 57 | 104 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 57 | 105 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.09 |
| 58 | 105 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | -0.09 |
| 58 | 106 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.17 |
| 59 | 106 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.17 |
| 59 | 115 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 |
| 60 | 115 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.15 |
| 60 | 116 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.13 |
| 61 | 116 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.13 |
| 61 | 117 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 |
| 62 | 117 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.11 |
| 62 | 118 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 |
| 63 | 118 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.09 |
| 63 | 119 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 |
| 64 | 119 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.06 |
| 64 | 120 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 |
| 65 | 120 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.04 |
| 65 | 121 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| 66 | 121 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.02 |
| 66 | 122 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 67 | 122 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 67 | 123 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.02 |
| 68 | 123 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| 68 | 124 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.05 |
| 69 | 124 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 |
| 69 | 133 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.04 |
| 70 | 133 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 |
| 70 | 134 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.03 |
| 71 | 134 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 |
| 71 | 135 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.03 |
| 72 | 135 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 |
| 72 | 136 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.02 |
| 73 | 136 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| 73 | 137 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.02 |
| 74 | 137 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| 74 | 138 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.01 |
| 75 | 138 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| 75 | 139 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.01 |
| 76 | 139 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| 76 | 140 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 77 | 16 | 9.99 | 0.00 | -0.02 | 0.00 | 0.16 | 0.00 |
| 77 | 17 | -9.99 | 0.00 | 0.02 | 0.00 | -0.07 | 0.00 |
| 78 | 17 | 9.99 | 0.00 | -0.02 | 0.00 | 0.07 | 0.00 |
| 78 | 18 | -9.99 | 0.00 | 0.02 | 0.00 | 0.01 | 0.00 |
| 79 | 33 | -6.27 | 0.00 | 0.01 | 0.00 | -0.10 | 0.00 |
| 79 | 34 | 6.27 | 0.00 | -0.01 | 0.00 | 0.03 | 0.00 |
| 80 | 34 | -6.27 | 0.00 | 0.01 | 0.00 | -0.03 | 0.00 |
| 80 | 35 | 6.27 | 0.00 | -0.01 | 0.00 | -0.02 | 0.00 |
| 81 | 50 | 1.58 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| 81 | 51 | -1.58 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 82 | 51 | 1.58 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| 82 | 52 | -1.58 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 83 | 52 | 1.58 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 83 | 53 | -1.58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 84 | 53 | 1.58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 84 | 54 | -1.58 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 85 | 69 | -0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 85 | 70 | 0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 86 | 70 | -0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 86 | 71 | 0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 87 | 71 | -0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 87 | 72 | 0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 88 | 72 | -0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 88 | 73 | 0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 89 | 88 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 89 | 89 | -0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 90 | 89 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 90 | 90 | -0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 91 | 90 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 91 | 91 | -0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 92 | 91 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 92 | 92 | -0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 93 | 107 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 93 | 108 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 94 | 108 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 94 | 109 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95 | 109 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95 | 110 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 96 | 125 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 96 | 126 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 97 | 126 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 97 | 127 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 98 | 127 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 98 | 128 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 2 | -2.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | 2.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | -2.49 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | 2.49 | 0.00 | -0.01 | 0.00 | -0.01 | 0.00 |
| 101 | 19 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 4.99 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -4.99 | 0.00 | 0.02 | 0.00 | 0.03 | 0.00 |
| 103 | 36 | -3.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | 3.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | -3.13 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | 3.13 | 0.00 | -0.01 | 0.00 | -0.02 | 0.00 |
| 105 | 55 | 0.79 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -0.79 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 0.79 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -0.79 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 74 | -0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | -0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 93 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 111 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 129 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 141 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 117 | 6 | -4.99 | 0.00 | 0.01 | 0.00 | -0.01 | 0.00 |
| 117 | 7 | 4.99 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 118 | 145 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 118 | 146 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 3 | 0.00 | -2.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | 2.50 | 0.00 | 0.00 | 0.00 | -10.60 |
| 120 | 1 | -0.01 | 2.49 | 0.00 | 0.00 | 0.00 | 10.59 |
| 120 | 5 | 0.01 | -2.49 | 0.00 | 0.00 | 0.00 | 0.02 |
| 121 | 20 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | -5.00 | 0.00 | 0.00 | 0.00 | 9.25 |
| 122 | 15 | 0.02 | -4.99 | 0.00 | 0.00 | 0.00 | -9.21 |
| 122 | 22 | -0.02 | 4.99 | 0.00 | 0.00 | 0.00 | -0.03 |
| 123 | 37 | 0.00 | -3.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | 3.14 | 0.00 | 0.00 | 0.00 | -5.81 |
| 124 | 32 | -0.01 | 3.13 | 0.00 | 0.00 | 0.00 | 5.78 |
| 124 | 39 | 0.01 | -3.13 | 0.00 | 0.00 | 0.00 | 0.02 |
| 125 | 56 | 0.00 | 0.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.00 | -0.79 | 0.00 | 0.00 | 0.00 | 1.47 |
| 126 | 49 | 0.00 | -0.79 | 0.00 | 0.00 | 0.00 | -1.46 |
| 126 | 58 | 0.00 | 0.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 75 | 0.00 | -0.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.00 | 0.20 | 0.00 | 0.00 | 0.00 | -0.37 |
| 128 | 68 | 0.00 | 0.20 | 0.00 | 0.00 | 0.00 | 0.36 |
| 128 | 77 | 0.00 | -0.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 94 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 | 0.09 |
| 130 | 87 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 | -0.09 |
| 130 | 96 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 112 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | -0.02 |
| 132 | 106 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.02 |
| 132 | 114 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 130 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| 134 | 124 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.01 |
| 134 | 132 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 142 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 136 | 140 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 136 | 144 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 2 | 0.00 | 2.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | -2.49 | 0.00 | 0.00 | 0.00 | 10.60 |
| 138 | 7 | 0.01 | -2.49 | 0.00 | 0.00 | 0.00 | -10.60 |
| 138 | 4 | -0.01 | 2.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -5.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | -9.25 |
| 140 | 18 | -0.02 | 4.99 | 0.00 | 0.00 | 0.00 | 9.24 |
| 140 | 21 | 0.02 | -4.99 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | 3.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | -3.14 | 0.00 | 0.00 | 0.00 | 5.81 |
| 142 | 35 | 0.01 | -3.13 | 0.00 | 0.00 | 0.00 | -5.79 |
| 142 | 38 | -0.01 | 3.13 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -0.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | 0.79 | 0.00 | 0.00 | 0.00 | -1.47 |
| 144 | 54 | 0.00 | 0.79 | 0.00 | 0.00 | 0.00 | 1.46 |
| 144 | 57 | 0.00 | -0.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | -0.20 | 0.00 | 0.00 | 0.00 | 0.37 |
| 146 | 73 | 0.00 | -0.20 | 0.00 | 0.00 | 0.00 | -0.36 |
| 146 | 76 | 0.00 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | -0.09 |
| 148 | 92 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.09 |
| 148 | 95 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.02 |
| 150 | 110 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | -0.02 |
| 150 | 113 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.01 |
| 152 | 128 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| 152 | 131 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 154 | 146 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 154 | 143 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS 12

hipo 12 asiento-2

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 9.99 | -0.02 | 0.04 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -9.99 | 0.02 | -0.04 | 0.09 | 44.97 |
| 2 | 8 | 0.00 | 9.99 | -0.02 | 0.04 | -0.09 | -44.97 |
| 2 | 9 | 0.00 | -9.99 | 0.02 | -0.04 | 0.17 | 89.94 |
| 3 | 9 | 0.00 | 9.99 | -0.02 | 0.04 | -0.17 | -89.94 |
| 3 | 10 | 0.00 | -9.99 | 0.02 | -0.04 | 0.26 | 134.91 |
| 4 | 10 | 0.00 | 9.99 | -0.02 | 0.04 | -0.26 | -134.91 |
| 4 | 11 | 0.00 | -9.99 | 0.02 | -0.04 | 0.35 | 179.88 |
| 5 | 11 | 0.00 | 9.99 | -0.02 | 0.04 | -0.35 | -179.88 |
| 5 | 12 | 0.00 | -9.99 | 0.02 | -0.04 | 0.43 | 224.85 |
| 6 | 12 | 0.00 | 9.99 | -0.02 | 0.04 | -0.43 | -224.85 |
| 6 | 13 | 0.00 | -9.99 | 0.02 | -0.04 | 0.52 | 269.82 |
| 7 | 13 | 0.00 | 9.99 | -0.02 | 0.04 | -0.52 | -269.82 |
| 7 | 14 | 0.00 | -9.99 | 0.02 | -0.04 | 0.60 | 314.79 |
| 8 | 14 | 0.00 | 9.99 | -0.02 | 0.04 | -0.60 | -314.79 |
| 8 | 15 | 0.00 | -9.99 | 0.02 | -0.04 | 0.69 | 359.75 |
| 9 | 15 | 0.00 | -12.89 | 0.02 | -0.05 | -0.69 | -359.75 |
| 9 | 23 | 0.00 | 12.89 | -0.02 | 0.05 | 0.60 | 301.77 |
| 10 | 23 | 0.00 | -12.89 | 0.02 | -0.05 | -0.60 | -301.77 |
| 10 | 24 | 0.00 | 12.89 | -0.02 | 0.05 | 0.52 | 243.78 |
| 11 | 24 | 0.00 | -12.89 | 0.02 | -0.05 | -0.52 | -243.78 |
| 11 | 25 | 0.00 | 12.89 | -0.02 | 0.05 | 0.43 | 185.79 |
| 12 | 25 | 0.00 | -12.89 | 0.02 | -0.05 | -0.43 | -185.79 |
| 12 | 26 | 0.00 | 12.89 | -0.02 | 0.05 | 0.35 | 127.80 |
| 13 | 26 | 0.00 | -12.89 | 0.02 | -0.05 | -0.35 | -127.80 |
| 13 | 27 | 0.00 | 12.89 | -0.02 | 0.05 | 0.26 | 69.81 |
| 14 | 27 | 0.00 | -12.89 | 0.02 | -0.05 | -0.26 | -69.81 |
| 14 | 28 | 0.00 | 12.89 | -0.02 | 0.05 | 0.17 | 11.83 |
| 15 | 28 | 0.00 | -12.89 | 0.02 | -0.05 | -0.17 | -11.83 |
| 15 | 29 | 0.00 | 12.89 | -0.02 | 0.05 | 0.09 | -46.16 |
| 16 | 29 | 0.00 | -12.89 | 0.02 | -0.05 | -0.09 | 46.16 |
| 16 | 30 | 0.00 | 12.89 | -0.02 | 0.05 | 0.00 | -104.15 |
| 17 | 30 | 0.00 | -12.89 | 0.02 | -0.05 | 0.00 | 104.15 |
| 17 | 31 | 0.00 | 12.89 | -0.02 | 0.05 | -0.08 | -162.14 |
| 18 | 31 | 0.00 | -12.89 | 0.02 | -0.05 | 0.08 | 162.14 |
| 18 | 32 | 0.00 | 12.89 | -0.02 | 0.05 | -0.17 | -220.13 |
| 19 | 32 | 0.00 | 6.12 | 0.00 | 0.03 | 0.17 | 220.13 |
| 19 | 40 | 0.00 | -6.12 | 0.00 | -0.03 | -0.15 | -192.58 |
| 20 | 40 | 0.00 | 6.12 | 0.00 | 0.03 | 0.15 | 192.58 |
| 20 | 41 | 0.00 | -6.12 | 0.00 | -0.03 | -0.14 | -165.03 |
| 21 | 41 | 0.00 | 6.12 | 0.00 | 0.03 | 0.14 | 165.03 |
| 21 | 42 | 0.00 | -6.12 | 0.00 | -0.03 | -0.12 | -137.48 |
| 22 | 42 | 0.00 | 6.12 | 0.00 | 0.03 | 0.12 | 137.48 |
| 22 | 43 | 0.00 | -6.12 | 0.00 | -0.03 | -0.10 | -109.93 |
| 23 | 43 | 0.00 | 6.12 | 0.00 | 0.03 | 0.10 | 109.93 |
| 23 | 44 | 0.00 | -6.12 | 0.00 | -0.03 | -0.09 | -82.39 |
| 24 | 44 | 0.00 | 6.12 | 0.00 | 0.03 | 0.09 | 82.39 |
| 24 | 45 | 0.00 | -6.12 | 0.00 | -0.03 | -0.07 | -54.84 |
| 25 | 45 | 0.00 | 6.12 | 0.00 | 0.03 | 0.07 | 54.84 |
| 25 | 46 | 0.00 | -6.12 | 0.00 | -0.03 | -0.05 | -27.29 |
| 26 | 46 | 0.00 | 6.12 | 0.00 | 0.03 | 0.05 | 27.29 |
| 26 | 47 | 0.00 | -6.12 | 0.00 | -0.03 | -0.04 | 0.26 |
| 27 | 47 | 0.00 | 6.12 | 0.00 | 0.03 | 0.04 | -0.26 |
| 27 | 48 | 0.00 | -6.12 | 0.00 | -0.03 | -0.02 | 27.81 |
| 28 | 48 | 0.00 | 6.12 | 0.00 | 0.03 | 0.02 | -27.81 |
| 28 | 49 | 0.00 | -6.12 | 0.00 | -0.03 | 0.00 | 55.36 |
| 29 | 49 | 0.00 | -1.53 | 0.00 | -0.01 | 0.00 | -55.36 |
| 29 | 59 | 0.00 | 1.53 | 0.00 | 0.01 | 0.00 | 48.45 |
| 30 | 59 | 0.00 | -1.53 | 0.00 | -0.01 | 0.00 | -48.45 |
| 30 | 60 | 0.00 | 1.53 | 0.00 | 0.01 | 0.00 | 41.55 |
| 31 | 60 | 0.00 | -1.53 | 0.00 | -0.01 | 0.00 | -41.55 |
| 31 | 61 | 0.00 | 1.53 | 0.00 | 0.01 | 0.00 | 34.64 |
| 32 | 61 | 0.00 | -1.53 | 0.00 | -0.01 | 0.00 | -34.64 |
| 32 | 62 | 0.00 | 1.53 | 0.00 | 0.01 | 0.00 | 27.74 |
| 33 | 62 | 0.00 | -1.53 | 0.00 | -0.01 | 0.00 | -27.74 |
| 33 | 63 | 0.00 | 1.53 | 0.00 | 0.01 | 0.00 | 20.84 |
| 34 | 63 | 0.00 | -1.53 | 0.00 | -0.01 | 0.00 | -20.84 |
| 34 | 64 | 0.00 | 1.53 | 0.00 | 0.01 | 0.00 | 13.93 |
| 35 | 64 | 0.00 | -1.53 | 0.00 | -0.01 | 0.00 | -13.93 |
| 35 | 65 | 0.00 | 1.53 | 0.00 | 0.01 | 0.00 | 7.03 |
| 36 | 65 | 0.00 | -1.53 | 0.00 | -0.01 | 0.00 | -7.03 |
| 36 | 66 | 0.00 | 1.53 | 0.00 | 0.01 | 0.00 | 0.12 |
| 37 | 66 | 0.00 | -1.53 | 0.00 | -0.01 | 0.00 | -0.12 |
| 37 | 67 | 0.00 | 1.53 | 0.00 | 0.01 | 0.00 | -6.78 |
| 38 | 67 | 0.00 | -1.53 | 0.00 | -0.01 | 0.00 | 6.78 |
| 38 | 68 | 0.00 | 1.53 | 0.00 | 0.01 | 0.00 | -13.68 |
| 39 | 68 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | 13.68 |
| 39 | 78 | 0.00 | -0.38 | 0.00 | 0.00 | 0.00 | -11.98 |
| 40 | 78 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | 11.98 |
| 40 | 79 | 0.00 | -0.38 | 0.00 | 0.00 | 0.00 | -10.27 |
| 41 | 79 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | 10.27 |
| 41 | 80 | 0.00 | -0.38 | 0.00 | 0.00 | 0.00 | -8.56 |
| 42 | 80 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | 8.56 |
| 42 | 81 | 0.00 | -0.38 | 0.00 | 0.00 | 0.00 | -6.86 |
| 43 | 81 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | 6.86 |
| 43 | 82 | 0.00 | -0.38 | 0.00 | 0.00 | 0.00 | -5.15 |
| 44 | 82 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | 5.15 |
| 44 | 83 | 0.00 | -0.38 | 0.00 | 0.00 | 0.01 | -3.44 |
| 45 | 83 | 0.00 | 0.38 | 0.00 | 0.00 | -0.01 | 3.44 |
| 45 | 84 | 0.00 | -0.38 | 0.00 | 0.00 | 0.01 | -1.74 |
| 46 | 84 | 0.00 | 0.38 | 0.00 | 0.00 | -0.01 | 1.74 |
| 46 | 85 | 0.00 | -0.38 | 0.00 | 0.00 | 0.01 | -0.03 |
| 47 | 85 | 0.00 | 0.38 | 0.00 | 0.00 | -0.01 | 0.03 |
| 47 | 86 | 0.00 | -0.38 | 0.00 | 0.00 | 0.01 | 1.68 |
| 48 | 86 | 0.00 | 0.38 | 0.00 | 0.00 | -0.01 | -1.68 |
| 48 | 87 | 0.00 | -0.38 | 0.00 | 0.00 | 0.01 | 3.39 |
| 49 | 87 | 0.00 | -0.09 | 0.00 | 0.00 | -0.01 | -3.39 |
| 49 | 97 | 0.00 | 0.09 | 0.00 | 0.00 | 0.01 | 2.96 |
| 50 | 97 | 0.00 | -0.09 | 0.00 | 0.00 | -0.01 | -2.96 |
| 50 | 98 | 0.00 | 0.09 | 0.00 | 0.00 | 0.01 | 2.54 |
| 51 | 98 | 0.00 | -0.09 | 0.00 | 0.00 | -0.01 | -2.54 |
| 51 | 99 | 0.00 | 0.09 | 0.00 | 0.00 | 0.01 | 2.12 |
| 52 | 99 | 0.00 | -0.09 | 0.00 | 0.00 | -0.01 | -2.12 |
| 52 | 100 | 0.00 | 0.09 | 0.00 | 0.00 | 0.01 | 1.69 |
| 53 | 100 | 0.00 | -0.09 | 0.00 | 0.00 | -0.01 | -1.69 |
| 53 | 101 | 0.00 | 0.09 | 0.00 | 0.00 | 0.01 | 1.27 |
| 54 | 101 | 0.00 | -0.09 | 0.00 | 0.00 | -0.01 | -1.27 |
| 54 | 102 | 0.00 | 0.09 | 0.00 | 0.00 | 0.01 | 0.85 |
| 55 | 102 | 0.00 | -0.09 | 0.00 | 0.00 | -0.01 | -0.85 |
| 55 | 103 | 0.00 | 0.09 | 0.00 | 0.00 | 0.01 | 0.42 |
| 56 | 103 | 0.00 | -0.09 | 0.00 | 0.00 | -0.01 | -0.42 |
| 56 | 104 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | 0.00 |
| 57 | 104 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | 0.00 |
| 57 | 105 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | -0.42 |
| 58 | 105 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | 0.42 |
| 58 | 106 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | -0.85 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 26 | 47 | 0.00 | 12.52 | -0.01 | 0.04 | 0.02 | -103.30 |
| 27 | 47 | 0.00 | -12.52 | 0.01 | -0.04 | -0.02 | 103.30 |
| 27 | 48 | 0.00 | 12.52 | -0.01 | 0.04 | 0.00 | -159.62 |
| 28 | 48 | 0.00 | -12.52 | 0.01 | -0.04 | 0.00 | 159.62 |
| 28 | 49 | 0.00 | 12.52 | -0.01 | 0.04 | -0.03 | -215.95 |
| 29 | 49 | 0.00 | 6.00 | 0.00 | 0.02 | 0.03 | 215.95 |
| 29 | 59 | 0.00 | -6.00 | 0.00 | -0.02 | -0.03 | -188.96 |
| 30 | 59 | 0.00 | 6.00 | 0.00 | 0.02 | 0.03 | 188.96 |
| 30 | 60 | 0.00 | -6.00 | 0.00 | -0.02 | -0.02 | -161.98 |
| 31 | 60 | 0.00 | 6.00 | 0.00 | 0.02 | 0.02 | 161.98 |
| 31 | 61 | 0.00 | -6.00 | 0.00 | -0.02 | -0.02 | -134.99 |
| 32 | 61 | 0.00 | 6.00 | 0.00 | 0.02 | 0.02 | 134.99 |
| 32 | 62 | 0.00 | -6.00 | 0.00 | -0.02 | -0.02 | -108.01 |
| 33 | 62 | 0.00 | 6.00 | 0.00 | 0.02 | 0.02 | 108.01 |
| 33 | 63 | 0.00 | -6.00 | 0.00 | -0.02 | -0.01 | -81.02 |
| 34 | 63 | 0.00 | 6.00 | 0.00 | 0.02 | 0.01 | 81.02 |
| 34 | 64 | 0.00 | -6.00 | 0.00 | -0.02 | -0.01 | -54.04 |
| 35 | 64 | 0.00 | 6.00 | 0.00 | 0.02 | 0.01 | 54.04 |
| 35 | 65 | 0.00 | -6.00 | 0.00 | -0.02 | -0.01 | -27.05 |
| 36 | 65 | 0.00 | 6.00 | 0.00 | 0.02 | 0.01 | 27.05 |
| 36 | 66 | 0.00 | -6.00 | 0.00 | -0.02 | 0.00 | -0.07 |
| 37 | 66 | 0.00 | 6.00 | 0.00 | 0.02 | 0.00 | 0.07 |
| 37 | 67 | 0.00 | -6.00 | 0.00 | -0.02 | 0.00 | 26.92 |
| 38 | 67 | 0.00 | 6.00 | 0.00 | 0.02 | 0.00 | -26.92 |
| 38 | 68 | 0.00 | -6.00 | 0.00 | -0.02 | 0.01 | 53.90 |
| 39 | 68 | 0.00 | -1.49 | 0.00 | 0.00 | -0.01 | -53.90 |
| 39 | 78 | 0.00 | 1.49 | 0.00 | 0.00 | 0.00 | 47.18 |
| 40 | 78 | 0.00 | -1.49 | 0.00 | 0.00 | 0.00 | -47.18 |
| 40 | 79 | 0.00 | 1.49 | 0.00 | 0.00 | 0.00 | 40.46 |
| 41 | 79 | 0.00 | -1.49 | 0.00 | 0.00 | 0.00 | -40.46 |
| 41 | 80 | 0.00 | 1.49 | 0.00 | 0.00 | 0.00 | 33.73 |
| 42 | 80 | 0.00 | -1.49 | 0.00 | 0.00 | 0.00 | -33.73 |
| 42 | 81 | 0.00 | 1.49 | 0.00 | 0.00 | 0.00 | 27.01 |
| 43 | 81 | 0.00 | -1.49 | 0.00 | 0.00 | 0.00 | -27.01 |
| 43 | 82 | 0.00 | 1.49 | 0.00 | 0.00 | -0.01 | 20.28 |
| 44 | 82 | 0.00 | -1.49 | 0.00 | 0.00 | 0.01 | -20.28 |
| 44 | 83 | 0.00 | 1.49 | 0.00 | 0.00 | -0.01 | 13.56 |
| 45 | 83 | 0.00 | -1.49 | 0.00 | 0.00 | 0.01 | -13.56 |
| 45 | 84 | 0.00 | 1.49 | 0.00 | 0.00 | -0.01 | 6.83 |
| 46 | 84 | 0.00 | -1.49 | 0.00 | 0.00 | 0.01 | -6.83 |
| 46 | 85 | 0.00 | 1.49 | 0.00 | 0.00 | -0.01 | 0.11 |
| 47 | 85 | 0.00 | -1.49 | 0.00 | 0.00 | 0.01 | -0.11 |
| 47 | 86 | 0.00 | 1.49 | 0.00 | 0.00 | -0.01 | -6.61 |
| 48 | 86 | 0.00 | -1.49 | 0.00 | 0.00 | 0.01 | 6.61 |
| 48 | 87 | 0.00 | 1.49 | 0.00 | 0.00 | -0.02 | -13.34 |
| 49 | 87 | 0.00 | 0.37 | 0.00 | 0.00 | 0.02 | 13.34 |
| 49 | 97 | 0.00 | -0.37 | 0.00 | 0.00 | -0.02 | -11.67 |
| 50 | 97 | 0.00 | 0.37 | 0.00 | 0.00 | 0.02 | 11.67 |
| 50 | 98 | 0.00 | -0.37 | 0.00 | 0.00 | -0.01 | -10.00 |
| 51 | 98 | 0.00 | 0.37 | 0.00 | 0.00 | 0.01 | 10.00 |
| 51 | 99 | 0.00 | -0.37 | 0.00 | 0.00 | -0.01 | -8.34 |
| 52 | 99 | 0.00 | 0.37 | 0.00 | 0.00 | 0.01 | 8.34 |
| 52 | 100 | 0.00 | -0.37 | 0.00 | 0.00 | -0.01 | -6.67 |
| 53 | 100 | 0.00 | 0.37 | 0.00 | 0.00 | 0.01 | 6.67 |
| 53 | 101 | 0.00 | -0.37 | 0.00 | 0.00 | -0.01 | -5.00 |
| 54 | 101 | 0.00 | 0.37 | 0.00 | 0.00 | 0.01 | 5.00 |
| 54 | 102 | 0.00 | -0.37 | 0.00 | 0.00 | -0.01 | -3.34 |
| 55 | 102 | 0.00 | 0.37 | 0.00 | 0.00 | 0.01 | 3.34 |
| 55 | 103 | 0.00 | -0.37 | 0.00 | 0.00 | -0.01 | -1.67 |
| 56 | 103 | 0.00 | 0.37 | 0.00 | 0.00 | 0.01 | 1.67 |
| 56 | 104 | 0.00 | -0.37 | 0.00 | 0.00 | -0.01 | 0.00 |
| 57 | 104 | 0.00 | 0.37 | 0.00 | 0.00 | 0.01 | 0.00 |
| 57 | 105 | 0.00 | -0.37 | 0.00 | 0.00 | 0.00 | 1.67 |
| 58 | 105 | 0.00 | 0.37 | 0.00 | 0.00 | 0.00 | -1.67 |
| 58 | 106 | 0.00 | -0.37 | 0.00 | 0.00 | 0.00 | 3.33 |
| 59 | 106 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | -3.33 |
| 59 | 115 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | 2.91 |
| 60 | 115 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | -2.91 |
| 60 | 116 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | 2.49 |
| 61 | 116 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | -2.49 |
| 61 | 117 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | 2.07 |
| 62 | 117 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | -2.07 |
| 62 | 118 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | 1.65 |
| 63 | 118 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | -1.65 |
| 63 | 119 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | 1.23 |
| 64 | 119 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | -1.23 |
| 64 | 120 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | 0.81 |
| 65 | 120 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | -0.81 |
| 65 | 121 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | 0.39 |
| 66 | 121 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | -0.39 |
| 66 | 122 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | -0.03 |
| 67 | 122 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | 0.03 |
| 67 | 123 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | -0.45 |
| 68 | 123 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | 0.45 |
| 68 | 124 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | -0.87 |
| 69 | 124 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.87 |
| 69 | 133 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | -0.76 |
| 70 | 133 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.76 |
| 70 | 134 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | -0.65 |
| 71 | 134 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.65 |
| 71 | 135 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | -0.54 |
| 72 | 135 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.54 |
| 72 | 136 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | -0.43 |
| 73 | 136 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.43 |
| 73 | 137 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | -0.33 |
| 74 | 137 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.33 |
| 74 | 138 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | -0.22 |
| 75 | 138 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.22 |
| 75 | 139 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | -0.11 |
| 76 | 139 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.11 |
| 76 | 140 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 77 | 16 | 19.01 | 0.00 | -0.03 | 0.00 | 0.30 | 0.00 |
| 77 | 17 | -19.01 | 0.00 | 0.03 | 0.00 | -0.13 | 0.00 |
| 78 | 17 | 19.01 | 0.00 | -0.03 | 0.00 | 0.13 | 0.00 |
| 78 | 18 | -19.01 | 0.00 | 0.03 | 0.00 | 0.03 | 0.00 |
| 79 | 33 | -25.25 | 0.00 | 0.02 | 0.00 | -0.24 | 0.00 |
| 79 | 34 | 25.25 | 0.00 | -0.02 | 0.00 | 0.07 | 0.00 |
| 80 | 34 | -25.25 | 0.00 | 0.02 | 0.00 | -0.07 | 0.00 |
| 80 | 35 | 25.25 | 0.00 | -0.02 | 0.00 | -0.05 | 0.00 |
| 81 | 50 | 18.51 | 0.00 | -0.01 | 0.00 | 0.14 | 0.00 |
| 81 | 51 | -18.51 | 0.00 | 0.01 | 0.00 | -0.12 | 0.00 |
| 82 | 51 | 18.51 | 0.00 | -0.01 | 0.00 | 0.12 | 0.00 |
| 82 | 52 | -18.51 | 0.00 | 0.01 | 0.00 | -0.05 | 0.00 |
| 83 | 52 | 18.51 | 0.00 | -0.01 | 0.00 | 0.05 | 0.00 |
| 83 | 53 | -18.51 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 84 | 53 | 18.51 | 0.00 | -0.01 | 0.00 | -0.01 | 0.00 |
| 84 | 54 | -18.51 | 0.00 | 0.01 | 0.00 | 0.05 | 0.00 |
| 85 | 69 | -7.49 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 85 | 70 | 7.49 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 86 | 70 | -7.49 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 86 | 71 | 7.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 87 | 71 | -7.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 87 | 72 | 7.49 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 88 | 72 | -7.49 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 88 | 73 | 7.49 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 89 | 88 | 1.86 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| 89 | 89 | -1.86 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 90 | 89 | 1.86 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| 90 | 90 | -1.86 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 91 | 90 | 1.86 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 59 | 106 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.85 |
| 59 | 115 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | -0.74 |
| 60 | 115 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.74 |
| 60 | 116 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | -0.63 |
| 61 | 116 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.63 |
| 61 | 117 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | -0.53 |
| 62 | 117 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.53 |
| 62 | 118 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | -0.42 |
| 63 | 118 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.42 |
| 63 | 119 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | -0.31 |
| 64 | 119 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.31 |
| 64 | 120 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | -0.21 |
| 65 | 120 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.21 |
| 65 | 121 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | -0.10 |
| 66 | 121 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.10 |
| 66 | 122 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.01 |
| 67 | 122 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | -0.01 |
| 67 | 123 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.11 |
| 68 | 123 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | -0.11 |
| 68 | 124 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.22 |
| 69 | 124 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | -0.22 |
| 69 | 133 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.19 |
| 70 | 133 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | -0.19 |
| 70 | 134 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.17 |
| 71 | 134 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | -0.17 |
| 71 | 135 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.14 |
| 72 | 135 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | -0.14 |
| 72 | 136 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.11 |
| 73 | 136 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | -0.11 |
| 73 | 137 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.08 |
| 74 | 137 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | -0.08 |
| 74 | 138 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.06 |
| 75 | 138 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | -0.06 |
| 75 | 139 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.03 |
| 76 | 139 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | -0.03 |
| 76 | 140 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 77 | 16 | -22.88 | 0.00 | 0.04 | 0.00 | -0.37 | 0.00 |
| 77 | 17 | 22.88 | 0.00 | -0.04 | 0.00 | 0.16 | 0.00 |
| 78 | 17 | -22.88 | 0.00 | 0.04 | 0.00 | -0.16 | 0.00 |
| 78 | 18 | 22.88 | 0.00 | -0.04 | 0.00 | -0.03 | 0.00 |
| 79 | 33 | 19.01 | 0.00 | -0.02 | 0.00 | 0.24 | 0.00 |
| 79 | 34 | -19.01 | 0.00 | 0.02 | 0.00 | -0.07 | 0.00 |
| 80 | 34 | 19.01 | 0.00 | -0.02 | 0.00 | 0.07 | 0.00 |
| 80 | 35 | -19.01 | 0.00 | 0.02 | 0.00 | 0.05 | 0.00 |
| 81 | 50 | -7.66 | 0.00 | 0.00 | 0.00 | -0.07 | 0.00 |
| 81 | 51 | 7.66 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 |
| 82 | 51 | -7.66 | 0.00 | 0.00 | 0.00 | -0.06 | 0.00 |
| 82 | 52 | 7.66 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| 83 | 52 | -7.66 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 83 | 53 | 7.66 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 84 | 53 | -7.66 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 84 | 54 | 7.66 | 0.00 | 0.00 | 0.00 | -0.03 | 0.00 |
| 85 | 69 | 1.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 85 | 70 | -1.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 86 | 70 | 1.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 86 | 71 | -1.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 87 | 71 | 1.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 87 | 72 | -1.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 88 | 72 | 1.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 88 | 73 | -1.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 89 | 88 | -0.47 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 89 | 89 | 0.47 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 90 | 89 | -0.47 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 90 | 90 | 0.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 91 | 90 | -0.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 91 | 91 | 0.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 92 | 91 | -0.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 92 | 92 | 0.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 93 | 107 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 93 | 108 | -0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 94 | 108 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 94 | 109 | -0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95 | 109 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95 | 110 | -0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 96 | 125 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 96 | 126 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 97 | 126 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 97 | 127 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 98 | 127 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 98 | 128 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 2 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 5.00 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -5.00 | 0.00 | 0.02 | 0.00 | 0.03 | 0.00 |
| 101 | 19 | -11.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | 11.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | -11.43 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | 11.43 | 0.00 | -0.04 | 0.00 | -0.07 | 0.00 |
| 103 | 36 | 9.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -9.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 9.49 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -9.49 | 0.00 | 0.02 | 0.00 | 0.04 | 0.00 |
| 105 | 55 | -3.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | 3.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | -3.82 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | 3.82 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 107 | 74 | 0.96 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -0.96 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 0.96 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -0.96 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 93 | -0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | -0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 111 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 129 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 141 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 117 | 6 | 9.99 | 0.00 | -0.02 | 0.00 | 0.01 | 0.00 |
| 117 | 7 | -9.99 | 0.00 | 0.02 | 0.00 | 0.01 | 0.00 |
| 118 | 145 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 118 | 146 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 3 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -5.00 | 0.00 | 0.00 | 0.00 | 21.24 |
| 120 | 1 | 0.02 | -5.00 | 0.00 | 0.00 | 0.00 | -21.20 |
| 120 | 5 | -0.02 | 5.00 | 0.00 | 0.00 | 0.00 | -0.03 |
| 121 | 20 | 0.00 | -11.44 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | 11.44 | 0.00 | 0.00 | 0.00 | -21.18 |
| 122 | 15 | -0.04 | 11.41 | 0.00 | 0.00 | 0.00 | 21.08 |
| 122 | 22 | 0.04 | -11.41 | 0.00 | 0.00 | 0.00 | 0.04 |
| 123 | 37 | 0.00 | 9.52 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | -9.52 | 0.00 | 0.00 | 0.00 | 17.61 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 124 | 32 | 0.02 | -9.49 | 0.00 | 0.00 | 0.00 | -17.52 |
| 124 | 39 | -0.02 | 9.49 | 0.00 | 0.00 | 0.00 | -0.04 |
| 125 | 56 | 0.00 | -3.84 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.00 | 3.84 | 0.00 | 0.00 | 0.00 | -7.10 |
| 126 | 49 | 0.00 | 3.82 | 0.00 | 0.00 | 0.00 | 7.06 |
| 126 | 58 | 0.00 | -3.82 | 0.00 | 0.00 | 0.00 | 0.01 |
| 127 | 75 | 0.00 | 0.96 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.00 | -0.96 | 0.00 | 0.00 | 0.00 | 1.77 |
| 128 | 68 | 0.00 | -0.96 | 0.00 | 0.00 | 0.00 | -1.77 |
| 128 | 77 | 0.00 | 0.96 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 94 | 0.00 | -0.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | 0.24 | 0.00 | 0.00 | 0.00 | -0.44 |
| 130 | 87 | 0.00 | 0.24 | 0.00 | 0.00 | 0.00 | 0.44 |
| 130 | 96 | 0.00 | -0.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 112 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | 0.11 |
| 132 | 106 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | -0.11 |
| 132 | 114 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 130 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | -0.03 |
| 134 | 124 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.03 |
| 134 | 132 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 142 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| 136 | 140 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.01 |
| 136 | 144 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 2 | 0.00 | -5.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | -21.24 |
| 138 | 7 | -0.02 | 5.00 | 0.00 | 0.00 | 0.00 | 21.23 |
| 138 | 4 | 0.02 | -5.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | 11.46 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | -11.46 | 0.00 | 0.00 | 0.00 | 21.16 |
| 140 | 18 | 0.04 | -11.42 | 0.00 | 0.00 | 0.00 | -21.16 |
| 140 | 21 | -0.04 | 11.42 | 0.00 | 0.00 | 0.00 | -0.01 |
| 141 | 36 | 0.00 | -9.52 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 9.52 | 0.00 | 0.00 | 0.00 | -17.61 |
| 142 | 35 | -0.02 | 9.49 | 0.00 | 0.00 | 0.00 | 17.56 |
| 142 | 38 | 0.02 | -9.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | 3.84 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | -3.84 | 0.00 | 0.00 | 0.00 | 7.10 |
| 144 | 54 | 0.00 | -3.82 | 0.00 | 0.00 | 0.00 | -7.07 |
| 144 | 57 | 0.00 | 3.82 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | -0.96 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 0.96 | 0.00 | 0.00 | 0.00 | -1.77 |
| 146 | 73 | 0.00 | 0.96 | 0.00 | 0.00 | 0.00 | 1.77 |
| 146 | 76 | 0.00 | -0.96 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | -0.24 | 0.00 | 0.00 | 0.00 | 0.44 |
| 148 | 92 | 0.00 | -0.24 | 0.00 | 0.00 | 0.00 | -0.44 |
| 148 | 95 | 0.00 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | -0.11 |
| 150 | 110 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.11 |
| 150 | 113 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.03 |
| 152 | 128 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | -0.03 |
| 152 | 131 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.01 |
| 154 | 146 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| 154 | 143 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |



HIPOTESIS 13

hipo 13 asiento-3

E S F U E R Z O S E N B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | -6.27 | 0.02 | -0.03 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | 6.27 | -0.02 | 0.03 | -0.07 | -28.22 |
| 2 | 8 | 0.00 | -6.27 | 0.02 | -0.03 | 0.07 | 28.22 |
| 2 | 9 | 0.00 | 6.27 | -0.02 | 0.03 | -0.14 | -56.45 |
| 3 | 9 | 0.00 | -6.27 | 0.02 | -0.03 | 0.14 | 56.45 |
| 3 | 10 | 0.00 | 6.27 | -0.02 | 0.03 | -0.20 | -84.67 |
| 4 | 10 | 0.00 | -6.27 | 0.02 | -0.03 | 0.20 | 84.67 |
| 4 | 11 | 0.00 | 6.27 | -0.02 | 0.03 | -0.27 | -112.90 |
| 5 | 11 | 0.00 | -6.27 | 0.02 | -0.03 | 0.27 | 112.90 |
| 5 | 12 | 0.00 | 6.27 | -0.02 | 0.03 | -0.34 | -141.12 |
| 6 | 12 | 0.00 | -6.27 | 0.02 | -0.03 | 0.34 | 141.12 |
| 6 | 13 | 0.00 | 6.27 | -0.02 | 0.03 | -0.41 | -169.35 |
| 7 | 13 | 0.00 | -6.27 | 0.02 | -0.03 | 0.41 | 169.35 |
| 7 | 14 | 0.00 | 6.27 | -0.02 | 0.03 | -0.47 | -197.57 |
| 8 | 14 | 0.00 | -6.27 | 0.02 | -0.03 | 0.47 | 197.57 |
| 8 | 15 | 0.00 | 6.27 | -0.02 | 0.03 | -0.54 | -225.80 |
| 9 | 15 | 0.00 | 12.74 | -0.02 | 0.05 | 0.54 | 225.80 |
| 9 | 23 | 0.00 | -12.74 | 0.02 | -0.05 | -0.46 | -168.49 |
| 10 | 23 | 0.00 | 12.74 | -0.02 | 0.05 | 0.46 | 168.49 |
| 10 | 24 | 0.00 | -12.74 | 0.02 | -0.05 | -0.39 | -111.17 |
| 11 | 24 | 0.00 | 12.74 | -0.02 | 0.05 | 0.39 | 111.17 |
| 11 | 25 | 0.00 | -12.74 | 0.02 | -0.05 | -0.31 | -53.86 |
| 12 | 25 | 0.00 | 12.74 | -0.02 | 0.05 | 0.31 | 53.86 |
| 12 | 26 | 0.00 | -12.74 | 0.02 | -0.05 | -0.23 | 3.45 |
| 13 | 26 | 0.00 | 12.74 | -0.02 | 0.05 | 0.23 | -3.45 |
| 13 | 27 | 0.00 | -12.74 | 0.02 | -0.05 | -0.16 | 60.76 |
| 14 | 27 | 0.00 | 12.74 | -0.02 | 0.05 | 0.16 | -60.76 |
| 14 | 28 | 0.00 | -12.74 | 0.02 | -0.05 | -0.08 | 118.07 |
| 15 | 28 | 0.00 | 12.74 | -0.02 | 0.05 | 0.08 | -118.07 |
| 15 | 29 | 0.00 | -12.74 | 0.02 | -0.05 | 0.00 | 175.38 |
| 16 | 29 | 0.00 | 12.74 | -0.02 | 0.05 | 0.00 | -175.38 |
| 16 | 30 | 0.00 | -12.74 | 0.02 | -0.05 | 0.07 | 232.70 |
| 17 | 30 | 0.00 | 12.74 | -0.02 | 0.05 | -0.07 | -232.70 |
| 17 | 31 | 0.00 | -12.74 | 0.02 | -0.05 | 0.15 | 290.01 |
| 18 | 31 | 0.00 | 12.74 | -0.02 | 0.05 | -0.15 | -290.01 |
| 18 | 32 | 0.00 | -12.74 | 0.02 | -0.05 | 0.23 | 347.32 |
| 19 | 32 | 0.00 | -12.52 | 0.01 | -0.04 | -0.23 | -347.32 |
| 19 | 40 | 0.00 | 12.52 | -0.01 | 0.04 | 0.20 | 290.99 |
| 20 | 40 | 0.00 | -12.52 | 0.01 | -0.04 | -0.20 | -290.99 |
| 20 | 41 | 0.00 | 12.52 | -0.01 | 0.04 | 0.17 | 234.67 |
| 21 | 41 | 0.00 | -12.52 | 0.01 | -0.04 | -0.17 | -234.67 |
| 21 | 42 | 0.00 | 12.52 | -0.01 | 0.04 | 0.15 | 178.34 |
| 22 | 42 | 0.00 | -12.52 | 0.01 | -0.04 | -0.15 | -178.34 |
| 22 | 43 | 0.00 | 12.52 | -0.01 | 0.04 | 0.12 | 122.01 |
| 23 | 43 | 0.00 | -12.52 | 0.01 | -0.04 | -0.12 | -122.01 |
| 23 | 44 | 0.00 | 12.52 | -0.01 | 0.04 | 0.10 | 65.68 |
| 24 | 44 | 0.00 | -12.52 | 0.01 | -0.04 | -0.10 | -65.69 |
| 24 | 45 | 0.00 | 12.52 | -0.01 | 0.04 | 0.07 | 9.36 |
| 25 | 45 | 0.00 | -12.52 | 0.01 | -0.04 | -0.07 | -9.36 |
| 25 | 46 | 0.00 | 12.52 | -0.01 | 0.04 | 0.05 | -46.97 |
| 26 | 46 | 0.00 | -12.52 | 0.01 | -0.04 | -0.05 | 46.97 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 91 | 91 | -1.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 92 | 91 | 1.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 92 | 92 | -1.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 93 | 107 | -0.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 93 | 108 | 0.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 94 | 108 | -0.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 94 | 109 | 0.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95 | 109 | -0.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95 | 110 | 0.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 96 | 125 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 96 | 126 | -0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 97 | 126 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 97 | 127 | -0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 98 | 127 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 98 | 128 | -0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 2 | -3.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | 3.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | -3.14 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | 3.14 | 0.00 | -0.02 | 0.00 | -0.03 | 0.00 |
| 101 | 19 | 9.51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -9.51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 9.50 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -9.50 | 0.00 | 0.03 | 0.00 | 0.05 | 0.00 |
| 103 | 36 | -12.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | 12.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | -12.61 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | 12.61 | 0.00 | -0.02 | 0.00 | -0.04 | 0.00 |
| 105 | 55 | 9.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -9.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 9.24 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -9.24 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 107 | 74 | -3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | -3.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | 3.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 93 | 0.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -0.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 0.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -0.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 111 | -0.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | 0.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | -0.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | 0.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 129 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 141 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 117 | 6 | -6.27 | 0.00 | 0.02 | 0.00 | -0.01 | 0.00 |
| 117 | 7 | 6.27 | 0.00 | -0.02 | 0.00 | -0.01 | 0.00 |
| 118 | 145 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 118 | 146 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 3 | 0.00 | -3.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | 3.14 | 0.00 | 0.00 | 0.00 | -13.33 |
| 120 | 1 | -0.02 | 3.14 | 0.00 | 0.00 | 0.00 | 13.30 |
| 120 | 5 | 0.02 | -3.14 | 0.00 | 0.00 | 0.00 | 0.03 |
| 121 | 20 | 0.00 | 9.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | -9.51 | 0.00 | 0.00 | 0.00 | 17.60 |
| 122 | 15 | 0.03 | -9.50 | 0.00 | 0.00 | 0.00 | -17.51 |
| 122 | 22 | -0.03 | 9.50 | 0.00 | 0.00 | 0.00 | -0.05 |
| 123 | 37 | 0.00 | -12.66 | 0.00 | 0.00 | 0.00 | -0.01 |
| 123 | 32 | 0.00 | 12.66 | 0.00 | 0.00 | 0.00 | -23.38 |
| 124 | 32 | -0.02 | 12.63 | 0.00 | 0.00 | 0.00 | 23.29 |
| 124 | 39 | 0.02 | -12.63 | 0.00 | 0.00 | 0.00 | 0.04 |
| 125 | 56 | 0.00 | 9.27 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.00 | -9.27 | 0.00 | 0.00 | 0.00 | 17.15 |
| 126 | 49 | 0.01 | -9.24 | 0.00 | 0.00 | 0.00 | -17.09 |
| 126 | 58 | -0.01 | 9.24 | 0.00 | 0.00 | 0.00 | -0.01 |
| 127 | 75 | 0.00 | -3.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.00 | 3.75 | 0.00 | 0.00 | 0.00 | -6.94 |
| 128 | 68 | 0.00 | 3.74 | 0.00 | 0.00 | 0.00 | 6.92 |
| 128 | 77 | 0.00 | -3.74 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 94 | 0.00 | 0.93 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | -0.93 | 0.00 | 0.00 | 0.00 | 1.73 |
| 130 | 87 | 0.00 | -0.93 | 0.00 | 0.00 | 0.00 | -1.72 |
| 130 | 96 | 0.00 | 0.93 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 112 | 0.00 | -0.23 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | 0.23 | 0.00 | 0.00 | 0.00 | -0.43 |
| 132 | 106 | 0.00 | 0.23 | 0.00 | 0.00 | 0.00 | 0.43 |
| 132 | 114 | 0.00 | -0.23 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 130 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | 0.11 |
| 134 | 124 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | -0.11 |
| 134 | 132 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 142 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | -0.05 |
| 136 | 140 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.05 |
| 136 | 144 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 2 | 0.00 | 3.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | -3.14 | 0.00 | 0.00 | 0.00 | 13.33 |
| 138 | 7 | 0.02 | -3.14 | 0.00 | 0.00 | 0.00 | -13.33 |
| 138 | 4 | -0.02 | 3.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -9.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 9.51 | 0.00 | 0.00 | 0.00 | -17.60 |
| 140 | 18 | -0.03 | 9.50 | 0.00 | 0.00 | 0.00 | 17.57 |
| 140 | 21 | 0.03 | -9.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | 12.63 | 0.00 | 0.00 | 0.00 | 0.02 |
| 141 | 35 | 0.00 | -12.63 | 0.00 | 0.00 | 0.00 | 23.38 |
| 142 | 35 | 0.02 | -12.62 | 0.00 | 0.00 | 0.00 | -23.33 |
| 142 | 38 | -0.02 | 12.62 | 0.00 | 0.00 | 0.00 | 0.02 |
| 143 | 55 | 0.00 | -9.27 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | 9.27 | 0.00 | 0.00 | 0.00 | -17.15 |
| 144 | 54 | -0.01 | 9.24 | 0.00 | 0.00 | 0.00 | 17.10 |
| 144 | 57 | 0.01 | -9.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | -3.75 | 0.00 | 0.00 | 0.00 | 6.94 |
| 146 | 73 | 0.00 | -3.74 | 0.00 | 0.00 | 0.00 | -6.92 |
| 146 | 76 | 0.00 | 3.74 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | -0.93 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | 0.93 | 0.00 | 0.00 | 0.00 | -1.73 |
| 148 | 92 | 0.00 | 0.93 | 0.00 | 0.00 | 0.00 | 1.72 |
| 148 | 95 | 0.00 | -0.93 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | 0.23 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | -0.23 | 0.00 | 0.00 | 0.00 | 0.43 |
| 150 | 110 | 0.00 | -0.23 | 0.00 | 0.00 | 0.00 | -0.43 |
| 150 | 113 | 0.00 | 0.23 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | -0.11 |
| 152 | 128 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.11 |
| 152 | 131 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.05 |
| 154 | 146 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | -0.05 |
| 154 | 143 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS 14

hipo 14 asiento-4

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 1.58 | -0.01 | 0.01 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -1.58 | 0.01 | -0.01 | 0.03 | 7.13 |
| 2 | 8 | 0.00 | 1.58 | -0.01 | 0.01 | -0.03 | -7.13 |
| 2 | 9 | 0.00 | -1.58 | 0.01 | -0.01 | 0.05 | 14.25 |
| 3 | 9 | 0.00 | 1.58 | -0.01 | 0.01 | -0.05 | -14.25 |
| 3 | 10 | 0.00 | -1.58 | 0.01 | -0.01 | 0.08 | 21.38 |
| 4 | 10 | 0.00 | 1.58 | -0.01 | 0.01 | -0.08 | -21.38 |
| 4 | 11 | 0.00 | -1.58 | 0.01 | -0.01 | 0.11 | 28.51 |
| 5 | 11 | 0.00 | 1.58 | -0.01 | 0.01 | -0.11 | -28.51 |
| 5 | 12 | 0.00 | -1.58 | 0.01 | -0.01 | 0.14 | 35.64 |
| 6 | 12 | 0.00 | 1.58 | -0.01 | 0.01 | -0.14 | -35.64 |
| 6 | 13 | 0.00 | -1.58 | 0.01 | -0.01 | 0.16 | 42.76 |
| 7 | 13 | 0.00 | 1.58 | -0.01 | 0.01 | -0.16 | -42.76 |
| 7 | 14 | 0.00 | -1.58 | 0.01 | -0.01 | 0.19 | 49.89 |
| 8 | 14 | 0.00 | 1.58 | -0.01 | 0.01 | -0.19 | -49.89 |
| 8 | 15 | 0.00 | -1.58 | 0.01 | -0.01 | 0.22 | 57.02 |
| 9 | 15 | 0.00 | -6.07 | 0.01 | -0.02 | -0.22 | -57.02 |
| 9 | 23 | 0.00 | 6.07 | -0.01 | 0.02 | 0.18 | 29.69 |
| 10 | 23 | 0.00 | -6.07 | 0.01 | -0.02 | -0.18 | -29.69 |
| 10 | 24 | 0.00 | 6.07 | -0.01 | 0.02 | 0.14 | 2.37 |
| 11 | 24 | 0.00 | -6.07 | 0.01 | -0.02 | -0.14 | -2.37 |
| 11 | 25 | 0.00 | 6.07 | -0.01 | 0.02 | 0.10 | -24.96 |
| 12 | 25 | 0.00 | -6.07 | 0.01 | -0.02 | -0.10 | 24.96 |
| 12 | 26 | 0.00 | 6.07 | -0.01 | 0.02 | 0.06 | -52.28 |
| 13 | 26 | 0.00 | -6.07 | 0.01 | -0.02 | -0.06 | 52.28 |
| 13 | 27 | 0.00 | 6.07 | -0.01 | 0.02 | 0.03 | -79.61 |
| 14 | 27 | 0.00 | -6.07 | 0.01 | -0.02 | -0.03 | 79.61 |
| 14 | 28 | 0.00 | 6.07 | -0.01 | 0.02 | -0.01 | -106.93 |
| 15 | 28 | 0.00 | -6.07 | 0.01 | -0.02 | 0.01 | 106.93 |
| 15 | 29 | 0.00 | 6.07 | -0.01 | 0.02 | -0.05 | -134.26 |
| 16 | 29 | 0.00 | -6.07 | 0.01 | -0.02 | 0.05 | 134.26 |
| 16 | 30 | 0.00 | 6.07 | -0.01 | 0.02 | -0.09 | -161.58 |
| 17 | 30 | 0.00 | -6.07 | 0.01 | -0.02 | 0.09 | 161.59 |
| 17 | 31 | 0.00 | 6.07 | -0.01 | 0.02 | -0.13 | -188.91 |
| 18 | 31 | 0.00 | -6.07 | 0.01 | -0.02 | 0.13 | 188.91 |
| 18 | 32 | 0.00 | 6.07 | -0.01 | 0.02 | -0.17 | -216.24 |
| 19 | 32 | 0.00 | 12.44 | -0.01 | 0.03 | 0.17 | 216.24 |
| 19 | 40 | 0.00 | -12.44 | 0.01 | -0.03 | -0.14 | -160.25 |
| 20 | 40 | 0.00 | 12.44 | -0.01 | 0.03 | 0.14 | 160.25 |
| 20 | 41 | 0.00 | -12.44 | 0.01 | -0.03 | -0.12 | -104.26 |
| 21 | 41 | 0.00 | 12.44 | -0.01 | 0.03 | 0.12 | 104.26 |
| 21 | 42 | 0.00 | -12.44 | 0.01 | -0.03 | -0.10 | -48.27 |
| 22 | 42 | 0.00 | 12.44 | -0.01 | 0.03 | 0.10 | 48.27 |
| 22 | 43 | 0.00 | -12.44 | 0.01 | -0.03 | -0.08 | 7.71 |
| 23 | 43 | 0.00 | 12.44 | -0.01 | 0.03 | 0.08 | -7.71 |
| 23 | 44 | 0.00 | -12.44 | 0.01 | -0.03 | -0.05 | 63.70 |
| 24 | 44 | 0.00 | 12.44 | -0.01 | 0.03 | 0.05 | -63.70 |
| 24 | 45 | 0.00 | -12.44 | 0.01 | -0.03 | -0.03 | 119.69 |
| 25 | 45 | 0.00 | 12.44 | -0.01 | 0.03 | 0.03 | -119.69 |
| 25 | 46 | 0.00 | -12.44 | 0.01 | -0.03 | -0.01 | 175.67 |
| 26 | 46 | 0.00 | 12.44 | -0.01 | 0.03 | 0.01 | -175.67 |
| 26 | 47 | 0.00 | -12.44 | 0.01 | -0.03 | 0.01 | 231.66 |
| 27 | 47 | 0.00 | 12.44 | -0.01 | 0.03 | -0.01 | -231.66 |
| 27 | 48 | 0.00 | -12.44 | 0.01 | -0.03 | 0.04 | 287.65 |
| 28 | 48 | 0.00 | 12.44 | -0.01 | 0.03 | -0.04 | -287.65 |
| 28 | 49 | 0.00 | -12.44 | 0.01 | -0.03 | 0.06 | 343.64 |
| 29 | 49 | 0.00 | -12.40 | 0.00 | -0.03 | -0.06 | -343.63 |
| 29 | 59 | 0.00 | 12.40 | 0.00 | 0.03 | 0.05 | 287.82 |
| 30 | 59 | 0.00 | -12.40 | 0.00 | -0.03 | -0.05 | -287.82 |
| 30 | 60 | 0.00 | 12.40 | 0.00 | 0.03 | 0.04 | 232.01 |
| 31 | 60 | 0.00 | -12.40 | 0.00 | -0.03 | -0.04 | -232.01 |
| 31 | 61 | 0.00 | 12.40 | 0.00 | 0.03 | 0.03 | 176.20 |
| 32 | 61 | 0.00 | -12.40 | 0.00 | -0.03 | -0.03 | -176.20 |
| 32 | 62 | 0.00 | 12.40 | 0.00 | 0.03 | 0.02 | 120.39 |
| 33 | 62 | 0.00 | -12.40 | 0.00 | -0.03 | -0.02 | -120.39 |
| 33 | 63 | 0.00 | 12.40 | 0.00 | 0.03 | 0.01 | 64.58 |
| 34 | 63 | 0.00 | -12.40 | 0.00 | -0.03 | -0.01 | -64.58 |
| 34 | 64 | 0.00 | 12.40 | 0.00 | 0.03 | 0.01 | 8.77 |
| 35 | 64 | 0.00 | -12.40 | 0.00 | -0.03 | -0.01 | -8.77 |
| 35 | 65 | 0.00 | 12.40 | 0.00 | 0.03 | 0.00 | -47.04 |
| 36 | 65 | 0.00 | -12.40 | 0.00 | -0.03 | 0.00 | 47.04 |
| 36 | 66 | 0.00 | 12.40 | 0.00 | 0.03 | -0.01 | -102.86 |
| 37 | 66 | 0.00 | -12.40 | 0.00 | -0.03 | 0.01 | 102.86 |
| 37 | 67 | 0.00 | 12.40 | 0.00 | 0.03 | -0.02 | -158.67 |
| 38 | 67 | 0.00 | -12.40 | 0.00 | -0.03 | 0.02 | 158.67 |
| 38 | 68 | 0.00 | 12.40 | 0.00 | 0.03 | -0.03 | -214.48 |
| 39 | 68 | 0.00 | 5.96 | 0.00 | 0.01 | 0.03 | 214.48 |
| 39 | 78 | 0.00 | -5.96 | 0.00 | -0.01 | -0.02 | -187.67 |
| 40 | 78 | 0.00 | 5.96 | 0.00 | 0.01 | 0.02 | 187.67 |
| 40 | 79 | 0.00 | -5.96 | 0.00 | -0.01 | -0.02 | -160.86 |
| 41 | 79 | 0.00 | 5.96 | 0.00 | 0.01 | 0.02 | 160.86 |
| 41 | 80 | 0.00 | -5.96 | 0.00 | -0.01 | -0.01 | -134.04 |
| 42 | 80 | 0.00 | 5.96 | 0.00 | 0.01 | 0.01 | 134.04 |
| 42 | 81 | 0.00 | -5.96 | 0.00 | -0.01 | -0.01 | -107.23 |
| 43 | 81 | 0.00 | 5.96 | 0.00 | 0.01 | 0.01 | 107.23 |
| 43 | 82 | 0.00 | -5.96 | 0.00 | -0.01 | 0.00 | -80.42 |
| 44 | 82 | 0.00 | 5.96 | 0.00 | 0.01 | 0.00 | 80.42 |
| 44 | 83 | 0.00 | -5.96 | 0.00 | -0.01 | 0.01 | -53.61 |
| 45 | 83 | 0.00 | 5.96 | 0.00 | 0.01 | -0.01 | 53.61 |
| 45 | 84 | 0.00 | -5.96 | 0.00 | -0.01 | 0.01 | -26.80 |
| 46 | 84 | 0.00 | 5.96 | 0.00 | 0.01 | -0.01 | 26.80 |
| 46 | 85 | 0.00 | -5.96 | 0.00 | -0.01 | 0.02 | 0.01 |
| 47 | 85 | 0.00 | 5.96 | 0.00 | 0.01 | -0.02 | -0.01 |
| 47 | 86 | 0.00 | -5.96 | 0.00 | -0.01 | 0.03 | 26.82 |
| 48 | 86 | 0.00 | 5.96 | 0.00 | 0.01 | -0.03 | -26.82 |
| 48 | 87 | 0.00 | -5.96 | 0.00 | -0.01 | 0.03 | 53.63 |
| 49 | 87 | 0.00 | -1.49 | 0.00 | -0.01 | -0.03 | -53.63 |
| 49 | 97 | 0.00 | 1.49 | 0.00 | 0.01 | 0.03 | 46.93 |
| 50 | 97 | 0.00 | -1.49 | 0.00 | -0.01 | -0.03 | -46.93 |
| 50 | 98 | 0.00 | 1.49 | 0.00 | 0.01 | 0.02 | 40.23 |
| 51 | 98 | 0.00 | -1.49 | 0.00 | -0.01 | -0.02 | -40.23 |
| 51 | 99 | 0.00 | 1.49 | 0.00 | 0.01 | 0.02 | 33.52 |
| 52 | 99 | 0.00 | -1.49 | 0.00 | -0.01 | -0.02 | -33.52 |
| 52 | 100 | 0.00 | 1.49 | 0.00 | 0.01 | 0.02 | 26.82 |
| 53 | 100 | 0.00 | -1.49 | 0.00 | -0.01 | -0.02 | -26.82 |
| 53 | 101 | 0.00 | 1.49 | 0.00 | 0.01 | 0.01 | 20.11 |
| 54 | 101 | 0.00 | -1.49 | 0.00 | -0.01 | -0.01 | -20.11 |
| 54 | 102 | 0.00 | 1.49 | 0.00 | 0.01 | 0.01 | 13.41 |
| 55 | 102 | 0.00 | -1.49 | 0.00 | -0.01 | -0.01 | -13.41 |
| 55 | 103 | 0.00 | 1.49 | 0.00 | 0.01 | 0.00 | 6.71 |
| 56 | 103 | 0.00 | -1.49 | 0.00 | -0.01 | 0.00 | -6.71 |
| 56 | 104 | 0.00 | 1.49 | 0.00 | 0.01 | 0.00 | 0.00 |
| 57 | 104 | 0.00 | -1.49 | 0.00 | -0.01 | 0.00 | 0.00 |
| 57 | 105 | 0.00 | 1.49 | 0.00 | 0.01 | -0.01 | -6.70 |
| 58 | 105 | 0.00 | -1.49 | 0.00 | -0.01 | 0.01 | 6.70 |
| 58 | 106 | 0.00 | 1.49 | 0.00 | 0.01 | -0.01 | -13.41 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 59 | 106 | 0.00 | 0.38 | 0.00 | 0.00 | 0.01 | 13.41 |
| 59 | 115 | 0.00 | -0.38 | 0.00 | 0.00 | -0.01 | -11.71 |
| 60 | 115 | 0.00 | 0.38 | 0.00 | 0.00 | 0.01 | 11.71 |
| 60 | 116 | 0.00 | -0.38 | 0.00 | 0.00 | -0.01 | -10.02 |
| 61 | 116 | 0.00 | 0.38 | 0.00 | 0.00 | 0.01 | 10.02 |
| 61 | 117 | 0.00 | -0.38 | 0.00 | 0.00 | -0.01 | -8.33 |
| 62 | 117 | 0.00 | 0.38 | 0.00 | 0.00 | 0.01 | 8.33 |
| 62 | 118 | 0.00 | -0.38 | 0.00 | 0.00 | 0.00 | -6.64 |
| 63 | 118 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | 6.64 |
| 63 | 119 | 0.00 | -0.38 | 0.00 | 0.00 | 0.00 | -4.95 |
| 64 | 119 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | 4.95 |
| 64 | 120 | 0.00 | -0.38 | 0.00 | 0.00 | 0.00 | -3.26 |
| 65 | 120 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | 3.26 |
| 65 | 121 | 0.00 | -0.38 | 0.00 | 0.00 | 0.00 | -1.57 |
| 66 | 121 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | 1.57 |
| 66 | 122 | 0.00 | -0.38 | 0.00 | 0.00 | 0.00 | 0.12 |
| 67 | 122 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | -0.12 |
| 67 | 123 | 0.00 | -0.38 | 0.00 | 0.00 | 0.01 | 1.81 |
| 68 | 123 | 0.00 | 0.38 | 0.00 | 0.00 | -0.01 | -1.81 |
| 68 | 124 | 0.00 | -0.38 | 0.00 | 0.00 | 0.01 | 3.50 |
| 69 | 124 | 0.00 | -0.10 | 0.00 | 0.00 | -0.01 | -3.50 |
| 69 | 133 | 0.00 | 0.10 | 0.00 | 0.00 | 0.01 | 3.06 |
| 70 | 133 | 0.00 | -0.10 | 0.00 | 0.00 | -0.01 | -3.06 |
| 70 | 134 | 0.00 | 0.10 | 0.00 | 0.00 | 0.01 | 2.62 |
| 71 | 134 | 0.00 | -0.10 | 0.00 | 0.00 | -0.01 | -2.62 |
| 71 | 135 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 | 2.19 |
| 72 | 135 | 0.00 | -0.10 | 0.00 | 0.00 | 0.00 | -2.19 |
| 72 | 136 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 | 1.75 |
| 73 | 136 | 0.00 | -0.10 | 0.00 | 0.00 | 0.00 | -1.75 |
| 73 | 137 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 | 1.31 |
| 74 | 137 | 0.00 | -0.10 | 0.00 | 0.00 | 0.00 | -1.31 |
| 74 | 138 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 | 0.87 |
| 75 | 138 | 0.00 | -0.10 | 0.00 | 0.00 | 0.00 | -0.87 |
| 75 | 139 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 | 0.44 |
| 76 | 139 | 0.00 | -0.10 | 0.00 | 0.00 | 0.00 | -0.44 |
| 76 | 140 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 77 | 16 | -7.66 | 0.00 | 0.01 | 0.00 | -0.14 | 0.00 |
| 77 | 17 | 7.66 | 0.00 | -0.01 | 0.00 | 0.06 | 0.00 |
| 78 | 17 | -7.66 | 0.00 | 0.01 | 0.00 | -0.06 | 0.00 |
| 78 | 18 | 7.66 | 0.00 | -0.01 | 0.00 | -0.01 | 0.00 |
| 79 | 33 | 18.51 | 0.00 | -0.01 | 0.00 | 0.14 | 0.00 |
| 79 | 34 | -18.51 | 0.00 | 0.01 | 0.00 | -0.04 | 0.00 |
| 80 | 34 | 18.51 | 0.00 | -0.01 | 0.00 | 0.04 | 0.00 |
| 80 | 35 | -18.51 | 0.00 | 0.01 | 0.00 | 0.03 | 0.00 |
| 81 | 50 | -24.84 | 0.00 | 0.01 | 0.00 | -0.16 | 0.00 |
| 81 | 51 | 24.84 | 0.00 | -0.01 | 0.00 | 0.13 | 0.00 |
| 82 | 51 | -24.84 | 0.00 | 0.01 | 0.00 | -0.13 | 0.00 |
| 82 | 52 | 24.84 | 0.00 | -0.01 | 0.00 | 0.06 | 0.00 |
| 83 | 52 | -24.84 | 0.00 | 0.01 | 0.00 | -0.06 | 0.00 |
| 83 | 53 | 24.84 | 0.00 | -0.01 | 0.00 | -0.01 | 0.00 |
| 84 | 53 | -24.84 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 84 | 54 | 24.84 | 0.00 | -0.01 | 0.00 | -0.05 | 0.00 |
| 85 | 69 | 18.36 | 0.00 | 0.00 | 0.00 | 0.08 | 0.00 |
| 85 | 70 | -18.36 | 0.00 | 0.00 | 0.00 | -0.05 | 0.00 |
| 86 | 70 | 18.36 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 |
| 86 | 71 | -18.36 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 87 | 71 | 18.36 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| 87 | 72 | -18.36 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| 88 | 72 | 18.36 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 88 | 73 | -18.36 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 |
| 89 | 88 | -7.45 | 0.00 | 0.00 | 0.00 | -0.05 | 0.00 |
| 89 | 89 | 7.45 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 |
| 90 | 89 | -7.45 | 0.00 | 0.00 | 0.00 | -0.05 | 0.00 |
| 90 | 90 | 7.45 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| 91 | 90 | -7.45 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 91 | 91 | 7.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 92 | 91 | -7.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 92 | 92 | 7.45 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 93 | 107 | 1.87 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| 93 | 108 | -1.87 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 94 | 108 | 1.87 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 94 | 109 | -1.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95 | 109 | 1.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95 | 110 | -1.87 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 96 | 125 | -0.47 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 96 | 126 | 0.47 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 97 | 126 | -0.47 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 97 | 127 | 0.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 98 | 127 | -0.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 98 | 128 | 0.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 2 | 0.79 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -0.79 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 0.79 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -0.79 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 101 | 19 | -3.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | 3.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | -3.82 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | 3.82 | 0.00 | -0.01 | 0.00 | -0.02 | 0.00 |
| 103 | 36 | 9.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -9.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 9.25 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -9.25 | 0.00 | 0.01 | 0.00 | 0.02 | 0.00 |
| 105 | 55 | -12.43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | 12.43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | -12.41 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | 12.41 | 0.00 | -0.01 | 0.00 | -0.01 | 0.00 |
| 107 | 74 | 9.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -9.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 9.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -9.17 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 109 | 93 | -3.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | 3.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | -3.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | 3.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 111 | 0.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -0.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 0.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -0.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 129 | -0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | -0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 141 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 117 | 6 | 1.58 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 117 | 7 | -1.58 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| 118 | 145 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 118 | 146 | -0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 3 | 0.00 | 0.00 | 0.79 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -0.79 | 0.00 | 0.00 | 0.00 | 3.37 |
| 120 | 1 | 0.01 | -0.79 | 0.00 | 0.00 | 0.00 | -3.35 |
| 120 | 5 | -0.01 | 0.79 | 0.00 | 0.00 | 0.00 | -0.01 |
| 121 | 20 | 0.00 | -3.83 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | 3.83 | 0.00 | 0.00 | 0.00 | -7.09 |
| 122 | 15 | -0.01 | 3.82 | 0.00 | 0.00 | 0.00 | 7.05 |
| 122 | 22 | 0.01 | -3.82 | 0.00 | 0.00 | 0.00 | 0.02 |
| 123 | 37 | 0.00 | 9.27 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | -9.27 | 0.00 | 0.00 | 0.00 | 17.14 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 124 | 32 | 0.01 | -9.25 | 0.00 | 0.00 | 0.00 | -17.09 |
| 124 | 39 | -0.01 | 9.25 | 0.00 | 0.00 | 0.00 | -0.02 |
| 125 | 56 | 0.00 | -12.43 | 0.00 | 0.00 | 0.00 | 0.01 |
| 125 | 49 | 0.00 | 12.43 | 0.00 | 0.00 | 0.00 | -23.01 |
| 126 | 49 | -0.01 | 12.40 | 0.00 | 0.00 | 0.00 | 22.94 |
| 126 | 58 | 0.01 | -12.40 | 0.00 | 0.00 | 0.00 | 0.01 |
| 127 | 75 | 0.00 | 9.19 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.00 | -9.19 | 0.00 | 0.00 | 0.00 | 17.00 |
| 128 | 68 | 0.00 | -9.17 | 0.00 | 0.00 | 0.00 | -16.96 |
| 128 | 77 | 0.00 | 9.17 | 0.00 | 0.00 | 0.00 | -0.01 |
| 129 | 94 | 0.00 | -3.73 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | 3.73 | 0.00 | 0.00 | 0.00 | -6.90 |
| 130 | 87 | 0.00 | 3.72 | 0.00 | 0.00 | 0.00 | 6.88 |
| 130 | 96 | 0.00 | -3.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 112 | 0.00 | 0.93 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | -0.93 | 0.00 | 0.00 | 0.00 | 1.73 |
| 132 | 106 | 0.00 | -0.93 | 0.00 | 0.00 | 0.00 | -1.72 |
| 132 | 114 | 0.00 | 0.93 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 130 | 0.00 | -0.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | 0.24 | 0.00 | 0.00 | 0.00 | -0.44 |
| 134 | 124 | 0.00 | 0.24 | 0.00 | 0.00 | 0.00 | 0.44 |
| 134 | 132 | 0.00 | -0.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 142 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 | 0.21 |
| 136 | 140 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 | -0.21 |
| 136 | 144 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 2 | 0.00 | -0.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 0.79 | 0.00 | 0.00 | 0.00 | -3.37 |
| 138 | 7 | -0.01 | 0.79 | 0.00 | 0.00 | 0.00 | 3.36 |
| 138 | 4 | 0.01 | -0.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | 3.83 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | -3.83 | 0.00 | 0.00 | 0.00 | 7.09 |
| 140 | 18 | 0.01 | -3.82 | 0.00 | 0.00 | 0.00 | -7.08 |
| 140 | 21 | -0.01 | 3.82 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -9.27 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 9.27 | 0.00 | 0.00 | 0.00 | -17.14 |
| 142 | 35 | -0.01 | 9.25 | 0.00 | 0.00 | 0.00 | 17.11 |
| 142 | 38 | 0.01 | -9.25 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | 12.43 | 0.00 | 0.00 | 0.00 | -0.02 |
| 143 | 54 | 0.00 | -12.43 | 0.00 | 0.00 | 0.00 | 22.99 |
| 144 | 54 | 0.01 | -12.43 | 0.00 | 0.00 | 0.00 | -22.94 |
| 144 | 57 | -0.01 | 12.43 | 0.00 | 0.00 | 0.00 | -0.01 |
| 145 | 74 | 0.00 | -9.19 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 9.19 | 0.00 | 0.00 | 0.00 | -17.00 |
| 146 | 73 | 0.00 | 9.17 | 0.00 | 0.00 | 0.00 | 16.97 |
| 146 | 76 | 0.00 | -9.17 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | 3.73 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | -3.73 | 0.00 | 0.00 | 0.00 | 6.90 |
| 148 | 92 | 0.00 | -3.72 | 0.00 | 0.00 | 0.00 | -6.88 |
| 148 | 95 | 0.00 | 3.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | -0.93 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 0.93 | 0.00 | 0.00 | 0.00 | -1.73 |
| 150 | 110 | 0.00 | 0.93 | 0.00 | 0.00 | 0.00 | 1.72 |
| 150 | 113 | 0.00 | -0.93 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | -0.24 | 0.00 | 0.00 | 0.00 | 0.44 |
| 152 | 128 | 0.00 | -0.24 | 0.00 | 0.00 | 0.00 | -0.44 |
| 152 | 131 | 0.00 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | -0.21 |
| 154 | 146 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.21 |
| 154 | 143 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 |



HIPOTESIS 15

hipo 15 asiento-5

E S F U E R Z O S E N B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | -0.39 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | 0.39 | 0.00 | 0.00 | -0.01 | -1.78 |
| 2 | 8 | 0.00 | -0.39 | 0.00 | 0.00 | 0.01 | 1.78 |
| 2 | 9 | 0.00 | 0.39 | 0.00 | 0.00 | -0.02 | -3.55 |
| 3 | 9 | 0.00 | -0.39 | 0.00 | 0.00 | 0.02 | 3.55 |
| 3 | 10 | 0.00 | 0.39 | 0.00 | 0.00 | -0.02 | -5.33 |
| 4 | 10 | 0.00 | -0.39 | 0.00 | 0.00 | 0.02 | 5.33 |
| 4 | 11 | 0.00 | 0.39 | 0.00 | 0.00 | -0.03 | -7.10 |
| 5 | 11 | 0.00 | -0.39 | 0.00 | 0.00 | 0.03 | 7.10 |
| 5 | 12 | 0.00 | 0.39 | 0.00 | 0.00 | -0.04 | -8.88 |
| 6 | 12 | 0.00 | -0.39 | 0.00 | 0.00 | 0.04 | 8.88 |
| 6 | 13 | 0.00 | 0.39 | 0.00 | 0.00 | -0.05 | -10.65 |
| 7 | 13 | 0.00 | -0.39 | 0.00 | 0.00 | 0.05 | 10.65 |
| 7 | 14 | 0.00 | 0.39 | 0.00 | 0.00 | -0.06 | -12.43 |
| 8 | 14 | 0.00 | -0.39 | 0.00 | 0.00 | 0.06 | 12.43 |
| 8 | 15 | 0.00 | 0.39 | 0.00 | 0.00 | -0.06 | -14.20 |
| 9 | 15 | 0.00 | 1.52 | 0.00 | 0.01 | 0.06 | 14.20 |
| 9 | 23 | 0.00 | -1.52 | 0.00 | -0.01 | -0.05 | -7.37 |
| 10 | 23 | 0.00 | 1.52 | 0.00 | 0.01 | 0.05 | 7.37 |
| 10 | 24 | 0.00 | -1.52 | 0.00 | -0.01 | -0.04 | -0.53 |
| 11 | 24 | 0.00 | 1.52 | 0.00 | 0.01 | 0.04 | 0.53 |
| 11 | 25 | 0.00 | -1.52 | 0.00 | -0.01 | -0.02 | 6.30 |
| 12 | 25 | 0.00 | 1.52 | 0.00 | 0.01 | 0.02 | -6.30 |
| 12 | 26 | 0.00 | -1.52 | 0.00 | -0.01 | -0.01 | 13.14 |
| 13 | 26 | 0.00 | 1.52 | 0.00 | 0.01 | 0.01 | -13.14 |
| 13 | 27 | 0.00 | -1.52 | 0.00 | -0.01 | 0.00 | 19.98 |
| 14 | 27 | 0.00 | 1.52 | 0.00 | 0.01 | 0.00 | -19.98 |
| 14 | 28 | 0.00 | -1.52 | 0.00 | -0.01 | 0.02 | 26.81 |
| 15 | 28 | 0.00 | 1.52 | 0.00 | 0.01 | -0.02 | -26.81 |
| 15 | 29 | 0.00 | -1.52 | 0.00 | -0.01 | 0.03 | 33.65 |
| 16 | 29 | 0.00 | 1.52 | 0.00 | 0.01 | -0.03 | -33.65 |
| 16 | 30 | 0.00 | -1.52 | 0.00 | -0.01 | 0.04 | 40.48 |
| 17 | 30 | 0.00 | 1.52 | 0.00 | 0.01 | -0.04 | -40.48 |
| 17 | 31 | 0.00 | -1.52 | 0.00 | -0.01 | 0.06 | 47.32 |
| 18 | 31 | 0.00 | 1.52 | 0.00 | 0.01 | -0.06 | -47.32 |
| 18 | 32 | 0.00 | -1.52 | 0.00 | -0.01 | 0.07 | 54.15 |
| 19 | 32 | 0.00 | -5.97 | 0.00 | -0.02 | -0.07 | -54.15 |
| 19 | 40 | 0.00 | 5.97 | 0.00 | 0.02 | 0.06 | 27.28 |
| 20 | 40 | 0.00 | -5.97 | 0.00 | -0.02 | -0.06 | -27.28 |
| 20 | 41 | 0.00 | 5.97 | 0.00 | 0.02 | 0.05 | 0.41 |
| 21 | 41 | 0.00 | -5.97 | 0.00 | -0.02 | -0.05 | -0.41 |
| 21 | 42 | 0.00 | 5.97 | 0.00 | 0.02 | 0.03 | -26.47 |
| 22 | 42 | 0.00 | -5.97 | 0.00 | -0.02 | -0.03 | 26.47 |
| 22 | 43 | 0.00 | 5.97 | 0.00 | 0.02 | 0.02 | -53.34 |
| 23 | 43 | 0.00 | -5.97 | 0.00 | -0.02 | -0.02 | 53.34 |
| 23 | 44 | 0.00 | 5.97 | 0.00 | 0.02 | 0.01 | -80.21 |
| 24 | 44 | 0.00 | -5.97 | 0.00 | -0.02 | -0.01 | 80.21 |
| 24 | 45 | 0.00 | 5.97 | 0.00 | 0.02 | 0.00 | -107.09 |
| 25 | 45 | 0.00 | -5.97 | 0.00 | -0.02 | 0.00 | 107.09 |
| 25 | 46 | 0.00 | 5.97 | 0.00 | 0.02 | -0.01 | -133.96 |
| 26 | 46 | 0.00 | -5.97 | 0.00 | -0.02 | 0.01 | 133.96 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 26 | 47 | 0.00 | 5.97 | 0.00 | 0.02 | -0.02 | -160.84 |
| 27 | 47 | 0.00 | -5.97 | 0.00 | -0.02 | 0.02 | 160.84 |
| 27 | 48 | 0.00 | 5.97 | 0.00 | 0.02 | -0.04 | -187.71 |
| 28 | 48 | 0.00 | -5.97 | 0.00 | -0.02 | 0.04 | 187.71 |
| 28 | 49 | 0.00 | 5.97 | 0.00 | 0.02 | -0.05 | -214.58 |
| 29 | 49 | 0.00 | 12.39 | 0.00 | 0.03 | 0.05 | 214.58 |
| 29 | 59 | 0.00 | -12.39 | 0.00 | -0.03 | -0.04 | -158.84 |
| 30 | 59 | 0.00 | 12.39 | 0.00 | 0.03 | 0.04 | 158.84 |
| 30 | 60 | 0.00 | -12.39 | 0.00 | -0.03 | -0.03 | -103.09 |
| 31 | 60 | 0.00 | 12.39 | 0.00 | 0.03 | 0.03 | 103.09 |
| 31 | 61 | 0.00 | -12.39 | 0.00 | -0.03 | -0.02 | -47.34 |
| 32 | 61 | 0.00 | 12.39 | 0.00 | 0.03 | 0.02 | 47.34 |
| 32 | 62 | 0.00 | -12.39 | 0.00 | -0.03 | -0.01 | 8.41 |
| 33 | 62 | 0.00 | 12.39 | 0.00 | 0.03 | 0.01 | -8.41 |
| 33 | 63 | 0.00 | -12.39 | 0.00 | -0.03 | 0.00 | 64.16 |
| 34 | 63 | 0.00 | 12.39 | 0.00 | 0.03 | 0.00 | -64.16 |
| 34 | 64 | 0.00 | -12.39 | 0.00 | -0.03 | 0.01 | 119.91 |
| 35 | 64 | 0.00 | 12.39 | 0.00 | 0.03 | -0.01 | -119.91 |
| 35 | 65 | 0.00 | -12.39 | 0.00 | -0.03 | 0.02 | 175.66 |
| 36 | 65 | 0.00 | 12.39 | 0.00 | 0.03 | -0.02 | -175.66 |
| 36 | 66 | 0.00 | -12.39 | 0.00 | -0.03 | 0.03 | 231.41 |
| 37 | 66 | 0.00 | 12.39 | 0.00 | 0.03 | -0.03 | -231.41 |
| 37 | 67 | 0.00 | -12.39 | 0.00 | -0.03 | 0.04 | 287.15 |
| 38 | 67 | 0.00 | 12.39 | 0.00 | 0.03 | -0.04 | -287.16 |
| 38 | 68 | 0.00 | -12.39 | 0.00 | -0.03 | 0.05 | 342.90 |
| 39 | 68 | 0.00 | -12.39 | 0.00 | -0.03 | -0.05 | -342.90 |
| 39 | 78 | 0.00 | 12.39 | 0.00 | 0.03 | 0.04 | 287.15 |
| 40 | 78 | 0.00 | -12.39 | 0.00 | -0.03 | -0.04 | -287.15 |
| 40 | 79 | 0.00 | 12.39 | 0.00 | 0.03 | 0.03 | 231.39 |
| 41 | 79 | 0.00 | -12.39 | 0.00 | -0.03 | -0.03 | -231.39 |
| 41 | 80 | 0.00 | 12.39 | 0.00 | 0.03 | 0.01 | 175.63 |
| 42 | 80 | 0.00 | -12.39 | 0.00 | -0.03 | -0.01 | -175.63 |
| 42 | 81 | 0.00 | 12.39 | 0.00 | 0.03 | 0.00 | 119.88 |
| 43 | 81 | 0.00 | -12.39 | 0.00 | -0.03 | 0.00 | -119.88 |
| 43 | 82 | 0.00 | 12.39 | 0.00 | 0.03 | -0.01 | 64.12 |
| 44 | 82 | 0.00 | -12.39 | 0.00 | -0.03 | 0.01 | -64.12 |
| 44 | 83 | 0.00 | 12.39 | 0.00 | 0.03 | -0.02 | 8.36 |
| 45 | 83 | 0.00 | -12.39 | 0.00 | -0.03 | 0.02 | -8.36 |
| 45 | 84 | 0.00 | 12.39 | 0.00 | 0.03 | -0.03 | -47.40 |
| 46 | 84 | 0.00 | -12.39 | 0.00 | -0.03 | 0.03 | 47.40 |
| 46 | 85 | 0.00 | 12.39 | 0.00 | 0.03 | -0.04 | -103.15 |
| 47 | 85 | 0.00 | -12.39 | 0.00 | -0.03 | 0.04 | 103.15 |
| 47 | 86 | 0.00 | 12.39 | 0.00 | 0.03 | -0.06 | -158.91 |
| 48 | 86 | 0.00 | -12.39 | 0.00 | -0.03 | 0.06 | 158.91 |
| 48 | 87 | 0.00 | 12.39 | 0.00 | 0.03 | -0.07 | -214.67 |
| 49 | 87 | 0.00 | 5.97 | 0.00 | 0.02 | 0.07 | 214.67 |
| 49 | 97 | 0.00 | -5.97 | 0.00 | -0.02 | -0.06 | -187.79 |
| 50 | 97 | 0.00 | 5.97 | 0.00 | 0.02 | 0.06 | 187.79 |
| 50 | 98 | 0.00 | -5.97 | 0.00 | -0.02 | -0.04 | -160.91 |
| 51 | 98 | 0.00 | 5.97 | 0.00 | 0.02 | 0.04 | 160.91 |
| 51 | 99 | 0.00 | -5.97 | 0.00 | -0.02 | -0.03 | -134.03 |
| 52 | 99 | 0.00 | 5.97 | 0.00 | 0.02 | 0.03 | 134.03 |
| 52 | 100 | 0.00 | -5.97 | 0.00 | -0.02 | -0.02 | -107.14 |
| 53 | 100 | 0.00 | 5.97 | 0.00 | 0.02 | 0.02 | 107.15 |
| 53 | 101 | 0.00 | -5.97 | 0.00 | -0.02 | -0.01 | -80.26 |
| 54 | 101 | 0.00 | 5.97 | 0.00 | 0.02 | 0.01 | 80.26 |
| 54 | 102 | 0.00 | -5.97 | 0.00 | -0.02 | 0.01 | -53.38 |
| 55 | 102 | 0.00 | 5.97 | 0.00 | 0.02 | -0.01 | 53.38 |
| 55 | 103 | 0.00 | -5.97 | 0.00 | -0.02 | 0.02 | -26.50 |
| 56 | 103 | 0.00 | 5.97 | 0.00 | 0.02 | -0.02 | 26.50 |
| 56 | 104 | 0.00 | -5.97 | 0.00 | -0.02 | 0.03 | 0.38 |
| 57 | 104 | 0.00 | 5.97 | 0.00 | 0.02 | -0.03 | -0.38 |
| 57 | 105 | 0.00 | -5.97 | 0.00 | -0.02 | 0.04 | 27.26 |
| 58 | 105 | 0.00 | 5.97 | 0.00 | 0.02 | -0.04 | -27.26 |
| 58 | 106 | 0.00 | -5.97 | 0.00 | -0.02 | 0.05 | 54.14 |
| 59 | 106 | 0.00 | -1.52 | 0.00 | -0.01 | -0.05 | -54.14 |
| 59 | 115 | 0.00 | 1.52 | 0.00 | 0.01 | 0.05 | 47.31 |
| 60 | 115 | 0.00 | -1.52 | 0.00 | -0.01 | -0.05 | -47.31 |
| 60 | 116 | 0.00 | 1.52 | 0.00 | 0.01 | 0.04 | 40.49 |
| 61 | 116 | 0.00 | -1.52 | 0.00 | -0.01 | -0.04 | -40.49 |
| 61 | 117 | 0.00 | 1.52 | 0.00 | 0.01 | 0.03 | 33.66 |
| 62 | 117 | 0.00 | -1.52 | 0.00 | -0.01 | -0.03 | -33.66 |
| 62 | 118 | 0.00 | 1.52 | 0.00 | 0.01 | 0.02 | 26.83 |
| 63 | 118 | 0.00 | -1.52 | 0.00 | -0.01 | -0.02 | -26.83 |
| 63 | 119 | 0.00 | 1.52 | 0.00 | 0.01 | 0.01 | 20.00 |
| 64 | 119 | 0.00 | -1.52 | 0.00 | -0.01 | -0.01 | -20.00 |
| 64 | 120 | 0.00 | 1.52 | 0.00 | 0.01 | 0.00 | 13.18 |
| 65 | 120 | 0.00 | -1.52 | 0.00 | -0.01 | 0.00 | -13.18 |
| 65 | 121 | 0.00 | 1.52 | 0.00 | 0.01 | 0.00 | 6.35 |
| 66 | 121 | 0.00 | -1.52 | 0.00 | -0.01 | 0.00 | -6.35 |
| 66 | 122 | 0.00 | 1.52 | 0.00 | 0.01 | -0.01 | -0.48 |
| 67 | 122 | 0.00 | -1.52 | 0.00 | -0.01 | 0.01 | 0.48 |
| 67 | 123 | 0.00 | 1.52 | 0.00 | 0.01 | -0.02 | -7.30 |
| 68 | 123 | 0.00 | -1.52 | 0.00 | -0.01 | 0.02 | 7.30 |
| 68 | 124 | 0.00 | 1.52 | 0.00 | 0.01 | -0.03 | -14.13 |
| 69 | 124 | 0.00 | 0.39 | 0.00 | 0.00 | 0.03 | 14.13 |
| 69 | 133 | 0.00 | -0.39 | 0.00 | 0.00 | -0.03 | -12.36 |
| 70 | 133 | 0.00 | 0.39 | 0.00 | 0.00 | 0.03 | 12.36 |
| 70 | 134 | 0.00 | -0.39 | 0.00 | 0.00 | -0.02 | -10.60 |
| 71 | 134 | 0.00 | 0.39 | 0.00 | 0.00 | 0.02 | 10.60 |
| 71 | 135 | 0.00 | -0.39 | 0.00 | 0.00 | -0.02 | -8.83 |
| 72 | 135 | 0.00 | 0.39 | 0.00 | 0.00 | 0.02 | 8.83 |
| 72 | 136 | 0.00 | -0.39 | 0.00 | 0.00 | -0.01 | -7.07 |
| 73 | 136 | 0.00 | 0.39 | 0.00 | 0.00 | 0.01 | 7.07 |
| 73 | 137 | 0.00 | -0.39 | 0.00 | 0.00 | -0.01 | -5.30 |
| 74 | 137 | 0.00 | 0.39 | 0.00 | 0.00 | 0.01 | 5.30 |
| 74 | 138 | 0.00 | -0.39 | 0.00 | 0.00 | -0.01 | -3.53 |
| 75 | 138 | 0.00 | 0.39 | 0.00 | 0.00 | 0.01 | 3.53 |
| 75 | 139 | 0.00 | -0.39 | 0.00 | 0.00 | 0.00 | -1.77 |
| 76 | 139 | 0.00 | 0.39 | 0.00 | 0.00 | 0.00 | 1.77 |
| 76 | 140 | 0.00 | -0.39 | 0.00 | 0.00 | 0.00 | 0.00 |
| 77 | 16 | 1.91 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 |
| 77 | 17 | -1.91 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 78 | 17 | 1.91 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| 78 | 18 | -1.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 79 | 33 | -7.49 | 0.00 | 0.01 | 0.00 | -0.05 | 0.00 |
| 79 | 34 | 7.49 | 0.00 | -0.01 | 0.00 | 0.01 | 0.00 |
| 80 | 34 | -7.49 | 0.00 | 0.01 | 0.00 | -0.01 | 0.00 |
| 80 | 35 | 7.49 | 0.00 | -0.01 | 0.00 | -0.02 | 0.00 |
| 81 | 50 | 18.36 | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 |
| 81 | 51 | -18.36 | 0.00 | 0.00 | 0.00 | -0.09 | 0.00 |
| 82 | 51 | 18.36 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 |
| 82 | 52 | -18.36 | 0.00 | 0.00 | 0.00 | -0.04 | 0.00 |
| 83 | 52 | 18.36 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 |
| 83 | 53 | -18.36 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 84 | 53 | 18.36 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 84 | 54 | -18.36 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 |
| 85 | 69 | -24.78 | 0.00 | 0.00 | 0.00 | -0.11 | 0.00 |
| 85 | 70 | 24.78 | 0.00 | 0.00 | 0.00 | 0.08 | 0.00 |
| 86 | 70 | -24.78 | 0.00 | 0.00 | 0.00 | -0.08 | 0.00 |
| 86 | 71 | 24.78 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 |
| 87 | 71 | -24.78 | 0.00 | 0.00 | 0.00 | -0.03 | 0.00 |
| 87 | 72 | 24.78 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 88 | 72 | -24.78 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| 88 | 73 | 24.78 | 0.00 | 0.00 | 0.00 | -0.04 | 0.00 |
| 89 | 88 | 18.36 | 0.00 | -0.01 | 0.00 | 0.11 | 0.00 |
| 89 | 89 | -18.36 | 0.00 | 0.01 | 0.00 | -0.10 | 0.00 |
| 90 | 89 | 18.36 | 0.00 | -0.01 | 0.00 | 0.10 | 0.00 |
| 90 | 90 | -18.36 | 0.00 | 0.01 | 0.00 | -0.05 | 0.00 |
| 91 | 90 | 18.36 | 0.00 | -0.01 | 0.00 | 0.05 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 91 | 91 | -18.36 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 92 | 91 | 18.36 | 0.00 | -0.01 | 0.00 | -0.01 | 0.00 |
| 92 | 92 | -18.36 | 0.00 | 0.01 | 0.00 | 0.03 | 0.00 |
| 93 | 107 | -7.49 | 0.00 | 0.00 | 0.00 | -0.05 | 0.00 |
| 93 | 108 | 7.49 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 |
| 94 | 108 | -7.49 | 0.00 | 0.00 | 0.00 | -0.05 | 0.00 |
| 94 | 109 | 7.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95 | 109 | -7.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95 | 110 | 7.49 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 96 | 125 | 1.91 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 |
| 96 | 126 | -1.91 | 0.00 | 0.00 | 0.00 | -0.03 | 0.00 |
| 97 | 126 | 1.91 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 |
| 97 | 127 | -1.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 98 | 127 | 1.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 98 | 128 | -1.91 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 99 | 2 | -0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | -0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 19 | 0.96 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -0.96 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 0.96 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -0.96 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 103 | 36 | -3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | -3.74 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | 3.74 | 0.00 | -0.01 | 0.00 | -0.01 | 0.00 |
| 105 | 55 | 9.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -9.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 9.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -9.17 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 107 | 74 | -12.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | 12.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | -12.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | 12.38 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 109 | 93 | 9.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -9.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 9.17 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -9.17 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 111 | 111 | -3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | -3.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | 3.74 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 113 | 129 | 0.96 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -0.96 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 0.95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -0.95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 141 | -0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | -0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 117 | 6 | -0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 117 | 7 | 0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 118 | 145 | -0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 118 | 146 | 0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 3 | 0.00 | -0.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | 0.20 | 0.00 | 0.00 | 0.00 | -0.84 |
| 120 | 1 | 0.00 | 0.20 | 0.00 | 0.00 | 0.00 | 0.83 |
| 120 | 5 | 0.00 | -0.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 20 | 0.00 | 0.96 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | -0.96 | 0.00 | 0.00 | 0.00 | 1.77 |
| 122 | 15 | 0.00 | -0.96 | 0.00 | 0.00 | 0.00 | -1.76 |
| 122 | 22 | 0.00 | 0.96 | 0.00 | 0.00 | 0.00 | -0.01 |
| 123 | 37 | 0.00 | -3.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | 3.75 | 0.00 | 0.00 | 0.00 | -6.94 |
| 124 | 32 | -0.01 | 3.74 | 0.00 | 0.00 | 0.00 | 6.91 |
| 124 | 39 | 0.01 | -3.74 | 0.00 | 0.00 | 0.00 | 0.01 |
| 125 | 56 | 0.00 | 9.19 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.00 | -9.19 | 0.00 | 0.00 | 0.00 | 17.00 |
| 126 | 49 | 0.00 | -9.17 | 0.00 | 0.00 | 0.00 | -16.96 |
| 126 | 58 | 0.00 | 9.17 | 0.00 | 0.00 | 0.00 | -0.01 |
| 127 | 75 | 0.00 | -12.40 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.00 | 12.40 | 0.00 | 0.00 | 0.00 | -22.94 |
| 128 | 68 | 0.00 | 12.37 | 0.00 | 0.00 | 0.00 | 22.90 |
| 128 | 77 | 0.00 | -12.37 | 0.00 | 0.00 | 0.00 | 0.02 |
| 129 | 94 | 0.00 | 9.19 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | -9.19 | 0.00 | 0.00 | 0.00 | 17.00 |
| 130 | 87 | 0.01 | -9.17 | 0.00 | 0.00 | 0.00 | -16.96 |
| 130 | 96 | -0.01 | 9.17 | 0.00 | 0.00 | 0.00 | -0.01 |
| 131 | 112 | 0.00 | -3.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | 3.75 | 0.00 | 0.00 | 0.00 | -6.94 |
| 132 | 106 | 0.00 | 3.74 | 0.00 | 0.00 | 0.00 | 6.91 |
| 132 | 114 | 0.00 | -3.74 | 0.00 | 0.00 | 0.00 | 0.01 |
| 133 | 130 | 0.00 | 0.96 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | -0.96 | 0.00 | 0.00 | 0.00 | 1.77 |
| 134 | 124 | 0.00 | -0.95 | 0.00 | 0.00 | 0.00 | -1.76 |
| 134 | 132 | 0.00 | 0.95 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 142 | 0.00 | -0.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | 0.20 | 0.00 | 0.00 | 0.00 | -0.84 |
| 136 | 140 | 0.00 | 0.20 | 0.00 | 0.00 | 0.00 | 0.83 |
| 136 | 144 | 0.00 | -0.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 2 | 0.00 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | -0.20 | 0.00 | 0.00 | 0.00 | 0.84 |
| 138 | 7 | 0.00 | -0.20 | 0.00 | 0.00 | 0.00 | -0.84 |
| 138 | 4 | 0.00 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -0.96 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 0.96 | 0.00 | 0.00 | 0.00 | -1.77 |
| 140 | 18 | 0.00 | 0.96 | 0.00 | 0.00 | 0.00 | 1.77 |
| 140 | 21 | 0.00 | -0.96 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | -3.75 | 0.00 | 0.00 | 0.00 | 6.94 |
| 142 | 35 | 0.01 | -3.74 | 0.00 | 0.00 | 0.00 | -6.92 |
| 142 | 38 | -0.01 | 3.74 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -9.19 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | 9.19 | 0.00 | 0.00 | 0.00 | -17.00 |
| 144 | 54 | 0.00 | 9.17 | 0.00 | 0.00 | 0.00 | 16.97 |
| 144 | 57 | 0.00 | -9.17 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | 12.40 | 0.00 | 0.00 | 0.00 | 0.01 |
| 145 | 73 | 0.00 | -12.40 | 0.00 | 0.00 | 0.00 | 22.95 |
| 146 | 73 | 0.00 | -12.39 | 0.00 | 0.00 | 0.00 | -22.88 |
| 146 | 76 | 0.00 | 12.39 | 0.00 | 0.00 | 0.00 | 0.02 |
| 147 | 93 | 0.00 | -9.19 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | 9.19 | 0.00 | 0.00 | 0.00 | -17.00 |
| 148 | 92 | -0.01 | 9.17 | 0.00 | 0.00 | 0.00 | 16.97 |
| 148 | 95 | 0.01 | -9.17 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | -3.75 | 0.00 | 0.00 | 0.00 | 6.94 |
| 150 | 110 | 0.00 | -3.74 | 0.00 | 0.00 | 0.00 | -6.92 |
| 150 | 113 | 0.00 | 3.74 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -0.96 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 0.96 | 0.00 | 0.00 | 0.00 | -1.77 |
| 152 | 128 | 0.00 | 0.95 | 0.00 | 0.00 | 0.00 | 1.76 |
| 152 | 131 | 0.00 | -0.95 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | -0.20 | 0.00 | 0.00 | 0.00 | 0.84 |
| 154 | 146 | 0.00 | -0.20 | 0.00 | 0.00 | 0.00 | -0.83 |
| 154 | 143 | 0.00 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 |

HIPOTESIS 16

hipo 16 asiento-6

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -0.10 | 0.00 | 0.00 | 0.00 | 0.44 |
| 2 | 8 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 | -0.44 |
| 2 | 9 | 0.00 | -0.10 | 0.00 | 0.00 | 0.00 | 0.88 |
| 3 | 9 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 | -0.88 |
| 3 | 10 | 0.00 | -0.10 | 0.00 | 0.00 | 0.01 | 1.32 |
| 4 | 10 | 0.00 | 0.10 | 0.00 | 0.00 | -0.01 | -1.32 |
| 4 | 11 | 0.00 | -0.10 | 0.00 | 0.00 | 0.01 | 1.76 |
| 5 | 11 | 0.00 | 0.10 | 0.00 | 0.00 | -0.01 | -1.76 |
| 5 | 12 | 0.00 | -0.10 | 0.00 | 0.00 | 0.01 | 2.20 |
| 6 | 12 | 0.00 | 0.10 | 0.00 | 0.00 | -0.01 | -2.20 |
| 6 | 13 | 0.00 | -0.10 | 0.00 | 0.00 | 0.01 | 2.64 |
| 7 | 13 | 0.00 | 0.10 | 0.00 | 0.00 | -0.01 | -2.64 |
| 7 | 14 | 0.00 | -0.10 | 0.00 | 0.00 | 0.01 | 3.07 |
| 8 | 14 | 0.00 | 0.10 | 0.00 | 0.00 | -0.01 | -3.07 |
| 8 | 15 | 0.00 | -0.10 | 0.00 | 0.00 | 0.02 | 3.51 |
| 9 | 15 | 0.00 | -0.38 | 0.00 | 0.00 | -0.02 | -3.51 |
| 9 | 23 | 0.00 | 0.38 | 0.00 | 0.00 | 0.01 | 1.82 |
| 10 | 23 | 0.00 | -0.38 | 0.00 | 0.00 | -0.01 | -1.82 |
| 10 | 24 | 0.00 | 0.38 | 0.00 | 0.00 | 0.01 | 0.13 |
| 11 | 24 | 0.00 | -0.38 | 0.00 | 0.00 | -0.01 | -0.13 |
| 11 | 25 | 0.00 | 0.38 | 0.00 | 0.00 | 0.01 | -1.56 |
| 12 | 25 | 0.00 | -0.38 | 0.00 | 0.00 | -0.01 | 1.56 |
| 12 | 26 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | -3.25 |
| 13 | 26 | 0.00 | -0.38 | 0.00 | 0.00 | 0.00 | 3.25 |
| 13 | 27 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | -4.94 |
| 14 | 27 | 0.00 | -0.38 | 0.00 | 0.00 | 0.00 | 4.94 |
| 14 | 28 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | -6.63 |
| 15 | 28 | 0.00 | -0.38 | 0.00 | 0.00 | 0.00 | 6.63 |
| 15 | 29 | 0.00 | 0.38 | 0.00 | 0.00 | -0.01 | -8.32 |
| 16 | 29 | 0.00 | -0.38 | 0.00 | 0.00 | 0.01 | 8.32 |
| 16 | 30 | 0.00 | 0.38 | 0.00 | 0.00 | -0.01 | -10.02 |
| 17 | 30 | 0.00 | -0.38 | 0.00 | 0.00 | 0.01 | 10.02 |
| 17 | 31 | 0.00 | 0.38 | 0.00 | 0.00 | -0.02 | -11.71 |
| 18 | 31 | 0.00 | -0.38 | 0.00 | 0.00 | 0.02 | 11.71 |
| 18 | 32 | 0.00 | 0.38 | 0.00 | 0.00 | -0.02 | -13.40 |
| 19 | 32 | 0.00 | 1.49 | 0.00 | 0.01 | 0.02 | 13.40 |
| 19 | 40 | 0.00 | -1.49 | 0.00 | -0.01 | -0.01 | -6.70 |
| 20 | 40 | 0.00 | 1.49 | 0.00 | 0.01 | 0.01 | 6.70 |
| 20 | 41 | 0.00 | -1.49 | 0.00 | -0.01 | -0.01 | 0.00 |
| 21 | 41 | 0.00 | 1.49 | 0.00 | 0.01 | 0.01 | 0.00 |
| 21 | 42 | 0.00 | -1.49 | 0.00 | -0.01 | -0.01 | 6.70 |
| 22 | 42 | 0.00 | 1.49 | 0.00 | 0.01 | 0.01 | -6.70 |
| 22 | 43 | 0.00 | -1.49 | 0.00 | -0.01 | 0.00 | 13.40 |
| 23 | 43 | 0.00 | 1.49 | 0.00 | 0.01 | 0.00 | -13.40 |
| 23 | 44 | 0.00 | -1.49 | 0.00 | -0.01 | 0.00 | 20.10 |
| 24 | 44 | 0.00 | 1.49 | 0.00 | 0.01 | 0.00 | -20.10 |
| 24 | 45 | 0.00 | -1.49 | 0.00 | -0.01 | 0.00 | 26.81 |
| 25 | 45 | 0.00 | 1.49 | 0.00 | 0.01 | 0.00 | -26.81 |
| 25 | 46 | 0.00 | -1.49 | 0.00 | -0.01 | 0.01 | 33.51 |
| 26 | 46 | 0.00 | 1.49 | 0.00 | 0.01 | -0.01 | -33.51 |
| 26 | 47 | 0.00 | -1.49 | 0.00 | -0.01 | 0.01 | 40.21 |
| 27 | 47 | 0.00 | 1.49 | 0.00 | 0.01 | -0.01 | -40.21 |
| 27 | 48 | 0.00 | -1.49 | 0.00 | -0.01 | 0.02 | 46.91 |
| 28 | 48 | 0.00 | 1.49 | 0.00 | 0.01 | -0.02 | -46.91 |
| 28 | 49 | 0.00 | -1.49 | 0.00 | -0.01 | 0.02 | 53.61 |
| 29 | 49 | 0.00 | -5.96 | 0.00 | -0.01 | -0.02 | -53.61 |
| 29 | 59 | 0.00 | 5.96 | 0.00 | 0.01 | 0.01 | 26.79 |
| 30 | 59 | 0.00 | -5.96 | 0.00 | -0.01 | -0.01 | -26.79 |
| 30 | 60 | 0.00 | 5.96 | 0.00 | 0.01 | 0.01 | -0.02 |
| 31 | 60 | 0.00 | -5.96 | 0.00 | -0.01 | -0.01 | 0.02 |
| 31 | 61 | 0.00 | 5.96 | 0.00 | 0.01 | 0.00 | -26.84 |
| 32 | 61 | 0.00 | -5.96 | 0.00 | -0.01 | 0.00 | 26.84 |
| 32 | 62 | 0.00 | 5.96 | 0.00 | 0.01 | 0.00 | -53.65 |
| 33 | 62 | 0.00 | -5.96 | 0.00 | -0.01 | 0.00 | 53.65 |
| 33 | 63 | 0.00 | 5.96 | 0.00 | 0.01 | -0.01 | -80.47 |
| 34 | 63 | 0.00 | -5.96 | 0.00 | -0.01 | 0.01 | 80.47 |
| 34 | 64 | 0.00 | 5.96 | 0.00 | 0.01 | -0.01 | -107.28 |
| 35 | 64 | 0.00 | -5.96 | 0.00 | -0.01 | 0.01 | 107.28 |
| 35 | 65 | 0.00 | 5.96 | 0.00 | 0.01 | -0.02 | -134.10 |
| 36 | 65 | 0.00 | -5.96 | 0.00 | -0.01 | 0.02 | 134.10 |
| 36 | 66 | 0.00 | 5.96 | 0.00 | 0.01 | -0.02 | -160.91 |
| 37 | 66 | 0.00 | -5.96 | 0.00 | -0.01 | 0.02 | 160.91 |
| 37 | 67 | 0.00 | 5.96 | 0.00 | 0.01 | -0.03 | -187.73 |
| 38 | 67 | 0.00 | -5.96 | 0.00 | -0.01 | 0.03 | 187.73 |
| 38 | 68 | 0.00 | 5.96 | 0.00 | 0.01 | -0.03 | -214.54 |
| 39 | 68 | 0.00 | 12.41 | 0.00 | 0.03 | 0.03 | 214.54 |
| 39 | 78 | 0.00 | -12.41 | 0.00 | -0.03 | -0.02 | -158.72 |
| 40 | 78 | 0.00 | 12.41 | 0.00 | 0.03 | 0.02 | 158.72 |
| 40 | 79 | 0.00 | -12.41 | 0.00 | -0.03 | -0.01 | -102.90 |
| 41 | 79 | 0.00 | 12.41 | 0.00 | 0.03 | 0.01 | 102.90 |
| 41 | 80 | 0.00 | -12.41 | 0.00 | -0.03 | 0.00 | -47.07 |
| 42 | 80 | 0.00 | 12.41 | 0.00 | 0.03 | 0.00 | 47.07 |
| 42 | 81 | 0.00 | -12.41 | 0.00 | -0.03 | 0.02 | 8.75 |
| 43 | 81 | 0.00 | 12.41 | 0.00 | 0.03 | -0.02 | -8.75 |
| 43 | 82 | 0.00 | -12.41 | 0.00 | -0.03 | 0.03 | 64.57 |
| 44 | 82 | 0.00 | 12.41 | 0.00 | 0.03 | -0.03 | -64.57 |
| 44 | 83 | 0.00 | -12.41 | 0.00 | -0.03 | 0.04 | 120.40 |
| 45 | 83 | 0.00 | 12.40 | 0.00 | 0.03 | -0.04 | -120.40 |
| 45 | 84 | 0.00 | -12.40 | 0.00 | -0.03 | 0.05 | 176.22 |
| 46 | 84 | 0.00 | 12.40 | 0.00 | 0.03 | -0.05 | -176.22 |
| 46 | 85 | 0.00 | -12.40 | 0.00 | -0.03 | 0.07 | 232.04 |
| 47 | 85 | 0.00 | 12.41 | 0.00 | 0.03 | -0.07 | -232.04 |
| 47 | 86 | 0.00 | -12.41 | 0.00 | -0.03 | 0.08 | 287.87 |
| 48 | 86 | 0.00 | 12.40 | 0.00 | 0.03 | -0.08 | -287.87 |
| 48 | 87 | 0.00 | -12.40 | 0.00 | -0.03 | 0.09 | 343.69 |
| 49 | 87 | 0.00 | -12.44 | 0.00 | -0.03 | -0.09 | -343.69 |
| 49 | 97 | 0.00 | 12.44 | 0.00 | 0.03 | 0.07 | 287.71 |
| 50 | 97 | 0.00 | -12.44 | 0.00 | -0.03 | -0.07 | -287.72 |
| 50 | 98 | 0.00 | 12.44 | 0.00 | 0.03 | 0.05 | 231.74 |
| 51 | 98 | 0.00 | -12.44 | 0.00 | -0.03 | -0.05 | -231.74 |
| 51 | 99 | 0.00 | 12.44 | 0.00 | 0.03 | 0.03 | 175.77 |
| 52 | 99 | 0.00 | -12.44 | 0.00 | -0.03 | -0.03 | -175.77 |
| 52 | 100 | 0.00 | 12.44 | 0.00 | 0.03 | 0.00 | 119.79 |
| 53 | 100 | 0.00 | -12.44 | 0.00 | -0.03 | 0.00 | -119.79 |
| 53 | 101 | 0.00 | 12.44 | 0.00 | 0.03 | -0.02 | 63.82 |
| 54 | 101 | 0.00 | -12.44 | 0.00 | -0.03 | 0.02 | -63.82 |
| 54 | 102 | 0.00 | 12.44 | 0.00 | 0.03 | -0.04 | 7.84 |
| 55 | 102 | 0.00 | -12.44 | 0.00 | -0.03 | 0.04 | -7.84 |
| 55 | 103 | 0.00 | 12.44 | 0.00 | 0.03 | -0.06 | -48.13 |
| 56 | 103 | 0.00 | -12.44 | 0.00 | -0.03 | 0.06 | 48.13 |
| 56 | 104 | 0.00 | 12.44 | 0.00 | 0.03 | -0.08 | -104.10 |
| 57 | 104 | 0.00 | -12.44 | 0.00 | -0.03 | 0.08 | 104.10 |
| 57 | 105 | 0.00 | 12.44 | 0.00 | 0.03 | -0.10 | -160.08 |
| 58 | 105 | 0.00 | -12.44 | 0.00 | -0.03 | 0.10 | 160.08 |
| 58 | 106 | 0.00 | 12.44 | 0.00 | 0.03 | -0.12 | -216.05 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 59 | 106 | 0.00 | 6.06 | -0.01 | 0.02 | 0.12 | 216.05 |
| 59 | 115 | 0.00 | -6.06 | 0.01 | -0.02 | -0.10 | -188.77 |
| 60 | 115 | 0.00 | 6.06 | -0.01 | 0.02 | 0.10 | 188.77 |
| 60 | 116 | 0.00 | -6.06 | 0.01 | -0.02 | -0.08 | -161.49 |
| 61 | 116 | 0.00 | 6.06 | -0.01 | 0.02 | 0.08 | 161.49 |
| 61 | 117 | 0.00 | -6.06 | 0.01 | -0.02 | -0.05 | -134.21 |
| 62 | 117 | 0.00 | 6.06 | -0.01 | 0.02 | 0.05 | 134.21 |
| 62 | 118 | 0.00 | -6.06 | 0.01 | -0.02 | -0.03 | -106.93 |
| 63 | 118 | 0.00 | 6.06 | -0.01 | 0.02 | 0.03 | 106.93 |
| 63 | 119 | 0.00 | -6.06 | 0.01 | -0.02 | 0.00 | -79.65 |
| 64 | 119 | 0.00 | 6.06 | -0.01 | 0.02 | 0.00 | 79.65 |
| 64 | 120 | 0.00 | -6.06 | 0.01 | -0.02 | 0.02 | -52.37 |
| 65 | 120 | 0.00 | 6.06 | -0.01 | 0.02 | -0.02 | 52.37 |
| 65 | 121 | 0.00 | -6.06 | 0.01 | -0.02 | 0.04 | -25.09 |
| 66 | 121 | 0.00 | 6.06 | -0.01 | 0.02 | -0.04 | 25.09 |
| 66 | 122 | 0.00 | -6.06 | 0.01 | -0.02 | 0.07 | 2.19 |
| 67 | 122 | 0.00 | 6.06 | -0.01 | 0.02 | -0.07 | -2.19 |
| 67 | 123 | 0.00 | -6.06 | 0.01 | -0.02 | 0.09 | 29.47 |
| 68 | 123 | 0.00 | 6.06 | -0.01 | 0.02 | -0.09 | -29.47 |
| 68 | 124 | 0.00 | -6.06 | 0.01 | -0.02 | 0.11 | 56.75 |
| 69 | 124 | 0.00 | -1.58 | 0.00 | -0.02 | -0.11 | -56.75 |
| 69 | 133 | 0.00 | 1.58 | 0.00 | 0.02 | 0.10 | 49.65 |
| 70 | 133 | 0.00 | -1.58 | 0.00 | -0.02 | -0.10 | -49.65 |
| 70 | 134 | 0.00 | 1.58 | 0.00 | 0.02 | 0.09 | 42.56 |
| 71 | 134 | 0.00 | -1.58 | 0.00 | -0.02 | -0.09 | -42.56 |
| 71 | 135 | 0.00 | 1.58 | 0.00 | 0.02 | 0.07 | 35.47 |
| 72 | 135 | 0.00 | -1.58 | 0.00 | -0.02 | -0.07 | -35.47 |
| 72 | 136 | 0.00 | 1.58 | 0.00 | 0.02 | 0.06 | 28.37 |
| 73 | 136 | 0.00 | -1.58 | 0.00 | -0.02 | -0.06 | -28.37 |
| 73 | 137 | 0.00 | 1.58 | 0.00 | 0.02 | 0.04 | 21.28 |
| 74 | 137 | 0.00 | -1.58 | 0.00 | -0.02 | -0.04 | -21.28 |
| 74 | 138 | 0.00 | 1.58 | 0.00 | 0.02 | 0.03 | 14.19 |
| 75 | 138 | 0.00 | -1.58 | 0.00 | -0.02 | -0.03 | -14.19 |
| 75 | 139 | 0.00 | 1.58 | 0.00 | 0.02 | 0.01 | 7.09 |
| 76 | 139 | 0.00 | -1.58 | 0.00 | -0.02 | -0.01 | -7.09 |
| 76 | 140 | 0.00 | 1.58 | 0.00 | 0.02 | 0.00 | 0.00 |
| 77 | 16 | -0.47 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 77 | 17 | 0.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 78 | 17 | -0.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 78 | 18 | 0.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 79 | 33 | 1.86 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| 79 | 34 | -1.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 80 | 34 | 1.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 80 | 35 | -1.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 81 | 50 | -7.45 | 0.00 | 0.00 | 0.00 | -0.04 | 0.00 |
| 81 | 51 | 7.45 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 |
| 82 | 51 | -7.45 | 0.00 | 0.00 | 0.00 | -0.03 | 0.00 |
| 82 | 52 | 7.45 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 83 | 52 | -7.45 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 83 | 53 | 7.45 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 84 | 53 | -7.45 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 84 | 54 | 7.45 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 85 | 69 | 18.36 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 |
| 85 | 70 | -18.36 | 0.00 | 0.00 | 0.00 | -0.06 | 0.00 |
| 86 | 70 | 18.36 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 |
| 86 | 71 | -18.36 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 87 | 71 | 18.36 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| 87 | 72 | -18.36 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| 88 | 72 | 18.36 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 88 | 73 | -18.36 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 |
| 89 | 88 | -24.84 | 0.00 | 0.01 | 0.00 | -0.15 | 0.00 |
| 89 | 89 | 24.84 | 0.00 | -0.01 | 0.00 | 0.14 | 0.00 |
| 90 | 89 | -24.84 | 0.00 | 0.01 | 0.00 | -0.14 | 0.00 |
| 90 | 90 | 24.84 | 0.00 | -0.01 | 0.00 | 0.07 | 0.00 |
| 91 | 90 | -24.84 | 0.00 | 0.01 | 0.00 | -0.07 | 0.00 |
| 91 | 91 | 24.84 | 0.00 | -0.01 | 0.00 | -0.01 | 0.00 |
| 92 | 91 | -24.84 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 92 | 92 | 24.84 | 0.00 | -0.01 | 0.00 | -0.05 | 0.00 |
| 93 | 107 | 18.50 | 0.00 | -0.01 | 0.00 | 0.12 | 0.00 |
| 93 | 108 | -18.50 | 0.00 | 0.01 | 0.00 | -0.11 | 0.00 |
| 94 | 108 | 18.50 | 0.00 | -0.01 | 0.00 | 0.11 | 0.00 |
| 94 | 109 | -18.50 | 0.00 | 0.01 | 0.00 | -0.01 | 0.00 |
| 95 | 109 | 18.50 | 0.00 | -0.01 | 0.00 | 0.01 | 0.00 |
| 95 | 110 | -18.50 | 0.00 | 0.01 | 0.00 | 0.04 | 0.00 |
| 96 | 125 | -7.64 | 0.00 | 0.01 | 0.00 | -0.11 | 0.00 |
| 96 | 126 | 7.64 | 0.00 | -0.01 | 0.00 | 0.10 | 0.00 |
| 97 | 126 | -7.64 | 0.00 | 0.01 | 0.00 | -0.10 | 0.00 |
| 97 | 127 | 7.64 | 0.00 | -0.01 | 0.00 | 0.02 | 0.00 |
| 98 | 127 | -7.64 | 0.00 | 0.01 | 0.00 | -0.02 | 0.00 |
| 98 | 128 | 7.64 | 0.00 | -0.01 | 0.00 | -0.03 | 0.00 |
| 99 | 2 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 19 | -0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | -0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 36 | 0.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -0.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 0.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -0.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 55 | -3.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | 3.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | -3.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | 3.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 74 | 9.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -9.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 9.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -9.17 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 109 | 93 | -12.43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | 12.43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | -12.41 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | 12.41 | 0.00 | -0.01 | 0.00 | -0.01 | 0.00 |
| 111 | 111 | 9.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -9.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 9.24 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -9.24 | 0.00 | 0.01 | 0.00 | 0.02 | 0.00 |
| 113 | 129 | -3.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | 3.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | -3.81 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | 3.81 | 0.00 | -0.01 | 0.00 | -0.01 | 0.00 |
| 115 | 141 | 0.79 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -0.79 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 0.79 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -0.79 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 117 | 6 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 117 | 7 | -0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 118 | 145 | 1.58 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 118 | 146 | -1.58 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 119 | 3 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 | 0.21 |
| 120 | 1 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 | -0.21 |
| 120 | 5 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 20 | 0.00 | -0.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | 0.24 | 0.00 | 0.00 | 0.00 | -0.44 |
| 122 | 15 | 0.00 | 0.24 | 0.00 | 0.00 | 0.00 | 0.44 |
| 122 | 22 | 0.00 | -0.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 37 | 0.00 | 0.93 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | -0.93 | 0.00 | 0.00 | 0.00 | 1.73 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 124 | 32 | 0.00 | -0.93 | 0.00 | 0.00 | 0.00 | -1.72 |
| 124 | 39 | 0.00 | 0.93 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 56 | 0.00 | -3.73 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.00 | 3.73 | 0.00 | 0.00 | 0.00 | -6.90 |
| 126 | 49 | 0.00 | 3.72 | 0.00 | 0.00 | 0.00 | 6.88 |
| 126 | 58 | 0.00 | -3.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 75 | 0.00 | 9.19 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.00 | -9.19 | 0.00 | 0.00 | 0.00 | 17.00 |
| 128 | 68 | 0.00 | -9.17 | 0.00 | 0.00 | 0.00 | -16.96 |
| 128 | 77 | 0.00 | 9.17 | 0.00 | 0.00 | 0.00 | -0.01 |
| 129 | 94 | 0.00 | -12.42 | 0.00 | 0.00 | 0.00 | -0.02 |
| 129 | 87 | 0.00 | 12.42 | 0.00 | 0.00 | 0.00 | -23.02 |
| 130 | 87 | -0.01 | 12.39 | 0.00 | 0.00 | 0.00 | 22.94 |
| 130 | 96 | 0.01 | -12.39 | 0.00 | 0.00 | 0.00 | 0.02 |
| 131 | 112 | 0.00 | 9.26 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | -9.26 | 0.00 | 0.00 | 0.00 | 17.13 |
| 132 | 106 | 0.01 | -9.24 | 0.00 | 0.00 | 0.00 | -17.08 |
| 132 | 114 | -0.01 | 9.24 | 0.00 | 0.00 | 0.00 | -0.02 |
| 133 | 130 | 0.00 | -3.83 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | 3.83 | 0.00 | 0.00 | 0.00 | -7.08 |
| 134 | 124 | -0.01 | 3.81 | 0.00 | 0.00 | 0.00 | 7.04 |
| 134 | 132 | 0.01 | -3.81 | 0.00 | 0.00 | 0.00 | 0.01 |
| 135 | 142 | 0.00 | 0.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -0.79 | 0.00 | 0.00 | 0.00 | 3.35 |
| 136 | 140 | 0.00 | -0.79 | 0.00 | 0.00 | 0.00 | -3.34 |
| 136 | 144 | 0.00 | 0.79 | 0.00 | 0.00 | 0.00 | -0.01 |
| 137 | 2 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | -0.21 |
| 138 | 7 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.21 |
| 138 | 4 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | -0.24 | 0.00 | 0.00 | 0.00 | 0.44 |
| 140 | 18 | 0.00 | -0.24 | 0.00 | 0.00 | 0.00 | -0.44 |
| 140 | 21 | 0.00 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -0.93 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 0.93 | 0.00 | 0.00 | 0.00 | -1.73 |
| 142 | 35 | 0.00 | 0.93 | 0.00 | 0.00 | 0.00 | 1.72 |
| 142 | 38 | 0.00 | -0.93 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | 3.73 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | -3.73 | 0.00 | 0.00 | 0.00 | 6.90 |
| 144 | 54 | 0.00 | -3.72 | 0.00 | 0.00 | 0.00 | -6.88 |
| 144 | 57 | 0.00 | 3.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | -9.19 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 9.19 | 0.00 | 0.00 | 0.00 | -17.00 |
| 146 | 73 | 0.00 | 9.17 | 0.00 | 0.00 | 0.00 | 16.97 |
| 146 | 76 | 0.00 | -9.17 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | 12.45 | 0.00 | 0.00 | 0.00 | -0.01 |
| 147 | 92 | 0.00 | -12.45 | 0.00 | 0.00 | 0.00 | 23.02 |
| 148 | 92 | 0.01 | -12.40 | 0.00 | 0.00 | 0.00 | -22.95 |
| 148 | 95 | -0.01 | 12.40 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | -9.26 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 9.26 | 0.00 | 0.00 | 0.00 | -17.13 |
| 150 | 110 | -0.01 | 9.24 | 0.00 | 0.00 | 0.00 | 17.09 |
| 150 | 113 | 0.01 | -9.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | 3.83 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | -3.83 | 0.00 | 0.00 | 0.00 | 7.08 |
| 152 | 128 | 0.01 | -3.81 | 0.00 | 0.00 | 0.00 | -7.05 |
| 152 | 131 | -0.01 | 3.81 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -0.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 0.79 | 0.00 | 0.00 | 0.00 | -3.35 |
| 154 | 146 | 0.00 | 0.79 | 0.00 | 0.00 | 0.00 | 3.34 |
| 154 | 143 | 0.00 | -0.79 | 0.00 | 0.00 | 0.00 | 0.00 |



HIPOTESIS 17

hipo 17 asiento-7

E S F U E R Z O S E N B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | -0.11 |
| 2 | 8 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.11 |
| 2 | 9 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | -0.22 |
| 3 | 9 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.22 |
| 3 | 10 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | -0.33 |
| 4 | 10 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.33 |
| 4 | 11 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | -0.44 |
| 5 | 11 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.44 |
| 5 | 12 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | -0.55 |
| 6 | 12 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.55 |
| 6 | 13 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | -0.66 |
| 7 | 13 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.66 |
| 7 | 14 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | -0.76 |
| 8 | 14 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.76 |
| 8 | 15 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | -0.87 |
| 9 | 15 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | 0.87 |
| 9 | 23 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | -0.45 |
| 10 | 23 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | 0.45 |
| 10 | 24 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | -0.03 |
| 11 | 24 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | 0.03 |
| 11 | 25 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | 0.39 |
| 12 | 25 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | -0.39 |
| 12 | 26 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | 0.81 |
| 13 | 26 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | -0.81 |
| 13 | 27 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | 1.23 |
| 14 | 27 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | -1.23 |
| 14 | 28 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | 1.65 |
| 15 | 28 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | -1.65 |
| 15 | 29 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | 2.07 |
| 16 | 29 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | -2.07 |
| 16 | 30 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | 2.49 |
| 17 | 30 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | -2.49 |
| 17 | 31 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | 2.91 |
| 18 | 31 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | -2.91 |
| 18 | 32 | 0.00 | -0.09 | 0.00 | 0.00 | 0.01 | 3.33 |
| 19 | 32 | 0.00 | -0.37 | 0.00 | 0.00 | -0.01 | -3.33 |
| 19 | 40 | 0.00 | 0.37 | 0.00 | 0.00 | 0.00 | 1.67 |
| 20 | 40 | 0.00 | -0.37 | 0.00 | 0.00 | 0.00 | -1.67 |
| 20 | 41 | 0.00 | 0.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 21 | 41 | 0.00 | -0.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 21 | 42 | 0.00 | 0.37 | 0.00 | 0.00 | 0.00 | -1.67 |
| 22 | 42 | 0.00 | -0.37 | 0.00 | 0.00 | 0.00 | 1.67 |
| 22 | 43 | 0.00 | 0.37 | 0.00 | 0.00 | 0.00 | -3.34 |
| 23 | 43 | 0.00 | -0.37 | 0.00 | 0.00 | 0.00 | 3.34 |
| 23 | 44 | 0.00 | 0.37 | 0.00 | 0.00 | 0.00 | -5.00 |
| 24 | 44 | 0.00 | -0.37 | 0.00 | 0.00 | 0.00 | 5.00 |
| 24 | 45 | 0.00 | 0.37 | 0.00 | 0.00 | 0.00 | -6.67 |
| 25 | 45 | 0.00 | -0.37 | 0.00 | 0.00 | 0.00 | 6.67 |
| 25 | 46 | 0.00 | 0.37 | 0.00 | 0.00 | 0.00 | -8.34 |
| 26 | 46 | 0.00 | -0.37 | 0.00 | 0.00 | 0.00 | 8.34 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 26 | 47 | 0.00 | 0.37 | 0.00 | 0.00 | 0.00 | -10.00 |
| 27 | 47 | 0.00 | -0.37 | 0.00 | 0.00 | 0.00 | 10.00 |
| 27 | 48 | 0.00 | 0.37 | 0.00 | 0.00 | -0.01 | -11.67 |
| 28 | 48 | 0.00 | -0.37 | 0.00 | 0.00 | 0.01 | 11.67 |
| 28 | 49 | 0.00 | 0.37 | 0.00 | 0.00 | -0.01 | -13.34 |
| 29 | 49 | 0.00 | 1.49 | 0.00 | 0.00 | 0.01 | 13.34 |
| 29 | 59 | 0.00 | -1.49 | 0.00 | 0.00 | -0.01 | -6.61 |
| 30 | 59 | 0.00 | 1.49 | 0.00 | 0.00 | 0.01 | 6.61 |
| 30 | 60 | 0.00 | -1.49 | 0.00 | 0.00 | 0.00 | 0.12 |
| 31 | 60 | 0.00 | 1.49 | 0.00 | 0.00 | 0.00 | -0.12 |
| 31 | 61 | 0.00 | -1.49 | 0.00 | 0.00 | 0.00 | 6.85 |
| 32 | 61 | 0.00 | 1.49 | 0.00 | 0.00 | 0.00 | -6.85 |
| 32 | 62 | 0.00 | -1.49 | 0.00 | 0.00 | 0.00 | 13.57 |
| 33 | 62 | 0.00 | 1.49 | 0.00 | 0.00 | 0.00 | -13.57 |
| 33 | 63 | 0.00 | -1.49 | 0.00 | 0.00 | 0.00 | 20.30 |
| 34 | 63 | 0.00 | 1.49 | 0.00 | 0.00 | 0.00 | -20.30 |
| 34 | 64 | 0.00 | -1.49 | 0.00 | 0.00 | 0.00 | 27.03 |
| 35 | 64 | 0.00 | 1.49 | 0.00 | 0.00 | 0.00 | -27.03 |
| 35 | 65 | 0.00 | -1.49 | 0.00 | 0.00 | 0.00 | 33.76 |
| 36 | 65 | 0.00 | 1.49 | 0.00 | 0.00 | 0.00 | -33.76 |
| 36 | 66 | 0.00 | -1.49 | 0.00 | 0.00 | 0.00 | 40.48 |
| 37 | 66 | 0.00 | 1.49 | 0.00 | 0.00 | 0.00 | -40.48 |
| 37 | 67 | 0.00 | -1.49 | 0.00 | 0.00 | 0.00 | 47.21 |
| 38 | 67 | 0.00 | 1.49 | 0.00 | 0.00 | 0.00 | -47.21 |
| 38 | 68 | 0.00 | -1.49 | 0.00 | 0.00 | 0.00 | 53.94 |
| 39 | 68 | 0.00 | -6.00 | 0.00 | -0.02 | 0.00 | -53.94 |
| 39 | 78 | 0.00 | 6.00 | 0.00 | 0.02 | 0.00 | 26.96 |
| 40 | 78 | 0.00 | -6.00 | 0.00 | -0.02 | 0.00 | -26.96 |
| 40 | 79 | 0.00 | 6.00 | 0.00 | 0.02 | -0.01 | -0.02 |
| 41 | 79 | 0.00 | -6.00 | 0.00 | -0.02 | 0.01 | 0.02 |
| 41 | 80 | 0.00 | 6.00 | 0.00 | 0.02 | -0.02 | -27.00 |
| 42 | 80 | 0.00 | -6.00 | 0.00 | -0.02 | 0.02 | 27.00 |
| 42 | 81 | 0.00 | 6.00 | 0.00 | 0.02 | -0.02 | -53.98 |
| 43 | 81 | 0.00 | -6.00 | 0.00 | -0.02 | 0.02 | 53.98 |
| 43 | 82 | 0.00 | 6.00 | 0.00 | 0.02 | -0.03 | -80.96 |
| 44 | 82 | 0.00 | -6.00 | 0.00 | -0.02 | 0.03 | 80.96 |
| 44 | 83 | 0.00 | 6.00 | 0.00 | 0.02 | -0.04 | -107.94 |
| 45 | 83 | 0.00 | -6.00 | 0.00 | -0.02 | 0.04 | 107.94 |
| 45 | 84 | 0.00 | 6.00 | 0.00 | 0.02 | -0.05 | -134.92 |
| 46 | 84 | 0.00 | -6.00 | 0.00 | -0.02 | 0.05 | 134.92 |
| 46 | 85 | 0.00 | 6.00 | 0.00 | 0.02 | -0.05 | -161.90 |
| 47 | 85 | 0.00 | -6.00 | 0.00 | -0.02 | 0.05 | 161.90 |
| 47 | 86 | 0.00 | 6.00 | 0.00 | 0.02 | -0.06 | -188.88 |
| 48 | 86 | 0.00 | -6.00 | 0.00 | -0.02 | 0.06 | 188.88 |
| 48 | 87 | 0.00 | 6.00 | 0.00 | 0.02 | -0.07 | -215.86 |
| 49 | 87 | 0.00 | 12.51 | 0.00 | 0.03 | 0.07 | 215.87 |
| 49 | 97 | 0.00 | -12.51 | 0.00 | -0.03 | -0.05 | -159.59 |
| 50 | 97 | 0.00 | 12.51 | 0.00 | 0.03 | 0.05 | 159.59 |
| 50 | 98 | 0.00 | -12.51 | 0.00 | -0.03 | -0.02 | -103.32 |
| 51 | 98 | 0.00 | 12.51 | 0.00 | 0.03 | 0.02 | 103.32 |
| 51 | 99 | 0.00 | -12.51 | 0.00 | -0.03 | 0.00 | -47.04 |
| 52 | 99 | 0.00 | 12.51 | 0.00 | 0.03 | 0.00 | 47.04 |
| 52 | 100 | 0.00 | -12.51 | 0.00 | -0.03 | 0.02 | 9.23 |
| 53 | 100 | 0.00 | 12.51 | 0.00 | 0.03 | -0.02 | -9.23 |
| 53 | 101 | 0.00 | -12.51 | 0.00 | -0.03 | 0.04 | 65.50 |
| 54 | 101 | 0.00 | 12.51 | 0.00 | 0.03 | -0.04 | -65.50 |
| 54 | 102 | 0.00 | -12.51 | 0.00 | -0.03 | 0.06 | 121.78 |
| 55 | 102 | 0.00 | 12.51 | 0.00 | 0.03 | -0.06 | -121.78 |
| 55 | 103 | 0.00 | -12.51 | 0.00 | -0.03 | 0.08 | 178.05 |
| 56 | 103 | 0.00 | 12.51 | 0.00 | 0.03 | -0.08 | -178.05 |
| 56 | 104 | 0.00 | -12.51 | 0.00 | -0.03 | 0.10 | 234.33 |
| 57 | 104 | 0.00 | 12.51 | 0.00 | 0.03 | -0.10 | -234.33 |
| 57 | 105 | 0.00 | -12.51 | 0.00 | -0.03 | 0.12 | 290.60 |
| 58 | 105 | 0.00 | 12.51 | 0.00 | 0.03 | -0.12 | -290.60 |
| 58 | 106 | 0.00 | -12.51 | 0.00 | -0.03 | 0.14 | 346.87 |
| 59 | 106 | 0.00 | -12.71 | 0.01 | -0.05 | -0.14 | -346.87 |
| 59 | 115 | 0.00 | 12.71 | -0.01 | 0.05 | 0.09 | 289.66 |
| 60 | 115 | 0.00 | -12.71 | 0.01 | -0.05 | -0.09 | -289.66 |
| 60 | 116 | 0.00 | 12.71 | -0.01 | 0.05 | 0.05 | 232.45 |
| 61 | 116 | 0.00 | -12.71 | 0.01 | -0.05 | -0.05 | -232.45 |
| 61 | 117 | 0.00 | 12.71 | -0.01 | 0.05 | 0.00 | 175.24 |
| 62 | 117 | 0.00 | -12.71 | 0.01 | -0.05 | 0.00 | -175.24 |
| 62 | 118 | 0.00 | 12.71 | -0.01 | 0.05 | -0.04 | 118.03 |
| 63 | 118 | 0.00 | -12.71 | 0.01 | -0.05 | 0.04 | -118.03 |
| 63 | 119 | 0.00 | 12.71 | -0.01 | 0.05 | -0.09 | 60.82 |
| 64 | 119 | 0.00 | -12.71 | 0.01 | -0.05 | 0.09 | -60.82 |
| 64 | 120 | 0.00 | 12.71 | -0.01 | 0.05 | -0.14 | 3.61 |
| 65 | 120 | 0.00 | -12.71 | 0.01 | -0.05 | 0.14 | -3.61 |
| 65 | 121 | 0.00 | 12.71 | -0.01 | 0.05 | -0.18 | -53.60 |
| 66 | 121 | 0.00 | -12.71 | 0.01 | -0.05 | 0.18 | 53.60 |
| 66 | 122 | 0.00 | 12.71 | -0.01 | 0.05 | -0.23 | -110.81 |
| 67 | 122 | 0.00 | -12.71 | 0.01 | -0.05 | 0.23 | 110.81 |
| 67 | 123 | 0.00 | 12.71 | -0.01 | 0.05 | -0.28 | -168.02 |
| 68 | 123 | 0.00 | -12.71 | 0.01 | -0.05 | 0.28 | 168.02 |
| 68 | 124 | 0.00 | 12.71 | -0.01 | 0.05 | -0.32 | -225.23 |
| 69 | 124 | 0.00 | 6.26 | -0.01 | 0.04 | 0.32 | 225.23 |
| 69 | 133 | 0.00 | -6.26 | 0.01 | -0.04 | -0.28 | -197.07 |
| 70 | 133 | 0.00 | 6.26 | -0.01 | 0.04 | 0.28 | 197.07 |
| 70 | 134 | 0.00 | -6.26 | 0.01 | -0.04 | -0.24 | -168.92 |
| 71 | 134 | 0.00 | 6.26 | -0.01 | 0.04 | 0.24 | 168.92 |
| 71 | 135 | 0.00 | -6.26 | 0.01 | -0.04 | -0.20 | -140.77 |
| 72 | 135 | 0.00 | 6.26 | -0.01 | 0.04 | 0.20 | 140.77 |
| 72 | 136 | 0.00 | -6.26 | 0.01 | -0.04 | -0.16 | -112.61 |
| 73 | 136 | 0.00 | 6.26 | -0.01 | 0.04 | 0.16 | 112.61 |
| 73 | 137 | 0.00 | -6.26 | 0.01 | -0.04 | -0.12 | -84.46 |
| 74 | 137 | 0.00 | 6.26 | -0.01 | 0.04 | 0.12 | 84.46 |
| 74 | 138 | 0.00 | -6.26 | 0.01 | -0.04 | -0.08 | -56.31 |
| 75 | 138 | 0.00 | 6.26 | -0.01 | 0.04 | 0.08 | 56.31 |
| 75 | 139 | 0.00 | -6.26 | 0.01 | -0.04 | -0.04 | -28.15 |
| 76 | 139 | 0.00 | 6.26 | -0.01 | 0.04 | 0.04 | 28.15 |
| 76 | 140 | 0.00 | -6.26 | 0.01 | -0.04 | 0.00 | 0.00 |
| 77 | 16 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 77 | 17 | -0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 78 | 17 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 78 | 18 | -0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 79 | 33 | -0.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 79 | 34 | 0.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 80 | 34 | -0.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 80 | 35 | 0.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 81 | 50 | 1.87 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 81 | 51 | -1.87 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 82 | 51 | 1.87 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 82 | 52 | -1.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 83 | 52 | 1.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 83 | 53 | -1.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 84 | 53 | 1.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 84 | 54 | -1.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 85 | 69 | -7.49 | 0.00 | 0.00 | 0.00 | -0.04 | 0.00 |
| 85 | 70 | 7.49 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 |
| 86 | 70 | -7.49 | 0.00 | 0.00 | 0.00 | -0.03 | 0.00 |
| 86 | 71 | 7.49 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 87 | 71 | -7.49 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 87 | 72 | 7.49 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 88 | 72 | -7.49 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 88 | 73 | 7.49 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 89 | 88 | 18.50 | 0.00 | -0.01 | 0.00 | 0.12 | 0.00 |
| 89 | 89 | -18.50 | 0.00 | 0.01 | 0.00 | -0.12 | 0.00 |
| 90 | 89 | 18.50 | 0.00 | -0.01 | 0.00 | 0.12 | 0.00 |
| 90 | 90 | -18.50 | 0.00 | 0.01 | 0.00 | -0.05 | 0.00 |
| 91 | 90 | 18.50 | 0.00 | -0.01 | 0.00 | 0.05 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 91 | 91 | -18.50 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 92 | 91 | 18.50 | 0.00 | -0.01 | 0.00 | -0.01 | 0.00 |
| 92 | 92 | -18.50 | 0.00 | 0.01 | 0.00 | 0.04 | 0.00 |
| 93 | 107 | -25.22 | 0.00 | 0.01 | 0.00 | -0.18 | 0.00 |
| 93 | 108 | 25.22 | 0.00 | -0.01 | 0.00 | 0.17 | 0.00 |
| 94 | 108 | -25.22 | 0.00 | 0.01 | 0.00 | -0.17 | 0.00 |
| 94 | 109 | 25.22 | 0.00 | -0.01 | 0.00 | 0.02 | 0.00 |
| 95 | 109 | -25.22 | 0.00 | 0.01 | 0.00 | -0.02 | 0.00 |
| 95 | 110 | 25.22 | 0.00 | -0.01 | 0.00 | -0.06 | 0.00 |
| 96 | 125 | 18.97 | 0.00 | -0.02 | 0.00 | 0.26 | 0.00 |
| 96 | 126 | -18.97 | 0.00 | 0.02 | 0.00 | -0.24 | 0.00 |
| 97 | 126 | 18.97 | 0.00 | -0.02 | 0.00 | 0.24 | 0.00 |
| 97 | 127 | -18.97 | 0.00 | 0.02 | 0.00 | -0.04 | 0.00 |
| 98 | 127 | 18.97 | 0.00 | -0.02 | 0.00 | 0.04 | 0.00 |
| 98 | 128 | -18.97 | 0.00 | 0.02 | 0.00 | 0.05 | 0.00 |
| 99 | 2 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 19 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 36 | -0.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | 0.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | -0.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | 0.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 55 | 0.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -0.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 0.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -0.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 74 | -3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | -3.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | 3.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 93 | 9.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -9.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 9.24 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -9.24 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 111 | 111 | -12.62 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | 12.62 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | -12.59 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | 12.59 | 0.00 | -0.01 | 0.00 | -0.03 | 0.00 |
| 113 | 129 | 9.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -9.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 9.47 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -9.47 | 0.00 | 0.02 | 0.00 | 0.03 | 0.00 |
| 115 | 141 | -3.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | 3.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | -3.13 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | 3.13 | 0.00 | -0.01 | 0.00 | -0.02 | 0.00 |
| 117 | 6 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 117 | 7 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 118 | 145 | -6.26 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 118 | 146 | 6.26 | 0.00 | -0.01 | 0.00 | -0.02 | 0.00 |
| 119 | 3 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | -0.05 |
| 120 | 1 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.05 |
| 120 | 5 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 20 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | 0.11 |
| 122 | 15 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | -0.11 |
| 122 | 22 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 37 | 0.00 | -0.23 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | 0.23 | 0.00 | 0.00 | 0.00 | -0.43 |
| 124 | 32 | 0.00 | 0.23 | 0.00 | 0.00 | 0.00 | 0.43 |
| 124 | 39 | 0.00 | -0.23 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 56 | 0.00 | 0.93 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.00 | -0.93 | 0.00 | 0.00 | 0.00 | 1.73 |
| 126 | 49 | 0.00 | -0.93 | 0.00 | 0.00 | 0.00 | -1.72 |
| 126 | 58 | 0.00 | 0.93 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 75 | 0.00 | -3.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.00 | 3.75 | 0.00 | 0.00 | 0.00 | -6.94 |
| 128 | 68 | 0.00 | 3.74 | 0.00 | 0.00 | 0.00 | 6.92 |
| 128 | 77 | 0.00 | -3.74 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 94 | 0.00 | 9.26 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | -9.26 | 0.00 | 0.00 | 0.00 | 17.13 |
| 130 | 87 | 0.01 | -9.24 | 0.00 | 0.00 | 0.00 | -17.08 |
| 130 | 96 | -0.01 | 9.24 | 0.00 | 0.00 | 0.00 | -0.01 |
| 131 | 112 | 0.00 | -12.62 | 0.00 | 0.00 | 0.00 | 0.02 |
| 131 | 106 | 0.00 | 12.62 | 0.00 | 0.00 | 0.00 | -23.36 |
| 132 | 106 | -0.01 | 12.59 | 0.00 | 0.00 | 0.00 | 23.27 |
| 132 | 114 | 0.01 | -12.59 | 0.00 | 0.00 | 0.00 | 0.02 |
| 133 | 130 | 0.00 | 9.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | -9.50 | 0.00 | 0.00 | 0.00 | 17.57 |
| 134 | 124 | 0.02 | -9.47 | 0.00 | 0.00 | 0.00 | -17.49 |
| 134 | 132 | -0.02 | 9.47 | 0.00 | 0.00 | 0.00 | -0.03 |
| 135 | 142 | 0.00 | -3.13 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | 3.13 | 0.00 | 0.00 | 0.00 | -13.31 |
| 136 | 140 | -0.01 | 3.13 | 0.00 | 0.00 | 0.00 | 13.27 |
| 136 | 144 | 0.01 | -3.13 | 0.00 | 0.00 | 0.00 | 0.02 |
| 137 | 2 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.05 |
| 138 | 7 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | -0.05 |
| 138 | 4 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | -0.11 |
| 140 | 18 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.11 |
| 140 | 21 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | 0.23 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | -0.23 | 0.00 | 0.00 | 0.00 | 0.43 |
| 142 | 35 | 0.00 | -0.23 | 0.00 | 0.00 | 0.00 | -0.43 |
| 142 | 38 | 0.00 | 0.23 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -0.93 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | 0.93 | 0.00 | 0.00 | 0.00 | -1.73 |
| 144 | 54 | 0.00 | 0.93 | 0.00 | 0.00 | 0.00 | 1.72 |
| 144 | 57 | 0.00 | -0.93 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | -3.75 | 0.00 | 0.00 | 0.00 | 6.94 |
| 146 | 73 | 0.00 | -3.74 | 0.00 | 0.00 | 0.00 | -6.92 |
| 146 | 76 | 0.00 | 3.74 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | -9.26 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | 9.26 | 0.00 | 0.00 | 0.00 | -17.13 |
| 148 | 92 | -0.01 | 9.24 | 0.00 | 0.00 | 0.00 | 17.09 |
| 148 | 95 | 0.01 | -9.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | 12.64 | 0.00 | 0.00 | 0.00 | -0.01 |
| 149 | 110 | 0.00 | -12.64 | 0.00 | 0.00 | 0.00 | 23.35 |
| 150 | 110 | 0.01 | -12.59 | 0.00 | 0.00 | 0.00 | -23.30 |
| 150 | 113 | -0.01 | 12.59 | 0.00 | 0.00 | 0.00 | 0.02 |
| 151 | 129 | 0.00 | -9.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 9.50 | 0.00 | 0.00 | 0.00 | -17.57 |
| 152 | 128 | -0.02 | 9.47 | 0.00 | 0.00 | 0.00 | 17.52 |
| 152 | 131 | 0.02 | -9.47 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | 3.13 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | -3.13 | 0.00 | 0.00 | 0.00 | 13.31 |
| 154 | 146 | 0.01 | -3.13 | 0.00 | 0.00 | 0.00 | -13.28 |
| 154 | 143 | -0.01 | 3.13 | 0.00 | 0.00 | 0.00 | 0.00 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS 18

hipo 18 asiento-8

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.03 |
| 2 | 8 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | -0.03 |
| 2 | 9 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.06 |
| 3 | 9 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | -0.06 |
| 3 | 10 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.08 |
| 4 | 10 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | -0.08 |
| 4 | 11 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.11 |
| 5 | 11 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | -0.11 |
| 5 | 12 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.14 |
| 6 | 12 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | -0.14 |
| 6 | 13 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.17 |
| 7 | 13 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | -0.17 |
| 7 | 14 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.19 |
| 8 | 14 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | -0.19 |
| 8 | 15 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.22 |
| 9 | 15 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | -0.22 |
| 9 | 23 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.11 |
| 10 | 23 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | -0.11 |
| 10 | 24 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.01 |
| 11 | 24 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | -0.01 |
| 11 | 25 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | -0.10 |
| 12 | 25 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.10 |
| 12 | 26 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | -0.20 |
| 13 | 26 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.20 |
| 13 | 27 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | -0.31 |
| 14 | 27 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.31 |
| 14 | 28 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | -0.42 |
| 15 | 28 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.42 |
| 15 | 29 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | -0.52 |
| 16 | 29 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.52 |
| 16 | 30 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | -0.63 |
| 17 | 30 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.63 |
| 17 | 31 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | -0.74 |
| 18 | 31 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.74 |
| 18 | 32 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | -0.84 |
| 19 | 32 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | 0.84 |
| 19 | 40 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | -0.42 |
| 20 | 40 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | 0.42 |
| 20 | 41 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | 0.00 |
| 21 | 41 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | 0.00 |
| 21 | 42 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | 0.42 |
| 22 | 42 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | -0.42 |
| 22 | 43 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | 0.85 |
| 23 | 43 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | -0.85 |
| 23 | 44 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | 1.27 |
| 24 | 44 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | -1.27 |
| 24 | 45 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | 1.69 |
| 25 | 45 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | -1.69 |
| 25 | 46 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | 2.11 |
| 26 | 46 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | -2.11 |
| 26 | 47 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | 2.54 |
| 27 | 47 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | -2.54 |
| 27 | 48 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | 2.96 |
| 28 | 48 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | -2.96 |
| 28 | 49 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | 3.38 |
| 29 | 49 | 0.00 | -0.38 | 0.00 | 0.00 | 0.00 | -3.38 |
| 29 | 59 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | 1.67 |
| 30 | 59 | 0.00 | -0.38 | 0.00 | 0.00 | 0.00 | -1.67 |
| 30 | 60 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | -0.03 |
| 31 | 60 | 0.00 | -0.38 | 0.00 | 0.00 | 0.00 | 0.03 |
| 31 | 61 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | -1.74 |
| 32 | 61 | 0.00 | -0.38 | 0.00 | 0.00 | 0.00 | 1.74 |
| 32 | 62 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | -3.44 |
| 33 | 62 | 0.00 | -0.38 | 0.00 | 0.00 | 0.00 | 3.44 |
| 33 | 63 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | -5.15 |
| 34 | 63 | 0.00 | -0.38 | 0.00 | 0.00 | 0.00 | 5.15 |
| 34 | 64 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | -6.85 |
| 35 | 64 | 0.00 | -0.38 | 0.00 | 0.00 | 0.00 | 6.85 |
| 35 | 65 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | -8.56 |
| 36 | 65 | 0.00 | -0.38 | 0.00 | 0.00 | 0.00 | 8.56 |
| 36 | 66 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | -10.26 |
| 37 | 66 | 0.00 | -0.38 | 0.00 | 0.00 | 0.00 | 10.26 |
| 37 | 67 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | -11.97 |
| 38 | 67 | 0.00 | -0.38 | 0.00 | 0.00 | 0.00 | 11.97 |
| 38 | 68 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | -13.67 |
| 39 | 68 | 0.00 | 1.53 | 0.00 | 0.00 | 0.01 | 13.67 |
| 39 | 78 | 0.00 | -1.53 | 0.00 | -0.01 | 0.00 | -6.78 |
| 40 | 78 | 0.00 | 1.53 | 0.00 | 0.01 | 0.00 | 6.78 |
| 40 | 79 | 0.00 | -1.53 | 0.00 | -0.01 | 0.01 | 0.10 |
| 41 | 79 | 0.00 | 1.53 | 0.00 | 0.01 | -0.01 | -0.10 |
| 41 | 80 | 0.00 | -1.53 | 0.00 | -0.01 | 0.01 | 6.99 |
| 42 | 80 | 0.00 | 1.53 | 0.00 | 0.01 | -0.01 | -6.99 |
| 42 | 81 | 0.00 | -1.53 | 0.00 | -0.01 | 0.01 | 13.88 |
| 43 | 81 | 0.00 | 1.53 | 0.00 | 0.01 | -0.01 | -13.88 |
| 43 | 82 | 0.00 | -1.53 | 0.00 | -0.01 | 0.02 | 20.77 |
| 44 | 82 | 0.00 | 1.53 | 0.00 | 0.01 | -0.02 | -20.77 |
| 44 | 83 | 0.00 | -1.53 | 0.00 | -0.01 | 0.02 | 27.66 |
| 45 | 83 | 0.00 | 1.53 | 0.00 | 0.01 | -0.02 | -27.66 |
| 45 | 84 | 0.00 | -1.53 | 0.00 | -0.01 | 0.02 | 34.54 |
| 46 | 84 | 0.00 | 1.53 | 0.00 | 0.01 | -0.02 | -34.54 |
| 46 | 85 | 0.00 | -1.53 | 0.00 | -0.01 | 0.02 | 41.43 |
| 47 | 85 | 0.00 | 1.53 | 0.00 | 0.01 | -0.02 | -41.43 |
| 47 | 86 | 0.00 | -1.53 | 0.00 | -0.01 | 0.03 | 48.32 |
| 48 | 86 | 0.00 | 1.53 | 0.00 | 0.01 | -0.03 | -48.32 |
| 48 | 87 | 0.00 | -1.53 | 0.00 | -0.01 | 0.03 | 55.21 |
| 49 | 87 | 0.00 | -6.11 | 0.00 | -0.02 | -0.03 | -55.21 |
| 49 | 97 | 0.00 | 6.11 | 0.00 | 0.02 | 0.02 | 27.72 |
| 50 | 97 | 0.00 | -6.11 | 0.00 | -0.02 | -0.02 | -27.72 |
| 50 | 98 | 0.00 | 6.11 | 0.00 | 0.02 | 0.01 | 0.24 |
| 51 | 98 | 0.00 | -6.11 | 0.00 | -0.02 | -0.01 | -0.24 |
| 51 | 99 | 0.00 | 6.11 | 0.00 | 0.02 | 0.00 | -27.25 |
| 52 | 99 | 0.00 | -6.11 | 0.00 | -0.02 | 0.00 | 27.25 |
| 52 | 100 | 0.00 | 6.11 | 0.00 | 0.02 | -0.01 | -54.73 |
| 53 | 100 | 0.00 | -6.11 | 0.00 | -0.02 | 0.01 | 54.73 |
| 53 | 101 | 0.00 | 6.11 | 0.00 | 0.02 | -0.02 | -82.22 |
| 54 | 101 | 0.00 | -6.11 | 0.00 | -0.02 | 0.02 | 82.22 |
| 54 | 102 | 0.00 | 6.11 | 0.00 | 0.02 | -0.03 | -109.70 |
| 55 | 102 | 0.00 | -6.11 | 0.00 | -0.02 | 0.03 | 109.70 |
| 55 | 103 | 0.00 | 6.11 | 0.00 | 0.02 | -0.05 | -137.19 |
| 56 | 103 | 0.00 | -6.11 | 0.00 | -0.02 | 0.05 | 137.19 |
| 56 | 104 | 0.00 | 6.11 | 0.00 | 0.02 | -0.06 | -164.67 |
| 57 | 104 | 0.00 | -6.11 | 0.00 | -0.02 | 0.06 | 164.67 |
| 57 | 105 | 0.00 | 6.11 | 0.00 | 0.02 | -0.07 | -192.16 |
| 58 | 105 | 0.00 | -6.11 | 0.00 | -0.02 | 0.07 | 192.16 |
| 58 | 106 | 0.00 | 6.11 | 0.00 | 0.02 | -0.08 | -219.64 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 59 | 106 | 0.00 | 12.86 | -0.01 | 0.05 | 0.08 | 219.64 |
| 59 | 115 | 0.00 | -12.86 | 0.01 | -0.05 | -0.03 | -161.77 |
| 60 | 115 | 0.00 | 12.86 | -0.01 | 0.05 | 0.03 | 161.77 |
| 60 | 116 | 0.00 | -12.86 | 0.01 | -0.05 | 0.03 | -103.89 |
| 61 | 116 | 0.00 | 12.86 | -0.01 | 0.05 | -0.03 | 103.89 |
| 61 | 117 | 0.00 | -12.86 | 0.01 | -0.05 | 0.08 | -46.01 |
| 62 | 117 | 0.00 | 12.86 | -0.01 | 0.05 | -0.08 | 46.01 |
| 62 | 118 | 0.00 | -12.86 | 0.01 | -0.05 | 0.13 | 11.87 |
| 63 | 118 | 0.00 | 12.86 | -0.01 | 0.05 | -0.13 | -11.87 |
| 63 | 119 | 0.00 | -12.86 | 0.01 | -0.05 | 0.18 | 69.74 |
| 64 | 119 | 0.00 | 12.86 | -0.01 | 0.05 | -0.18 | -69.74 |
| 64 | 120 | 0.00 | -12.86 | 0.01 | -0.05 | 0.23 | 127.62 |
| 65 | 120 | 0.00 | 12.86 | -0.01 | 0.05 | -0.23 | -127.62 |
| 65 | 121 | 0.00 | -12.86 | 0.01 | -0.05 | 0.28 | 185.50 |
| 66 | 121 | 0.00 | 12.86 | -0.01 | 0.05 | -0.28 | -185.50 |
| 66 | 122 | 0.00 | -12.86 | 0.01 | -0.05 | 0.33 | 243.38 |
| 67 | 122 | 0.00 | 12.86 | -0.01 | 0.05 | -0.33 | -243.38 |
| 67 | 123 | 0.00 | -12.86 | 0.01 | -0.05 | 0.38 | 301.26 |
| 68 | 123 | 0.00 | 12.86 | -0.01 | 0.05 | -0.38 | -301.26 |
| 68 | 124 | 0.00 | -12.86 | 0.01 | -0.05 | 0.44 | 359.13 |
| 69 | 124 | 0.00 | -9.98 | 0.01 | -0.05 | -0.44 | -359.14 |
| 69 | 133 | 0.00 | 9.98 | -0.01 | 0.05 | 0.38 | 314.24 |
| 70 | 133 | 0.00 | -9.98 | 0.01 | -0.05 | -0.38 | -314.24 |
| 70 | 134 | 0.00 | 9.98 | -0.01 | 0.05 | 0.33 | 269.35 |
| 71 | 134 | 0.00 | -9.98 | 0.01 | -0.05 | -0.33 | -269.35 |
| 71 | 135 | 0.00 | 9.98 | -0.01 | 0.05 | 0.27 | 224.46 |
| 72 | 135 | 0.00 | -9.98 | 0.01 | -0.05 | -0.27 | -224.46 |
| 72 | 136 | 0.00 | 9.98 | -0.01 | 0.05 | 0.22 | 179.57 |
| 73 | 136 | 0.00 | -9.98 | 0.01 | -0.05 | -0.22 | -179.57 |
| 73 | 137 | 0.00 | 9.98 | -0.01 | 0.05 | 0.16 | 134.68 |
| 74 | 137 | 0.00 | -9.98 | 0.01 | -0.05 | -0.16 | -134.68 |
| 74 | 138 | 0.00 | 9.98 | -0.01 | 0.05 | 0.11 | 89.78 |
| 75 | 138 | 0.00 | -9.98 | 0.01 | -0.05 | -0.11 | -89.78 |
| 75 | 139 | 0.00 | 9.98 | -0.01 | 0.05 | 0.05 | 44.89 |
| 76 | 139 | 0.00 | -9.98 | 0.01 | -0.05 | -0.05 | -44.89 |
| 76 | 140 | 0.00 | 9.98 | -0.01 | 0.05 | 0.00 | 0.00 |
| 77 | 16 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 77 | 17 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 78 | 17 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 78 | 18 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 79 | 33 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 79 | 34 | -0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 80 | 34 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 80 | 35 | -0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 81 | 50 | -0.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 81 | 51 | 0.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 82 | 51 | -0.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 82 | 52 | 0.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 83 | 52 | -0.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 83 | 53 | 0.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 84 | 53 | -0.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 84 | 54 | 0.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 85 | 69 | 1.91 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 85 | 70 | -1.91 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 86 | 70 | 1.91 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 86 | 71 | -1.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 87 | 71 | 1.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 87 | 72 | -1.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 88 | 72 | 1.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 88 | 73 | -1.91 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 89 | 88 | -7.64 | 0.00 | 0.00 | 0.00 | -0.05 | 0.00 |
| 89 | 89 | 7.64 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 |
| 90 | 89 | -7.64 | 0.00 | 0.00 | 0.00 | -0.05 | 0.00 |
| 90 | 90 | 7.64 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| 91 | 90 | -7.64 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 91 | 91 | 7.64 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 92 | 91 | -7.64 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 92 | 92 | 7.64 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 93 | 107 | 18.97 | 0.00 | -0.01 | 0.00 | 0.17 | 0.00 |
| 93 | 108 | -18.97 | 0.00 | 0.01 | 0.00 | -0.15 | 0.00 |
| 94 | 108 | 18.97 | 0.00 | -0.01 | 0.00 | 0.15 | 0.00 |
| 94 | 109 | -18.97 | 0.00 | 0.01 | 0.00 | -0.02 | 0.00 |
| 95 | 109 | 18.97 | 0.00 | -0.01 | 0.00 | 0.02 | 0.00 |
| 95 | 110 | -18.97 | 0.00 | 0.01 | 0.00 | 0.05 | 0.00 |
| 96 | 125 | -22.84 | 0.00 | 0.02 | 0.00 | -0.32 | 0.00 |
| 96 | 126 | 22.84 | 0.00 | -0.02 | 0.00 | 0.29 | 0.00 |
| 97 | 126 | -22.84 | 0.00 | 0.02 | 0.00 | -0.29 | 0.00 |
| 97 | 127 | 22.84 | 0.00 | -0.02 | 0.00 | 0.06 | 0.00 |
| 98 | 127 | -22.84 | 0.00 | 0.02 | 0.00 | -0.06 | 0.00 |
| 98 | 128 | 22.84 | 0.00 | -0.02 | 0.00 | -0.06 | 0.00 |
| 99 | 2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 19 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 36 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 55 | -0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | -0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 74 | 0.96 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -0.96 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 0.95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -0.95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 93 | -3.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | 3.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | -3.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | 3.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 111 | 9.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -9.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 9.47 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -9.47 | 0.00 | 0.01 | 0.00 | 0.02 | 0.00 |
| 113 | 129 | -11.44 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | 11.44 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | -11.40 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | 11.40 | 0.00 | -0.02 | 0.00 | -0.04 | 0.00 |
| 115 | 141 | 4.99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -4.99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 4.98 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -4.98 | 0.00 | 0.01 | 0.00 | 0.02 | 0.00 |
| 117 | 6 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 117 | 7 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 118 | 145 | 9.98 | 0.00 | -0.01 | 0.00 | -0.01 | 0.00 |
| 118 | 146 | -9.98 | 0.00 | 0.01 | 0.00 | 0.03 | 0.00 |
| 119 | 3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| 120 | 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.01 |
| 120 | 5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 20 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | -0.03 |
| 122 | 15 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.03 |
| 122 | 22 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 37 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | 0.11 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 124 | 32 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | -0.11 |
| 124 | 39 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 56 | 0.00 | -0.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.00 | 0.24 | 0.00 | 0.00 | 0.00 | -0.44 |
| 126 | 49 | 0.00 | 0.24 | 0.00 | 0.00 | 0.00 | 0.44 |
| 126 | 58 | 0.00 | -0.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 75 | 0.00 | 0.96 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.00 | -0.96 | 0.00 | 0.00 | 0.00 | 1.77 |
| 128 | 68 | 0.00 | -0.95 | 0.00 | 0.00 | 0.00 | -1.76 |
| 128 | 77 | 0.00 | 0.95 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 94 | 0.00 | -3.83 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | 3.83 | 0.00 | 0.00 | 0.00 | -7.08 |
| 130 | 87 | 0.00 | 3.81 | 0.00 | 0.00 | 0.00 | 7.05 |
| 130 | 96 | 0.00 | -3.81 | 0.00 | 0.00 | 0.00 | 0.01 |
| 131 | 112 | 0.00 | 9.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | -9.50 | 0.00 | 0.00 | 0.00 | 17.57 |
| 132 | 106 | 0.01 | -9.47 | 0.00 | 0.00 | 0.00 | -17.50 |
| 132 | 114 | -0.01 | 9.47 | 0.00 | 0.00 | 0.00 | -0.02 |
| 133 | 130 | 0.00 | -11.41 | 0.00 | 0.00 | 0.00 | -0.01 |
| 133 | 124 | 0.00 | 11.41 | 0.00 | 0.00 | 0.00 | -21.16 |
| 134 | 124 | -0.02 | 11.41 | 0.00 | 0.00 | 0.00 | 21.03 |
| 134 | 132 | 0.02 | -11.41 | 0.00 | 0.00 | 0.00 | 0.02 |
| 135 | 142 | 0.00 | 4.99 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -4.99 | 0.00 | 0.00 | 0.00 | 21.21 |
| 136 | 140 | 0.01 | -4.98 | 0.00 | 0.00 | 0.00 | -21.17 |
| 136 | 144 | -0.01 | 4.98 | 0.00 | 0.00 | 0.00 | -0.02 |
| 137 | 2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.01 |
| 138 | 7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| 138 | 4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.03 |
| 140 | 18 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | -0.03 |
| 140 | 21 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | -0.11 |
| 142 | 35 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.11 |
| 142 | 38 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | -0.24 | 0.00 | 0.00 | 0.00 | 0.44 |
| 144 | 54 | 0.00 | -0.24 | 0.00 | 0.00 | 0.00 | -0.44 |
| 144 | 57 | 0.00 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | -0.96 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 0.96 | 0.00 | 0.00 | 0.00 | -1.77 |
| 146 | 73 | 0.00 | 0.95 | 0.00 | 0.00 | 0.00 | 1.76 |
| 146 | 76 | 0.00 | -0.95 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | 3.83 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | -3.83 | 0.00 | 0.00 | 0.00 | 7.08 |
| 148 | 92 | 0.00 | -3.81 | 0.00 | 0.00 | 0.00 | -7.05 |
| 148 | 95 | 0.00 | 3.81 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | -9.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 9.50 | 0.00 | 0.00 | 0.00 | -17.57 |
| 150 | 110 | -0.01 | 9.47 | 0.00 | 0.00 | 0.00 | 17.52 |
| 150 | 113 | 0.01 | -9.47 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | 11.44 | 0.00 | 0.00 | 0.00 | 0.02 |
| 151 | 128 | 0.00 | -11.44 | 0.00 | 0.00 | 0.00 | 21.16 |
| 152 | 128 | 0.02 | -11.39 | 0.00 | 0.00 | 0.00 | -21.12 |
| 152 | 131 | -0.02 | 11.39 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -4.99 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 4.99 | 0.00 | 0.00 | 0.00 | -21.21 |
| 154 | 146 | -0.01 | 4.98 | 0.00 | 0.00 | 0.00 | 21.19 |
| 154 | 143 | 0.01 | -4.98 | 0.00 | 0.00 | 0.00 | 0.00 |



HIPOTESIS 19

hipo 19 asiento-9

E S F U E R Z O S E N B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.01 |
| 2 | 8 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| 2 | 9 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.01 |
| 3 | 9 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| 3 | 10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.02 |
| 4 | 10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| 4 | 11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.02 |
| 5 | 11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| 5 | 12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.03 |
| 6 | 12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 |
| 6 | 13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.03 |
| 7 | 13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 |
| 7 | 14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.04 |
| 8 | 14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 |
| 8 | 15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.05 |
| 9 | 15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 |
| 9 | 23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.02 |
| 10 | 23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| 10 | 24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11 | 24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11 | 25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| 12 | 25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.02 |
| 12 | 26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 |
| 13 | 26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.04 |
| 13 | 27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 |
| 14 | 27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.06 |
| 14 | 28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 |
| 15 | 28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.09 |
| 15 | 29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 |
| 16 | 29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.11 |
| 16 | 30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.13 |
| 17 | 30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.13 |
| 17 | 31 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 |
| 18 | 31 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.15 |
| 18 | 32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.17 |
| 19 | 32 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | -0.17 |
| 19 | 40 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.09 |
| 20 | 40 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | -0.09 |
| 20 | 41 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 21 | 41 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 21 | 42 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | -0.09 |
| 22 | 42 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.09 |
| 22 | 43 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | -0.17 |
| 23 | 43 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.17 |
| 23 | 44 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | -0.26 |
| 24 | 44 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.26 |
| 24 | 45 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | -0.35 |
| 25 | 45 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.35 |
| 25 | 46 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | -0.43 |
| 26 | 46 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.43 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 26 | 47 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | -0.52 |
| 27 | 47 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.52 |
| 27 | 48 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | -0.61 |
| 28 | 48 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.61 |
| 28 | 49 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | -0.69 |
| 29 | 49 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | 0.69 |
| 29 | 59 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 | -0.34 |
| 30 | 59 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | 0.34 |
| 30 | 60 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 | 0.01 |
| 31 | 60 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | -0.01 |
| 31 | 61 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 | 0.36 |
| 32 | 61 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | -0.36 |
| 32 | 62 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 | 0.71 |
| 33 | 62 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | -0.71 |
| 33 | 63 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 | 1.06 |
| 34 | 63 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | -1.06 |
| 34 | 64 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 | 1.41 |
| 35 | 64 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | -1.41 |
| 35 | 65 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 | 1.76 |
| 36 | 65 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | -1.76 |
| 36 | 66 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 | 2.11 |
| 37 | 66 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | -2.11 |
| 37 | 67 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 | 2.46 |
| 38 | 67 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | -2.46 |
| 38 | 68 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 | 2.81 |
| 39 | 68 | 0.00 | -0.31 | 0.00 | 0.00 | 0.00 | -2.81 |
| 39 | 78 | 0.00 | 0.31 | 0.00 | 0.00 | 0.00 | 1.39 |
| 40 | 78 | 0.00 | -0.31 | 0.00 | 0.00 | 0.00 | -1.39 |
| 40 | 79 | 0.00 | 0.31 | 0.00 | 0.00 | 0.00 | -0.02 |
| 41 | 79 | 0.00 | -0.31 | 0.00 | 0.00 | 0.00 | 0.02 |
| 41 | 80 | 0.00 | 0.31 | 0.00 | 0.00 | 0.00 | -1.44 |
| 42 | 80 | 0.00 | -0.31 | 0.00 | 0.00 | 0.00 | 1.44 |
| 42 | 81 | 0.00 | 0.31 | 0.00 | 0.00 | 0.00 | -2.85 |
| 43 | 81 | 0.00 | -0.31 | 0.00 | 0.00 | 0.00 | 2.85 |
| 43 | 82 | 0.00 | 0.31 | 0.00 | 0.00 | 0.00 | -4.27 |
| 44 | 82 | 0.00 | -0.31 | 0.00 | 0.00 | 0.00 | 4.27 |
| 44 | 83 | 0.00 | 0.31 | 0.00 | 0.00 | 0.00 | -5.68 |
| 45 | 83 | 0.00 | -0.31 | 0.00 | 0.00 | 0.00 | 5.68 |
| 45 | 84 | 0.00 | 0.31 | 0.00 | 0.00 | 0.00 | -7.10 |
| 46 | 84 | 0.00 | -0.31 | 0.00 | 0.00 | 0.00 | 7.10 |
| 46 | 85 | 0.00 | 0.31 | 0.00 | 0.00 | -0.01 | -8.52 |
| 47 | 85 | 0.00 | -0.31 | 0.00 | 0.00 | 0.01 | 8.52 |
| 47 | 86 | 0.00 | 0.31 | 0.00 | 0.00 | -0.01 | -9.93 |
| 48 | 86 | 0.00 | -0.31 | 0.00 | 0.00 | 0.01 | 9.93 |
| 48 | 87 | 0.00 | 0.31 | 0.00 | 0.00 | -0.01 | -11.35 |
| 49 | 87 | 0.00 | 1.26 | 0.00 | 0.01 | 0.01 | 11.35 |
| 49 | 97 | 0.00 | -1.26 | 0.00 | -0.01 | 0.00 | -5.67 |
| 50 | 97 | 0.00 | 1.26 | 0.00 | 0.01 | 0.00 | 5.67 |
| 50 | 98 | 0.00 | -1.26 | 0.00 | -0.01 | 0.00 | 0.01 |
| 51 | 98 | 0.00 | 1.26 | 0.00 | 0.01 | 0.00 | -0.01 |
| 51 | 99 | 0.00 | -1.26 | 0.00 | -0.01 | 0.00 | 5.68 |
| 52 | 99 | 0.00 | 1.26 | 0.00 | 0.01 | 0.00 | -5.68 |
| 52 | 100 | 0.00 | -1.26 | 0.00 | -0.01 | 0.00 | 11.36 |
| 53 | 100 | 0.00 | 1.26 | 0.00 | 0.01 | 0.00 | -11.36 |
| 53 | 101 | 0.00 | -1.26 | 0.00 | -0.01 | 0.01 | 17.04 |
| 54 | 101 | 0.00 | 1.26 | 0.00 | 0.01 | -0.01 | -17.04 |
| 54 | 102 | 0.00 | -1.26 | 0.00 | -0.01 | 0.01 | 22.72 |
| 55 | 102 | 0.00 | 1.26 | 0.00 | 0.01 | -0.01 | -22.72 |
| 55 | 103 | 0.00 | -1.26 | 0.00 | -0.01 | 0.01 | 28.39 |
| 56 | 103 | 0.00 | 1.26 | 0.00 | 0.01 | -0.01 | -28.39 |
| 56 | 104 | 0.00 | -1.26 | 0.00 | -0.01 | 0.01 | 34.07 |
| 57 | 104 | 0.00 | 1.26 | 0.00 | 0.01 | -0.01 | -34.07 |
| 57 | 105 | 0.00 | -1.26 | 0.00 | -0.01 | 0.01 | 39.75 |
| 58 | 105 | 0.00 | 1.26 | 0.00 | 0.01 | -0.01 | -39.75 |
| 58 | 106 | 0.00 | -1.26 | 0.00 | -0.01 | 0.02 | 45.43 |
| 59 | 106 | 0.00 | -4.99 | 0.00 | -0.02 | -0.02 | -45.43 |
| 59 | 115 | 0.00 | 4.99 | 0.00 | 0.02 | -0.01 | 22.95 |
| 60 | 115 | 0.00 | -4.99 | 0.00 | -0.02 | 0.01 | -22.95 |
| 60 | 116 | 0.00 | 4.99 | 0.00 | 0.02 | -0.03 | 0.48 |
| 61 | 116 | 0.00 | -4.99 | 0.00 | -0.02 | 0.03 | -0.48 |
| 61 | 117 | 0.00 | 4.99 | 0.00 | 0.02 | -0.05 | -22.00 |
| 62 | 117 | 0.00 | -4.99 | 0.00 | -0.02 | 0.05 | 22.00 |
| 62 | 118 | 0.00 | 4.99 | 0.00 | 0.02 | -0.07 | -44.48 |
| 63 | 118 | 0.00 | -4.99 | 0.00 | -0.02 | 0.07 | 44.48 |
| 63 | 119 | 0.00 | 4.99 | 0.00 | 0.02 | -0.09 | -66.95 |
| 64 | 119 | 0.00 | -4.99 | 0.00 | -0.02 | 0.09 | 66.95 |
| 64 | 120 | 0.00 | 4.99 | 0.00 | 0.02 | -0.12 | -89.43 |
| 65 | 120 | 0.00 | -4.99 | 0.00 | -0.02 | 0.12 | 89.43 |
| 65 | 121 | 0.00 | 4.99 | 0.00 | 0.02 | -0.14 | -111.90 |
| 66 | 121 | 0.00 | -4.99 | 0.00 | -0.02 | 0.14 | 111.90 |
| 66 | 122 | 0.00 | 4.99 | 0.00 | 0.02 | -0.16 | -134.38 |
| 67 | 122 | 0.00 | -4.99 | 0.00 | -0.02 | 0.16 | 134.38 |
| 67 | 123 | 0.00 | 4.99 | 0.00 | 0.02 | -0.18 | -156.85 |
| 68 | 123 | 0.00 | -4.99 | 0.00 | -0.02 | 0.18 | 156.85 |
| 68 | 124 | 0.00 | 4.99 | 0.00 | 0.02 | -0.20 | -179.33 |
| 69 | 124 | 0.00 | 4.98 | -0.01 | 0.02 | 0.20 | 179.33 |
| 69 | 133 | 0.00 | -4.98 | 0.01 | -0.02 | -0.18 | -156.91 |
| 70 | 133 | 0.00 | 4.98 | -0.01 | 0.02 | 0.18 | 156.91 |
| 70 | 134 | 0.00 | -4.98 | 0.01 | -0.02 | -0.15 | -134.50 |
| 71 | 134 | 0.00 | 4.98 | -0.01 | 0.02 | 0.15 | 134.50 |
| 71 | 135 | 0.00 | -4.98 | 0.01 | -0.02 | -0.13 | -112.08 |
| 72 | 135 | 0.00 | 4.98 | -0.01 | 0.02 | 0.13 | 112.08 |
| 72 | 136 | 0.00 | -4.98 | 0.01 | -0.02 | -0.10 | -89.66 |
| 73 | 136 | 0.00 | 4.98 | -0.01 | 0.02 | 0.10 | 89.66 |
| 73 | 137 | 0.00 | -4.98 | 0.01 | -0.02 | -0.08 | -67.25 |
| 74 | 137 | 0.00 | 4.98 | -0.01 | 0.02 | 0.08 | 67.25 |
| 74 | 138 | 0.00 | -4.98 | 0.01 | -0.02 | -0.05 | -44.83 |
| 75 | 138 | 0.00 | 4.98 | -0.01 | 0.02 | 0.05 | 44.83 |
| 75 | 139 | 0.00 | -4.98 | 0.01 | -0.02 | -0.03 | -22.42 |
| 76 | 139 | 0.00 | 4.98 | -0.01 | 0.02 | 0.03 | 22.42 |
| 76 | 140 | 0.00 | -4.98 | 0.01 | -0.02 | 0.00 | 0.00 |
| 77 | 16 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 77 | 17 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 78 | 17 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 78 | 18 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 79 | 33 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 79 | 34 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 80 | 34 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 80 | 35 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 81 | 50 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 81 | 51 | -0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 82 | 51 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 82 | 52 | -0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 83 | 52 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 83 | 53 | -0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 84 | 53 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 84 | 54 | -0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 85 | 69 | -0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 85 | 70 | 0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 86 | 70 | -0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 86 | 71 | 0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 87 | 71 | -0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 87 | 72 | 0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 88 | 72 | -0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 88 | 73 | 0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 89 | 88 | 1.58 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 89 | 89 | -1.58 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 90 | 89 | 1.58 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 90 | 90 | -1.58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 91 | 90 | 1.58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 91 | 91 | -1.58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 92 | 91 | 1.58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 92 | 92 | -1.58 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 93 | 107 | -6.26 | 0.00 | 0.01 | 0.00 | -0.07 | 0.00 |
| 93 | 108 | 6.26 | 0.00 | -0.01 | 0.00 | 0.06 | 0.00 |
| 94 | 108 | -6.26 | 0.00 | 0.01 | 0.00 | -0.06 | 0.00 |
| 94 | 109 | 6.26 | 0.00 | -0.01 | 0.00 | 0.01 | 0.00 |
| 95 | 109 | -6.26 | 0.00 | 0.01 | 0.00 | -0.01 | 0.00 |
| 95 | 110 | 6.26 | 0.00 | -0.01 | 0.00 | -0.02 | 0.00 |
| 96 | 125 | 9.98 | 0.00 | -0.01 | 0.00 | 0.14 | 0.00 |
| 96 | 126 | -9.98 | 0.00 | 0.01 | 0.00 | -0.13 | 0.00 |
| 97 | 126 | 9.98 | 0.00 | -0.01 | 0.00 | 0.13 | 0.00 |
| 97 | 127 | -9.98 | 0.00 | 0.01 | 0.00 | -0.03 | 0.00 |
| 98 | 127 | 9.98 | 0.00 | -0.01 | 0.00 | 0.03 | 0.00 |
| 98 | 128 | -9.98 | 0.00 | 0.01 | 0.00 | 0.03 | 0.00 |
| 99 | 2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 36 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 55 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 74 | -0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | -0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 93 | 0.79 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -0.79 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 0.79 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -0.79 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 111 | -3.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | 3.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | -3.12 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | 3.12 | 0.00 | -0.01 | 0.00 | -0.01 | 0.00 |
| 113 | 129 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 4.98 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -4.98 | 0.00 | 0.01 | 0.00 | 0.02 | 0.00 |
| 115 | 141 | -2.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | 2.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | -2.49 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | 2.49 | 0.00 | -0.01 | 0.00 | -0.01 | 0.00 |
| 117 | 6 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 117 | 7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 118 | 145 | -4.98 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 118 | 146 | 4.98 | 0.00 | -0.01 | 0.00 | -0.01 | 0.00 |
| 119 | 3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 120 | 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 120 | 5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| 122 | 15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.01 |
| 122 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 37 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | -0.02 |
| 124 | 32 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.02 |
| 124 | 39 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 56 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 | 0.09 |
| 126 | 49 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 | -0.09 |
| 126 | 58 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 75 | 0.00 | -0.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.00 | 0.20 | 0.00 | 0.00 | 0.00 | -0.36 |
| 128 | 68 | 0.00 | 0.20 | 0.00 | 0.00 | 0.00 | 0.36 |
| 128 | 77 | 0.00 | -0.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 94 | 0.00 | 0.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | -0.79 | 0.00 | 0.00 | 0.00 | 1.46 |
| 130 | 87 | 0.00 | -0.79 | 0.00 | 0.00 | 0.00 | -1.45 |
| 130 | 96 | 0.00 | 0.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 112 | 0.00 | -3.13 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | 3.13 | 0.00 | 0.00 | 0.00 | -5.80 |
| 132 | 106 | -0.01 | 3.12 | 0.00 | 0.00 | 0.00 | 5.77 |
| 132 | 114 | 0.01 | -3.12 | 0.00 | 0.00 | 0.00 | 0.01 |
| 133 | 130 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | -5.00 | 0.00 | 0.00 | 0.00 | 9.24 |
| 134 | 124 | 0.01 | -4.98 | 0.00 | 0.00 | 0.00 | -9.20 |
| 134 | 132 | -0.01 | 4.98 | 0.00 | 0.00 | 0.00 | -0.02 |
| 135 | 142 | 0.00 | -2.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | 2.49 | 0.00 | 0.00 | 0.00 | -10.59 |
| 136 | 140 | -0.01 | 2.49 | 0.00 | 0.00 | 0.00 | 10.57 |
| 136 | 144 | 0.01 | -2.49 | 0.00 | 0.00 | 0.00 | 0.01 |
| 137 | 2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 138 | 7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 138 | 4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.01 |
| 140 | 18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| 140 | 21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.02 |
| 142 | 35 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | -0.02 |
| 142 | 38 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | -0.09 |
| 144 | 54 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.09 |
| 144 | 57 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | -0.20 | 0.00 | 0.00 | 0.00 | 0.36 |
| 146 | 73 | 0.00 | -0.20 | 0.00 | 0.00 | 0.00 | -0.36 |
| 146 | 76 | 0.00 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | -0.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | 0.79 | 0.00 | 0.00 | 0.00 | -1.46 |
| 148 | 92 | 0.00 | 0.79 | 0.00 | 0.00 | 0.00 | 1.45 |
| 148 | 95 | 0.00 | -0.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | 3.13 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | -3.13 | 0.00 | 0.00 | 0.00 | 5.80 |
| 150 | 110 | 0.01 | -3.12 | 0.00 | 0.00 | 0.00 | -5.78 |
| 150 | 113 | -0.01 | 3.12 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -5.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | -9.24 |
| 152 | 128 | -0.01 | 4.98 | 0.00 | 0.00 | 0.00 | 9.21 |
| 152 | 131 | 0.01 | -4.98 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | 2.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | -2.49 | 0.00 | 0.00 | 0.00 | 10.59 |
| 154 | 146 | 0.01 | -2.49 | 0.00 | 0.00 | 0.00 | -10.58 |
| 154 | 143 | -0.01 | 2.49 | 0.00 | 0.00 | 0.00 | 0.00 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS 21

hipo 21 viento + trans estructura

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 0.00 | -5.82 | -56.14 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | 0.00 | 2.83 | 54.88 | 19.45 | 0.01 |
| 2 | 8 | 0.00 | 0.00 | -2.83 | -54.88 | -19.45 | -0.01 |
| 2 | 9 | 0.00 | 0.00 | -0.15 | 53.63 | 25.48 | 0.02 |
| 3 | 9 | 0.00 | 0.00 | 0.15 | -53.63 | -25.48 | -0.02 |
| 3 | 10 | 0.00 | 0.00 | -3.10 | 52.39 | 18.15 | 0.03 |
| 4 | 10 | 0.00 | 0.00 | 3.10 | -52.39 | -18.15 | -0.03 |
| 4 | 11 | 0.00 | 0.00 | -6.04 | 51.16 | -2.43 | 0.04 |
| 5 | 11 | 0.00 | 0.00 | 6.04 | -51.16 | 2.43 | -0.04 |
| 5 | 12 | 0.00 | 0.00 | -8.96 | 49.93 | -36.20 | 0.05 |
| 6 | 12 | 0.00 | 0.00 | 8.96 | -49.93 | 36.20 | -0.05 |
| 6 | 13 | 0.00 | 0.00 | -11.86 | 48.71 | -83.05 | 0.06 |
| 7 | 13 | 0.00 | 0.00 | 11.86 | -48.71 | 83.05 | -0.06 |
| 7 | 14 | 0.00 | 0.00 | -14.74 | 47.50 | -142.90 | 0.07 |
| 8 | 14 | 0.00 | 0.00 | 14.74 | -47.50 | 142.90 | -0.07 |
| 8 | 15 | 0.00 | 0.00 | -17.59 | 46.30 | -215.65 | 0.07 |
| 9 | 15 | 0.00 | 0.00 | -3.77 | -91.70 | 215.65 | -0.07 |
| 9 | 23 | 0.00 | 0.00 | 0.92 | 90.50 | -205.10 | 0.06 |
| 10 | 23 | 0.00 | 0.00 | -0.92 | -90.50 | 205.10 | -0.06 |
| 10 | 24 | 0.00 | 0.00 | -1.95 | 89.29 | -207.43 | 0.04 |
| 11 | 24 | 0.00 | 0.00 | 1.95 | -89.29 | 207.43 | -0.04 |
| 11 | 25 | 0.00 | 0.00 | -4.83 | 88.08 | -222.69 | 0.02 |
| 12 | 25 | 0.00 | 0.00 | 4.83 | -88.08 | 222.69 | -0.02 |
| 12 | 26 | 0.00 | 0.00 | -7.73 | 86.87 | -250.95 | 0.00 |
| 13 | 26 | 0.00 | 0.00 | 7.73 | -86.87 | 250.95 | 0.00 |
| 13 | 27 | 0.00 | 0.00 | -10.64 | 85.65 | -292.28 | -0.01 |
| 14 | 27 | 0.00 | 0.00 | 10.64 | -85.65 | 292.28 | 0.01 |
| 14 | 28 | 0.00 | 0.00 | -13.56 | 84.42 | -346.72 | -0.03 |
| 15 | 28 | 0.00 | 0.00 | 13.56 | -84.42 | 346.72 | 0.03 |
| 15 | 29 | 0.00 | 0.00 | -16.50 | 83.19 | -414.35 | -0.05 |
| 16 | 29 | 0.00 | 0.00 | 16.50 | -83.19 | 414.35 | 0.05 |
| 16 | 30 | 0.00 | 0.00 | -19.45 | 81.95 | -495.22 | -0.07 |
| 17 | 30 | 0.00 | 0.00 | 19.45 | -81.95 | 495.22 | 0.07 |
| 17 | 31 | 0.00 | 0.00 | -22.41 | 80.70 | -589.38 | -0.08 |
| 18 | 31 | 0.00 | 0.00 | 22.41 | -80.70 | 589.38 | 0.08 |
| 18 | 32 | 0.00 | 0.00 | -25.38 | 79.45 | -696.90 | -0.10 |
| 19 | 32 | 0.00 | 0.00 | -37.98 | -59.59 | 696.91 | 0.10 |
| 19 | 40 | 0.00 | 0.00 | 34.96 | 58.32 | -532.75 | -0.09 |
| 20 | 40 | 0.00 | 0.00 | -34.96 | -58.32 | 532.76 | 0.09 |
| 20 | 41 | 0.00 | 0.00 | 31.86 | 57.02 | -382.39 | -0.07 |
| 21 | 41 | 0.00 | 0.00 | -31.86 | -57.02 | 382.39 | 0.07 |
| 21 | 42 | 0.00 | 0.00 | 28.68 | 55.68 | -246.16 | -0.05 |
| 22 | 42 | 0.00 | 0.00 | -28.68 | -55.68 | 246.16 | 0.05 |
| 22 | 43 | 0.00 | 0.00 | 25.43 | 54.32 | -124.39 | -0.04 |
| 23 | 43 | 0.00 | 0.00 | -25.43 | -54.32 | 124.38 | 0.04 |
| 23 | 44 | 0.00 | 0.00 | 22.12 | 52.93 | -17.37 | -0.02 |
| 24 | 44 | 0.00 | 0.00 | -22.12 | -52.93 | 17.37 | 0.02 |
| 24 | 45 | 0.00 | 0.00 | 18.75 | 51.51 | 74.62 | 0.00 |
| 25 | 45 | 0.00 | 0.00 | -18.75 | -51.51 | -74.62 | 0.00 |
| 25 | 46 | 0.00 | 0.00 | 15.33 | 50.08 | 151.32 | 0.02 |
| 26 | 46 | 0.00 | 0.00 | -15.33 | -50.08 | -151.32 | -0.02 |
| 26 | 47 | 0.00 | 0.00 | 11.85 | 48.61 | 212.49 | 0.03 |
| 27 | 47 | 0.00 | 0.00 | -11.85 | -48.61 | -212.49 | -0.03 |
| 27 | 48 | 0.00 | 0.00 | 8.32 | 47.13 | 257.89 | 0.05 |
| 28 | 48 | 0.00 | 0.00 | -8.32 | -47.13 | -257.89 | -0.05 |
| 28 | 49 | 0.00 | 0.00 | 4.75 | 45.63 | 287.31 | 0.07 |
| 29 | 49 | 0.00 | 0.00 | -24.05 | -43.84 | -287.30 | -0.07 |
| 29 | 59 | 0.00 | 0.00 | 20.45 | 42.33 | 387.43 | 0.06 |
| 30 | 59 | 0.00 | 0.00 | -20.45 | -42.33 | -387.43 | -0.06 |
| 30 | 60 | 0.00 | 0.00 | 16.84 | 40.81 | 471.33 | 0.05 |
| 31 | 60 | 0.00 | 0.00 | -16.84 | -40.81 | -471.33 | -0.05 |
| 31 | 61 | 0.00 | 0.00 | 13.22 | 39.29 | 538.96 | 0.04 |
| 32 | 61 | 0.00 | 0.00 | -13.22 | -39.29 | -538.96 | -0.04 |
| 32 | 62 | 0.00 | 0.00 | 9.59 | 37.77 | 590.29 | 0.03 |
| 33 | 62 | 0.00 | 0.00 | -9.59 | -37.77 | -590.29 | -0.03 |
| 33 | 63 | 0.00 | 0.00 | 5.96 | 36.24 | 625.28 | 0.02 |
| 34 | 63 | 0.00 | 0.00 | -5.96 | -36.24 | -625.28 | -0.02 |
| 34 | 64 | 0.00 | 0.00 | 2.32 | 34.71 | 643.90 | 0.02 |
| 35 | 64 | 0.00 | 0.00 | -2.32 | -34.71 | -643.90 | -0.02 |
| 35 | 65 | 0.00 | 0.00 | -1.34 | 33.18 | 646.10 | 0.01 |
| 36 | 65 | 0.00 | 0.00 | 1.33 | -33.18 | -646.10 | -0.01 |
| 36 | 66 | 0.00 | 0.00 | -4.99 | 31.64 | 631.87 | 0.00 |
| 37 | 66 | 0.00 | 0.00 | 4.99 | -31.64 | -631.87 | 0.00 |
| 37 | 67 | 0.00 | 0.00 | -8.66 | 30.10 | 601.15 | -0.01 |
| 38 | 67 | 0.00 | 0.00 | 8.66 | -30.10 | -601.15 | 0.01 |
| 38 | 68 | 0.00 | 0.00 | -12.33 | 28.56 | 553.92 | -0.02 |
| 39 | 68 | 0.00 | 0.00 | -9.22 | -2.34 | -553.92 | 0.02 |
| 39 | 78 | 0.00 | 0.00 | 5.55 | 0.80 | 587.17 | -0.01 |
| 40 | 78 | 0.00 | 0.00 | -5.55 | -0.80 | -587.17 | 0.01 |
| 40 | 79 | 0.00 | 0.00 | 1.90 | -0.74 | 603.93 | -0.01 |
| 41 | 79 | 0.00 | 0.00 | -1.90 | 0.74 | -603.93 | 0.01 |
| 41 | 80 | 0.00 | 0.00 | -1.74 | -2.26 | 604.29 | 0.00 |
| 42 | 80 | 0.00 | 0.00 | 1.74 | 2.26 | -604.29 | 0.00 |
| 42 | 81 | 0.00 | 0.00 | -5.36 | -3.79 | 588.31 | 0.00 |
| 43 | 81 | 0.00 | 0.00 | 5.36 | 3.79 | -588.31 | 0.00 |
| 43 | 82 | 0.00 | 0.00 | -8.97 | -5.30 | 556.06 | 0.01 |
| 44 | 82 | 0.00 | 0.00 | 8.97 | 5.30 | -556.06 | -0.01 |
| 44 | 83 | 0.00 | 0.00 | -12.56 | -6.81 | 507.63 | 0.01 |
| 45 | 83 | 0.00 | 0.00 | 12.56 | 6.81 | -507.63 | -0.01 |
| 45 | 84 | 0.00 | 0.00 | -16.13 | -8.31 | 443.07 | 0.02 |
| 46 | 84 | 0.00 | 0.00 | 16.13 | 8.31 | -443.07 | -0.02 |
| 46 | 85 | 0.00 | 0.00 | -19.69 | -9.80 | 362.47 | 0.02 |
| 47 | 85 | 0.00 | 0.00 | 19.69 | 9.80 | -362.47 | -0.02 |
| 47 | 86 | 0.00 | 0.00 | -23.23 | -11.29 | 265.90 | 0.03 |
| 48 | 86 | 0.00 | 0.00 | 23.23 | 11.29 | -265.90 | -0.03 |
| 48 | 87 | 0.00 | 0.00 | -26.75 | -12.77 | 153.45 | 0.03 |
| 49 | 87 | 0.00 | 0.00 | -3.73 | 37.49 | -153.45 | -0.03 |
| 49 | 97 | 0.00 | 0.00 | 0.24 | -38.95 | 162.38 | 0.02 |
| 50 | 97 | 0.00 | 0.00 | -0.24 | 38.95 | -162.38 | -0.02 |
| 50 | 98 | 0.00 | 0.00 | -3.23 | -40.41 | 155.64 | 0.01 |
| 51 | 98 | 0.00 | 0.00 | 3.23 | 40.41 | -155.64 | -0.01 |
| 51 | 99 | 0.00 | 0.00 | -6.66 | -41.85 | 133.38 | 0.00 |
| 52 | 99 | 0.00 | 0.00 | 6.66 | 41.85 | -133.38 | 0.00 |
| 52 | 100 | 0.00 | 0.00 | -10.06 | -43.28 | 95.74 | -0.01 |
| 53 | 100 | 0.00 | 0.00 | 10.06 | 43.28 | -95.74 | 0.01 |
| 53 | 101 | 0.00 | 0.00 | -13.43 | -44.69 | 42.87 | -0.02 |
| 54 | 101 | 0.00 | 0.00 | 13.43 | 44.69 | -42.87 | 0.02 |
| 54 | 102 | 0.00 | 0.00 | -16.76 | -46.09 | -25.06 | -0.03 |
| 55 | 102 | 0.00 | 0.00 | 16.76 | 46.09 | 25.06 | 0.03 |
| 55 | 103 | 0.00 | 0.00 | -20.05 | -47.48 | -107.90 | -0.04 |
| 56 | 103 | 0.00 | 0.00 | 20.05 | 47.48 | 107.90 | 0.04 |
| 56 | 104 | 0.00 | 0.00 | -23.30 | -48.84 | -205.46 | -0.06 |
| 57 | 104 | 0.00 | 0.00 | 23.30 | 48.84 | 205.46 | 0.06 |
| 57 | 105 | 0.00 | 0.00 | -26.52 | -50.19 | -317.58 | -0.07 |
| 58 | 105 | 0.00 | 0.00 | 26.52 | 50.19 | 317.58 | 0.07 |
| 58 | 106 | 0.00 | 0.00 | -29.69 | -51.52 | -444.06 | -0.08 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 59 | 106 | 0.00 | 0.00 | -24.73 | 84.39 | 444.05 | 0.08 |
| 59 | 115 | 0.00 | 0.00 | 21.58 | -85.71 | -339.85 | -0.06 |
| 60 | 115 | 0.00 | 0.00 | -21.58 | 85.71 | 339.85 | 0.06 |
| 60 | 116 | 0.00 | 0.00 | 18.43 | -87.03 | -249.81 | -0.04 |
| 61 | 116 | 0.00 | 0.00 | -18.43 | 87.03 | 249.81 | 0.04 |
| 61 | 117 | 0.00 | 0.00 | 15.29 | -88.36 | -173.94 | -0.03 |
| 62 | 117 | 0.00 | 0.00 | -15.29 | 88.36 | 173.94 | 0.03 |
| 62 | 118 | 0.00 | 0.00 | 12.14 | -89.68 | -112.24 | -0.01 |
| 63 | 118 | 0.00 | 0.00 | -12.14 | 89.68 | 112.24 | 0.01 |
| 63 | 119 | 0.00 | 0.00 | 8.99 | -91.00 | -64.71 | 0.01 |
| 64 | 119 | 0.00 | 0.00 | -8.99 | 91.00 | 64.70 | -0.01 |
| 64 | 120 | 0.00 | 0.00 | 5.84 | -92.32 | -31.34 | 0.03 |
| 65 | 120 | 0.00 | 0.00 | -5.84 | 92.32 | 31.34 | -0.03 |
| 65 | 121 | 0.00 | 0.00 | 2.69 | -93.65 | -12.13 | 0.04 |
| 66 | 121 | 0.00 | 0.00 | -2.69 | 93.65 | 12.13 | -0.04 |
| 66 | 122 | 0.00 | 0.00 | -0.46 | -94.97 | -7.10 | 0.06 |
| 67 | 122 | 0.00 | 0.00 | 0.46 | 94.97 | 7.10 | -0.06 |
| 67 | 123 | 0.00 | 0.00 | -3.60 | -96.29 | -16.23 | 0.08 |
| 68 | 123 | 0.00 | 0.00 | 3.60 | 96.29 | 16.23 | -0.08 |
| 68 | 124 | 0.00 | 0.00 | -6.75 | -97.61 | -39.53 | 0.10 |
| 69 | 124 | 0.00 | 0.00 | -13.81 | 85.50 | 39.53 | -0.10 |
| 69 | 133 | 0.00 | 0.00 | 10.65 | -86.82 | 15.52 | 0.08 |
| 70 | 133 | 0.00 | 0.00 | -10.65 | 86.82 | -15.52 | -0.08 |
| 70 | 134 | 0.00 | 0.00 | 7.49 | -88.15 | 56.34 | 0.07 |
| 71 | 134 | 0.00 | 0.00 | -7.49 | 88.15 | -56.34 | -0.07 |
| 71 | 135 | 0.00 | 0.00 | 4.31 | -89.49 | 82.90 | 0.06 |
| 72 | 135 | 0.00 | 0.00 | -4.31 | 89.49 | -82.90 | -0.06 |
| 72 | 136 | 0.00 | 0.00 | 1.13 | -90.83 | 95.14 | 0.05 |
| 73 | 136 | 0.00 | 0.00 | -1.13 | 90.83 | -95.14 | -0.05 |
| 73 | 137 | 0.00 | 0.00 | -2.07 | -92.17 | 93.02 | 0.04 |
| 74 | 137 | 0.00 | 0.00 | 2.07 | 92.17 | -93.02 | -0.04 |
| 74 | 138 | 0.00 | 0.00 | -5.28 | -93.52 | 76.49 | 0.02 |
| 75 | 138 | 0.00 | 0.00 | 5.28 | 93.52 | -76.49 | -0.02 |
| 75 | 139 | 0.00 | 0.00 | -8.50 | -94.87 | 45.50 | 0.01 |
| 76 | 139 | 0.00 | 0.00 | 8.50 | 94.87 | -45.50 | -0.01 |
| 76 | 140 | 0.00 | 0.00 | -11.73 | -96.22 | 0.00 | 0.00 |
| 77 | 16 | -0.01 | 0.00 | -26.21 | 0.00 | 328.16 | 0.00 |
| 77 | 17 | 0.01 | 0.00 | 23.89 | 0.00 | -195.30 | 0.00 |
| 78 | 17 | -0.01 | 0.00 | -23.89 | 0.00 | 195.30 | 0.00 |
| 78 | 18 | 0.01 | 0.00 | 21.36 | 0.00 | -81.96 | 0.00 |
| 79 | 33 | 0.01 | 0.00 | -69.61 | 0.00 | 927.14 | 0.00 |
| 79 | 34 | -0.01 | 0.00 | 66.10 | 0.00 | -412.40 | 0.00 |
| 80 | 34 | 0.01 | 0.00 | -66.10 | 0.00 | 412.40 | 0.00 |
| 80 | 35 | -0.01 | 0.00 | 63.36 | 0.00 | -88.59 | 0.00 |
| 81 | 50 | -0.01 | 0.00 | -36.04 | 0.00 | 858.38 | 0.00 |
| 81 | 51 | 0.01 | 0.00 | 34.37 | 0.00 | -717.55 | 0.00 |
| 82 | 51 | -0.01 | 0.00 | -34.37 | 0.00 | 717.55 | 0.00 |
| 82 | 52 | 0.01 | 0.00 | 29.27 | 0.00 | -397.83 | 0.00 |
| 83 | 52 | -0.01 | 0.00 | -29.27 | 0.00 | 397.83 | 0.00 |
| 83 | 53 | 0.01 | 0.00 | 22.83 | 0.00 | -136.62 | 0.00 |
| 84 | 53 | -0.01 | 0.00 | -22.83 | 0.00 | 136.62 | 0.00 |
| 84 | 54 | 0.01 | 0.00 | 19.31 | 0.00 | -31.23 | 0.00 |
| 85 | 69 | 0.00 | 0.00 | -40.71 | 0.00 | 1035.42 | 0.00 |
| 85 | 70 | 0.00 | 0.00 | 37.51 | 0.00 | -761.33 | 0.00 |
| 86 | 70 | 0.00 | 0.00 | -37.51 | 0.00 | 761.33 | 0.00 |
| 86 | 71 | 0.00 | 0.00 | 31.87 | 0.00 | -413.33 | 0.00 |
| 87 | 71 | 0.00 | 0.00 | -31.87 | 0.00 | 413.33 | 0.00 |
| 87 | 72 | 0.00 | 0.00 | 25.17 | 0.00 | -127.52 | 0.00 |
| 88 | 72 | 0.00 | 0.00 | -25.17 | 0.00 | 127.52 | 0.00 |
| 88 | 73 | 0.00 | 0.00 | 21.56 | 0.00 | -10.65 | 0.00 |
| 89 | 88 | 0.00 | 0.00 | -45.38 | 0.00 | 1030.52 | 0.00 |
| 89 | 89 | 0.00 | 0.00 | 44.96 | 0.00 | -985.35 | 0.00 |
| 90 | 89 | 0.00 | 0.00 | -44.96 | 0.00 | 985.35 | 0.00 |
| 90 | 90 | 0.00 | 0.00 | 40.05 | 0.00 | -559.08 | 0.00 |
| 91 | 90 | 0.00 | 0.00 | -40.05 | 0.00 | 559.08 | 0.00 |
| 91 | 91 | 0.00 | 0.00 | 33.90 | 0.00 | -188.47 | 0.00 |
| 92 | 91 | 0.00 | 0.00 | -33.90 | 0.00 | 188.47 | 0.00 |
| 92 | 92 | 0.00 | 0.00 | 30.48 | 0.00 | -27.43 | 0.00 |
| 93 | 107 | 0.01 | 0.00 | -62.71 | 0.00 | 1001.98 | 0.00 |
| 93 | 108 | -0.01 | 0.00 | 62.29 | 0.00 | -939.48 | 0.00 |
| 94 | 108 | 0.01 | 0.00 | -62.29 | 0.00 | 939.48 | 0.00 |
| 94 | 109 | -0.01 | 0.00 | 57.38 | 0.00 | -339.89 | 0.00 |
| 95 | 109 | 0.01 | 0.00 | -57.38 | 0.00 | 339.89 | 0.00 |
| 95 | 110 | -0.01 | 0.00 | 54.42 | 0.00 | -60.26 | 0.00 |
| 96 | 125 | -0.01 | 0.00 | -28.85 | 0.00 | 447.27 | 0.00 |
| 96 | 126 | 0.01 | 0.00 | 28.44 | 0.00 | -418.63 | 0.00 |
| 97 | 126 | -0.01 | 0.00 | -28.44 | 0.00 | 418.63 | 0.00 |
| 97 | 127 | 0.01 | 0.00 | 23.52 | 0.00 | -157.62 | 0.00 |
| 98 | 127 | -0.01 | 0.00 | -23.52 | 0.00 | 157.62 | 0.00 |
| 98 | 128 | 0.01 | 0.00 | 20.56 | 0.00 | -47.30 | 0.00 |
| 99 | 2 | -7.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | 7.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 7.78 | 0.00 | -5.82 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -7.78 | 0.00 | 5.82 | 0.00 | 9.97 | 0.00 |
| 101 | 19 | -22.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | 22.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 22.15 | 0.00 | -21.36 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -22.15 | 0.00 | 21.36 | 0.00 | 36.58 | 0.00 |
| 103 | 36 | -23.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | 23.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 23.95 | 0.00 | -63.36 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -23.95 | 0.00 | 63.36 | 0.00 | 108.48 | 0.00 |
| 105 | 55 | -8.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | 8.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 8.44 | 0.00 | -19.31 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -8.44 | 0.00 | 19.31 | 0.00 | 33.05 | 0.00 |
| 107 | 74 | -2.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | 2.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 2.88 | 0.00 | -21.56 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -2.88 | 0.00 | 21.56 | 0.00 | 36.91 | 0.00 |
| 109 | 93 | -7.42 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | 7.42 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 7.42 | 0.00 | -30.48 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -7.42 | 0.00 | 30.48 | 0.00 | 52.19 | 0.00 |
| 111 | 111 | -16.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | 16.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 16.30 | 0.00 | -54.42 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -16.30 | 0.00 | 54.42 | 0.00 | 93.16 | 0.00 |
| 113 | 129 | -12.79 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | 12.79 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 12.78 | 0.00 | -20.56 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -12.78 | 0.00 | 20.56 | 0.00 | 35.20 | 0.00 |
| 115 | 141 | -13.68 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | 13.68 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 13.68 | 0.00 | -11.73 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -13.68 | 0.00 | 11.73 | 0.00 | 20.07 | 0.00 |
| 117 | 6 | 0.00 | 0.00 | -5.82 | 0.00 | 71.93 | 0.00 |
| 117 | 7 | 0.00 | 0.00 | 5.82 | 0.00 | -66.10 | 0.00 |
| 118 | 145 | 0.00 | 0.00 | -11.73 | 0.00 | 128.02 | 0.00 |
| 118 | 146 | 0.00 | 0.00 | 11.73 | 0.00 | -116.30 | 0.00 |
| 119 | 3 | 0.00 | -7.78 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | 7.78 | 0.00 | 0.00 | 0.00 | -33.05 |
| 120 | 1 | 5.82 | -7.78 | 0.00 | 0.00 | 0.00 | -23.09 |
| 120 | 5 | -5.82 | 7.78 | 0.00 | 0.00 | 0.00 | -9.97 |
| 121 | 20 | 0.00 | -22.16 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | 22.16 | 0.00 | 0.00 | 0.00 | -40.99 |
| 122 | 15 | 21.36 | -22.15 | 0.00 | 0.00 | 0.00 | -4.40 |
| 122 | 22 | -21.36 | 22.15 | 0.00 | 0.00 | 0.00 | -36.58 |
| 123 | 37 | 0.00 | -23.94 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | 23.94 | 0.00 | 0.00 | 0.00 | -44.30 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 124 | 32 | 63.36 | -23.95 | 0.00 | 0.00 | 0.00 | 64.16 |
| 124 | 39 | -63.36 | 23.95 | 0.00 | 0.00 | 0.00 | -108.48 |
| 125 | 56 | 0.00 | -8.45 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.00 | 8.45 | 0.00 | 0.00 | 0.00 | -15.64 |
| 126 | 49 | 19.30 | -8.44 | 0.00 | 0.00 | 0.00 | 17.43 |
| 126 | 58 | -19.30 | 8.44 | 0.00 | 0.00 | 0.00 | -33.05 |
| 127 | 75 | -0.01 | -2.88 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.01 | 2.88 | 0.00 | 0.00 | 0.00 | -5.34 |
| 128 | 68 | 21.55 | -2.89 | 0.00 | 0.00 | 0.00 | 31.56 |
| 128 | 77 | -21.55 | 2.89 | 0.00 | 0.00 | 0.00 | -36.90 |
| 129 | 94 | 0.00 | -7.42 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | 7.42 | 0.00 | 0.00 | 0.00 | -13.74 |
| 130 | 87 | 30.49 | -7.42 | 0.00 | 0.00 | 0.00 | 38.46 |
| 130 | 96 | -30.49 | 7.42 | 0.00 | 0.00 | 0.00 | -52.19 |
| 131 | 112 | 0.00 | -16.29 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | 16.29 | 0.00 | 0.00 | 0.00 | -30.14 |
| 132 | 106 | 54.42 | -16.30 | 0.00 | 0.00 | 0.00 | 63.01 |
| 132 | 114 | -54.42 | 16.30 | 0.00 | 0.00 | 0.00 | -93.16 |
| 133 | 130 | 0.00 | -12.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | 12.79 | 0.00 | 0.00 | 0.00 | -23.66 |
| 134 | 124 | 20.56 | -12.78 | 0.00 | 0.00 | 0.00 | 11.55 |
| 134 | 132 | -20.56 | 12.78 | 0.00 | 0.00 | 0.00 | -35.20 |
| 135 | 142 | 0.00 | -13.68 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | 13.68 | 0.00 | 0.00 | 0.00 | -58.14 |
| 136 | 140 | 11.73 | -13.68 | 0.00 | 0.00 | 0.00 | -38.08 |
| 136 | 144 | -11.73 | 13.68 | 0.00 | 0.00 | 0.00 | -20.07 |
| 137 | 2 | 0.00 | 7.78 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | -7.78 | 0.00 | 0.00 | 0.00 | 33.05 |
| 138 | 7 | -5.82 | 7.78 | 0.00 | 0.00 | 0.00 | 33.06 |
| 138 | 4 | 5.82 | -7.78 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | 22.16 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | -22.16 | 0.00 | 0.00 | 0.00 | 40.99 |
| 140 | 18 | -21.36 | 22.15 | 0.00 | 0.00 | 0.00 | 40.97 |
| 140 | 21 | 21.36 | -22.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | 23.94 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | -23.94 | 0.00 | 0.00 | 0.00 | 44.29 |
| 142 | 35 | -63.36 | 23.95 | 0.00 | 0.00 | 0.00 | 44.30 |
| 142 | 38 | 63.36 | -23.95 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | 8.45 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | -8.45 | 0.00 | 0.00 | 0.00 | 15.62 |
| 144 | 54 | -19.30 | 8.44 | 0.00 | 0.00 | 0.00 | 15.61 |
| 144 | 57 | 19.30 | -8.44 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | -0.01 | 2.88 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.01 | -2.88 | 0.00 | 0.00 | 0.00 | 5.32 |
| 146 | 73 | -21.56 | 2.89 | 0.00 | 0.00 | 0.00 | 5.33 |
| 146 | 76 | 21.56 | -2.89 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | -0.01 | 7.42 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.01 | -7.42 | 0.00 | 0.00 | 0.00 | 13.72 |
| 148 | 92 | -30.49 | 7.42 | 0.00 | 0.00 | 0.00 | 13.71 |
| 148 | 95 | 30.49 | -7.42 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | 16.29 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | -16.29 | 0.00 | 0.00 | 0.00 | 30.13 |
| 150 | 110 | -54.42 | 16.29 | 0.00 | 0.00 | 0.00 | 30.14 |
| 150 | 113 | 54.42 | -16.29 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | 12.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | -12.79 | 0.00 | 0.00 | 0.00 | 23.66 |
| 152 | 128 | -20.56 | 12.78 | 0.00 | 0.00 | 0.00 | 23.64 |
| 152 | 131 | 20.56 | -12.78 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | 13.68 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | -13.68 | 0.00 | 0.00 | 0.00 | 58.14 |
| 154 | 146 | -11.73 | 13.68 | 0.00 | 0.00 | 0.00 | 58.15 |
| 154 | 143 | 11.73 | -13.68 | 0.00 | 0.00 | 0.00 | 0.00 |



HIPOTESIS 22

hipo 22 viento - trans estructura

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 0.00 | 5.82 | 56.14 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | 0.00 | -2.83 | -54.88 | -19.45 | -0.01 |
| 2 | 8 | 0.00 | 0.00 | 2.83 | 54.88 | 19.45 | 0.01 |
| 2 | 9 | 0.00 | 0.00 | 0.15 | -53.63 | -25.48 | -0.02 |
| 3 | 9 | 0.00 | 0.00 | -0.15 | 53.63 | 25.48 | 0.02 |
| 3 | 10 | 0.00 | 0.00 | 3.10 | -52.39 | -18.15 | -0.03 |
| 4 | 10 | 0.00 | 0.00 | -3.10 | 52.39 | 18.15 | 0.03 |
| 4 | 11 | 0.00 | 0.00 | 6.04 | -51.16 | 2.43 | -0.04 |
| 5 | 11 | 0.00 | 0.00 | -6.04 | 51.16 | -2.43 | 0.04 |
| 5 | 12 | 0.00 | 0.00 | 8.96 | -49.93 | 36.20 | -0.05 |
| 6 | 12 | 0.00 | 0.00 | -8.96 | 49.93 | -36.20 | 0.05 |
| 6 | 13 | 0.00 | 0.00 | 11.86 | -48.71 | 83.05 | -0.06 |
| 7 | 13 | 0.00 | 0.00 | -11.86 | 48.71 | -83.05 | 0.06 |
| 7 | 14 | 0.00 | 0.00 | 14.74 | -47.50 | 142.90 | -0.07 |
| 8 | 14 | 0.00 | 0.00 | -14.74 | 47.50 | -142.90 | 0.07 |
| 8 | 15 | 0.00 | 0.00 | 17.59 | -46.30 | 215.65 | -0.07 |
| 9 | 15 | 0.00 | 0.00 | 3.77 | 91.70 | -215.65 | 0.07 |
| 9 | 23 | 0.00 | 0.00 | -0.92 | -90.50 | 205.10 | -0.06 |
| 10 | 23 | 0.00 | 0.00 | 0.92 | 90.50 | -205.10 | 0.06 |
| 10 | 24 | 0.00 | 0.00 | 1.95 | -89.29 | 207.43 | -0.04 |
| 11 | 24 | 0.00 | 0.00 | -1.95 | 89.29 | -207.43 | 0.04 |
| 11 | 25 | 0.00 | 0.00 | 4.83 | -88.08 | 222.69 | -0.02 |
| 12 | 25 | 0.00 | 0.00 | -4.83 | 88.08 | -222.69 | 0.02 |
| 12 | 26 | 0.00 | 0.00 | 7.73 | -86.87 | 250.95 | 0.00 |
| 13 | 26 | 0.00 | 0.00 | -7.73 | 86.87 | -250.95 | 0.00 |
| 13 | 27 | 0.00 | 0.00 | 10.64 | -85.65 | 292.28 | 0.01 |
| 14 | 27 | 0.00 | 0.00 | -10.64 | 85.65 | -292.28 | -0.01 |
| 14 | 28 | 0.00 | 0.00 | 13.56 | -84.42 | 346.72 | 0.03 |
| 15 | 28 | 0.00 | 0.00 | -13.56 | 84.42 | -346.72 | -0.03 |
| 15 | 29 | 0.00 | 0.00 | 16.50 | -83.19 | 414.35 | 0.05 |
| 16 | 29 | 0.00 | 0.00 | -16.50 | 83.19 | -414.35 | -0.05 |
| 16 | 30 | 0.00 | 0.00 | 19.45 | -81.95 | 495.22 | 0.07 |
| 17 | 30 | 0.00 | 0.00 | -19.45 | 81.95 | -495.22 | -0.07 |
| 17 | 31 | 0.00 | 0.00 | 22.41 | -80.70 | 589.38 | 0.08 |
| 18 | 31 | 0.00 | 0.00 | -22.41 | 80.70 | -589.38 | -0.08 |
| 18 | 32 | 0.00 | 0.00 | 25.38 | -79.45 | 696.90 | 0.10 |
| 19 | 32 | 0.00 | 0.00 | 37.98 | 59.59 | -696.91 | -0.10 |
| 19 | 40 | 0.00 | 0.00 | -34.96 | -58.32 | 532.75 | 0.09 |
| 20 | 40 | 0.00 | 0.00 | 34.96 | 58.32 | -532.76 | -0.09 |
| 20 | 41 | 0.00 | 0.00 | -31.86 | -57.02 | 382.39 | 0.07 |
| 21 | 41 | 0.00 | 0.00 | 31.86 | 57.02 | -382.39 | -0.07 |
| 21 | 42 | 0.00 | 0.00 | -28.68 | -55.68 | 246.16 | 0.05 |
| 22 | 42 | 0.00 | 0.00 | 28.68 | 55.68 | -246.16 | -0.05 |
| 22 | 43 | 0.00 | 0.00 | -25.43 | -54.32 | 124.39 | 0.04 |
| 23 | 43 | 0.00 | 0.00 | 25.43 | 54.32 | -124.38 | -0.04 |
| 23 | 44 | 0.00 | 0.00 | -22.12 | -52.93 | 17.37 | 0.02 |
| 24 | 44 | 0.00 | 0.00 | 22.12 | 52.93 | -17.37 | -0.02 |
| 24 | 45 | 0.00 | 0.00 | -18.75 | -51.51 | -74.62 | 0.00 |
| 25 | 45 | 0.00 | 0.00 | 18.75 | 51.51 | 74.62 | 0.00 |
| 25 | 46 | 0.00 | 0.00 | -15.33 | -50.08 | -151.32 | -0.02 |
| 26 | 46 | 0.00 | 0.00 | 15.33 | 50.08 | 151.32 | 0.02 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 26 | 47 | 0.00 | 0.00 | -11.85 | -48.61 | -212.49 | -0.03 |
| 27 | 47 | 0.00 | 0.00 | 11.85 | 48.61 | 212.49 | 0.03 |
| 27 | 48 | 0.00 | 0.00 | -8.32 | -47.13 | -257.89 | -0.05 |
| 28 | 48 | 0.00 | 0.00 | 8.32 | 47.13 | 257.89 | 0.05 |
| 28 | 49 | 0.00 | 0.00 | -4.75 | -45.63 | -287.31 | -0.07 |
| 29 | 49 | 0.00 | 0.00 | 24.05 | 43.84 | 287.30 | 0.07 |
| 29 | 59 | 0.00 | 0.00 | -20.45 | -42.33 | -387.43 | -0.06 |
| 30 | 59 | 0.00 | 0.00 | 20.45 | 42.33 | 387.43 | 0.06 |
| 30 | 60 | 0.00 | 0.00 | -16.84 | -40.81 | -471.33 | -0.05 |
| 31 | 60 | 0.00 | 0.00 | 16.84 | 40.81 | 471.33 | 0.05 |
| 31 | 61 | 0.00 | 0.00 | -13.22 | -39.29 | -538.96 | -0.04 |
| 32 | 61 | 0.00 | 0.00 | 13.22 | 39.29 | 538.96 | 0.04 |
| 32 | 62 | 0.00 | 0.00 | -9.59 | -37.77 | -590.29 | -0.03 |
| 33 | 62 | 0.00 | 0.00 | 9.59 | 37.77 | 590.29 | 0.03 |
| 33 | 63 | 0.00 | 0.00 | -5.96 | -36.24 | -625.28 | -0.02 |
| 34 | 63 | 0.00 | 0.00 | 5.96 | 36.24 | 625.28 | 0.02 |
| 34 | 64 | 0.00 | 0.00 | -2.32 | -34.71 | -643.90 | -0.02 |
| 35 | 64 | 0.00 | 0.00 | 2.32 | 34.71 | 643.90 | 0.02 |
| 35 | 65 | 0.00 | 0.00 | 1.34 | -33.18 | -646.10 | -0.01 |
| 36 | 65 | 0.00 | 0.00 | -1.33 | 33.18 | 646.10 | 0.01 |
| 36 | 66 | 0.00 | 0.00 | 4.99 | -31.64 | -631.87 | 0.00 |
| 37 | 66 | 0.00 | 0.00 | -4.99 | 31.64 | 631.87 | 0.00 |
| 37 | 67 | 0.00 | 0.00 | 8.66 | -30.10 | -601.15 | 0.01 |
| 38 | 67 | 0.00 | 0.00 | -8.66 | 30.10 | 601.15 | -0.01 |
| 38 | 68 | 0.00 | 0.00 | 12.33 | -28.56 | -553.92 | 0.02 |
| 39 | 68 | 0.00 | 0.00 | 9.22 | 2.34 | 553.92 | -0.02 |
| 39 | 78 | 0.00 | 0.00 | -5.55 | -0.80 | -587.17 | 0.01 |
| 40 | 78 | 0.00 | 0.00 | 5.55 | 0.80 | 587.17 | -0.01 |
| 40 | 79 | 0.00 | 0.00 | -1.90 | 0.74 | -603.93 | 0.01 |
| 41 | 79 | 0.00 | 0.00 | 1.90 | -0.74 | 603.93 | -0.01 |
| 41 | 80 | 0.00 | 0.00 | 1.74 | 2.26 | -604.29 | 0.00 |
| 42 | 80 | 0.00 | 0.00 | -1.74 | -2.26 | 604.29 | 0.00 |
| 42 | 81 | 0.00 | 0.00 | 5.36 | 3.79 | -588.31 | 0.00 |
| 43 | 81 | 0.00 | 0.00 | -5.36 | -3.79 | 588.31 | 0.00 |
| 43 | 82 | 0.00 | 0.00 | 8.97 | 5.30 | -556.06 | -0.01 |
| 44 | 82 | 0.00 | 0.00 | -8.97 | -5.30 | 556.06 | 0.01 |
| 44 | 83 | 0.00 | 0.00 | 12.56 | 6.81 | -507.63 | -0.01 |
| 45 | 83 | 0.00 | 0.00 | -12.56 | -6.81 | 507.63 | 0.01 |
| 45 | 84 | 0.00 | 0.00 | 16.13 | 8.31 | -443.07 | -0.02 |
| 46 | 84 | 0.00 | 0.00 | -16.13 | -8.31 | 443.07 | 0.02 |
| 46 | 85 | 0.00 | 0.00 | 19.69 | 9.80 | -362.47 | -0.02 |
| 47 | 85 | 0.00 | 0.00 | -19.69 | -9.80 | 362.47 | 0.02 |
| 47 | 86 | 0.00 | 0.00 | 23.23 | 11.29 | -265.90 | -0.03 |
| 48 | 86 | 0.00 | 0.00 | -23.23 | -11.29 | 265.90 | 0.03 |
| 48 | 87 | 0.00 | 0.00 | 26.75 | 12.77 | -153.45 | -0.03 |
| 49 | 87 | 0.00 | 0.00 | 3.73 | -37.49 | 153.45 | 0.03 |
| 49 | 97 | 0.00 | 0.00 | -0.24 | 38.95 | -162.38 | -0.02 |
| 50 | 97 | 0.00 | 0.00 | 0.24 | -38.95 | 162.38 | 0.02 |
| 50 | 98 | 0.00 | 0.00 | 3.23 | 40.41 | -155.64 | -0.01 |
| 51 | 98 | 0.00 | 0.00 | -3.23 | -40.41 | 155.64 | 0.01 |
| 51 | 99 | 0.00 | 0.00 | 6.66 | 41.85 | -133.38 | 0.00 |
| 52 | 99 | 0.00 | 0.00 | -6.66 | -41.85 | 133.38 | 0.00 |
| 52 | 100 | 0.00 | 0.00 | 10.06 | 43.28 | -95.74 | 0.01 |
| 53 | 100 | 0.00 | 0.00 | -10.06 | -43.28 | 95.74 | -0.01 |
| 53 | 101 | 0.00 | 0.00 | 13.43 | 44.69 | -42.87 | 0.02 |
| 54 | 101 | 0.00 | 0.00 | -13.43 | -44.69 | 42.87 | -0.02 |
| 54 | 102 | 0.00 | 0.00 | 16.76 | 46.09 | 25.06 | 0.03 |
| 55 | 102 | 0.00 | 0.00 | -16.76 | -46.09 | -25.06 | -0.03 |
| 55 | 103 | 0.00 | 0.00 | 20.05 | 47.48 | 107.90 | 0.04 |
| 56 | 103 | 0.00 | 0.00 | -20.05 | -47.48 | -107.90 | -0.04 |
| 56 | 104 | 0.00 | 0.00 | 23.30 | 48.84 | 205.46 | 0.06 |
| 57 | 104 | 0.00 | 0.00 | -23.30 | -48.84 | -205.46 | -0.06 |
| 57 | 105 | 0.00 | 0.00 | 26.52 | 50.19 | 317.58 | 0.07 |
| 58 | 105 | 0.00 | 0.00 | -26.52 | -50.19 | -317.58 | -0.07 |
| 58 | 106 | 0.00 | 0.00 | 29.69 | 51.52 | 444.06 | 0.08 |
| 59 | 106 | 0.00 | 0.00 | 24.73 | -84.39 | -444.05 | -0.08 |
| 59 | 115 | 0.00 | 0.00 | -21.58 | 85.71 | 339.85 | 0.06 |
| 60 | 115 | 0.00 | 0.00 | 21.58 | -85.71 | -339.85 | -0.06 |
| 60 | 116 | 0.00 | 0.00 | -18.43 | 87.03 | 249.81 | 0.04 |
| 61 | 116 | 0.00 | 0.00 | 18.43 | -87.03 | -249.81 | -0.04 |
| 61 | 117 | 0.00 | 0.00 | -15.29 | 88.36 | 173.94 | 0.03 |
| 62 | 117 | 0.00 | 0.00 | 15.29 | -88.36 | -173.94 | -0.03 |
| 62 | 118 | 0.00 | 0.00 | -12.14 | 89.68 | 112.24 | 0.01 |
| 63 | 118 | 0.00 | 0.00 | 12.14 | -89.68 | -112.24 | -0.01 |
| 63 | 119 | 0.00 | 0.00 | -8.99 | 91.00 | 64.71 | -0.01 |
| 64 | 119 | 0.00 | 0.00 | 8.99 | -91.00 | -64.70 | 0.01 |
| 64 | 120 | 0.00 | 0.00 | -5.84 | 92.32 | 31.34 | -0.03 |
| 65 | 120 | 0.00 | 0.00 | 5.84 | -92.32 | -31.34 | 0.03 |
| 65 | 121 | 0.00 | 0.00 | -2.69 | 93.65 | 12.13 | -0.04 |
| 66 | 121 | 0.00 | 0.00 | 2.69 | -93.65 | -12.13 | 0.04 |
| 66 | 122 | 0.00 | 0.00 | 0.46 | 94.97 | 7.10 | -0.06 |
| 67 | 122 | 0.00 | 0.00 | -0.46 | -94.97 | -7.10 | 0.06 |
| 67 | 123 | 0.00 | 0.00 | 3.60 | 96.29 | 16.23 | -0.08 |
| 68 | 123 | 0.00 | 0.00 | -3.60 | -96.29 | -16.23 | 0.08 |
| 68 | 124 | 0.00 | 0.00 | 6.75 | 97.61 | 39.53 | -0.10 |
| 69 | 124 | 0.00 | 0.00 | 13.81 | -85.50 | -39.53 | 0.10 |
| 69 | 133 | 0.00 | 0.00 | -10.65 | 86.82 | -15.52 | -0.08 |
| 70 | 133 | 0.00 | 0.00 | 10.65 | -86.82 | 15.52 | 0.08 |
| 70 | 134 | 0.00 | 0.00 | -7.49 | 88.15 | -56.34 | -0.07 |
| 71 | 134 | 0.00 | 0.00 | 7.49 | -88.15 | 56.34 | 0.07 |
| 71 | 135 | 0.00 | 0.00 | -4.31 | 89.49 | -82.90 | -0.06 |
| 72 | 135 | 0.00 | 0.00 | 4.31 | -89.49 | 82.90 | 0.06 |
| 72 | 136 | 0.00 | 0.00 | -1.13 | 90.83 | -95.14 | -0.05 |
| 73 | 136 | 0.00 | 0.00 | 1.13 | -90.83 | 95.14 | 0.05 |
| 73 | 137 | 0.00 | 0.00 | 2.07 | 92.17 | -93.02 | -0.04 |
| 74 | 137 | 0.00 | 0.00 | -2.07 | -92.17 | 93.02 | 0.04 |
| 74 | 138 | 0.00 | 0.00 | 5.28 | 93.52 | -76.49 | -0.02 |
| 75 | 138 | 0.00 | 0.00 | -5.28 | -93.52 | 76.49 | 0.02 |
| 75 | 139 | 0.00 | 0.00 | 8.50 | 94.87 | -45.50 | -0.01 |
| 76 | 139 | 0.00 | 0.00 | -8.50 | -94.87 | 45.50 | 0.01 |
| 76 | 140 | 0.00 | 0.00 | 11.73 | 96.22 | 0.00 | 0.00 |
| 77 | 16 | 0.01 | 0.00 | 26.21 | 0.00 | -328.16 | 0.00 |
| 77 | 17 | -0.01 | 0.00 | -23.89 | 0.00 | 195.30 | 0.00 |
| 78 | 17 | 0.01 | 0.00 | 23.89 | 0.00 | -195.30 | 0.00 |
| 78 | 18 | -0.01 | 0.00 | -21.36 | 0.00 | 81.96 | 0.00 |
| 79 | 33 | -0.01 | 0.00 | 69.61 | 0.00 | -927.14 | 0.00 |
| 79 | 34 | 0.01 | 0.00 | -66.10 | 0.00 | 412.40 | 0.00 |
| 80 | 34 | -0.01 | 0.00 | 66.10 | 0.00 | -412.40 | 0.00 |
| 80 | 35 | 0.01 | 0.00 | -63.36 | 0.00 | 88.59 | 0.00 |
| 81 | 50 | 0.01 | 0.00 | 36.04 | 0.00 | -858.38 | 0.00 |
| 81 | 51 | -0.01 | 0.00 | -34.37 | 0.00 | 717.55 | 0.00 |
| 82 | 51 | 0.01 | 0.00 | 34.37 | 0.00 | -717.55 | 0.00 |
| 82 | 52 | -0.01 | 0.00 | -29.27 | 0.00 | 397.83 | 0.00 |
| 83 | 52 | 0.01 | 0.00 | 29.27 | 0.00 | -397.83 | 0.00 |
| 83 | 53 | -0.01 | 0.00 | -22.83 | 0.00 | 136.62 | 0.00 |
| 84 | 53 | 0.01 | 0.00 | 22.83 | 0.00 | -136.62 | 0.00 |
| 84 | 54 | -0.01 | 0.00 | -19.31 | 0.00 | 31.23 | 0.00 |
| 85 | 69 | 0.00 | 0.00 | 40.71 | 0.00 | -1035.42 | 0.00 |
| 85 | 70 | 0.00 | 0.00 | -37.51 | 0.00 | 761.33 | 0.00 |
| 86 | 70 | 0.00 | 0.00 | 37.51 | 0.00 | -761.33 | 0.00 |
| 86 | 71 | 0.00 | 0.00 | -31.87 | 0.00 | 413.33 | 0.00 |
| 87 | 71 | 0.00 | 0.00 | 31.87 | 0.00 | -413.33 | 0.00 |
| 87 | 72 | 0.00 | 0.00 | -25.17 | 0.00 | 127.52 | 0.00 |
| 88 | 72 | 0.00 | 0.00 | 25.17 | 0.00 | -127.52 | 0.00 |
| 88 | 73 | 0.00 | 0.00 | -21.56 | 0.00 | 10.65 | 0.00 |
| 89 | 88 | 0.00 | 0.00 | 45.38 | 0.00 | -1030.52 | 0.00 |
| 89 | 89 | 0.00 | 0.00 | -44.96 | 0.00 | 985.35 | 0.00 |
| 90 | 89 | 0.00 | 0.00 | 44.96 | 0.00 | -985.35 | 0.00 |
| 90 | 90 | 0.00 | 0.00 | -40.05 | 0.00 | 559.08 | 0.00 |
| 91 | 90 | 0.00 | 0.00 | 40.05 | 0.00 | -559.08 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 91 | 91 | 0.00 | 0.00 | -33.90 | 0.00 | 188.47 | 0.00 |
| 92 | 91 | 0.00 | 0.00 | 33.90 | 0.00 | -188.47 | 0.00 |
| 92 | 92 | 0.00 | 0.00 | -30.48 | 0.00 | 27.43 | 0.00 |
| 93 | 107 | -0.01 | 0.00 | 62.71 | 0.00 | -1001.98 | 0.00 |
| 93 | 108 | 0.01 | 0.00 | -62.29 | 0.00 | 939.48 | 0.00 |
| 94 | 108 | -0.01 | 0.00 | 62.29 | 0.00 | -939.48 | 0.00 |
| 94 | 109 | 0.01 | 0.00 | -57.38 | 0.00 | 339.89 | 0.00 |
| 95 | 109 | -0.01 | 0.00 | 57.38 | 0.00 | -339.89 | 0.00 |
| 95 | 110 | 0.01 | 0.00 | -54.42 | 0.00 | 60.26 | 0.00 |
| 96 | 125 | 0.01 | 0.00 | 28.85 | 0.00 | -447.27 | 0.00 |
| 96 | 126 | -0.01 | 0.00 | -28.44 | 0.00 | 418.63 | 0.00 |
| 97 | 126 | 0.01 | 0.00 | 28.44 | 0.00 | -418.63 | 0.00 |
| 97 | 127 | -0.01 | 0.00 | -23.52 | 0.00 | 157.62 | 0.00 |
| 98 | 127 | 0.01 | 0.00 | 23.52 | 0.00 | -157.62 | 0.00 |
| 98 | 128 | -0.01 | 0.00 | -20.56 | 0.00 | 47.30 | 0.00 |
| 99 | 2 | 7.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -7.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | -7.78 | 0.00 | 5.82 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | 7.78 | 0.00 | -5.82 | 0.00 | -9.97 | 0.00 |
| 101 | 19 | 22.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -22.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | -22.15 | 0.00 | 21.36 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | 22.15 | 0.00 | -21.36 | 0.00 | -36.58 | 0.00 |
| 103 | 36 | 23.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -23.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | -23.95 | 0.00 | 63.36 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | 23.95 | 0.00 | -63.36 | 0.00 | -108.48 | 0.00 |
| 105 | 55 | 8.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -8.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | -8.44 | 0.00 | 19.31 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | 8.44 | 0.00 | -19.31 | 0.00 | -33.05 | 0.00 |
| 107 | 74 | 2.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -2.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | -2.88 | 0.00 | 21.56 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | 2.88 | 0.00 | -21.56 | 0.00 | -36.91 | 0.00 |
| 109 | 93 | 7.42 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -7.42 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | -7.42 | 0.00 | 30.48 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | 7.42 | 0.00 | -30.48 | 0.00 | -52.19 | 0.00 |
| 111 | 111 | 16.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -16.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | -16.30 | 0.00 | 54.42 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | 16.30 | 0.00 | -54.42 | 0.00 | -93.16 | 0.00 |
| 113 | 129 | 12.79 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -12.79 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | -12.78 | 0.00 | 20.56 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | 12.78 | 0.00 | -20.56 | 0.00 | -35.20 | 0.00 |
| 115 | 141 | 13.68 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -13.68 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | -13.68 | 0.00 | 11.73 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | 13.68 | 0.00 | -11.73 | 0.00 | -20.07 | 0.00 |
| 117 | 6 | 0.00 | 0.00 | 5.82 | 0.00 | -71.93 | 0.00 |
| 117 | 7 | 0.00 | 0.00 | -5.82 | 0.00 | 66.10 | 0.00 |
| 118 | 145 | 0.00 | 0.00 | 11.73 | 0.00 | -128.02 | 0.00 |
| 118 | 146 | 0.00 | 0.00 | -11.73 | 0.00 | 116.30 | 0.00 |
| 119 | 3 | 0.00 | 7.78 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -7.78 | 0.00 | 0.00 | 0.00 | 33.05 |
| 120 | 1 | -5.82 | 7.78 | 0.00 | 0.00 | 0.00 | 23.09 |
| 120 | 5 | 5.82 | -7.78 | 0.00 | 0.00 | 0.00 | 9.97 |
| 121 | 20 | 0.00 | 22.16 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | -22.16 | 0.00 | 0.00 | 0.00 | 40.99 |
| 122 | 15 | -21.36 | 22.15 | 0.00 | 0.00 | 0.00 | 4.40 |
| 122 | 22 | 21.36 | -22.15 | 0.00 | 0.00 | 0.00 | 36.58 |
| 123 | 37 | 0.00 | 23.94 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | -23.94 | 0.00 | 0.00 | 0.00 | 44.30 |
| 124 | 32 | -63.36 | 23.95 | 0.00 | 0.00 | 0.00 | -64.16 |
| 124 | 39 | 63.36 | -23.95 | 0.00 | 0.00 | 0.00 | 108.48 |
| 125 | 56 | 0.00 | 8.45 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.00 | -8.45 | 0.00 | 0.00 | 0.00 | 15.64 |
| 126 | 49 | -19.30 | 8.44 | 0.00 | 0.00 | 0.00 | -17.43 |
| 126 | 58 | 19.30 | -8.44 | 0.00 | 0.00 | 0.00 | 33.05 |
| 127 | 75 | 0.01 | 2.88 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | -0.01 | -2.88 | 0.00 | 0.00 | 0.00 | 5.34 |
| 128 | 68 | -21.55 | 2.89 | 0.00 | 0.00 | 0.00 | -31.56 |
| 128 | 77 | 21.55 | -2.89 | 0.00 | 0.00 | 0.00 | 36.90 |
| 129 | 94 | 0.00 | 7.42 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | -7.42 | 0.00 | 0.00 | 0.00 | 13.74 |
| 130 | 87 | -30.49 | 7.42 | 0.00 | 0.00 | 0.00 | -38.46 |
| 130 | 96 | 30.49 | -7.42 | 0.00 | 0.00 | 0.00 | 52.19 |
| 131 | 112 | 0.00 | 16.29 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | -16.29 | 0.00 | 0.00 | 0.00 | 30.14 |
| 132 | 106 | -54.42 | 16.30 | 0.00 | 0.00 | 0.00 | -63.01 |
| 132 | 114 | 54.42 | -16.30 | 0.00 | 0.00 | 0.00 | 93.16 |
| 133 | 130 | 0.00 | 12.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | -12.79 | 0.00 | 0.00 | 0.00 | 23.66 |
| 134 | 124 | -20.56 | 12.78 | 0.00 | 0.00 | 0.00 | -11.55 |
| 134 | 132 | 20.56 | -12.78 | 0.00 | 0.00 | 0.00 | 35.20 |
| 135 | 142 | 0.00 | 13.68 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -13.68 | 0.00 | 0.00 | 0.00 | 58.14 |
| 136 | 140 | -11.73 | 13.68 | 0.00 | 0.00 | 0.00 | 38.08 |
| 136 | 144 | 11.73 | -13.68 | 0.00 | 0.00 | 0.00 | 20.07 |
| 137 | 2 | 0.00 | -7.78 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 7.78 | 0.00 | 0.00 | 0.00 | -33.05 |
| 138 | 7 | 5.82 | -7.78 | 0.00 | 0.00 | 0.00 | -33.06 |
| 138 | 4 | -5.82 | 7.78 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -22.16 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 22.16 | 0.00 | 0.00 | 0.00 | -40.99 |
| 140 | 18 | 21.36 | -22.15 | 0.00 | 0.00 | 0.00 | -40.97 |
| 140 | 21 | -21.36 | 22.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -23.94 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 23.94 | 0.00 | 0.00 | 0.00 | -44.29 |
| 142 | 35 | 63.36 | -23.95 | 0.00 | 0.00 | 0.00 | -44.30 |
| 142 | 38 | -63.36 | 23.95 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -8.45 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | 8.45 | 0.00 | 0.00 | 0.00 | -15.62 |
| 144 | 54 | 19.30 | -8.44 | 0.00 | 0.00 | 0.00 | -15.61 |
| 144 | 57 | -19.30 | 8.44 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.01 | -2.88 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | -0.01 | 2.88 | 0.00 | 0.00 | 0.00 | -5.32 |
| 146 | 73 | 21.56 | -2.89 | 0.00 | 0.00 | 0.00 | -5.33 |
| 146 | 76 | -21.56 | 2.89 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.01 | -7.42 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | -0.01 | 7.42 | 0.00 | 0.00 | 0.00 | -13.72 |
| 148 | 92 | 30.49 | -7.42 | 0.00 | 0.00 | 0.00 | -13.71 |
| 148 | 95 | -30.49 | 7.42 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | -16.29 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 16.29 | 0.00 | 0.00 | 0.00 | -30.13 |
| 150 | 110 | 54.42 | -16.29 | 0.00 | 0.00 | 0.00 | -30.14 |
| 150 | 113 | -54.42 | 16.29 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -12.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 12.79 | 0.00 | 0.00 | 0.00 | -23.66 |
| 152 | 128 | 20.56 | -12.78 | 0.00 | 0.00 | 0.00 | -23.64 |
| 152 | 131 | -20.56 | 12.78 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -13.68 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 13.68 | 0.00 | 0.00 | 0.00 | -58.14 |
| 154 | 146 | 11.73 | -13.68 | 0.00 | 0.00 | 0.00 | -58.15 |
| 154 | 143 | -11.73 | 13.68 | 0.00 | 0.00 | 0.00 | 0.00 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS 23

hipo 23 viento + trans est.+ sobrecarga

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 0.00 | -10.50 | -164.64 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | 0.00 | 5.42 | 150.34 | 35.81 | 0.02 |
| 2 | 8 | 0.00 | 0.00 | -5.42 | -150.34 | -35.81 | -0.02 |
| 2 | 9 | 0.00 | 0.00 | 0.38 | 136.12 | 48.86 | 0.03 |
| 3 | 9 | 0.00 | 0.00 | -0.38 | -136.12 | -48.86 | -0.03 |
| 3 | 10 | 0.00 | 0.00 | -4.63 | 121.99 | 39.30 | 0.05 |
| 4 | 10 | 0.00 | 0.00 | 4.63 | -121.99 | -39.30 | -0.05 |
| 4 | 11 | 0.00 | 0.00 | -9.61 | 107.95 | 7.26 | 0.06 |
| 5 | 11 | 0.00 | 0.00 | 9.61 | -107.95 | -7.26 | -0.06 |
| 5 | 12 | 0.00 | 0.00 | -14.55 | 94.01 | -47.11 | 0.08 |
| 6 | 12 | 0.00 | 0.00 | 14.55 | -94.01 | 47.11 | -0.08 |
| 6 | 13 | 0.00 | 0.00 | -19.46 | 80.16 | -123.65 | 0.10 |
| 7 | 13 | 0.00 | 0.00 | 19.46 | -80.16 | 123.65 | -0.10 |
| 7 | 14 | 0.00 | 0.00 | -24.34 | 66.40 | -222.22 | 0.11 |
| 8 | 14 | 0.00 | 0.00 | 24.34 | -66.40 | 222.22 | -0.11 |
| 8 | 15 | 0.00 | 0.00 | -29.18 | 52.75 | -342.66 | 0.13 |
| 9 | 15 | 0.00 | -0.01 | -7.01 | -221.59 | 342.66 | -0.13 |
| 9 | 23 | 0.00 | 0.01 | 2.17 | 207.95 | -321.99 | 0.10 |
| 10 | 23 | 0.00 | -0.01 | -2.17 | -207.95 | 321.99 | -0.10 |
| 10 | 24 | 0.00 | 0.01 | -2.69 | 194.24 | -323.13 | 0.07 |
| 11 | 24 | 0.00 | -0.01 | 2.69 | -194.24 | 323.13 | -0.07 |
| 11 | 25 | 0.00 | 0.01 | -7.57 | 180.47 | -346.20 | 0.04 |
| 12 | 25 | 0.00 | -0.01 | 7.57 | -180.47 | 346.20 | -0.04 |
| 12 | 26 | 0.00 | 0.01 | -12.48 | 166.64 | -391.30 | 0.01 |
| 13 | 26 | 0.00 | -0.01 | 12.48 | -166.64 | 391.30 | -0.01 |
| 13 | 27 | 0.00 | 0.01 | -17.41 | 152.73 | -458.53 | -0.02 |
| 14 | 27 | 0.00 | -0.01 | 17.41 | -152.73 | 458.53 | 0.02 |
| 14 | 28 | 0.00 | 0.01 | -22.36 | 138.77 | -548.00 | -0.05 |
| 15 | 28 | 0.00 | -0.01 | 22.36 | -138.77 | 548.00 | 0.05 |
| 15 | 29 | 0.00 | 0.01 | -27.33 | 124.74 | -659.80 | -0.08 |
| 16 | 29 | 0.00 | -0.01 | 27.33 | -124.74 | 659.80 | 0.08 |
| 16 | 30 | 0.00 | 0.01 | -32.33 | 110.65 | -794.04 | -0.11 |
| 17 | 30 | 0.00 | -0.01 | 32.33 | -110.65 | 794.04 | 0.11 |
| 17 | 31 | 0.00 | 0.01 | -37.35 | 96.50 | -950.81 | -0.14 |
| 18 | 31 | 0.00 | -0.01 | 37.35 | -96.50 | 950.81 | 0.14 |
| 18 | 32 | 0.00 | 0.01 | -42.39 | 82.29 | -1130.20 | -0.17 |
| 19 | 32 | 0.00 | 0.01 | -62.84 | -173.17 | 1130.21 | 0.17 |
| 19 | 40 | 0.00 | -0.01 | 57.72 | 158.72 | -858.90 | -0.14 |
| 20 | 40 | 0.00 | 0.01 | -57.72 | -158.72 | 858.90 | 0.14 |
| 20 | 41 | 0.00 | -0.01 | 52.46 | 143.89 | -610.94 | -0.11 |
| 21 | 41 | 0.00 | 0.01 | -52.46 | -143.89 | 610.94 | 0.11 |
| 21 | 42 | 0.00 | -0.01 | 47.08 | 128.71 | -386.94 | -0.09 |
| 22 | 42 | 0.00 | 0.01 | -47.08 | -128.71 | 386.94 | 0.09 |
| 22 | 43 | 0.00 | -0.01 | 41.57 | 113.19 | -187.44 | -0.06 |
| 23 | 43 | 0.00 | 0.01 | -41.57 | -113.19 | 187.44 | 0.06 |
| 23 | 44 | 0.00 | -0.01 | 35.97 | 97.38 | -12.94 | -0.03 |
| 24 | 44 | 0.00 | 0.01 | -35.97 | -97.38 | 12.93 | 0.03 |
| 24 | 45 | 0.00 | -0.01 | 30.26 | 81.27 | 136.10 | 0.00 |
| 25 | 45 | 0.00 | 0.01 | -30.26 | -81.27 | -136.10 | 0.00 |
| 25 | 46 | 0.00 | -0.01 | 24.45 | 64.90 | 259.22 | 0.03 |
| 26 | 46 | 0.00 | 0.01 | -24.45 | -64.90 | -259.22 | -0.03 |
| 26 | 47 | 0.00 | -0.01 | 18.56 | 48.28 | 356.02 | 0.05 |
| 27 | 47 | 0.00 | 0.01 | -18.56 | -48.28 | -356.02 | -0.05 |
| 27 | 48 | 0.00 | -0.01 | 12.58 | 31.42 | 426.11 | 0.08 |
| 28 | 48 | 0.00 | 0.01 | -12.58 | -31.42 | -426.11 | -0.08 |
| 28 | 49 | 0.00 | -0.01 | 6.52 | 14.34 | 469.11 | 0.11 |
| 29 | 49 | 0.00 | 0.00 | -40.06 | -150.72 | -469.10 | -0.11 |
| 29 | 59 | 0.00 | 0.00 | 33.96 | 133.51 | 635.65 | 0.10 |
| 30 | 59 | 0.00 | 0.00 | -33.96 | -133.51 | -635.65 | -0.10 |
| 30 | 60 | 0.00 | 0.00 | 27.84 | 116.25 | 774.70 | 0.08 |
| 31 | 60 | 0.00 | 0.00 | -27.84 | -116.25 | -774.70 | -0.08 |
| 31 | 61 | 0.00 | 0.00 | 21.71 | 98.96 | 886.18 | 0.07 |
| 32 | 61 | 0.00 | 0.00 | -21.71 | -98.96 | -886.18 | -0.07 |
| 32 | 62 | 0.00 | 0.00 | 15.56 | 81.63 | 970.05 | 0.05 |
| 33 | 62 | 0.00 | 0.00 | -15.56 | -81.63 | -970.04 | -0.05 |
| 33 | 63 | 0.00 | 0.00 | 9.40 | 64.26 | 1026.22 | 0.04 |
| 34 | 63 | 0.00 | 0.00 | -9.40 | -64.26 | -1026.22 | -0.04 |
| 34 | 64 | 0.00 | 0.00 | 3.23 | 46.86 | 1054.64 | 0.02 |
| 35 | 64 | 0.00 | 0.00 | -3.23 | -46.85 | -1054.65 | -0.02 |
| 35 | 65 | 0.00 | 0.00 | -2.96 | 29.41 | 1055.27 | 0.01 |
| 36 | 65 | 0.00 | 0.00 | 2.96 | -29.41 | -1055.27 | -0.01 |
| 36 | 66 | 0.00 | 0.00 | -9.16 | 11.93 | 1028.02 | 0.00 |
| 37 | 66 | 0.00 | 0.00 | 9.16 | -11.93 | -1028.02 | 0.00 |
| 37 | 67 | 0.00 | 0.00 | -15.37 | -5.59 | 972.85 | -0.02 |
| 38 | 67 | 0.00 | 0.00 | 15.37 | 5.59 | -972.85 | 0.02 |
| 38 | 68 | 0.00 | 0.00 | -21.59 | -23.14 | 889.70 | -0.03 |
| 39 | 68 | 0.00 | 0.00 | -16.84 | -75.04 | -889.70 | 0.03 |
| 39 | 78 | 0.00 | 0.00 | 10.62 | 57.50 | 951.47 | -0.02 |
| 40 | 78 | 0.00 | 0.00 | -10.62 | -57.50 | -951.47 | 0.02 |
| 40 | 79 | 0.00 | 0.00 | 4.43 | 40.04 | 985.32 | -0.01 |
| 41 | 79 | 0.00 | 0.00 | -4.43 | -40.04 | -985.31 | 0.01 |
| 41 | 80 | 0.00 | 0.00 | -1.74 | 22.65 | 991.36 | -0.01 |
| 42 | 80 | 0.00 | 0.00 | 1.74 | -22.65 | -991.36 | 0.01 |
| 42 | 81 | 0.00 | 0.00 | -7.88 | 5.34 | 969.71 | 0.00 |
| 43 | 81 | 0.00 | 0.00 | 7.88 | -5.34 | -969.71 | 0.00 |
| 43 | 82 | 0.00 | 0.00 | -13.99 | -11.89 | 920.51 | 0.01 |
| 44 | 82 | 0.00 | 0.00 | 13.99 | 11.89 | -920.51 | -0.01 |
| 44 | 83 | 0.00 | 0.00 | -20.07 | -29.05 | 843.86 | 0.02 |
| 45 | 83 | 0.00 | 0.00 | 20.07 | 29.05 | -843.86 | -0.02 |
| 45 | 84 | 0.00 | 0.00 | -26.13 | -46.13 | 739.90 | 0.03 |
| 46 | 84 | 0.00 | 0.00 | 26.13 | 46.13 | -739.90 | -0.03 |
| 46 | 85 | 0.00 | 0.00 | -32.16 | -63.12 | 608.75 | 0.04 |
| 47 | 85 | 0.00 | 0.00 | 32.16 | 63.12 | -608.75 | -0.04 |
| 47 | 86 | 0.00 | 0.00 | -38.15 | -80.03 | 450.56 | 0.05 |
| 48 | 86 | 0.00 | 0.00 | 38.15 | 80.03 | -450.56 | -0.05 |
| 48 | 87 | 0.00 | 0.00 | -44.12 | -96.86 | 265.44 | 0.06 |
| 49 | 87 | 0.00 | 0.00 | -7.28 | -3.18 | -265.44 | -0.06 |
| 49 | 97 | 0.00 | 0.00 | 1.36 | -13.53 | 284.87 | 0.04 |
| 50 | 97 | 0.00 | 0.00 | -1.36 | 13.53 | -284.87 | -0.04 |
| 50 | 98 | 0.00 | 0.00 | -4.52 | -30.09 | 277.75 | 0.02 |
| 51 | 98 | 0.00 | 0.00 | 4.52 | 30.09 | -277.75 | -0.02 |
| 51 | 99 | 0.00 | 0.00 | -10.34 | -46.50 | 244.32 | 0.00 |
| 52 | 99 | 0.00 | 0.00 | 10.33 | 46.50 | -244.32 | 0.00 |
| 52 | 100 | 0.00 | 0.00 | -16.10 | -62.75 | 184.83 | -0.02 |
| 53 | 100 | 0.00 | 0.00 | 16.10 | 62.75 | -184.84 | 0.02 |
| 53 | 101 | 0.00 | 0.00 | -21.80 | -78.84 | 99.55 | -0.04 |
| 54 | 101 | 0.00 | 0.00 | 21.80 | 78.84 | -99.55 | 0.04 |
| 54 | 102 | 0.00 | 0.00 | -27.44 | -94.75 | -11.26 | -0.06 |
| 55 | 102 | 0.00 | 0.00 | 27.44 | 94.75 | 11.26 | 0.06 |
| 55 | 103 | 0.00 | 0.00 | -33.02 | -110.49 | -147.34 | -0.07 |
| 56 | 103 | 0.00 | 0.00 | 33.02 | 110.49 | 147.33 | 0.07 |
| 56 | 104 | 0.00 | 0.00 | -38.54 | -126.03 | -308.36 | -0.09 |
| 57 | 104 | 0.00 | 0.00 | 38.54 | 126.03 | 308.36 | 0.09 |
| 57 | 105 | 0.00 | 0.00 | -43.98 | -141.39 | -494.05 | -0.11 |
| 58 | 105 | 0.00 | 0.00 | 43.98 | 141.39 | 494.05 | 0.11 |
| 58 | 106 | 0.00 | 0.00 | -49.35 | -156.54 | -704.07 | -0.13 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 59 | 106 | 0.00 | 0.01 | -41.63 | 87.08 | 704.06 | 0.13 |
| 59 | 115 | 0.00 | -0.01 | 36.30 | -102.12 | -528.72 | -0.10 |
| 60 | 115 | 0.00 | 0.01 | -36.30 | 102.12 | 528.72 | 0.10 |
| 60 | 116 | 0.00 | -0.01 | 30.96 | -117.16 | -377.38 | -0.07 |
| 61 | 116 | 0.00 | 0.01 | -30.96 | 117.16 | 377.38 | 0.07 |
| 61 | 117 | 0.00 | -0.01 | 25.63 | -132.21 | -250.05 | -0.04 |
| 62 | 117 | 0.00 | 0.01 | -25.63 | 132.21 | 250.05 | 0.04 |
| 62 | 118 | 0.00 | -0.01 | 20.29 | -147.25 | -146.73 | -0.01 |
| 63 | 118 | 0.00 | 0.01 | -20.29 | 147.25 | 146.73 | 0.01 |
| 63 | 119 | 0.00 | -0.01 | 14.96 | -162.30 | -67.41 | 0.02 |
| 64 | 119 | 0.00 | 0.01 | -14.96 | 162.30 | 67.41 | -0.02 |
| 64 | 120 | 0.00 | -0.01 | 9.62 | -177.34 | -12.10 | 0.05 |
| 65 | 120 | 0.00 | 0.01 | -9.62 | 177.34 | 12.09 | -0.05 |
| 65 | 121 | 0.00 | -0.01 | 4.29 | -192.39 | 19.21 | 0.08 |
| 66 | 121 | 0.00 | 0.01 | -4.29 | 192.39 | -19.21 | -0.08 |
| 66 | 122 | 0.00 | -0.01 | -1.05 | -207.43 | 26.51 | 0.11 |
| 67 | 122 | 0.00 | 0.01 | 1.05 | 207.43 | -26.51 | -0.11 |
| 67 | 123 | 0.00 | -0.01 | -6.38 | -222.48 | 9.80 | 0.14 |
| 68 | 123 | 0.00 | 0.01 | 6.38 | 222.48 | -9.80 | -0.14 |
| 68 | 124 | 0.00 | -0.01 | -11.71 | -237.52 | -30.91 | 0.17 |
| 69 | 124 | 0.00 | 0.00 | -22.40 | 118.64 | 30.91 | -0.17 |
| 69 | 133 | 0.00 | 0.00 | 17.05 | -133.71 | 57.86 | 0.15 |
| 70 | 133 | 0.00 | 0.00 | -17.05 | 133.71 | -57.86 | -0.15 |
| 70 | 134 | 0.00 | 0.00 | 11.69 | -148.84 | 122.53 | 0.13 |
| 71 | 134 | 0.00 | 0.00 | -11.69 | 148.84 | -122.53 | -0.13 |
| 71 | 135 | 0.00 | 0.00 | 6.31 | -164.01 | 163.03 | 0.11 |
| 72 | 135 | 0.00 | 0.00 | -6.31 | 164.01 | -163.03 | -0.11 |
| 72 | 136 | 0.00 | 0.00 | 0.91 | -179.24 | 179.26 | 0.08 |
| 73 | 136 | 0.00 | 0.00 | -0.91 | 179.24 | -179.26 | -0.08 |
| 73 | 137 | 0.00 | 0.00 | -4.51 | -194.52 | 171.16 | 0.06 |
| 74 | 137 | 0.00 | 0.00 | 4.51 | 194.52 | -171.16 | -0.06 |
| 74 | 138 | 0.00 | 0.00 | -9.95 | -209.85 | 138.64 | 0.04 |
| 75 | 138 | 0.00 | 0.00 | 9.95 | 209.85 | -138.64 | -0.04 |
| 75 | 139 | 0.00 | 0.00 | -15.40 | -225.23 | 81.61 | 0.02 |
| 76 | 139 | 0.00 | 0.00 | 15.40 | 225.23 | -81.61 | -0.02 |
| 76 | 140 | 0.00 | 0.00 | -20.87 | -240.66 | 0.00 | 0.00 |
| 77 | 16 | -0.01 | 0.00 | -38.62 | 0.00 | 616.63 | 0.00 |
| 77 | 17 | 0.01 | 0.00 | 37.46 | 0.00 | -415.00 | 0.00 |
| 78 | 17 | -0.01 | 0.00 | -37.46 | 0.00 | 415.00 | 0.00 |
| 78 | 18 | 0.01 | 0.00 | 36.19 | 0.00 | -230.78 | 0.00 |
| 79 | 33 | 0.01 | 0.00 | -108.35 | 0.00 | 1615.47 | 0.00 |
| 79 | 34 | -0.01 | 0.00 | 106.59 | 0.00 | -800.62 | 0.00 |
| 80 | 34 | 0.01 | 0.00 | -106.59 | 0.00 | 800.62 | 0.00 |
| 80 | 35 | -0.01 | 0.00 | 105.23 | 0.00 | -270.98 | 0.00 |
| 81 | 50 | -0.01 | 0.00 | -41.91 | 0.00 | 1300.11 | 0.00 |
| 81 | 51 | 0.01 | 0.00 | 41.07 | 0.00 | -1134.14 | 0.00 |
| 82 | 51 | -0.01 | 0.00 | -41.07 | 0.00 | 1134.14 | 0.00 |
| 82 | 52 | 0.01 | 0.00 | 38.52 | 0.00 | -735.39 | 0.00 |
| 83 | 52 | -0.01 | 0.00 | -38.52 | 0.00 | 735.39 | 0.00 |
| 83 | 53 | 0.01 | 0.00 | 35.30 | 0.00 | -365.89 | 0.00 |
| 84 | 53 | -0.01 | 0.00 | -35.30 | 0.00 | 365.89 | 0.00 |
| 84 | 54 | 0.01 | 0.00 | 33.54 | 0.00 | -193.75 | 0.00 |
| 85 | 69 | 0.01 | 0.00 | -48.01 | 0.00 | 1561.14 | 0.00 |
| 85 | 70 | -0.01 | 0.00 | 46.41 | 0.00 | -1230.53 | 0.00 |
| 86 | 70 | 0.01 | 0.00 | -46.41 | 0.00 | 1230.53 | 0.00 |
| 86 | 71 | -0.01 | 0.00 | 43.58 | 0.00 | -780.02 | 0.00 |
| 87 | 71 | 0.01 | 0.00 | -43.58 | 0.00 | 780.02 | 0.00 |
| 87 | 72 | -0.01 | 0.00 | 40.24 | 0.00 | -360.60 | 0.00 |
| 88 | 72 | 0.01 | 0.00 | -40.24 | 0.00 | 360.60 | 0.00 |
| 88 | 73 | -0.01 | 0.00 | 38.43 | 0.00 | -163.90 | 0.00 |
| 89 | 88 | -0.01 | 0.00 | -58.85 | 0.00 | 1629.70 | 0.00 |
| 89 | 89 | 0.01 | 0.00 | 58.64 | 0.00 | -1570.95 | 0.00 |
| 90 | 89 | -0.01 | 0.00 | -58.64 | 0.00 | 1570.95 | 0.00 |
| 90 | 90 | 0.01 | 0.00 | 56.19 | 0.00 | -996.21 | 0.00 |
| 91 | 90 | -0.01 | 0.00 | -56.19 | 0.00 | 996.21 | 0.00 |
| 91 | 91 | 0.01 | 0.00 | 53.11 | 0.00 | -449.29 | 0.00 |
| 92 | 91 | -0.01 | 0.00 | -53.11 | 0.00 | 449.29 | 0.00 |
| 92 | 92 | 0.01 | 0.00 | 51.40 | 0.00 | -187.97 | 0.00 |
| 93 | 107 | 0.01 | 0.00 | -95.13 | 0.00 | 1716.44 | 0.00 |
| 93 | 108 | -0.01 | 0.00 | 94.92 | 0.00 | -1621.41 | 0.00 |
| 94 | 108 | 0.01 | 0.00 | -94.92 | 0.00 | 1621.41 | 0.00 |
| 94 | 109 | -0.01 | 0.00 | 92.47 | 0.00 | -683.86 | 0.00 |
| 95 | 109 | 0.01 | 0.00 | -92.47 | 0.00 | 683.86 | 0.00 |
| 95 | 110 | -0.01 | 0.00 | 90.98 | 0.00 | -225.17 | 0.00 |
| 96 | 125 | -0.01 | 0.00 | -38.26 | 0.00 | 758.54 | 0.00 |
| 96 | 126 | 0.01 | 0.00 | 38.05 | 0.00 | -720.38 | 0.00 |
| 97 | 126 | -0.01 | 0.00 | -38.05 | 0.00 | 720.38 | 0.00 |
| 97 | 127 | 0.01 | 0.00 | 35.59 | 0.00 | -351.57 | 0.00 |
| 98 | 127 | -0.01 | 0.00 | -35.59 | 0.00 | 351.57 | 0.00 |
| 98 | 128 | 0.01 | 0.00 | 34.11 | 0.00 | -177.25 | 0.00 |
| 99 | 2 | -21.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | 21.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 21.49 | 0.00 | -10.50 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -21.49 | 0.00 | 10.50 | 0.00 | 17.97 | 0.00 |
| 101 | 19 | -62.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | 62.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 62.37 | 0.00 | -36.19 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -62.37 | 0.00 | 36.19 | 0.00 | 61.96 | 0.00 |
| 103 | 36 | -73.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | 73.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 73.25 | 0.00 | -105.23 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -73.25 | 0.00 | 105.23 | 0.00 | 180.15 | 0.00 |
| 105 | 55 | -52.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | 52.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 52.37 | 0.00 | -33.54 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -52.37 | 0.00 | 33.54 | 0.00 | 57.42 | 0.00 |
| 107 | 74 | -44.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | 44.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 44.31 | 0.00 | -38.43 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -44.31 | 0.00 | 38.43 | 0.00 | 65.79 | 0.00 |
| 109 | 93 | -50.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | 50.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 50.81 | 0.00 | -51.40 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -50.81 | 0.00 | 51.40 | 0.00 | 88.00 | 0.00 |
| 111 | 111 | -60.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | 60.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 60.87 | 0.00 | -90.98 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -60.87 | 0.00 | 90.98 | 0.00 | 155.77 | 0.00 |
| 113 | 129 | -47.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | 47.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 47.90 | 0.00 | -34.11 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -47.90 | 0.00 | 34.11 | 0.00 | 58.40 | 0.00 |
| 115 | 141 | -32.51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | 32.51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 32.52 | 0.00 | -20.87 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -32.52 | 0.00 | 20.87 | 0.00 | 35.73 | 0.00 |
| 117 | 6 | 0.00 | 0.00 | -10.50 | 0.00 | 193.11 | 0.00 |
| 117 | 7 | 0.00 | 0.00 | 10.50 | 0.00 | -182.61 | 0.00 |
| 118 | 145 | 0.00 | 0.00 | -20.87 | 0.00 | 297.26 | 0.00 |
| 118 | 146 | 0.00 | 0.00 | 20.87 | 0.00 | -276.39 | 0.00 |
| 119 | 3 | 0.00 | -21.48 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | 21.48 | 0.00 | 0.00 | 0.00 | -91.30 |
| 120 | 1 | 10.50 | -21.49 | 0.00 | 0.00 | 0.00 | -73.34 |
| 120 | 5 | -10.50 | 21.49 | 0.00 | 0.00 | 0.00 | -17.97 |
| 121 | 20 | 0.00 | -62.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | 62.38 | 0.00 | 0.00 | 0.00 | -115.41 |
| 122 | 15 | 36.19 | -62.37 | 0.00 | 0.00 | 0.00 | -53.43 |
| 122 | 22 | -36.19 | 62.37 | 0.00 | 0.00 | 0.00 | -61.96 |
| 123 | 37 | 0.00 | -73.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | 73.24 | 0.00 | 0.00 | 0.00 | -135.50 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 124 | 32 | 105.23 | -73.25 | 0.00 | 0.00 | 0.00 | 44.63 |
| 124 | 39 | -105.23 | 73.25 | 0.00 | 0.00 | 0.00 | -180.15 |
| 125 | 56 | -0.01 | -52.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.01 | 52.38 | 0.00 | 0.00 | 0.00 | -96.91 |
| 126 | 49 | 33.54 | -52.37 | 0.00 | 0.00 | 0.00 | -39.47 |
| 126 | 58 | -33.54 | 52.37 | 0.00 | 0.00 | 0.00 | -57.42 |
| 127 | 75 | 0.01 | -44.30 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | -0.01 | 44.30 | 0.00 | 0.00 | 0.00 | -81.99 |
| 128 | 68 | 38.44 | -44.31 | 0.00 | 0.00 | 0.00 | -16.19 |
| 128 | 77 | -38.44 | 44.31 | 0.00 | 0.00 | 0.00 | -65.80 |
| 129 | 94 | 0.01 | -50.81 | 0.00 | 0.00 | 0.00 | 0.01 |
| 129 | 87 | -0.01 | 50.81 | 0.00 | 0.00 | 0.00 | -94.02 |
| 130 | 87 | 51.41 | -50.81 | 0.00 | 0.00 | 0.00 | -6.01 |
| 130 | 96 | -51.41 | 50.81 | 0.00 | 0.00 | 0.00 | -88.00 |
| 131 | 112 | 0.00 | -60.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | 60.86 | 0.00 | 0.00 | 0.00 | -112.60 |
| 132 | 106 | 90.99 | -60.87 | 0.00 | 0.00 | 0.00 | 43.14 |
| 132 | 114 | -90.99 | 60.87 | 0.00 | 0.00 | 0.00 | -155.77 |
| 133 | 130 | 0.00 | -47.91 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | 47.91 | 0.00 | 0.00 | 0.00 | -88.65 |
| 134 | 124 | 34.11 | -47.90 | 0.00 | 0.00 | 0.00 | -30.23 |
| 134 | 132 | -34.11 | 47.90 | 0.00 | 0.00 | 0.00 | -58.40 |
| 135 | 142 | 0.00 | -32.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | 32.51 | 0.00 | 0.00 | 0.00 | -138.19 |
| 136 | 140 | 20.87 | -32.52 | 0.00 | 0.00 | 0.00 | -102.47 |
| 136 | 144 | -20.87 | 32.52 | 0.00 | 0.00 | 0.00 | -35.73 |
| 137 | 2 | 0.00 | 21.48 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | -21.48 | 0.00 | 0.00 | 0.00 | 91.30 |
| 138 | 7 | -10.50 | 21.49 | 0.00 | 0.00 | 0.00 | 91.31 |
| 138 | 4 | 10.50 | -21.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | 62.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | -62.38 | 0.00 | 0.00 | 0.00 | 115.40 |
| 140 | 18 | -36.19 | 62.37 | 0.00 | 0.00 | 0.00 | 115.38 |
| 140 | 21 | 36.19 | -62.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | 73.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | -73.24 | 0.00 | 0.00 | 0.00 | 135.48 |
| 142 | 35 | -105.23 | 73.25 | 0.00 | 0.00 | 0.00 | 135.51 |
| 142 | 38 | 105.23 | -73.25 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | 52.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | -52.38 | 0.00 | 0.00 | 0.00 | 96.89 |
| 144 | 54 | -33.54 | 52.37 | 0.00 | 0.00 | 0.00 | 96.87 |
| 144 | 57 | 33.54 | -52.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | 44.30 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | -44.30 | 0.00 | 0.00 | 0.00 | 81.94 |
| 146 | 73 | -38.43 | 44.31 | 0.00 | 0.00 | 0.00 | 81.95 |
| 146 | 76 | 38.43 | -44.31 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | 50.82 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | -50.82 | 0.00 | 0.00 | 0.00 | 93.99 |
| 148 | 92 | -51.40 | 50.81 | 0.00 | 0.00 | 0.00 | 93.98 |
| 148 | 95 | 51.40 | -50.81 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | -0.01 | 60.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.01 | -60.86 | 0.00 | 0.00 | 0.00 | 112.58 |
| 150 | 110 | -90.99 | 60.87 | 0.00 | 0.00 | 0.00 | 112.60 |
| 150 | 113 | 90.99 | -60.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | 47.91 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | -47.91 | 0.00 | 0.00 | 0.00 | 88.63 |
| 152 | 128 | -34.11 | 47.90 | 0.00 | 0.00 | 0.00 | 88.61 |
| 152 | 131 | 34.11 | -47.90 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | 32.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | -32.51 | 0.00 | 0.00 | 0.00 | 138.19 |
| 154 | 146 | -20.87 | 32.52 | 0.00 | 0.00 | 0.00 | 138.21 |
| 154 | 143 | 20.87 | -32.52 | 0.00 | 0.00 | 0.00 | 0.00 |



HIPOTESIS 24

hipo 24 viento - trans est.+ sobrecarga

E S F U E R Z O S E N B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 0.00 | 10.50 | 164.64 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | 0.00 | -5.42 | -150.34 | -35.81 | -0.02 |
| 2 | 8 | 0.00 | 0.00 | 5.42 | 150.34 | 35.81 | 0.02 |
| 2 | 9 | 0.00 | 0.00 | -0.38 | -136.12 | -48.86 | -0.03 |
| 3 | 9 | 0.00 | 0.00 | 0.38 | 136.12 | 48.86 | 0.03 |
| 3 | 10 | 0.00 | 0.00 | 4.63 | -121.99 | -39.30 | -0.05 |
| 4 | 10 | 0.00 | 0.00 | -4.63 | 121.99 | 39.30 | 0.05 |
| 4 | 11 | 0.00 | 0.00 | 9.61 | -107.95 | -7.26 | -0.06 |
| 5 | 11 | 0.00 | 0.00 | -9.61 | 107.95 | 7.26 | 0.06 |
| 5 | 12 | 0.00 | 0.00 | 14.55 | -94.01 | 47.11 | -0.08 |
| 6 | 12 | 0.00 | 0.00 | -14.55 | 94.01 | -47.11 | 0.08 |
| 6 | 13 | 0.00 | 0.00 | 19.46 | -80.16 | 123.65 | -0.10 |
| 7 | 13 | 0.00 | 0.00 | -19.46 | 80.16 | -123.65 | 0.10 |
| 7 | 14 | 0.00 | 0.00 | 24.34 | -66.40 | 222.22 | -0.11 |
| 8 | 14 | 0.00 | 0.00 | -24.34 | 66.40 | -222.22 | 0.11 |
| 8 | 15 | 0.00 | 0.00 | 29.18 | -52.75 | 342.66 | -0.13 |
| 9 | 15 | 0.00 | 0.01 | 7.01 | 221.59 | -342.66 | 0.13 |
| 9 | 23 | 0.00 | -0.01 | -2.17 | -207.95 | 321.99 | -0.10 |
| 10 | 23 | 0.00 | 0.01 | 2.17 | 207.95 | -321.99 | 0.10 |
| 10 | 24 | 0.00 | -0.01 | 2.69 | -194.24 | 323.13 | -0.07 |
| 11 | 24 | 0.00 | 0.01 | -2.69 | 194.24 | -323.13 | 0.07 |
| 11 | 25 | 0.00 | -0.01 | 7.57 | -180.47 | 346.20 | -0.04 |
| 12 | 25 | 0.00 | 0.01 | -7.57 | 180.47 | -346.20 | 0.04 |
| 12 | 26 | 0.00 | -0.01 | 12.48 | -166.64 | 391.30 | -0.01 |
| 13 | 26 | 0.00 | 0.01 | -12.48 | 166.64 | -391.30 | 0.01 |
| 13 | 27 | 0.00 | -0.01 | 17.41 | -152.73 | 458.53 | 0.02 |
| 14 | 27 | 0.00 | 0.01 | -17.41 | 152.73 | -458.53 | -0.02 |
| 14 | 28 | 0.00 | -0.01 | 22.36 | -138.77 | 548.00 | 0.05 |
| 15 | 28 | 0.00 | 0.01 | -22.36 | 138.77 | -548.00 | -0.05 |
| 15 | 29 | 0.00 | -0.01 | 27.33 | -124.74 | 659.80 | 0.08 |
| 16 | 29 | 0.00 | 0.01 | -27.33 | 124.74 | -659.80 | -0.08 |
| 16 | 30 | 0.00 | -0.01 | 32.33 | -110.65 | 794.04 | 0.11 |
| 17 | 30 | 0.00 | 0.01 | -32.33 | 110.65 | -794.04 | -0.11 |
| 17 | 31 | 0.00 | -0.01 | 37.35 | -96.50 | 950.81 | 0.14 |
| 18 | 31 | 0.00 | 0.01 | -37.35 | 96.50 | -950.81 | -0.14 |
| 18 | 32 | 0.00 | -0.01 | 42.39 | -82.29 | 1130.20 | 0.17 |
| 19 | 32 | 0.00 | -0.01 | 62.84 | 173.17 | -1130.21 | -0.17 |
| 19 | 40 | 0.00 | 0.01 | -57.72 | -158.72 | 858.90 | 0.14 |
| 20 | 40 | 0.00 | -0.01 | 57.72 | 158.72 | -858.90 | -0.14 |
| 20 | 41 | 0.00 | 0.01 | -52.46 | -143.89 | 610.94 | 0.11 |
| 21 | 41 | 0.00 | -0.01 | 52.46 | 143.89 | -610.94 | -0.11 |
| 21 | 42 | 0.00 | 0.01 | -47.08 | -128.71 | 386.94 | 0.09 |
| 22 | 42 | 0.00 | -0.01 | 47.08 | 128.71 | -386.94 | -0.09 |
| 22 | 43 | 0.00 | 0.01 | -41.57 | -113.19 | 187.44 | 0.06 |
| 23 | 43 | 0.00 | -0.01 | 41.57 | 113.19 | -187.44 | -0.06 |
| 23 | 44 | 0.00 | 0.01 | -35.97 | -97.38 | 12.94 | 0.03 |
| 24 | 44 | 0.00 | -0.01 | 35.97 | 97.38 | -12.93 | -0.03 |
| 24 | 45 | 0.00 | 0.01 | -30.26 | -81.27 | -136.10 | 0.00 |
| 25 | 45 | 0.00 | -0.01 | 30.26 | 81.27 | 136.10 | 0.00 |
| 25 | 46 | 0.00 | 0.01 | -24.45 | -64.90 | -259.22 | -0.03 |
| 26 | 46 | 0.00 | -0.01 | 24.45 | 64.90 | 259.22 | 0.03 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 26 | 47 | 0.00 | 0.01 | -18.56 | -48.28 | -356.02 | -0.05 |
| 27 | 47 | 0.00 | -0.01 | 18.56 | 48.28 | 356.02 | 0.05 |
| 27 | 48 | 0.00 | 0.01 | -12.58 | -31.42 | -426.11 | -0.08 |
| 28 | 48 | 0.00 | -0.01 | 12.58 | 31.42 | 426.11 | 0.08 |
| 28 | 49 | 0.00 | 0.01 | -6.52 | -14.34 | -469.11 | -0.11 |
| 29 | 49 | 0.00 | 0.00 | 40.06 | 150.72 | 469.10 | 0.11 |
| 29 | 59 | 0.00 | 0.00 | -33.96 | -133.51 | -635.65 | -0.10 |
| 30 | 59 | 0.00 | 0.00 | 33.96 | 133.51 | 635.65 | 0.10 |
| 30 | 60 | 0.00 | 0.00 | -27.84 | -116.25 | -774.70 | -0.08 |
| 31 | 60 | 0.00 | 0.00 | 27.84 | 116.25 | 774.70 | 0.08 |
| 31 | 61 | 0.00 | 0.00 | -21.71 | -98.96 | -886.18 | -0.07 |
| 32 | 61 | 0.00 | 0.00 | 21.71 | 98.96 | 886.18 | 0.07 |
| 32 | 62 | 0.00 | 0.00 | -15.56 | -81.63 | -970.05 | -0.05 |
| 33 | 62 | 0.00 | 0.00 | 15.56 | 81.63 | 970.04 | 0.05 |
| 33 | 63 | 0.00 | 0.00 | -9.40 | -64.26 | -1026.22 | -0.04 |
| 34 | 63 | 0.00 | 0.00 | 9.40 | 64.26 | 1026.22 | 0.04 |
| 34 | 64 | 0.00 | 0.00 | -3.23 | -46.86 | -1054.64 | -0.02 |
| 35 | 64 | 0.00 | 0.00 | 3.23 | 46.85 | 1054.65 | 0.02 |
| 35 | 65 | 0.00 | 0.00 | 2.96 | -29.41 | -1055.27 | -0.01 |
| 36 | 65 | 0.00 | 0.00 | -2.96 | 29.41 | 1055.27 | 0.01 |
| 36 | 66 | 0.00 | 0.00 | 9.16 | -11.93 | -1028.02 | 0.00 |
| 37 | 66 | 0.00 | 0.00 | -9.16 | 11.93 | 1028.02 | 0.00 |
| 37 | 67 | 0.00 | 0.00 | 15.37 | 5.59 | -972.85 | 0.02 |
| 38 | 67 | 0.00 | 0.00 | -15.37 | -5.59 | 972.85 | -0.02 |
| 38 | 68 | 0.00 | 0.00 | 21.59 | 23.14 | -889.70 | 0.03 |
| 39 | 68 | 0.00 | 0.00 | 16.84 | 75.04 | 889.70 | -0.03 |
| 39 | 78 | 0.00 | 0.00 | -10.62 | -57.50 | -951.47 | 0.02 |
| 40 | 78 | 0.00 | 0.00 | 10.62 | 57.50 | 951.47 | -0.02 |
| 40 | 79 | 0.00 | 0.00 | -4.43 | -40.04 | -985.32 | 0.01 |
| 41 | 79 | 0.00 | 0.00 | 4.43 | 40.04 | 985.31 | -0.01 |
| 41 | 80 | 0.00 | 0.00 | 1.74 | -22.65 | -991.36 | 0.01 |
| 42 | 80 | 0.00 | 0.00 | -1.74 | 22.65 | 991.36 | -0.01 |
| 42 | 81 | 0.00 | 0.00 | 7.88 | -5.34 | -969.71 | 0.00 |
| 43 | 81 | 0.00 | 0.00 | -7.88 | 5.34 | 969.71 | 0.00 |
| 43 | 82 | 0.00 | 0.00 | 13.99 | 11.89 | -920.51 | -0.01 |
| 44 | 82 | 0.00 | 0.00 | -13.99 | -11.89 | 920.51 | 0.01 |
| 44 | 83 | 0.00 | 0.00 | 20.07 | 29.05 | -843.86 | -0.02 |
| 45 | 83 | 0.00 | 0.00 | -20.07 | -29.05 | 843.86 | 0.02 |
| 45 | 84 | 0.00 | 0.00 | 26.13 | 46.13 | -739.90 | -0.03 |
| 46 | 84 | 0.00 | 0.00 | -26.13 | -46.13 | 739.90 | 0.03 |
| 46 | 85 | 0.00 | 0.00 | 32.16 | 63.12 | -608.75 | -0.04 |
| 47 | 85 | 0.00 | 0.00 | -32.16 | -63.12 | 608.75 | 0.04 |
| 47 | 86 | 0.00 | 0.00 | 38.15 | 80.03 | -450.56 | -0.05 |
| 48 | 86 | 0.00 | 0.00 | -38.15 | -80.03 | 450.56 | 0.05 |
| 48 | 87 | 0.00 | 0.00 | 44.12 | 96.86 | -265.44 | -0.06 |
| 49 | 87 | 0.00 | 0.00 | 7.28 | 3.18 | 265.44 | 0.06 |
| 49 | 97 | 0.00 | 0.00 | -1.36 | 13.53 | -284.87 | -0.04 |
| 50 | 97 | 0.00 | 0.00 | 1.36 | -13.53 | 284.87 | 0.04 |
| 50 | 98 | 0.00 | 0.00 | 4.52 | 30.09 | -277.75 | -0.02 |
| 51 | 98 | 0.00 | 0.00 | -4.52 | -30.09 | 277.75 | 0.02 |
| 51 | 99 | 0.00 | 0.00 | 10.34 | 46.50 | -244.32 | 0.00 |
| 52 | 99 | 0.00 | 0.00 | -10.33 | -46.50 | 244.32 | 0.00 |
| 52 | 100 | 0.00 | 0.00 | 16.10 | 62.75 | -184.83 | 0.02 |
| 53 | 100 | 0.00 | 0.00 | -16.10 | -62.75 | 184.84 | -0.02 |
| 53 | 101 | 0.00 | 0.00 | 21.80 | 78.84 | -99.55 | 0.04 |
| 54 | 101 | 0.00 | 0.00 | -21.80 | -78.84 | 99.55 | -0.04 |
| 54 | 102 | 0.00 | 0.00 | 27.44 | 94.75 | 11.26 | 0.06 |
| 55 | 102 | 0.00 | 0.00 | -27.44 | -94.75 | -11.26 | -0.06 |
| 55 | 103 | 0.00 | 0.00 | 33.02 | 110.49 | 147.34 | 0.07 |
| 56 | 103 | 0.00 | 0.00 | -33.02 | -110.49 | -147.33 | -0.07 |
| 56 | 104 | 0.00 | 0.00 | 38.54 | 126.03 | 308.36 | 0.09 |
| 57 | 104 | 0.00 | 0.00 | -38.54 | -126.03 | -308.36 | -0.09 |
| 57 | 105 | 0.00 | 0.00 | 43.98 | 141.39 | 494.05 | 0.11 |
| 58 | 105 | 0.00 | 0.00 | -43.98 | -141.39 | -494.05 | -0.11 |
| 58 | 106 | 0.00 | 0.00 | 49.35 | 156.54 | 704.07 | 0.13 |
| 59 | 106 | 0.00 | -0.01 | 41.63 | -87.08 | -704.06 | -0.13 |
| 59 | 115 | 0.00 | 0.01 | -36.30 | 102.12 | 528.72 | 0.10 |
| 60 | 115 | 0.00 | -0.01 | 36.30 | -102.12 | -528.72 | -0.10 |
| 60 | 116 | 0.00 | 0.01 | -30.96 | 117.16 | 377.38 | 0.07 |
| 61 | 116 | 0.00 | -0.01 | 30.96 | -117.16 | -377.38 | -0.07 |
| 61 | 117 | 0.00 | 0.01 | -25.63 | 132.21 | 250.05 | 0.04 |
| 62 | 117 | 0.00 | -0.01 | 25.63 | -132.21 | -250.05 | -0.04 |
| 62 | 118 | 0.00 | 0.01 | -20.29 | 147.25 | 146.73 | 0.01 |
| 63 | 118 | 0.00 | -0.01 | 20.29 | -147.25 | -146.73 | -0.01 |
| 63 | 119 | 0.00 | 0.01 | -14.96 | 162.30 | 67.41 | -0.02 |
| 64 | 119 | 0.00 | -0.01 | 14.96 | -162.30 | -67.41 | 0.02 |
| 64 | 120 | 0.00 | 0.01 | -9.62 | 177.34 | 12.10 | -0.05 |
| 65 | 120 | 0.00 | -0.01 | 9.62 | -177.34 | -12.09 | 0.05 |
| 65 | 121 | 0.00 | 0.01 | -4.29 | 192.39 | -19.21 | -0.08 |
| 66 | 121 | 0.00 | -0.01 | 4.29 | -192.39 | 19.21 | 0.08 |
| 66 | 122 | 0.00 | 0.01 | 1.05 | 207.43 | -26.51 | -0.11 |
| 67 | 122 | 0.00 | -0.01 | -1.05 | -207.43 | 26.51 | 0.11 |
| 67 | 123 | 0.00 | 0.01 | 6.38 | 222.48 | -9.80 | -0.14 |
| 68 | 123 | 0.00 | -0.01 | -6.38 | -222.48 | 9.80 | 0.14 |
| 68 | 124 | 0.00 | 0.01 | 11.71 | 237.52 | 30.91 | -0.17 |
| 69 | 124 | 0.00 | 0.00 | 22.40 | -118.64 | -30.91 | 0.17 |
| 69 | 133 | 0.00 | 0.00 | -17.05 | 133.71 | -57.86 | -0.15 |
| 70 | 133 | 0.00 | 0.00 | 17.05 | -133.71 | 57.86 | 0.15 |
| 70 | 134 | 0.00 | 0.00 | -11.69 | 148.84 | -122.53 | -0.13 |
| 71 | 134 | 0.00 | 0.00 | 11.69 | -148.84 | 122.53 | 0.13 |
| 71 | 135 | 0.00 | 0.00 | -6.31 | 164.01 | -163.03 | -0.11 |
| 72 | 135 | 0.00 | 0.00 | 6.31 | -164.01 | 163.03 | 0.11 |
| 72 | 136 | 0.00 | 0.00 | -0.91 | 179.24 | -179.26 | -0.08 |
| 73 | 136 | 0.00 | 0.00 | 0.91 | -179.24 | 179.26 | 0.08 |
| 73 | 137 | 0.00 | 0.00 | 4.51 | 194.52 | -171.16 | -0.06 |
| 74 | 137 | 0.00 | 0.00 | -4.51 | -194.52 | 171.16 | 0.06 |
| 74 | 138 | 0.00 | 0.00 | 9.95 | 209.85 | -138.64 | -0.04 |
| 75 | 138 | 0.00 | 0.00 | -9.95 | -209.85 | 138.64 | 0.04 |
| 75 | 139 | 0.00 | 0.00 | 15.40 | 225.23 | -81.61 | -0.02 |
| 76 | 139 | 0.00 | 0.00 | -15.40 | -225.23 | 81.61 | 0.02 |
| 76 | 140 | 0.00 | 0.00 | 20.87 | 240.66 | 0.00 | 0.00 |
| 77 | 16 | 0.01 | 0.00 | 38.62 | 0.00 | -616.63 | 0.00 |
| 77 | 17 | -0.01 | 0.00 | -37.46 | 0.00 | 415.00 | 0.00 |
| 78 | 17 | 0.01 | 0.00 | 37.46 | 0.00 | -415.00 | 0.00 |
| 78 | 18 | -0.01 | 0.00 | -36.19 | 0.00 | 230.78 | 0.00 |
| 79 | 33 | -0.01 | 0.00 | 108.35 | 0.00 | -1615.47 | 0.00 |
| 79 | 34 | 0.01 | 0.00 | -106.59 | 0.00 | 800.62 | 0.00 |
| 80 | 34 | -0.01 | 0.00 | 106.59 | 0.00 | -800.62 | 0.00 |
| 80 | 35 | 0.01 | 0.00 | -105.23 | 0.00 | 270.98 | 0.00 |
| 81 | 50 | 0.01 | 0.00 | 41.91 | 0.00 | -1300.11 | 0.00 |
| 81 | 51 | -0.01 | 0.00 | -41.07 | 0.00 | 1134.14 | 0.00 |
| 82 | 51 | 0.01 | 0.00 | 41.07 | 0.00 | -1134.14 | 0.00 |
| 82 | 52 | -0.01 | 0.00 | -38.52 | 0.00 | 735.39 | 0.00 |
| 83 | 52 | 0.01 | 0.00 | 38.52 | 0.00 | -735.39 | 0.00 |
| 83 | 53 | -0.01 | 0.00 | -35.30 | 0.00 | 365.89 | 0.00 |
| 84 | 53 | 0.01 | 0.00 | 35.30 | 0.00 | -365.89 | 0.00 |
| 84 | 54 | -0.01 | 0.00 | -33.54 | 0.00 | 193.75 | 0.00 |
| 85 | 69 | -0.01 | 0.00 | 48.01 | 0.00 | -1561.14 | 0.00 |
| 85 | 70 | 0.01 | 0.00 | -46.41 | 0.00 | 1230.53 | 0.00 |
| 86 | 70 | -0.01 | 0.00 | 46.41 | 0.00 | -1230.53 | 0.00 |
| 86 | 71 | 0.01 | 0.00 | -43.58 | 0.00 | 780.02 | 0.00 |
| 87 | 71 | -0.01 | 0.00 | 43.58 | 0.00 | -780.02 | 0.00 |
| 87 | 72 | 0.01 | 0.00 | -40.24 | 0.00 | 360.60 | 0.00 |
| 88 | 72 | -0.01 | 0.00 | 40.24 | 0.00 | -360.60 | 0.00 |
| 88 | 73 | 0.01 | 0.00 | -38.43 | 0.00 | 163.90 | 0.00 |
| 89 | 88 | 0.01 | 0.00 | 58.85 | 0.00 | -1629.70 | 0.00 |
| 89 | 89 | -0.01 | 0.00 | -58.64 | 0.00 | 1570.95 | 0.00 |
| 90 | 89 | 0.01 | 0.00 | 58.64 | 0.00 | -1570.95 | 0.00 |
| 90 | 90 | -0.01 | 0.00 | -56.19 | 0.00 | 996.21 | 0.00 |
| 91 | 90 | 0.01 | 0.00 | 56.19 | 0.00 | -996.21 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 91 | 91 | -0.01 | 0.00 | -53.11 | 0.00 | 449.29 | 0.00 |
| 92 | 91 | 0.01 | 0.00 | 53.11 | 0.00 | -449.29 | 0.00 |
| 92 | 92 | -0.01 | 0.00 | -51.40 | 0.00 | 187.97 | 0.00 |
| 93 | 107 | -0.01 | 0.00 | 95.13 | 0.00 | -1716.44 | 0.00 |
| 93 | 108 | 0.01 | 0.00 | -94.92 | 0.00 | 1621.41 | 0.00 |
| 94 | 108 | -0.01 | 0.00 | 94.92 | 0.00 | -1621.41 | 0.00 |
| 94 | 109 | 0.01 | 0.00 | -92.47 | 0.00 | 683.86 | 0.00 |
| 95 | 109 | -0.01 | 0.00 | 92.47 | 0.00 | -683.86 | 0.00 |
| 95 | 110 | 0.01 | 0.00 | -90.98 | 0.00 | 225.17 | 0.00 |
| 96 | 125 | 0.01 | 0.00 | 38.26 | 0.00 | -758.54 | 0.00 |
| 96 | 126 | -0.01 | 0.00 | -38.05 | 0.00 | 720.38 | 0.00 |
| 97 | 126 | 0.01 | 0.00 | 38.05 | 0.00 | -720.38 | 0.00 |
| 97 | 127 | -0.01 | 0.00 | -35.59 | 0.00 | 351.57 | 0.00 |
| 98 | 127 | 0.01 | 0.00 | 35.59 | 0.00 | -351.57 | 0.00 |
| 98 | 128 | -0.01 | 0.00 | -34.11 | 0.00 | 177.25 | 0.00 |
| 99 | 2 | 21.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -21.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | -21.49 | 0.00 | 10.50 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | 21.49 | 0.00 | -10.50 | 0.00 | -17.97 | 0.00 |
| 101 | 19 | 62.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -62.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | -62.37 | 0.00 | 36.19 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | 62.37 | 0.00 | -36.19 | 0.00 | -61.96 | 0.00 |
| 103 | 36 | 73.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -73.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | -73.25 | 0.00 | 105.23 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | 73.25 | 0.00 | -105.23 | 0.00 | -180.15 | 0.00 |
| 105 | 55 | 52.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -52.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | -52.37 | 0.00 | 33.54 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | 52.37 | 0.00 | -33.54 | 0.00 | -57.42 | 0.00 |
| 107 | 74 | 44.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -44.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | -44.31 | 0.00 | 38.43 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | 44.31 | 0.00 | -38.43 | 0.00 | -65.79 | 0.00 |
| 109 | 93 | 50.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -50.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | -50.81 | 0.00 | 51.40 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | 50.81 | 0.00 | -51.40 | 0.00 | -88.00 | 0.00 |
| 111 | 111 | 60.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -60.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | -60.87 | 0.00 | 90.98 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | 60.87 | 0.00 | -90.98 | 0.00 | -155.77 | 0.00 |
| 113 | 129 | 47.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -47.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | -47.90 | 0.00 | 34.11 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | 47.90 | 0.00 | -34.11 | 0.00 | -58.40 | 0.00 |
| 115 | 141 | 32.51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -32.51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | -32.52 | 0.00 | 20.87 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | 32.52 | 0.00 | -20.87 | 0.00 | -35.73 | 0.00 |
| 117 | 6 | 0.00 | 0.00 | 10.50 | 0.00 | -193.11 | 0.00 |
| 117 | 7 | 0.00 | 0.00 | -10.50 | 0.00 | 182.61 | 0.00 |
| 118 | 145 | 0.00 | 0.00 | 20.87 | 0.00 | -297.26 | 0.00 |
| 118 | 146 | 0.00 | 0.00 | -20.87 | 0.00 | 276.39 | 0.00 |
| 119 | 3 | 0.00 | 21.48 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -21.48 | 0.00 | 0.00 | 0.00 | 91.30 |
| 120 | 1 | -10.50 | 21.49 | 0.00 | 0.00 | 0.00 | 73.34 |
| 120 | 5 | 10.50 | -21.49 | 0.00 | 0.00 | 0.00 | 17.97 |
| 121 | 20 | 0.00 | 62.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | -62.38 | 0.00 | 0.00 | 0.00 | 115.41 |
| 122 | 15 | -36.19 | 62.37 | 0.00 | 0.00 | 0.00 | 53.43 |
| 122 | 22 | 36.19 | -62.37 | 0.00 | 0.00 | 0.00 | 61.96 |
| 123 | 37 | 0.00 | 73.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | -73.24 | 0.00 | 0.00 | 0.00 | 135.50 |
| 124 | 32 | -105.23 | 73.25 | 0.00 | 0.00 | 0.00 | -44.63 |
| 124 | 39 | 105.23 | -73.25 | 0.00 | 0.00 | 0.00 | 180.15 |
| 125 | 56 | 0.01 | 52.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | -0.01 | -52.38 | 0.00 | 0.00 | 0.00 | 96.91 |
| 126 | 49 | -33.54 | 52.37 | 0.00 | 0.00 | 0.00 | 39.47 |
| 126 | 58 | 33.54 | -52.37 | 0.00 | 0.00 | 0.00 | 57.42 |
| 127 | 75 | -0.01 | 44.30 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.01 | -44.30 | 0.00 | 0.00 | 0.00 | 81.99 |
| 128 | 68 | -38.44 | 44.31 | 0.00 | 0.00 | 0.00 | 16.19 |
| 128 | 77 | 38.44 | -44.31 | 0.00 | 0.00 | 0.00 | 65.80 |
| 129 | 94 | -0.01 | 50.81 | 0.00 | 0.00 | 0.00 | -0.01 |
| 129 | 87 | 0.01 | -50.81 | 0.00 | 0.00 | 0.00 | 94.02 |
| 130 | 87 | -51.41 | 50.81 | 0.00 | 0.00 | 0.00 | 6.01 |
| 130 | 96 | 51.41 | -50.81 | 0.00 | 0.00 | 0.00 | 88.00 |
| 131 | 112 | 0.00 | 60.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | -60.86 | 0.00 | 0.00 | 0.00 | 112.60 |
| 132 | 106 | -90.99 | 60.87 | 0.00 | 0.00 | 0.00 | -43.14 |
| 132 | 114 | 90.99 | -60.87 | 0.00 | 0.00 | 0.00 | 155.77 |
| 133 | 130 | 0.00 | 47.91 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | -47.91 | 0.00 | 0.00 | 0.00 | 88.65 |
| 134 | 124 | -34.11 | 47.90 | 0.00 | 0.00 | 0.00 | 30.23 |
| 134 | 132 | 34.11 | -47.90 | 0.00 | 0.00 | 0.00 | 58.40 |
| 135 | 142 | 0.00 | 32.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -32.51 | 0.00 | 0.00 | 0.00 | 138.19 |
| 136 | 140 | -20.87 | 32.52 | 0.00 | 0.00 | 0.00 | 102.47 |
| 136 | 144 | 20.87 | -32.52 | 0.00 | 0.00 | 0.00 | 35.73 |
| 137 | 2 | 0.00 | -21.48 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 21.48 | 0.00 | 0.00 | 0.00 | -91.30 |
| 138 | 7 | 10.50 | -21.49 | 0.00 | 0.00 | 0.00 | -91.31 |
| 138 | 4 | -10.50 | 21.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -62.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 62.38 | 0.00 | 0.00 | 0.00 | -115.40 |
| 140 | 18 | 36.19 | -62.37 | 0.00 | 0.00 | 0.00 | -115.38 |
| 140 | 21 | -36.19 | 62.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -73.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 73.24 | 0.00 | 0.00 | 0.00 | -135.48 |
| 142 | 35 | 105.23 | -73.25 | 0.00 | 0.00 | 0.00 | -135.51 |
| 142 | 38 | -105.23 | 73.25 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -52.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | 52.38 | 0.00 | 0.00 | 0.00 | -96.89 |
| 144 | 54 | 33.54 | -52.37 | 0.00 | 0.00 | 0.00 | -96.87 |
| 144 | 57 | -33.54 | 52.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | -44.30 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 44.30 | 0.00 | 0.00 | 0.00 | -81.94 |
| 146 | 73 | 38.43 | -44.31 | 0.00 | 0.00 | 0.00 | -81.95 |
| 146 | 76 | -38.43 | 44.31 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | -50.82 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | 50.82 | 0.00 | 0.00 | 0.00 | -93.99 |
| 148 | 92 | 51.40 | -50.81 | 0.00 | 0.00 | 0.00 | -93.98 |
| 148 | 95 | -51.40 | 50.81 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.01 | -60.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | -0.01 | 60.86 | 0.00 | 0.00 | 0.00 | -112.58 |
| 150 | 110 | 90.99 | -60.87 | 0.00 | 0.00 | 0.00 | -112.60 |
| 150 | 113 | -90.99 | 60.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -47.91 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 47.91 | 0.00 | 0.00 | 0.00 | -88.63 |
| 152 | 128 | 34.11 | -47.90 | 0.00 | 0.00 | 0.00 | -88.61 |
| 152 | 131 | -34.11 | 47.90 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -32.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 32.51 | 0.00 | 0.00 | 0.00 | -138.19 |
| 154 | 146 | 20.87 | -32.52 | 0.00 | 0.00 | 0.00 | -138.21 |
| 154 | 143 | -20.87 | 32.52 | 0.00 | 0.00 | 0.00 | 0.00 |

HIPOTESIS 25

hipo 25 viento + long. estructura

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | -0.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 8 | -0.75 | 0.07 | 0.00 | 0.00 | 0.00 | 0.01 |
| 2 | 8 | 0.75 | -0.07 | 0.00 | 0.00 | 0.00 | -0.01 |
| 2 | 9 | -1.49 | 0.07 | 0.00 | 0.00 | 0.00 | 0.01 |
| 3 | 9 | 1.49 | -0.07 | 0.00 | 0.00 | 0.00 | -0.01 |
| 3 | 10 | -2.23 | 0.07 | 0.00 | 0.00 | 0.00 | 0.02 |
| 4 | 10 | 2.23 | -0.07 | 0.00 | 0.00 | 0.00 | -0.02 |
| 4 | 11 | -2.97 | 0.07 | 0.00 | 0.00 | 0.00 | 0.02 |
| 5 | 11 | 2.97 | -0.07 | 0.00 | 0.00 | 0.00 | -0.02 |
| 5 | 12 | -3.70 | 0.07 | 0.00 | 0.00 | 0.00 | 0.02 |
| 6 | 12 | 3.70 | -0.07 | 0.00 | 0.00 | 0.00 | -0.02 |
| 6 | 13 | -4.42 | 0.07 | 0.00 | 0.00 | 0.00 | 0.01 |
| 7 | 13 | 4.42 | -0.07 | 0.00 | 0.00 | 0.00 | -0.01 |
| 7 | 14 | -5.14 | 0.07 | 0.00 | 0.00 | 0.00 | 0.01 |
| 8 | 14 | 5.14 | -0.07 | 0.00 | 0.00 | 0.00 | -0.01 |
| 8 | 15 | -5.85 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9 | 15 | 5.85 | -0.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9 | 23 | -6.57 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 | 23 | 6.57 | -0.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 | 24 | -7.28 | 0.07 | 0.00 | 0.00 | 0.00 | -0.01 |
| 11 | 24 | 7.28 | -0.07 | 0.00 | 0.00 | 0.00 | 0.01 |
| 11 | 25 | -8.00 | 0.07 | 0.00 | 0.00 | 0.00 | -0.01 |
| 12 | 25 | 8.00 | -0.07 | 0.00 | 0.00 | 0.00 | 0.01 |
| 12 | 26 | -8.73 | 0.07 | 0.00 | 0.00 | 0.00 | -0.01 |
| 13 | 26 | 8.73 | -0.07 | 0.00 | 0.00 | 0.00 | 0.01 |
| 13 | 27 | -9.46 | 0.07 | 0.00 | 0.00 | 0.00 | -0.01 |
| 14 | 27 | 9.46 | -0.07 | 0.00 | 0.00 | 0.00 | 0.01 |
| 14 | 28 | -10.19 | 0.07 | 0.00 | 0.00 | 0.00 | -0.01 |
| 15 | 28 | 10.19 | -0.07 | 0.00 | 0.00 | 0.00 | 0.01 |
| 15 | 29 | -10.92 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| 16 | 29 | 10.92 | -0.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| 16 | 30 | -11.66 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| 17 | 30 | 11.66 | -0.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| 17 | 31 | -12.40 | 0.07 | 0.00 | 0.00 | 0.00 | 0.01 |
| 18 | 31 | 12.40 | -0.07 | 0.00 | 0.00 | 0.00 | -0.01 |
| 18 | 32 | -13.14 | 0.07 | 0.00 | 0.00 | 0.00 | 0.02 |
| 19 | 32 | 13.14 | -0.08 | 0.00 | 0.00 | 0.00 | -0.02 |
| 19 | 40 | -13.90 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20 | 40 | 13.90 | -0.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20 | 41 | -14.67 | 0.08 | 0.00 | 0.00 | 0.00 | -0.02 |
| 21 | 41 | 14.67 | -0.08 | 0.00 | 0.00 | 0.00 | 0.02 |
| 21 | 42 | -15.47 | 0.08 | 0.00 | 0.00 | 0.00 | -0.02 |
| 22 | 42 | 15.47 | -0.08 | 0.00 | 0.00 | 0.00 | 0.02 |
| 22 | 43 | -16.28 | 0.08 | 0.00 | 0.00 | 0.00 | -0.02 |
| 23 | 43 | 16.28 | -0.08 | 0.00 | 0.00 | 0.00 | 0.02 |
| 23 | 44 | -17.11 | 0.08 | 0.00 | 0.00 | 0.00 | -0.01 |
| 24 | 44 | 17.11 | -0.08 | 0.00 | 0.00 | 0.00 | 0.01 |
| 24 | 45 | -17.95 | 0.08 | 0.00 | 0.00 | 0.00 | 0.01 |
| 25 | 45 | 17.95 | -0.08 | 0.00 | 0.00 | 0.00 | -0.01 |
| 25 | 46 | -18.81 | 0.08 | 0.00 | 0.00 | 0.00 | 0.03 |
| 26 | 46 | 18.81 | -0.08 | 0.00 | 0.00 | 0.00 | -0.03 |
| 26 | 47 | -19.68 | 0.08 | 0.00 | 0.00 | 0.00 | 0.05 |
| 27 | 47 | 19.68 | -0.08 | 0.00 | 0.00 | 0.00 | -0.05 |
| 27 | 48 | -20.56 | 0.08 | 0.00 | 0.00 | 0.00 | 0.09 |
| 28 | 48 | 20.56 | -0.08 | 0.00 | 0.00 | 0.00 | -0.09 |
| 28 | 49 | -21.45 | 0.08 | 0.00 | 0.00 | 0.00 | 0.12 |
| 29 | 49 | 21.45 | -0.10 | 0.00 | 0.00 | 0.00 | -0.12 |
| 29 | 59 | -22.35 | 0.10 | 0.00 | 0.00 | 0.00 | 0.07 |
| 30 | 59 | 22.35 | -0.10 | 0.00 | 0.00 | 0.00 | -0.07 |
| 30 | 60 | -23.26 | 0.10 | 0.00 | 0.00 | 0.00 | 0.02 |
| 31 | 60 | 23.26 | -0.10 | 0.00 | 0.00 | 0.00 | -0.02 |
| 31 | 61 | -24.16 | 0.10 | 0.00 | 0.00 | 0.00 | -0.03 |
| 32 | 61 | 24.16 | -0.10 | 0.00 | 0.00 | 0.00 | 0.03 |
| 32 | 62 | -25.07 | 0.10 | 0.00 | 0.00 | 0.00 | -0.08 |
| 33 | 62 | 25.07 | -0.10 | 0.00 | 0.00 | 0.00 | 0.08 |
| 33 | 63 | -25.98 | 0.10 | 0.00 | 0.00 | 0.00 | -0.13 |
| 34 | 63 | 25.98 | -0.10 | 0.00 | 0.00 | 0.00 | 0.13 |
| 34 | 64 | -26.89 | 0.10 | 0.00 | 0.00 | 0.00 | -0.18 |
| 35 | 64 | 26.89 | -0.10 | 0.00 | 0.00 | 0.00 | 0.18 |
| 35 | 65 | -27.80 | 0.10 | 0.00 | 0.00 | 0.00 | -0.23 |
| 36 | 65 | 27.80 | -0.10 | 0.00 | 0.00 | 0.00 | 0.23 |
| 36 | 66 | -28.71 | 0.10 | 0.00 | 0.00 | 0.00 | -0.28 |
| 37 | 66 | 28.71 | -0.10 | 0.00 | 0.00 | 0.00 | 0.28 |
| 37 | 67 | -29.63 | 0.10 | 0.00 | 0.00 | 0.00 | -0.33 |
| 38 | 67 | 29.63 | -0.10 | 0.00 | 0.00 | 0.00 | 0.33 |
| 38 | 68 | -30.55 | 0.10 | 0.00 | 0.00 | 0.00 | -0.37 |
| 39 | 68 | 30.55 | -0.04 | 0.00 | 0.00 | 0.00 | 0.37 |
| 39 | 78 | -31.46 | 0.04 | 0.00 | 0.00 | 0.00 | -0.18 |
| 40 | 78 | 31.46 | -0.04 | 0.00 | 0.00 | 0.00 | 0.18 |
| 40 | 79 | -32.38 | 0.04 | 0.00 | 0.00 | 0.00 | 0.01 |
| 41 | 79 | 32.38 | -0.04 | 0.00 | 0.00 | 0.00 | -0.01 |
| 41 | 80 | -33.29 | 0.04 | 0.00 | 0.00 | 0.00 | 0.19 |
| 42 | 80 | 33.29 | -0.04 | 0.00 | 0.00 | 0.00 | -0.19 |
| 42 | 81 | -34.19 | 0.04 | 0.00 | 0.00 | 0.00 | 0.38 |
| 43 | 81 | 34.19 | -0.04 | 0.00 | 0.00 | 0.00 | -0.38 |
| 43 | 82 | -35.10 | 0.04 | 0.00 | 0.00 | 0.00 | 0.56 |
| 44 | 82 | 35.10 | -0.04 | 0.00 | 0.00 | 0.00 | -0.56 |
| 44 | 83 | -35.99 | 0.04 | 0.00 | 0.00 | 0.00 | 0.74 |
| 45 | 83 | 35.99 | -0.04 | 0.00 | 0.00 | 0.00 | -0.74 |
| 45 | 84 | -36.89 | 0.04 | 0.00 | 0.00 | 0.00 | 0.92 |
| 46 | 84 | 36.89 | -0.04 | 0.00 | 0.00 | 0.00 | -0.92 |
| 46 | 85 | -37.78 | 0.04 | 0.00 | 0.00 | 0.00 | 1.10 |
| 47 | 85 | 37.78 | -0.04 | 0.00 | 0.00 | 0.00 | -1.10 |
| 47 | 86 | -38.66 | 0.04 | 0.00 | 0.00 | 0.00 | 1.28 |
| 48 | 86 | 38.66 | -0.04 | 0.00 | 0.00 | 0.00 | -1.28 |
| 48 | 87 | -39.54 | 0.04 | 0.00 | 0.00 | 0.00 | 1.45 |
| 49 | 87 | 39.54 | -0.24 | 0.00 | 0.00 | 0.00 | -1.45 |
| 49 | 97 | -40.41 | 0.24 | 0.00 | 0.00 | 0.00 | 0.73 |
| 50 | 97 | 40.41 | -0.24 | 0.00 | 0.00 | 0.00 | -0.73 |
| 50 | 98 | -41.28 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 51 | 98 | 41.28 | -0.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 51 | 99 | -42.14 | 0.24 | 0.00 | 0.00 | 0.01 | -0.72 |
| 52 | 99 | 42.14 | -0.24 | 0.00 | 0.00 | -0.01 | 0.72 |
| 52 | 100 | -42.99 | 0.24 | 0.00 | 0.00 | 0.01 | -1.46 |
| 53 | 100 | 42.99 | -0.24 | 0.00 | 0.00 | -0.01 | 1.46 |
| 53 | 101 | -43.83 | 0.24 | 0.00 | 0.00 | 0.01 | -2.19 |
| 54 | 101 | 43.83 | -0.24 | 0.00 | 0.00 | -0.01 | 2.19 |
| 54 | 102 | -44.66 | 0.24 | 0.00 | 0.00 | 0.01 | -2.93 |
| 55 | 102 | 44.66 | -0.24 | 0.00 | 0.00 | -0.01 | 2.93 |
| 55 | 103 | -45.49 | 0.24 | 0.00 | 0.00 | 0.01 | -3.67 |
| 56 | 103 | 45.49 | -0.24 | 0.00 | 0.00 | -0.01 | 3.67 |
| 56 | 104 | -46.30 | 0.24 | 0.00 | 0.00 | 0.01 | -4.42 |
| 57 | 104 | 46.30 | -0.24 | 0.00 | 0.00 | -0.01 | 4.42 |
| 57 | 105 | -47.10 | 0.24 | 0.00 | 0.00 | 0.01 | -5.17 |
| 58 | 105 | 47.10 | -0.24 | 0.00 | 0.00 | -0.01 | 5.17 |
| 58 | 106 | -47.90 | 0.24 | 0.00 | 0.00 | 0.01 | -5.93 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 59 | 106 | 47.90 | 0.58 | 0.00 | 0.01 | -0.01 | 5.93 |
| 59 | 115 | -48.68 | -0.58 | 0.00 | -0.01 | 0.02 | -2.97 |
| 60 | 115 | 48.68 | 0.58 | 0.00 | 0.01 | -0.02 | 2.97 |
| 60 | 116 | -49.47 | -0.58 | 0.00 | -0.01 | 0.04 | 0.00 |
| 61 | 116 | 49.47 | 0.58 | 0.00 | 0.01 | -0.04 | 0.00 |
| 61 | 117 | -50.26 | -0.58 | 0.00 | -0.01 | 0.05 | 2.96 |
| 62 | 117 | 50.26 | 0.58 | 0.00 | 0.01 | -0.05 | -2.96 |
| 62 | 118 | -51.04 | -0.58 | 0.00 | -0.01 | 0.06 | 5.92 |
| 63 | 118 | 51.04 | 0.58 | 0.00 | 0.01 | -0.06 | -5.92 |
| 63 | 119 | -51.83 | -0.58 | 0.00 | -0.01 | 0.07 | 8.88 |
| 64 | 119 | 51.83 | 0.58 | 0.00 | 0.01 | -0.07 | -8.88 |
| 64 | 120 | -52.62 | -0.58 | 0.00 | -0.01 | 0.08 | 11.84 |
| 65 | 120 | 52.62 | 0.58 | 0.00 | 0.01 | -0.08 | -11.84 |
| 65 | 121 | -53.41 | -0.58 | 0.00 | -0.01 | 0.09 | 14.80 |
| 66 | 121 | 53.41 | 0.58 | 0.00 | 0.01 | -0.09 | -14.80 |
| 66 | 122 | -54.19 | -0.58 | 0.00 | -0.01 | 0.10 | 17.76 |
| 67 | 122 | 54.19 | 0.58 | 0.00 | 0.01 | -0.10 | -17.76 |
| 67 | 123 | -54.98 | -0.58 | 0.00 | -0.01 | 0.11 | 20.72 |
| 68 | 123 | 54.98 | 0.58 | 0.00 | 0.01 | -0.11 | -20.72 |
| 68 | 124 | -55.77 | -0.58 | 0.00 | -0.01 | 0.12 | 23.68 |
| 69 | 124 | 55.77 | -3.69 | 0.00 | -0.01 | -0.12 | -23.68 |
| 69 | 133 | -56.56 | 3.69 | 0.00 | 0.01 | 0.11 | 7.42 |
| 70 | 133 | 56.56 | -3.69 | 0.00 | -0.01 | -0.11 | -7.42 |
| 70 | 134 | -57.35 | 3.69 | 0.00 | 0.01 | 0.09 | -8.84 |
| 71 | 134 | 57.35 | -3.69 | 0.00 | -0.01 | -0.09 | 8.84 |
| 71 | 135 | -58.14 | 3.69 | 0.00 | 0.01 | 0.08 | -25.11 |
| 72 | 135 | 58.14 | -3.69 | 0.00 | -0.01 | -0.08 | 25.11 |
| 72 | 136 | -58.94 | 3.69 | 0.00 | 0.01 | 0.06 | -41.37 |
| 73 | 136 | 58.94 | -3.69 | 0.00 | -0.01 | -0.06 | 41.37 |
| 73 | 137 | -59.74 | 3.69 | 0.00 | 0.01 | 0.05 | -57.63 |
| 74 | 137 | 59.74 | -3.69 | 0.00 | -0.01 | -0.05 | 57.63 |
| 74 | 138 | -60.54 | 3.69 | 0.00 | 0.01 | 0.03 | -73.89 |
| 75 | 138 | 60.54 | -3.69 | 0.00 | -0.01 | -0.03 | 73.89 |
| 75 | 139 | -61.34 | 3.69 | 0.00 | 0.01 | 0.02 | -90.14 |
| 76 | 139 | 61.34 | -3.69 | 0.00 | -0.01 | -0.02 | 90.14 |
| 76 | 140 | -62.15 | 3.69 | 0.00 | 0.01 | 0.00 | -106.40 |
| 77 | 16 | 0.00 | 10.80 | 0.00 | 0.00 | 0.00 | 62.22 |
| 77 | 17 | 0.00 | -6.22 | 0.00 | 0.00 | 0.00 | -17.24 |
| 78 | 17 | 0.00 | 6.22 | 0.00 | 0.00 | 0.00 | 17.24 |
| 78 | 18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 79 | 33 | -0.01 | 13.58 | 0.00 | 0.00 | 0.00 | 95.40 |
| 79 | 34 | 0.01 | -6.68 | 0.00 | 0.00 | 0.00 | -18.39 |
| 80 | 34 | -0.01 | 6.68 | 0.00 | 0.00 | 0.00 | 18.39 |
| 80 | 35 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 81 | 50 | -0.02 | 36.39 | 0.00 | 0.00 | 0.00 | 579.53 |
| 81 | 51 | 0.02 | -32.36 | 0.00 | 0.00 | 0.00 | -442.18 |
| 82 | 51 | -0.02 | 32.36 | 0.00 | 0.00 | 0.00 | 442.18 |
| 82 | 52 | 0.02 | -21.21 | 0.00 | 0.00 | 0.00 | -171.62 |
| 83 | 52 | -0.02 | 21.21 | 0.00 | 0.00 | 0.00 | 171.62 |
| 83 | 53 | 0.02 | -8.52 | 0.00 | 0.00 | 0.00 | -23.13 |
| 84 | 53 | -0.02 | 8.52 | 0.00 | 0.00 | 0.00 | 23.13 |
| 84 | 54 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 85 | 69 | 0.05 | 42.09 | 0.00 | 0.00 | 0.00 | 727.05 |
| 85 | 70 | -0.05 | -34.30 | 0.00 | 0.00 | 0.00 | -459.56 |
| 86 | 70 | 0.05 | 34.30 | 0.00 | 0.00 | 0.00 | 459.56 |
| 86 | 71 | -0.05 | -21.93 | 0.00 | 0.00 | 0.00 | -176.64 |
| 87 | 71 | 0.05 | 21.93 | 0.00 | 0.00 | 0.00 | 176.64 |
| 87 | 72 | -0.05 | -8.73 | 0.00 | 0.00 | 0.00 | -23.69 |
| 88 | 72 | 0.05 | 8.73 | 0.00 | 0.00 | 0.00 | 23.70 |
| 88 | 73 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 89 | 88 | -0.20 | 32.11 | 0.00 | 0.00 | 0.01 | 457.11 |
| 89 | 89 | 0.20 | -31.13 | 0.00 | 0.00 | -0.01 | -425.49 |
| 90 | 89 | -0.20 | 31.13 | 0.00 | 0.00 | 0.01 | 425.49 |
| 90 | 90 | 0.20 | -20.37 | 0.00 | 0.00 | 0.00 | -165.95 |
| 91 | 90 | -0.20 | 20.37 | 0.00 | 0.00 | 0.00 | 165.95 |
| 91 | 91 | 0.20 | -8.28 | 0.00 | 0.00 | 0.00 | -22.50 |
| 92 | 91 | -0.20 | 8.28 | 0.00 | 0.00 | 0.00 | 22.50 |
| 92 | 92 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 93 | 107 | 0.83 | 17.76 | 0.00 | 0.00 | 0.03 | 158.50 |
| 93 | 108 | -0.83 | -16.83 | 0.00 | 0.00 | -0.02 | -141.20 |
| 94 | 108 | 0.83 | 16.83 | 0.00 | 0.00 | 0.02 | 141.20 |
| 94 | 109 | -0.83 | -7.22 | 0.00 | 0.00 | 0.00 | -19.75 |
| 95 | 109 | 0.83 | 7.22 | 0.00 | 0.00 | 0.00 | 19.75 |
| 95 | 110 | -0.83 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 96 | 125 | -4.27 | 17.76 | 0.01 | 0.00 | -0.08 | 158.50 |
| 96 | 126 | 4.27 | -16.83 | -0.01 | 0.00 | 0.07 | -141.20 |
| 97 | 126 | -4.27 | 16.83 | 0.01 | 0.00 | -0.07 | 141.20 |
| 97 | 127 | 4.27 | -7.22 | -0.01 | 0.00 | 0.02 | -19.75 |
| 98 | 127 | -4.27 | 7.22 | 0.01 | 0.00 | -0.02 | 19.75 |
| 98 | 128 | 4.27 | 0.00 | -0.01 | 0.00 | -0.01 | 0.00 |
| 99 | 2 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 55 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 74 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 93 | -0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | -0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 111 | 0.42 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -0.42 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 0.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -0.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 129 | -2.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | 2.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | -2.13 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | 2.13 | 0.00 | -0.01 | 0.00 | -0.01 | 0.00 |
| 115 | 141 | 1.84 | 31.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -1.84 | -31.07 | 0.00 | 0.00 | 0.00 | 53.20 |
| 116 | 143 | 1.84 | 31.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -1.84 | -31.07 | 0.00 | 0.00 | 0.01 | 53.20 |
| 117 | 6 | -0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 117 | 7 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 118 | 145 | 3.69 | 62.15 | 0.00 | 0.00 | 0.00 | 62.15 |
| 118 | 146 | -3.69 | -62.15 | 0.00 | 0.00 | 0.01 | 0.00 |
| 119 | 3 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | -0.15 |
| 120 | 1 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.15 |
| 120 | 5 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 122 | 15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 122 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.01 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 124 | 32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| 124 | 39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 56 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | -0.02 |
| 126 | 49 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.02 |
| 126 | 58 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 75 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 | 0.05 |
| 128 | 68 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 | -0.05 |
| 128 | 77 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 94 | 0.00 | -0.10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 | -0.18 |
| 130 | 87 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 | 0.18 |
| 130 | 96 | 0.00 | -0.10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 112 | 0.00 | 0.42 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | -0.42 | 0.00 | 0.00 | 0.00 | 0.77 |
| 132 | 106 | 0.00 | -0.41 | 0.00 | 0.00 | 0.00 | -0.76 |
| 132 | 114 | 0.00 | 0.41 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 130 | 0.00 | -2.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | 2.14 | 0.00 | 0.00 | 0.00 | -3.96 |
| 134 | 124 | -0.01 | 2.13 | 0.00 | 0.00 | 0.00 | 3.94 |
| 134 | 132 | 0.01 | -2.13 | 0.00 | 0.00 | 0.00 | 0.01 |
| 135 | 142 | 0.00 | 1.84 | 31.07 | -53.20 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -1.84 | -31.07 | 53.20 | -132.07 | 7.84 |
| 136 | 140 | 0.00 | -1.84 | -31.07 | 53.20 | 132.07 | -7.83 |
| 136 | 144 | 0.00 | 1.84 | 31.07 | -53.20 | 0.00 | -0.01 |
| 137 | 2 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 | 0.15 |
| 138 | 7 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 | -0.15 |
| 138 | 4 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 140 | 18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 140 | 21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| 142 | 35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.01 |
| 142 | 38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | 0.01 | -0.01 | 0.00 | -0.02 | 0.00 |
| 143 | 54 | 0.00 | -0.01 | 0.01 | 0.00 | -0.02 | 0.02 |
| 144 | 54 | 0.00 | -0.01 | -0.01 | 0.00 | -0.02 | -0.02 |
| 144 | 57 | 0.00 | 0.01 | 0.01 | 0.00 | -0.02 | 0.00 |
| 145 | 74 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | -0.05 |
| 146 | 73 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.05 |
| 146 | 76 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | 0.10 | -0.01 | 0.00 | -0.01 | 0.00 |
| 147 | 92 | 0.00 | -0.10 | 0.01 | 0.00 | -0.01 | 0.18 |
| 148 | 92 | 0.00 | -0.10 | -0.01 | 0.00 | -0.01 | -0.18 |
| 148 | 95 | 0.00 | 0.10 | 0.01 | 0.00 | -0.01 | 0.00 |
| 149 | 111 | 0.00 | -0.42 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 0.42 | 0.00 | 0.00 | 0.00 | -0.77 |
| 150 | 110 | 0.00 | 0.41 | 0.00 | 0.00 | 0.00 | 0.76 |
| 150 | 113 | 0.00 | -0.41 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | 2.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | -2.14 | 0.00 | 0.00 | 0.00 | 3.96 |
| 152 | 128 | 0.01 | -2.13 | 0.00 | 0.00 | 0.00 | -3.95 |
| 152 | 131 | -0.01 | 2.13 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -1.84 | -31.07 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 1.84 | 31.07 | 0.00 | 132.07 | -7.84 |
| 154 | 146 | 0.00 | 1.84 | 31.07 | 0.00 | -132.07 | 7.83 |
| 154 | 143 | 0.00 | -1.84 | -31.07 | 0.00 | 0.00 | 0.00 |



HIPOTESIS 26

hipo 26 viento - long. estructura

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 8 | 0.75 | -0.07 | 0.00 | 0.00 | 0.00 | -0.01 |
| 2 | 8 | -0.75 | 0.07 | 0.00 | 0.00 | 0.00 | 0.01 |
| 2 | 9 | 1.49 | -0.07 | 0.00 | 0.00 | 0.00 | -0.01 |
| 3 | 9 | -1.49 | 0.07 | 0.00 | 0.00 | 0.00 | 0.01 |
| 3 | 10 | 2.23 | -0.07 | 0.00 | 0.00 | 0.00 | -0.02 |
| 4 | 10 | -2.23 | 0.07 | 0.00 | 0.00 | 0.00 | 0.02 |
| 4 | 11 | 2.97 | -0.07 | 0.00 | 0.00 | 0.00 | -0.02 |
| 5 | 11 | -2.97 | 0.07 | 0.00 | 0.00 | 0.00 | 0.02 |
| 5 | 12 | 3.70 | -0.07 | 0.00 | 0.00 | 0.00 | -0.02 |
| 6 | 12 | -3.70 | 0.07 | 0.00 | 0.00 | 0.00 | 0.02 |
| 6 | 13 | 4.42 | -0.07 | 0.00 | 0.00 | 0.00 | -0.01 |
| 7 | 13 | -4.42 | 0.07 | 0.00 | 0.00 | 0.00 | 0.01 |
| 7 | 14 | 5.14 | -0.07 | 0.00 | 0.00 | 0.00 | -0.01 |
| 8 | 14 | -5.14 | 0.07 | 0.00 | 0.00 | 0.00 | 0.01 |
| 8 | 15 | 5.85 | -0.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9 | 15 | -5.85 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9 | 23 | 6.57 | -0.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 | 23 | -6.57 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 | 24 | 7.28 | -0.07 | 0.00 | 0.00 | 0.00 | 0.01 |
| 11 | 24 | -7.28 | 0.07 | 0.00 | 0.00 | 0.00 | -0.01 |
| 11 | 25 | 8.00 | -0.07 | 0.00 | 0.00 | 0.00 | 0.01 |
| 12 | 25 | -8.00 | 0.07 | 0.00 | 0.00 | 0.00 | -0.01 |
| 12 | 26 | 8.73 | -0.07 | 0.00 | 0.00 | 0.00 | 0.01 |
| 13 | 26 | -8.73 | 0.07 | 0.00 | 0.00 | 0.00 | -0.01 |
| 13 | 27 | 9.46 | -0.07 | 0.00 | 0.00 | 0.00 | 0.01 |
| 14 | 27 | -9.46 | 0.07 | 0.00 | 0.00 | 0.00 | -0.01 |
| 14 | 28 | 10.19 | -0.07 | 0.00 | 0.00 | 0.00 | 0.01 |
| 15 | 28 | -10.19 | 0.07 | 0.00 | 0.00 | 0.00 | -0.01 |
| 15 | 29 | 10.92 | -0.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| 16 | 29 | -10.92 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| 16 | 30 | 11.66 | -0.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| 17 | 30 | -11.66 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| 17 | 31 | 12.40 | -0.07 | 0.00 | 0.00 | 0.00 | -0.01 |
| 18 | 31 | -12.40 | 0.07 | 0.00 | 0.00 | 0.00 | 0.01 |
| 18 | 32 | 13.14 | -0.07 | 0.00 | 0.00 | 0.00 | -0.02 |
| 19 | 32 | -13.14 | 0.08 | 0.00 | 0.00 | 0.00 | 0.02 |
| 19 | 40 | 13.90 | -0.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20 | 40 | -13.90 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20 | 41 | 14.67 | -0.08 | 0.00 | 0.00 | 0.00 | 0.02 |
| 21 | 41 | -14.67 | 0.08 | 0.00 | 0.00 | 0.00 | -0.02 |
| 21 | 42 | 15.47 | -0.08 | 0.00 | 0.00 | 0.00 | 0.02 |
| 22 | 42 | -15.47 | 0.08 | 0.00 | 0.00 | 0.00 | -0.02 |
| 22 | 43 | 16.28 | -0.08 | 0.00 | 0.00 | 0.00 | 0.02 |
| 23 | 43 | -16.28 | 0.08 | 0.00 | 0.00 | 0.00 | -0.02 |
| 23 | 44 | 17.11 | -0.08 | 0.00 | 0.00 | 0.00 | 0.01 |
| 24 | 44 | -17.11 | 0.08 | 0.00 | 0.00 | 0.00 | -0.01 |
| 24 | 45 | 17.95 | -0.08 | 0.00 | 0.00 | 0.00 | -0.01 |
| 25 | 45 | -17.95 | 0.08 | 0.00 | 0.00 | 0.00 | 0.01 |
| 25 | 46 | 18.81 | -0.08 | 0.00 | 0.00 | 0.00 | -0.03 |
| 26 | 46 | -18.81 | 0.08 | 0.00 | 0.00 | 0.00 | 0.03 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 26 | 47 | 19.68 | -0.08 | 0.00 | 0.00 | 0.00 | -0.05 |
| 27 | 47 | -19.68 | 0.08 | 0.00 | 0.00 | 0.00 | 0.05 |
| 27 | 48 | 20.56 | -0.08 | 0.00 | 0.00 | 0.00 | -0.09 |
| 28 | 48 | -20.56 | 0.08 | 0.00 | 0.00 | 0.00 | 0.09 |
| 28 | 49 | 21.45 | -0.08 | 0.00 | 0.00 | 0.00 | -0.12 |
| 29 | 49 | -21.45 | 0.10 | 0.00 | 0.00 | 0.00 | 0.12 |
| 29 | 59 | 22.35 | -0.10 | 0.00 | 0.00 | 0.00 | -0.07 |
| 30 | 59 | -22.35 | 0.10 | 0.00 | 0.00 | 0.00 | 0.07 |
| 30 | 60 | 23.26 | -0.10 | 0.00 | 0.00 | 0.00 | -0.02 |
| 31 | 60 | -23.26 | 0.10 | 0.00 | 0.00 | 0.00 | 0.02 |
| 31 | 61 | 24.16 | -0.10 | 0.00 | 0.00 | 0.00 | 0.03 |
| 32 | 61 | -24.16 | 0.10 | 0.00 | 0.00 | 0.00 | -0.03 |
| 32 | 62 | 25.07 | -0.10 | 0.00 | 0.00 | 0.00 | 0.08 |
| 33 | 62 | -25.07 | 0.10 | 0.00 | 0.00 | 0.00 | -0.08 |
| 33 | 63 | 25.98 | -0.10 | 0.00 | 0.00 | 0.00 | 0.13 |
| 34 | 63 | -25.98 | 0.10 | 0.00 | 0.00 | 0.00 | -0.13 |
| 34 | 64 | 26.89 | -0.10 | 0.00 | 0.00 | 0.00 | 0.18 |
| 35 | 64 | -26.89 | 0.10 | 0.00 | 0.00 | 0.00 | -0.18 |
| 35 | 65 | 27.80 | -0.10 | 0.00 | 0.00 | 0.00 | 0.23 |
| 36 | 65 | -27.80 | 0.10 | 0.00 | 0.00 | 0.00 | -0.23 |
| 36 | 66 | 28.71 | -0.10 | 0.00 | 0.00 | 0.00 | 0.28 |
| 37 | 66 | -28.71 | 0.10 | 0.00 | 0.00 | 0.00 | -0.28 |
| 37 | 67 | 29.63 | -0.10 | 0.00 | 0.00 | 0.00 | 0.33 |
| 38 | 67 | -29.63 | 0.10 | 0.00 | 0.00 | 0.00 | -0.33 |
| 38 | 68 | 30.55 | -0.10 | 0.00 | 0.00 | 0.00 | 0.37 |
| 39 | 68 | -30.55 | 0.04 | 0.00 | 0.00 | 0.00 | -0.37 |
| 39 | 78 | 31.46 | -0.04 | 0.00 | 0.00 | 0.00 | 0.18 |
| 40 | 78 | -31.46 | 0.04 | 0.00 | 0.00 | 0.00 | -0.18 |
| 40 | 79 | 32.38 | -0.04 | 0.00 | 0.00 | 0.00 | -0.01 |
| 41 | 79 | -32.38 | 0.04 | 0.00 | 0.00 | 0.00 | 0.01 |
| 41 | 80 | 33.29 | -0.04 | 0.00 | 0.00 | 0.00 | -0.19 |
| 42 | 80 | -33.29 | 0.04 | 0.00 | 0.00 | 0.00 | 0.19 |
| 42 | 81 | 34.19 | -0.04 | 0.00 | 0.00 | 0.00 | -0.38 |
| 43 | 81 | -34.19 | 0.04 | 0.00 | 0.00 | 0.00 | 0.38 |
| 43 | 82 | 35.10 | -0.04 | 0.00 | 0.00 | 0.00 | -0.56 |
| 44 | 82 | -35.10 | 0.04 | 0.00 | 0.00 | 0.00 | 0.56 |
| 44 | 83 | 35.99 | -0.04 | 0.00 | 0.00 | 0.00 | -0.74 |
| 45 | 83 | -35.99 | 0.04 | 0.00 | 0.00 | 0.00 | 0.74 |
| 45 | 84 | 36.89 | -0.04 | 0.00 | 0.00 | 0.00 | -0.92 |
| 46 | 84 | -36.89 | 0.04 | 0.00 | 0.00 | 0.00 | 0.92 |
| 46 | 85 | 37.78 | -0.04 | 0.00 | 0.00 | 0.00 | -1.10 |
| 47 | 85 | -37.78 | 0.04 | 0.00 | 0.00 | 0.00 | 1.10 |
| 47 | 86 | 38.66 | -0.04 | 0.00 | 0.00 | 0.00 | -1.28 |
| 48 | 86 | -38.66 | 0.04 | 0.00 | 0.00 | 0.00 | 1.28 |
| 48 | 87 | 39.54 | -0.04 | 0.00 | 0.00 | 0.00 | -1.45 |
| 49 | 87 | -39.54 | 0.24 | 0.00 | 0.00 | 0.00 | 1.45 |
| 49 | 97 | 40.41 | -0.24 | 0.00 | 0.00 | 0.00 | -0.73 |
| 50 | 97 | -40.41 | 0.24 | 0.00 | 0.00 | 0.00 | 0.73 |
| 50 | 98 | 41.28 | -0.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 51 | 98 | -41.28 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 51 | 99 | 42.14 | -0.24 | 0.00 | 0.00 | -0.01 | 0.72 |
| 52 | 99 | -42.14 | 0.24 | 0.00 | 0.00 | 0.01 | -0.72 |
| 52 | 100 | 42.99 | -0.24 | 0.00 | 0.00 | -0.01 | 1.46 |
| 53 | 100 | -42.99 | 0.24 | 0.00 | 0.00 | 0.01 | -1.46 |
| 53 | 101 | 43.83 | -0.24 | 0.00 | 0.00 | -0.01 | 2.19 |
| 54 | 101 | -43.83 | 0.24 | 0.00 | 0.00 | 0.01 | -2.19 |
| 54 | 102 | 44.66 | -0.24 | 0.00 | 0.00 | -0.01 | 2.93 |
| 55 | 102 | -44.66 | 0.24 | 0.00 | 0.00 | 0.01 | -2.93 |
| 55 | 103 | 45.49 | -0.24 | 0.00 | 0.00 | -0.01 | 3.67 |
| 56 | 103 | -45.49 | 0.24 | 0.00 | 0.00 | 0.01 | -3.67 |
| 56 | 104 | 46.30 | -0.24 | 0.00 | 0.00 | -0.01 | 4.42 |
| 57 | 104 | -46.30 | 0.24 | 0.00 | 0.00 | 0.01 | -4.42 |
| 57 | 105 | 47.10 | -0.24 | 0.00 | 0.00 | -0.01 | 5.17 |
| 58 | 105 | -47.10 | 0.24 | 0.00 | 0.00 | 0.01 | -5.17 |
| 58 | 106 | 47.90 | -0.24 | 0.00 | 0.00 | -0.01 | 5.93 |
| 59 | 106 | -47.90 | -0.58 | 0.00 | -0.01 | 0.01 | -5.93 |
| 59 | 115 | 48.68 | 0.58 | 0.00 | 0.01 | -0.02 | 2.97 |
| 60 | 115 | -48.68 | -0.58 | 0.00 | -0.01 | 0.02 | -2.97 |
| 60 | 116 | 49.47 | 0.58 | 0.00 | 0.01 | -0.04 | 0.00 |
| 61 | 116 | -49.47 | -0.58 | 0.00 | -0.01 | 0.04 | 0.00 |
| 61 | 117 | 50.26 | 0.58 | 0.00 | 0.01 | -0.05 | -2.96 |
| 62 | 117 | -50.26 | -0.58 | 0.00 | -0.01 | 0.05 | 2.96 |
| 62 | 118 | 51.04 | 0.58 | 0.00 | 0.01 | -0.06 | -5.92 |
| 63 | 118 | -51.04 | -0.58 | 0.00 | -0.01 | 0.06 | 5.92 |
| 63 | 119 | 51.83 | 0.58 | 0.00 | 0.01 | -0.07 | -8.88 |
| 64 | 119 | -51.83 | -0.58 | 0.00 | -0.01 | 0.07 | 8.88 |
| 64 | 120 | 52.62 | 0.58 | 0.00 | 0.01 | -0.08 | -11.84 |
| 65 | 120 | -52.62 | -0.58 | 0.00 | -0.01 | 0.08 | 11.84 |
| 65 | 121 | 53.41 | 0.58 | 0.00 | 0.01 | -0.09 | -14.80 |
| 66 | 121 | -53.41 | -0.58 | 0.00 | -0.01 | 0.09 | 14.80 |
| 66 | 122 | 54.19 | 0.58 | 0.00 | 0.01 | -0.10 | -17.76 |
| 67 | 122 | -54.19 | -0.58 | 0.00 | -0.01 | 0.10 | 17.76 |
| 67 | 123 | 54.98 | 0.58 | 0.00 | 0.01 | -0.11 | -20.72 |
| 68 | 123 | -54.98 | -0.58 | 0.00 | -0.01 | 0.11 | 20.72 |
| 68 | 124 | 55.77 | 0.58 | 0.00 | 0.01 | -0.12 | -23.68 |
| 69 | 124 | -55.77 | 3.69 | 0.00 | 0.01 | 0.12 | 23.68 |
| 69 | 133 | 56.56 | -3.69 | 0.00 | -0.01 | -0.11 | -7.42 |
| 70 | 133 | -56.56 | 3.69 | 0.00 | 0.01 | 0.11 | 7.42 |
| 70 | 134 | 57.35 | -3.69 | 0.00 | -0.01 | -0.09 | 8.84 |
| 71 | 134 | -57.35 | 3.69 | 0.00 | 0.01 | 0.09 | -8.84 |
| 71 | 135 | 58.14 | -3.69 | 0.00 | -0.01 | -0.08 | 25.11 |
| 72 | 135 | -58.14 | 3.69 | 0.00 | 0.01 | 0.08 | -25.11 |
| 72 | 136 | 58.94 | -3.69 | 0.00 | -0.01 | -0.06 | 41.37 |
| 73 | 136 | -58.94 | 3.69 | 0.00 | 0.01 | 0.06 | -41.37 |
| 73 | 137 | 59.74 | -3.69 | 0.00 | -0.01 | -0.05 | 57.63 |
| 74 | 137 | -59.74 | 3.69 | 0.00 | 0.01 | 0.05 | -57.63 |
| 74 | 138 | 60.54 | -3.69 | 0.00 | -0.01 | -0.03 | 73.89 |
| 75 | 138 | -60.54 | 3.69 | 0.00 | 0.01 | 0.03 | -73.89 |
| 75 | 139 | 61.34 | -3.69 | 0.00 | -0.01 | -0.02 | 90.14 |
| 76 | 139 | -61.34 | 3.69 | 0.00 | 0.01 | 0.02 | -90.14 |
| 76 | 140 | 62.15 | -3.69 | 0.00 | -0.01 | 0.00 | 106.40 |
| 77 | 16 | 0.00 | -10.80 | 0.00 | 0.00 | 0.00 | -62.22 |
| 77 | 17 | 0.00 | 6.22 | 0.00 | 0.00 | 0.00 | 17.24 |
| 78 | 17 | 0.00 | -6.22 | 0.00 | 0.00 | 0.00 | -17.24 |
| 78 | 18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 79 | 33 | 0.01 | -13.58 | 0.00 | 0.00 | 0.00 | -95.40 |
| 79 | 34 | -0.01 | 6.68 | 0.00 | 0.00 | 0.00 | 18.39 |
| 80 | 34 | 0.01 | -6.68 | 0.00 | 0.00 | 0.00 | -18.39 |
| 80 | 35 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 81 | 50 | 0.02 | -36.39 | 0.00 | 0.00 | 0.00 | -579.53 |
| 81 | 51 | -0.02 | 32.36 | 0.00 | 0.00 | 0.00 | 442.18 |
| 82 | 51 | 0.02 | -32.36 | 0.00 | 0.00 | 0.00 | -442.18 |
| 82 | 52 | -0.02 | 21.21 | 0.00 | 0.00 | 0.00 | 171.62 |
| 83 | 52 | 0.02 | -21.21 | 0.00 | 0.00 | 0.00 | -171.62 |
| 83 | 53 | -0.02 | 8.52 | 0.00 | 0.00 | 0.00 | 23.13 |
| 84 | 53 | 0.02 | -8.52 | 0.00 | 0.00 | 0.00 | -23.13 |
| 84 | 54 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 85 | 69 | -0.05 | -42.09 | 0.00 | 0.00 | 0.00 | -727.05 |
| 85 | 70 | 0.05 | 34.30 | 0.00 | 0.00 | 0.00 | 459.56 |
| 86 | 70 | -0.05 | -34.30 | 0.00 | 0.00 | 0.00 | -459.56 |
| 86 | 71 | 0.05 | 21.93 | 0.00 | 0.00 | 0.00 | 176.64 |
| 87 | 71 | -0.05 | -21.93 | 0.00 | 0.00 | 0.00 | -176.64 |
| 87 | 72 | 0.05 | 8.73 | 0.00 | 0.00 | 0.00 | 23.69 |
| 88 | 72 | -0.05 | -8.73 | 0.00 | 0.00 | 0.00 | -23.70 |
| 88 | 73 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 89 | 88 | 0.20 | -32.11 | 0.00 | 0.00 | -0.01 | -457.11 |
| 89 | 89 | -0.20 | 31.13 | 0.00 | 0.00 | 0.01 | 425.49 |
| 90 | 89 | 0.20 | -31.13 | 0.00 | 0.00 | -0.01 | -425.49 |
| 90 | 90 | -0.20 | 20.37 | 0.00 | 0.00 | 0.00 | 165.95 |
| 91 | 90 | 0.20 | -20.37 | 0.00 | 0.00 | 0.00 | -165.95 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 91 | 91 | -0.20 | 8.28 | 0.00 | 0.00 | 0.00 | 22.50 |
| 92 | 91 | 0.20 | -8.28 | 0.00 | 0.00 | 0.00 | -22.50 |
| 92 | 92 | -0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 93 | 107 | -0.83 | -17.76 | 0.00 | 0.00 | -0.03 | -158.50 |
| 93 | 108 | 0.83 | 16.83 | 0.00 | 0.00 | 0.02 | 141.20 |
| 94 | 108 | -0.83 | -16.83 | 0.00 | 0.00 | -0.02 | -141.20 |
| 94 | 109 | 0.83 | 7.22 | 0.00 | 0.00 | 0.00 | 19.75 |
| 95 | 109 | -0.83 | -7.22 | 0.00 | 0.00 | 0.00 | -19.75 |
| 95 | 110 | 0.83 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 96 | 125 | 4.27 | -17.76 | -0.01 | 0.00 | 0.08 | -158.50 |
| 96 | 126 | -4.27 | 16.83 | 0.01 | 0.00 | -0.07 | 141.20 |
| 97 | 126 | 4.27 | -16.83 | -0.01 | 0.00 | 0.07 | -141.20 |
| 97 | 127 | -4.27 | 7.22 | 0.01 | 0.00 | -0.02 | 19.75 |
| 98 | 127 | 4.27 | -7.22 | -0.01 | 0.00 | 0.02 | -19.75 |
| 98 | 128 | -4.27 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 99 | 2 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 55 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 74 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 93 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 111 | -0.42 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | 0.42 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | -0.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | 0.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 129 | 2.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -2.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 2.13 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -2.13 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 115 | 141 | -1.84 | -31.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | 1.84 | 31.07 | 0.00 | 0.00 | 0.00 | -53.20 |
| 116 | 143 | -1.84 | -31.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | 1.84 | 31.07 | 0.00 | 0.00 | -0.01 | -53.20 |
| 117 | 6 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 117 | 7 | -0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 118 | 145 | -3.69 | -62.15 | 0.00 | 0.00 | 0.00 | -62.15 |
| 118 | 146 | 3.69 | 62.15 | 0.00 | 0.00 | -0.01 | 0.00 |
| 119 | 3 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 | 0.15 |
| 120 | 1 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 | -0.15 |
| 120 | 5 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 122 | 15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 122 | 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| 124 | 32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.01 |
| 124 | 39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 56 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.02 |
| 126 | 49 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | -0.02 |
| 126 | 58 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 75 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | -0.05 |
| 128 | 68 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.05 |
| 128 | 77 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 94 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | -0.10 | 0.00 | 0.00 | 0.00 | 0.18 |
| 130 | 87 | 0.00 | -0.10 | 0.00 | 0.00 | 0.00 | -0.18 |
| 130 | 96 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 112 | 0.00 | -0.42 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | 0.42 | 0.00 | 0.00 | 0.00 | -0.77 |
| 132 | 106 | 0.00 | 0.41 | 0.00 | 0.00 | 0.00 | 0.76 |
| 132 | 114 | 0.00 | -0.41 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 130 | 0.00 | 2.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | -2.14 | 0.00 | 0.00 | 0.00 | 3.96 |
| 134 | 124 | 0.01 | -2.13 | 0.00 | 0.00 | 0.00 | -3.94 |
| 134 | 132 | -0.01 | 2.13 | 0.00 | 0.00 | 0.00 | -0.01 |
| 135 | 142 | 0.00 | -1.84 | -31.07 | 53.20 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | 1.84 | 31.07 | -53.20 | 132.07 | -7.84 |
| 136 | 140 | 0.00 | 1.84 | 31.07 | -53.20 | -132.07 | 7.83 |
| 136 | 144 | 0.00 | -1.84 | -31.07 | 53.20 | 0.00 | 0.01 |
| 137 | 2 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | -0.15 |
| 138 | 7 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.15 |
| 138 | 4 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 140 | 18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 140 | 21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.01 |
| 142 | 35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| 142 | 38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -0.01 | 0.01 | 0.00 | 0.02 | 0.00 |
| 143 | 54 | 0.00 | 0.01 | -0.01 | 0.00 | 0.02 | -0.02 |
| 144 | 54 | 0.00 | 0.01 | 0.01 | 0.00 | 0.02 | 0.02 |
| 144 | 57 | 0.00 | -0.01 | -0.01 | 0.00 | 0.02 | 0.00 |
| 145 | 74 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 | 0.05 |
| 146 | 73 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 | -0.05 |
| 146 | 76 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | -0.10 | 0.01 | 0.00 | 0.01 | 0.00 |
| 147 | 92 | 0.00 | 0.10 | -0.01 | 0.00 | 0.01 | -0.18 |
| 148 | 92 | 0.00 | 0.10 | 0.01 | 0.00 | 0.01 | 0.18 |
| 148 | 95 | 0.00 | -0.10 | -0.01 | 0.00 | 0.01 | 0.00 |
| 149 | 111 | 0.00 | 0.42 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | -0.42 | 0.00 | 0.00 | 0.00 | 0.77 |
| 150 | 110 | 0.00 | -0.41 | 0.00 | 0.00 | 0.00 | -0.76 |
| 150 | 113 | 0.00 | 0.41 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -2.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 2.14 | 0.00 | 0.00 | 0.00 | -3.96 |
| 152 | 128 | -0.01 | 2.13 | 0.00 | 0.00 | 0.00 | 3.95 |
| 152 | 131 | 0.01 | -2.13 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | 1.84 | 31.07 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | -1.84 | -31.07 | 0.00 | -132.07 | 7.84 |
| 154 | 146 | 0.00 | -1.84 | -31.07 | 0.00 | 132.07 | -7.83 |
| 154 | 143 | 0.00 | 1.84 | 31.07 | 0.00 | 0.00 | 0.00 |

HIPOTESIS 27

hipo 27 viento + long. est.+ sobrecarga

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | -0.78 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 8 | -1.27 | 0.78 | 0.00 | 0.00 | 0.00 | 0.07 |
| 2 | 8 | 1.27 | -0.78 | 0.00 | 0.00 | 0.00 | -0.07 |
| 2 | 9 | -2.53 | 0.78 | 0.00 | 0.00 | -0.01 | 0.12 |
| 3 | 9 | 2.53 | -0.78 | 0.00 | 0.00 | 0.01 | -0.12 |
| 3 | 10 | -3.78 | 0.78 | 0.00 | 0.00 | -0.01 | 0.15 |
| 4 | 10 | 3.78 | -0.78 | 0.00 | 0.00 | 0.01 | -0.15 |
| 4 | 11 | -5.03 | 0.78 | 0.00 | 0.00 | -0.01 | 0.16 |
| 5 | 11 | 5.03 | -0.78 | 0.00 | 0.00 | 0.01 | -0.16 |
| 5 | 12 | -6.26 | 0.78 | 0.00 | 0.00 | -0.02 | 0.14 |
| 6 | 12 | 6.26 | -0.78 | 0.00 | 0.00 | 0.02 | -0.14 |
| 6 | 13 | -7.49 | 0.78 | 0.00 | 0.00 | -0.02 | 0.10 |
| 7 | 13 | 7.49 | -0.78 | 0.00 | 0.00 | 0.02 | -0.10 |
| 7 | 14 | -8.71 | 0.78 | 0.00 | 0.00 | -0.02 | 0.04 |
| 8 | 14 | 8.71 | -0.78 | 0.00 | 0.00 | 0.02 | -0.04 |
| 8 | 15 | -9.92 | 0.78 | 0.00 | 0.00 | -0.03 | -0.05 |
| 9 | 15 | 9.92 | -0.76 | 0.00 | 0.00 | 0.03 | 0.05 |
| 9 | 23 | -11.13 | 0.76 | 0.00 | 0.00 | -0.03 | -0.08 |
| 10 | 23 | 11.13 | -0.76 | 0.00 | 0.00 | 0.03 | 0.08 |
| 10 | 24 | -12.34 | 0.76 | 0.00 | 0.00 | -0.02 | -0.09 |
| 11 | 24 | 12.34 | -0.76 | 0.00 | 0.00 | 0.02 | 0.09 |
| 11 | 25 | -13.57 | 0.76 | 0.00 | 0.00 | -0.02 | -0.08 |
| 12 | 25 | 13.56 | -0.76 | 0.00 | 0.00 | 0.02 | 0.08 |
| 12 | 26 | -14.79 | 0.76 | 0.00 | 0.00 | -0.02 | -0.06 |
| 13 | 26 | 14.79 | -0.76 | 0.00 | 0.00 | 0.02 | 0.06 |
| 13 | 27 | -16.02 | 0.76 | 0.00 | 0.00 | -0.02 | -0.02 |
| 14 | 27 | 16.02 | -0.76 | 0.00 | 0.00 | 0.02 | 0.02 |
| 14 | 28 | -17.26 | 0.76 | 0.00 | 0.00 | -0.01 | 0.04 |
| 15 | 28 | 17.26 | -0.76 | 0.00 | 0.00 | 0.01 | -0.04 |
| 15 | 29 | -18.51 | 0.76 | 0.00 | 0.00 | -0.01 | 0.11 |
| 16 | 29 | 18.51 | -0.76 | 0.00 | 0.00 | 0.01 | -0.11 |
| 16 | 30 | -19.76 | 0.76 | 0.00 | 0.00 | -0.01 | 0.20 |
| 17 | 30 | 19.76 | -0.76 | 0.00 | 0.00 | 0.01 | -0.20 |
| 17 | 31 | -21.01 | 0.76 | 0.00 | 0.00 | -0.01 | 0.30 |
| 18 | 31 | 21.01 | -0.76 | 0.00 | 0.00 | 0.01 | -0.30 |
| 18 | 32 | -22.27 | 0.76 | 0.00 | 0.00 | 0.00 | 0.41 |
| 19 | 32 | 22.27 | -0.88 | 0.00 | 0.00 | 0.00 | -0.41 |
| 19 | 40 | -23.55 | 0.88 | 0.00 | 0.00 | 0.00 | 0.07 |
| 20 | 40 | 23.55 | -0.88 | 0.00 | 0.00 | 0.00 | -0.07 |
| 20 | 41 | -24.86 | 0.88 | 0.00 | 0.00 | 0.00 | -0.18 |
| 21 | 41 | 24.86 | -0.88 | 0.00 | 0.00 | 0.00 | 0.18 |
| 21 | 42 | -26.21 | 0.88 | 0.00 | 0.00 | 0.00 | -0.35 |
| 22 | 42 | 26.21 | -0.88 | 0.00 | 0.00 | 0.00 | 0.35 |
| 22 | 43 | -27.59 | 0.88 | 0.00 | 0.00 | 0.00 | -0.43 |
| 23 | 43 | 27.59 | -0.88 | 0.00 | 0.00 | 0.00 | 0.43 |
| 23 | 44 | -28.99 | 0.88 | 0.00 | 0.00 | 0.00 | -0.43 |
| 24 | 44 | 28.99 | -0.88 | 0.00 | 0.00 | 0.00 | 0.43 |
| 24 | 45 | -30.42 | 0.88 | 0.00 | 0.00 | 0.00 | -0.36 |
| 25 | 45 | 30.42 | -0.88 | 0.00 | 0.00 | 0.00 | 0.36 |
| 25 | 46 | -31.87 | 0.88 | 0.00 | 0.00 | 0.00 | -0.23 |
| 26 | 46 | 31.87 | -0.88 | 0.00 | 0.00 | 0.00 | 0.23 |
| 26 | 47 | -33.34 | 0.88 | 0.00 | 0.00 | 0.00 | -0.03 |
| 27 | 47 | 33.34 | -0.88 | 0.00 | 0.00 | 0.00 | 0.03 |
| 27 | 48 | -34.83 | 0.88 | 0.00 | 0.00 | 0.00 | 0.22 |
| 28 | 48 | 34.83 | -0.88 | 0.00 | 0.00 | 0.00 | -0.22 |
| 28 | 49 | -36.35 | 0.88 | 0.00 | 0.00 | 0.00 | 0.53 |
| 29 | 49 | 36.35 | -0.99 | 0.00 | 0.00 | 0.00 | -0.53 |
| 29 | 59 | -37.88 | 0.99 | 0.00 | 0.00 | 0.00 | 0.37 |
| 30 | 59 | 37.88 | -0.99 | 0.00 | 0.00 | 0.00 | -0.37 |
| 30 | 60 | -39.41 | 0.99 | 0.00 | 0.00 | 0.00 | 0.21 |
| 31 | 60 | 39.41 | -0.99 | 0.00 | 0.00 | 0.00 | -0.21 |
| 31 | 61 | -40.94 | 0.99 | 0.00 | 0.00 | 0.00 | 0.07 |
| 32 | 61 | 40.94 | -0.99 | 0.00 | 0.00 | 0.00 | -0.07 |
| 32 | 62 | -42.47 | 0.99 | 0.00 | 0.00 | 0.00 | -0.07 |
| 33 | 62 | 42.47 | -0.99 | 0.00 | 0.00 | 0.00 | 0.07 |
| 33 | 63 | -44.01 | 0.99 | 0.00 | 0.00 | 0.00 | -0.20 |
| 34 | 63 | 44.01 | -0.99 | 0.00 | 0.00 | 0.00 | 0.20 |
| 34 | 64 | -45.56 | 0.99 | 0.00 | 0.00 | 0.00 | -0.32 |
| 35 | 64 | 45.56 | -0.99 | 0.00 | 0.00 | 0.00 | 0.32 |
| 35 | 65 | -47.10 | 0.99 | 0.00 | 0.00 | 0.00 | -0.43 |
| 36 | 65 | 47.10 | -0.99 | 0.00 | 0.00 | 0.00 | 0.43 |
| 36 | 66 | -48.65 | 0.99 | 0.00 | 0.00 | 0.00 | -0.53 |
| 37 | 66 | 48.65 | -0.99 | 0.00 | 0.00 | 0.00 | 0.53 |
| 37 | 67 | -50.21 | 0.99 | 0.00 | 0.00 | 0.00 | -0.62 |
| 38 | 67 | 50.21 | -0.99 | 0.00 | 0.00 | 0.00 | 0.62 |
| 38 | 68 | -51.76 | 0.99 | 0.00 | 0.00 | 0.00 | -0.70 |
| 39 | 68 | 51.76 | -0.89 | 0.00 | 0.00 | 0.00 | 0.70 |
| 39 | 78 | -53.32 | 0.89 | 0.00 | 0.00 | 0.00 | -0.32 |
| 40 | 78 | 53.32 | -0.89 | 0.00 | 0.00 | 0.00 | 0.32 |
| 40 | 79 | -54.87 | 0.89 | 0.00 | 0.00 | 0.00 | 0.04 |
| 41 | 79 | 54.87 | -0.89 | 0.00 | 0.00 | 0.00 | -0.04 |
| 41 | 80 | -56.41 | 0.89 | 0.00 | 0.00 | 0.00 | 0.38 |
| 42 | 80 | 56.41 | -0.89 | 0.00 | 0.00 | 0.00 | -0.38 |
| 42 | 81 | -57.94 | 0.89 | 0.00 | 0.00 | 0.00 | 0.70 |
| 43 | 81 | 57.94 | -0.89 | 0.00 | 0.00 | 0.00 | -0.70 |
| 43 | 82 | -59.47 | 0.89 | 0.00 | 0.00 | 0.00 | 1.00 |
| 44 | 82 | 59.47 | -0.89 | 0.00 | 0.00 | 0.00 | -1.00 |
| 44 | 83 | -60.99 | 0.89 | 0.00 | 0.00 | 0.00 | 1.28 |
| 45 | 83 | 60.99 | -0.89 | 0.00 | 0.00 | 0.00 | -1.28 |
| 45 | 84 | -62.51 | 0.89 | 0.00 | 0.00 | 0.00 | 1.54 |
| 46 | 84 | 62.51 | -0.89 | 0.00 | 0.00 | 0.00 | -1.54 |
| 46 | 85 | -64.01 | 0.89 | 0.00 | 0.00 | 0.00 | 1.78 |
| 47 | 85 | 64.01 | -0.89 | 0.00 | 0.00 | 0.00 | -1.78 |
| 47 | 86 | -65.51 | 0.89 | 0.00 | 0.00 | 0.00 | 2.00 |
| 48 | 86 | 65.51 | -0.89 | 0.00 | 0.00 | 0.00 | -2.00 |
| 48 | 87 | -67.00 | 0.89 | 0.00 | 0.00 | 0.00 | 2.20 |
| 49 | 87 | 67.00 | -1.16 | 0.00 | 0.00 | 0.00 | -2.20 |
| 49 | 97 | -68.48 | 1.16 | 0.00 | 0.00 | 0.01 | 1.15 |
| 50 | 97 | 68.48 | -1.16 | 0.00 | 0.00 | -0.01 | -1.15 |
| 50 | 98 | -69.95 | 1.16 | 0.00 | 0.00 | 0.01 | 0.05 |
| 51 | 98 | 69.95 | -1.16 | 0.00 | 0.00 | -0.01 | -0.05 |
| 51 | 99 | -71.41 | 1.16 | 0.00 | 0.00 | 0.01 | -1.08 |
| 52 | 99 | 71.41 | -1.16 | 0.00 | 0.00 | -0.01 | 1.08 |
| 52 | 100 | -72.85 | 1.16 | 0.00 | 0.00 | 0.01 | -2.25 |
| 53 | 100 | 72.85 | -1.16 | 0.00 | 0.00 | -0.01 | 2.25 |
| 53 | 101 | -74.27 | 1.16 | 0.00 | 0.00 | 0.02 | -3.47 |
| 54 | 101 | 74.27 | -1.16 | 0.00 | 0.00 | -0.02 | 3.47 |
| 54 | 102 | -75.68 | 1.16 | 0.00 | 0.00 | 0.02 | -4.72 |
| 55 | 102 | 75.68 | -1.16 | 0.00 | 0.00 | -0.02 | 4.72 |
| 55 | 103 | -77.08 | 1.16 | 0.00 | 0.00 | 0.02 | -6.02 |
| 56 | 103 | 77.08 | -1.16 | 0.00 | 0.00 | -0.02 | 6.02 |
| 56 | 104 | -78.46 | 1.16 | 0.00 | 0.00 | 0.02 | -7.37 |
| 57 | 104 | 78.46 | -1.16 | 0.00 | 0.00 | -0.02 | 7.37 |
| 57 | 105 | -79.82 | 1.16 | 0.00 | 0.00 | 0.03 | -8.77 |
| 58 | 105 | 79.82 | -1.16 | 0.00 | 0.00 | -0.03 | 8.77 |
| 58 | 106 | -81.16 | 1.16 | 0.00 | 0.00 | 0.03 | -10.21 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 59 | 106 | 81.16 | 0.28 | 0.00 | 0.02 | -0.03 | 10.21 | 91 | 91 | 0.27 | -4.14 | 0.00 | 0.00 | 0.00 | -11.25 |
| 59 | 115 | -82.50 | -0.28 | 0.00 | -0.02 | 0.05 | -5.17 | 92 | 91 | -0.27 | 4.14 | 0.00 | 0.00 | 0.00 | 11.25 |
| 60 | 115 | 82.50 | 0.28 | 0.00 | 0.02 | -0.05 | 5.17 | 92 | 92 | 0.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 60 | 116 | -83.83 | -0.28 | 0.00 | -0.02 | 0.07 | -0.13 | 93 | 107 | 1.45 | 8.88 | 0.00 | 0.00 | 0.04 | 79.26 |
| 61 | 116 | 83.83 | 0.28 | 0.00 | 0.02 | -0.07 | 0.13 | 93 | 108 | -1.45 | -8.42 | 0.00 | 0.00 | -0.04 | -70.60 |
| 61 | 117 | -85.16 | -0.28 | 0.00 | -0.02 | 0.09 | 4.91 | 94 | 108 | 1.45 | 8.42 | 0.00 | 0.00 | 0.04 | 70.60 |
| 62 | 117 | 85.16 | 0.28 | 0.00 | 0.02 | -0.09 | -4.91 | 94 | 109 | -1.45 | -3.61 | 0.00 | 0.00 | 0.00 | -9.88 |
| 62 | 118 | -86.50 | -0.28 | 0.00 | -0.02 | 0.11 | 9.95 | 95 | 109 | 1.45 | 3.61 | 0.00 | 0.00 | 0.00 | 9.88 |
| 63 | 118 | 86.50 | 0.28 | 0.00 | 0.02 | -0.11 | -9.95 | 95 | 110 | -1.45 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| 63 | 119 | -87.83 | -0.28 | 0.00 | -0.02 | 0.13 | 14.99 | 96 | 125 | -7.26 | 8.88 | 0.01 | 0.00 | -0.14 | 79.26 |
| 64 | 119 | 87.83 | 0.28 | 0.00 | 0.02 | -0.13 | -14.99 | 96 | 126 | 7.26 | -8.42 | -0.01 | 0.00 | 0.13 | -70.60 |
| 64 | 120 | -89.16 | -0.28 | 0.00 | -0.02 | 0.15 | 20.03 | 97 | 126 | -7.26 | 8.42 | 0.01 | 0.00 | -0.13 | 70.60 |
| 65 | 120 | 89.16 | 0.28 | 0.00 | 0.02 | -0.15 | -20.03 | 97 | 127 | 7.26 | -3.61 | -0.01 | 0.00 | 0.03 | -9.88 |
| 65 | 121 | -90.50 | -0.28 | 0.00 | -0.02 | 0.16 | 25.07 | 98 | 127 | -7.26 | 3.61 | 0.01 | 0.00 | -0.03 | 9.88 |
| 66 | 121 | 90.50 | 0.28 | 0.00 | 0.02 | -0.16 | -25.07 | 98 | 128 | 7.26 | 0.00 | -0.01 | 0.00 | -0.03 | 0.00 |
| 66 | 122 | -91.83 | -0.28 | 0.00 | -0.02 | 0.18 | 30.11 | 99 | 2 | -0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 67 | 122 | 91.83 | 0.28 | 0.00 | 0.02 | -0.18 | -30.11 | 99 | 3 | 0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 67 | 123 | -93.17 | -0.28 | 0.00 | -0.02 | 0.20 | 35.15 | 100 | 4 | -0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 68 | 123 | 93.17 | 0.28 | 0.00 | 0.02 | -0.20 | -35.15 | 100 | 5 | 0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 68 | 124 | -94.50 | -0.28 | 0.00 | -0.02 | 0.22 | 40.19 | 101 | 19 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 69 | 124 | 94.50 | -6.97 | 0.01 | -0.02 | -0.22 | -40.19 | 101 | 20 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 69 | 133 | -95.84 | 6.97 | -0.01 | 0.02 | 0.20 | 12.58 | 102 | 21 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 70 | 133 | 95.84 | -6.97 | 0.01 | -0.02 | -0.20 | -12.58 | 102 | 22 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 70 | 134 | -97.18 | 6.97 | -0.01 | 0.02 | 0.17 | -15.01 | 103 | 36 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 71 | 134 | 97.18 | -6.97 | 0.01 | -0.02 | -0.17 | 15.01 | 103 | 37 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 71 | 135 | -98.52 | 6.97 | -0.01 | 0.02 | 0.14 | -42.59 | 104 | 38 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 72 | 135 | 98.52 | -6.97 | 0.01 | -0.02 | -0.14 | 42.59 | 104 | 39 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 72 | 136 | -99.87 | 6.97 | -0.01 | 0.02 | 0.11 | -70.16 | 105 | 55 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 73 | 136 | 99.87 | -6.97 | 0.01 | -0.02 | -0.11 | 70.16 | 105 | 56 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 73 | 137 | -101.23 | 6.97 | -0.01 | 0.02 | 0.08 | -97.71 | 106 | 57 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 74 | 137 | 101.23 | -6.97 | 0.01 | -0.02 | -0.08 | 97.71 | 106 | 58 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 74 | 138 | -102.59 | 6.97 | -0.01 | 0.02 | 0.06 | -125.26 | 107 | 74 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 75 | 138 | 102.59 | -6.97 | 0.01 | -0.02 | -0.06 | 125.26 | 107 | 75 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 75 | 139 | -103.95 | 6.97 | -0.01 | 0.02 | 0.03 | -152.79 | 108 | 76 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 76 | 139 | 103.95 | -6.97 | 0.01 | -0.02 | -0.03 | 152.79 | 108 | 77 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 76 | 140 | -105.32 | 6.97 | -0.01 | 0.02 | 0.00 | -180.30 | 109 | 93 | -0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 77 | 16 | 0.02 | 5.40 | 0.00 | 0.00 | 0.01 | 31.11 | 109 | 94 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 77 | 17 | -0.02 | -3.11 | 0.00 | 0.00 | -0.01 | -8.62 | 110 | 95 | -0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 78 | 17 | 0.02 | 3.11 | 0.00 | 0.00 | 0.01 | 8.62 | 110 | 96 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 78 | 18 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 111 | 111 | 0.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 79 | 33 | -0.12 | 6.79 | 0.00 | 0.00 | -0.01 | 47.70 | 111 | 112 | -0.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 79 | 34 | 0.12 | -3.34 | 0.00 | 0.00 | 0.00 | -9.19 | 112 | 113 | 0.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 80 | 34 | -0.12 | 3.34 | 0.00 | 0.00 | 0.00 | 9.19 | 112 | 114 | -0.72 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 80 | 35 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 113 | 129 | -3.63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 81 | 50 | -0.11 | 18.19 | 0.00 | 0.00 | 0.00 | 289.76 | 113 | 130 | 3.63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 81 | 51 | 0.11 | -16.18 | 0.00 | 0.00 | 0.00 | -221.09 | 114 | 131 | -3.62 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| 82 | 51 | -0.11 | 16.18 | 0.00 | 0.00 | 0.00 | 221.09 | 114 | 132 | 3.62 | 0.00 | -0.01 | 0.00 | -0.02 | 0.00 |
| 82 | 52 | 0.11 | -10.61 | 0.00 | 0.00 | 0.00 | -85.81 | 115 | 141 | 3.49 | 52.66 | 0.00 | 0.00 | 0.00 | 0.00 |
| 83 | 52 | -0.11 | 10.61 | 0.00 | 0.00 | 0.00 | 85.81 | 115 | 142 | -3.49 | -52.66 | 0.00 | 0.00 | 0.00 | 90.15 |
| 83 | 53 | 0.11 | -4.26 | 0.00 | 0.00 | 0.00 | -11.56 | 116 | 143 | 3.48 | 52.66 | -0.01 | 0.00 | 0.00 | 0.00 |
| 84 | 53 | -0.11 | 4.26 | 0.00 | 0.00 | 0.00 | 11.56 | 116 | 144 | -3.48 | -52.66 | 0.01 | 0.00 | 0.01 | 90.15 |
| 84 | 54 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 117 | 6 | -0.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 85 | 69 | 0.10 | 21.05 | 0.00 | 0.00 | 0.00 | 363.51 | 117 | 7 | 0.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 85 | 70 | -0.10 | -17.15 | 0.00 | 0.00 | 0.00 | -229.77 | 118 | 145 | 6.97 | 105.32 | -0.01 | 0.00 | 0.00 | 105.32 |
| 86 | 70 | 0.10 | 17.15 | 0.00 | 0.00 | 0.00 | 229.77 | 118 | 146 | -6.97 | -105.32 | 0.01 | 0.00 | 0.01 | 0.00 |
| 86 | 71 | -0.10 | -10.97 | 0.00 | 0.00 | 0.00 | -88.32 | 119 | 3 | 0.00 | -0.39 | 0.00 | 0.00 | 0.00 | 0.00 |
| 87 | 71 | 0.10 | 10.97 | 0.00 | 0.00 | 0.00 | 88.32 | 119 | 1 | 0.00 | 0.39 | 0.00 | 0.00 | 0.00 | -1.65 |
| 87 | 72 | -0.10 | -4.37 | 0.00 | 0.00 | 0.00 | -11.85 | 120 | 1 | 0.00 | 0.39 | 0.00 | 0.00 | 0.00 | 1.65 |
| 88 | 72 | 0.10 | 4.37 | 0.00 | 0.00 | 0.00 | 11.85 | 120 | 5 | 0.00 | -0.39 | 0.00 | 0.00 | 0.00 | 0.00 |
| 88 | 73 | -0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 121 | 20 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 89 | 88 | -0.27 | 16.06 | 0.00 | 0.00 | 0.01 | 228.55 | 121 | 15 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.01 |
| 89 | 89 | 0.27 | -15.56 | 0.00 | 0.00 | -0.01 | -212.74 | 122 | 15 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | -0.01 |
| 90 | 89 | -0.27 | 15.56 | 0.00 | 0.00 | 0.01 | 212.74 | 122 | 22 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 90 | 90 | 0.27 | -10.19 | 0.00 | 0.00 | -0.01 | -82.97 | 123 | 37 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 91 | 90 | -0.27 | 10.19 | 0.00 | 0.00 | 0.01 | 82.97 | 123 | 32 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | -0.11 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 124 | 32 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.11 |
| 124 | 39 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 56 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | -0.11 |
| 126 | 49 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.10 |
| 126 | 58 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 75 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 | 0.09 |
| 128 | 68 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 | -0.09 |
| 128 | 77 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 94 | 0.00 | -0.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 | -0.25 |
| 130 | 87 | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 | 0.25 |
| 130 | 96 | 0.00 | -0.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 112 | 0.00 | 0.73 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | -0.73 | 0.00 | 0.00 | 0.00 | 1.35 |
| 132 | 106 | 0.00 | -0.72 | 0.00 | 0.00 | 0.00 | -1.32 |
| 132 | 114 | 0.00 | 0.72 | 0.00 | 0.00 | 0.00 | -0.01 |
| 133 | 130 | 0.00 | -3.63 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | 3.63 | 0.00 | 0.00 | 0.00 | -6.72 |
| 134 | 124 | -0.01 | 3.62 | 0.00 | 0.00 | 0.00 | 6.68 |
| 134 | 132 | 0.01 | -3.62 | 0.00 | 0.00 | 0.00 | 0.02 |
| 135 | 142 | 0.00 | 3.49 | 52.66 | -90.15 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -3.49 | -52.66 | 90.15 | -223.80 | 14.82 |
| 136 | 140 | 0.01 | -3.48 | -52.66 | 90.15 | 223.80 | -14.80 |
| 136 | 144 | -0.01 | 3.48 | 52.66 | -90.15 | 0.00 | -0.01 |
| 137 | 2 | 0.00 | 0.39 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | -0.39 | 0.00 | 0.00 | 0.00 | 1.65 |
| 138 | 7 | 0.00 | -0.39 | 0.00 | 0.00 | 0.00 | -1.65 |
| 138 | 4 | 0.00 | 0.39 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | -0.01 |
| 140 | 18 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 |
| 140 | 21 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | 0.11 |
| 142 | 35 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | -0.11 |
| 142 | 38 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | 0.06 | -0.01 | 0.00 | 0.01 | 0.00 |
| 143 | 54 | 0.00 | -0.06 | 0.01 | 0.00 | 0.01 | 0.11 |
| 144 | 54 | 0.00 | -0.06 | -0.01 | 0.00 | 0.01 | -0.10 |
| 144 | 57 | 0.00 | 0.06 | 0.01 | 0.00 | 0.01 | 0.00 |
| 145 | 74 | 0.00 | -0.05 | 0.01 | 0.00 | 0.01 | 0.00 |
| 145 | 73 | 0.00 | 0.05 | -0.01 | 0.00 | 0.01 | -0.09 |
| 146 | 73 | 0.00 | 0.05 | 0.01 | 0.00 | 0.01 | 0.10 |
| 146 | 76 | 0.00 | -0.05 | -0.01 | 0.00 | 0.01 | 0.00 |
| 147 | 93 | 0.00 | 0.14 | -0.01 | 0.00 | 0.01 | 0.00 |
| 147 | 92 | 0.00 | -0.14 | 0.01 | 0.00 | 0.01 | 0.25 |
| 148 | 92 | 0.00 | -0.14 | -0.01 | 0.00 | 0.01 | -0.25 |
| 148 | 95 | 0.00 | 0.14 | 0.01 | 0.00 | 0.01 | 0.00 |
| 149 | 111 | 0.00 | -0.73 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 0.73 | 0.00 | 0.00 | 0.00 | -1.35 |
| 150 | 110 | 0.00 | 0.72 | 0.00 | 0.00 | 0.00 | 1.33 |
| 150 | 113 | 0.00 | -0.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | 3.63 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | -3.63 | 0.00 | 0.00 | 0.00 | 6.72 |
| 152 | 128 | 0.01 | -3.62 | 0.00 | 0.00 | 0.00 | -6.70 |
| 152 | 131 | -0.01 | 3.62 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -3.49 | -52.66 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 3.49 | 52.66 | 0.00 | 223.80 | -14.82 |
| 154 | 146 | -0.01 | 3.48 | 52.66 | 0.00 | -223.80 | 14.81 |
| 154 | 143 | 0.01 | -3.48 | -52.66 | 0.00 | 0.00 | 0.00 |



HIPOTESIS 28

hipo 28 viento - long. est.+ sobrecarga

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 0.78 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 8 | 1.27 | -0.78 | 0.00 | 0.00 | 0.00 | -0.07 |
| 2 | 8 | -1.27 | 0.78 | 0.00 | 0.00 | 0.00 | 0.07 |
| 2 | 9 | 2.53 | -0.78 | 0.00 | 0.00 | 0.01 | -0.12 |
| 3 | 9 | -2.53 | 0.78 | 0.00 | 0.00 | -0.01 | 0.12 |
| 3 | 10 | 3.78 | -0.78 | 0.00 | 0.00 | 0.01 | -0.15 |
| 4 | 10 | -3.78 | 0.78 | 0.00 | 0.00 | -0.01 | 0.15 |
| 4 | 11 | 5.03 | -0.78 | 0.00 | 0.00 | 0.01 | -0.16 |
| 5 | 11 | -5.03 | 0.78 | 0.00 | 0.00 | -0.01 | 0.16 |
| 5 | 12 | 6.26 | -0.78 | 0.00 | 0.00 | 0.02 | -0.14 |
| 6 | 12 | -6.26 | 0.78 | 0.00 | 0.00 | -0.02 | 0.14 |
| 6 | 13 | 7.49 | -0.78 | 0.00 | 0.00 | 0.02 | -0.10 |
| 7 | 13 | -7.49 | 0.78 | 0.00 | 0.00 | -0.02 | 0.10 |
| 7 | 14 | 8.71 | -0.78 | 0.00 | 0.00 | 0.02 | -0.04 |
| 8 | 14 | -8.71 | 0.78 | 0.00 | 0.00 | -0.02 | 0.04 |
| 8 | 15 | 9.92 | -0.78 | 0.00 | 0.00 | 0.03 | 0.05 |
| 9 | 15 | -9.92 | 0.76 | 0.00 | 0.00 | -0.03 | -0.05 |
| 9 | 23 | 11.13 | -0.76 | 0.00 | 0.00 | 0.03 | 0.08 |
| 10 | 23 | -11.13 | 0.76 | 0.00 | 0.00 | -0.03 | -0.08 |
| 10 | 24 | 12.34 | -0.76 | 0.00 | 0.00 | 0.02 | 0.09 |
| 11 | 24 | -12.34 | 0.76 | 0.00 | 0.00 | -0.02 | -0.09 |
| 11 | 25 | 13.57 | -0.76 | 0.00 | 0.00 | 0.02 | 0.08 |
| 12 | 25 | -13.56 | 0.76 | 0.00 | 0.00 | -0.02 | -0.08 |
| 12 | 26 | 14.79 | -0.76 | 0.00 | 0.00 | 0.02 | 0.06 |
| 13 | 26 | -14.79 | 0.76 | 0.00 | 0.00 | -0.02 | -0.06 |
| 13 | 27 | 16.02 | -0.76 | 0.00 | 0.00 | 0.02 | 0.02 |
| 14 | 27 | -16.02 | 0.76 | 0.00 | 0.00 | -0.02 | -0.02 |
| 14 | 28 | 17.26 | -0.76 | 0.00 | 0.00 | 0.01 | -0.04 |
| 15 | 28 | -17.26 | 0.76 | 0.00 | 0.00 | -0.01 | 0.04 |
| 15 | 29 | 18.51 | -0.76 | 0.00 | 0.00 | 0.01 | -0.11 |
| 16 | 29 | -18.51 | 0.76 | 0.00 | 0.00 | -0.01 | 0.11 |
| 16 | 30 | 19.76 | -0.76 | 0.00 | 0.00 | 0.01 | -0.20 |
| 17 | 30 | -19.76 | 0.76 | 0.00 | 0.00 | -0.01 | 0.20 |
| 17 | 31 | 21.01 | -0.76 | 0.00 | 0.00 | 0.01 | -0.30 |
| 18 | 31 | -21.01 | 0.76 | 0.00 | 0.00 | -0.01 | 0.30 |
| 18 | 32 | 22.27 | -0.76 | 0.00 | 0.00 | 0.00 | -0.41 |
| 19 | 32 | -22.27 | 0.88 | 0.00 | 0.00 | 0.00 | 0.41 |
| 19 | 40 | 23.55 | -0.88 | 0.00 | 0.00 | 0.00 | -0.07 |
| 20 | 40 | -23.55 | 0.88 | 0.00 | 0.00 | 0.00 | 0.07 |
| 20 | 41 | 24.86 | -0.88 | 0.00 | 0.00 | 0.00 | 0.18 |
| 21 | 41 | -24.86 | 0.88 | 0.00 | 0.00 | 0.00 | -0.18 |
| 21 | 42 | 26.21 | -0.88 | 0.00 | 0.00 | 0.00 | 0.35 |
| 22 | 42 | -26.21 | 0.88 | 0.00 | 0.00 | 0.00 | -0.35 |
| 22 | 43 | 27.59 | -0.88 | 0.00 | 0.00 | 0.00 | 0.43 |
| 23 | 43 | -27.59 | 0.88 | 0.00 | 0.00 | 0.00 | -0.43 |
| 23 | 44 | 28.99 | -0.88 | 0.00 | 0.00 | 0.00 | 0.43 |
| 24 | 44 | -28.99 | 0.88 | 0.00 | 0.00 | 0.00 | -0.43 |
| 24 | 45 | 30.42 | -0.88 | 0.00 | 0.00 | 0.00 | 0.36 |
| 25 | 45 | -30.42 | 0.88 | 0.00 | 0.00 | 0.00 | -0.36 |
| 25 | 46 | 31.87 | -0.88 | 0.00 | 0.00 | 0.00 | 0.23 |
| 26 | 46 | -31.87 | 0.88 | 0.00 | 0.00 | 0.00 | -0.23 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 | 47 | 33.34 | -0.88 | 0.00 | 0.00 | 0.00 | 0.03 | 59 | 106 | -81.16 | -0.28 | 0.00 | -0.02 | 0.03 | -10.21 |
| 27 | 47 | -33.34 | 0.88 | 0.00 | 0.00 | 0.00 | -0.03 | 59 | 115 | 82.50 | 0.28 | 0.00 | 0.02 | -0.05 | 5.17 |
| 27 | 48 | 34.83 | -0.88 | 0.00 | 0.00 | 0.00 | -0.22 | 60 | 115 | -82.50 | -0.28 | 0.00 | -0.02 | 0.05 | -5.17 |
| 28 | 48 | -34.83 | 0.88 | 0.00 | 0.00 | 0.00 | 0.22 | 60 | 116 | 83.83 | 0.28 | 0.00 | 0.02 | -0.07 | 0.13 |
| 28 | 49 | 36.35 | -0.88 | 0.00 | 0.00 | 0.00 | -0.53 | 61 | 116 | -83.83 | -0.28 | 0.00 | -0.02 | 0.07 | -0.13 |
| 29 | 49 | -36.35 | 0.99 | 0.00 | 0.00 | 0.00 | 0.53 | 61 | 117 | 85.16 | 0.28 | 0.00 | 0.02 | -0.09 | -4.91 |
| 29 | 59 | 37.88 | -0.99 | 0.00 | 0.00 | 0.00 | -0.37 | 62 | 117 | -85.16 | -0.28 | 0.00 | -0.02 | 0.09 | 4.91 |
| 30 | 59 | -37.88 | 0.99 | 0.00 | 0.00 | 0.00 | 0.37 | 62 | 118 | 86.50 | 0.28 | 0.00 | 0.02 | -0.11 | -9.95 |
| 30 | 60 | 39.41 | -0.99 | 0.00 | 0.00 | 0.00 | -0.21 | 63 | 118 | -86.50 | -0.28 | 0.00 | -0.02 | 0.11 | 9.95 |
| 31 | 60 | -39.41 | 0.99 | 0.00 | 0.00 | 0.00 | 0.21 | 63 | 119 | 87.83 | 0.28 | 0.00 | 0.02 | -0.13 | -14.99 |
| 31 | 61 | 40.94 | -0.99 | 0.00 | 0.00 | 0.00 | -0.07 | 64 | 119 | -87.83 | -0.28 | 0.00 | -0.02 | 0.13 | 14.99 |
| 32 | 61 | -40.94 | 0.99 | 0.00 | 0.00 | 0.00 | 0.07 | 64 | 120 | 89.16 | 0.28 | 0.00 | 0.02 | -0.15 | -20.03 |
| 32 | 62 | 42.47 | -0.99 | 0.00 | 0.00 | 0.00 | 0.07 | 65 | 120 | -89.16 | -0.28 | 0.00 | -0.02 | 0.15 | 20.03 |
| 33 | 62 | -42.47 | 0.99 | 0.00 | 0.00 | 0.00 | -0.07 | 65 | 121 | 90.50 | 0.28 | 0.00 | 0.02 | -0.16 | -25.07 |
| 33 | 63 | 44.01 | -0.99 | 0.00 | 0.00 | 0.00 | 0.20 | 66 | 121 | -90.50 | -0.28 | 0.00 | -0.02 | 0.16 | 25.07 |
| 34 | 63 | -44.01 | 0.99 | 0.00 | 0.00 | 0.00 | -0.20 | 66 | 122 | 91.83 | 0.28 | 0.00 | 0.02 | -0.18 | -30.11 |
| 34 | 64 | 45.56 | -0.99 | 0.00 | 0.00 | 0.00 | 0.32 | 67 | 122 | -91.83 | -0.28 | 0.00 | -0.02 | 0.18 | 30.11 |
| 35 | 64 | -45.56 | 0.99 | 0.00 | 0.00 | 0.00 | -0.32 | 67 | 123 | 93.17 | 0.28 | 0.00 | 0.02 | -0.20 | -35.15 |
| 35 | 65 | 47.10 | -0.99 | 0.00 | 0.00 | 0.00 | 0.43 | 68 | 123 | -93.17 | -0.28 | 0.00 | -0.02 | 0.20 | 35.15 |
| 36 | 65 | -47.10 | 0.99 | 0.00 | 0.00 | 0.00 | -0.43 | 68 | 124 | 94.50 | 0.28 | 0.00 | 0.02 | -0.22 | -40.19 |
| 36 | 66 | 48.65 | -0.99 | 0.00 | 0.00 | 0.00 | 0.53 | 69 | 124 | -94.50 | 6.97 | -0.01 | 0.02 | 0.22 | 40.19 |
| 37 | 66 | -48.65 | 0.99 | 0.00 | 0.00 | 0.00 | -0.53 | 69 | 133 | 95.84 | -6.97 | 0.01 | -0.02 | -0.20 | -12.58 |
| 37 | 67 | 50.21 | -0.99 | 0.00 | 0.00 | 0.00 | 0.62 | 70 | 133 | -95.84 | 6.97 | -0.01 | 0.02 | 0.20 | 12.58 |
| 38 | 67 | -50.21 | 0.99 | 0.00 | 0.00 | 0.00 | -0.62 | 70 | 134 | 97.18 | -6.97 | 0.01 | -0.02 | -0.17 | 15.01 |
| 38 | 68 | 51.76 | -0.99 | 0.00 | 0.00 | 0.00 | 0.70 | 71 | 134 | -97.18 | 6.97 | -0.01 | 0.02 | 0.17 | -15.01 |
| 39 | 68 | -51.76 | 0.89 | 0.00 | 0.00 | 0.00 | -0.70 | 71 | 135 | 98.52 | -6.97 | 0.01 | -0.02 | -0.14 | 42.59 |
| 39 | 78 | 53.32 | -0.89 | 0.00 | 0.00 | 0.00 | 0.32 | 72 | 135 | -98.52 | 6.97 | -0.01 | 0.02 | 0.14 | -42.59 |
| 40 | 78 | -53.32 | 0.89 | 0.00 | 0.00 | 0.00 | -0.32 | 72 | 136 | 99.87 | -6.97 | 0.01 | -0.02 | -0.11 | 70.16 |
| 40 | 79 | 54.87 | -0.89 | 0.00 | 0.00 | 0.00 | -0.04 | 73 | 136 | -99.87 | 6.97 | -0.01 | 0.02 | 0.11 | -70.16 |
| 41 | 79 | -54.87 | 0.89 | 0.00 | 0.00 | 0.00 | 0.04 | 73 | 137 | 101.23 | -6.97 | 0.01 | -0.02 | -0.08 | 97.71 |
| 41 | 80 | 56.41 | -0.89 | 0.00 | 0.00 | 0.00 | -0.38 | 74 | 137 | -101.23 | 6.97 | -0.01 | 0.02 | 0.08 | -97.71 |
| 42 | 80 | -56.41 | 0.89 | 0.00 | 0.00 | 0.00 | 0.38 | 74 | 138 | 102.59 | -6.97 | 0.01 | -0.02 | -0.06 | 125.26 |
| 42 | 81 | 57.94 | -0.89 | 0.00 | 0.00 | 0.00 | -0.70 | 75 | 138 | -102.59 | 6.97 | -0.01 | 0.02 | 0.06 | -125.26 |
| 43 | 81 | -57.94 | 0.89 | 0.00 | 0.00 | 0.00 | 0.70 | 75 | 139 | 103.95 | -6.97 | 0.01 | -0.02 | -0.03 | 152.79 |
| 43 | 82 | 59.47 | -0.89 | 0.00 | 0.00 | 0.00 | -1.00 | 76 | 139 | -103.95 | 6.97 | -0.01 | 0.02 | 0.03 | -152.79 |
| 44 | 82 | -59.47 | 0.89 | 0.00 | 0.00 | 0.00 | 1.00 | 76 | 140 | 105.32 | -6.97 | 0.01 | -0.02 | 0.00 | 180.30 |
| 44 | 83 | 60.99 | -0.89 | 0.00 | 0.00 | 0.00 | -1.28 | 77 | 16 | -0.02 | -5.40 | 0.00 | 0.00 | -0.01 | -31.11 |
| 45 | 83 | -60.99 | 0.89 | 0.00 | 0.00 | 0.00 | 1.28 | 77 | 17 | 0.02 | 3.11 | 0.00 | 0.00 | 0.01 | 8.62 |
| 45 | 84 | 62.51 | -0.89 | 0.00 | 0.00 | 0.00 | -1.54 | 78 | 17 | -0.02 | -3.11 | 0.00 | 0.00 | -0.01 | -8.62 |
| 46 | 84 | -62.51 | 0.89 | 0.00 | 0.00 | 0.00 | 1.54 | 78 | 18 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 46 | 85 | 64.01 | -0.89 | 0.00 | 0.00 | 0.00 | -1.78 | 79 | 33 | 0.12 | -6.79 | 0.00 | 0.00 | 0.01 | -47.70 |
| 47 | 85 | -64.01 | 0.89 | 0.00 | 0.00 | 0.00 | 1.78 | 79 | 34 | -0.12 | 3.34 | 0.00 | 0.00 | 0.00 | 9.19 |
| 47 | 86 | 65.51 | -0.89 | 0.00 | 0.00 | 0.00 | -2.00 | 80 | 34 | 0.12 | -3.34 | 0.00 | 0.00 | 0.00 | -9.19 |
| 48 | 86 | -65.51 | 0.89 | 0.00 | 0.00 | 0.00 | 2.00 | 80 | 35 | -0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 48 | 87 | 67.00 | -0.89 | 0.00 | 0.00 | 0.00 | -2.20 | 81 | 50 | 0.11 | -18.19 | 0.00 | 0.00 | 0.00 | -289.76 |
| 49 | 87 | -67.00 | 1.16 | 0.00 | 0.00 | 0.00 | 2.20 | 81 | 51 | -0.11 | 16.18 | 0.00 | 0.00 | 0.00 | 221.09 |
| 49 | 97 | 68.48 | -1.16 | 0.00 | 0.00 | -0.01 | -1.15 | 82 | 51 | 0.11 | -16.18 | 0.00 | 0.00 | 0.00 | -221.09 |
| 50 | 97 | -68.48 | 1.16 | 0.00 | 0.00 | 0.01 | 1.15 | 82 | 52 | -0.11 | 10.61 | 0.00 | 0.00 | 0.00 | 85.81 |
| 50 | 98 | 69.95 | -1.16 | 0.00 | 0.00 | -0.01 | -0.05 | 83 | 52 | 0.11 | -10.61 | 0.00 | 0.00 | 0.00 | -85.81 |
| 51 | 98 | -69.95 | 1.16 | 0.00 | 0.00 | 0.01 | 0.05 | 83 | 53 | -0.11 | 4.26 | 0.00 | 0.00 | 0.00 | 11.56 |
| 51 | 99 | 71.41 | -1.16 | 0.00 | 0.00 | -0.01 | 1.08 | 84 | 53 | 0.11 | -4.26 | 0.00 | 0.00 | 0.00 | -11.56 |
| 52 | 99 | -71.41 | 1.16 | 0.00 | 0.00 | 0.01 | -1.08 | 84 | 54 | -0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 52 | 100 | 72.85 | -1.16 | 0.00 | 0.00 | -0.01 | 2.25 | 85 | 69 | -0.10 | -21.05 | 0.00 | 0.00 | 0.00 | -363.51 |
| 53 | 100 | -72.85 | 1.16 | 0.00 | 0.00 | 0.01 | -2.25 | 85 | 70 | 0.10 | 17.15 | 0.00 | 0.00 | 0.00 | 229.77 |
| 53 | 101 | 74.27 | -1.16 | 0.00 | 0.00 | -0.02 | 3.47 | 86 | 70 | -0.10 | -17.15 | 0.00 | 0.00 | 0.00 | -229.77 |
| 54 | 101 | -74.27 | 1.16 | 0.00 | 0.00 | 0.02 | -3.47 | 86 | 71 | 0.10 | 10.97 | 0.00 | 0.00 | 0.00 | 88.32 |
| 54 | 102 | 75.68 | -1.16 | 0.00 | 0.00 | -0.02 | 4.72 | 87 | 71 | -0.10 | -10.97 | 0.00 | 0.00 | 0.00 | -88.32 |
| 55 | 102 | -75.68 | 1.16 | 0.00 | 0.00 | 0.02 | -4.72 | 87 | 72 | 0.10 | 4.37 | 0.00 | 0.00 | 0.00 | 11.85 |
| 55 | 103 | 77.08 | -1.16 | 0.00 | 0.00 | -0.02 | 6.02 | 88 | 72 | -0.10 | -4.37 | 0.00 | 0.00 | 0.00 | -11.85 |
| 56 | 103 | -77.08 | 1.16 | 0.00 | 0.00 | 0.02 | -6.02 | 88 | 73 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 56 | 104 | 78.46 | -1.16 | 0.00 | 0.00 | -0.02 | 7.37 | 89 | 88 | 0.27 | -16.06 | 0.00 | 0.00 | -0.01 | -228.55 |
| 57 | 104 | -78.46 | 1.16 | 0.00 | 0.00 | 0.02 | -7.37 | 89 | 89 | -0.27 | 15.56 | 0.00 | 0.00 | 0.01 | 212.74 |
| 57 | 105 | 79.82 | -1.16 | 0.00 | 0.00 | -0.03 | 8.77 | 90 | 89 | 0.27 | -15.56 | 0.00 | 0.00 | -0.01 | -212.74 |
| 58 | 105 | -79.82 | 1.16 | 0.00 | 0.00 | 0.03 | -8.77 | 90 | 90 | -0.27 | 10.19 | 0.00 | 0.00 | 0.01 | 82.97 |
| 58 | 106 | 81.16 | -1.16 | 0.00 | 0.00 | -0.03 | 10.21 | 91 | 90 | 0.27 | -10.19 | 0.00 | 0.00 | -0.01 | -82.97 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 91 | 91 | -0.27 | 4.14 | 0.00 | 0.00 | 0.00 | 11.25 |
| 92 | 91 | 0.27 | -4.14 | 0.00 | 0.00 | 0.00 | -11.25 |
| 92 | 92 | -0.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 93 | 107 | -1.45 | -8.88 | 0.00 | 0.00 | -0.04 | -79.26 |
| 93 | 108 | 1.45 | 8.42 | 0.00 | 0.00 | 0.04 | 70.60 |
| 94 | 108 | -1.45 | -8.42 | 0.00 | 0.00 | -0.04 | -70.60 |
| 94 | 109 | 1.45 | 3.61 | 0.00 | 0.00 | 0.00 | 9.88 |
| 95 | 109 | -1.45 | -3.61 | 0.00 | 0.00 | 0.00 | -9.88 |
| 95 | 110 | 1.45 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 96 | 125 | 7.26 | -8.88 | -0.01 | 0.00 | 0.14 | -79.26 |
| 96 | 126 | -7.26 | 8.42 | 0.01 | 0.00 | -0.13 | 70.60 |
| 97 | 126 | 7.26 | -8.42 | -0.01 | 0.00 | 0.13 | -70.60 |
| 97 | 127 | -7.26 | 3.61 | 0.01 | 0.00 | -0.03 | 9.88 |
| 98 | 127 | 7.26 | -3.61 | -0.01 | 0.00 | 0.03 | -9.88 |
| 98 | 128 | -7.26 | 0.00 | 0.01 | 0.00 | 0.03 | 0.00 |
| 99 | 2 | 0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 19 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 36 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 55 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 74 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 93 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 111 | -0.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | 0.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | -0.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | 0.72 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 113 | 129 | 3.63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -3.63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 3.62 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -3.62 | 0.00 | 0.01 | 0.00 | 0.02 | 0.00 |
| 115 | 141 | -3.49 | -52.66 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | 3.49 | 52.66 | 0.00 | 0.00 | 0.00 | -90.15 |
| 116 | 143 | -3.48 | -52.66 | 0.01 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | 3.48 | 52.66 | -0.01 | 0.00 | -0.01 | -90.15 |
| 117 | 6 | 0.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 117 | 7 | -0.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 118 | 145 | -6.97 | -105.32 | 0.01 | 0.00 | 0.00 | -105.32 |
| 118 | 146 | 6.97 | 105.32 | -0.01 | 0.00 | -0.01 | 0.00 |
| 119 | 3 | 0.00 | 0.39 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -0.39 | 0.00 | 0.00 | 0.00 | 1.65 |
| 120 | 1 | 0.00 | -0.39 | 0.00 | 0.00 | 0.00 | -1.65 |
| 120 | 5 | 0.00 | 0.39 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 20 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | -0.01 |
| 122 | 15 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 |
| 122 | 22 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 37 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | 0.11 |
| 124 | 32 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | -0.11 |
| 124 | 39 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 56 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | 0.11 |
| 126 | 49 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | -0.10 |
| 126 | 58 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 75 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | -0.09 |
| 128 | 68 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.09 |
| 128 | 77 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 94 | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | -0.14 | 0.00 | 0.00 | 0.00 | 0.25 |
| 130 | 87 | 0.00 | -0.14 | 0.00 | 0.00 | 0.00 | -0.25 |
| 130 | 96 | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 112 | 0.00 | -0.73 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | 0.73 | 0.00 | 0.00 | 0.00 | -1.35 |
| 132 | 106 | 0.00 | 0.72 | 0.00 | 0.00 | 0.00 | 1.32 |
| 132 | 114 | 0.00 | -0.72 | 0.00 | 0.00 | 0.00 | 0.01 |
| 133 | 130 | 0.00 | 3.63 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | -3.63 | 0.00 | 0.00 | 0.00 | 6.72 |
| 134 | 124 | 0.01 | -3.62 | 0.00 | 0.00 | 0.00 | -6.68 |
| 134 | 132 | -0.01 | 3.62 | 0.00 | 0.00 | 0.00 | -0.02 |
| 135 | 142 | 0.00 | -3.49 | -52.66 | 90.15 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | 3.49 | 52.66 | -90.15 | 223.80 | -14.82 |
| 136 | 140 | -0.01 | 3.48 | 52.66 | -90.15 | -223.80 | 14.80 |
| 136 | 144 | 0.01 | -3.48 | -52.66 | 90.15 | 0.00 | 0.01 |
| 137 | 2 | 0.00 | -0.39 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 0.39 | 0.00 | 0.00 | 0.00 | -1.65 |
| 138 | 7 | 0.00 | 0.39 | 0.00 | 0.00 | 0.00 | 1.65 |
| 138 | 4 | 0.00 | -0.39 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.01 |
| 140 | 18 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | -0.01 |
| 140 | 21 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | -0.11 |
| 142 | 35 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.11 |
| 142 | 38 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -0.06 | 0.01 | 0.00 | -0.01 | 0.00 |
| 143 | 54 | 0.00 | 0.06 | -0.01 | 0.00 | -0.01 | -0.11 |
| 144 | 54 | 0.00 | 0.06 | 0.01 | 0.00 | -0.01 | 0.10 |
| 144 | 57 | 0.00 | -0.06 | -0.01 | 0.00 | -0.01 | 0.00 |
| 145 | 74 | 0.00 | 0.05 | -0.01 | 0.00 | -0.01 | 0.00 |
| 145 | 73 | 0.00 | -0.05 | 0.01 | 0.00 | -0.01 | 0.09 |
| 146 | 73 | 0.00 | -0.05 | -0.01 | 0.00 | -0.01 | -0.10 |
| 146 | 76 | 0.00 | 0.05 | 0.01 | 0.00 | -0.01 | 0.00 |
| 147 | 93 | 0.00 | -0.14 | 0.01 | 0.00 | -0.01 | 0.00 |
| 147 | 92 | 0.00 | 0.14 | -0.01 | 0.00 | -0.01 | -0.25 |
| 148 | 92 | 0.00 | 0.14 | 0.01 | 0.00 | -0.01 | 0.25 |
| 148 | 95 | 0.00 | -0.14 | -0.01 | 0.00 | -0.01 | 0.00 |
| 149 | 111 | 0.00 | 0.73 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | -0.73 | 0.00 | 0.00 | 0.00 | 1.35 |
| 150 | 110 | 0.00 | -0.72 | 0.00 | 0.00 | 0.00 | -1.33 |
| 150 | 113 | 0.00 | 0.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -3.63 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 3.63 | 0.00 | 0.00 | 0.00 | -6.72 |
| 152 | 128 | -0.01 | 3.62 | 0.00 | 0.00 | 0.00 | 6.70 |
| 152 | 131 | 0.01 | -3.62 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | 3.49 | 52.66 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | -3.49 | -52.66 | 0.00 | -223.80 | 14.82 |
| 154 | 146 | 0.01 | -3.48 | -52.66 | 0.00 | 223.80 | -14.81 |
| 154 | 143 | -0.01 | 3.48 | 52.66 | 0.00 | 0.00 | 0.00 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS 29

hipo 29 F. Teflon +

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | -33.76 | -3.33 | 0.00 | -0.01 | 0.00 | -57.46 |
| 1 | 8 | 33.76 | 3.33 | 0.00 | 0.01 | -0.02 | 42.47 |
| 2 | 8 | -33.76 | -3.33 | 0.00 | -0.01 | 0.02 | -42.47 |
| 2 | 9 | 33.76 | 3.33 | 0.00 | 0.01 | -0.03 | 27.47 |
| 3 | 9 | -33.76 | -3.33 | 0.00 | -0.01 | 0.03 | -27.47 |
| 3 | 10 | 33.76 | 3.33 | 0.00 | 0.01 | -0.05 | 12.48 |
| 4 | 10 | -33.76 | -3.33 | 0.00 | -0.01 | 0.05 | -12.48 |
| 4 | 11 | 33.76 | 3.33 | 0.00 | 0.01 | -0.06 | -2.51 |
| 5 | 11 | -33.76 | -3.33 | 0.00 | -0.01 | 0.06 | 2.51 |
| 5 | 12 | 33.76 | 3.33 | 0.00 | 0.01 | -0.08 | -17.50 |
| 6 | 12 | -33.76 | -3.33 | 0.00 | -0.01 | 0.08 | 17.50 |
| 6 | 13 | 33.76 | 3.33 | 0.00 | 0.01 | -0.09 | -32.50 |
| 7 | 13 | -33.76 | -3.33 | 0.00 | -0.01 | 0.09 | 32.50 |
| 7 | 14 | 33.76 | 3.33 | 0.00 | 0.01 | -0.11 | -47.49 |
| 8 | 14 | -33.76 | -3.33 | 0.00 | -0.01 | 0.11 | 47.49 |
| 8 | 15 | 33.76 | 3.33 | 0.00 | 0.01 | -0.12 | -62.48 |
| 9 | 15 | -106.34 | -2.85 | 0.00 | 0.01 | 0.12 | -61.05 |
| 9 | 23 | 106.34 | 2.85 | 0.00 | -0.01 | -0.11 | 48.23 |
| 10 | 23 | -106.34 | -2.85 | 0.00 | 0.01 | 0.11 | -48.23 |
| 10 | 24 | 106.34 | 2.85 | 0.00 | -0.01 | -0.10 | 35.41 |
| 11 | 24 | -106.34 | -2.85 | 0.00 | 0.01 | 0.10 | -35.41 |
| 11 | 25 | 106.34 | 2.85 | 0.00 | -0.01 | -0.09 | 22.60 |
| 12 | 25 | -106.34 | -2.85 | 0.00 | 0.01 | 0.09 | -22.60 |
| 12 | 26 | 106.34 | 2.85 | 0.00 | -0.01 | -0.07 | 9.78 |
| 13 | 26 | -106.34 | -2.85 | 0.00 | 0.01 | 0.07 | -9.78 |
| 13 | 27 | 106.34 | 2.85 | 0.00 | -0.01 | -0.06 | -3.04 |
| 14 | 27 | -106.34 | -2.85 | 0.00 | 0.01 | 0.06 | 3.04 |
| 14 | 28 | 106.34 | 2.85 | 0.00 | -0.01 | -0.05 | -15.86 |
| 15 | 28 | -106.34 | -2.85 | 0.00 | 0.01 | 0.05 | 15.86 |
| 15 | 29 | 106.34 | 2.85 | 0.00 | -0.01 | -0.04 | -28.67 |
| 16 | 29 | -106.34 | -2.85 | 0.00 | 0.01 | 0.04 | 28.67 |
| 16 | 30 | 106.34 | 2.85 | 0.00 | -0.01 | -0.02 | -41.49 |
| 17 | 30 | -106.34 | -2.85 | 0.00 | 0.01 | 0.02 | 41.49 |
| 17 | 31 | 106.34 | 2.85 | 0.00 | -0.01 | -0.01 | -54.31 |
| 18 | 31 | -106.34 | -2.85 | 0.00 | 0.01 | 0.01 | 54.31 |
| 18 | 32 | 106.34 | 2.85 | 0.00 | -0.01 | 0.00 | -67.13 |
| 19 | 32 | -187.42 | -3.11 | 0.00 | 0.00 | 0.00 | -70.87 |
| 19 | 40 | 187.42 | 3.11 | 0.00 | 0.00 | 0.00 | 56.89 |
| 20 | 40 | -187.42 | -3.11 | 0.00 | 0.00 | 0.00 | -56.89 |
| 20 | 41 | 187.42 | 3.11 | 0.00 | 0.00 | 0.00 | 42.91 |
| 21 | 41 | -187.42 | -3.11 | 0.00 | 0.00 | 0.00 | -42.91 |
| 21 | 42 | 187.42 | 3.11 | 0.00 | 0.00 | 0.00 | 28.94 |
| 22 | 42 | -187.42 | -3.11 | 0.00 | 0.00 | 0.00 | -28.94 |
| 22 | 43 | 187.42 | 3.11 | 0.00 | 0.00 | 0.01 | 14.96 |
| 23 | 43 | -187.42 | -3.11 | 0.00 | 0.00 | -0.01 | -14.96 |
| 23 | 44 | 187.42 | 3.11 | 0.00 | 0.00 | 0.01 | 0.98 |
| 24 | 44 | -187.42 | -3.11 | 0.00 | 0.00 | -0.01 | -0.98 |
| 24 | 45 | 187.42 | 3.11 | 0.00 | 0.00 | 0.01 | -13.00 |
| 25 | 45 | -187.42 | -3.11 | 0.00 | 0.00 | -0.01 | 13.00 |
| 25 | 46 | 187.42 | 3.11 | 0.00 | 0.00 | 0.01 | -26.98 |
| 26 | 46 | -187.42 | -3.11 | 0.00 | 0.00 | -0.01 | 26.98 |
| 26 | 47 | 187.42 | 3.11 | 0.00 | 0.00 | 0.01 | -40.96 |
| 27 | 47 | -187.42 | -3.11 | 0.00 | 0.00 | -0.01 | 40.96 |
| 27 | 48 | 187.42 | 3.11 | 0.00 | 0.00 | 0.01 | -54.93 |
| 28 | 48 | -187.42 | -3.11 | 0.00 | 0.00 | -0.01 | 54.93 |
| 28 | 49 | 187.42 | 3.11 | 0.00 | 0.00 | 0.01 | -68.91 |
| 29 | 49 | -267.08 | -2.95 | 0.00 | 0.00 | -0.01 | -66.67 |
| 29 | 59 | 267.08 | 2.95 | 0.00 | 0.00 | 0.01 | 53.39 |
| 30 | 59 | -267.08 | -2.95 | 0.00 | 0.00 | -0.01 | -53.39 |
| 30 | 60 | 267.08 | 2.95 | 0.00 | 0.00 | 0.01 | 40.12 |
| 31 | 60 | -267.08 | -2.95 | 0.00 | 0.00 | -0.01 | -40.12 |
| 31 | 61 | 267.08 | 2.95 | 0.00 | 0.00 | 0.01 | 26.85 |
| 32 | 61 | -267.08 | -2.95 | 0.00 | 0.00 | -0.01 | -26.85 |
| 32 | 62 | 267.08 | 2.95 | 0.00 | 0.00 | 0.01 | 13.57 |
| 33 | 62 | -267.08 | -2.95 | 0.00 | 0.00 | -0.01 | -13.57 |
| 33 | 63 | 267.08 | 2.95 | 0.00 | 0.00 | 0.01 | 0.30 |
| 34 | 63 | -267.08 | -2.95 | 0.00 | 0.00 | -0.01 | -0.30 |
| 34 | 64 | 267.08 | 2.95 | 0.00 | 0.00 | 0.01 | -12.97 |
| 35 | 64 | -267.08 | -2.95 | 0.00 | 0.00 | -0.01 | 12.97 |
| 35 | 65 | 267.08 | 2.95 | 0.00 | 0.00 | 0.01 | -26.25 |
| 36 | 65 | -267.08 | -2.95 | 0.00 | 0.00 | -0.01 | 26.25 |
| 36 | 66 | 267.08 | 2.95 | 0.00 | 0.00 | 0.01 | -39.52 |
| 37 | 66 | -267.08 | -2.95 | 0.00 | 0.00 | -0.01 | 39.52 |
| 37 | 67 | 267.08 | 2.95 | 0.00 | 0.00 | 0.01 | -52.79 |
| 38 | 67 | -267.08 | -2.95 | 0.00 | 0.00 | -0.01 | 52.79 |
| 38 | 68 | 267.08 | 2.95 | 0.00 | 0.00 | 0.02 | -66.07 |
| 39 | 68 | -348.26 | -3.37 | 0.00 | 0.00 | -0.02 | -72.10 |
| 39 | 78 | 348.26 | 3.37 | 0.00 | 0.00 | 0.01 | 56.92 |
| 40 | 78 | -348.26 | -3.37 | 0.00 | 0.00 | -0.01 | -56.92 |
| 40 | 79 | 348.26 | 3.37 | 0.00 | 0.00 | 0.01 | 41.75 |
| 41 | 79 | -348.26 | -3.37 | 0.00 | 0.00 | -0.01 | -41.75 |
| 41 | 80 | 348.26 | 3.37 | 0.00 | 0.00 | 0.01 | 26.57 |
| 42 | 80 | -348.26 | -3.37 | 0.00 | 0.00 | -0.01 | -26.57 |
| 42 | 81 | 348.26 | 3.37 | 0.00 | 0.00 | 0.00 | 11.39 |
| 43 | 81 | -348.26 | -3.37 | 0.00 | 0.00 | 0.00 | -11.39 |
| 43 | 82 | 348.26 | 3.37 | 0.00 | 0.00 | 0.00 | -3.78 |
| 44 | 82 | -348.26 | -3.37 | 0.00 | 0.00 | 0.00 | 3.78 |
| 44 | 83 | 348.26 | 3.37 | 0.00 | 0.00 | 0.00 | -18.96 |
| 45 | 83 | -348.26 | -3.37 | 0.00 | 0.00 | 0.00 | 18.96 |
| 45 | 84 | 348.26 | 3.37 | 0.00 | 0.00 | -0.01 | -34.13 |
| 46 | 84 | -348.26 | -3.37 | 0.00 | 0.00 | 0.01 | 34.13 |
| 46 | 85 | 348.26 | 3.37 | 0.00 | 0.00 | -0.01 | -49.31 |
| 47 | 85 | -348.26 | -3.37 | 0.00 | 0.00 | 0.01 | 49.31 |
| 47 | 86 | 348.26 | 3.37 | 0.00 | 0.00 | -0.01 | -64.49 |
| 48 | 86 | -348.26 | -3.37 | 0.00 | 0.00 | 0.01 | 64.49 |
| 48 | 87 | 348.26 | 3.37 | 0.00 | 0.00 | -0.01 | -79.66 |
| 49 | 87 | -424.36 | -1.30 | 0.00 | 0.01 | 0.01 | -49.86 |
| 49 | 97 | 424.36 | 1.30 | 0.00 | -0.01 | -0.02 | 44.00 |
| 50 | 97 | -424.36 | -1.30 | 0.00 | 0.01 | 0.02 | -44.00 |
| 50 | 98 | 424.36 | 1.30 | 0.00 | -0.01 | -0.03 | 38.14 |
| 51 | 98 | -424.36 | -1.30 | 0.00 | 0.01 | 0.03 | -38.14 |
| 51 | 99 | 424.36 | 1.30 | 0.00 | -0.01 | -0.04 | 32.28 |
| 52 | 99 | -424.36 | -1.30 | 0.00 | 0.01 | 0.04 | -32.28 |
| 52 | 100 | 424.36 | 1.30 | 0.00 | -0.01 | -0.05 | 26.41 |
| 53 | 100 | -424.36 | -1.30 | 0.00 | 0.01 | 0.05 | -26.41 |
| 53 | 101 | 424.36 | 1.30 | 0.00 | -0.01 | -0.06 | 20.55 |
| 54 | 101 | -424.36 | -1.30 | 0.00 | 0.01 | 0.06 | -20.55 |
| 54 | 102 | 424.36 | 1.30 | 0.00 | -0.01 | -0.07 | 14.69 |
| 55 | 102 | -424.36 | -1.30 | 0.00 | 0.01 | 0.07 | -14.69 |
| 55 | 103 | 424.36 | 1.30 | 0.00 | -0.01 | -0.08 | 8.83 |
| 56 | 103 | -424.36 | -1.30 | 0.00 | 0.01 | 0.08 | -8.83 |
| 56 | 104 | 424.36 | 1.30 | 0.00 | -0.01 | -0.09 | 2.97 |
| 57 | 104 | -424.36 | -1.30 | 0.00 | 0.01 | 0.09 | -2.97 |
| 57 | 105 | 424.36 | 1.30 | 0.00 | -0.01 | -0.10 | -2.89 |
| 58 | 105 | -424.36 | -1.30 | 0.00 | 0.01 | 0.10 | 2.89 |
| 58 | 106 | 424.36 | 1.30 | 0.00 | -0.01 | -0.11 | -8.75 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 59 | 106 | -505.34 | -9.66 | 0.02 | -0.11 | 0.11 | -129.08 |
| 59 | 115 | 505.34 | 9.66 | -0.02 | 0.11 | -0.21 | 85.59 |
| 60 | 115 | -505.34 | -9.66 | 0.02 | -0.11 | 0.21 | -85.59 |
| 60 | 116 | 505.34 | 9.66 | -0.02 | 0.11 | -0.31 | 42.10 |
| 61 | 116 | -505.34 | -9.66 | 0.02 | -0.11 | 0.31 | -42.10 |
| 61 | 117 | 505.34 | 9.66 | -0.02 | 0.11 | -0.41 | -1.39 |
| 62 | 117 | -505.34 | -9.66 | 0.02 | -0.11 | 0.41 | 1.39 |
| 62 | 118 | 505.34 | 9.66 | -0.02 | 0.11 | -0.51 | -44.88 |
| 63 | 118 | -505.34 | -9.66 | 0.02 | -0.11 | 0.51 | 44.88 |
| 63 | 119 | 505.34 | 9.66 | -0.02 | 0.11 | -0.61 | -88.37 |
| 64 | 119 | -505.34 | -9.66 | 0.02 | -0.11 | 0.61 | 88.37 |
| 64 | 120 | 505.34 | 9.66 | -0.02 | 0.11 | -0.71 | -131.85 |
| 65 | 120 | -505.34 | -9.66 | 0.02 | -0.11 | 0.71 | 131.85 |
| 65 | 121 | 505.34 | 9.66 | -0.02 | 0.11 | -0.81 | -175.34 |
| 66 | 121 | -505.34 | -9.66 | 0.02 | -0.11 | 0.81 | 175.34 |
| 66 | 122 | 505.34 | 9.66 | -0.02 | 0.11 | -0.91 | -218.83 |
| 67 | 122 | -505.34 | -9.66 | 0.02 | -0.11 | 0.91 | 218.83 |
| 67 | 123 | 505.34 | 9.66 | -0.02 | 0.11 | -1.01 | -262.32 |
| 68 | 123 | -505.34 | -9.66 | 0.02 | -0.11 | 1.01 | 262.32 |
| 68 | 124 | 505.34 | 9.66 | -0.02 | 0.11 | -1.11 | -305.81 |
| 69 | 124 | -587.54 | 32.56 | -0.03 | 0.11 | 1.11 | 165.90 |
| 69 | 133 | 587.54 | -32.56 | 0.03 | -0.11 | -0.97 | -19.40 |
| 70 | 133 | -587.54 | 32.56 | -0.03 | 0.11 | 0.97 | 19.40 |
| 70 | 134 | 587.54 | -32.56 | 0.03 | -0.11 | -0.83 | 127.11 |
| 71 | 134 | -587.54 | 32.56 | -0.03 | 0.11 | 0.83 | -127.11 |
| 71 | 135 | 587.54 | -32.56 | 0.03 | -0.11 | -0.69 | 273.61 |
| 72 | 135 | -587.54 | 32.56 | -0.03 | 0.11 | 0.69 | -273.61 |
| 72 | 136 | 587.54 | -32.56 | 0.03 | -0.11 | -0.55 | 420.12 |
| 73 | 136 | -587.54 | 32.56 | -0.03 | 0.11 | 0.55 | -420.12 |
| 73 | 137 | 587.54 | -32.56 | 0.03 | -0.11 | -0.41 | 566.62 |
| 74 | 137 | -587.54 | 32.56 | -0.03 | 0.11 | 0.41 | -566.62 |
| 74 | 138 | 587.54 | -32.56 | 0.03 | -0.11 | -0.28 | 713.13 |
| 75 | 138 | -587.54 | 32.56 | -0.03 | 0.11 | 0.28 | -713.13 |
| 75 | 139 | 587.54 | -32.56 | 0.03 | -0.11 | -0.14 | 859.63 |
| 76 | 139 | -587.54 | 32.56 | -0.03 | 0.11 | 0.14 | -859.63 |
| 76 | 140 | 587.54 | -32.56 | 0.03 | -0.11 | 0.00 | 1006.14 |
| 77 | 16 | 0.48 | 72.58 | -0.01 | 0.00 | 0.06 | 747.57 |
| 77 | 17 | -0.48 | -72.58 | 0.01 | 0.00 | -0.03 | -362.90 |
| 78 | 17 | 0.48 | 72.58 | -0.01 | 0.00 | 0.03 | 362.90 |
| 78 | 18 | -0.48 | -72.58 | 0.01 | 0.00 | 0.00 | 0.00 |
| 79 | 33 | -0.26 | 81.08 | 0.00 | 0.00 | -0.03 | 1019.99 |
| 79 | 34 | 0.26 | -81.08 | 0.00 | 0.00 | 0.01 | -405.40 |
| 80 | 34 | -0.26 | 81.08 | 0.00 | 0.00 | -0.01 | 405.40 |
| 80 | 35 | 0.26 | -81.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| 81 | 50 | 0.16 | 79.66 | 0.00 | 0.00 | -0.01 | 2310.14 |
| 81 | 51 | -0.16 | -79.66 | 0.00 | 0.00 | 0.01 | -1991.50 |
| 82 | 51 | 0.16 | 79.66 | 0.00 | 0.00 | -0.01 | 1991.50 |
| 82 | 52 | -0.16 | -79.66 | 0.00 | 0.00 | 0.01 | -1194.90 |
| 83 | 52 | 0.16 | 79.66 | 0.00 | 0.00 | -0.01 | 1194.90 |
| 83 | 53 | -0.16 | -79.66 | 0.00 | 0.00 | 0.00 | -398.30 |
| 84 | 53 | 0.16 | 79.66 | 0.00 | 0.00 | 0.00 | 398.30 |
| 84 | 54 | -0.16 | -79.66 | 0.00 | 0.00 | 0.00 | 0.00 |
| 85 | 69 | -0.42 | 81.18 | 0.00 | 0.00 | -0.02 | 2597.76 |
| 85 | 70 | 0.42 | -81.18 | 0.00 | 0.00 | 0.02 | -2029.50 |
| 86 | 70 | -0.42 | 81.18 | 0.00 | 0.00 | -0.02 | 2029.50 |
| 86 | 71 | 0.42 | -81.18 | 0.00 | 0.00 | 0.01 | -1217.69 |
| 87 | 71 | -0.42 | 81.18 | 0.00 | 0.00 | -0.01 | 1217.70 |
| 87 | 72 | 0.42 | -81.18 | 0.00 | 0.00 | 0.01 | -405.90 |
| 88 | 72 | -0.42 | 81.18 | 0.00 | 0.00 | -0.01 | 405.89 |
| 88 | 73 | 0.42 | -81.18 | 0.00 | 0.00 | 0.00 | 0.00 |
| 89 | 88 | 2.07 | 76.10 | 0.00 | 0.00 | -0.04 | 1978.60 |
| 89 | 89 | -2.07 | -76.10 | 0.00 | 0.00 | 0.04 | -1902.50 |
| 90 | 89 | 2.07 | 76.10 | 0.00 | 0.00 | -0.04 | 1902.50 |
| 90 | 90 | -2.07 | -76.10 | 0.00 | 0.00 | 0.03 | -1141.50 |
| 91 | 90 | 2.07 | 76.10 | 0.00 | 0.00 | -0.03 | 1141.50 |
| 91 | 91 | -2.07 | -76.10 | 0.00 | 0.00 | 0.01 | -380.50 |
| 92 | 91 | 2.07 | 76.10 | 0.00 | 0.00 | -0.01 | 380.50 |
| 92 | 92 | -2.07 | -76.10 | 0.00 | 0.00 | 0.01 | 0.00 |
| 93 | 107 | -8.36 | 80.98 | 0.02 | 0.00 | -0.24 | 1295.68 |
| 93 | 108 | 8.36 | -80.98 | -0.02 | 0.00 | 0.22 | -1214.70 |
| 94 | 108 | -8.36 | 80.98 | 0.02 | 0.00 | -0.22 | 1214.70 |
| 94 | 109 | 8.36 | -80.98 | -0.02 | 0.00 | 0.02 | -404.90 |
| 95 | 109 | -8.36 | 80.98 | 0.02 | 0.00 | -0.02 | 404.90 |
| 95 | 110 | 8.36 | -80.98 | -0.02 | 0.00 | -0.08 | 0.00 |
| 96 | 125 | 42.22 | 82.20 | -0.05 | 0.00 | 0.72 | 1315.20 |
| 96 | 126 | -42.22 | -82.20 | 0.05 | 0.00 | -0.67 | -1233.00 |
| 97 | 126 | 42.22 | 82.20 | -0.05 | 0.00 | 0.67 | 1233.00 |
| 97 | 127 | -42.22 | -82.20 | 0.05 | 0.00 | -0.14 | -411.00 |
| 98 | 127 | 42.22 | 82.20 | -0.05 | 0.00 | 0.14 | 411.00 |
| 98 | 128 | -42.22 | -82.20 | 0.05 | 0.00 | 0.13 | 0.00 |
| 99 | 2 | -1.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | 1.67 | -16.88 | 0.00 | 0.00 | 0.00 | 28.73 |
| 100 | 4 | -1.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | 1.67 | -16.88 | 0.00 | 0.00 | -0.01 | 28.73 |
| 101 | 19 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -0.24 | -36.29 | 0.00 | 0.00 | 0.00 | 61.77 |
| 102 | 21 | 0.24 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -0.24 | -36.29 | 0.01 | 0.00 | 0.01 | 61.77 |
| 103 | 36 | -0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | 0.13 | -40.54 | 0.00 | 0.00 | 0.00 | 69.00 |
| 104 | 38 | -0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | 0.13 | -40.54 | 0.00 | 0.00 | 0.00 | 69.00 |
| 105 | 55 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -0.08 | -39.83 | 0.00 | 0.00 | 0.00 | 67.79 |
| 106 | 57 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -0.08 | -39.83 | 0.00 | 0.00 | 0.00 | 67.79 |
| 107 | 74 | -0.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | 0.21 | -40.59 | 0.00 | 0.00 | 0.00 | 69.08 |
| 108 | 76 | -0.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | 0.21 | -40.59 | 0.00 | 0.00 | 0.00 | 69.08 |
| 109 | 93 | 1.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -1.04 | -38.05 | 0.00 | 0.00 | 0.00 | 64.76 |
| 110 | 95 | 1.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -1.03 | -38.05 | 0.00 | 0.00 | 0.00 | 64.76 |
| 111 | 111 | -4.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | 4.20 | -40.49 | 0.00 | 0.00 | 0.00 | 68.91 |
| 112 | 113 | -4.16 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | 4.16 | -40.49 | -0.02 | 0.00 | -0.03 | 68.91 |
| 113 | 129 | 21.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -21.14 | -41.10 | 0.00 | 0.00 | 0.00 | 69.95 |
| 114 | 131 | 21.08 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -21.08 | -41.10 | 0.05 | 0.00 | 0.09 | 69.95 |
| 115 | 141 | -16.28 | -307.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | 16.28 | 293.77 | 0.00 | 0.00 | 0.00 | -503.07 |
| 116 | 143 | -16.27 | -307.34 | 0.03 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | 16.27 | 293.77 | -0.03 | 0.00 | -0.05 | -503.07 |
| 117 | 6 | -3.33 | 33.76 | 0.00 | 0.00 | 0.00 | 33.76 |
| 117 | 7 | 3.33 | -33.76 | 0.00 | 0.00 | 0.00 | 0.00 |
| 118 | 145 | -32.56 | -587.54 | 0.03 | 0.00 | 0.02 | -587.54 |
| 118 | 146 | 32.56 | 587.54 | -0.03 | 0.00 | -0.06 | 0.00 |
| 119 | 3 | 0.00 | -1.67 | 16.88 | -28.73 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | 1.67 | -16.88 | 28.73 | -71.74 | -7.08 |
| 120 | 1 | 0.00 | 1.67 | -16.88 | 28.73 | 71.74 | 7.07 |
| 120 | 5 | 0.00 | -1.67 | 16.88 | -28.73 | 0.00 | 0.01 |
| 121 | 20 | 0.00 | 0.24 | 36.28 | -61.77 | 0.01 | 0.00 |
| 121 | 15 | 0.00 | -0.24 | -36.28 | 61.77 | -67.12 | 0.45 |
| 122 | 15 | 0.01 | -0.24 | -36.28 | 61.77 | 67.12 | -0.43 |
| 122 | 22 | -0.01 | 0.24 | 36.28 | -61.77 | 0.00 | -0.01 |
| 123 | 37 | 0.00 | -0.13 | 40.54 | -69.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | 0.13 | -40.54 | 69.00 | -75.00 | -0.24 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 124 | 32 | 0.00 | 0.13 | -40.54 | 69.00 | 74.99 | 0.23 |
| 124 | 39 | 0.00 | -0.13 | 40.54 | -69.00 | -0.01 | 0.00 |
| 125 | 56 | 0.00 | 0.08 | 39.82 | -67.79 | 0.01 | 0.00 |
| 125 | 49 | 0.00 | -0.08 | -39.82 | 67.79 | -73.69 | 0.15 |
| 126 | 49 | 0.00 | -0.08 | -39.81 | 67.79 | 73.68 | -0.14 |
| 126 | 58 | 0.00 | 0.08 | 39.81 | -67.79 | 0.01 | 0.00 |
| 127 | 75 | 0.00 | -0.21 | 40.59 | -69.08 | 0.01 | 0.00 |
| 127 | 68 | 0.00 | 0.21 | -40.59 | 69.08 | -75.10 | -0.39 |
| 128 | 68 | 0.00 | 0.21 | -40.60 | 69.08 | 75.09 | 0.39 |
| 128 | 77 | 0.00 | -0.21 | 40.60 | -69.08 | -0.02 | 0.00 |
| 129 | 94 | 0.00 | 1.04 | 38.04 | -64.76 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | -1.04 | -38.04 | 64.76 | -70.39 | 1.92 |
| 130 | 87 | 0.00 | -1.03 | -38.04 | 64.76 | 70.39 | -1.91 |
| 130 | 96 | 0.00 | 1.03 | 38.04 | -64.76 | 0.00 | 0.00 |
| 131 | 112 | 0.00 | -4.20 | 40.49 | -68.91 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | 4.20 | -40.49 | 68.91 | -74.91 | -7.78 |
| 132 | 106 | -0.02 | 4.16 | -40.49 | 68.91 | 74.91 | 7.66 |
| 132 | 114 | 0.02 | -4.16 | 40.49 | -68.91 | 0.00 | 0.03 |
| 133 | 130 | 0.00 | 21.14 | 41.10 | -69.95 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | -21.14 | -41.10 | 69.95 | -76.03 | 39.12 |
| 134 | 124 | 0.05 | -21.08 | -41.10 | 69.95 | 76.03 | -38.90 |
| 134 | 132 | -0.05 | 21.08 | 41.10 | -69.95 | -0.01 | -0.09 |
| 135 | 142 | 0.00 | -16.28 | -293.77 | 503.07 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | 16.28 | 293.77 | -503.07 | 1248.52 | -69.21 |
| 136 | 140 | -0.03 | 16.27 | 293.77 | -503.07 | -1248.52 | 69.10 |
| 136 | 144 | 0.03 | -16.27 | -293.77 | 503.07 | 0.00 | 0.05 |
| 137 | 2 | 0.00 | 1.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | -1.67 | 16.88 | 0.00 | 71.57 | 7.08 |
| 138 | 7 | 0.00 | -1.67 | 16.88 | 0.00 | -71.57 | -7.08 |
| 138 | 4 | 0.00 | 1.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -0.24 | 0.01 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 0.24 | 36.28 | 0.00 | 66.79 | -0.45 |
| 140 | 18 | -0.01 | 0.24 | 36.30 | 0.00 | -66.77 | 0.45 |
| 140 | 21 | 0.01 | -0.24 | -0.01 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | -0.13 | 40.54 | 0.00 | 74.59 | 0.24 |
| 142 | 35 | 0.00 | -0.13 | 40.53 | 0.00 | -74.60 | -0.24 |
| 142 | 38 | 0.00 | 0.13 | 0.01 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -0.08 | 0.07 | 0.00 | 0.14 | 0.00 |
| 143 | 54 | 0.00 | 0.08 | 39.76 | 0.00 | 73.29 | -0.15 |
| 144 | 54 | 0.00 | 0.08 | 39.82 | 0.00 | -73.25 | 0.14 |
| 144 | 57 | 0.00 | -0.08 | 0.01 | 0.00 | 0.04 | 0.00 |
| 145 | 74 | 0.00 | 0.21 | 0.01 | 0.00 | -0.18 | 0.00 |
| 145 | 73 | 0.00 | -0.21 | 40.58 | 0.00 | 74.22 | 0.39 |
| 146 | 73 | 0.00 | -0.21 | 40.51 | 0.00 | -74.46 | -0.39 |
| 146 | 76 | 0.00 | 0.21 | 0.08 | 0.00 | 0.22 | 0.00 |
| 147 | 93 | 0.00 | -1.04 | 0.06 | 0.00 | 0.08 | 0.00 |
| 147 | 92 | 0.00 | 1.04 | 37.99 | 0.00 | 69.96 | -1.92 |
| 148 | 92 | 0.00 | 1.03 | 38.06 | 0.00 | -70.06 | 1.91 |
| 148 | 95 | 0.00 | -1.03 | -0.01 | 0.00 | -0.05 | 0.00 |
| 149 | 111 | 0.00 | 4.20 | 0.02 | 0.00 | -0.02 | 0.00 |
| 149 | 110 | 0.00 | -4.20 | 40.47 | 0.00 | 74.45 | 7.78 |
| 150 | 110 | 0.02 | -4.16 | 40.52 | 0.00 | -74.49 | -7.69 |
| 150 | 113 | -0.02 | 4.16 | -0.03 | 0.00 | 0.01 | 0.00 |
| 151 | 129 | 0.00 | -21.14 | 0.05 | 0.00 | -0.01 | 0.00 |
| 151 | 128 | 0.00 | 21.14 | 41.05 | 0.00 | 75.65 | -39.12 |
| 152 | 128 | -0.05 | 21.08 | 41.12 | 0.00 | -75.60 | 38.99 |
| 152 | 131 | 0.05 | -21.08 | -0.02 | 0.00 | 0.02 | 0.00 |
| 153 | 141 | 0.00 | 16.28 | 307.34 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | -16.28 | -293.77 | 0.00 | -1248.66 | 69.21 |
| 154 | 146 | 0.03 | -16.27 | -293.77 | 0.00 | 1248.66 | -69.16 |
| 154 | 143 | -0.03 | 16.27 | 307.34 | 0.00 | 0.00 | 0.00 |



HIPOTESIS 30

hipo 30 F. Teflon -

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 33.76 | 3.33 | 0.00 | 0.01 | 0.00 | 57.46 |
| 1 | 8 | -33.76 | -3.33 | 0.00 | -0.01 | 0.02 | -42.47 |
| 2 | 8 | 33.76 | 3.33 | 0.00 | 0.01 | -0.02 | 42.47 |
| 2 | 9 | -33.76 | -3.33 | 0.00 | -0.01 | 0.03 | -27.47 |
| 3 | 9 | 33.76 | 3.33 | 0.00 | 0.01 | -0.03 | 27.47 |
| 3 | 10 | -33.76 | -3.33 | 0.00 | -0.01 | 0.05 | -12.48 |
| 4 | 10 | 33.76 | 3.33 | 0.00 | 0.01 | -0.05 | 12.48 |
| 4 | 11 | -33.76 | -3.33 | 0.00 | -0.01 | 0.06 | 2.51 |
| 5 | 11 | 33.76 | 3.33 | 0.00 | 0.01 | -0.06 | -2.51 |
| 5 | 12 | -33.76 | -3.33 | 0.00 | -0.01 | 0.08 | 17.50 |
| 6 | 12 | 33.76 | 3.33 | 0.00 | 0.01 | -0.08 | -17.50 |
| 6 | 13 | -33.76 | -3.33 | 0.00 | -0.01 | 0.09 | 32.50 |
| 7 | 13 | 33.76 | 3.33 | 0.00 | 0.01 | -0.09 | -32.50 |
| 7 | 14 | -33.76 | -3.33 | 0.00 | -0.01 | 0.11 | 47.49 |
| 8 | 14 | 33.76 | 3.33 | 0.00 | 0.01 | -0.11 | -47.49 |
| 8 | 15 | -33.76 | -3.33 | 0.00 | -0.01 | 0.12 | 62.48 |
| 9 | 15 | 106.34 | 2.85 | 0.00 | -0.01 | -0.12 | 61.05 |
| 9 | 23 | -106.34 | -2.85 | 0.00 | 0.01 | 0.11 | -48.23 |
| 10 | 23 | 106.34 | 2.85 | 0.00 | -0.01 | -0.11 | 48.23 |
| 10 | 24 | -106.34 | -2.85 | 0.00 | 0.01 | 0.10 | -35.41 |
| 11 | 24 | 106.34 | 2.85 | 0.00 | -0.01 | -0.10 | 35.41 |
| 11 | 25 | -106.34 | -2.85 | 0.00 | 0.01 | 0.09 | -22.60 |
| 12 | 25 | 106.34 | 2.85 | 0.00 | -0.01 | -0.09 | 22.60 |
| 12 | 26 | -106.34 | -2.85 | 0.00 | 0.01 | 0.07 | -9.78 |
| 13 | 26 | 106.34 | 2.85 | 0.00 | -0.01 | -0.07 | 9.78 |
| 13 | 27 | -106.34 | -2.85 | 0.00 | 0.01 | 0.06 | 3.04 |
| 14 | 27 | 106.34 | 2.85 | 0.00 | -0.01 | -0.06 | -3.04 |
| 14 | 28 | -106.34 | -2.85 | 0.00 | 0.01 | 0.05 | 15.86 |
| 15 | 28 | 106.34 | 2.85 | 0.00 | -0.01 | -0.05 | -15.86 |
| 15 | 29 | -106.34 | -2.85 | 0.00 | 0.01 | 0.04 | 28.67 |
| 16 | 29 | 106.34 | 2.85 | 0.00 | -0.01 | -0.04 | -28.67 |
| 16 | 30 | -106.34 | -2.85 | 0.00 | 0.01 | 0.02 | 41.49 |
| 17 | 30 | 106.34 | 2.85 | 0.00 | -0.01 | -0.02 | -41.49 |
| 17 | 31 | -106.34 | -2.85 | 0.00 | 0.01 | 0.01 | 54.31 |
| 18 | 31 | 106.34 | 2.85 | 0.00 | -0.01 | -0.01 | -54.31 |
| 18 | 32 | -106.34 | -2.85 | 0.00 | 0.01 | 0.00 | 67.13 |
| 19 | 32 | 187.42 | 3.11 | 0.00 | 0.00 | 0.00 | 70.87 |
| 19 | 40 | -187.42 | -3.11 | 0.00 | 0.00 | 0.00 | -56.89 |
| 20 | 40 | 187.42 | 3.11 | 0.00 | 0.00 | 0.00 | 56.89 |
| 20 | 41 | -187.42 | -3.11 | 0.00 | 0.00 | 0.00 | -42.91 |
| 21 | 41 | 187.42 | 3.11 | 0.00 | 0.00 | 0.00 | 42.91 |
| 21 | 42 | -187.42 | -3.11 | 0.00 | 0.00 | 0.00 | -28.94 |
| 22 | 42 | 187.42 | 3.11 | 0.00 | 0.00 | 0.00 | 28.94 |
| 22 | 43 | -187.42 | -3.11 | 0.00 | 0.00 | -0.01 | -14.96 |
| 23 | 43 | 187.42 | 3.11 | 0.00 | 0.00 | 0.01 | 14.96 |
| 23 | 44 | -187.42 | -3.11 | 0.00 | 0.00 | -0.01 | -0.98 |
| 24 | 44 | 187.42 | 3.11 | 0.00 | 0.00 | 0.01 | 0.98 |
| 24 | 45 | -187.42 | -3.11 | 0.00 | 0.00 | -0.01 | 13.00 |
| 25 | 45 | 187.42 | 3.11 | 0.00 | 0.00 | 0.01 | -13.00 |
| 25 | 46 | -187.42 | -3.11 | 0.00 | 0.00 | -0.01 | 26.98 |
| 26 | 46 | 187.42 | 3.11 | 0.00 | 0.00 | 0.01 | -26.98 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 26 | 47 | -187.42 | -3.11 | 0.00 | 0.00 | -0.01 | 40.96 |
| 27 | 47 | 187.42 | 3.11 | 0.00 | 0.00 | 0.01 | -40.96 |
| 27 | 48 | -187.42 | -3.11 | 0.00 | 0.00 | -0.01 | 54.93 |
| 28 | 48 | 187.42 | 3.11 | 0.00 | 0.00 | 0.01 | -54.93 |
| 28 | 49 | -187.42 | -3.11 | 0.00 | 0.00 | -0.01 | 68.91 |
| 29 | 49 | 267.08 | 2.95 | 0.00 | 0.00 | 0.01 | 66.67 |
| 29 | 59 | -267.08 | -2.95 | 0.00 | 0.00 | -0.01 | -53.39 |
| 30 | 59 | 267.08 | 2.95 | 0.00 | 0.00 | 0.01 | 53.39 |
| 30 | 60 | -267.08 | -2.95 | 0.00 | 0.00 | -0.01 | -40.12 |
| 31 | 60 | 267.08 | 2.95 | 0.00 | 0.00 | 0.01 | 40.12 |
| 31 | 61 | -267.08 | -2.95 | 0.00 | 0.00 | -0.01 | -26.85 |
| 32 | 61 | 267.08 | 2.95 | 0.00 | 0.00 | 0.01 | 26.85 |
| 32 | 62 | -267.08 | -2.95 | 0.00 | 0.00 | -0.01 | -13.57 |
| 33 | 62 | 267.08 | 2.95 | 0.00 | 0.00 | 0.01 | 13.57 |
| 33 | 63 | -267.08 | -2.95 | 0.00 | 0.00 | -0.01 | -0.30 |
| 34 | 63 | 267.08 | 2.95 | 0.00 | 0.00 | 0.01 | 0.30 |
| 34 | 64 | -267.08 | -2.95 | 0.00 | 0.00 | -0.01 | 12.97 |
| 35 | 64 | 267.08 | 2.95 | 0.00 | 0.00 | 0.01 | -12.97 |
| 35 | 65 | -267.08 | -2.95 | 0.00 | 0.00 | -0.01 | 26.25 |
| 36 | 65 | 267.08 | 2.95 | 0.00 | 0.00 | 0.01 | -26.25 |
| 36 | 66 | -267.08 | -2.95 | 0.00 | 0.00 | -0.01 | 39.52 |
| 37 | 66 | 267.08 | 2.95 | 0.00 | 0.00 | 0.01 | -39.52 |
| 37 | 67 | -267.08 | -2.95 | 0.00 | 0.00 | -0.01 | 52.79 |
| 38 | 67 | 267.08 | 2.95 | 0.00 | 0.00 | 0.01 | -52.79 |
| 38 | 68 | -267.08 | -2.95 | 0.00 | 0.00 | -0.02 | 66.07 |
| 39 | 68 | 348.26 | 3.37 | 0.00 | 0.00 | 0.02 | 72.10 |
| 39 | 78 | -348.26 | -3.37 | 0.00 | 0.00 | -0.01 | -56.92 |
| 40 | 78 | 348.26 | 3.37 | 0.00 | 0.00 | 0.01 | 56.92 |
| 40 | 79 | -348.26 | -3.37 | 0.00 | 0.00 | -0.01 | -41.75 |
| 41 | 79 | 348.26 | 3.37 | 0.00 | 0.00 | 0.01 | 41.75 |
| 41 | 80 | -348.26 | -3.37 | 0.00 | 0.00 | -0.01 | -26.57 |
| 42 | 80 | 348.26 | 3.37 | 0.00 | 0.00 | 0.01 | 26.57 |
| 42 | 81 | -348.26 | -3.37 | 0.00 | 0.00 | 0.00 | -11.39 |
| 43 | 81 | 348.26 | 3.37 | 0.00 | 0.00 | 0.00 | 11.39 |
| 43 | 82 | -348.26 | -3.37 | 0.00 | 0.00 | 0.00 | 3.78 |
| 44 | 82 | 348.26 | 3.37 | 0.00 | 0.00 | 0.00 | -3.78 |
| 44 | 83 | -348.26 | -3.37 | 0.00 | 0.00 | 0.00 | 18.96 |
| 45 | 83 | 348.26 | 3.37 | 0.00 | 0.00 | 0.00 | -18.96 |
| 45 | 84 | -348.26 | -3.37 | 0.00 | 0.00 | 0.01 | 34.13 |
| 46 | 84 | 348.26 | 3.37 | 0.00 | 0.00 | -0.01 | -34.13 |
| 46 | 85 | -348.26 | -3.37 | 0.00 | 0.00 | 0.01 | 49.31 |
| 47 | 85 | 348.26 | 3.37 | 0.00 | 0.00 | -0.01 | -49.31 |
| 47 | 86 | -348.26 | -3.37 | 0.00 | 0.00 | 0.01 | 64.49 |
| 48 | 86 | 348.26 | 3.37 | 0.00 | 0.00 | -0.01 | -64.49 |
| 48 | 87 | -348.26 | -3.37 | 0.00 | 0.00 | 0.01 | 79.66 |
| 49 | 87 | 424.36 | 1.30 | 0.00 | -0.01 | -0.01 | 49.86 |
| 49 | 97 | -424.36 | -1.30 | 0.00 | 0.01 | 0.02 | -44.00 |
| 50 | 97 | 424.36 | 1.30 | 0.00 | -0.01 | -0.02 | 44.00 |
| 50 | 98 | -424.36 | -1.30 | 0.00 | 0.01 | 0.03 | -38.14 |
| 51 | 98 | 424.36 | 1.30 | 0.00 | -0.01 | -0.03 | 38.14 |
| 51 | 99 | -424.36 | -1.30 | 0.00 | 0.01 | 0.04 | -32.28 |
| 52 | 99 | 424.36 | 1.30 | 0.00 | -0.01 | -0.04 | 32.28 |
| 52 | 100 | -424.36 | -1.30 | 0.00 | 0.01 | 0.05 | -26.41 |
| 53 | 100 | 424.36 | 1.30 | 0.00 | -0.01 | -0.05 | 26.41 |
| 53 | 101 | -424.36 | -1.30 | 0.00 | 0.01 | 0.06 | -20.55 |
| 54 | 101 | 424.36 | 1.30 | 0.00 | -0.01 | -0.06 | 20.55 |
| 54 | 102 | -424.36 | -1.30 | 0.00 | 0.01 | 0.07 | -14.69 |
| 55 | 102 | 424.36 | 1.30 | 0.00 | -0.01 | -0.07 | 14.69 |
| 55 | 103 | -424.36 | -1.30 | 0.00 | 0.01 | 0.08 | -8.83 |
| 56 | 103 | 424.36 | 1.30 | 0.00 | -0.01 | -0.08 | 8.83 |
| 56 | 104 | -424.36 | -1.30 | 0.00 | 0.01 | 0.09 | -2.97 |
| 57 | 104 | 424.36 | 1.30 | 0.00 | -0.01 | -0.09 | 2.97 |
| 57 | 105 | -424.36 | -1.30 | 0.00 | 0.01 | 0.10 | 2.89 |
| 58 | 105 | 424.36 | 1.30 | 0.00 | -0.01 | -0.10 | -2.89 |
| 58 | 106 | -424.36 | -1.30 | 0.00 | 0.01 | 0.11 | 8.75 |
| 59 | 106 | 505.34 | 9.66 | -0.02 | 0.11 | -0.11 | 129.08 |
| 59 | 115 | -505.34 | -9.66 | 0.02 | -0.11 | 0.21 | -85.59 |
| 60 | 115 | 505.34 | 9.66 | -0.02 | 0.11 | -0.21 | 85.59 |
| 60 | 116 | -505.34 | -9.66 | 0.02 | -0.11 | 0.31 | -42.10 |
| 61 | 116 | 505.34 | 9.66 | -0.02 | 0.11 | -0.31 | 42.10 |
| 61 | 117 | -505.34 | -9.66 | 0.02 | -0.11 | 0.41 | 1.39 |
| 62 | 117 | 505.34 | 9.66 | -0.02 | 0.11 | -0.41 | -1.39 |
| 62 | 118 | -505.34 | -9.66 | 0.02 | -0.11 | 0.51 | 44.88 |
| 63 | 118 | 505.34 | 9.66 | -0.02 | 0.11 | -0.51 | -44.88 |
| 63 | 119 | -505.34 | -9.66 | 0.02 | -0.11 | 0.61 | 88.37 |
| 64 | 119 | 505.34 | 9.66 | -0.02 | 0.11 | -0.61 | -88.37 |
| 64 | 120 | -505.34 | -9.66 | 0.02 | -0.11 | 0.71 | 131.85 |
| 65 | 120 | 505.34 | 9.66 | -0.02 | 0.11 | -0.71 | -131.85 |
| 65 | 121 | -505.34 | -9.66 | 0.02 | -0.11 | 0.81 | 175.34 |
| 66 | 121 | 505.34 | 9.66 | -0.02 | 0.11 | -0.81 | -175.34 |
| 66 | 122 | -505.34 | -9.66 | 0.02 | -0.11 | 0.91 | 218.83 |
| 67 | 122 | 505.34 | 9.66 | -0.02 | 0.11 | -0.91 | -218.83 |
| 67 | 123 | -505.34 | -9.66 | 0.02 | -0.11 | 1.01 | 262.32 |
| 68 | 123 | 505.34 | 9.66 | -0.02 | 0.11 | -1.01 | -262.32 |
| 68 | 124 | -505.34 | -9.66 | 0.02 | -0.11 | 1.11 | 305.81 |
| 69 | 124 | 587.54 | -32.56 | 0.03 | -0.11 | -1.11 | -165.90 |
| 69 | 133 | -587.54 | 32.56 | -0.03 | 0.11 | 0.97 | 19.40 |
| 70 | 133 | 587.54 | -32.56 | 0.03 | -0.11 | -0.97 | -19.40 |
| 70 | 134 | -587.54 | 32.56 | -0.03 | 0.11 | 0.83 | -127.11 |
| 71 | 134 | 587.54 | -32.56 | 0.03 | -0.11 | -0.83 | 127.11 |
| 71 | 135 | -587.54 | 32.56 | -0.03 | 0.11 | 0.69 | -273.61 |
| 72 | 135 | 587.54 | -32.56 | 0.03 | -0.11 | -0.69 | 273.61 |
| 72 | 136 | -587.54 | 32.56 | -0.03 | 0.11 | 0.55 | -420.12 |
| 73 | 136 | 587.54 | -32.56 | 0.03 | -0.11 | -0.55 | 420.12 |
| 73 | 137 | -587.54 | 32.56 | -0.03 | 0.11 | 0.41 | -566.62 |
| 74 | 137 | 587.54 | -32.56 | 0.03 | -0.11 | -0.41 | 566.62 |
| 74 | 138 | -587.54 | 32.56 | -0.03 | 0.11 | 0.28 | -713.13 |
| 75 | 138 | 587.54 | -32.56 | 0.03 | -0.11 | -0.28 | 713.13 |
| 75 | 139 | -587.54 | 32.56 | -0.03 | 0.11 | 0.14 | -859.63 |
| 76 | 139 | 587.54 | -32.56 | 0.03 | -0.11 | -0.14 | 859.63 |
| 76 | 140 | -587.54 | 32.56 | -0.03 | 0.11 | 0.00 | -1006.14 |
| 77 | 16 | -0.48 | -72.58 | 0.01 | 0.00 | -0.06 | -747.57 |
| 77 | 17 | 0.48 | 72.58 | -0.01 | 0.00 | 0.03 | 362.90 |
| 78 | 17 | -0.48 | -72.58 | 0.01 | 0.00 | -0.03 | -362.90 |
| 78 | 18 | 0.48 | 72.58 | -0.01 | 0.00 | 0.00 | 0.00 |
| 79 | 33 | 0.26 | -81.08 | 0.00 | 0.00 | 0.03 | -1019.99 |
| 79 | 34 | -0.26 | 81.08 | 0.00 | 0.00 | -0.01 | 405.40 |
| 80 | 34 | 0.26 | -81.08 | 0.00 | 0.00 | 0.01 | -405.40 |
| 80 | 35 | -0.26 | 81.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| 81 | 50 | -0.16 | -79.66 | 0.00 | 0.00 | 0.01 | -2310.14 |
| 81 | 51 | 0.16 | 79.66 | 0.00 | 0.00 | -0.01 | 1991.50 |
| 82 | 51 | -0.16 | -79.66 | 0.00 | 0.00 | 0.01 | -1991.50 |
| 82 | 52 | 0.16 | 79.66 | 0.00 | 0.00 | -0.01 | 1194.90 |
| 83 | 52 | -0.16 | -79.66 | 0.00 | 0.00 | 0.01 | -1194.90 |
| 83 | 53 | 0.16 | 79.66 | 0.00 | 0.00 | 0.00 | 398.30 |
| 84 | 53 | -0.16 | -79.66 | 0.00 | 0.00 | 0.00 | -398.30 |
| 84 | 54 | 0.16 | 79.66 | 0.00 | 0.00 | 0.00 | 0.00 |
| 85 | 69 | 0.42 | -81.18 | 0.00 | 0.00 | 0.02 | -2597.76 |
| 85 | 70 | -0.42 | 81.18 | 0.00 | 0.00 | -0.02 | 2029.50 |
| 86 | 70 | 0.42 | -81.18 | 0.00 | 0.00 | 0.02 | -2029.50 |
| 86 | 71 | -0.42 | 81.18 | 0.00 | 0.00 | -0.01 | 1217.69 |
| 87 | 71 | 0.42 | -81.18 | 0.00 | 0.00 | 0.01 | -1217.70 |
| 87 | 72 | -0.42 | 81.18 | 0.00 | 0.00 | -0.01 | 405.90 |
| 88 | 72 | 0.42 | -81.18 | 0.00 | 0.00 | 0.01 | -405.89 |
| 88 | 73 | -0.42 | 81.18 | 0.00 | 0.00 | 0.00 | 0.00 |
| 89 | 88 | -2.07 | -76.10 | 0.00 | 0.00 | 0.04 | -1978.60 |
| 89 | 89 | 2.07 | 76.10 | 0.00 | 0.00 | -0.04 | 1902.50 |
| 90 | 89 | -2.07 | -76.10 | 0.00 | 0.00 | 0.04 | -1902.50 |
| 90 | 90 | 2.07 | 76.10 | 0.00 | 0.00 | -0.03 | 1141.50 |
| 91 | 90 | -2.07 | -76.10 | 0.00 | 0.00 | 0.03 | -1141.50 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 91 | 91 | 2.07 | 76.10 | 0.00 | 0.00 | -0.01 | 380.50 |
| 92 | 91 | -2.07 | -76.10 | 0.00 | 0.00 | 0.01 | -380.50 |
| 92 | 92 | 2.07 | 76.10 | 0.00 | 0.00 | -0.01 | 0.00 |
| 93 | 107 | 8.36 | -80.98 | -0.02 | 0.00 | 0.24 | -1295.68 |
| 93 | 108 | -8.36 | 80.98 | 0.02 | 0.00 | -0.22 | 1214.70 |
| 94 | 108 | 8.36 | -80.98 | -0.02 | 0.00 | 0.22 | -1214.70 |
| 94 | 109 | -8.36 | 80.98 | 0.02 | 0.00 | -0.02 | 404.90 |
| 95 | 109 | 8.36 | -80.98 | -0.02 | 0.00 | 0.02 | -404.90 |
| 95 | 110 | -8.36 | 80.98 | 0.02 | 0.00 | 0.08 | 0.00 |
| 96 | 125 | -42.22 | -82.20 | 0.05 | 0.00 | -0.72 | -1315.20 |
| 96 | 126 | 42.22 | 82.20 | -0.05 | 0.00 | 0.67 | 1233.00 |
| 97 | 126 | -42.22 | -82.20 | 0.05 | 0.00 | -0.67 | -1233.00 |
| 97 | 127 | 42.22 | 82.20 | -0.05 | 0.00 | 0.14 | 411.00 |
| 98 | 127 | -42.22 | -82.20 | 0.05 | 0.00 | -0.14 | -411.00 |
| 98 | 128 | 42.22 | 82.20 | -0.05 | 0.00 | -0.13 | 0.00 |
| 99 | 2 | 1.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -1.67 | 16.88 | 0.00 | 0.00 | 0.00 | -28.73 |
| 100 | 4 | 1.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -1.67 | 16.88 | 0.00 | 0.00 | 0.01 | -28.73 |
| 101 | 19 | -0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | 0.24 | 36.29 | 0.00 | 0.00 | 0.00 | -61.77 |
| 102 | 21 | -0.24 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | 0.24 | 36.29 | -0.01 | 0.00 | -0.01 | -61.77 |
| 103 | 36 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -0.13 | 40.54 | 0.00 | 0.00 | 0.00 | -69.00 |
| 104 | 38 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -0.13 | 40.54 | 0.00 | 0.00 | 0.00 | -69.00 |
| 105 | 55 | -0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | 0.08 | 39.83 | 0.00 | 0.00 | 0.00 | -67.79 |
| 106 | 57 | -0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | 0.08 | 39.83 | 0.00 | 0.00 | 0.00 | -67.79 |
| 107 | 74 | 0.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -0.21 | 40.59 | 0.00 | 0.00 | 0.00 | -69.08 |
| 108 | 76 | 0.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -0.21 | 40.59 | 0.00 | 0.00 | 0.00 | -69.08 |
| 109 | 93 | -1.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | 1.04 | 38.05 | 0.00 | 0.00 | 0.00 | -64.76 |
| 110 | 95 | -1.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | 1.03 | 38.05 | 0.00 | 0.00 | 0.00 | -64.76 |
| 111 | 111 | 4.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -4.20 | 40.49 | 0.00 | 0.00 | 0.00 | -68.91 |
| 112 | 113 | 4.16 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -4.16 | 40.49 | 0.02 | 0.00 | 0.03 | -68.91 |
| 113 | 129 | -21.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | 21.14 | 41.10 | 0.00 | 0.00 | 0.00 | -69.95 |
| 114 | 131 | -21.08 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | 21.08 | 41.10 | -0.05 | 0.00 | -0.09 | -69.95 |
| 115 | 141 | 16.28 | 307.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -16.28 | -293.77 | 0.00 | 0.00 | 0.00 | 503.07 |
| 116 | 143 | 16.27 | 307.34 | -0.03 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -16.27 | -293.77 | 0.03 | 0.00 | 0.05 | 503.07 |
| 117 | 6 | 3.33 | -33.76 | 0.00 | 0.00 | 0.00 | -33.76 |
| 117 | 7 | -3.33 | 33.76 | 0.00 | 0.00 | 0.00 | 0.00 |
| 118 | 145 | 32.56 | 587.54 | -0.03 | 0.00 | -0.02 | 587.54 |
| 118 | 146 | -32.56 | -587.54 | 0.03 | 0.00 | 0.06 | 0.00 |
| 119 | 3 | 0.00 | 1.67 | -16.88 | 28.73 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -1.67 | 16.88 | -28.73 | 71.74 | 7.08 |
| 120 | 1 | 0.00 | -1.67 | 16.88 | -28.73 | -71.74 | -7.07 |
| 120 | 5 | 0.00 | 1.67 | -16.88 | 28.73 | 0.00 | -0.01 |
| 121 | 20 | 0.00 | -0.24 | -36.28 | 61.77 | -0.01 | 0.00 |
| 121 | 15 | 0.00 | 0.24 | 36.28 | -61.77 | 67.12 | -0.45 |
| 122 | 15 | -0.01 | 0.24 | 36.28 | -61.77 | -67.12 | 0.43 |
| 122 | 22 | 0.01 | -0.24 | -36.28 | 61.77 | 0.00 | 0.01 |
| 123 | 37 | 0.00 | 0.13 | -40.54 | 69.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | -0.13 | 40.54 | -69.00 | 75.00 | 0.24 |
| 124 | 32 | 0.00 | -0.13 | 40.54 | -69.00 | -74.99 | -0.23 |
| 124 | 39 | 0.00 | 0.13 | -40.54 | 69.00 | 0.01 | 0.00 |
| 125 | 56 | 0.00 | -0.08 | -39.82 | 67.79 | -0.01 | 0.00 |
| 125 | 49 | 0.00 | 0.08 | 39.82 | -67.79 | 73.69 | -0.15 |
| 126 | 49 | 0.00 | 0.08 | 39.81 | -67.79 | -73.68 | 0.14 |
| 126 | 58 | 0.00 | -0.08 | -39.81 | 67.79 | -0.01 | 0.00 |
| 127 | 75 | 0.00 | 0.21 | -40.59 | 69.08 | -0.01 | 0.00 |
| 127 | 68 | 0.00 | -0.21 | 40.59 | -69.08 | 75.10 | 0.39 |
| 128 | 68 | 0.00 | -0.21 | 40.60 | -69.08 | -75.09 | -0.39 |
| 128 | 77 | 0.00 | 0.21 | -40.60 | 69.08 | 0.02 | 0.00 |
| 129 | 94 | 0.00 | -1.04 | -38.04 | 64.76 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | 1.04 | 38.04 | -64.76 | 70.39 | -1.92 |
| 130 | 87 | 0.00 | 1.03 | 38.04 | -64.76 | -70.39 | 1.91 |
| 130 | 96 | 0.00 | -1.03 | -38.04 | 64.76 | 0.00 | 0.00 |
| 131 | 112 | 0.00 | 4.20 | -40.49 | 68.91 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | -4.20 | 40.49 | -68.91 | 74.91 | 7.78 |
| 132 | 106 | 0.02 | -4.16 | 40.49 | -68.91 | -74.91 | -7.66 |
| 132 | 114 | -0.02 | 4.16 | -40.49 | 68.91 | 0.00 | -0.03 |
| 133 | 130 | 0.00 | -21.14 | -41.10 | 69.95 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | 21.14 | 41.10 | -69.95 | 76.03 | -39.12 |
| 134 | 124 | -0.05 | 21.08 | 41.10 | -69.95 | -76.03 | 38.90 |
| 134 | 132 | 0.05 | -21.08 | -41.10 | 69.95 | 0.01 | 0.09 |
| 135 | 142 | 0.00 | 16.28 | 293.77 | -503.07 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -16.28 | -293.77 | 503.07 | -1248.52 | 69.21 |
| 136 | 140 | 0.03 | -16.27 | -293.77 | 503.07 | 1248.52 | -69.10 |
| 136 | 144 | -0.03 | 16.27 | 293.77 | -503.07 | 0.00 | -0.05 |
| 137 | 2 | 0.00 | -1.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 1.67 | -16.88 | 0.00 | -71.57 | -7.08 |
| 138 | 7 | 0.00 | 1.67 | -16.88 | 0.00 | 71.57 | 7.08 |
| 138 | 4 | 0.00 | -1.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | 0.24 | -0.01 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | -0.24 | -36.28 | 0.00 | -66.79 | 0.45 |
| 140 | 18 | 0.01 | -0.24 | -36.30 | 0.00 | 66.77 | -0.45 |
| 140 | 21 | -0.01 | 0.24 | 0.01 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -0.13 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 0.13 | -40.54 | 0.00 | -74.59 | -0.24 |
| 142 | 35 | 0.00 | 0.13 | -40.53 | 0.00 | 74.60 | 0.24 |
| 142 | 38 | 0.00 | -0.13 | -0.01 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | 0.08 | -0.07 | 0.00 | -0.14 | 0.00 |
| 143 | 54 | 0.00 | -0.08 | -39.76 | 0.00 | -73.29 | 0.15 |
| 144 | 54 | 0.00 | -0.08 | -39.82 | 0.00 | 73.25 | -0.14 |
| 144 | 57 | 0.00 | 0.08 | -0.01 | 0.00 | -0.04 | 0.00 |
| 145 | 74 | 0.00 | -0.21 | -0.01 | 0.00 | 0.18 | 0.00 |
| 145 | 73 | 0.00 | 0.21 | -40.58 | 0.00 | -74.22 | -0.39 |
| 146 | 73 | 0.00 | 0.21 | -40.51 | 0.00 | 74.46 | 0.39 |
| 146 | 76 | 0.00 | -0.21 | -0.08 | 0.00 | -0.22 | 0.00 |
| 147 | 93 | 0.00 | 1.04 | -0.06 | 0.00 | -0.08 | 0.00 |
| 147 | 92 | 0.00 | -1.04 | -37.99 | 0.00 | -69.96 | 1.92 |
| 148 | 92 | 0.00 | -1.03 | -38.06 | 0.00 | 70.06 | -1.91 |
| 148 | 95 | 0.00 | 1.03 | 0.01 | 0.00 | 0.05 | 0.00 |
| 149 | 111 | 0.00 | -4.20 | -0.02 | 0.00 | 0.02 | 0.00 |
| 149 | 110 | 0.00 | 4.20 | -40.47 | 0.00 | -74.45 | -7.78 |
| 150 | 110 | -0.02 | 4.16 | -40.52 | 0.00 | 74.49 | 7.69 |
| 150 | 113 | 0.02 | -4.16 | 0.03 | 0.00 | -0.01 | 0.00 |
| 151 | 129 | 0.00 | 21.14 | -0.05 | 0.00 | 0.01 | 0.00 |
| 151 | 128 | 0.00 | -21.14 | -41.05 | 0.00 | -75.65 | 39.12 |
| 152 | 128 | 0.05 | -21.08 | -41.12 | 0.00 | 75.60 | -38.99 |
| 152 | 131 | -0.05 | 21.08 | 0.02 | 0.00 | -0.02 | 0.00 |
| 153 | 141 | 0.00 | -16.28 | -307.34 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 16.28 | 293.77 | 0.00 | 1248.66 | -69.21 |
| 154 | 146 | -0.03 | 16.27 | 293.77 | 0.00 | -1248.66 | 69.16 |
| 154 | 143 | 0.03 | -16.27 | -307.34 | 0.00 | 0.00 | 0.00 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS 81

hipo  81 Pretensado de servicio (t=0)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 2862.58 | -124.98 | -0.14 | 0.27 | 0.00 | 554.36 |
| 1 | 8 | -2888.44 | 150.85 | 0.14 | -0.27 | 0.64 | -1261.74 |
| 2 | 8 | 2888.44 | -150.85 | -0.14 | 0.27 | -0.64 | 1261.74 |
| 2 | 9 | -2922.72 | 93.65 | 0.14 | -0.27 | 1.28 | -1824.39 |
| 3 | 9 | 2922.70 | -93.65 | -0.14 | 0.27 | -1.28 | 1824.39 |
| 3 | 10 | -2943.36 | 88.45 | 0.14 | -0.27 | 1.91 | -2232.37 |
| 4 | 10 | 2943.37 | -88.45 | -0.14 | 0.27 | -1.91 | 2232.37 |
| 4 | 11 | -2994.70 | -40.76 | 0.14 | -0.27 | 2.55 | -2533.48 |
| 5 | 11 | 2994.71 | 40.76 | -0.14 | 0.27 | -2.55 | 2533.48 |
| 5 | 12 | -2993.77 | -249.42 | 0.14 | -0.27 | 3.19 | -1816.63 |
| 6 | 12 | 2993.76 | 249.42 | -0.14 | 0.27 | -3.19 | 1816.63 |
| 6 | 13 | -2935.76 | -589.73 | 0.14 | -0.27 | 3.83 | -11.93 |
| 7 | 13 | 2935.77 | 589.73 | -0.14 | 0.27 | -3.83 | 11.93 |
| 7 | 14 | -2967.27 | -581.71 | 0.14 | -0.27 | 4.46 | 3040.96 |
| 8 | 14 | 2967.26 | 581.71 | -0.14 | 0.27 | -4.46 | -3040.96 |
| 8 | 15 | -7159.34 | 38.09 | 0.14 | -0.27 | 5.10 | 2681.62 |
| 9 | 15 | 7159.35 | -142.59 | 0.11 | -0.33 | -5.10 | -2681.62 |
| 9 | 23 | -4317.01 | 154.07 | -0.11 | 0.33 | 4.60 | 2341.42 |
| 10 | 23 | 4317.02 | -154.07 | 0.11 | -0.33 | -4.60 | -2341.42 |
| 10 | 24 | -4380.93 | 438.69 | -0.11 | 0.33 | 4.10 | 886.76 |
| 11 | 24 | 4380.92 | -438.69 | 0.11 | -0.33 | -4.10 | -886.76 |
| 11 | 25 | -4425.24 | 380.23 | -0.11 | 0.33 | 3.60 | -1172.73 |
| 12 | 25 | 4425.25 | -380.23 | 0.11 | -0.33 | -3.60 | 1172.73 |
| 12 | 26 | -4501.99 | 125.11 | -0.11 | 0.33 | 3.10 | -2392.12 |
| 13 | 26 | 4501.97 | -125.11 | 0.11 | -0.33 | -3.10 | 2392.12 |
| 13 | 27 | -4452.47 | 0.21 | -0.11 | 0.33 | 2.59 | -2522.01 |
| 14 | 27 | 4452.48 | -0.21 | 0.11 | -0.33 | -2.59 | 2522.01 |
| 14 | 28 | -4406.52 | -77.41 | -0.11 | 0.33 | 2.09 | -2319.70 |
| 15 | 28 | 4406.51 | 77.41 | 0.11 | -0.33 | -2.09 | 2319.70 |
| 15 | 29 | -4400.30 | -288.41 | -0.11 | 0.33 | 1.59 | -1541.65 |
| 16 | 29 | 4400.31 | 288.41 | 0.11 | -0.33 | -1.59 | 1541.65 |
| 16 | 30 | -4453.23 | -612.37 | -0.11 | 0.33 | 1.09 | 397.10 |
| 17 | 30 | 4453.22 | 612.37 | 0.11 | -0.33 | -1.09 | -397.10 |
| 17 | 31 | -4442.89 | -447.93 | -0.11 | 0.33 | 0.59 | 3181.00 |
| 18 | 31 | 4442.90 | 447.93 | 0.11 | -0.33 | -0.59 | -3181.00 |
| 18 | 32 | -8543.40 | 251.51 | -0.11 | 0.33 | 0.09 | 2064.49 |
| 19 | 32 | 8543.42 | -262.42 | 0.01 | 0.05 | -0.09 | -2064.49 |
| 19 | 40 | -4317.02 | 164.98 | -0.01 | -0.05 | 0.06 | 2688.47 |
| 20 | 40 | 4317.01 | -164.98 | 0.01 | 0.05 | -0.06 | -2688.47 |
| 20 | 41 | -4380.91 | 449.59 | -0.01 | -0.05 | 0.04 | 1184.73 |
| 21 | 41 | 4380.90 | -449.59 | 0.01 | 0.05 | -0.04 | -1184.73 |
| 21 | 42 | -4425.23 | 391.13 | -0.01 | -0.05 | 0.01 | -923.84 |
| 22 | 42 | 4425.24 | -391.13 | 0.01 | 0.05 | -0.01 | 923.84 |
| 22 | 43 | -4501.98 | 136.01 | -0.01 | -0.05 | -0.01 | -2192.29 |
| 23 | 43 | 4501.99 | -136.01 | 0.01 | 0.05 | 0.01 | 2192.29 |
| 23 | 44 | -4452.49 | 11.11 | -0.01 | -0.05 | -0.04 | -2371.26 |
| 24 | 44 | 4452.47 | -11.11 | 0.01 | 0.05 | 0.04 | 2371.26 |
| 24 | 45 | -4406.50 | -66.51 | -0.01 | -0.05 | -0.07 | -2218.02 |
| 25 | 45 | 4406.50 | 66.51 | 0.01 | 0.05 | 0.07 | 2218.02 |
| 25 | 46 | -4400.29 | -277.51 | -0.01 | -0.05 | -0.09 | -1489.05 |
| 26 | 46 | 4400.30 | 277.51 | 0.01 | 0.05 | 0.09 | 1489.05 |
| 26 | 47 | -4453.22 | -601.46 | -0.01 | -0.05 | -0.12 | 400.63 |
| 27 | 47 | 4453.24 | 601.46 | 0.01 | 0.05 | 0.12 | -400.63 |
| 27 | 48 | -4442.92 | -437.03 | -0.01 | -0.05 | -0.14 | 3135.46 |
| 28 | 48 | 4442.91 | 437.03 | 0.01 | 0.05 | 0.14 | -3135.46 |
| 28 | 49 | -8543.41 | 262.42 | -0.01 | -0.05 | -0.17 | 1969.88 |
| 29 | 49 | 8543.41 | -260.27 | 0.00 | 0.01 | 0.17 | -1969.88 |
| 29 | 59 | -4317.01 | 162.83 | 0.00 | -0.01 | -0.17 | 2603.51 |
| 30 | 59 | 4317.00 | -162.83 | 0.00 | 0.01 | 0.17 | -2603.51 |
| 30 | 60 | -4380.91 | 447.45 | 0.00 | -0.01 | -0.17 | 1109.43 |
| 31 | 60 | 4380.92 | -447.45 | 0.00 | 0.01 | 0.17 | -1109.43 |
| 31 | 61 | -4425.24 | 388.99 | 0.00 | -0.01 | -0.16 | -989.48 |
| 32 | 61 | 4425.24 | -388.99 | 0.00 | 0.01 | 0.16 | 989.48 |
| 32 | 62 | -4501.97 | 133.87 | 0.00 | -0.01 | -0.16 | -2248.28 |
| 33 | 62 | 4501.97 | -133.87 | 0.00 | 0.01 | 0.16 | 2248.28 |
| 33 | 63 | -4452.48 | 8.97 | 0.00 | -0.01 | -0.16 | -2417.60 |
| 34 | 63 | 4452.48 | -8.97 | 0.00 | 0.01 | 0.16 | 2417.60 |
| 34 | 64 | -4406.52 | -68.65 | 0.00 | -0.01 | -0.16 | -2254.70 |
| 35 | 64 | 4406.52 | 68.65 | 0.00 | 0.01 | 0.16 | 2254.70 |
| 35 | 65 | -4400.31 | -279.65 | 0.00 | -0.01 | -0.16 | -1516.08 |
| 36 | 65 | 4400.30 | 279.65 | 0.00 | 0.01 | 0.16 | 1516.08 |
| 36 | 66 | -4453.22 | -603.61 | 0.00 | -0.01 | -0.16 | 383.26 |
| 37 | 66 | 4453.23 | 603.61 | 0.00 | 0.01 | 0.16 | -383.26 |
| 37 | 67 | -4442.91 | -439.18 | 0.00 | -0.01 | -0.16 | 3127.75 |
| 38 | 67 | 4442.91 | 439.18 | 0.00 | 0.01 | 0.16 | -3127.74 |
| 38 | 68 | -8543.42 | 260.27 | 0.00 | -0.01 | -0.16 | 1971.81 |
| 39 | 68 | 8543.42 | -258.38 | 0.00 | -0.01 | 0.16 | -1971.81 |
| 39 | 78 | -4317.02 | 160.94 | 0.00 | 0.01 | -0.14 | 2613.97 |
| 40 | 78 | 4317.01 | -160.94 | 0.00 | -0.01 | 0.14 | -2613.97 |
| 40 | 79 | -4380.91 | 445.55 | 0.00 | 0.01 | -0.12 | 1128.41 |
| 41 | 79 | 4380.91 | -445.55 | 0.00 | -0.01 | 0.12 | -1128.41 |
| 41 | 80 | -4425.23 | 387.09 | 0.00 | 0.01 | -0.10 | -961.98 |
| 42 | 80 | 4425.24 | -387.09 | 0.00 | -0.01 | 0.10 | 961.99 |
| 42 | 81 | -4501.98 | 131.97 | 0.00 | 0.01 | -0.08 | -2212.26 |
| 43 | 81 | 4501.98 | -131.97 | 0.00 | -0.01 | 0.08 | 2212.26 |
| 43 | 82 | -4452.49 | 7.07 | 0.00 | 0.01 | -0.06 | -2373.05 |
| 44 | 82 | 4452.48 | -7.07 | 0.00 | -0.01 | 0.06 | 2373.05 |
| 44 | 83 | -4406.52 | -70.55 | 0.00 | 0.01 | -0.04 | -2201.64 |
| 45 | 83 | 4406.52 | 70.55 | 0.00 | -0.01 | 0.04 | 2201.64 |
| 45 | 84 | -4400.31 | -281.55 | 0.00 | 0.01 | -0.02 | -1454.49 |
| 46 | 84 | 4400.32 | 281.55 | 0.00 | -0.01 | 0.02 | 1454.49 |
| 46 | 85 | -4453.24 | -605.50 | 0.00 | 0.01 | 0.00 | 453.37 |
| 47 | 85 | 4453.23 | 605.50 | 0.00 | -0.01 | 0.00 | -453.37 |
| 47 | 86 | -4442.91 | -441.07 | 0.00 | 0.01 | 0.01 | 3206.37 |
| 48 | 86 | 4442.91 | 441.07 | 0.00 | -0.01 | -0.01 | -3206.37 |
| 48 | 87 | -8543.42 | 258.38 | 0.00 | 0.01 | 0.03 | 2058.96 |
| 49 | 87 | 8543.42 | -268.60 | -0.01 | -0.04 | -0.03 | -2058.96 |
| 49 | 97 | -4317.02 | 171.16 | 0.01 | 0.04 | 0.08 | 2655.12 |
| 50 | 97 | 4317.01 | -171.16 | -0.01 | -0.04 | -0.08 | -2655.12 |
| 50 | 98 | -4380.92 | 455.77 | 0.01 | 0.04 | 0.13 | 1123.57 |
| 51 | 98 | 4380.91 | -455.77 | -0.01 | -0.04 | -0.13 | -1123.57 |
| 51 | 99 | -4425.23 | 397.31 | 0.01 | 0.04 | 0.18 | -1012.82 |
| 52 | 99 | 4425.23 | -397.31 | -0.01 | -0.04 | -0.18 | 1012.82 |
| 52 | 100 | -4501.97 | 142.19 | 0.01 | 0.04 | 0.23 | -2309.10 |
| 53 | 100 | 4501.97 | -142.19 | -0.01 | -0.04 | -0.23 | 2309.10 |
| 53 | 101 | -4452.48 | 17.29 | 0.01 | 0.04 | 0.27 | -2515.88 |
| 54 | 101 | 4452.49 | -17.29 | -0.01 | -0.04 | -0.27 | 2515.88 |
| 54 | 102 | -4406.52 | -60.32 | 0.01 | 0.04 | 0.32 | -2390.46 |
| 55 | 102 | 4406.52 | 60.33 | -0.01 | -0.04 | -0.32 | 2390.46 |
| 55 | 103 | -4400.31 | -271.32 | 0.01 | 0.04 | 0.37 | -1689.31 |
| 56 | 103 | 4400.31 | 271.32 | -0.01 | -0.04 | -0.37 | 1689.31 |
| 56 | 104 | -4453.23 | -595.28 | 0.01 | 0.04 | 0.42 | 172.55 |
| 57 | 104 | 4453.23 | 595.28 | -0.01 | -0.04 | -0.42 | -172.55 |
| 57 | 105 | -4442.91 | -430.85 | 0.01 | 0.04 | 0.47 | 2879.56 |
| 58 | 105 | 4442.91 | 430.85 | -0.01 | -0.04 | -0.47 | -2879.56 |
| 58 | 106 | -8543.41 | 268.60 | 0.01 | 0.04 | 0.51 | 1686.16 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 59 | 106 | 8543.42 | -227.07 | -0.10 | 0.51 | -0.51 | -1686.16 |
| 59 | 115 | -4317.01 | 129.63 | 0.10 | -0.51 | 0.98 | 2469.20 |
| 60 | 115 | 4317.01 | -129.63 | -0.10 | 0.51 | -0.98 | -2469.20 |
| 60 | 116 | -4380.91 | 414.24 | 0.10 | -0.51 | 1.45 | 1124.53 |
| 61 | 116 | 4380.92 | -414.24 | -0.10 | 0.51 | -1.45 | -1124.53 |
| 61 | 117 | -4425.24 | 355.78 | 0.10 | -0.51 | 1.91 | -824.97 |
| 62 | 117 | 4425.24 | -355.78 | -0.10 | 0.51 | -1.91 | 824.97 |
| 62 | 118 | -4501.98 | 100.66 | 0.10 | -0.51 | 2.38 | -1934.36 |
| 63 | 118 | 4501.98 | -100.66 | -0.10 | 0.51 | -2.38 | 1934.36 |
| 63 | 119 | -4452.48 | -24.24 | 0.10 | -0.51 | 2.85 | -1954.26 |
| 64 | 119 | 4452.48 | 24.24 | -0.10 | 0.51 | -2.85 | 1954.26 |
| 64 | 120 | -4406.52 | -101.86 | 0.10 | -0.51 | 3.32 | -1641.95 |
| 65 | 120 | 4406.52 | 101.86 | -0.10 | 0.51 | -3.32 | 1641.95 |
| 65 | 121 | -4400.31 | -312.86 | 0.10 | -0.51 | 3.78 | -753.91 |
| 66 | 121 | 4400.31 | 312.86 | -0.10 | 0.51 | -3.78 | 753.91 |
| 66 | 122 | -4453.23 | -636.81 | 0.10 | -0.51 | 4.25 | 1294.84 |
| 67 | 122 | 4453.23 | 636.81 | -0.10 | 0.51 | -4.25 | -1294.84 |
| 67 | 123 | -4442.91 | -472.38 | 0.10 | -0.51 | 4.72 | 4188.74 |
| 68 | 123 | 4442.92 | 472.38 | -0.10 | 0.51 | -4.72 | -4188.74 |
| 68 | 124 | -8488.12 | 217.05 | 0.10 | -0.51 | 5.18 | 3182.12 |
| 69 | 124 | 8488.12 | -405.65 | 0.14 | -0.50 | -5.18 | -3182.12 |
| 69 | 133 | -4300.73 | 594.06 | -0.14 | 0.50 | 4.54 | 2770.65 |
| 70 | 133 | 4300.73 | -594.06 | 0.14 | -0.50 | -4.54 | -2770.65 |
| 70 | 134 | -4335.85 | 723.35 | -0.14 | 0.50 | 3.89 | -907.75 |
| 71 | 134 | 4335.85 | -723.35 | 0.14 | -0.50 | -3.89 | 907.75 |
| 71 | 135 | -4445.89 | 265.92 | -0.14 | 0.50 | 3.24 | -3037.25 |
| 72 | 135 | 4445.89 | -265.92 | 0.14 | -0.50 | -3.24 | 3037.25 |
| 72 | 136 | -4424.37 | 171.08 | -0.14 | 0.50 | 2.59 | -3959.66 |
| 73 | 136 | 4424.37 | -171.08 | 0.14 | -0.50 | -2.59 | 3959.66 |
| 73 | 137 | -4366.88 | 93.67 | -0.14 | 0.50 | 1.94 | -4482.67 |
| 74 | 137 | 4366.88 | -93.67 | 0.14 | -0.50 | -1.94 | 4482.67 |
| 74 | 138 | -4301.07 | -66.57 | -0.14 | 0.50 | 1.30 | -4496.19 |
| 75 | 138 | 4301.07 | 66.57 | 0.14 | -0.50 | -1.30 | 4496.19 |
| 75 | 139 | -4241.38 | -177.09 | -0.14 | 0.50 | 0.65 | -3786.24 |
| 76 | 139 | 4241.38 | 177.09 | 0.14 | -0.50 | -0.65 | 3786.24 |
| 76 | 140 | -4195.82 | -231.72 | -0.14 | 0.50 | 0.00 | -2857.41 |
| 77 | 16 | -104.50 | 0.00 | 0.25 | 0.00 | -2.44 | 0.00 |
| 77 | 17 | 104.50 | 0.00 | -0.25 | 0.00 | 1.10 | 0.00 |
| 78 | 17 | -104.50 | 0.00 | 0.25 | 0.00 | -1.10 | 0.00 |
| 78 | 18 | 104.50 | 0.00 | -0.25 | 0.00 | -0.16 | 0.00 |
| 79 | 33 | -10.91 | 0.00 | -0.11 | 0.00 | 1.14 | 0.00 |
| 79 | 34 | 10.91 | 0.00 | 0.11 | 0.00 | -0.33 | 0.00 |
| 80 | 34 | -10.91 | 0.00 | -0.11 | 0.00 | 0.33 | 0.00 |
| 80 | 35 | 10.91 | 0.00 | 0.11 | 0.00 | 0.19 | 0.00 |
| 81 | 50 | 2.15 | 0.00 | -0.01 | 0.00 | 0.22 | 0.00 |
| 81 | 51 | -2.15 | 0.00 | 0.01 | 0.00 | -0.19 | 0.00 |
| 82 | 51 | 2.15 | 0.00 | -0.01 | 0.00 | 0.19 | 0.00 |
| 82 | 52 | -2.15 | 0.00 | 0.01 | 0.00 | -0.13 | 0.00 |
| 83 | 52 | 2.15 | 0.00 | -0.01 | 0.00 | 0.13 | 0.00 |
| 83 | 53 | -2.15 | 0.00 | 0.01 | 0.00 | -0.07 | 0.00 |
| 84 | 53 | 2.15 | 0.00 | -0.01 | 0.00 | 0.07 | 0.00 |
| 84 | 54 | -2.15 | 0.00 | 0.01 | 0.00 | -0.04 | 0.00 |
| 85 | 69 | 1.89 | 0.00 | 0.00 | 0.00 | 0.16 | 0.00 |
| 85 | 70 | -1.89 | 0.00 | 0.00 | 0.00 | -0.13 | 0.00 |
| 86 | 70 | 1.89 | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 |
| 86 | 71 | -1.89 | 0.00 | 0.00 | 0.00 | -0.09 | 0.00 |
| 87 | 71 | 1.89 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 |
| 87 | 72 | -1.89 | 0.00 | 0.00 | 0.00 | -0.05 | 0.00 |
| 88 | 72 | 1.89 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 |
| 88 | 73 | -1.89 | 0.00 | 0.00 | 0.00 | -0.03 | 0.00 |
| 89 | 88 | -10.22 | 0.00 | -0.01 | 0.00 | 0.21 | 0.00 |
| 89 | 89 | 10.22 | 0.00 | 0.01 | 0.00 | -0.20 | 0.00 |
| 90 | 89 | -10.22 | 0.00 | -0.01 | 0.00 | 0.20 | 0.00 |
| 90 | 90 | 10.22 | 0.00 | 0.01 | 0.00 | -0.14 | 0.00 |
| 91 | 90 | -10.22 | 0.00 | -0.01 | 0.00 | 0.14 | 0.00 |
| 91 | 91 | 10.22 | 0.00 | 0.01 | 0.00 | -0.07 | 0.00 |
| 92 | 91 | -10.22 | 0.00 | -0.01 | 0.00 | 0.07 | 0.00 |
| 92 | 92 | 10.22 | 0.00 | 0.01 | 0.00 | -0.04 | 0.00 |
| 93 | 107 | 41.53 | 0.00 | -0.09 | 0.00 | 1.10 | 0.00 |
| 93 | 108 | -41.53 | 0.00 | 0.09 | 0.00 | -1.00 | 0.00 |
| 94 | 108 | 41.53 | 0.00 | -0.09 | 0.00 | 1.00 | 0.00 |
| 94 | 109 | -41.53 | 0.00 | 0.09 | 0.00 | -0.07 | 0.00 |
| 95 | 109 | 41.53 | 0.00 | -0.09 | 0.00 | 0.07 | 0.00 |
| 95 | 110 | -41.53 | 0.00 | 0.09 | 0.00 | 0.39 | 0.00 |
| 96 | 125 | -188.60 | 0.00 | 0.25 | 0.00 | -3.37 | 0.00 |
| 96 | 126 | 188.60 | 0.00 | -0.25 | 0.00 | 3.12 | 0.00 |
| 97 | 126 | -188.60 | 0.00 | 0.25 | 0.00 | -3.12 | 0.00 |
| 97 | 127 | 188.60 | 0.00 | -0.25 | 0.00 | 0.65 | 0.00 |
| 98 | 127 | -188.60 | 0.00 | 0.25 | 0.00 | -0.65 | 0.00 |
| 98 | 128 | 188.60 | 0.00 | -0.25 | 0.00 | -0.59 | 0.00 |
| 99 | 2 | 56.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -56.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 56.65 | 0.00 | -0.14 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -56.65 | 0.00 | 0.14 | 0.00 | 0.24 | 0.00 |
| 101 | 19 | -52.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | 52.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | -52.21 | 0.00 | 0.25 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | 52.21 | 0.00 | -0.25 | 0.00 | -0.43 | 0.00 |
| 103 | 36 | -5.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | 5.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | -5.51 | 0.00 | -0.11 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | 5.51 | 0.00 | 0.11 | 0.00 | 0.18 | 0.00 |
| 105 | 55 | 1.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -1.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 1.08 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -1.08 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 107 | 74 | 0.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -0.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 0.96 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -0.96 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 109 | 93 | -5.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | 5.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | -5.10 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | 5.10 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 111 | 111 | 20.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -20.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 20.66 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -20.66 | 0.00 | 0.09 | 0.00 | 0.16 | 0.00 |
| 113 | 129 | -94.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | 94.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | -94.14 | 0.00 | 0.25 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | 94.14 | 0.00 | -0.25 | 0.00 | -0.42 | 0.00 |
| 115 | 141 | 77.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -77.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 77.65 | 0.00 | -0.14 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -77.65 | 0.00 | 0.14 | 0.00 | 0.25 | 0.00 |
| 117 | 6 | 113.30 | 0.00 | -0.14 | 0.00 | 0.12 | 0.00 |
| 117 | 7 | -113.30 | 0.00 | 0.14 | 0.00 | 0.03 | 0.00 |
| 118 | 145 | 155.35 | 0.01 | -0.14 | 0.00 | -0.11 | 0.01 |
| 118 | 146 | -155.35 | -0.01 | 0.14 | 0.00 | 0.26 | 0.00 |
| 119 | 3 | 0.00 | 56.65 | 0.01 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -56.65 | -0.01 | 0.00 | 0.04 | 240.78 |
| 120 | 1 | 0.14 | -56.65 | -0.01 | 0.00 | 0.00 | -240.51 |
| 120 | 5 | -0.14 | 56.65 | 0.01 | 0.00 | 0.04 | -0.24 |
| 121 | 20 | 0.00 | -52.29 | -0.08 | 0.00 | 0.02 | 0.00 |
| 121 | 15 | 0.00 | 52.29 | 0.08 | 0.00 | 0.17 | -96.74 |
| 122 | 15 | -0.25 | 52.21 | -0.16 | 0.00 | 0.06 | 96.15 |
| 122 | 22 | 0.25 | -52.21 | 0.16 | 0.00 | 0.21 | 0.43 |
| 123 | 37 | 0.00 | -5.40 | 0.17 | 0.00 | -0.08 | 0.00 |
| 123 | 32 | 0.00 | 5.40 | -0.17 | 0.00 | 0.06 | -9.99 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 124 | 32 | 0.11 | 5.51 | 0.14 | 0.00 | -0.02 | 10.37 |
| 124 | 39 | -0.11 | -5.51 | -0.14 | 0.00 | 0.12 | -0.18 |
| 125 | 56 | 0.00 | 1.06 | -0.02 | 0.00 | -0.12 | 0.00 |
| 125 | 49 | 0.00 | -1.06 | 0.02 | 0.00 | 0.02 | 1.96 |
| 126 | 49 | 0.01 | -1.08 | -0.14 | 0.00 | -0.04 | -2.00 |
| 126 | 58 | -0.01 | 1.08 | 0.14 | 0.00 | 0.10 | -0.01 |
| 127 | 75 | 0.00 | 0.94 | -0.06 | 0.00 | 0.04 | 0.00 |
| 127 | 68 | 0.00 | -0.94 | 0.06 | 0.00 | 0.01 | 1.74 |
| 128 | 68 | 0.00 | -0.96 | -0.06 | 0.00 | 0.00 | -1.76 |
| 128 | 77 | 0.00 | 0.96 | 0.06 | 0.00 | -0.03 | -0.01 |
| 129 | 94 | 0.00 | -5.12 | -0.01 | 0.00 | -0.04 | 0.00 |
| 129 | 87 | 0.00 | 5.12 | 0.01 | 0.00 | 0.04 | -9.48 |
| 130 | 87 | 0.01 | 5.10 | -0.03 | 0.00 | -0.03 | 9.45 |
| 130 | 96 | -0.01 | -5.10 | 0.03 | 0.00 | 0.05 | -0.01 |
| 131 | 112 | 0.00 | 20.87 | 0.04 | 0.00 | 0.02 | 0.00 |
| 131 | 106 | 0.00 | -20.87 | -0.04 | 0.00 | -0.01 | 38.61 |
| 132 | 106 | 0.09 | -20.66 | -0.01 | 0.00 | 0.11 | -38.06 |
| 132 | 114 | -0.09 | 20.66 | 0.01 | 0.00 | 0.08 | -0.16 |
| 133 | 130 | 0.00 | -94.46 | -0.01 | 0.00 | -0.02 | 0.00 |
| 133 | 124 | 0.00 | 94.46 | 0.01 | 0.00 | 0.03 | -174.75 |
| 134 | 124 | -0.25 | 94.14 | -0.05 | 0.00 | -0.02 | 173.73 |
| 134 | 132 | 0.25 | -94.14 | 0.05 | 0.00 | 0.03 | 0.42 |
| 135 | 142 | 0.00 | 77.71 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -77.71 | 0.00 | 0.00 | -0.02 | 330.25 |
| 136 | 140 | 0.14 | -77.65 | 0.00 | 0.00 | 0.01 | -329.75 |
| 136 | 144 | -0.14 | 77.65 | 0.00 | 0.00 | 0.00 | -0.25 |
| 137 | 2 | 0.00 | -56.65 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 56.65 | 0.00 | 0.00 | 0.00 | -240.78 |
| 138 | 7 | -0.14 | 56.65 | 0.00 | 0.00 | 0.00 | 240.75 |
| 138 | 4 | 0.14 | -56.65 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | 52.29 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | -52.29 | 0.00 | 0.00 | 0.00 | 96.74 |
| 140 | 18 | 0.25 | -52.21 | 0.00 | 0.00 | 0.00 | -96.58 |
| 140 | 21 | -0.25 | 52.21 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | 5.40 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | -5.40 | 0.00 | 0.00 | 0.00 | 9.99 |
| 142 | 35 | -0.11 | -5.51 | 0.00 | 0.00 | 0.00 | -10.18 |
| 142 | 38 | 0.11 | 5.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -1.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | 1.06 | 0.00 | 0.00 | 0.00 | -1.96 |
| 144 | 54 | -0.01 | 1.08 | 0.00 | 0.00 | 0.00 | 2.01 |
| 144 | 57 | 0.01 | -1.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | -0.94 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 0.94 | 0.00 | 0.00 | 0.00 | -1.74 |
| 146 | 73 | 0.00 | 0.96 | 0.00 | 0.00 | 0.00 | 1.77 |
| 146 | 76 | 0.00 | -0.96 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | 5.12 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | -5.12 | 0.00 | 0.00 | 0.00 | 9.48 |
| 148 | 92 | -0.01 | -5.10 | 0.00 | 0.00 | 0.00 | -9.43 |
| 148 | 95 | 0.01 | 5.10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | -20.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 20.87 | 0.00 | 0.00 | 0.00 | -38.61 |
| 150 | 110 | -0.09 | 20.66 | 0.00 | 0.00 | 0.00 | 38.22 |
| 150 | 113 | 0.09 | -20.66 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | 94.46 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | -94.46 | 0.00 | 0.00 | 0.00 | 174.75 |
| 152 | 128 | 0.25 | -94.14 | 0.00 | 0.00 | 0.00 | -174.16 |
| 152 | 131 | -0.25 | 94.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -77.71 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 77.71 | 0.00 | 0.00 | 0.01 | -330.25 |
| 154 | 146 | -0.14 | 77.65 | 0.00 | 0.00 | -0.01 | 330.00 |
| 154 | 143 | 0.14 | -77.65 | 0.00 | 0.00 | 0.00 | 0.00 |



HIPOTESIS 82

hipo 82 Pretensado de proceso

E S F U E R Z O S E N B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 6245.11 | 29.88 | -0.04 | 0.09 | 0.00 | 1074.87 |
| 1 | 8 | -6250.29 | -29.88 | 0.04 | -0.09 | 0.20 | -943.56 |
| 2 | 8 | 6250.31 | 29.88 | -0.04 | 0.09 | -0.20 | 943.56 |
| 2 | 9 | -6252.71 | -29.88 | 0.04 | -0.09 | 0.40 | -811.94 |
| 3 | 9 | 6625.94 | 29.88 | -0.04 | 0.09 | -0.40 | 569.90 |
| 3 | 10 | -6642.40 | -29.88 | 0.04 | -0.09 | 0.60 | -437.33 |
| 4 | 10 | 6642.38 | 29.88 | -0.04 | 0.09 | -0.60 | 437.33 |
| 4 | 11 | -6659.05 | -29.88 | 0.04 | -0.09 | 0.80 | -304.78 |
| 5 | 11 | 6659.06 | 29.88 | -0.04 | 0.09 | -0.80 | 304.77 |
| 5 | 12 | -6663.43 | -29.88 | 0.04 | -0.09 | 1.00 | -171.08 |
| 6 | 12 | 6663.43 | 29.88 | -0.04 | 0.09 | -1.00 | 171.08 |
| 6 | 13 | -6645.31 | -29.88 | 0.04 | -0.09 | 1.20 | -35.53 |
| 7 | 13 | 6615.90 | 29.88 | -0.04 | 0.09 | -1.20 | 31.58 |
| 7 | 14 | -6619.23 | -29.88 | 0.04 | -0.09 | 1.40 | 101.05 |
| 8 | 14 | 6619.24 | 29.88 | -0.04 | 0.09 | -1.40 | -101.05 |
| 8 | 15 | -6622.79 | -29.88 | 0.04 | -0.09 | 1.61 | 233.65 |
| 9 | 15 | 6622.77 | -12.66 | 0.04 | -0.11 | -1.61 | -233.65 |
| 9 | 23 | -6626.55 | 12.66 | -0.04 | 0.11 | 1.43 | 174.79 |
| 10 | 23 | 6626.57 | -12.66 | 0.04 | -0.11 | -1.43 | -174.79 |
| 10 | 24 | -6623.16 | 12.66 | -0.04 | 0.11 | 1.25 | 117.32 |
| 11 | 24 | 7179.04 | -12.66 | 0.04 | -0.11 | -1.25 | -521.46 |
| 11 | 25 | -6567.95 | 12.66 | -0.04 | 0.11 | 1.07 | 65.53 |
| 12 | 25 | 6567.95 | -12.66 | 0.04 | -0.11 | -1.07 | -65.53 |
| 12 | 26 | -6585.35 | 12.66 | -0.04 | 0.11 | 0.90 | 7.50 |
| 13 | 26 | 6585.36 | -12.66 | 0.04 | -0.11 | -0.90 | -7.50 |
| 13 | 27 | -6602.98 | 12.66 | -0.04 | 0.11 | 0.72 | -50.55 |
| 14 | 27 | 6603.01 | -12.66 | 0.04 | -0.11 | -0.72 | 50.55 |
| 14 | 28 | -6620.85 | 12.66 | -0.04 | 0.11 | 0.54 | -108.63 |
| 15 | 28 | 6620.83 | -12.66 | 0.04 | -0.11 | -0.54 | 108.63 |
| 15 | 29 | -6631.02 | 12.66 | -0.04 | 0.11 | 0.37 | -165.61 |
| 16 | 29 | 6631.02 | -12.66 | 0.04 | -0.11 | -0.37 | 165.61 |
| 16 | 30 | -5934.93 | 12.66 | -0.04 | 0.11 | 0.19 | 64.29 |
| 17 | 30 | 5934.93 | -12.66 | 0.04 | -0.11 | -0.19 | -64.29 |
| 17 | 31 | -5947.32 | 12.66 | -0.04 | 0.11 | 0.01 | 7.09 |
| 18 | 31 | 5947.33 | -12.66 | 0.04 | -0.11 | -0.01 | -7.09 |
| 18 | 32 | -5959.92 | 12.66 | -0.04 | 0.11 | -0.16 | -50.14 |
| 19 | 32 | 5959.91 | 5.35 | 0.00 | 0.04 | 0.16 | 50.14 |
| 19 | 40 | -5972.70 | -5.35 | 0.00 | -0.04 | -0.15 | -26.34 |
| 20 | 40 | 5972.70 | 5.35 | 0.00 | 0.04 | 0.15 | 26.34 |
| 20 | 41 | -5973.15 | -5.35 | 0.00 | -0.04 | -0.14 | -1.39 |
| 21 | 41 | 5973.14 | 5.35 | 0.00 | 0.04 | 0.14 | 1.39 |
| 21 | 42 | -5926.81 | -5.35 | 0.00 | -0.04 | -0.13 | 28.68 |
| 22 | 42 | 5926.83 | 5.35 | 0.00 | 0.04 | 0.13 | -28.68 |
| 22 | 43 | -5926.17 | -5.35 | 0.00 | -0.04 | -0.12 | 52.59 |
| 23 | 43 | 5926.16 | 5.35 | 0.00 | 0.04 | 0.12 | -52.59 |
| 23 | 44 | -5925.70 | -5.35 | 0.00 | -0.04 | -0.10 | 76.48 |
| 24 | 44 | 5925.70 | 5.35 | 0.00 | 0.04 | 0.10 | -76.48 |
| 24 | 45 | -5925.44 | -5.35 | 0.00 | -0.04 | -0.09 | 100.36 |
| 25 | 45 | 5925.43 | 5.35 | 0.00 | 0.04 | 0.09 | -100.36 |
| 25 | 46 | -5920.88 | -5.35 | 0.00 | -0.04 | -0.08 | 124.41 |
| 26 | 46 | 5920.89 | 5.35 | 0.00 | 0.04 | 0.08 | -124.41 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 | 47 | -4528.95 | -5.35 | 0.00 | -0.04 | -0.07 | -67.76 | 59 | 106 | 4560.99 | 4.97 | -0.02 | 0.09 | -0.10 | 41.73 |
| 27 | 47 | 4528.95 | 5.35 | 0.00 | 0.04 | 0.07 | 67.76 | 59 | 115 | -4574.98 | -4.97 | 0.02 | -0.09 | 0.18 | -23.44 |
| 27 | 48 | -4542.61 | -5.35 | 0.00 | -0.04 | -0.06 | -47.70 | 60 | 115 | 4574.98 | 4.97 | -0.02 | 0.09 | -0.18 | 23.44 |
| 28 | 48 | 4542.60 | 5.35 | 0.00 | 0.04 | 0.06 | 47.70 | 60 | 116 | -4581.26 | -4.97 | 0.02 | -0.09 | 0.25 | -4.03 |
| 28 | 49 | -4556.42 | -5.35 | 0.00 | -0.04 | -0.04 | -27.67 | 61 | 116 | 4581.26 | 4.97 | -0.02 | 0.09 | -0.25 | 4.03 |
| 29 | 49 | 4556.41 | 0.80 | 0.00 | 0.00 | 0.04 | 27.67 | 61 | 117 | -4568.60 | -4.97 | 0.02 | -0.09 | 0.33 | 17.37 |
| 29 | 59 | -4570.38 | -0.80 | 0.00 | 0.00 | -0.04 | -28.11 | 62 | 117 | 4568.60 | 4.97 | -0.02 | 0.09 | -0.33 | -17.37 |
| 30 | 59 | 4570.39 | 0.80 | 0.00 | 0.00 | 0.04 | 28.11 | 62 | 118 | -4573.08 | -4.97 | 0.02 | -0.09 | 0.41 | 38.18 |
| 30 | 60 | -4576.64 | -0.80 | 0.00 | 0.00 | -0.04 | -27.45 | 63 | 118 | 4573.08 | 4.97 | -0.02 | 0.09 | -0.41 | -38.18 |
| 31 | 60 | 4576.63 | 0.80 | 0.00 | 0.00 | 0.04 | 27.45 | 63 | 119 | -4577.71 | -4.97 | 0.02 | -0.09 | 0.49 | 58.97 |
| 31 | 61 | -4554.88 | -0.80 | 0.00 | 0.00 | -0.04 | -24.48 | 64 | 119 | 4577.71 | 4.97 | -0.02 | 0.09 | -0.49 | -58.97 |
| 32 | 61 | 4554.89 | 0.80 | 0.00 | 0.00 | 0.04 | 24.48 | 64 | 120 | -4582.50 | -4.97 | 0.02 | -0.09 | 0.57 | 79.74 |
| 32 | 62 | -4559.29 | -0.80 | 0.00 | 0.00 | -0.03 | -22.40 | 65 | 120 | 4582.49 | 4.97 | -0.02 | 0.09 | -0.57 | -79.74 |
| 33 | 62 | 4559.29 | 0.80 | 0.00 | 0.00 | 0.03 | 22.40 | 65 | 121 | -4571.00 | -4.97 | 0.02 | -0.09 | 0.65 | 105.48 |
| 33 | 63 | -4563.84 | -0.80 | 0.00 | 0.00 | -0.03 | -20.35 | 66 | 121 | 4571.00 | 4.97 | -0.02 | 0.09 | -0.65 | -105.48 |
| 34 | 63 | 4563.83 | 0.80 | 0.00 | 0.00 | 0.03 | 20.35 | 66 | 122 | -4573.43 | -4.97 | 0.02 | -0.09 | 0.72 | 129.63 |
| 34 | 64 | -4568.54 | -0.80 | 0.00 | 0.00 | -0.03 | -18.33 | 67 | 122 | 4573.43 | 4.97 | -0.02 | 0.09 | -0.72 | -129.63 |
| 35 | 64 | 4568.53 | 0.80 | 0.00 | 0.00 | 0.03 | 18.33 | 67 | 123 | -4581.14 | -4.97 | 0.02 | -0.09 | 0.80 | 153.12 |
| 35 | 65 | -4566.63 | -0.80 | 0.00 | 0.00 | -0.03 | -14.25 | 68 | 123 | 4581.14 | 4.97 | -0.02 | 0.09 | -0.80 | -153.12 |
| 36 | 65 | 4566.63 | 0.80 | 0.00 | 0.00 | 0.03 | 14.25 | 68 | 124 | -4589.00 | -4.97 | 0.02 | -0.09 | 0.88 | 176.58 |
| 36 | 66 | -4528.40 | -0.80 | 0.00 | 0.00 | -0.02 | -3.30 | 69 | 124 | 4589.00 | -26.59 | 0.02 | -0.09 | -0.88 | -176.58 |
| 37 | 66 | 4528.39 | 0.80 | 0.00 | 0.00 | 0.02 | 3.30 | 69 | 133 | -4586.07 | 26.59 | -0.02 | 0.09 | 0.77 | 58.44 |
| 37 | 67 | -4535.79 | -0.80 | 0.00 | 0.00 | -0.02 | 1.48 | 70 | 133 | 4586.08 | -26.59 | 0.02 | -0.09 | -0.77 | -58.44 |
| 38 | 67 | 4535.78 | 0.80 | 0.00 | 0.00 | 0.02 | -1.48 | 70 | 134 | -4581.59 | 26.59 | -0.02 | 0.09 | 0.66 | -59.70 |
| 38 | 68 | -4543.33 | -0.80 | 0.00 | 0.00 | -0.02 | 6.23 | 71 | 134 | 4628.52 | -26.59 | 0.02 | -0.09 | -0.66 | 73.91 |
| 39 | 68 | 4543.32 | 0.16 | 0.00 | 0.00 | 0.02 | -6.23 | 71 | 135 | -4606.85 | 26.59 | -0.02 | 0.09 | 0.55 | -189.94 |
| 39 | 78 | -4551.02 | -0.16 | 0.00 | 0.00 | -0.02 | 8.06 | 72 | 135 | 4606.85 | -26.59 | 0.02 | -0.09 | -0.55 | 189.94 |
| 40 | 78 | 4551.02 | 0.16 | 0.00 | 0.00 | 0.02 | -8.06 | 72 | 136 | -4580.33 | 26.59 | -0.02 | 0.09 | 0.44 | -305.04 |
| 40 | 79 | -4554.38 | -0.16 | 0.00 | 0.00 | -0.01 | 10.05 | 73 | 136 | 4580.33 | -26.59 | 0.02 | -0.09 | -0.44 | 305.04 |
| 41 | 79 | 4554.38 | 0.16 | 0.00 | 0.00 | 0.01 | -10.05 | 73 | 137 | -4553.97 | 26.59 | -0.02 | 0.09 | 0.33 | -420.17 |
| 41 | 80 | -4528.94 | -0.16 | 0.00 | 0.00 | -0.01 | 18.50 | 74 | 137 | 4553.97 | -26.59 | 0.02 | -0.09 | -0.33 | 420.17 |
| 42 | 80 | 4528.94 | 0.16 | 0.00 | 0.00 | 0.01 | -18.50 | 74 | 138 | -4527.75 | 26.59 | -0.02 | 0.09 | 0.22 | -535.33 |
| 42 | 81 | -4542.60 | -0.16 | 0.00 | 0.00 | -0.01 | 15.21 | 75 | 138 | 3468.10 | -26.59 | 0.02 | -0.09 | -0.22 | 498.38 |
| 43 | 81 | 4542.61 | 0.16 | 0.00 | 0.00 | 0.01 | -15.21 | 75 | 139 | -3448.13 | 26.59 | -0.02 | 0.09 | 0.11 | -613.77 |
| 43 | 82 | -4556.42 | -0.16 | 0.00 | 0.00 | 0.00 | 11.89 | 76 | 139 | 3448.13 | -26.59 | 0.02 | -0.09 | -0.11 | 613.77 |
| 44 | 82 | 4556.42 | 0.16 | 0.00 | 0.00 | 0.00 | -11.89 | 76 | 140 | -3428.29 | 26.59 | -0.02 | 0.09 | 0.00 | -729.19 |
| 44 | 83 | -4570.39 | -0.16 | 0.00 | 0.00 | 0.00 | 8.55 | 77 | 16 | -42.54 | 0.00 | 0.08 | 0.00 | -0.81 | 0.00 |
| 45 | 83 | 4570.38 | 0.16 | 0.00 | 0.00 | 0.00 | -8.55 | 77 | 17 | 42.54 | 0.00 | -0.08 | 0.00 | 0.36 | 0.00 |
| 45 | 84 | -4576.63 | -0.16 | 0.00 | 0.00 | 0.00 | 6.31 | 78 | 17 | -42.54 | 0.00 | 0.08 | 0.00 | -0.36 | 0.00 |
| 46 | 84 | 4576.64 | 0.16 | 0.00 | 0.00 | 0.00 | -6.31 | 78 | 18 | 42.54 | 0.00 | -0.08 | 0.00 | -0.06 | 0.00 |
| 46 | 85 | -4554.89 | -0.16 | 0.00 | 0.00 | 0.01 | 6.38 | 79 | 33 | 18.01 | 0.00 | -0.04 | 0.00 | 0.45 | 0.00 |
| 47 | 85 | 4554.88 | 0.16 | 0.00 | 0.00 | -0.01 | -6.38 | 79 | 34 | -18.01 | 0.00 | 0.04 | 0.00 | -0.13 | 0.00 |
| 47 | 86 | -4559.28 | -0.16 | 0.00 | 0.00 | 0.01 | 5.55 | 80 | 34 | 18.01 | 0.00 | -0.04 | 0.00 | 0.13 | 0.00 |
| 48 | 86 | 4559.28 | 0.16 | 0.00 | 0.00 | -0.01 | -5.55 | 80 | 35 | -18.01 | 0.00 | 0.04 | 0.00 | 0.08 | 0.00 |
| 48 | 87 | -4563.83 | -0.16 | 0.00 | 0.00 | 0.01 | 4.70 | 81 | 50 | -4.54 | 0.00 | 0.00 | 0.00 | -0.03 | 0.00 |
| 49 | 87 | 4563.83 | -1.24 | 0.00 | -0.01 | -0.01 | -4.70 | 81 | 51 | 4.54 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| 49 | 97 | -4568.53 | 1.24 | 0.00 | 0.01 | 0.02 | -2.45 | 82 | 51 | -4.54 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 50 | 97 | 4568.54 | -1.24 | 0.00 | -0.01 | -0.02 | 2.45 | 82 | 52 | 4.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 50 | 98 | -4566.63 | 1.24 | 0.00 | 0.01 | 0.03 | -7.56 | 83 | 52 | -4.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 51 | 98 | 4566.63 | -1.24 | 0.00 | -0.01 | -0.03 | 7.56 | 83 | 53 | 4.54 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 51 | 99 | -4528.39 | 1.24 | 0.00 | 0.01 | 0.04 | -5.79 | 84 | 53 | -4.54 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| 52 | 99 | 4528.39 | -1.24 | 0.00 | -0.01 | -0.04 | 5.79 | 84 | 54 | 4.54 | 0.00 | 0.00 | 0.00 | -0.03 | 0.00 |
| 52 | 100 | -4535.78 | 1.24 | 0.00 | 0.01 | 0.05 | -10.19 | 85 | 69 | -0.64 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 53 | 100 | 4535.79 | -1.24 | 0.00 | -0.01 | -0.05 | 10.19 | 85 | 70 | 0.64 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 53 | 101 | -4543.33 | 1.24 | 0.00 | 0.01 | 0.06 | -14.62 | 86 | 70 | -0.64 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 54 | 101 | 4543.33 | -1.24 | 0.00 | -0.01 | -0.06 | 14.62 | 86 | 71 | 0.64 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 54 | 102 | -4551.02 | 1.24 | 0.00 | 0.01 | 0.06 | -19.07 | 87 | 71 | -0.64 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 55 | 102 | 4551.02 | -1.24 | 0.00 | -0.01 | -0.06 | 19.07 | 87 | 72 | 0.64 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 55 | 103 | -4554.38 | 1.24 | 0.00 | 0.01 | 0.07 | -23.35 | 88 | 72 | -0.64 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 56 | 103 | 4554.38 | -1.24 | 0.00 | -0.01 | -0.07 | 23.35 | 88 | 73 | 0.64 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 56 | 104 | -4533.46 | 1.24 | 0.00 | 0.01 | 0.08 | -22.55 | 89 | 88 | -1.40 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 |
| 57 | 104 | 4533.47 | -1.24 | 0.00 | -0.01 | -0.08 | 22.55 | 89 | 89 | 1.40 | 0.00 | 0.00 | 0.00 | -0.03 | 0.00 |
| 57 | 105 | -4547.15 | 1.24 | 0.00 | 0.01 | 0.09 | -32.13 | 90 | 89 | -1.40 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 |
| 58 | 105 | 4547.15 | -1.24 | 0.00 | -0.01 | -0.09 | 32.13 | 90 | 90 | 1.40 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 58 | 106 | -4560.99 | 1.24 | 0.00 | 0.01 | 0.10 | -41.73 | 91 | 90 | -1.40 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 91 | 91 | 1.40 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 92 | 91 | -1.40 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 92 | 92 | 1.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 93 | 107 | 6.21 | 0.00 | -0.02 | 0.00 | 0.18 | 0.00 |
| 93 | 108 | -6.21 | 0.00 | 0.02 | 0.00 | -0.17 | 0.00 |
| 94 | 108 | 6.21 | 0.00 | -0.02 | 0.00 | 0.17 | 0.00 |
| 94 | 109 | -6.21 | 0.00 | 0.02 | 0.00 | -0.01 | 0.00 |
| 95 | 109 | 6.21 | 0.00 | -0.02 | 0.00 | 0.01 | 0.00 |
| 95 | 110 | -6.21 | 0.00 | 0.02 | 0.00 | 0.07 | 0.00 |
| 96 | 125 | -31.55 | 0.00 | 0.04 | 0.00 | -0.57 | 0.00 |
| 96 | 126 | 31.55 | 0.00 | -0.04 | 0.00 | 0.53 | 0.00 |
| 97 | 126 | -31.55 | 0.00 | 0.04 | 0.00 | -0.53 | 0.00 |
| 97 | 127 | 31.55 | 0.00 | -0.04 | 0.00 | 0.11 | 0.00 |
| 98 | 127 | -31.55 | 0.00 | 0.04 | 0.00 | -0.11 | 0.00 |
| 98 | 128 | 31.55 | 0.00 | -0.04 | 0.00 | -0.10 | 0.00 |
| 99 | 2 | 14.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -14.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 14.94 | 0.00 | -0.04 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -14.94 | 0.00 | 0.04 | 0.00 | 0.08 | 0.00 |
| 101 | 19 | -21.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | 21.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | -21.25 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | 21.25 | 0.00 | -0.08 | 0.00 | -0.14 | 0.00 |
| 103 | 36 | 9.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -9.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 8.98 | 0.00 | -0.04 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -8.98 | 0.00 | 0.04 | 0.00 | 0.07 | 0.00 |
| 105 | 55 | -2.28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | 2.28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | -2.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | 2.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 74 | -0.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | 0.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | -0.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | 0.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 93 | -0.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | 0.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | -0.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | 0.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 111 | 3.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -3.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 3.09 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -3.09 | 0.00 | 0.02 | 0.00 | 0.03 | 0.00 |
| 113 | 129 | -15.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | 15.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | -15.75 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | 15.75 | 0.00 | -0.04 | 0.00 | -0.07 | 0.00 |
| 115 | 141 | 13.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -13.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 13.29 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -13.29 | 0.00 | 0.02 | 0.00 | 0.04 | 0.00 |
| 117 | 6 | 29.88 | 0.00 | -0.04 | 0.00 | 0.03 | 0.00 |
| 117 | 7 | -29.88 | 0.00 | 0.04 | 0.00 | 0.01 | 0.00 |
| 118 | 145 | 26.59 | 0.00 | -0.02 | 0.00 | -0.02 | 0.00 |
| 118 | 146 | -26.59 | 0.00 | 0.02 | 0.00 | 0.04 | 0.00 |
| 119 | 3 | 0.00 | 14.94 | 0.01 | 0.00 | 0.04 | 0.00 |
| 119 | 1 | 0.00 | -14.94 | -0.01 | 0.00 | 0.03 | 63.49 |
| 120 | 1 | 0.04 | -14.94 | -0.01 | 0.00 | 0.00 | -63.41 |
| 120 | 5 | -0.04 | 14.94 | 0.01 | 0.00 | -0.01 | -0.08 |
| 121 | 20 | 0.00 | -21.29 | -0.15 | 0.00 | 0.15 | 0.00 |
| 121 | 15 | 0.00 | 21.29 | 0.15 | 0.00 | -0.01 | -39.38 |
| 122 | 15 | -0.08 | 21.25 | -0.09 | 0.00 | 0.14 | 39.18 |
| 122 | 22 | 0.08 | -21.25 | 0.09 | 0.00 | -0.02 | 0.14 |
| 123 | 37 | 0.00 | 9.03 | -0.13 | 0.00 | -0.07 | 0.00 |
| 123 | 32 | 0.00 | -9.03 | 0.13 | 0.00 | -0.08 | 16.70 |
| 124 | 32 | 0.04 | -8.98 | 0.03 | 0.00 | -0.05 | -16.55 |
| 124 | 39 | -0.04 | 8.98 | -0.03 | 0.00 | -0.05 | -0.07 |
| 125 | 56 | 0.00 | -2.28 | 0.17 | 0.00 | 0.22 | 0.00 |
| 125 | 49 | 0.00 | 2.28 | -0.17 | 0.00 | 0.05 | -4.22 |
| 126 | 49 | 0.00 | 2.26 | 0.17 | 0.00 | 0.00 | 4.18 |
| 126 | 58 | 0.00 | -2.26 | -0.17 | 0.00 | -0.18 | 0.00 |
| 127 | 75 | 0.00 | -0.32 | 0.01 | 0.00 | 0.03 | 0.00 |
| 127 | 68 | 0.00 | 0.32 | -0.01 | 0.00 | 0.02 | -0.60 |
| 128 | 68 | 0.00 | 0.32 | 0.08 | 0.00 | 0.05 | 0.59 |
| 128 | 77 | 0.00 | -0.32 | -0.08 | 0.00 | 0.04 | 0.00 |
| 129 | 94 | 0.00 | -0.70 | -0.01 | 0.00 | 0.06 | 0.00 |
| 129 | 87 | 0.00 | 0.70 | 0.01 | 0.00 | 0.03 | -1.29 |
| 130 | 87 | 0.00 | 0.70 | -0.02 | 0.00 | 0.02 | 1.29 |
| 130 | 96 | 0.00 | -0.70 | 0.02 | 0.00 | -0.01 | 0.00 |
| 131 | 112 | 0.00 | 3.12 | 0.00 | 0.00 | -0.03 | 0.00 |
| 131 | 106 | 0.00 | -3.12 | 0.00 | 0.00 | -0.02 | 5.77 |
| 132 | 106 | 0.02 | -3.09 | 0.03 | 0.00 | -0.01 | -5.68 |
| 132 | 114 | -0.02 | 3.09 | -0.03 | 0.00 | 0.00 | -0.03 |
| 133 | 130 | 0.00 | -15.80 | -0.02 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | 15.80 | 0.02 | 0.00 | 0.02 | -29.24 |
| 134 | 124 | -0.04 | 15.75 | -0.02 | 0.00 | 0.01 | 29.07 |
| 134 | 132 | 0.04 | -15.75 | 0.02 | 0.00 | 0.03 | 0.07 |
| 135 | 142 | 0.00 | 13.30 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -13.30 | 0.00 | 0.00 | 0.00 | 56.52 |
| 136 | 140 | 0.02 | -13.29 | 0.00 | 0.00 | 0.00 | -56.43 |
| 136 | 144 | -0.02 | 13.29 | 0.00 | 0.00 | 0.00 | -0.04 |
| 137 | 2 | 0.00 | -14.94 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 14.94 | 0.00 | 0.00 | 0.00 | -63.49 |
| 138 | 7 | -0.04 | 14.94 | 0.00 | 0.00 | 0.00 | 63.48 |
| 138 | 4 | 0.04 | -14.94 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | 21.29 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | -21.29 | 0.00 | 0.00 | 0.00 | 39.38 |
| 140 | 18 | 0.08 | -21.25 | 0.00 | 0.00 | 0.00 | -39.32 |
| 140 | 21 | -0.08 | 21.25 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -9.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 9.03 | 0.00 | 0.00 | 0.00 | -16.70 |
| 142 | 35 | -0.04 | 8.98 | 0.00 | 0.00 | 0.00 | 16.62 |
| 142 | 38 | 0.04 | -8.98 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | 2.28 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | -2.28 | 0.00 | 0.00 | 0.00 | 4.22 |
| 144 | 54 | 0.00 | -2.26 | 0.00 | 0.00 | 0.00 | -4.19 |
| 144 | 57 | 0.00 | 2.26 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | 0.32 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | -0.32 | 0.00 | 0.00 | 0.00 | 0.60 |
| 146 | 73 | 0.00 | -0.32 | 0.00 | 0.00 | 0.00 | -0.59 |
| 146 | 76 | 0.00 | 0.32 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | 0.70 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | -0.70 | 0.00 | 0.00 | 0.00 | 1.29 |
| 148 | 92 | 0.00 | -0.70 | 0.00 | 0.00 | 0.00 | -1.29 |
| 148 | 95 | 0.00 | 0.70 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | -3.12 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 3.12 | 0.00 | 0.00 | 0.00 | -5.77 |
| 150 | 110 | -0.02 | 3.09 | 0.00 | 0.00 | 0.00 | 5.71 |
| 150 | 113 | 0.02 | -3.09 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | 15.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | -15.80 | 0.00 | 0.00 | 0.00 | 29.24 |
| 152 | 128 | 0.04 | -15.75 | 0.00 | 0.00 | 0.00 | -29.14 |
| 152 | 131 | -0.04 | 15.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -13.30 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 13.30 | 0.00 | 0.00 | 0.00 | -56.52 |
| 154 | 146 | -0.02 | 13.29 | 0.00 | 0.00 | 0.00 | 56.47 |
| 154 | 143 | 0.02 | -13.29 | 0.00 | 0.00 | 0.00 | 0.00 |

# MAX. Y MIN. DE SOBRECARGA (IPF-75)

Ver nota en hipótesis simples.

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS 31

FUER X MAX sobrecarga + fr. + fc (ipf-75)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 298.99 | -0.11 | 0.20 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -199.09 | 0.11 | -0.20 | 0.49 | 1120.70 |
| 2 | 8 | 0.00 | 199.09 | -0.11 | 0.20 | -0.49 | -1120.69 |
| 2 | 9 | 0.00 | -99.19 | 0.11 | -0.20 | 0.97 | 1791.84 |
| 3 | 9 | 0.00 | 99.19 | -0.11 | 0.20 | -0.97 | -1791.84 |
| 3 | 10 | 0.00 | 0.71 | 0.11 | -0.20 | 1.46 | 2013.44 |
| 4 | 10 | 0.00 | -0.71 | -0.11 | 0.20 | -1.46 | -2013.44 |
| 4 | 11 | 0.00 | 100.61 | 0.11 | -0.20 | 1.94 | 1785.48 |
| 5 | 11 | 0.00 | -100.61 | -0.11 | 0.20 | -1.94 | -1785.48 |
| 5 | 12 | 0.00 | 200.51 | 0.11 | -0.20 | 2.43 | 1107.98 |
| 6 | 12 | 0.00 | -200.51 | -0.11 | 0.20 | -2.43 | -1107.98 |
| 6 | 13 | 0.00 | 300.41 | 0.11 | -0.20 | 2.92 | -19.08 |
| 7 | 13 | 0.00 | -300.41 | -0.11 | 0.20 | -2.92 | 19.08 |
| 7 | 14 | 0.00 | 400.31 | 0.11 | -0.20 | 3.40 | -1595.68 |
| 8 | 14 | 0.00 | -400.31 | -0.11 | 0.20 | -3.40 | 1595.68 |
| 8 | 15 | 0.00 | 500.21 | 0.11 | -0.20 | 3.89 | -3621.83 |
| 9 | 15 | 0.00 | 495.57 | 0.08 | -0.24 | -3.89 | 3621.83 |
| 9 | 23 | -10.69 | -399.84 | -0.08 | 0.24 | 3.49 | -1615.24 |
| 10 | 23 | 10.69 | 399.84 | 0.08 | -0.24 | -3.49 | 1615.24 |
| 10 | 24 | -21.37 | -299.94 | -0.08 | 0.24 | 3.13 | -59.74 |
| 11 | 24 | 21.37 | 299.93 | 0.08 | -0.24 | -3.13 | 59.74 |
| 11 | 25 | -32.06 | -200.03 | -0.08 | 0.24 | 2.77 | 1046.22 |
| 12 | 25 | 32.06 | 200.03 | 0.08 | -0.24 | -2.77 | -1046.22 |
| 12 | 26 | -42.75 | -100.13 | -0.08 | 0.24 | 2.41 | 1702.62 |
| 13 | 26 | 42.75 | 100.14 | 0.08 | -0.24 | -2.41 | -1702.62 |
| 13 | 27 | -53.44 | -0.24 | -0.08 | 0.24 | 2.06 | 1909.47 |
| 14 | 27 | 53.44 | 0.24 | 0.08 | -0.24 | -2.06 | -1909.47 |
| 14 | 28 | -64.12 | 99.66 | -0.08 | 0.24 | 1.70 | 1666.77 |
| 15 | 28 | 64.12 | -99.67 | 0.08 | -0.24 | -1.70 | -1666.77 |
| 15 | 29 | -74.81 | 199.57 | -0.08 | 0.24 | 1.34 | 974.52 |
| 16 | 29 | 74.81 | -199.56 | 0.08 | -0.24 | -1.34 | -974.52 |
| 16 | 30 | -85.50 | 299.46 | -0.08 | 0.24 | 0.99 | -167.28 |
| 17 | 30 | 85.50 | -299.47 | 0.08 | -0.24 | -0.99 | 167.28 |
| 17 | 31 | -96.19 | 399.37 | -0.08 | 0.24 | 0.63 | -1758.63 |
| 18 | 31 | 96.19 | -399.36 | 0.08 | -0.24 | -0.63 | 1758.63 |
| 18 | 32 | -106.87 | 499.26 | -0.08 | 0.24 | 0.27 | -3799.52 |
| 19 | 32 | 106.87 | 505.56 | 0.01 | 0.02 | -0.27 | 3799.53 |
| 19 | 40 | -117.56 | -405.66 | -0.01 | -0.02 | 0.24 | -1768.28 |
| 20 | 40 | 117.56 | 405.66 | 0.01 | 0.02 | -0.24 | 1768.28 |
| 20 | 41 | -128.25 | -305.76 | -0.01 | -0.02 | 0.21 | -186.58 |
| 21 | 41 | 128.25 | 305.76 | 0.01 | 0.02 | -0.21 | 186.58 |
| 21 | 42 | -138.94 | -205.86 | -0.01 | -0.02 | 0.18 | 945.57 |
| 22 | 42 | 138.94 | 205.86 | 0.01 | 0.02 | -0.18 | -945.57 |
| 22 | 43 | -149.62 | -105.96 | -0.01 | -0.02 | 0.15 | 1628.17 |
| 23 | 43 | 149.62 | 105.96 | 0.01 | 0.02 | -0.15 | -1628.17 |
| 23 | 44 | -160.31 | -6.06 | -0.01 | -0.02 | 0.12 | 1861.22 |
| 24 | 44 | 160.31 | 6.06 | 0.01 | 0.02 | -0.12 | -1861.22 |
| 24 | 45 | -171.00 | 93.84 | -0.01 | -0.02 | 0.09 | 1644.72 |
| 25 | 45 | 171.00 | -93.84 | 0.01 | 0.02 | -0.09 | -1644.72 |
| 25 | 46 | -181.69 | 193.74 | -0.01 | -0.02 | 0.06 | 978.67 |
| 26 | 46 | 181.69 | -193.74 | 0.01 | 0.02 | -0.06 | -978.67 |
| 26 | 47 | -192.37 | 293.64 | -0.01 | -0.02 | 0.03 | -136.93 |
| 27 | 47 | 192.37 | -293.64 | 0.01 | 0.02 | -0.03 | 136.93 |
| 27 | 48 | -203.06 | 393.54 | -0.01 | -0.02 | 0.00 | -1702.08 |
| 28 | 48 | 203.06 | -393.54 | 0.01 | 0.02 | 0.00 | 1702.08 |
| 28 | 49 | -213.75 | 493.44 | -0.01 | -0.02 | -0.03 | -3716.78 |
| 29 | 49 | 213.75 | 502.95 | 0.00 | 0.00 | 0.03 | 3716.78 |
| 29 | 59 | -224.44 | -403.05 | 0.00 | 0.00 | -0.03 | -1697.28 |
| 30 | 59 | 224.44 | 403.05 | 0.00 | 0.00 | 0.03 | 1697.28 |
| 30 | 60 | -235.12 | -303.15 | 0.00 | 0.00 | -0.04 | -127.33 |
| 31 | 60 | 235.12 | 303.15 | 0.00 | 0.00 | 0.04 | 127.33 |
| 31 | 61 | -245.81 | -203.25 | 0.00 | 0.00 | -0.04 | 993.07 |
| 32 | 61 | 245.81 | 203.25 | 0.00 | 0.00 | 0.04 | -993.07 |
| 32 | 62 | -256.50 | -103.35 | 0.00 | 0.00 | -0.05 | 1663.93 |
| 33 | 62 | 256.50 | 103.35 | 0.00 | 0.00 | 0.05 | -1663.92 |
| 33 | 63 | -267.19 | -3.45 | 0.00 | 0.00 | -0.05 | 1885.23 |
| 34 | 63 | 267.19 | 3.45 | 0.00 | 0.00 | 0.05 | -1885.23 |
| 34 | 64 | -277.87 | 96.45 | 0.00 | 0.00 | -0.06 | 1656.98 |
| 35 | 64 | 277.87 | -96.45 | 0.00 | 0.00 | 0.06 | -1656.98 |
| 35 | 65 | -288.56 | 196.35 | 0.00 | 0.00 | -0.07 | 979.18 |
| 36 | 65 | 288.56 | -196.35 | 0.00 | 0.00 | 0.07 | -979.18 |
| 36 | 66 | -299.25 | 296.25 | 0.00 | 0.00 | -0.07 | -148.17 |
| 37 | 66 | 299.25 | -296.25 | 0.00 | 0.00 | 0.07 | 148.17 |
| 37 | 67 | -309.94 | 396.15 | 0.00 | 0.00 | -0.08 | -1725.07 |
| 38 | 67 | 309.94 | -396.15 | 0.00 | 0.00 | 0.08 | 1725.07 |
| 38 | 68 | -320.62 | 496.05 | 0.00 | 0.00 | -0.08 | -3751.52 |
| 39 | 68 | 320.62 | 504.58 | 0.00 | -0.01 | 0.08 | 3751.52 |
| 39 | 78 | -331.31 | -404.68 | 0.00 | 0.01 | -0.06 | -1724.65 |
| 40 | 78 | 331.31 | 404.68 | 0.00 | -0.01 | 0.06 | 1724.65 |
| 40 | 79 | -342.00 | -304.78 | 0.00 | 0.01 | -0.04 | -147.32 |
| 41 | 79 | 342.00 | 304.78 | 0.00 | -0.01 | 0.04 | 147.32 |
| 41 | 80 | -352.69 | -204.88 | 0.00 | 0.01 | -0.03 | 980.46 |
| 42 | 80 | 352.69 | 204.88 | 0.00 | -0.01 | 0.03 | -980.46 |
| 42 | 81 | -363.37 | -104.98 | 0.00 | 0.01 | -0.01 | 1658.68 |
| 43 | 81 | 363.37 | 104.98 | 0.00 | -0.01 | 0.01 | -1658.68 |
| 43 | 82 | -374.06 | -5.08 | 0.00 | 0.01 | 0.01 | 1887.36 |
| 44 | 82 | 374.06 | 5.09 | 0.00 | -0.01 | -0.01 | -1887.36 |
| 44 | 83 | -384.75 | 94.81 | 0.00 | 0.01 | 0.03 | 1666.48 |
| 45 | 83 | 384.75 | -94.82 | 0.00 | -0.01 | -0.03 | -1666.48 |
| 45 | 84 | -395.44 | 194.72 | 0.00 | 0.01 | 0.05 | 996.06 |
| 46 | 84 | 395.44 | -194.71 | 0.00 | -0.01 | -0.05 | -996.06 |
| 46 | 85 | -406.12 | 294.61 | 0.00 | 0.01 | 0.07 | -123.92 |
| 47 | 85 | 406.12 | -294.62 | 0.00 | -0.01 | -0.07 | 123.92 |
| 47 | 86 | -416.81 | 394.52 | 0.00 | 0.01 | 0.09 | -1693.44 |
| 48 | 86 | 416.81 | -394.52 | 0.00 | -0.01 | -0.09 | 1693.44 |
| 48 | 87 | -427.50 | 494.42 | 0.00 | 0.01 | 0.11 | -3712.52 |
| 49 | 87 | 427.50 | 500.37 | -0.02 | 0.01 | -0.11 | 3712.52 |
| 49 | 97 | -438.19 | -400.47 | 0.02 | -0.01 | 0.18 | -1704.61 |
| 50 | 97 | 438.19 | 400.47 | -0.02 | 0.01 | -0.18 | 1704.61 |
| 50 | 98 | -448.87 | -300.57 | 0.02 | -0.01 | 0.25 | -146.26 |
| 51 | 98 | 448.87 | 300.57 | -0.02 | 0.01 | -0.25 | 146.25 |
| 51 | 99 | -459.56 | -200.67 | 0.02 | -0.01 | 0.32 | 962.55 |
| 52 | 99 | 459.56 | 200.67 | -0.02 | 0.01 | -0.32 | -962.55 |
| 52 | 100 | -470.25 | -100.77 | 0.02 | -0.01 | 0.38 | 1621.81 |
| 53 | 100 | 470.25 | 100.77 | -0.02 | 0.01 | -0.38 | -1621.81 |
| 53 | 101 | -480.94 | -0.87 | 0.02 | -0.01 | 0.45 | 1831.51 |
| 54 | 101 | 480.94 | 0.87 | -0.02 | 0.01 | -0.45 | -1831.51 |
| 54 | 102 | -491.62 | 99.03 | 0.02 | -0.01 | 0.52 | 1591.66 |
| 55 | 102 | 491.62 | -99.03 | -0.02 | 0.01 | -0.52 | -1591.66 |
| 55 | 103 | -502.31 | 198.93 | 0.02 | -0.01 | 0.59 | 902.27 |
| 56 | 103 | 502.31 | -198.93 | -0.02 | 0.01 | -0.59 | -902.27 |
| 56 | 104 | -513.00 | 298.83 | 0.02 | -0.01 | 0.66 | -236.68 |
| 57 | 104 | 513.00 | -298.83 | -0.02 | 0.01 | -0.66 | 236.68 |
| 57 | 105 | -523.69 | 398.73 | 0.02 | -0.01 | 0.73 | -1825.17 |
| 58 | 105 | 523.69 | -398.73 | -0.02 | 0.01 | -0.73 | 1825.17 |
| 58 | 106 | -534.37 | 498.63 | 0.02 | -0.01 | 0.80 | -3863.22 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 59 | 106 | 534.37 | 515.50 | -0.07 | 0.36 | -0.80 | 3863.22 |
| 59 | 115 | -545.06 | -415.60 | 0.07 | -0.36 | 1.12 | -1787.24 |
| 60 | 115 | 545.06 | 415.60 | -0.07 | 0.36 | -1.12 | 1787.24 |
| 60 | 116 | -555.75 | -315.70 | 0.07 | -0.36 | 1.44 | -160.81 |
| 61 | 116 | 555.75 | 315.70 | -0.07 | 0.36 | -1.44 | 160.81 |
| 61 | 117 | -566.44 | -215.80 | 0.07 | -0.36 | 1.75 | 1016.08 |
| 62 | 117 | 566.44 | 215.80 | -0.07 | 0.36 | -1.75 | -1016.08 |
| 62 | 118 | -577.12 | -115.90 | 0.07 | -0.36 | 2.07 | 1743.41 |
| 63 | 118 | 577.12 | 115.90 | -0.07 | 0.36 | -2.07 | -1743.41 |
| 63 | 119 | -587.81 | -16.00 | 0.07 | -0.36 | 2.39 | 2021.19 |
| 64 | 119 | 587.81 | 16.00 | -0.07 | 0.36 | -2.39 | -2021.19 |
| 64 | 120 | -598.50 | 83.90 | 0.07 | -0.36 | 2.71 | 1849.42 |
| 65 | 120 | 598.50 | -83.90 | -0.07 | 0.36 | -2.71 | -1849.42 |
| 65 | 121 | -609.19 | 183.80 | 0.07 | -0.36 | 3.03 | 1228.10 |
| 66 | 121 | 609.19 | -183.80 | -0.07 | 0.36 | -3.03 | -1228.10 |
| 66 | 122 | -619.87 | 283.70 | 0.07 | -0.36 | 3.35 | 157.23 |
| 67 | 122 | 619.87 | -283.70 | -0.07 | 0.36 | -3.35 | -157.23 |
| 67 | 123 | -630.56 | 383.60 | 0.07 | -0.36 | 3.67 | -1363.19 |
| 68 | 123 | 630.56 | -383.60 | -0.07 | 0.36 | -3.67 | 1363.19 |
| 68 | 124 | -641.25 | 483.50 | 0.07 | -0.36 | 3.98 | -3333.16 |
| 69 | 124 | 641.25 | 461.84 | 0.11 | -0.37 | -3.98 | 3333.16 |
| 69 | 133 | -651.94 | -361.94 | -0.11 | 0.37 | 3.49 | -1498.62 |
| 70 | 133 | 651.94 | 361.94 | 0.11 | -0.37 | -3.49 | 1498.62 |
| 70 | 134 | -662.63 | -262.04 | -0.11 | 0.37 | 2.99 | -113.62 |
| 71 | 134 | 662.63 | 262.04 | 0.11 | -0.37 | -2.99 | 113.62 |
| 71 | 135 | -673.31 | -162.14 | -0.11 | 0.37 | 2.49 | 821.83 |
| 72 | 135 | 673.31 | 162.14 | 0.11 | -0.37 | -2.49 | -821.82 |
| 72 | 136 | -684.00 | -62.24 | -0.11 | 0.37 | 1.99 | 1307.72 |
| 73 | 136 | 684.00 | 62.24 | 0.11 | -0.37 | -1.99 | -1307.72 |
| 73 | 137 | -694.69 | 37.66 | -0.11 | 0.37 | 1.49 | 1344.07 |
| 74 | 137 | 694.69 | -37.66 | 0.11 | -0.37 | -1.49 | -1344.07 |
| 74 | 138 | -705.38 | 137.56 | -0.11 | 0.37 | 1.00 | 930.86 |
| 75 | 138 | 705.38 | -137.55 | 0.11 | -0.37 | -1.00 | -930.86 |
| 75 | 139 | -716.06 | 237.45 | -0.11 | 0.37 | 0.50 | 68.11 |
| 76 | 139 | 716.06 | -237.46 | 0.11 | -0.37 | -0.50 | -68.11 |
| 76 | 140 | -726.75 | 337.36 | -0.11 | 0.37 | 0.00 | -1244.20 |
| 77 | 16 | 1243.81 | 0.00 | -0.13 | 0.00 | 1.24 | 0.00 |
| 77 | 17 | -1243.81 | 0.00 | 0.13 | 0.00 | -0.52 | 0.00 |
| 78 | 17 | 1243.81 | 0.00 | -0.13 | 0.00 | 0.52 | 0.00 |
| 78 | 18 | -1243.81 | 0.00 | 0.13 | 0.00 | 0.15 | 0.00 |
| 79 | 33 | 1303.07 | 0.00 | -0.21 | 0.00 | 2.23 | 0.00 |
| 79 | 34 | -1303.07 | 0.00 | 0.21 | 0.00 | -0.61 | 0.00 |
| 80 | 34 | 1303.07 | 0.00 | -0.21 | 0.00 | 0.61 | 0.00 |
| 80 | 35 | -1303.07 | 0.00 | 0.21 | 0.00 | 0.46 | 0.00 |
| 81 | 50 | 1313.64 | 0.00 | -0.14 | 0.00 | 3.41 | 0.00 |
| 81 | 51 | -1313.64 | 0.00 | 0.14 | 0.00 | -2.85 | 0.00 |
| 82 | 51 | 1313.64 | 0.00 | -0.14 | 0.00 | 2.85 | 0.00 |
| 82 | 52 | -1313.64 | 0.00 | 0.14 | 0.00 | -1.43 | 0.00 |
| 83 | 52 | 1313.64 | 0.00 | -0.14 | 0.00 | 1.43 | 0.00 |
| 83 | 53 | -1313.64 | 0.00 | 0.14 | 0.00 | -0.01 | 0.00 |
| 84 | 53 | 1313.64 | 0.00 | -0.14 | 0.00 | 0.01 | 0.00 |
| 84 | 54 | -1313.64 | 0.00 | 0.14 | 0.00 | 0.70 | 0.00 |
| 85 | 69 | 1318.84 | 0.00 | -0.10 | 0.00 | 2.41 | 0.00 |
| 85 | 70 | -1318.84 | 0.00 | 0.10 | 0.00 | -1.71 | 0.00 |
| 86 | 70 | 1318.84 | 0.00 | -0.10 | 0.00 | 1.71 | 0.00 |
| 86 | 71 | -1318.84 | 0.00 | 0.10 | 0.00 | -0.72 | 0.00 |
| 87 | 71 | 1318.84 | 0.00 | -0.10 | 0.00 | 0.72 | 0.00 |
| 87 | 72 | -1318.84 | 0.00 | 0.10 | 0.00 | 0.27 | 0.00 |
| 88 | 72 | 1318.84 | 0.00 | -0.10 | 0.00 | -0.27 | 0.00 |
| 88 | 73 | -1318.84 | 0.00 | 0.10 | 0.00 | 0.77 | 0.00 |
| 89 | 88 | 1315.65 | 0.00 | -0.17 | 0.00 | 3.49 | 0.00 |
| 89 | 89 | -1315.65 | 0.00 | 0.17 | 0.00 | -3.33 | 0.00 |
| 90 | 89 | 1315.65 | 0.00 | -0.17 | 0.00 | 3.33 | 0.00 |
| 90 | 90 | -1315.65 | 0.00 | 0.17 | 0.00 | -1.67 | 0.00 |
| 91 | 90 | 1315.65 | 0.00 | -0.17 | 0.00 | 1.67 | 0.00 |
| 91 | 91 | -1315.65 | 0.00 | 0.17 | 0.00 | -0.01 | 0.00 |
| 92 | 91 | 1315.65 | 0.00 | -0.17 | 0.00 | 0.01 | 0.00 |
| 92 | 92 | -1315.65 | 0.00 | 0.17 | 0.00 | 0.82 | 0.00 |
| 93 | 107 | 1307.35 | 0.00 | -0.20 | 0.00 | 2.61 | 0.00 |
| 93 | 108 | -1307.35 | 0.00 | 0.20 | 0.00 | -2.40 | 0.00 |
| 94 | 108 | 1307.35 | 0.00 | -0.20 | 0.00 | 2.40 | 0.00 |
| 94 | 109 | -1307.35 | 0.00 | 0.20 | 0.00 | -0.39 | 0.00 |
| 95 | 109 | 1307.35 | 0.00 | -0.20 | 0.00 | 0.39 | 0.00 |
| 95 | 110 | -1307.35 | 0.00 | 0.20 | 0.00 | 0.61 | 0.00 |
| 96 | 125 | 1266.71 | 0.00 | -0.11 | 0.00 | 1.39 | 0.00 |
| 96 | 126 | -1266.71 | 0.00 | 0.11 | 0.00 | -1.28 | 0.00 |
| 97 | 126 | 1266.71 | 0.00 | -0.11 | 0.00 | 1.28 | 0.00 |
| 97 | 127 | -1266.71 | 0.00 | 0.11 | 0.00 | -0.21 | 0.00 |
| 98 | 127 | 1266.71 | 0.00 | -0.11 | 0.00 | 0.20 | 0.00 |
| 98 | 128 | -1266.71 | 0.00 | 0.11 | 0.00 | 0.33 | 0.00 |
| 99 | 2 | 228.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -228.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 228.70 | 0.00 | -1.31 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -228.70 | 0.00 | 1.31 | 0.00 | 2.24 | 0.00 |
| 101 | 19 | 637.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -637.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 637.40 | 0.00 | 1.95 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -637.40 | 0.00 | -1.95 | 0.00 | -3.35 | 0.00 |
| 103 | 36 | 696.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -696.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 695.94 | 0.00 | -12.69 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -695.94 | 0.00 | 12.69 | 0.00 | 21.73 | 0.00 |
| 105 | 55 | 683.79 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -683.79 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 683.59 | 0.00 | 32.65 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -683.59 | 0.00 | -32.65 | 0.00 | -55.90 | 0.00 |
| 107 | 74 | 679.76 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -679.76 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 679.56 | 0.00 | 25.38 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -679.56 | 0.00 | -25.38 | 0.00 | -43.45 | 0.00 |
| 109 | 93 | 684.33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -684.33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 684.10 | 0.00 | 22.89 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -684.10 | 0.00 | -22.89 | 0.00 | -39.19 | 0.00 |
| 111 | 111 | 684.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -684.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 684.40 | 0.00 | -3.35 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -684.40 | 0.00 | 3.35 | 0.00 | 5.74 | 0.00 |
| 113 | 129 | 646.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -646.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 646.73 | 0.00 | 2.94 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -646.73 | 0.00 | -2.94 | 0.00 | -5.02 | 0.00 |
| 115 | 141 | 239.37 | 191.25 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -239.37 | -191.25 | 0.00 | 0.00 | 0.00 | 327.42 |
| 116 | 143 | 239.27 | 191.25 | -1.27 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -239.27 | -191.25 | 1.27 | 0.00 | 2.18 | 327.42 |
| 117 | 6 | 448.38 | 0.00 | -0.34 | 0.00 | 0.29 | 0.00 |
| 117 | 7 | -448.38 | 0.00 | 0.34 | 0.00 | 0.05 | 0.00 |
| 118 | 145 | 468.52 | 382.50 | -0.25 | 0.00 | -0.16 | 382.50 |
| 118 | 146 | -468.52 | -382.50 | 0.25 | 0.00 | 0.41 | 0.00 |
| 119 | 3 | 0.00 | 149.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -149.50 | 0.00 | 0.00 | 0.00 | 635.37 |
| 120 | 1 | 16.39 | -191.34 | 0.00 | 0.00 | 0.00 | -785.12 |
| 120 | 5 | -16.39 | 191.34 | 0.00 | 0.00 | 0.00 | -28.06 |
| 121 | 20 | 0.00 | 274.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | -274.00 | 0.00 | 0.00 | 0.00 | 506.91 |
| 122 | 15 | 36.51 | -326.83 | 0.01 | 0.00 | 0.01 | -542.13 |
| 122 | 22 | -36.51 | 326.83 | -0.01 | 0.00 | 0.00 | -62.50 |
| 123 | 37 | 0.01 | 252.32 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | -0.01 | -252.32 | 0.00 | 0.00 | 0.00 | 466.80 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 124 | 32 | 44.02 | -618.50 | 0.00 | 0.00 | 0.00 | -1068.91 |
| 124 | 39 | -44.02 | 618.50 | 0.00 | 0.00 | 0.00 | -75.35 |
| 125 | 56 | 0.01 | 273.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | -0.01 | -273.37 | 0.00 | 0.00 | 0.00 | 505.72 |
| 126 | 49 | 34.67 | 20.85 | 0.01 | 0.00 | 0.00 | 97.95 |
| 126 | 58 | -34.67 | -20.85 | -0.01 | 0.00 | 0.00 | -59.36 |
| 127 | 75 | 0.02 | 284.31 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | -0.02 | -284.31 | 0.00 | 0.00 | 0.00 | 525.97 |
| 128 | 68 | 27.64 | 14.20 | 0.00 | 0.00 | 0.01 | 73.61 |
| 128 | 77 | -27.64 | -14.20 | 0.00 | 0.00 | 0.00 | -47.31 |
| 129 | 94 | 0.02 | 539.44 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | -0.02 | -539.44 | 0.00 | 0.00 | 0.00 | 997.95 |
| 130 | 87 | 27.51 | -296.68 | 0.01 | 0.00 | 0.00 | -501.75 |
| 130 | 96 | -27.51 | 296.68 | -0.01 | 0.00 | 0.00 | -47.09 |
| 131 | 112 | 0.01 | 327.33 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | -0.01 | -327.33 | 0.00 | 0.00 | 0.00 | 605.57 |
| 132 | 106 | 30.29 | -577.72 | 0.01 | 0.00 | 0.00 | -1016.95 |
| 132 | 114 | -30.29 | 577.72 | -0.01 | 0.00 | 0.01 | -51.86 |
| 133 | 130 | 0.00 | 287.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | -287.50 | 0.00 | 0.00 | 0.00 | 531.90 |
| 134 | 124 | 38.42 | -27.37 | 0.00 | 0.00 | 0.00 | 15.15 |
| 134 | 132 | -38.42 | 27.37 | 0.00 | 0.00 | 0.00 | -65.78 |
| 135 | 142 | 0.00 | 149.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -149.67 | 0.00 | 0.00 | 0.00 | 636.11 |
| 136 | 140 | 23.10 | -187.47 | 0.00 | 0.00 | 0.00 | -757.21 |
| 136 | 144 | -23.10 | 187.47 | 0.00 | 0.00 | 0.00 | -39.55 |
| 137 | 2 | 0.00 | -149.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 149.50 | 0.00 | 0.00 | 0.00 | -635.37 |
| 138 | 7 | 16.29 | -2.17 | 0.00 | 0.00 | 0.00 | -9.21 |
| 138 | 4 | -16.29 | 2.17 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -542.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 542.75 | 0.00 | 0.00 | 0.00 | -1004.08 |
| 140 | 18 | 36.45 | 562.04 | 0.00 | 0.00 | 0.00 | 1039.78 |
| 140 | 21 | -36.45 | -562.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.01 | -628.35 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | -0.01 | 628.35 | 0.00 | 0.00 | 0.00 | -1162.45 |
| 142 | 35 | 43.94 | -95.81 | 0.00 | 0.00 | 0.00 | -177.24 |
| 142 | 38 | -43.94 | 95.81 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.01 | -263.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | -0.01 | 263.11 | 0.00 | 0.00 | 0.00 | -486.76 |
| 144 | 54 | 34.53 | 674.12 | 0.00 | 0.00 | 0.00 | 1247.09 |
| 144 | 57 | -34.53 | -674.12 | 0.00 | 0.00 | 0.00 | 0.01 |
| 145 | 74 | 0.02 | -323.17 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | -0.02 | 323.17 | 0.00 | 0.00 | 0.00 | -597.85 |
| 146 | 73 | 27.55 | 669.90 | 0.00 | 0.00 | 0.00 | 1239.29 |
| 146 | 76 | -27.55 | -669.90 | 0.00 | 0.00 | 0.00 | -0.01 |
| 147 | 93 | 0.01 | -277.22 | 0.00 | 0.00 | 0.00 | -0.01 |
| 147 | 92 | -0.01 | 277.22 | 0.00 | 0.00 | 0.00 | -512.86 |
| 148 | 92 | 27.42 | 580.61 | 0.00 | 0.00 | 0.00 | 1074.13 |
| 148 | 95 | -27.42 | -580.61 | 0.00 | 0.00 | 0.00 | 0.01 |
| 149 | 111 | 0.01 | -277.45 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | -0.01 | 277.45 | 0.00 | 0.00 | 0.00 | -513.27 |
| 150 | 110 | 30.26 | -55.15 | 0.00 | 0.00 | 0.00 | -102.02 |
| 150 | 113 | -30.26 | 55.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -341.57 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 341.57 | 0.00 | 0.00 | 0.00 | -631.90 |
| 152 | 128 | 38.35 | 590.99 | 0.00 | 0.00 | 0.00 | 1093.33 |
| 152 | 131 | -38.35 | -590.99 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -149.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 149.67 | 0.00 | 0.00 | 0.00 | -636.11 |
| 154 | 146 | 23.11 | -37.16 | 0.00 | 0.00 | 0.00 | -157.91 |
| 154 | 143 | -23.11 | 37.16 | 0.00 | 0.00 | 0.00 | 0.00 |



HIPOTESIS 32

FUER X MIN sobrecarga + fr. + fc (ipf-75)

E S F U E R Z O S E N B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 298.99 | -0.11 | 0.20 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -199.09 | 0.11 | -0.20 | 0.49 | 1120.70 |
| 2 | 8 | 0.00 | 199.09 | -0.11 | 0.20 | -0.49 | -1120.69 |
| 2 | 9 | 0.00 | -99.19 | 0.11 | -0.20 | 0.97 | 1791.84 |
| 3 | 9 | 0.00 | 99.19 | -0.11 | 0.20 | -0.97 | -1791.84 |
| 3 | 10 | 0.00 | 0.71 | 0.11 | -0.20 | 1.46 | 2013.44 |
| 4 | 10 | 0.00 | -0.71 | -0.11 | 0.20 | -1.46 | -2013.44 |
| 4 | 11 | 0.00 | 100.61 | 0.11 | -0.20 | 1.94 | 1785.48 |
| 5 | 11 | 0.00 | -100.61 | -0.11 | 0.20 | -1.94 | -1785.48 |
| 5 | 12 | 0.00 | 200.51 | 0.11 | -0.20 | 2.43 | 1107.98 |
| 6 | 12 | 0.00 | -200.51 | -0.11 | 0.20 | -2.43 | -1107.98 |
| 6 | 13 | 0.00 | 300.41 | 0.11 | -0.20 | 2.92 | -19.08 |
| 7 | 13 | 0.00 | -300.41 | -0.11 | 0.20 | -2.92 | 19.08 |
| 7 | 14 | 0.00 | 400.31 | 0.11 | -0.20 | 3.40 | -1595.68 |
| 8 | 14 | 0.00 | -400.31 | -0.11 | 0.20 | -3.40 | 1595.68 |
| 8 | 15 | 0.00 | 500.21 | 0.11 | -0.20 | 3.89 | -3621.83 |
| 9 | 15 | 0.00 | 495.57 | 0.08 | -0.24 | -3.89 | 3621.83 |
| 9 | 23 | 10.69 | -391.50 | -0.08 | 0.24 | 3.57 | -1617.87 |
| 10 | 23 | -10.69 | 391.50 | 0.08 | -0.24 | -3.57 | 1617.87 |
| 10 | 24 | 21.37 | -291.60 | -0.08 | 0.24 | 3.20 | -61.91 |
| 11 | 24 | -21.37 | 291.60 | 0.08 | -0.24 | -3.20 | 61.91 |
| 11 | 25 | 32.06 | -191.70 | -0.08 | 0.24 | 2.83 | 1044.49 |
| 12 | 25 | -32.06 | 191.70 | 0.08 | -0.24 | -2.83 | -1044.49 |
| 12 | 26 | 42.75 | -91.80 | -0.08 | 0.24 | 2.47 | 1701.35 |
| 13 | 26 | -42.75 | 91.80 | 0.08 | -0.24 | -2.47 | -1701.35 |
| 13 | 27 | 53.44 | 8.10 | -0.08 | 0.24 | 2.10 | 1908.66 |
| 14 | 27 | -53.44 | -8.10 | 0.08 | -0.24 | -2.10 | -1908.66 |
| 14 | 28 | 64.12 | 108.00 | -0.08 | 0.24 | 1.73 | 1666.42 |
| 15 | 28 | -64.12 | -108.00 | 0.08 | -0.24 | -1.73 | -1666.42 |
| 15 | 29 | 74.81 | 207.90 | -0.08 | 0.24 | 1.37 | 974.62 |
| 16 | 29 | -74.81 | -207.90 | 0.08 | -0.24 | -1.37 | -974.62 |
| 16 | 30 | 85.50 | 307.80 | -0.08 | 0.24 | 1.00 | -166.72 |
| 17 | 30 | -85.50 | -307.80 | 0.08 | -0.24 | -1.00 | 166.72 |
| 17 | 31 | 96.19 | 407.70 | -0.08 | 0.24 | 0.63 | -1757.61 |
| 18 | 31 | -96.19 | -407.70 | 0.08 | -0.24 | -0.63 | 1757.61 |
| 18 | 32 | 106.87 | 507.60 | -0.08 | 0.24 | 0.27 | -3798.06 |
| 19 | 32 | -106.87 | 497.04 | 0.01 | 0.03 | -0.27 | 3798.06 |
| 19 | 40 | 117.56 | -397.14 | -0.01 | -0.03 | 0.24 | -1767.19 |
| 20 | 40 | -117.56 | 397.14 | 0.01 | 0.03 | -0.24 | 1767.19 |
| 20 | 41 | 128.25 | -297.24 | -0.01 | -0.03 | 0.21 | -185.87 |
| 21 | 41 | -128.25 | 297.24 | 0.01 | 0.03 | -0.21 | 185.87 |
| 21 | 42 | 138.94 | -197.34 | -0.01 | -0.03 | 0.19 | 945.90 |
| 22 | 42 | -138.94 | 197.34 | 0.01 | 0.03 | -0.19 | -945.90 |
| 22 | 43 | 149.62 | -97.44 | -0.01 | -0.03 | 0.16 | 1628.12 |
| 23 | 43 | -149.62 | 97.44 | 0.01 | 0.03 | -0.16 | -1628.12 |
| 23 | 44 | 160.31 | 2.46 | -0.01 | -0.03 | 0.13 | 1860.78 |
| 24 | 44 | -160.31 | -2.46 | 0.01 | 0.03 | -0.13 | -1860.78 |
| 24 | 45 | 171.00 | 102.36 | -0.01 | -0.03 | 0.10 | 1643.90 |
| 25 | 45 | -171.00 | -102.36 | 0.01 | 0.03 | -0.10 | -1643.90 |
| 25 | 46 | 181.69 | 202.26 | -0.01 | -0.03 | 0.08 | 977.47 |
| 26 | 46 | -181.69 | -202.26 | 0.01 | 0.03 | -0.08 | -977.47 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 | 47 | 192.37 | 302.16 | -0.01 | -0.03 | 0.05 | -138.51 | 59 | 106 | -534.37 | 491.68 | -0.02 | 0.10 | -0.55 | 3724.96 |
| 27 | 47 | -192.37 | -302.16 | 0.01 | 0.03 | -0.05 | 138.51 | 59 | 115 | 545.06 | -391.78 | 0.02 | -0.10 | 0.63 | -1718.20 |
| 27 | 48 | 203.06 | 402.06 | -0.01 | -0.03 | 0.02 | -1704.05 | 60 | 115 | -545.06 | 391.78 | -0.02 | 0.10 | -0.63 | 1718.20 |
| 28 | 48 | -203.06 | -402.06 | 0.01 | 0.03 | -0.02 | 1704.05 | 60 | 116 | 555.75 | -291.88 | 0.02 | -0.10 | 0.72 | -161.00 |
| 28 | 49 | 213.75 | 501.96 | -0.01 | -0.03 | 0.00 | -3719.13 | 61 | 116 | -555.75 | 291.88 | -0.02 | 0.10 | -0.72 | 161.00 |
| 29 | 49 | -213.75 | 494.75 | 0.00 | 0.01 | 0.00 | 3719.13 | 61 | 117 | 566.44 | -191.98 | 0.02 | -0.10 | 0.80 | 946.65 |
| 29 | 59 | 224.44 | -394.85 | 0.00 | -0.01 | -0.01 | -1698.53 | 62 | 117 | -566.44 | 191.98 | -0.02 | 0.10 | -0.80 | -946.65 |
| 30 | 59 | -224.44 | 394.85 | 0.00 | 0.01 | 0.01 | 1698.53 | 62 | 118 | 577.12 | -92.08 | 0.02 | -0.10 | 0.89 | 1604.76 |
| 30 | 60 | 235.12 | -294.95 | 0.00 | -0.01 | -0.01 | -127.49 | 63 | 118 | -577.12 | 92.08 | -0.02 | 0.10 | -0.89 | -1604.76 |
| 31 | 60 | -235.12 | 294.95 | 0.00 | 0.01 | 0.01 | 127.49 | 63 | 119 | 587.81 | 7.82 | 0.02 | -0.10 | 0.97 | 1813.31 |
| 31 | 61 | 245.81 | -195.05 | 0.00 | -0.01 | -0.02 | 994.01 | 64 | 119 | -587.81 | -7.82 | -0.02 | 0.10 | -0.97 | -1813.31 |
| 32 | 61 | -245.81 | 195.05 | 0.00 | 0.01 | 0.02 | -994.01 | 64 | 120 | 598.50 | 107.72 | 0.02 | -0.10 | 1.05 | 1572.31 |
| 32 | 62 | 256.50 | -95.15 | 0.00 | -0.01 | -0.02 | 1665.96 | 65 | 120 | -598.50 | -107.72 | -0.02 | 0.10 | -1.05 | -1572.31 |
| 33 | 62 | -256.50 | 95.15 | 0.00 | 0.01 | 0.02 | -1665.96 | 65 | 121 | 609.19 | 207.62 | 0.02 | -0.10 | 1.14 | 881.77 |
| 33 | 63 | 267.19 | 4.75 | 0.00 | -0.01 | -0.03 | 1888.35 | 66 | 121 | -609.19 | -207.62 | -0.02 | 0.10 | -1.14 | -881.76 |
| 34 | 63 | -267.19 | -4.75 | 0.00 | 0.01 | 0.03 | -1888.36 | 66 | 122 | 619.87 | 307.52 | 0.02 | -0.10 | 1.22 | -258.33 |
| 34 | 64 | 277.87 | 104.65 | 0.00 | -0.01 | -0.03 | 1661.20 | 67 | 122 | -619.87 | -307.52 | -0.02 | 0.10 | -1.22 | 258.33 |
| 35 | 64 | -277.87 | -104.65 | 0.00 | 0.01 | 0.03 | -1661.20 | 67 | 123 | 630.56 | 407.42 | 0.02 | -0.10 | 1.31 | -1847.98 |
| 35 | 65 | 288.56 | 204.55 | 0.00 | -0.01 | -0.04 | 984.50 | 68 | 123 | -630.56 | -407.42 | -0.02 | 0.10 | -1.31 | 1847.98 |
| 36 | 65 | -288.56 | -204.55 | 0.00 | 0.01 | 0.04 | -984.50 | 68 | 124 | 641.25 | 507.32 | 0.02 | -0.10 | 1.39 | -3887.18 |
| 36 | 66 | 299.25 | 304.45 | 0.00 | -0.01 | -0.04 | -141.76 | 69 | 124 | -641.25 | 537.92 | 0.04 | -0.12 | -1.39 | 3887.18 |
| 37 | 66 | -299.25 | -304.45 | 0.00 | 0.01 | 0.04 | 141.76 | 69 | 133 | 651.94 | -438.02 | -0.04 | 0.12 | 1.22 | -1672.33 |
| 37 | 67 | 309.94 | 404.35 | 0.00 | -0.01 | -0.05 | -1717.56 | 70 | 133 | -651.94 | 438.02 | 0.04 | -0.12 | -1.22 | 1672.33 |
| 38 | 67 | -309.94 | -404.35 | 0.00 | 0.01 | 0.05 | 1717.56 | 70 | 134 | 662.62 | -338.12 | -0.04 | 0.12 | 1.04 | 92.97 |
| 38 | 68 | 320.62 | 504.25 | 0.00 | -0.01 | -0.05 | -3742.91 | 71 | 134 | -662.62 | 338.12 | 0.04 | -0.12 | -1.04 | -92.97 |
| 39 | 68 | -320.62 | 495.19 | 0.00 | 0.00 | 0.05 | 3742.91 | 71 | 135 | 673.31 | -238.22 | -0.04 | 0.12 | 0.87 | 1408.71 |
| 39 | 78 | 331.31 | -395.29 | 0.00 | 0.00 | -0.04 | -1720.35 | 72 | 135 | -673.31 | 238.22 | 0.04 | -0.12 | -0.87 | -1408.71 |
| 40 | 78 | -331.31 | 395.29 | 0.00 | 0.00 | 0.04 | 1720.35 | 72 | 136 | 684.00 | -138.32 | -0.04 | 0.12 | 0.70 | 2274.91 |
| 40 | 79 | 342.00 | -295.39 | 0.00 | 0.00 | -0.03 | -147.34 | 73 | 136 | -684.00 | 138.32 | 0.04 | -0.12 | -0.70 | -2274.91 |
| 41 | 79 | -342.00 | 295.39 | 0.00 | 0.00 | 0.03 | 147.34 | 73 | 137 | 694.69 | -38.42 | -0.04 | 0.12 | 0.52 | 2691.56 |
| 41 | 80 | 352.69 | -195.49 | 0.00 | 0.00 | -0.02 | 976.12 | 74 | 137 | -694.69 | 38.42 | 0.04 | -0.12 | -0.52 | -2691.55 |
| 42 | 80 | -352.69 | 195.49 | 0.00 | 0.00 | 0.02 | -976.12 | 74 | 138 | 705.37 | 61.48 | -0.04 | 0.12 | 0.35 | 2658.65 |
| 42 | 81 | 363.37 | -95.59 | 0.00 | 0.00 | 0.00 | 1650.03 | 75 | 138 | -705.37 | -61.48 | 0.04 | -0.12 | -0.35 | -2658.65 |
| 43 | 81 | -363.37 | 95.59 | 0.00 | 0.00 | 0.00 | -1650.03 | 75 | 139 | 716.06 | 161.38 | -0.04 | 0.12 | 0.17 | 2176.20 |
| 43 | 82 | 374.06 | 4.31 | 0.00 | 0.00 | 0.01 | 1874.39 | 76 | 139 | -716.06 | -161.38 | 0.04 | -0.12 | -0.17 | -2176.20 |
| 44 | 82 | -374.06 | -4.31 | 0.00 | 0.00 | -0.01 | -1874.39 | 76 | 140 | 726.75 | 261.28 | -0.04 | 0.12 | 0.00 | 1244.19 |
| 44 | 83 | 384.75 | 104.21 | 0.00 | 0.00 | 0.02 | 1649.20 | 77 | 16 | -5.76 | 0.00 | 0.01 | 0.00 | -0.12 | 0.00 |
| 45 | 83 | -384.75 | -104.21 | 0.00 | 0.00 | -0.02 | -1649.20 | 77 | 17 | 5.76 | 0.00 | -0.01 | 0.00 | 0.05 | 0.00 |
| 45 | 84 | 395.44 | 204.11 | 0.00 | 0.00 | 0.03 | 974.46 | 78 | 17 | -5.76 | 0.00 | 0.01 | 0.00 | -0.05 | 0.00 |
| 46 | 84 | -395.44 | -204.11 | 0.00 | 0.00 | -0.03 | -974.46 | 78 | 18 | 5.76 | 0.00 | -0.01 | 0.00 | -0.01 | 0.00 |
| 46 | 85 | 406.12 | 304.01 | 0.00 | 0.00 | 0.05 | -149.83 | 79 | 33 | -5.87 | 0.00 | 0.00 | 0.00 | -0.03 | 0.00 |
| 47 | 85 | -406.12 | -304.01 | 0.00 | 0.00 | -0.05 | 149.83 | 79 | 34 | 5.87 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 47 | 86 | 416.81 | 403.91 | 0.00 | 0.00 | 0.06 | -1723.67 | 80 | 34 | -5.87 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 48 | 86 | -416.81 | -403.91 | 0.00 | 0.00 | -0.06 | 1723.67 | 80 | 35 | 5.87 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 48 | 87 | 427.50 | 503.81 | 0.00 | 0.00 | 0.07 | -3747.06 | 81 | 50 | -6.74 | 0.00 | 0.01 | 0.00 | -0.12 | 0.00 |
| 49 | 87 | -427.50 | 495.77 | -0.01 | 0.03 | -0.07 | 3747.06 | 81 | 51 | 6.74 | 0.00 | -0.01 | 0.00 | 0.10 | 0.00 |
| 49 | 97 | 438.19 | -395.87 | 0.01 | -0.03 | 0.12 | -1721.88 | 82 | 51 | -6.74 | 0.00 | 0.01 | 0.00 | -0.10 | 0.00 |
| 50 | 97 | -438.19 | 395.87 | -0.01 | 0.03 | -0.12 | 1721.88 | 82 | 52 | 6.74 | 0.00 | -0.01 | 0.00 | 0.05 | 0.00 |
| 50 | 98 | 448.87 | -295.97 | 0.01 | -0.03 | 0.17 | -146.24 | 83 | 52 | -6.74 | 0.00 | 0.01 | 0.00 | -0.05 | 0.00 |
| 51 | 98 | -448.87 | 295.97 | -0.01 | 0.03 | -0.17 | 146.24 | 83 | 53 | 6.74 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 51 | 99 | 459.56 | -196.07 | 0.01 | -0.03 | 0.21 | 979.85 | 84 | 53 | -6.74 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| 52 | 99 | -459.56 | 196.07 | -0.01 | 0.03 | -0.21 | -979.85 | 84 | 54 | 6.74 | 0.00 | -0.01 | 0.00 | -0.03 | 0.00 |
| 52 | 100 | 470.25 | -96.17 | 0.01 | -0.03 | 0.26 | 1656.38 | 85 | 69 | -7.03 | 0.00 | 0.00 | 0.00 | -0.09 | 0.00 |
| 53 | 100 | -470.25 | 96.17 | -0.01 | 0.03 | -0.26 | -1656.38 | 85 | 70 | 7.03 | 0.00 | 0.00 | 0.00 | 0.07 | 0.00 |
| 53 | 101 | 480.94 | 3.73 | 0.01 | -0.03 | 0.31 | 1883.37 | 86 | 70 | -7.03 | 0.00 | 0.00 | 0.00 | -0.07 | 0.00 |
| 54 | 101 | -480.94 | -3.73 | -0.01 | 0.03 | -0.31 | -1883.37 | 86 | 71 | 7.03 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 |
| 54 | 102 | 491.62 | 103.63 | 0.01 | -0.03 | 0.36 | 1660.80 | 87 | 71 | -7.03 | 0.00 | 0.00 | 0.00 | -0.03 | 0.00 |
| 55 | 102 | -491.62 | -103.63 | -0.01 | 0.03 | -0.36 | -1660.80 | 87 | 72 | 7.03 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 55 | 103 | 502.31 | 203.53 | 0.01 | -0.03 | 0.40 | 988.69 | 88 | 72 | -7.03 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 56 | 103 | -502.31 | -203.53 | -0.01 | 0.03 | -0.40 | -988.69 | 88 | 73 | 7.03 | 0.00 | 0.00 | 0.00 | -0.03 | 0.00 |
| 56 | 104 | 513.00 | 303.43 | 0.01 | -0.03 | 0.45 | -132.98 | 89 | 88 | -7.92 | 0.00 | 0.01 | 0.00 | -0.10 | 0.00 |
| 57 | 104 | -513.00 | -303.43 | -0.01 | 0.03 | -0.45 | 132.98 | 89 | 89 | 7.92 | 0.00 | -0.01 | 0.00 | 0.09 | 0.00 |
| 57 | 105 | 523.69 | 403.33 | 0.01 | -0.03 | 0.50 | -1704.19 | 90 | 89 | -7.92 | 0.00 | 0.01 | 0.00 | -0.09 | 0.00 |
| 58 | 105 | -523.69 | -403.33 | -0.01 | 0.03 | -0.50 | 1704.19 | 90 | 90 | 7.92 | 0.00 | -0.01 | 0.00 | 0.04 | 0.00 |
| 58 | 106 | 534.37 | 503.23 | 0.01 | -0.03 | 0.55 | -3724.96 | 91 | 90 | -7.92 | 0.00 | 0.01 | 0.00 | -0.04 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 91 | 91 | 7.92 | 0.00 | -0.01 | 0.00 | -0.01 | 0.00 |
| 92 | 91 | -7.92 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 92 | 92 | 7.92 | 0.00 | -0.01 | 0.00 | -0.03 | 0.00 |
| 93 | 107 | -10.86 | 0.00 | 0.02 | 0.00 | -0.22 | 0.00 |
| 93 | 108 | 10.86 | 0.00 | -0.02 | 0.00 | 0.20 | 0.00 |
| 94 | 108 | -10.86 | 0.00 | 0.02 | 0.00 | -0.20 | 0.00 |
| 94 | 109 | 10.86 | 0.00 | -0.02 | 0.00 | 0.02 | 0.00 |
| 95 | 109 | -10.86 | 0.00 | 0.02 | 0.00 | -0.02 | 0.00 |
| 95 | 110 | 10.86 | 0.00 | -0.02 | 0.00 | -0.06 | 0.00 |
| 96 | 125 | -29.85 | 0.00 | 0.04 | 0.00 | -0.53 | 0.00 |
| 96 | 126 | 29.85 | 0.00 | -0.04 | 0.00 | 0.49 | 0.00 |
| 97 | 126 | -29.85 | 0.00 | 0.04 | 0.00 | -0.49 | 0.00 |
| 97 | 127 | 29.85 | 0.00 | -0.04 | 0.00 | 0.10 | 0.00 |
| 98 | 127 | -29.85 | 0.00 | 0.04 | 0.00 | -0.10 | 0.00 |
| 98 | 128 | 29.85 | 0.00 | -0.04 | 0.00 | -0.10 | 0.00 |
| 99 | 2 | -46.82 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | 46.82 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | -46.82 | 0.00 | 3.22 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | 46.82 | 0.00 | -3.22 | 0.00 | -5.51 | 0.00 |
| 101 | 19 | -80.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | 80.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | -80.34 | 0.00 | 3.48 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | 80.34 | 0.00 | -3.48 | 0.00 | -5.96 | 0.00 |
| 103 | 36 | -122.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | 122.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | -122.27 | 0.00 | 43.29 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | 122.27 | 0.00 | -43.29 | 0.00 | -74.11 | 0.00 |
| 105 | 55 | -114.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | 114.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | -114.50 | 0.00 | -9.82 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | 114.50 | 0.00 | 9.82 | 0.00 | 16.82 | 0.00 |
| 107 | 74 | -108.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | 108.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | -108.80 | 0.00 | -4.93 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | 108.80 | 0.00 | 4.93 | 0.00 | 8.45 | 0.00 |
| 109 | 93 | -114.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | 114.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | -114.08 | 0.00 | 0.68 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | 114.08 | 0.00 | -0.68 | 0.00 | -1.17 | 0.00 |
| 111 | 111 | -109.63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | 109.63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | -109.60 | 0.00 | 28.94 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | 109.60 | 0.00 | -28.94 | 0.00 | -49.54 | 0.00 |
| 113 | 129 | -74.66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | 74.66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | -74.55 | 0.00 | -5.78 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | 74.55 | 0.00 | 5.78 | 0.00 | 9.90 | 0.00 |
| 115 | 141 | -63.60 | -191.25 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | 63.60 | 191.25 | 0.00 | 0.00 | 0.00 | -327.42 |
| 116 | 143 | -63.57 | -191.25 | 9.20 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | 63.57 | 191.25 | -9.20 | 0.00 | -15.75 | -327.42 |
| 117 | 6 | -49.68 | 0.00 | 0.20 | 0.00 | -0.17 | 0.00 |
| 117 | 7 | 49.68 | 0.00 | -0.20 | 0.00 | -0.03 | 0.00 |
| 118 | 145 | -69.41 | -382.50 | 0.15 | 0.00 | 0.10 | -382.50 |
| 118 | 146 | 69.41 | 382.50 | -0.15 | 0.00 | -0.26 | 0.00 |
| 119 | 3 | 0.00 | 149.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -149.50 | 0.00 | 0.00 | 0.00 | 635.37 |
| 120 | 1 | -16.29 | 2.17 | 0.00 | 0.00 | 0.00 | -18.67 |
| 120 | 5 | 16.29 | -2.17 | 0.00 | 0.00 | 0.00 | 27.88 |
| 121 | 20 | 0.00 | 328.91 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | -328.91 | 0.00 | 0.00 | 0.00 | 608.48 |
| 122 | 15 | -36.44 | -562.04 | -0.01 | 0.00 | -0.01 | -1102.18 |
| 122 | 22 | 36.44 | 562.04 | 0.01 | 0.00 | -0.01 | 62.39 |
| 123 | 37 | -0.01 | 540.20 | 0.00 | 0.00 | 0.00 | -0.01 |
| 123 | 32 | 0.01 | -540.20 | 0.00 | 0.00 | 0.00 | 999.38 |
| 124 | 32 | -43.94 | 95.79 | 0.01 | 0.00 | -0.01 | 102.01 |
| 124 | 39 | 43.94 | -95.79 | -0.01 | 0.00 | 0.00 | 75.22 |
| 125 | 56 | -0.02 | 284.69 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.02 | -284.69 | 0.00 | 0.00 | 0.00 | 526.67 |
| 126 | 49 | -34.54 | -674.11 | 0.00 | 0.00 | -0.01 | -1306.25 |
| 126 | 58 | 34.54 | 674.11 | 0.00 | 0.00 | 0.00 | 59.11 |
| 127 | 75 | -0.01 | 286.41 | 0.00 | 0.00 | 0.00 | 0.01 |
| 127 | 68 | 0.01 | -286.41 | 0.00 | 0.00 | 0.00 | 529.83 |
| 128 | 68 | -27.54 | -669.89 | 0.00 | 0.00 | -0.01 | -1286.48 |
| 128 | 77 | 27.54 | 669.89 | 0.00 | 0.00 | 0.00 | 47.15 |
| 129 | 94 | -0.02 | 275.56 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.02 | -275.56 | 0.00 | 0.00 | 0.00 | 509.80 |
| 130 | 87 | -27.41 | -580.61 | -0.01 | 0.00 | 0.00 | -1121.10 |
| 130 | 96 | 27.41 | 580.61 | 0.01 | 0.00 | 0.00 | 46.93 |
| 131 | 112 | -0.01 | 597.55 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.01 | -597.55 | 0.00 | 0.00 | 0.01 | 1105.46 |
| 132 | 106 | -30.26 | 55.16 | 0.01 | 0.00 | -0.01 | 50.26 |
| 132 | 114 | 30.26 | -55.16 | -0.01 | 0.00 | 0.00 | 51.81 |
| 133 | 130 | -0.01 | 282.13 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.01 | -282.13 | 0.00 | 0.00 | 0.00 | 521.93 |
| 134 | 124 | -38.36 | -590.99 | 0.00 | 0.00 | 0.00 | -1159.02 |
| 134 | 132 | 38.36 | 590.99 | 0.00 | 0.00 | 0.00 | 65.66 |
| 135 | 142 | 0.00 | 149.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -149.67 | 0.00 | 0.00 | 0.00 | 636.11 |
| 136 | 140 | -23.11 | 37.16 | 0.00 | 0.00 | 0.00 | 118.35 |
| 136 | 144 | 23.11 | -37.16 | 0.00 | 0.00 | 0.00 | 39.56 |
| 137 | 2 | 0.00 | -149.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 149.50 | 0.00 | 0.00 | 0.00 | -635.37 |
| 138 | 7 | -16.39 | 191.34 | 0.00 | 0.00 | 0.00 | 813.18 |
| 138 | 4 | 16.39 | -191.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -541.64 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 541.64 | 0.00 | 0.00 | 0.00 | -1002.01 |
| 140 | 18 | -36.51 | 326.83 | 0.00 | 0.00 | 0.00 | 604.64 |
| 140 | 21 | 36.51 | -326.83 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | -0.01 | -273.32 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.01 | 273.32 | 0.00 | 0.00 | 0.00 | -505.63 |
| 142 | 35 | -44.02 | 618.53 | 0.00 | 0.00 | 0.00 | 1144.27 |
| 142 | 38 | 44.02 | -618.53 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | -0.01 | -238.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.01 | 238.86 | 0.00 | 0.00 | 0.00 | -441.88 |
| 144 | 54 | -34.66 | -20.85 | 0.00 | 0.00 | 0.00 | -38.55 |
| 144 | 57 | 34.66 | 20.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | -0.02 | -239.41 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.02 | 239.41 | 0.00 | 0.00 | 0.00 | -442.92 |
| 146 | 73 | -27.64 | -14.19 | 0.00 | 0.00 | 0.00 | -26.25 |
| 146 | 76 | 27.64 | 14.19 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | -0.01 | -269.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.01 | 269.03 | 0.00 | 0.00 | 0.00 | -497.71 |
| 148 | 92 | -27.50 | 296.67 | 0.00 | 0.00 | 0.00 | 548.85 |
| 148 | 95 | 27.50 | -296.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | -0.01 | -546.61 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.01 | 546.61 | 0.00 | 0.00 | 0.00 | -1011.23 |
| 150 | 110 | -30.29 | 577.71 | 0.00 | 0.00 | 0.00 | 1068.75 |
| 150 | 113 | 30.29 | -577.71 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -255.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 255.67 | 0.00 | 0.00 | 0.00 | -472.99 |
| 152 | 128 | -38.42 | 27.37 | 0.00 | 0.00 | 0.00 | 50.65 |
| 152 | 131 | 38.42 | -27.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -149.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 149.67 | 0.00 | 0.00 | 0.00 | -636.11 |
| 154 | 146 | -23.10 | 187.47 | 0.00 | 0.00 | 0.00 | 796.76 |
| 154 | 143 | 23.10 | -187.47 | 0.00 | 0.00 | 0.00 | 0.00 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS 33

FUER Y MAX sobrecarga + fr. + fc (ipf-75)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 448.38 | -0.34 | 0.63 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -326.25 | 0.32 | -0.60 | 1.45 | 1725.80 |
| 2 | 8 | 0.00 | 326.25 | -0.32 | 0.60 | -1.45 | -1725.80 |
| 2 | 9 | 0.00 | -204.76 | 0.31 | -0.57 | 2.78 | 2875.86 |
| 3 | 9 | 0.00 | 204.76 | -0.31 | 0.57 | -2.78 | -2875.86 |
| 3 | 10 | 0.00 | -80.83 | 0.31 | -0.57 | 4.16 | 3518.42 |
| 4 | 10 | 0.00 | 80.83 | -0.31 | 0.57 | -4.16 | -3518.42 |
| 4 | 11 | 0.00 | -0.76 | 0.00 | -0.01 | 0.08 | 13.64 |
| 5 | 11 | 0.00 | 0.76 | 0.00 | 0.01 | -0.08 | -13.64 |
| 5 | 12 | 0.00 | -0.76 | 0.00 | -0.01 | 0.10 | 17.06 |
| 6 | 12 | 0.00 | 0.76 | 0.00 | 0.01 | -0.10 | -17.06 |
| 6 | 13 | 0.00 | -0.76 | 0.00 | -0.01 | 0.12 | 20.47 |
| 7 | 13 | 0.00 | 0.76 | 0.00 | 0.01 | -0.12 | -20.47 |
| 7 | 14 | 0.00 | -0.76 | 0.00 | -0.01 | 0.14 | 23.88 |
| 8 | 14 | 0.00 | 0.76 | 0.00 | 0.01 | -0.14 | -23.88 |
| 8 | 15 | 0.00 | -0.76 | 0.00 | -0.01 | 0.16 | 27.29 |
| 9 | 15 | 0.00 | 674.91 | -0.09 | 0.24 | 1.47 | 4782.04 |
| 9 | 23 | -5.63 | -550.98 | 0.09 | -0.24 | -1.06 | -2033.76 |
| 10 | 23 | 5.63 | 550.98 | -0.09 | 0.24 | 1.06 | 2033.76 |
| 10 | 24 | -11.25 | -427.05 | 0.09 | -0.24 | -0.65 | 156.83 |
| 11 | 24 | 11.25 | 427.05 | -0.09 | 0.24 | 0.65 | -156.84 |
| 11 | 25 | -16.88 | -303.12 | 0.09 | -0.24 | -0.23 | 1789.74 |
| 12 | 25 | 16.88 | 303.12 | -0.09 | 0.24 | 0.23 | -1789.74 |
| 12 | 26 | -22.50 | -179.19 | 0.09 | -0.24 | 0.18 | 2864.97 |
| 13 | 26 | 22.50 | 179.19 | -0.09 | 0.24 | -0.18 | -2864.97 |
| 13 | 27 | -28.13 | -73.03 | 0.06 | -0.16 | 1.80 | 2743.77 |
| 14 | 27 | 28.13 | 73.03 | -0.06 | 0.16 | -1.80 | -2743.78 |
| 14 | 28 | -33.75 | -4.76 | 0.00 | 0.00 | 0.22 | -4.73 |
| 15 | 28 | 33.75 | 4.76 | 0.00 | 0.00 | -0.22 | 4.73 |
| 15 | 29 | -39.37 | -4.76 | 0.00 | 0.00 | 0.22 | 6.71 |
| 16 | 29 | 39.37 | 4.76 | 0.00 | 0.00 | -0.22 | -6.71 |
| 16 | 30 | -45.00 | -4.76 | 0.00 | 0.00 | 0.22 | 18.16 |
| 17 | 30 | 45.00 | 4.76 | 0.00 | 0.00 | -0.22 | -18.16 |
| 17 | 31 | -50.62 | -4.76 | 0.00 | 0.00 | 0.22 | 29.61 |
| 18 | 31 | 50.62 | 4.76 | 0.00 | 0.00 | -0.22 | -29.61 |
| 18 | 32 | -56.25 | -4.76 | 0.00 | 0.00 | 0.21 | 41.05 |
| 19 | 32 | 56.25 | 689.71 | -0.12 | 0.57 | 5.12 | 5301.70 |
| 19 | 40 | -61.87 | -565.78 | 0.12 | -0.57 | -4.60 | -2486.83 |
| 20 | 40 | 61.87 | 565.78 | -0.12 | 0.57 | 4.60 | 2486.83 |
| 20 | 41 | -67.50 | -441.85 | 0.12 | -0.57 | -4.08 | -229.64 |
| 21 | 41 | 67.50 | 441.85 | -0.12 | 0.57 | 4.08 | 229.64 |
| 21 | 42 | -73.12 | -317.92 | 0.12 | -0.57 | -3.55 | 1469.87 |
| 22 | 42 | 73.12 | 317.92 | -0.11 | 0.57 | 3.55 | -1469.87 |
| 22 | 43 | -78.75 | -193.99 | 0.11 | -0.57 | -3.03 | 2611.68 |
| 23 | 43 | 78.75 | 193.99 | -0.12 | 0.57 | 3.03 | -2611.68 |
| 23 | 44 | -84.37 | -89.94 | 0.12 | -0.58 | -2.34 | 2526.50 |
| 24 | 44 | 84.37 | 89.94 | -0.12 | 0.58 | 2.35 | -2526.50 |
| 24 | 45 | -90.00 | -12.63 | 0.01 | -0.05 | 0.44 | -1108.98 |
| 25 | 45 | 90.00 | 12.63 | -0.01 | 0.05 | -0.44 | 1108.98 |
| 25 | 46 | -95.62 | -5.51 | 0.00 | -0.01 | 0.03 | 3.55 |
| 26 | 46 | 95.62 | 5.51 | 0.00 | 0.01 | -0.03 | -3.55 |
| 26 | 47 | -101.25 | -5.51 | 0.00 | -0.01 | 0.04 | 18.35 |
| 27 | 47 | 101.25 | 5.51 | 0.00 | 0.01 | -0.04 | -18.35 |
| 27 | 48 | -106.87 | -5.51 | 0.00 | -0.01 | 0.06 | 33.14 |
| 28 | 48 | 106.87 | 5.51 | 0.00 | 0.01 | -0.06 | -33.14 |
| 28 | 49 | -112.50 | -5.51 | 0.00 | -0.01 | 0.07 | 47.93 |
| 29 | 49 | 112.50 | 690.24 | -0.04 | 0.50 | 2.07 | 5345.19 |
| 29 | 59 | -118.12 | -566.31 | 0.04 | -0.50 | -1.88 | -2527.95 |
| 30 | 59 | 118.12 | 566.31 | -0.04 | 0.50 | 1.87 | 2527.95 |
| 30 | 60 | -123.75 | -442.38 | 0.04 | -0.50 | -1.68 | -268.40 |
| 31 | 60 | 123.75 | 442.38 | -0.04 | 0.50 | 1.69 | 268.40 |
| 31 | 61 | -129.37 | -318.45 | 0.04 | -0.50 | -1.49 | 1433.47 |
| 32 | 61 | 129.37 | 318.45 | -0.04 | 0.50 | 1.49 | -1433.47 |
| 32 | 62 | -135.00 | -194.52 | 0.05 | -0.52 | -1.23 | 1861.66 |
| 33 | 62 | 135.00 | 194.52 | -0.05 | 0.52 | 1.23 | -1861.66 |
| 33 | 63 | -140.63 | -90.57 | 0.05 | -0.52 | -1.02 | 2493.14 |
| 34 | 63 | 140.63 | 90.57 | -0.05 | 0.52 | 1.01 | -2493.14 |
| 34 | 64 | -146.25 | -14.94 | 0.00 | -0.13 | 0.13 | -1137.52 |
| 35 | 64 | 146.25 | 14.94 | 0.00 | 0.13 | -0.13 | 1137.52 |
| 35 | 65 | -151.87 | -5.51 | 0.00 | -0.02 | 0.03 | 0.81 |
| 36 | 65 | 151.87 | 5.51 | 0.00 | 0.02 | -0.03 | -0.81 |
| 36 | 66 | -157.50 | -5.51 | 0.00 | -0.02 | 0.03 | 15.62 |
| 37 | 66 | 157.50 | 5.51 | 0.00 | 0.02 | -0.03 | -15.62 |
| 37 | 67 | -163.12 | -5.51 | 0.00 | -0.02 | 0.04 | 30.44 |
| 38 | 67 | 163.12 | 5.51 | 0.00 | 0.02 | -0.04 | -30.44 |
| 38 | 68 | -168.75 | -5.51 | 0.00 | -0.02 | 0.05 | 45.25 |
| 39 | 68 | 168.75 | 690.84 | -0.04 | 0.43 | 1.63 | 5381.28 |
| 39 | 78 | -174.37 | -566.91 | 0.04 | -0.43 | -1.43 | -2561.34 |
| 40 | 78 | 174.37 | 566.91 | -0.05 | 0.43 | 1.43 | 2561.34 |
| 40 | 79 | -180.00 | -442.98 | 0.05 | -0.43 | -1.23 | -299.08 |
| 41 | 79 | 180.00 | 442.98 | -0.04 | 0.43 | 1.23 | 299.07 |
| 41 | 80 | -185.62 | -319.05 | 0.04 | -0.43 | -1.02 | 1405.50 |
| 42 | 80 | 185.62 | 319.05 | -0.04 | 0.43 | 1.03 | -1405.50 |
| 42 | 81 | -191.25 | -195.24 | 0.05 | -0.47 | -0.74 | 1835.29 |
| 43 | 81 | 191.25 | 195.24 | -0.05 | 0.47 | 0.73 | -1835.29 |
| 43 | 82 | -196.87 | -91.31 | 0.05 | -0.47 | -0.45 | 2336.52 |
| 44 | 82 | 196.87 | 91.31 | -0.05 | 0.47 | 0.45 | -2336.52 |
| 44 | 83 | -202.50 | -16.36 | 0.00 | -0.22 | 0.68 | -1150.47 |
| 45 | 83 | 202.50 | 16.36 | 0.00 | 0.22 | -0.69 | 1150.47 |
| 45 | 84 | -208.12 | -6.37 | 0.00 | -0.22 | 0.70 | -1109.34 |
| 46 | 84 | 208.12 | 6.37 | 0.00 | 0.22 | -0.70 | 1109.34 |
| 46 | 85 | -213.75 | -5.87 | 0.00 | -0.02 | 0.07 | 23.56 |
| 47 | 85 | 213.75 | 5.87 | 0.00 | 0.02 | -0.07 | -23.56 |
| 47 | 86 | -219.37 | -5.87 | 0.00 | -0.02 | 0.08 | 39.98 |
| 48 | 86 | 219.37 | 5.87 | 0.00 | 0.02 | -0.08 | -39.98 |
| 48 | 87 | -225.00 | -5.87 | 0.00 | -0.02 | 0.09 | 56.39 |
| 49 | 87 | 225.00 | 685.43 | -0.11 | 0.51 | 2.15 | 5347.23 |
| 49 | 97 | -230.62 | -561.50 | 0.11 | -0.51 | -1.64 | -2551.64 |
| 50 | 97 | 230.62 | 561.50 | -0.11 | 0.51 | 1.65 | 2551.64 |
| 50 | 98 | -236.25 | -437.57 | 0.11 | -0.51 | -1.15 | -313.74 |
| 51 | 98 | 236.25 | 437.57 | -0.11 | 0.51 | 1.15 | 313.74 |
| 51 | 99 | -241.87 | -313.64 | 0.11 | -0.51 | -0.65 | 1366.48 |
| 52 | 99 | 241.87 | 313.64 | -0.11 | 0.51 | 0.65 | -1366.48 |
| 52 | 100 | -247.50 | -189.95 | 0.12 | -0.55 | -0.01 | 1771.98 |
| 53 | 100 | 247.50 | 189.95 | -0.12 | 0.56 | 0.01 | -1771.98 |
| 53 | 101 | -253.13 | -86.04 | 0.12 | -0.56 | 0.60 | 2249.68 |
| 54 | 101 | 253.13 | 86.04 | -0.12 | 0.56 | -0.60 | -2249.68 |
| 54 | 102 | -258.75 | -10.92 | 0.06 | -0.28 | 2.10 | -1255.92 |
| 55 | 102 | 258.75 | 10.92 | -0.06 | 0.28 | -2.10 | 1255.92 |
| 55 | 103 | -264.37 | -4.45 | 0.01 | -0.02 | 0.19 | -25.25 |
| 56 | 103 | 264.37 | 4.45 | -0.01 | 0.02 | -0.19 | 25.25 |
| 56 | 104 | -270.00 | -4.45 | 0.01 | -0.02 | 0.22 | -15.20 |
| 57 | 104 | 270.00 | 4.45 | -0.01 | 0.02 | -0.22 | 15.20 |
| 57 | 105 | -275.62 | -4.45 | 0.01 | -0.02 | 0.25 | -5.15 |
| 58 | 105 | 275.62 | 4.45 | -0.01 | 0.02 | -0.25 | 5.15 |
| 58 | 106 | -281.25 | -4.45 | 0.01 | -0.02 | 0.28 | 4.91 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 59 | 106 | 281.25 | 679.57 | -0.07 | 0.26 | 4.63 | 5320.50 |
| 59 | 115 | -286.87 | -555.64 | 0.07 | -0.26 | -4.32 | -2551.28 |
| 60 | 115 | 286.87 | 555.64 | -0.07 | 0.26 | 4.32 | 2551.28 |
| 60 | 116 | -292.50 | -431.71 | 0.07 | -0.26 | -4.01 | -339.76 |
| 61 | 116 | 292.50 | 431.71 | -0.07 | 0.26 | 4.01 | 339.76 |
| 61 | 117 | -298.12 | -307.78 | 0.07 | -0.26 | -3.71 | 1314.09 |
| 62 | 117 | 298.12 | 307.78 | -0.07 | 0.26 | 3.71 | -1314.09 |
| 62 | 118 | -303.75 | -184.52 | 0.08 | -0.34 | -3.05 | 1697.56 |
| 63 | 118 | 303.75 | 184.52 | -0.08 | 0.34 | 3.05 | -1697.56 |
| 63 | 119 | -309.37 | -80.68 | 0.09 | -0.35 | -2.52 | 2152.39 |
| 64 | 119 | 309.37 | 80.68 | -0.09 | 0.35 | 2.52 | -2152.39 |
| 64 | 120 | -315.00 | -32.33 | 0.15 | -0.77 | 5.32 | -1181.04 |
| 65 | 120 | 315.00 | 32.33 | -0.15 | 0.77 | -5.32 | 1181.04 |
| 65 | 121 | -320.63 | -22.34 | 0.15 | -0.77 | 6.02 | -1068.01 |
| 66 | 121 | 320.63 | 22.34 | -0.15 | 0.77 | -6.02 | 1068.01 |
| 66 | 122 | -326.25 | -12.35 | 0.15 | -0.77 | 6.71 | -999.93 |
| 67 | 122 | 326.25 | 12.35 | -0.15 | 0.77 | -6.71 | 999.93 |
| 67 | 123 | -331.87 | -9.11 | 0.02 | -0.09 | 0.71 | 140.99 |
| 68 | 123 | 331.87 | 9.11 | -0.02 | 0.09 | -0.71 | -140.99 |
| 68 | 124 | -337.50 | -9.11 | 0.02 | -0.09 | 0.78 | 171.98 |
| 69 | 124 | -337.50 | 643.41 | 0.00 | 0.08 | -0.15 | 4822.67 |
| 69 | 133 | 343.12 | -519.48 | 0.00 | -0.08 | 0.13 | -2196.20 |
| 70 | 133 | -343.12 | 519.48 | 0.00 | 0.08 | -0.13 | 2196.20 |
| 70 | 134 | 348.75 | -395.55 | 0.00 | -0.08 | 0.11 | -127.42 |
| 71 | 134 | -348.75 | 395.55 | 0.00 | 0.08 | -0.11 | 127.42 |
| 71 | 135 | 354.37 | -271.62 | 0.00 | -0.08 | 0.09 | 1383.69 |
| 72 | 135 | -354.38 | 271.62 | 0.00 | 0.08 | -0.09 | -1383.69 |
| 72 | 136 | 360.00 | -152.29 | 0.03 | -0.19 | -0.59 | 1615.77 |
| 73 | 136 | -360.00 | 152.29 | -0.03 | 0.19 | 0.60 | -1615.77 |
| 73 | 137 | 365.63 | -99.38 | 0.15 | -0.52 | -2.09 | -514.50 |
| 74 | 137 | -365.63 | 99.38 | -0.16 | 0.52 | 2.09 | 514.50 |
| 74 | 138 | 371.25 | -89.39 | 0.16 | -0.52 | -1.40 | -79.77 |
| 75 | 138 | -371.25 | 89.39 | -0.16 | 0.52 | 1.40 | 79.77 |
| 75 | 139 | 376.88 | -79.40 | 0.16 | -0.52 | -0.70 | 310.01 |
| 76 | 139 | -376.88 | 79.40 | -0.16 | 0.52 | 0.70 | -310.01 |
| 76 | 140 | 382.50 | -69.41 | 0.16 | -0.52 | 0.00 | 654.84 |
| 77 | 16 | 995.77 | 0.00 | 0.19 | 0.00 | -1.82 | 0.00 |
| 77 | 17 | -995.77 | 0.00 | -0.19 | 0.00 | 0.82 | 0.00 |
| 78 | 17 | 995.77 | 0.00 | 0.19 | 0.00 | -0.82 | 0.00 |
| 78 | 18 | -995.77 | 0.00 | -0.19 | 0.00 | -0.12 | 0.00 |
| 79 | 33 | 1004.73 | 0.00 | -0.07 | 0.00 | 0.79 | 0.00 |
| 79 | 34 | -1004.73 | 0.00 | 0.07 | 0.00 | -0.23 | 0.00 |
| 80 | 34 | 1004.73 | 0.00 | -0.07 | 0.00 | 0.23 | 0.00 |
| 80 | 35 | -1004.73 | 0.00 | 0.07 | 0.00 | 0.14 | 0.00 |
| 81 | 50 | 996.55 | 0.00 | -0.01 | 0.00 | 0.18 | 0.00 |
| 81 | 51 | -996.55 | 0.00 | 0.01 | 0.00 | -0.16 | 0.00 |
| 82 | 51 | 996.55 | 0.00 | -0.01 | 0.00 | 0.16 | 0.00 |
| 82 | 52 | -996.55 | 0.00 | 0.01 | 0.00 | -0.11 | 0.00 |
| 83 | 52 | 996.55 | 0.00 | -0.01 | 0.00 | 0.11 | 0.00 |
| 83 | 53 | -996.55 | 0.00 | 0.01 | 0.00 | -0.06 | 0.00 |
| 84 | 53 | 996.55 | 0.00 | -0.01 | 0.00 | 0.06 | 0.00 |
| 84 | 54 | -996.55 | 0.00 | 0.01 | 0.00 | -0.03 | 0.00 |
| 85 | 69 | 1000.04 | 0.00 | 0.00 | 0.00 | 0.17 | 0.00 |
| 85 | 70 | -1000.04 | 0.00 | 0.00 | 0.00 | -0.13 | 0.00 |
| 86 | 70 | 1000.04 | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 |
| 86 | 71 | -1000.04 | 0.00 | 0.00 | 0.00 | -0.09 | 0.00 |
| 87 | 71 | 1000.04 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 |
| 87 | 72 | -1000.04 | 0.00 | 0.00 | 0.00 | -0.04 | 0.00 |
| 88 | 72 | 1000.04 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 |
| 88 | 73 | -1000.04 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 89 | 88 | 997.18 | 0.00 | -0.01 | 0.00 | 0.24 | 0.00 |
| 89 | 89 | -997.18 | 0.00 | 0.01 | 0.00 | -0.23 | 0.00 |
| 90 | 89 | 997.18 | 0.00 | -0.01 | 0.00 | 0.23 | 0.00 |
| 90 | 90 | -997.18 | 0.00 | 0.01 | 0.00 | -0.13 | 0.00 |
| 91 | 90 | 997.18 | 0.00 | -0.01 | 0.00 | 0.13 | 0.00 |
| 91 | 91 | -997.18 | 0.00 | 0.01 | 0.00 | -0.04 | 0.00 |
| 92 | 91 | 997.18 | 0.00 | -0.01 | 0.00 | 0.04 | 0.00 |
| 92 | 92 | -997.18 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 93 | 107 | 1004.52 | 0.00 | -0.03 | 0.00 | 0.36 | 0.00 |
| 93 | 108 | -1004.52 | 0.00 | 0.03 | 0.00 | -0.32 | 0.00 |
| 94 | 108 | 1004.52 | 0.00 | -0.03 | 0.00 | 0.32 | 0.00 |
| 94 | 109 | -1004.52 | 0.00 | 0.03 | 0.00 | -0.01 | 0.00 |
| 95 | 109 | 1004.52 | 0.00 | -0.03 | 0.00 | 0.01 | 0.00 |
| 95 | 110 | -1004.52 | 0.00 | 0.03 | 0.00 | 0.15 | 0.00 |
| 96 | 125 | 995.30 | 0.00 | 0.12 | 0.00 | -1.64 | 0.00 |
| 96 | 126 | -995.30 | 0.00 | -0.12 | 0.00 | 1.52 | 0.00 |
| 97 | 126 | 995.30 | 0.00 | 0.12 | 0.00 | -1.52 | 0.00 |
| 97 | 127 | -995.30 | 0.00 | -0.12 | 0.00 | 0.32 | 0.00 |
| 98 | 127 | 995.30 | 0.00 | 0.12 | 0.00 | -0.32 | 0.00 |
| 98 | 128 | -995.30 | 0.00 | -0.12 | 0.00 | -0.27 | 0.00 |
| 99 | 2 | 149.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -149.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 149.49 | 0.00 | -0.11 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -149.49 | 0.00 | 0.11 | 0.00 | 0.18 | 0.00 |
| 101 | 19 | 497.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -497.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 497.92 | 0.00 | 0.19 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -497.92 | 0.00 | -0.19 | 0.00 | -0.32 | 0.00 |
| 103 | 36 | 502.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -502.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 502.33 | 0.00 | -0.07 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -502.33 | 0.00 | 0.07 | 0.00 | 0.13 | 0.00 |
| 105 | 55 | 498.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -498.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 498.28 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -498.28 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 107 | 74 | 500.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -500.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 500.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -500.02 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 109 | 93 | 498.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -498.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 498.59 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -498.59 | 0.00 | 0.01 | 0.00 | 0.02 | 0.00 |
| 111 | 111 | 502.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -502.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 502.22 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -502.22 | 0.00 | 0.03 | 0.00 | 0.05 | 0.00 |
| 113 | 129 | 497.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -497.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 497.72 | 0.00 | 0.12 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -497.72 | 0.00 | -0.12 | 0.00 | -0.20 | 0.00 |
| 115 | 141 | 168.70 | 363.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -168.70 | -363.38 | 0.00 | 0.00 | 0.00 | 622.10 |
| 116 | 143 | 168.66 | 363.38 | -0.11 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -168.66 | -363.38 | 0.11 | 0.00 | 0.19 | 622.10 |
| 117 | 6 | 298.99 | 0.00 | -0.11 | 0.00 | 0.09 | 0.00 |
| 117 | 7 | -298.99 | 0.00 | 0.11 | 0.00 | 0.02 | 0.00 |
| 118 | 145 | 337.36 | 726.75 | -0.11 | 0.00 | -0.07 | 726.75 |
| 118 | 146 | -337.36 | -726.75 | 0.11 | 0.00 | 0.19 | 0.00 |
| 119 | 3 | 0.00 | 228.71 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -228.71 | 0.00 | 0.00 | 0.00 | 972.03 |
| 120 | 1 | -3.22 | 46.82 | 0.00 | 0.00 | 0.00 | 193.48 |
| 120 | 5 | 3.22 | -46.82 | 0.00 | 0.00 | 0.00 | 5.51 |
| 121 | 20 | 0.00 | 637.47 | -0.01 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | -637.47 | 0.01 | 0.00 | 0.00 | 1179.32 |
| 122 | 15 | -3.48 | 80.34 | 0.00 | 0.00 | -0.01 | 142.67 |
| 122 | 22 | 3.48 | -80.34 | 0.00 | 0.00 | 0.00 | 5.96 |
| 123 | 37 | 0.00 | 696.07 | 0.00 | 0.00 | 0.00 | -0.01 |
| 123 | 32 | 0.00 | -696.07 | 0.00 | 0.00 | 0.00 | 1287.73 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 124 | 32 | -43.29 | 122.26 | 0.00 | 0.00 | 0.01 | 152.10 |
| 124 | 39 | 43.29 | -122.26 | 0.00 | 0.00 | 0.00 | 74.11 |
| 125 | 56 | 0.00 | 683.78 | 0.00 | 0.00 | 0.00 | 0.01 |
| 125 | 49 | 0.00 | -683.78 | 0.00 | 0.00 | 0.01 | 1265.04 |
| 126 | 49 | 9.82 | 114.51 | 0.00 | 0.00 | 0.01 | 228.67 |
| 126 | 58 | -9.82 | -114.51 | 0.00 | 0.00 | 0.00 | -16.82 |
| 127 | 75 | 0.00 | 679.74 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.00 | -679.74 | 0.00 | 0.00 | 0.00 | 1257.57 |
| 128 | 68 | 4.94 | 108.80 | -0.01 | 0.00 | 0.01 | 209.75 |
| 128 | 77 | -4.94 | -108.80 | 0.01 | 0.00 | 0.00 | -8.45 |
| 129 | 94 | 0.00 | 684.33 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | -684.33 | 0.00 | 0.00 | 0.00 | 1266.03 |
| 130 | 87 | -0.68 | 114.08 | 0.00 | 0.00 | 0.00 | 209.90 |
| 130 | 96 | 0.68 | -114.08 | 0.00 | 0.00 | 0.00 | 1.17 |
| 131 | 112 | -0.01 | 684.57 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.01 | -684.57 | 0.00 | 0.00 | 0.00 | 1266.47 |
| 132 | 106 | -28.94 | 109.60 | -0.01 | 0.00 | 0.00 | 153.24 |
| 132 | 114 | 28.94 | -109.60 | 0.01 | 0.00 | 0.00 | 49.54 |
| 133 | 130 | 0.00 | 646.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | -646.86 | 0.00 | 0.00 | -0.01 | 1196.71 |
| 134 | 124 | 5.78 | 74.55 | 0.00 | 0.00 | 0.00 | 147.84 |
| 134 | 132 | -5.78 | -74.55 | 0.00 | 0.00 | 0.00 | -9.90 |
| 135 | 142 | 0.00 | 239.37 | 191.25 | -327.42 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -239.37 | -191.25 | 327.42 | -812.81 | 1017.31 |
| 136 | 140 | -9.20 | 63.57 | 191.25 | -327.42 | -812.81 | 254.41 |
| 136 | 144 | 9.20 | -63.57 | -191.25 | 327.42 | 0.00 | 15.75 |
| 137 | 2 | 0.00 | 46.82 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | -46.82 | 0.00 | 0.00 | 0.00 | 199.00 |
| 138 | 7 | -1.31 | 228.70 | 0.00 | 0.00 | 0.00 | 971.98 |
| 138 | 4 | 1.31 | -228.70 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | 80.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | -80.38 | 0.00 | 0.00 | 0.00 | 148.70 |
| 140 | 18 | 1.95 | 637.40 | 0.00 | 0.00 | 0.00 | 1179.19 |
| 140 | 21 | -1.95 | -637.40 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | 122.21 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | -122.21 | 0.00 | 0.00 | 0.00 | 226.08 |
| 142 | 35 | -12.69 | 695.94 | 0.00 | 0.00 | 0.00 | 1287.47 |
| 142 | 38 | 12.69 | -695.94 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | 114.61 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | -114.61 | 0.00 | 0.00 | 0.00 | 212.01 |
| 144 | 54 | 32.65 | 683.60 | 0.00 | 0.00 | 0.00 | 1264.63 |
| 144 | 57 | -32.65 | -683.60 | 0.00 | 0.00 | 0.00 | 0.01 |
| 145 | 74 | 0.01 | 108.94 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | -0.01 | -108.94 | 0.00 | 0.00 | 0.00 | 201.52 |
| 146 | 73 | 25.39 | 679.55 | 0.00 | 0.00 | 0.00 | 1257.16 |
| 146 | 76 | -25.39 | -679.55 | 0.00 | 0.00 | 0.00 | -0.01 |
| 147 | 93 | 0.01 | 114.21 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | -0.01 | -114.21 | 0.00 | 0.00 | 0.00 | 211.26 |
| 148 | 92 | 22.89 | 684.10 | 0.00 | 0.00 | 0.00 | 1265.57 |
| 148 | 95 | -22.89 | -684.10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | 109.63 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | -109.63 | 0.00 | 0.00 | 0.00 | 202.81 |
| 150 | 110 | -3.35 | 684.40 | 0.00 | 0.00 | 0.00 | 1266.12 |
| 150 | 113 | 3.35 | -684.40 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | 74.66 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | -74.66 | 0.00 | 0.00 | 0.00 | 138.11 |
| 152 | 128 | 2.94 | 646.72 | 0.00 | 0.00 | 0.00 | 1196.45 |
| 152 | 131 | -2.94 | -646.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | 63.60 | 191.25 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | -63.60 | -191.25 | 0.00 | -812.81 | 270.30 |
| 154 | 146 | -1.27 | 239.27 | 191.25 | 0.00 | -812.81 | 1016.91 |
| 154 | 143 | 1.27 | -239.27 | -191.25 | 0.00 | 0.00 | 0.00 |



HIPOTESIS 34

FUER Y MIN sobrecarga + fr. + fc (ipf-75)

E S F U E R Z O S E N B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | -49.68 | 0.20 | -0.37 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | 59.67 | -0.20 | 0.37 | -0.89 | -246.05 |
| 2 | 8 | 0.00 | -59.67 | 0.20 | -0.37 | 0.89 | 246.05 |
| 2 | 9 | 0.00 | 69.66 | -0.20 | 0.37 | -1.79 | -537.06 |
| 3 | 9 | 0.00 | -69.66 | 0.20 | -0.37 | 1.79 | 537.06 |
| 3 | 10 | 0.00 | 79.65 | -0.20 | 0.37 | -2.68 | -873.02 |
| 4 | 10 | 0.00 | -79.65 | 0.20 | -0.37 | 2.68 | 873.02 |
| 4 | 11 | 0.00 | 132.88 | -0.04 | 0.12 | -0.71 | 1350.37 |
| 5 | 11 | 0.00 | -132.88 | 0.04 | -0.12 | 0.71 | -1350.37 |
| 5 | 12 | 0.00 | 252.15 | 0.01 | 0.03 | 0.25 | 1215.29 |
| 6 | 12 | 0.00 | -252.15 | -0.01 | -0.03 | -0.25 | -1215.29 |
| 6 | 13 | 0.00 | 376.08 | 0.01 | 0.03 | 0.30 | -198.25 |
| 7 | 13 | 0.00 | -376.08 | -0.01 | -0.03 | -0.30 | 198.25 |
| 7 | 14 | 0.00 | 500.01 | 0.01 | 0.03 | 0.36 | -2169.47 |
| 8 | 14 | 0.00 | -500.01 | -0.01 | -0.03 | -0.35 | 2169.47 |
| 8 | 15 | 0.00 | 623.94 | 0.01 | 0.03 | 0.41 | -4698.37 |
| 9 | 15 | 0.00 | -5.05 | 0.01 | -0.02 | -0.20 | -25.66 |
| 9 | 23 | 5.62 | 5.05 | -0.01 | 0.02 | 0.17 | 12.94 |
| 10 | 23 | -5.62 | -5.05 | 0.01 | -0.02 | -0.17 | -12.94 |
| 10 | 24 | 11.25 | 8.34 | -0.25 | 0.72 | 8.80 | -1113.56 |
| 11 | 24 | -11.25 | -8.34 | 0.25 | -0.72 | -8.80 | 1113.56 |
| 11 | 25 | 16.87 | 18.33 | -0.25 | 0.72 | 7.69 | -1163.56 |
| 12 | 25 | -16.87 | -18.33 | 0.25 | -0.72 | -7.69 | 1163.56 |
| 12 | 26 | 22.50 | 28.32 | -0.25 | 0.72 | 6.58 | -1258.52 |
| 13 | 26 | -22.50 | -28.32 | 0.25 | -0.72 | -6.58 | 1258.52 |
| 13 | 27 | 28.12 | 76.86 | -0.10 | 0.25 | -2.79 | 2091.53 |
| 14 | 27 | -28.12 | -76.87 | 0.10 | -0.25 | 2.79 | -2091.53 |
| 14 | 28 | 33.75 | 180.69 | -0.10 | 0.24 | -3.39 | 1653.78 |
| 15 | 28 | -33.75 | -180.69 | 0.10 | -0.24 | 3.40 | -1653.78 |
| 15 | 29 | 39.37 | 303.84 | -0.07 | 0.16 | -4.13 | 1287.84 |
| 16 | 29 | -39.37 | -303.84 | 0.07 | -0.16 | 4.13 | -1287.84 |
| 16 | 30 | 45.00 | 427.77 | -0.07 | 0.16 | -4.44 | -348.30 |
| 17 | 30 | -45.00 | -427.77 | 0.07 | -0.16 | 4.43 | 348.30 |
| 17 | 31 | 50.62 | 551.70 | -0.07 | 0.16 | -4.74 | -2542.12 |
| 18 | 31 | -50.62 | -551.70 | 0.07 | -0.16 | 4.74 | 2542.12 |
| 18 | 32 | 56.25 | 675.63 | -0.07 | 0.16 | -5.05 | -5293.63 |
| 19 | 32 | -56.25 | -5.49 | 0.00 | -0.02 | -0.21 | -41.89 |
| 19 | 40 | 61.87 | 5.49 | 0.00 | 0.02 | 0.18 | 27.17 |
| 20 | 40 | -61.87 | -5.49 | 0.00 | -0.02 | -0.18 | -27.17 |
| 20 | 41 | 67.50 | 5.49 | 0.00 | 0.02 | 0.16 | 12.46 |
| 21 | 41 | -67.50 | -5.49 | 0.00 | -0.02 | -0.16 | -12.46 |
| 21 | 42 | 73.12 | 5.49 | 0.00 | 0.02 | 0.14 | -2.26 |
| 22 | 42 | -73.12 | -5.49 | 0.00 | -0.02 | -0.14 | 2.26 |
| 22 | 43 | 78.75 | 12.01 | -0.06 | 0.28 | 2.26 | -1232.19 |
| 23 | 43 | -78.75 | -12.01 | 0.06 | -0.28 | -2.27 | 1232.19 |
| 23 | 44 | 84.38 | 86.66 | -0.10 | 0.42 | 0.19 | 2266.30 |
| 24 | 44 | -84.38 | -86.66 | 0.10 | -0.42 | -0.20 | -2266.30 |
| 24 | 45 | 90.00 | 190.56 | -0.09 | 0.42 | -0.33 | 1785.84 |
| 25 | 45 | -90.00 | -190.56 | 0.10 | -0.42 | 0.33 | -1785.84 |
| 25 | 46 | 95.62 | 314.16 | -0.09 | 0.36 | -0.93 | 1377.57 |
| 26 | 46 | -95.62 | -314.16 | 0.08 | -0.36 | 0.94 | -1377.57 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 26 | 47 | 101.25 | 438.09 | -0.08 | 0.36 | -1.32 | -305.01 |
| 27 | 47 | -101.25 | -438.09 | 0.08 | -0.36 | 1.32 | 305.01 |
| 27 | 48 | 106.87 | 562.02 | -0.08 | 0.36 | -1.71 | -2545.28 |
| 28 | 48 | -106.87 | -562.02 | 0.09 | -0.36 | 1.71 | 2545.28 |
| 28 | 49 | 112.50 | 685.95 | -0.09 | 0.36 | -2.09 | -5343.23 |
| 29 | 49 | -112.50 | -5.55 | 0.00 | -0.02 | -0.08 | -46.69 |
| 29 | 59 | 118.12 | 5.55 | 0.00 | 0.02 | 0.08 | 31.71 |
| 30 | 59 | -118.12 | -5.55 | 0.00 | -0.02 | -0.08 | -31.71 |
| 30 | 60 | 123.75 | 5.55 | 0.00 | 0.02 | 0.07 | 16.73 |
| 31 | 60 | -123.75 | -5.55 | 0.00 | -0.02 | -0.07 | -16.73 |
| 31 | 61 | 129.37 | 6.30 | 0.01 | 0.23 | 0.50 | -1107.57 |
| 32 | 61 | -129.37 | -6.30 | -0.01 | -0.23 | -0.50 | 1107.57 |
| 32 | 62 | 135.00 | 16.29 | 0.01 | 0.23 | 0.53 | -1148.40 |
| 33 | 62 | -135.00 | -16.29 | 0.00 | -0.23 | -0.52 | 1148.40 |
| 33 | 63 | 140.63 | 91.11 | -0.05 | 0.47 | -0.44 | 2336.78 |
| 34 | 63 | -140.63 | -91.11 | 0.05 | -0.47 | 0.43 | -2336.78 |
| 34 | 64 | 146.25 | 195.05 | -0.05 | 0.46 | -0.72 | 1836.43 |
| 35 | 64 | -146.25 | -195.05 | 0.05 | -0.47 | 0.71 | -1836.43 |
| 35 | 65 | 151.87 | 318.84 | -0.05 | 0.43 | -1.00 | 1407.09 |
| 36 | 65 | -151.87 | -318.84 | 0.05 | -0.43 | 1.00 | -1407.09 |
| 36 | 66 | 157.50 | 442.77 | -0.05 | 0.43 | -1.20 | -296.52 |
| 37 | 66 | -157.50 | -442.77 | 0.05 | -0.43 | 1.21 | 296.52 |
| 37 | 67 | 163.12 | 566.70 | -0.05 | 0.43 | -1.41 | -2557.82 |
| 38 | 67 | -163.12 | -566.70 | 0.05 | -0.43 | 1.42 | 2557.82 |
| 38 | 68 | 168.75 | 690.63 | -0.05 | 0.43 | -1.61 | -5376.80 |
| 39 | 68 | -168.75 | -5.83 | 0.00 | -0.01 | -0.06 | -49.78 |
| 39 | 78 | 174.37 | 5.83 | 0.00 | 0.01 | 0.06 | 33.52 |
| 40 | 78 | -174.37 | -5.83 | 0.00 | -0.01 | -0.06 | -33.52 |
| 40 | 79 | 180.00 | 5.83 | 0.00 | 0.01 | 0.05 | 17.25 |
| 41 | 79 | -180.00 | -5.83 | 0.00 | -0.01 | -0.05 | -17.25 |
| 41 | 80 | 185.62 | 5.83 | 0.00 | 0.01 | 0.04 | 0.99 |
| 42 | 80 | -185.62 | -5.83 | 0.00 | -0.01 | -0.04 | -0.99 |
| 42 | 81 | 191.25 | 15.31 | 0.00 | 0.10 | 0.22 | -1143.56 |
| 43 | 81 | -191.25 | -15.31 | 0.00 | -0.10 | -0.22 | 1143.56 |
| 43 | 82 | 196.87 | 91.28 | -0.05 | 0.53 | -1.03 | 2485.70 |
| 44 | 82 | -196.87 | -91.28 | 0.05 | -0.53 | 1.03 | -2485.70 |
| 44 | 83 | 202.50 | 195.23 | -0.05 | 0.53 | -1.26 | 1851.03 |
| 45 | 83 | -202.50 | -195.23 | 0.05 | -0.53 | 1.25 | -1851.03 |
| 45 | 84 | 208.12 | 319.10 | -0.04 | 0.51 | -1.54 | 1419.89 |
| 46 | 84 | -208.12 | -319.10 | 0.05 | -0.51 | 1.54 | -1419.89 |
| 46 | 85 | 213.75 | 443.03 | -0.05 | 0.51 | -1.75 | -284.90 |
| 47 | 85 | -213.75 | -443.03 | 0.05 | -0.51 | 1.75 | 284.90 |
| 47 | 86 | 219.37 | 566.96 | -0.05 | 0.51 | -1.96 | -2547.36 |
| 48 | 86 | -219.37 | -566.96 | 0.05 | -0.51 | 1.96 | 2547.36 |
| 48 | 87 | 225.00 | 690.89 | -0.05 | 0.51 | -2.16 | -5367.52 |
| 49 | 87 | -225.00 | -4.48 | 0.01 | -0.01 | -0.07 | -38.21 |
| 49 | 97 | 230.62 | 4.48 | -0.01 | 0.01 | 0.05 | 28.06 |
| 50 | 97 | -230.62 | -4.48 | 0.01 | -0.01 | -0.05 | -28.06 |
| 50 | 98 | 236.25 | 4.48 | -0.01 | 0.01 | 0.03 | 17.91 |
| 51 | 98 | -236.25 | -4.48 | 0.01 | -0.01 | -0.03 | -17.91 |
| 51 | 99 | 241.87 | 4.48 | -0.01 | 0.01 | 0.00 | 7.76 |
| 52 | 99 | -241.87 | -4.48 | 0.01 | -0.01 | 0.00 | -7.76 |
| 52 | 100 | 247.50 | 11.45 | -0.03 | 0.13 | 0.12 | -1102.99 |
| 53 | 100 | -247.50 | -11.45 | 0.03 | -0.13 | -0.12 | 1102.99 |
| 53 | 101 | 253.12 | 88.44 | -0.12 | 0.60 | -2.05 | 2539.51 |
| 54 | 101 | -253.12 | -88.44 | 0.12 | -0.60 | 2.05 | -2539.51 |
| 54 | 102 | 258.75 | 192.40 | -0.11 | 0.57 | -2.65 | 2631.52 |
| 55 | 102 | -258.75 | -192.40 | 0.11 | -0.57 | 2.65 | -2631.52 |
| 55 | 103 | 264.37 | 316.33 | -0.11 | 0.57 | -3.16 | 1496.86 |
| 56 | 103 | -264.37 | -316.33 | 0.11 | -0.57 | 3.16 | -1496.86 |
| 56 | 104 | 270.00 | 440.26 | -0.11 | 0.57 | -3.67 | -195.48 |
| 57 | 104 | -270.00 | -440.26 | 0.11 | -0.57 | 3.67 | 195.49 |
| 57 | 105 | 275.62 | 564.19 | -0.11 | 0.57 | -4.18 | -2445.51 |
| 58 | 105 | -275.62 | -564.19 | 0.11 | -0.57 | 4.18 | 2445.51 |
| 58 | 106 | 281.25 | 688.12 | -0.11 | 0.57 | -4.69 | -5253.23 |
| 59 | 106 | -281.25 | -8.82 | 0.01 | -0.07 | -0.15 | -77.61 |
| 59 | 115 | 286.87 | 8.82 | -0.01 | 0.07 | 0.09 | 47.90 |
| 60 | 115 | -286.87 | -8.82 | 0.01 | -0.07 | -0.09 | -47.90 |
| 60 | 116 | 292.50 | 8.82 | -0.01 | 0.07 | 0.02 | 18.18 |
| 61 | 116 | -292.50 | -8.82 | 0.01 | -0.07 | -0.02 | -18.18 |
| 61 | 117 | 298.12 | 8.82 | -0.01 | 0.07 | -0.04 | -11.54 |
| 62 | 117 | -298.12 | -8.82 | 0.01 | -0.07 | 0.04 | 11.54 |
| 62 | 118 | 303.75 | 8.82 | -0.01 | 0.07 | -0.10 | -41.26 |
| 63 | 118 | -303.75 | -8.82 | 0.01 | -0.07 | 0.10 | 41.26 |
| 63 | 119 | 309.37 | 76.50 | -0.06 | 0.24 | 1.52 | 2695.91 |
| 64 | 119 | -309.37 | -76.50 | 0.06 | -0.24 | -1.52 | -2695.91 |
| 64 | 120 | 315.00 | 182.63 | -0.07 | 0.32 | 0.16 | 2801.22 |
| 65 | 120 | -315.00 | -182.63 | 0.07 | -0.32 | -0.15 | -2801.22 |
| 65 | 121 | 320.62 | 306.56 | -0.07 | 0.32 | -0.18 | 1710.52 |
| 66 | 121 | -320.62 | -306.56 | 0.07 | -0.32 | 0.18 | -1710.52 |
| 66 | 122 | 326.25 | 430.49 | -0.07 | 0.32 | -0.52 | 62.13 |
| 67 | 122 | -326.25 | -430.49 | 0.07 | -0.32 | 0.52 | -62.13 |
| 67 | 123 | 331.87 | 554.42 | -0.07 | 0.32 | -0.85 | -2143.94 |
| 68 | 123 | -331.87 | -554.42 | 0.07 | -0.32 | 0.85 | 2143.94 |
| 68 | 124 | 337.50 | 678.35 | -0.07 | 0.32 | -1.19 | -4907.70 |
| 69 | 124 | 337.50 | -20.75 | 0.02 | -0.08 | -0.78 | -171.98 |
| 69 | 133 | -343.12 | 20.75 | -0.02 | 0.08 | 0.69 | 68.63 |
| 70 | 133 | 343.12 | -20.75 | 0.02 | -0.08 | -0.69 | -68.63 |
| 70 | 134 | -348.75 | 20.75 | -0.02 | 0.08 | 0.59 | -34.73 |
| 71 | 134 | 348.75 | -20.75 | 0.02 | -0.08 | -0.59 | 34.73 |
| 71 | 135 | -354.37 | 20.75 | -0.02 | 0.08 | 0.49 | -138.08 |
| 72 | 135 | 354.38 | -20.75 | 0.02 | -0.08 | -0.49 | 138.08 |
| 72 | 136 | -360.00 | 20.75 | -0.02 | 0.08 | 0.39 | -241.43 |
| 73 | 136 | 360.00 | -20.75 | 0.02 | -0.08 | -0.39 | 241.43 |
| 73 | 137 | -365.63 | 100.96 | -0.23 | 0.77 | 3.13 | 3166.78 |
| 74 | 137 | 365.63 | -100.96 | 0.23 | -0.77 | -3.13 | -3166.78 |
| 74 | 138 | -371.25 | 224.89 | -0.23 | 0.77 | 2.09 | 2423.62 |
| 75 | 138 | 371.25 | -224.89 | 0.23 | -0.77 | -2.09 | -2423.62 |
| 75 | 139 | -376.88 | 346.37 | -0.24 | 0.80 | 1.09 | 1172.66 |
| 76 | 139 | 376.88 | -346.37 | 0.24 | -0.80 | -1.09 | -1172.66 |
| 76 | 140 | -382.50 | 468.52 | -0.25 | 0.84 | 0.00 | -654.84 |
| 77 | 16 | 995.77 | 0.00 | 0.19 | 0.00 | -1.82 | 0.00 |
| 77 | 17 | -995.77 | 0.00 | -0.19 | 0.00 | 0.82 | 0.00 |
| 78 | 17 | 995.77 | 0.00 | 0.19 | 0.00 | -0.82 | 0.00 |
| 78 | 18 | -995.77 | 0.00 | -0.19 | 0.00 | -0.12 | 0.00 |
| 79 | 33 | 1004.73 | 0.00 | -0.07 | 0.00 | 0.79 | 0.00 |
| 79 | 34 | -1004.73 | 0.00 | 0.07 | 0.00 | -0.23 | 0.00 |
| 80 | 34 | 1004.73 | 0.00 | -0.07 | 0.00 | 0.23 | 0.00 |
| 80 | 35 | -1004.73 | 0.00 | 0.07 | 0.00 | 0.14 | 0.00 |
| 81 | 50 | 996.55 | 0.00 | -0.01 | 0.00 | 0.18 | 0.00 |
| 81 | 51 | -996.55 | 0.00 | 0.01 | 0.00 | -0.16 | 0.00 |
| 82 | 51 | 996.55 | 0.00 | -0.01 | 0.00 | 0.16 | 0.00 |
| 82 | 52 | -996.55 | 0.00 | 0.01 | 0.00 | -0.11 | 0.00 |
| 83 | 52 | 996.55 | 0.00 | -0.01 | 0.00 | 0.11 | 0.00 |
| 83 | 53 | -996.55 | 0.00 | 0.01 | 0.00 | -0.06 | 0.00 |
| 84 | 53 | 996.55 | 0.00 | -0.01 | 0.00 | 0.06 | 0.00 |
| 84 | 54 | -996.55 | 0.00 | 0.01 | 0.00 | -0.03 | 0.00 |
| 85 | 69 | 1000.04 | 0.00 | 0.00 | 0.00 | 0.17 | 0.00 |
| 85 | 70 | -1000.04 | 0.00 | 0.00 | 0.00 | -0.13 | 0.00 |
| 86 | 70 | 1000.04 | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 |
| 86 | 71 | -1000.04 | 0.00 | 0.00 | 0.00 | -0.09 | 0.00 |
| 87 | 71 | 1000.04 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 |
| 87 | 72 | -1000.04 | 0.00 | 0.00 | 0.00 | -0.04 | 0.00 |
| 88 | 72 | 1000.04 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 |
| 88 | 73 | -1000.04 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 89 | 88 | 997.18 | 0.00 | -0.01 | 0.00 | 0.24 | 0.00 |
| 89 | 89 | -997.18 | 0.00 | 0.01 | 0.00 | -0.23 | 0.00 |
| 90 | 89 | 997.18 | 0.00 | -0.01 | 0.00 | 0.23 | 0.00 |
| 90 | 90 | -997.18 | 0.00 | 0.01 | 0.00 | -0.13 | 0.00 |
| 91 | 90 | 997.18 | 0.00 | -0.01 | 0.00 | 0.13 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 91 | 91 | -997.18 | 0.00 | 0.01 | 0.00 | -0.04 | 0.00 |
| 92 | 91 | 997.18 | 0.00 | -0.01 | 0.00 | 0.04 | 0.00 |
| 92 | 92 | -997.18 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 93 | 107 | 1004.52 | 0.00 | -0.03 | 0.00 | 0.36 | 0.00 |
| 93 | 108 | -1004.52 | 0.00 | 0.03 | 0.00 | -0.32 | 0.00 |
| 94 | 108 | 1004.52 | 0.00 | -0.03 | 0.00 | 0.32 | 0.00 |
| 94 | 109 | -1004.52 | 0.00 | 0.03 | 0.00 | -0.01 | 0.00 |
| 95 | 109 | 1004.52 | 0.00 | -0.03 | 0.00 | 0.01 | 0.00 |
| 95 | 110 | -1004.52 | 0.00 | 0.03 | 0.00 | 0.15 | 0.00 |
| 96 | 125 | 995.30 | 0.00 | 0.12 | 0.00 | -1.64 | 0.00 |
| 96 | 126 | -995.30 | 0.00 | -0.12 | 0.00 | 1.52 | 0.00 |
| 97 | 126 | 995.30 | 0.00 | 0.12 | 0.00 | -1.52 | 0.00 |
| 97 | 127 | -995.30 | 0.00 | -0.12 | 0.00 | 0.32 | 0.00 |
| 98 | 127 | 995.30 | 0.00 | 0.12 | 0.00 | -0.32 | 0.00 |
| 98 | 128 | -995.30 | 0.00 | -0.12 | 0.00 | -0.27 | 0.00 |
| 99 | 2 | 149.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -149.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 149.49 | 0.00 | -0.11 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -149.49 | 0.00 | 0.11 | 0.00 | 0.18 | 0.00 |
| 101 | 19 | 497.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -497.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 497.92 | 0.00 | 0.19 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -497.92 | 0.00 | -0.19 | 0.00 | -0.32 | 0.00 |
| 103 | 36 | 502.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -502.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 502.33 | 0.00 | -0.07 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -502.33 | 0.00 | 0.07 | 0.00 | 0.13 | 0.00 |
| 105 | 55 | 498.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -498.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 498.28 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -498.28 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 107 | 74 | 500.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -500.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 500.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -500.02 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 109 | 93 | 498.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -498.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 498.59 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -498.59 | 0.00 | 0.01 | 0.00 | 0.02 | 0.00 |
| 111 | 111 | 502.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -502.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 502.22 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -502.22 | 0.00 | 0.03 | 0.00 | 0.05 | 0.00 |
| 113 | 129 | 497.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -497.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 497.72 | 0.00 | 0.12 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -497.72 | 0.00 | -0.12 | 0.00 | -0.20 | 0.00 |
| 115 | 141 | 130.65 | -363.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -130.65 | 363.38 | 0.00 | 0.00 | 0.00 | -622.10 |
| 116 | 143 | 130.63 | -363.38 | -0.04 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -130.63 | 363.38 | 0.04 | 0.00 | 0.07 | -622.10 |
| 117 | 6 | 298.99 | 0.00 | -0.11 | 0.00 | 0.09 | 0.00 |
| 117 | 7 | -298.99 | 0.00 | 0.11 | 0.00 | 0.02 | 0.00 |
| 118 | 145 | 261.28 | -726.75 | -0.04 | 0.00 | -0.02 | -726.75 |
| 118 | 146 | -261.28 | 726.75 | 0.04 | 0.00 | 0.06 | 0.00 |
| 119 | 3 | 0.00 | -46.82 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | 46.82 | 0.00 | 0.00 | 0.00 | -199.00 |
| 120 | 1 | 1.31 | -228.70 | 0.00 | 0.00 | 0.00 | -969.74 |
| 120 | 5 | -1.31 | 228.70 | 0.00 | 0.00 | 0.00 | -2.24 |
| 121 | 20 | 0.00 | -80.38 | 0.01 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | 80.38 | -0.01 | 0.00 | 0.00 | -148.71 |
| 122 | 15 | -1.96 | -637.40 | 0.00 | 0.00 | 0.01 | -1182.55 |
| 122 | 22 | 1.96 | 637.40 | 0.00 | 0.00 | 0.00 | 3.34 |
| 123 | 37 | 0.00 | -122.21 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | 122.21 | 0.00 | 0.00 | -0.01 | -226.12 |
| 124 | 32 | 12.70 | -695.94 | 0.00 | 0.00 | -0.01 | -1265.78 |
| 124 | 39 | -12.70 | 695.94 | 0.00 | 0.00 | 0.00 | -21.73 |
| 125 | 56 | 0.01 | -114.61 | -0.01 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | -0.01 | 114.61 | 0.01 | 0.00 | -0.01 | -212.05 |
| 126 | 49 | -32.66 | -683.59 | 0.00 | 0.00 | -0.01 | -1320.58 |
| 126 | 58 | 32.66 | 683.59 | 0.00 | 0.00 | 0.00 | 55.90 |
| 127 | 75 | 0.00 | -108.94 | 0.01 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.00 | 108.94 | -0.01 | 0.00 | 0.00 | -201.56 |
| 128 | 68 | -25.38 | -679.55 | 0.00 | 0.00 | -0.01 | -1300.65 |
| 128 | 77 | 25.38 | 679.55 | 0.00 | 0.00 | 0.00 | 43.45 |
| 129 | 94 | 0.00 | -114.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | 114.20 | 0.00 | 0.00 | 0.00 | -211.30 |
| 130 | 87 | -22.88 | -684.10 | 0.00 | 0.00 | 0.01 | -1304.82 |
| 130 | 96 | 22.88 | 684.10 | 0.00 | 0.00 | 0.01 | 39.18 |
| 131 | 112 | 0.00 | -109.63 | -0.01 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | 109.63 | 0.01 | 0.00 | 0.00 | -202.84 |
| 132 | 106 | 3.36 | -684.40 | 0.01 | 0.00 | 0.00 | -1260.42 |
| 132 | 114 | -3.36 | 684.40 | -0.01 | 0.00 | 0.00 | -5.74 |
| 133 | 130 | 0.00 | -74.66 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | 74.66 | 0.00 | 0.00 | 0.00 | -138.13 |
| 134 | 124 | -2.94 | -646.73 | 0.00 | 0.00 | 0.00 | -1201.47 |
| 134 | 132 | 2.94 | 646.73 | 0.00 | 0.00 | 0.00 | 5.03 |
| 135 | 142 | 0.00 | -63.60 | -191.25 | 327.42 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | 63.60 | 191.25 | -327.42 | 812.81 | -270.30 |
| 136 | 140 | 1.27 | -239.27 | -191.25 | 327.42 | 812.81 | -1014.73 |
| 136 | 144 | -1.27 | 239.27 | 191.25 | -327.42 | 0.00 | -2.18 |
| 137 | 2 | 0.00 | -228.71 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 228.71 | 0.00 | 0.00 | 0.00 | -972.03 |
| 138 | 7 | 3.22 | -46.82 | 0.00 | 0.00 | 0.00 | -198.99 |
| 138 | 4 | -3.22 | 46.82 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -637.47 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 637.47 | 0.00 | 0.00 | 0.00 | -1179.31 |
| 140 | 18 | 3.48 | -80.34 | 0.00 | 0.00 | 0.00 | -148.62 |
| 140 | 21 | -3.48 | 80.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -696.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 696.06 | 0.00 | 0.00 | 0.00 | -1287.70 |
| 142 | 35 | 43.29 | -122.26 | 0.00 | 0.00 | 0.00 | -226.17 |
| 142 | 38 | -43.29 | 122.26 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.01 | -683.78 | 0.00 | 0.00 | 0.00 | -0.01 |
| 143 | 54 | -0.01 | 683.78 | 0.00 | 0.00 | 0.00 | -1264.99 |
| 144 | 54 | -9.83 | -114.50 | 0.00 | 0.00 | 0.00 | -211.82 |
| 144 | 57 | 9.83 | 114.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | -679.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 679.75 | 0.00 | 0.00 | 0.00 | -1257.53 |
| 146 | 73 | -4.93 | -108.80 | 0.00 | 0.00 | 0.00 | -201.26 |
| 146 | 76 | 4.93 | 108.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | -684.32 | 0.00 | 0.00 | 0.00 | -0.01 |
| 147 | 92 | 0.00 | 684.32 | 0.00 | 0.00 | 0.00 | -1265.99 |
| 148 | 92 | 0.68 | -114.08 | 0.00 | 0.00 | 0.00 | -211.03 |
| 148 | 95 | -0.68 | 114.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | -684.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 684.58 | 0.00 | 0.00 | 0.00 | -1266.44 |
| 150 | 110 | 28.94 | -109.60 | 0.00 | 0.00 | 0.00 | -202.75 |
| 150 | 113 | -28.94 | 109.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -646.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 646.87 | 0.00 | 0.00 | 0.00 | -1196.71 |
| 152 | 128 | -5.78 | -74.55 | 0.00 | 0.00 | 0.00 | -137.92 |
| 152 | 131 | 5.78 | 74.55 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -239.37 | -191.25 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 239.37 | 191.25 | 0.00 | 812.81 | -1017.31 |
| 154 | 146 | 9.20 | -63.57 | -191.25 | 0.00 | 812.81 | -270.17 |
| 154 | 143 | -9.20 | 63.57 | 191.25 | 0.00 | 0.00 | 0.00 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS 35

FUER Z MAX sobrecarga + fr. + fc (ipf-75)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 143.97 | 16.29 | 602.40 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -87.00 | -16.29 | -471.18 | -73.29 | 519.67 |
| 2 | 8 | 0.00 | 87.00 | 16.29 | 471.18 | 73.29 | -519.67 |
| 2 | 9 | 0.00 | -30.03 | -16.29 | -339.96 | -146.57 | 782.97 |
| 3 | 9 | 0.00 | 30.03 | 16.29 | 339.96 | 146.57 | -782.97 |
| 3 | 10 | 0.00 | 26.94 | -16.29 | -208.74 | -219.86 | 789.90 |
| 4 | 10 | 0.00 | -26.94 | 16.29 | 208.74 | 219.86 | -789.90 |
| 4 | 11 | 0.00 | 83.91 | -16.29 | -77.52 | -293.14 | 540.47 |
| 5 | 11 | 0.00 | -83.91 | 16.29 | 77.52 | 293.14 | -540.47 |
| 5 | 12 | 0.00 | 144.08 | -16.29 | 62.17 | -366.43 | 32.18 |
| 6 | 12 | 0.00 | -144.08 | 16.29 | -62.17 | 366.43 | -32.18 |
| 6 | 13 | 0.00 | 211.04 | -16.29 | 219.85 | -439.71 | -766.84 |
| 7 | 13 | 0.00 | -211.04 | 16.29 | -219.85 | 439.71 | 766.84 |
| 7 | 14 | 0.00 | 278.00 | -16.29 | 377.53 | -513.00 | -1867.19 |
| 8 | 14 | 0.00 | -278.00 | 16.29 | -377.53 | 513.00 | 1867.19 |
| 8 | 15 | 0.00 | 344.96 | -16.29 | 535.21 | -586.29 | -3268.85 |
| 9 | 15 | 0.00 | 541.86 | 22.57 | 43.40 | -499.65 | 3342.03 |
| 9 | 23 | 0.00 | -429.95 | -22.57 | -81.92 | 411.33 | -1155.45 |
| 10 | 23 | 0.00 | 429.95 | 22.57 | 81.92 | -411.33 | 1155.45 |
| 10 | 24 | 0.00 | -318.03 | -22.57 | -120.44 | 323.01 | 527.51 |
| 11 | 24 | 0.00 | 318.03 | 22.57 | 120.44 | -323.01 | -527.51 |
| 11 | 25 | 0.00 | -206.12 | -22.57 | -158.96 | 234.69 | 1706.85 |
| 12 | 25 | 0.00 | 206.12 | 22.57 | 158.96 | -234.70 | -1706.85 |
| 12 | 26 | 0.00 | -100.97 | -22.57 | -179.54 | 146.38 | 2392.57 |
| 13 | 26 | 0.00 | 100.97 | 22.57 | 179.54 | -146.38 | -2392.56 |
| 13 | 27 | 0.00 | 0.95 | -22.57 | -191.60 | 58.06 | 2617.62 |
| 14 | 27 | 0.00 | -0.95 | 22.57 | 191.60 | -58.06 | -2617.62 |
| 14 | 28 | 0.00 | 102.88 | -22.57 | -203.66 | -30.26 | 2384.01 |
| 15 | 28 | 0.00 | -102.88 | 22.57 | 203.66 | 30.26 | -2384.01 |
| 15 | 29 | 0.00 | 208.00 | -22.57 | -207.25 | -118.58 | 1689.24 |
| 16 | 29 | 0.00 | -208.00 | 22.57 | 207.25 | 118.58 | -1689.24 |
| 16 | 30 | 0.00 | 319.91 | -22.57 | -192.85 | -206.90 | 501.44 |
| 17 | 30 | 0.00 | -319.91 | 22.57 | 192.85 | 206.90 | -501.44 |
| 17 | 31 | 0.00 | 431.83 | -22.57 | -178.45 | -295.22 | -1189.98 |
| 18 | 31 | 0.00 | -431.83 | 22.57 | 178.45 | 295.22 | 1189.98 |
| 18 | 32 | 0.00 | 543.74 | -22.57 | -164.05 | -383.54 | -3385.01 |
| 19 | 32 | 0.00 | 227.21 | 33.43 | 917.61 | -606.22 | 895.49 |
| 19 | 40 | 0.00 | -175.24 | -33.43 | -773.16 | 469.01 | 10.03 |
| 20 | 40 | 0.00 | 175.24 | 33.43 | 773.16 | -469.01 | -10.03 |
| 20 | 41 | 0.00 | -123.26 | -33.43 | -628.71 | 331.80 | 681.66 |
| 21 | 41 | 0.00 | 123.26 | 33.43 | 628.71 | -331.80 | -681.66 |
| 21 | 42 | 0.00 | -71.29 | -33.43 | -484.26 | 194.59 | 1119.40 |
| 22 | 42 | 0.00 | 71.29 | 33.43 | 484.26 | -194.59 | -1119.40 |
| 22 | 43 | 0.00 | -19.31 | -33.43 | -339.81 | 57.38 | 1323.25 |
| 23 | 43 | 0.00 | 19.31 | 33.43 | 339.81 | -57.38 | -1323.25 |
| 23 | 44 | 0.00 | 32.66 | -33.43 | -195.36 | -79.84 | 1293.22 |
| 24 | 44 | 0.00 | -32.66 | 33.43 | 195.36 | 79.83 | -1293.22 |
| 24 | 45 | 0.00 | 84.64 | -33.43 | -50.91 | -217.05 | 1029.30 |
| 25 | 45 | 0.00 | -84.64 | 33.43 | 50.91 | 217.05 | -1029.30 |
| 25 | 46 | 0.00 | 139.81 | -33.43 | 102.00 | -354.26 | 528.99 |
| 26 | 46 | 0.00 | -139.81 | 33.43 | -102.00 | 354.26 | -528.99 |
| 26 | 47 | 0.00 | 201.77 | -33.43 | 272.91 | -491.47 | -239.57 |
| 27 | 47 | 0.00 | -201.77 | 33.43 | -272.91 | 491.47 | 239.57 |
| 27 | 48 | 0.00 | 263.74 | -33.43 | 443.82 | -628.68 | -1286.97 |
| 28 | 48 | 0.00 | -263.74 | 33.43 | -443.82 | 628.68 | 1286.97 |
| 28 | 49 | 0.00 | 325.70 | -33.43 | 614.73 | -765.89 | -2613.22 |
| 29 | 49 | 0.00 | 509.35 | 20.15 | 277.44 | -376.11 | 3312.18 |
| 29 | 59 | 0.00 | -407.43 | -20.15 | -265.38 | 298.67 | -1249.43 |
| 30 | 59 | 0.00 | 407.43 | 20.15 | 265.38 | -298.67 | 1249.43 |
| 30 | 60 | 0.00 | -305.50 | -20.15 | -253.32 | 221.23 | 354.66 |
| 31 | 60 | 0.00 | 305.50 | 20.15 | 253.32 | -221.23 | -354.66 |
| 31 | 61 | 0.00 | -203.58 | -20.15 | -241.26 | 143.79 | 1500.09 |
| 32 | 61 | 0.00 | 203.58 | 20.15 | 241.26 | -143.79 | -1500.09 |
| 32 | 62 | 0.00 | -101.65 | -20.15 | -229.20 | 66.36 | 2186.86 |
| 33 | 62 | 0.00 | 101.65 | 20.15 | 229.20 | -66.35 | -2186.86 |
| 33 | 63 | 0.00 | 0.27 | -20.15 | -217.14 | -11.09 | 2414.96 |
| 34 | 63 | 0.00 | -0.27 | 20.15 | 217.14 | 11.08 | -2414.96 |
| 34 | 64 | 0.00 | 102.20 | -20.15 | -205.08 | -88.53 | 2184.40 |
| 35 | 64 | 0.00 | -102.20 | 20.15 | 205.08 | 88.52 | -2184.40 |
| 35 | 65 | 0.00 | 204.12 | -20.15 | -193.02 | -165.96 | 1495.17 |
| 36 | 65 | 0.00 | -204.12 | 20.15 | 193.02 | 165.96 | -1495.17 |
| 36 | 66 | 0.00 | 306.05 | -20.15 | -180.96 | -243.40 | 347.29 |
| 37 | 66 | 0.00 | -306.05 | 20.15 | 180.96 | 243.40 | -347.29 |
| 37 | 67 | 0.00 | 407.97 | -20.15 | -168.90 | -320.84 | -1259.26 |
| 38 | 67 | 0.00 | -407.97 | 20.15 | 168.90 | 320.84 | 1259.26 |
| 38 | 68 | 0.00 | 509.90 | -20.15 | -156.84 | -398.28 | -3324.47 |
| 39 | 68 | 0.00 | 509.64 | 20.85 | 159.19 | -404.21 | 3322.41 |
| 39 | 78 | 0.00 | -407.71 | -20.85 | -171.25 | 323.59 | -1258.38 |
| 40 | 78 | 0.00 | 407.71 | 20.85 | 171.25 | -323.59 | 1258.38 |
| 40 | 79 | 0.00 | -305.79 | -20.85 | -183.31 | 242.99 | 346.98 |
| 41 | 79 | 0.00 | 305.79 | 20.86 | 183.31 | -242.98 | -346.98 |
| 41 | 80 | 0.00 | -203.86 | -20.86 | -195.37 | 162.38 | 1493.69 |
| 42 | 80 | 0.00 | 203.86 | 20.85 | 195.37 | -162.38 | -1493.69 |
| 42 | 81 | 0.00 | -101.94 | -20.85 | -207.43 | 81.77 | 2181.73 |
| 43 | 81 | 0.00 | 101.94 | 20.85 | 207.43 | -81.77 | -2181.73 |
| 43 | 82 | 0.00 | -0.01 | -20.85 | -219.49 | 1.16 | 2411.11 |
| 44 | 82 | 0.00 | 0.01 | 20.85 | 219.49 | -1.16 | -2411.11 |
| 44 | 83 | 0.00 | 101.91 | -20.85 | -231.55 | -79.45 | 2181.83 |
| 45 | 83 | 0.00 | -101.91 | 20.85 | 231.55 | 79.44 | -2181.83 |
| 45 | 84 | 0.00 | 203.84 | -20.85 | -243.61 | -160.05 | 1493.88 |
| 46 | 84 | 0.00 | -203.84 | 20.85 | 243.61 | 160.05 | -1493.88 |
| 46 | 85 | 0.00 | 305.76 | -20.85 | -255.67 | -240.66 | 347.27 |
| 47 | 85 | 0.00 | -305.76 | 20.85 | 255.67 | 240.66 | -347.27 |
| 47 | 86 | 0.00 | 407.69 | -20.85 | -267.73 | -321.26 | -1258.00 |
| 48 | 86 | 0.00 | -407.69 | 20.85 | 267.73 | 321.26 | 1258.00 |
| 48 | 87 | 0.00 | 509.61 | -20.85 | -279.79 | -401.87 | -3321.93 |
| 49 | 87 | 0.00 | 325.94 | 25.38 | -629.14 | -729.94 | 2619.63 |
| 49 | 97 | 0.00 | -263.98 | -25.38 | 458.23 | 628.96 | -1292.30 |
| 50 | 97 | 0.00 | 263.98 | 25.38 | -458.23 | -628.97 | 1292.30 |
| 50 | 98 | 0.00 | -202.01 | -25.38 | 287.32 | 527.99 | -243.81 |
| 51 | 98 | 0.00 | 202.01 | 25.38 | -287.32 | -527.99 | 243.81 |
| 51 | 99 | 0.00 | -140.05 | -25.38 | 116.41 | 427.01 | 525.83 |
| 52 | 99 | 0.00 | 140.05 | 25.38 | -116.41 | -427.01 | -525.83 |
| 52 | 100 | 0.00 | -84.86 | -25.38 | -36.56 | 326.03 | 1026.62 |
| 53 | 100 | 0.00 | 84.86 | 25.38 | 36.56 | -326.04 | -1026.62 |
| 53 | 101 | 0.00 | -32.88 | -25.38 | -181.01 | 225.06 | 1291.53 |
| 54 | 101 | 0.00 | 32.88 | 25.38 | 181.01 | -225.06 | -1291.53 |
| 54 | 102 | 0.00 | 19.09 | -25.38 | -325.46 | 124.08 | 1322.55 |
| 55 | 102 | 0.00 | -19.09 | 25.38 | 325.46 | -124.08 | -1322.55 |
| 55 | 103 | 0.00 | 71.07 | -25.38 | -469.91 | 23.11 | 1119.68 |
| 56 | 103 | 0.00 | -71.07 | 25.38 | 469.91 | -23.10 | -1119.68 |
| 56 | 104 | 0.00 | 123.04 | -25.38 | -614.36 | -77.87 | 682.93 |
| 57 | 104 | 0.00 | -123.04 | 25.38 | 614.36 | 77.87 | -682.93 |
| 57 | 105 | 0.00 | 175.02 | -25.38 | -758.81 | -178.85 | 12.28 |
| 58 | 105 | 0.00 | -175.02 | 25.38 | 758.81 | 178.85 | -12.28 |
| 58 | 106 | 0.00 | 226.99 | -25.38 | -903.26 | -279.82 | -892.25 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 59 | 106 | 0.00 | 543.95 | 23.00 | 167.06 | -399.48 | 3382.59 |
| 59 | 115 | 0.00 | -432.04 | -23.00 | -181.46 | 309.21 | -1186.60 |
| 60 | 115 | 0.00 | 432.04 | 23.00 | 181.46 | -309.21 | 1186.60 |
| 60 | 116 | 0.00 | -320.12 | -23.00 | -195.86 | 218.93 | 505.77 |
| 61 | 116 | 0.00 | 320.12 | 23.00 | 195.86 | -218.93 | -505.77 |
| 61 | 117 | 0.00 | -208.21 | -23.00 | -210.26 | 128.66 | 1694.52 |
| 62 | 117 | 0.00 | 208.21 | 23.00 | 210.26 | -128.65 | -1694.53 |
| 62 | 118 | 0.00 | -103.07 | -23.00 | -206.73 | 38.38 | 2389.65 |
| 63 | 118 | 0.00 | 103.07 | 23.00 | 206.73 | -38.38 | -2389.65 |
| 63 | 119 | 0.00 | -1.14 | -23.00 | -194.67 | -51.90 | 2624.12 |
| 64 | 119 | 0.00 | 1.14 | 23.00 | 194.67 | 51.90 | -2624.12 |
| 64 | 120 | 0.00 | 100.78 | -23.00 | -182.61 | -142.17 | 2399.92 |
| 65 | 120 | 0.00 | -100.78 | 23.00 | 182.61 | 142.17 | -2399.92 |
| 65 | 121 | 0.00 | 205.91 | -23.00 | -162.08 | -232.45 | 1714.56 |
| 66 | 121 | 0.00 | -205.91 | 23.00 | 162.08 | 232.45 | -1714.56 |
| 66 | 122 | 0.00 | 317.82 | -23.00 | -123.56 | -322.73 | 536.18 |
| 67 | 122 | 0.00 | -317.82 | 23.00 | 123.56 | 322.73 | -536.18 |
| 67 | 123 | 0.00 | 429.74 | -23.00 | -85.04 | -413.00 | -1145.83 |
| 68 | 123 | 0.00 | -429.74 | 23.00 | 85.04 | 413.00 | 1145.83 |
| 68 | 124 | 0.00 | 541.65 | -23.00 | -46.52 | -503.28 | -3331.45 |
| 69 | 124 | 0.00 | 298.67 | 23.10 | -328.37 | -725.89 | 2320.82 |
| 69 | 133 | 0.00 | -236.71 | -23.10 | 157.46 | 635.15 | -1116.21 |
| 70 | 133 | 0.00 | 236.71 | 23.10 | -157.46 | -635.16 | 1116.21 |
| 70 | 134 | 0.00 | -174.74 | -23.10 | -13.45 | 544.42 | -190.44 |
| 71 | 134 | 0.00 | 174.74 | 23.10 | 13.45 | -544.42 | 190.44 |
| 71 | 135 | 0.00 | -112.78 | -23.10 | -184.36 | 453.68 | 456.49 |
| 72 | 135 | 0.00 | 112.78 | 23.10 | 184.36 | -453.68 | -456.49 |
| 72 | 136 | 0.00 | -57.59 | -23.10 | -337.33 | 362.95 | 834.56 |
| 73 | 136 | 0.00 | 57.59 | 23.10 | 337.33 | -362.95 | -834.56 |
| 73 | 137 | 0.00 | -5.61 | -23.10 | -481.78 | 272.21 | 976.75 |
| 74 | 137 | 0.00 | 5.61 | 23.10 | 481.78 | -272.21 | -976.75 |
| 74 | 138 | 0.00 | 46.36 | -23.10 | -626.23 | 181.47 | 885.06 |
| 75 | 138 | 0.00 | -46.36 | 23.10 | 626.23 | -181.47 | -885.06 |
| 75 | 139 | 0.00 | 98.34 | -23.10 | -770.68 | 90.74 | 559.47 |
| 76 | 139 | 0.00 | -98.34 | 23.10 | 770.68 | -90.74 | -559.47 |
| 76 | 140 | 0.00 | 150.31 | -23.10 | -915.13 | 0.00 | 0.00 |
| 77 | 16 | 888.86 | 0.00 | 36.45 | 0.00 | 59.77 | 0.00 |
| 77 | 17 | -888.86 | 0.00 | -36.45 | 0.00 | -252.93 | 0.00 |
| 78 | 17 | 888.86 | 0.00 | 36.45 | 0.00 | 252.93 | 0.00 |
| 78 | 18 | -888.86 | 0.00 | -36.45 | 0.00 | -435.16 | 0.00 |
| 79 | 33 | 522.77 | 0.00 | 43.94 | 0.00 | -1874.29 | 0.00 |
| 79 | 34 | -522.77 | 0.00 | -43.94 | 0.00 | 1541.22 | 0.00 |
| 80 | 34 | 522.77 | 0.00 | 43.94 | 0.00 | -1541.22 | 0.00 |
| 80 | 35 | -522.77 | 0.00 | -43.94 | 0.00 | 1321.52 | 0.00 |
| 81 | 50 | 653.44 | 0.00 | 34.53 | 0.00 | 283.87 | 0.00 |
| 81 | 51 | -653.44 | 0.00 | -34.53 | 0.00 | -422.01 | 0.00 |
| 82 | 51 | 653.44 | 0.00 | 34.53 | 0.00 | 422.01 | 0.00 |
| 82 | 52 | -653.44 | 0.00 | -34.53 | 0.00 | -767.33 | 0.00 |
| 83 | 52 | 653.44 | 0.00 | 34.53 | 0.00 | 767.33 | 0.00 |
| 83 | 53 | -653.44 | 0.00 | -34.53 | 0.00 | -1112.66 | 0.00 |
| 84 | 53 | 653.44 | 0.00 | 34.53 | 0.00 | 1112.66 | 0.00 |
| 84 | 54 | -653.44 | 0.00 | -34.53 | 0.00 | -1285.33 | 0.00 |
| 85 | 69 | 655.90 | 0.00 | 27.54 | 0.00 | 383.86 | 0.00 |
| 85 | 70 | -655.90 | 0.00 | -27.54 | 0.00 | -576.65 | 0.00 |
| 86 | 70 | 655.90 | 0.00 | 27.54 | 0.00 | 576.65 | 0.00 |
| 86 | 71 | -655.90 | 0.00 | -27.54 | 0.00 | -852.06 | 0.00 |
| 87 | 71 | 655.90 | 0.00 | 27.54 | 0.00 | 852.06 | 0.00 |
| 87 | 72 | -655.90 | 0.00 | -27.54 | 0.00 | -1127.47 | 0.00 |
| 88 | 72 | 655.90 | 0.00 | 27.54 | 0.00 | 1127.47 | 0.00 |
| 88 | 73 | -655.90 | 0.00 | -27.54 | 0.00 | -1265.17 | 0.00 |
| 89 | 88 | 877.38 | 0.00 | 27.42 | 0.00 | -187.75 | 0.00 |
| 89 | 89 | -877.38 | 0.00 | -27.42 | 0.00 | 160.33 | 0.00 |
| 90 | 89 | 877.38 | 0.00 | 27.42 | 0.00 | -160.33 | 0.00 |
| 90 | 90 | -877.38 | 0.00 | -27.42 | 0.00 | -113.85 | 0.00 |
| 91 | 90 | 877.38 | 0.00 | 27.42 | 0.00 | 113.85 | 0.00 |
| 91 | 91 | -877.38 | 0.00 | -27.42 | 0.00 | -388.03 | 0.00 |
| 92 | 91 | 877.38 | 0.00 | 27.42 | 0.00 | 388.04 | 0.00 |
| 92 | 92 | -877.38 | 0.00 | -27.42 | 0.00 | -525.13 | 0.00 |
| 93 | 107 | 517.55 | 0.00 | 30.26 | 0.00 | -1645.70 | 0.00 |
| 93 | 108 | -517.55 | 0.00 | -30.26 | 0.00 | 1615.43 | 0.00 |
| 94 | 108 | 517.55 | 0.00 | 30.26 | 0.00 | -1615.43 | 0.00 |
| 94 | 109 | -517.55 | 0.00 | -30.26 | 0.00 | 1312.82 | 0.00 |
| 95 | 109 | 517.55 | 0.00 | 30.26 | 0.00 | -1312.82 | 0.00 |
| 95 | 110 | -517.55 | 0.00 | -30.26 | 0.00 | 1161.51 | 0.00 |
| 96 | 125 | 592.13 | 0.00 | 38.35 | 0.00 | 477.57 | 0.00 |
| 96 | 126 | -592.13 | 0.00 | -38.35 | 0.00 | -515.92 | 0.00 |
| 97 | 126 | 592.13 | 0.00 | 38.35 | 0.00 | 515.92 | 0.00 |
| 97 | 127 | -592.13 | 0.00 | -38.35 | 0.00 | -899.45 | 0.00 |
| 98 | 127 | 592.13 | 0.00 | 38.35 | 0.00 | 899.45 | 0.00 |
| 98 | 128 | -592.13 | 0.00 | -38.35 | 0.00 | -1091.22 | 0.00 |
| 99 | 2 | 149.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -149.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | -2.17 | 0.00 | 16.29 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | 2.17 | 0.00 | -16.29 | 0.00 | -27.88 | 0.00 |
| 101 | 19 | 497.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -497.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 562.04 | 0.00 | 36.45 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -562.04 | 0.00 | -36.45 | 0.00 | -62.40 | 0.00 |
| 103 | 36 | 502.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -502.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | -95.79 | 0.00 | 43.94 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | 95.79 | 0.00 | -43.94 | 0.00 | -75.23 | 0.00 |
| 105 | 55 | 498.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -498.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 674.11 | 0.00 | 34.53 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -674.11 | 0.00 | -34.53 | 0.00 | -59.12 | 0.00 |
| 107 | 74 | 500.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -500.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 669.90 | 0.00 | 27.54 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -669.90 | 0.00 | -27.54 | 0.00 | -47.15 | 0.00 |
| 109 | 93 | 498.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -498.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 580.62 | 0.00 | 27.42 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -580.62 | 0.00 | -27.42 | 0.00 | -46.94 | 0.00 |
| 111 | 111 | 502.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -502.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | -55.16 | 0.00 | 30.26 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | 55.16 | 0.00 | -30.26 | 0.00 | -51.81 | 0.00 |
| 113 | 129 | 497.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -497.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 590.99 | 0.00 | 38.35 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -590.99 | 0.00 | -38.35 | 0.00 | -65.66 | 0.00 |
| 115 | 141 | 149.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -149.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | -37.16 | 0.00 | 23.11 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | 37.16 | 0.00 | -23.11 | 0.00 | -39.56 | 0.00 |
| 117 | 6 | 143.97 | 0.00 | 16.29 | 0.00 | -646.57 | 0.00 |
| 117 | 7 | -143.97 | 0.00 | -16.29 | 0.00 | 630.28 | 0.00 |
| 118 | 145 | 150.30 | 0.00 | 23.11 | 0.00 | -977.70 | 0.00 |
| 118 | 146 | -150.30 | 0.00 | -23.11 | 0.00 | 954.59 | 0.00 |
| 119 | 3 | 0.00 | 149.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -149.50 | 0.00 | 0.00 | 0.00 | 635.37 |
| 120 | 1 | 0.11 | -149.49 | 0.00 | 0.00 | 0.00 | -635.17 |
| 120 | 5 | -0.11 | 149.49 | 0.00 | 0.00 | 0.00 | -0.19 |
| 121 | 20 | 0.00 | 258.78 | 0.02 | 0.00 | -0.01 | 0.00 |
| 121 | 15 | 0.00 | -258.78 | -0.02 | 0.00 | 0.00 | 478.74 |
| 122 | 15 | 3.59 | -344.12 | 0.02 | 0.00 | 0.00 | -630.47 |
| 122 | 22 | -3.59 | 344.12 | -0.02 | 0.00 | 0.00 | -6.14 |
| 123 | 37 | 0.00 | 247.49 | 0.02 | 0.00 | 0.01 | 0.00 |
| 123 | 32 | 0.00 | -247.49 | -0.02 | 0.00 | 0.00 | 457.85 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 124 | 32 | 0.55 | -264.25 | 0.01 | 0.00 | 0.00 | -487.90 |
| 124 | 39 | -0.55 | 264.25 | -0.01 | 0.00 | 0.00 | -0.96 |
| 125 | 56 | -0.01 | 622.55 | 0.02 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.01 | -622.55 | -0.02 | 0.00 | 0.00 | 1151.70 |
| 126 | 49 | 22.34 | -323.48 | 0.01 | 0.00 | 0.00 | -560.19 |
| 126 | 58 | -22.34 | 323.48 | -0.01 | 0.00 | 0.01 | -38.25 |
| 127 | 75 | -0.01 | 269.27 | 0.02 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.01 | -269.27 | -0.02 | 0.00 | 0.00 | 498.15 |
| 128 | 68 | 0.00 | -499.72 | 0.03 | 0.00 | -0.01 | -924.48 |
| 128 | 77 | 0.00 | 499.72 | -0.03 | 0.00 | 0.00 | -0.02 |
| 129 | 94 | 0.00 | 312.63 | 0.02 | 0.00 | 0.00 | -0.01 |
| 129 | 87 | 0.00 | -312.63 | -0.02 | 0.00 | 0.00 | 578.35 |
| 130 | 87 | -20.79 | -584.73 | 0.02 | 0.00 | 0.00 | -1117.33 |
| 130 | 96 | 20.79 | 584.73 | -0.02 | 0.00 | 0.00 | 35.59 |
| 131 | 112 | 0.00 | 292.05 | 0.02 | 0.00 | 0.01 | 0.00 |
| 131 | 106 | 0.00 | -292.05 | -0.02 | 0.00 | 0.00 | 540.29 |
| 132 | 106 | -1.77 | -324.34 | 0.02 | 0.00 | 0.01 | -603.07 |
| 132 | 114 | 1.77 | 324.34 | -0.02 | 0.00 | 0.01 | 3.04 |
| 133 | 130 | 0.00 | 219.09 | 0.02 | 0.00 | -0.01 | 0.00 |
| 133 | 124 | 0.00 | -219.09 | -0.02 | 0.00 | 0.00 | 405.32 |
| 134 | 124 | 0.32 | -230.44 | 0.02 | 0.00 | -0.01 | -425.76 |
| 134 | 132 | -0.32 | 230.44 | -0.02 | 0.00 | 0.00 | -0.55 |
| 135 | 142 | 0.00 | 168.70 | 363.38 | -622.10 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -168.70 | -363.38 | 622.10 | -1544.34 | 716.97 |
| 136 | 140 | 0.04 | -130.63 | 363.37 | -622.10 | -1544.34 | -555.13 |
| 136 | 144 | -0.04 | 130.63 | -363.37 | 622.10 | 0.00 | -0.07 |
| 137 | 2 | 0.00 | -149.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 149.50 | 0.00 | 0.00 | 0.00 | -635.37 |
| 138 | 7 | -0.11 | 149.49 | 0.00 | 0.00 | 0.00 | 635.35 |
| 138 | 4 | 0.11 | -149.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -497.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 497.85 | 0.00 | 0.00 | 0.00 | -921.03 |
| 140 | 18 | 0.19 | 497.92 | 0.00 | 0.00 | 0.00 | 921.15 |
| 140 | 21 | -0.19 | -497.92 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -502.40 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 502.40 | 0.00 | 0.00 | 0.00 | -929.45 |
| 142 | 35 | -0.07 | 502.33 | 0.00 | 0.00 | 0.00 | 929.31 |
| 142 | 38 | 0.07 | -502.33 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -498.27 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | 498.27 | 0.00 | 0.00 | 0.00 | -921.80 |
| 144 | 54 | -0.01 | 498.28 | 0.00 | 0.00 | 0.00 | 921.82 |
| 144 | 57 | 0.01 | -498.28 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | -500.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 500.01 | 0.00 | 0.00 | 0.00 | -925.03 |
| 146 | 73 | 0.00 | 500.02 | 0.00 | 0.00 | 0.00 | 925.04 |
| 146 | 76 | 0.00 | -500.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | -498.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | 498.59 | 0.00 | 0.00 | 0.00 | -922.39 |
| 148 | 92 | -0.01 | 498.59 | 0.00 | 0.00 | 0.00 | 922.39 |
| 148 | 95 | 0.01 | -498.59 | 0.00 | 0.00 | 0.00 | -0.01 |
| 149 | 111 | 0.00 | -502.29 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 502.29 | 0.00 | 0.00 | 0.00 | -929.25 |
| 150 | 110 | -0.03 | 502.21 | 0.00 | 0.00 | 0.00 | 929.10 |
| 150 | 113 | 0.03 | -502.21 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -497.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 497.58 | 0.00 | 0.00 | 0.00 | -920.51 |
| 152 | 128 | 0.12 | 497.72 | 0.00 | 0.00 | 0.00 | 920.78 |
| 152 | 131 | -0.12 | -497.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -130.65 | 363.37 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 130.65 | -363.37 | 0.00 | -1544.34 | -555.25 |
| 154 | 146 | -0.11 | 168.66 | 363.38 | 0.00 | -1544.34 | 716.79 |
| 154 | 143 | 0.11 | -168.66 | -363.38 | 0.00 | 0.00 | 0.00 |



HIPOTESIS 36

FUER Z MIN sobrecarga + fr. + fc (ipf-75)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 330.72 | -16.39 | -192.74 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -228.79 | 16.39 | 180.68 | 73.76 | 1258.90 |
| 2 | 8 | 0.00 | 228.79 | -16.39 | -180.68 | -73.76 | -1258.91 |
| 2 | 9 | 0.00 | -126.87 | 16.39 | 168.62 | 147.52 | 2059.15 |
| 3 | 9 | 0.00 | 126.87 | -16.39 | -168.62 | -147.52 | -2059.15 |
| 3 | 10 | 0.00 | -24.94 | 16.39 | 156.56 | 221.29 | 2400.73 |
| 4 | 10 | 0.00 | 24.94 | -16.39 | -156.56 | -221.29 | -2400.73 |
| 4 | 11 | 0.00 | 76.98 | 16.39 | 144.50 | 295.05 | 2283.65 |
| 5 | 11 | 0.00 | -76.98 | -16.39 | -144.50 | -295.05 | -2283.65 |
| 5 | 12 | 0.00 | 182.10 | 16.39 | 123.97 | 368.81 | 1705.41 |
| 6 | 12 | 0.00 | -182.10 | -16.39 | -123.97 | -368.81 | -1705.41 |
| 6 | 13 | 0.00 | 294.02 | 16.39 | 85.45 | 442.57 | 634.14 |
| 7 | 13 | 0.00 | -294.02 | -16.39 | -85.45 | -442.57 | -634.14 |
| 7 | 14 | 0.00 | 405.93 | 16.39 | 46.93 | 516.33 | -940.75 |
| 8 | 14 | 0.00 | -405.93 | -16.39 | -46.93 | -516.34 | 940.75 |
| 8 | 15 | 0.00 | 517.85 | 16.39 | 8.41 | 590.10 | -3019.25 |
| 9 | 15 | 0.00 | 541.88 | -22.57 | -43.38 | 501.81 | 3342.45 |
| 9 | 23 | 0.00 | -429.96 | 22.57 | 81.90 | -413.49 | -1155.81 |
| 10 | 23 | 0.00 | 429.96 | -22.57 | -81.90 | 413.49 | 1155.81 |
| 10 | 24 | 0.00 | -318.05 | 22.57 | 120.42 | -325.17 | 527.22 |
| 11 | 24 | 0.00 | 318.05 | -22.57 | -120.42 | 325.16 | -527.22 |
| 11 | 25 | 0.00 | -206.13 | 22.57 | 158.94 | -236.84 | 1706.63 |
| 12 | 25 | 0.00 | 206.13 | -22.57 | -158.94 | 236.84 | -1706.63 |
| 12 | 26 | 0.00 | -100.99 | 22.57 | 179.53 | -148.52 | 2392.42 |
| 13 | 26 | 0.00 | 100.99 | -22.57 | -179.53 | 148.52 | -2392.42 |
| 13 | 27 | 0.00 | 0.94 | 22.57 | 191.59 | -60.20 | 2617.54 |
| 14 | 27 | 0.00 | -0.94 | -22.57 | -191.59 | 60.20 | -2617.54 |
| 14 | 28 | 0.00 | 102.86 | 22.57 | 203.65 | 28.13 | 2384.00 |
| 15 | 28 | 0.00 | -102.86 | -22.57 | -203.65 | -28.13 | -2384.00 |
| 15 | 29 | 0.00 | 207.98 | 22.57 | 207.24 | 116.45 | 1689.30 |
| 16 | 29 | 0.00 | -207.98 | -22.57 | -207.24 | -116.45 | -1689.30 |
| 16 | 30 | 0.00 | 319.90 | 22.57 | 192.84 | 204.77 | 501.57 |
| 17 | 30 | 0.00 | -319.90 | -22.57 | -192.84 | -204.77 | -501.57 |
| 17 | 31 | 0.00 | 431.81 | 22.57 | 178.44 | 293.10 | -1189.78 |
| 18 | 31 | 0.00 | -431.81 | -22.57 | -178.44 | -293.10 | 1189.78 |
| 18 | 32 | 0.00 | 543.73 | 22.57 | 164.04 | 381.42 | -3384.74 |
| 19 | 32 | 0.00 | 227.22 | -33.34 | -918.01 | 604.17 | 895.77 |
| 19 | 40 | 0.00 | -175.25 | 33.34 | 773.56 | -467.37 | 9.80 |
| 20 | 40 | 0.00 | 175.25 | -33.34 | -773.56 | 467.37 | -9.80 |
| 20 | 41 | 0.00 | -123.27 | 33.34 | 629.11 | -330.57 | 681.49 |
| 21 | 41 | 0.00 | 123.27 | -33.34 | -629.11 | 330.57 | -681.49 |
| 21 | 42 | 0.00 | -71.30 | 33.34 | 484.66 | -193.77 | 1119.28 |
| 22 | 42 | 0.00 | 71.30 | -33.34 | -484.66 | 193.77 | -1119.28 |
| 22 | 43 | 0.00 | -19.33 | 33.34 | 340.21 | -56.97 | 1323.19 |
| 23 | 43 | 0.00 | 19.33 | -33.34 | -340.21 | 56.97 | -1323.19 |
| 23 | 44 | 0.00 | 32.65 | 33.34 | 195.76 | 79.83 | 1293.21 |
| 24 | 44 | 0.00 | -32.65 | -33.34 | -195.76 | -79.83 | -1293.21 |
| 24 | 45 | 0.00 | 84.63 | 33.34 | 51.31 | 216.63 | 1029.34 |
| 25 | 45 | 0.00 | -84.63 | -33.34 | -51.31 | -216.63 | -1029.34 |
| 25 | 46 | 0.00 | 139.80 | 33.34 | -101.60 | 353.43 | 529.08 |
| 26 | 46 | 0.00 | -139.80 | -33.34 | 101.60 | -353.43 | -529.08 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 26 | 47 | 0.00 | 201.76 | 33.34 | -272.51 | 490.23 | -239.42 |
| 27 | 47 | 0.00 | -201.76 | -33.34 | 272.51 | -490.23 | 239.42 |
| 27 | 48 | 0.00 | 263.73 | 33.34 | -443.42 | 627.03 | -1286.77 |
| 28 | 48 | 0.00 | -263.73 | -33.34 | 443.42 | -627.03 | 1286.77 |
| 28 | 49 | 0.00 | 325.69 | 33.34 | -614.33 | 763.83 | -2612.96 |
| 29 | 49 | 0.00 | 509.36 | -20.15 | -277.38 | 377.52 | 3312.33 |
| 29 | 59 | 0.00 | -407.43 | 20.15 | 265.32 | -300.09 | -1249.55 |
| 30 | 59 | 0.00 | 407.43 | -20.15 | -265.32 | 300.09 | 1249.55 |
| 30 | 60 | 0.00 | -305.51 | 20.15 | 253.26 | -222.66 | 354.57 |
| 31 | 60 | 0.00 | 305.51 | -20.15 | -253.26 | 222.66 | -354.57 |
| 31 | 61 | 0.00 | -203.58 | 20.15 | 241.20 | -145.22 | 1500.03 |
| 32 | 61 | 0.00 | 203.58 | -20.15 | -241.20 | 145.23 | -1500.03 |
| 32 | 62 | 0.00 | -101.66 | 20.15 | 229.14 | -67.80 | 2186.83 |
| 33 | 62 | 0.00 | 101.66 | -20.15 | -229.14 | 67.80 | -2186.83 |
| 33 | 63 | 0.00 | 0.27 | 20.15 | 217.08 | 9.63 | 2414.96 |
| 34 | 63 | 0.00 | -0.27 | -20.15 | -217.08 | -9.64 | -2414.96 |
| 34 | 64 | 0.00 | 102.19 | 20.15 | 205.02 | 87.06 | 2184.43 |
| 35 | 64 | 0.00 | -102.19 | -20.15 | -205.02 | -87.07 | -2184.43 |
| 35 | 65 | 0.00 | 204.12 | 20.15 | 192.96 | 164.49 | 1495.23 |
| 36 | 65 | 0.00 | -204.12 | -20.15 | -192.96 | -164.50 | -1495.23 |
| 36 | 66 | 0.00 | 306.04 | 20.15 | 180.90 | 241.92 | 347.38 |
| 37 | 66 | 0.00 | -306.04 | -20.15 | -180.90 | -241.93 | -347.38 |
| 37 | 67 | 0.00 | 407.97 | 20.15 | 168.84 | 319.36 | -1259.14 |
| 38 | 67 | 0.00 | -407.97 | -20.15 | -168.84 | -319.36 | 1259.14 |
| 38 | 68 | 0.00 | 509.89 | 20.15 | 156.78 | 396.79 | -3324.32 |
| 39 | 68 | 0.00 | 509.64 | -20.85 | -159.25 | 405.68 | 3322.56 |
| 39 | 78 | 0.00 | -407.72 | 20.85 | 171.31 | -325.07 | -1258.50 |
| 40 | 78 | 0.00 | 407.72 | -20.85 | -171.31 | 325.07 | 1258.50 |
| 40 | 79 | 0.00 | -305.79 | 20.85 | 183.37 | -244.46 | 346.90 |
| 41 | 79 | 0.00 | 305.79 | -20.85 | -183.37 | 244.46 | -346.90 |
| 41 | 80 | 0.00 | -203.87 | 20.85 | 195.43 | -163.85 | 1493.63 |
| 42 | 80 | 0.00 | 203.87 | -20.85 | -195.43 | 163.86 | -1493.63 |
| 42 | 81 | 0.00 | -101.94 | 20.85 | 207.49 | -83.25 | 2181.71 |
| 43 | 81 | 0.00 | 101.94 | -20.86 | -207.49 | 83.25 | -2181.71 |
| 43 | 82 | 0.00 | -0.02 | 20.86 | 219.55 | -2.64 | 2411.12 |
| 44 | 82 | 0.00 | 0.02 | -20.85 | -219.55 | 2.64 | -2411.12 |
| 44 | 83 | 0.00 | 101.91 | 20.85 | 231.61 | 77.96 | 2181.86 |
| 45 | 83 | 0.00 | -101.91 | -20.85 | -231.61 | -77.97 | -2181.86 |
| 45 | 84 | 0.00 | 203.83 | 20.85 | 243.67 | 158.57 | 1493.95 |
| 46 | 84 | 0.00 | -203.83 | -20.85 | -243.67 | -158.57 | -1493.95 |
| 46 | 85 | 0.00 | 305.76 | 20.85 | 255.73 | 239.17 | 347.37 |
| 47 | 85 | 0.00 | -305.76 | -20.85 | -255.73 | -239.17 | -347.37 |
| 47 | 86 | 0.00 | 407.68 | 20.85 | 267.79 | 319.78 | -1257.87 |
| 48 | 86 | 0.00 | -407.68 | -20.85 | -267.79 | -319.78 | 1257.87 |
| 48 | 87 | 0.00 | 509.61 | 20.85 | 279.85 | 400.39 | -3321.78 |
| 49 | 87 | 0.00 | 325.95 | -25.49 | 629.68 | 732.09 | 2619.82 |
| 49 | 97 | 0.00 | -263.99 | 25.49 | -458.77 | -630.61 | -1292.45 |
| 50 | 97 | 0.00 | 263.99 | -25.49 | 458.77 | 630.60 | 1292.45 |
| 50 | 98 | 0.00 | -202.02 | 25.49 | -287.86 | -529.12 | -243.92 |
| 51 | 98 | 0.00 | 202.02 | -25.49 | 287.86 | 529.12 | 243.92 |
| 51 | 99 | 0.00 | -140.06 | 25.49 | -116.95 | -427.64 | 525.76 |
| 52 | 99 | 0.00 | 140.06 | -25.49 | 116.95 | 427.64 | -525.76 |
| 52 | 100 | 0.00 | -84.86 | 25.49 | 36.02 | -326.15 | 1026.60 |
| 53 | 100 | 0.00 | 84.86 | -25.49 | -36.02 | 326.15 | -1026.60 |
| 53 | 101 | 0.00 | -32.89 | 25.49 | 180.47 | -224.66 | 1291.54 |
| 54 | 101 | 0.00 | 32.89 | -25.49 | -180.47 | 224.66 | -1291.54 |
| 54 | 102 | 0.00 | 19.09 | 25.49 | 324.92 | -123.18 | 1322.60 |
| 55 | 102 | 0.00 | -19.09 | -25.49 | -324.92 | 123.18 | -1322.60 |
| 55 | 103 | 0.00 | 71.06 | 25.49 | 469.37 | -21.70 | 1119.77 |
| 56 | 103 | 0.00 | -71.06 | -25.49 | -469.37 | 21.69 | -1119.77 |
| 56 | 104 | 0.00 | 123.04 | 25.49 | 613.82 | 79.79 | 683.06 |
| 57 | 104 | 0.00 | -123.04 | -25.49 | -613.82 | -79.79 | -683.06 |
| 57 | 105 | 0.00 | 175.01 | 25.49 | 758.27 | 181.27 | 12.45 |
| 58 | 105 | 0.00 | -175.01 | -25.49 | -758.27 | -181.28 | -12.45 |
| 58 | 106 | 0.00 | 226.99 | 25.49 | 902.72 | 282.76 | -892.04 |
| 59 | 106 | 0.00 | 543.97 | -23.01 | -167.05 | 401.55 | 3382.85 |
| 59 | 115 | 0.00 | -432.05 | 23.01 | 181.45 | -311.25 | -1186.80 |
| 60 | 115 | 0.00 | 432.05 | -23.01 | -181.45 | 311.25 | 1186.80 |
| 60 | 116 | 0.00 | -320.14 | 23.01 | 195.85 | -220.95 | 505.64 |
| 61 | 116 | 0.00 | 320.14 | -23.01 | -195.85 | 220.95 | -505.64 |
| 61 | 117 | 0.00 | -208.22 | 23.01 | 210.25 | -130.65 | 1694.46 |
| 62 | 117 | 0.00 | 208.22 | -23.01 | -210.25 | 130.65 | -1694.46 |
| 62 | 118 | 0.00 | -103.08 | 23.01 | 206.72 | -40.35 | 2389.65 |
| 63 | 118 | 0.00 | 103.08 | -23.01 | -206.72 | 40.35 | -2389.65 |
| 63 | 119 | 0.00 | -1.16 | 23.01 | 194.66 | 49.95 | 2624.18 |
| 64 | 119 | 0.00 | 1.16 | -23.01 | -194.66 | -49.95 | -2624.18 |
| 64 | 120 | 0.00 | 100.77 | 23.01 | 182.60 | 140.25 | 2400.05 |
| 65 | 120 | 0.00 | -100.77 | -23.01 | -182.60 | -140.25 | -2400.04 |
| 65 | 121 | 0.00 | 205.89 | 23.01 | 162.07 | 230.55 | 1714.75 |
| 66 | 121 | 0.00 | -205.89 | -23.01 | -162.07 | -230.55 | -1714.75 |
| 66 | 122 | 0.00 | 317.81 | 23.01 | 123.55 | 320.85 | 536.43 |
| 67 | 122 | 0.00 | -317.81 | -23.01 | -123.55 | -320.85 | -536.43 |
| 67 | 123 | 0.00 | 429.72 | 23.01 | 85.03 | 411.15 | -1145.51 |
| 68 | 123 | 0.00 | -429.72 | -23.01 | -85.03 | -411.15 | 1145.51 |
| 68 | 124 | 0.00 | 541.64 | 23.01 | 46.51 | 501.45 | -3331.07 |
| 69 | 124 | 0.00 | 298.69 | -23.11 | 328.48 | 726.13 | 2321.36 |
| 69 | 133 | 0.00 | -236.72 | 23.11 | -157.57 | -635.36 | -1116.68 |
| 70 | 133 | 0.00 | 236.72 | -23.11 | 157.57 | 635.36 | 1116.68 |
| 70 | 134 | 0.00 | -174.76 | 23.11 | 13.34 | -544.59 | -190.85 |
| 71 | 134 | 0.00 | 174.76 | -23.11 | -13.34 | 544.59 | 190.85 |
| 71 | 135 | 0.00 | -112.79 | 23.11 | 184.25 | -453.83 | 456.15 |
| 72 | 135 | 0.00 | 112.79 | -23.11 | -184.25 | 453.83 | -456.15 |
| 72 | 136 | 0.00 | -57.60 | 23.11 | 337.23 | -363.06 | 834.29 |
| 73 | 136 | 0.00 | 57.60 | -23.11 | -337.23 | 363.06 | -834.29 |
| 73 | 137 | 0.00 | -5.63 | 23.11 | 481.68 | -272.30 | 976.55 |
| 74 | 137 | 0.00 | 5.63 | -23.11 | -481.68 | 272.30 | -976.55 |
| 74 | 138 | 0.00 | 46.35 | 23.11 | 626.13 | -181.53 | 884.92 |
| 75 | 138 | 0.00 | -46.35 | -23.11 | -626.13 | 181.53 | -884.92 |
| 75 | 139 | 0.00 | 98.32 | 23.11 | 770.58 | -90.77 | 559.40 |
| 76 | 139 | 0.00 | -98.32 | -23.11 | -770.58 | 90.77 | -559.40 |
| 76 | 140 | 0.00 | 150.30 | 23.11 | 915.03 | 0.00 | 0.00 |
| 77 | 16 | 888.88 | 0.00 | -36.51 | 0.00 | -59.14 | 0.00 |
| 77 | 17 | -888.88 | 0.00 | 36.51 | 0.00 | 252.62 | 0.00 |
| 78 | 17 | 888.88 | 0.00 | -36.51 | 0.00 | -252.62 | 0.00 |
| 78 | 18 | -888.88 | 0.00 | 36.51 | 0.00 | 435.15 | 0.00 |
| 79 | 33 | 522.74 | 0.00 | -44.02 | 0.00 | 1875.11 | 0.00 |
| 79 | 34 | -522.74 | 0.00 | 44.02 | 0.00 | -1541.46 | 0.00 |
| 80 | 34 | 522.74 | 0.00 | -44.02 | 0.00 | 1541.46 | 0.00 |
| 80 | 35 | -522.74 | 0.00 | 44.02 | 0.00 | -1321.37 | 0.00 |
| 81 | 50 | 653.46 | 0.00 | -34.67 | 0.00 | -280.58 | 0.00 |
| 81 | 51 | -653.46 | 0.00 | 34.67 | 0.00 | 419.26 | 0.00 |
| 82 | 51 | 653.46 | 0.00 | -34.67 | 0.00 | -419.26 | 0.00 |
| 82 | 52 | -653.46 | 0.00 | 34.67 | 0.00 | 765.96 | 0.00 |
| 83 | 52 | 653.46 | 0.00 | -34.67 | 0.00 | -765.96 | 0.00 |
| 83 | 53 | -653.46 | 0.00 | 34.67 | 0.00 | 1112.65 | 0.00 |
| 84 | 53 | 653.46 | 0.00 | -34.67 | 0.00 | -1112.65 | 0.00 |
| 84 | 54 | -653.46 | 0.00 | 34.67 | 0.00 | 1286.00 | 0.00 |
| 85 | 69 | 655.90 | 0.00 | -27.64 | 0.00 | -381.55 | 0.00 |
| 85 | 70 | -655.90 | 0.00 | 27.64 | 0.00 | 575.00 | 0.00 |
| 86 | 70 | 655.90 | 0.00 | -27.64 | 0.00 | -575.00 | 0.00 |
| 86 | 71 | -655.90 | 0.00 | 27.64 | 0.00 | 851.37 | 0.00 |
| 87 | 71 | 655.90 | 0.00 | -27.64 | 0.00 | -851.37 | 0.00 |
| 87 | 72 | -655.90 | 0.00 | 27.64 | 0.00 | 1127.73 | 0.00 |
| 88 | 72 | 655.90 | 0.00 | -27.64 | 0.00 | -1127.73 | 0.00 |
| 88 | 73 | -655.90 | 0.00 | 27.64 | 0.00 | 1265.91 | 0.00 |
| 89 | 88 | 877.39 | 0.00 | -27.51 | 0.00 | 189.71 | 0.00 |
| 89 | 89 | -877.39 | 0.00 | 27.51 | 0.00 | -162.20 | 0.00 |
| 90 | 89 | 877.39 | 0.00 | -27.51 | 0.00 | 162.20 | 0.00 |
| 90 | 90 | -877.39 | 0.00 | 27.51 | 0.00 | 112.86 | 0.00 |
| 91 | 90 | 877.39 | 0.00 | -27.51 | 0.00 | -112.86 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 91 | 91 | -877.39 | 0.00 | 27.51 | 0.00 | 387.93 | 0.00 |
| 92 | 91 | 877.39 | 0.00 | -27.51 | 0.00 | -387.93 | 0.00 |
| 92 | 92 | -877.39 | 0.00 | 27.51 | 0.00 | 525.47 | 0.00 |
| 93 | 107 | 527.69 | 0.00 | -30.29 | 0.00 | 1645.96 | 0.00 |
| 93 | 108 | -527.69 | 0.00 | 30.29 | 0.00 | -1615.67 | 0.00 |
| 94 | 108 | 527.69 | 0.00 | -30.29 | 0.00 | 1615.67 | 0.00 |
| 94 | 109 | -527.69 | 0.00 | 30.29 | 0.00 | -1312.76 | 0.00 |
| 95 | 109 | 527.69 | 0.00 | -30.29 | 0.00 | 1312.76 | 0.00 |
| 95 | 110 | -527.69 | 0.00 | 30.29 | 0.00 | -1161.31 | 0.00 |
| 96 | 125 | 644.73 | 0.00 | -38.42 | 0.00 | -476.71 | 0.00 |
| 96 | 126 | -644.73 | 0.00 | 38.42 | 0.00 | 515.13 | 0.00 |
| 97 | 126 | 644.73 | 0.00 | -38.42 | 0.00 | -515.13 | 0.00 |
| 97 | 127 | -644.73 | 0.00 | 38.42 | 0.00 | 899.35 | 0.00 |
| 98 | 127 | 644.73 | 0.00 | -38.42 | 0.00 | -899.35 | 0.00 |
| 98 | 128 | -644.73 | 0.00 | 38.42 | 0.00 | 1091.46 | 0.00 |
| 99 | 2 | 149.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -149.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 191.34 | 0.00 | -16.39 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -191.34 | 0.00 | 16.39 | 0.00 | 28.06 | 0.00 |
| 101 | 19 | 497.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -497.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 326.83 | 0.00 | -36.51 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -326.83 | 0.00 | 36.51 | 0.00 | 62.50 | 0.00 |
| 103 | 36 | 502.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -502.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 618.51 | 0.00 | -44.02 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -618.51 | 0.00 | 44.02 | 0.00 | 75.36 | 0.00 |
| 105 | 55 | 498.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -498.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | -20.85 | 0.00 | -34.67 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | 20.85 | 0.00 | 34.67 | 0.00 | 59.36 | 0.00 |
| 107 | 74 | 500.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -500.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | -14.20 | 0.00 | -27.64 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | 14.20 | 0.00 | 27.64 | 0.00 | 47.31 | 0.00 |
| 109 | 93 | 498.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -498.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 296.67 | 0.00 | -27.51 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -296.67 | 0.00 | 27.51 | 0.00 | 47.09 | 0.00 |
| 111 | 111 | 502.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -502.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 577.72 | 0.00 | -30.29 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -577.72 | 0.00 | 30.29 | 0.00 | 51.86 | 0.00 |
| 113 | 129 | 497.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -497.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 27.37 | 0.00 | -38.42 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -27.37 | 0.00 | 38.42 | 0.00 | 65.78 | 0.00 |
| 115 | 141 | 149.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -149.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 187.47 | 0.00 | -23.10 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -187.47 | 0.00 | 23.10 | 0.00 | 39.55 | 0.00 |
| 117 | 6 | 330.72 | 0.00 | -16.39 | 0.00 | 237.19 | 0.00 |
| 117 | 7 | -330.72 | 0.00 | 16.39 | 0.00 | -220.80 | 0.00 |
| 118 | 145 | 150.31 | 0.00 | -23.10 | 0.00 | 977.79 | 0.00 |
| 118 | 146 | -150.31 | 0.00 | 23.10 | 0.00 | -954.69 | 0.00 |
| 119 | 3 | 0.00 | 149.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -149.50 | 0.00 | 0.00 | 0.00 | 635.37 |
| 120 | 1 | 0.11 | -149.47 | 0.00 | 0.00 | 0.00 | -635.07 |
| 120 | 5 | -0.11 | 149.47 | 0.00 | 0.00 | 0.00 | -0.19 |
| 121 | 20 | 0.00 | 317.52 | -0.02 | 0.00 | 0.01 | 0.00 |
| 121 | 15 | 0.00 | -317.52 | 0.02 | 0.00 | 0.00 | 587.41 |
| 122 | 15 | -18.36 | -578.14 | -0.02 | 0.00 | 0.00 | -1101.00 |
| 122 | 22 | 18.36 | 578.14 | 0.02 | 0.00 | 0.00 | 31.43 |
| 123 | 37 | 0.00 | 264.06 | -0.02 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | -264.06 | 0.02 | 0.00 | 0.00 | 488.52 |
| 124 | 32 | 0.07 | -502.37 | -0.03 | 0.00 | 0.00 | -929.27 |
| 124 | 39 | -0.07 | 502.37 | 0.03 | 0.00 | 0.00 | -0.12 |
| 125 | 56 | 0.00 | 315.07 | -0.02 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.00 | -315.07 | 0.02 | 0.00 | 0.00 | 582.89 |
| 126 | 49 | -0.04 | -283.18 | -0.01 | 0.00 | 0.00 | -523.97 |
| 126 | 58 | 0.04 | 283.18 | 0.01 | 0.00 | -0.01 | 0.07 |
| 127 | 75 | 0.00 | 273.68 | -0.02 | 0.00 | -0.01 | 0.00 |
| 127 | 68 | 0.00 | -273.68 | 0.02 | 0.00 | 0.00 | 506.32 |
| 128 | 68 | 13.12 | 82.07 | -0.01 | 0.00 | 0.01 | 174.33 |
| 128 | 77 | -13.12 | -82.07 | 0.01 | 0.00 | 0.01 | -22.47 |
| 129 | 94 | 0.00 | 322.42 | -0.02 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | -322.42 | 0.02 | 0.00 | 0.00 | 596.47 |
| 130 | 87 | 0.01 | -499.80 | -0.02 | 0.00 | -0.01 | -924.59 |
| 130 | 96 | -0.01 | 499.80 | 0.02 | 0.00 | 0.00 | -0.01 |
| 131 | 112 | 0.00 | 238.93 | -0.01 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | -238.93 | 0.01 | 0.00 | 0.00 | 442.01 |
| 132 | 106 | 2.45 | -289.52 | -0.02 | 0.00 | 0.00 | -531.43 |
| 132 | 114 | -2.45 | 289.52 | 0.02 | 0.00 | -0.01 | -4.20 |
| 133 | 130 | 0.00 | 249.18 | -0.01 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | -249.18 | 0.01 | 0.00 | 0.00 | 460.98 |
| 134 | 124 | -1.46 | -226.33 | -0.01 | 0.00 | 0.00 | -421.20 |
| 134 | 132 | 1.46 | 226.33 | 0.01 | 0.00 | 0.01 | 2.49 |
| 135 | 142 | 0.00 | 130.65 | -363.38 | 622.10 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -130.65 | 363.38 | -622.10 | 1544.34 | 555.25 |
| 136 | 140 | 0.11 | -168.66 | -363.37 | 622.10 | 1544.34 | -716.60 |
| 136 | 144 | -0.11 | 168.66 | 363.37 | -622.10 | 0.00 | -0.19 |
| 137 | 2 | 0.00 | -149.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 149.50 | 0.00 | 0.00 | 0.00 | -635.37 |
| 138 | 7 | -0.11 | 149.49 | 0.00 | 0.00 | 0.00 | 635.35 |
| 138 | 4 | 0.11 | -149.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -497.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 497.85 | 0.00 | 0.00 | 0.00 | -921.03 |
| 140 | 18 | 0.19 | 497.92 | 0.00 | 0.00 | 0.00 | 921.15 |
| 140 | 21 | -0.19 | -497.92 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -502.40 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 502.40 | 0.00 | 0.00 | 0.00 | -929.45 |
| 142 | 35 | -0.07 | 502.33 | 0.00 | 0.00 | 0.00 | 929.31 |
| 142 | 38 | 0.07 | -502.33 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -498.27 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | 498.27 | 0.00 | 0.00 | 0.00 | -921.80 |
| 144 | 54 | -0.01 | 498.28 | 0.00 | 0.00 | 0.00 | 921.82 |
| 144 | 57 | 0.01 | -498.28 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | -500.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 500.01 | 0.00 | 0.00 | 0.00 | -925.03 |
| 146 | 73 | 0.00 | 500.02 | 0.00 | 0.00 | 0.00 | 925.04 |
| 146 | 76 | 0.00 | -500.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | -498.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | 498.59 | 0.00 | 0.00 | 0.00 | -922.39 |
| 148 | 92 | -0.01 | 498.59 | 0.00 | 0.00 | 0.00 | 922.39 |
| 148 | 95 | 0.01 | -498.59 | 0.00 | 0.00 | 0.00 | -0.01 |
| 149 | 111 | 0.00 | -502.29 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 502.29 | 0.00 | 0.00 | 0.00 | -929.25 |
| 150 | 110 | -0.03 | 502.21 | 0.00 | 0.00 | 0.00 | 929.10 |
| 150 | 113 | 0.03 | -502.21 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -497.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 497.58 | 0.00 | 0.00 | 0.00 | -920.51 |
| 152 | 128 | 0.12 | 497.72 | 0.00 | 0.00 | 0.00 | 920.78 |
| 152 | 131 | -0.12 | -497.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -168.70 | -363.37 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 168.70 | 363.37 | 0.00 | 1544.34 | -716.97 |
| 154 | 146 | -0.04 | 130.63 | -363.37 | 0.00 | 1544.34 | 555.19 |
| 154 | 143 | 0.04 | -130.63 | 363.37 | 0.00 | 0.00 | 0.00 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS 37

MOME X MAX sobrecarga + fr. + fc (ipf-75)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 170.67 | 9.98 | 920.87 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -118.69 | -9.98 | -776.42 | -44.90 | 651.07 |
| 2 | 8 | 0.00 | 118.69 | 9.98 | 776.42 | 44.90 | -651.07 |
| 2 | 9 | 0.00 | -60.19 | -9.98 | -614.68 | -89.80 | 1058.25 |
| 3 | 9 | 0.00 | 60.19 | 9.98 | 614.68 | 89.80 | -1058.25 |
| 3 | 10 | 0.00 | 1.77 | -9.98 | -443.77 | -134.71 | 1189.70 |
| 4 | 10 | 0.00 | -1.77 | 9.98 | 443.77 | 134.71 | -1189.70 |
| 4 | 11 | 0.00 | 52.35 | -0.99 | -298.57 | -17.89 | 928.88 |
| 5 | 11 | 0.00 | -52.35 | 0.99 | 298.57 | 17.89 | -928.88 |
| 5 | 12 | 0.00 | 124.00 | 3.91 | -257.18 | 87.87 | 976.41 |
| 6 | 12 | 0.00 | -124.00 | -3.91 | 257.18 | -87.87 | -976.41 |
| 6 | 13 | 0.00 | 190.96 | 3.91 | -414.86 | 105.44 | 267.73 |
| 7 | 13 | 0.00 | -190.96 | -3.91 | 414.86 | -105.44 | -267.73 |
| 7 | 14 | 0.00 | 257.02 | 4.10 | -566.45 | 129.18 | -724.47 |
| 8 | 14 | 0.00 | -257.02 | -4.10 | 566.45 | -129.18 | 724.47 |
| 8 | 15 | 0.00 | 322.77 | 4.30 | -718.04 | 154.88 | -2018.47 |
| 9 | 15 | 0.00 | 250.78 | -1.85 | 998.92 | -160.14 | 1221.75 |
| 9 | 23 | 0.00 | -198.81 | 1.85 | -854.47 | 155.25 | -210.16 |
| 10 | 23 | 0.00 | 198.81 | -1.85 | 854.47 | -155.25 | 210.16 |
| 10 | 24 | 0.00 | -146.83 | 1.85 | -710.02 | 150.36 | 567.54 |
| 11 | 24 | 0.00 | 146.83 | -1.85 | 710.02 | -150.36 | -567.54 |
| 11 | 25 | 0.00 | -94.86 | 1.85 | -565.57 | 145.47 | 1111.35 |
| 12 | 25 | 0.00 | 94.86 | -1.85 | 565.57 | -145.47 | -1111.35 |
| 12 | 26 | 0.00 | -36.36 | 1.85 | -403.84 | 140.58 | 1411.28 |
| 13 | 26 | 0.00 | 36.36 | -1.85 | 403.84 | -140.58 | -1411.28 |
| 13 | 27 | 0.00 | 28.04 | 0.92 | -241.48 | 145.95 | 1208.75 |
| 14 | 27 | 0.00 | -28.04 | -0.92 | 241.48 | -145.95 | -1208.75 |
| 14 | 28 | 0.00 | 47.70 | -5.09 | -302.04 | 350.44 | 1070.17 |
| 15 | 28 | 0.00 | -47.70 | 5.09 | 302.04 | -350.44 | -1070.17 |
| 15 | 29 | 0.00 | 111.21 | -5.09 | -450.61 | 314.32 | 707.38 |
| 16 | 29 | 0.00 | -111.21 | 5.09 | 450.61 | -314.32 | -707.38 |
| 16 | 30 | 0.00 | 168.18 | -5.09 | -581.83 | 278.20 | 78.73 |
| 17 | 30 | 0.00 | -168.18 | 5.09 | 581.83 | -278.20 | -78.73 |
| 17 | 31 | 0.00 | 225.15 | -5.09 | -713.05 | 242.08 | -806.28 |
| 18 | 31 | 0.00 | -225.15 | 5.09 | 713.05 | -242.08 | 806.28 |
| 18 | 32 | 0.00 | 282.12 | -5.09 | -844.27 | 205.96 | -1947.66 |
| 19 | 32 | 0.00 | 245.99 | 26.33 | 958.69 | -567.92 | 1027.49 |
| 19 | 40 | 0.00 | -194.01 | -26.33 | -814.24 | 436.21 | -37.49 |
| 20 | 40 | 0.00 | 194.01 | 26.33 | 814.24 | -436.21 | 37.49 |
| 20 | 41 | 0.00 | -142.04 | -26.33 | -669.79 | 304.50 | 718.63 |
| 21 | 41 | 0.00 | 142.04 | 26.33 | 669.79 | -304.50 | -718.63 |
| 21 | 42 | 0.00 | -90.06 | -26.33 | -525.34 | 172.80 | 1240.86 |
| 22 | 42 | 0.00 | 90.06 | 26.33 | 525.34 | -172.80 | -1240.86 |
| 22 | 43 | 0.00 | -31.56 | -26.33 | -363.61 | 41.09 | 1519.22 |
| 23 | 43 | 0.00 | 31.56 | 26.33 | 363.61 | -41.09 | -1519.22 |
| 23 | 44 | 0.00 | -1.76 | -17.31 | -246.84 | 76.13 | 2608.44 |
| 24 | 44 | 0.00 | 1.76 | 17.31 | 246.84 | -76.13 | -2608.44 |
| 24 | 45 | 0.00 | 31.69 | -7.88 | -318.22 | 247.42 | 938.64 |
| 25 | 45 | 0.00 | -31.69 | 7.88 | 318.22 | -247.41 | -938.64 |
| 25 | 46 | 0.00 | 95.21 | -7.88 | -466.79 | 198.72 | 647.86 |
| 26 | 46 | 0.00 | -95.21 | 7.88 | 466.79 | -198.72 | -647.86 |
| 26 | 47 | 0.00 | 152.18 | -7.88 | -598.01 | 150.02 | 91.23 |
| 27 | 47 | 0.00 | -152.18 | 7.88 | 598.01 | -150.02 | -91.23 |
| 27 | 48 | 0.00 | 209.15 | -7.88 | -729.23 | 101.32 | -721.76 |
| 28 | 48 | 0.00 | -209.15 | 7.88 | 729.23 | -101.32 | 721.76 |
| 28 | 49 | 0.00 | 266.12 | -7.88 | -860.45 | 52.63 | -1791.12 |
| 29 | 49 | 0.00 | 243.66 | 9.68 | 937.54 | 350.23 | 940.74 |
| 29 | 59 | 0.00 | -191.69 | -9.68 | -793.09 | -407.02 | 38.79 |
| 30 | 59 | 0.00 | 191.69 | 9.68 | 793.09 | 407.02 | -38.79 |
| 30 | 60 | 0.00 | -139.71 | -9.68 | -648.64 | -463.80 | 784.43 |
| 31 | 60 | 0.00 | 139.71 | 9.68 | 648.64 | 463.81 | -784.43 |
| 31 | 61 | 0.00 | -87.74 | -9.68 | -504.19 | -520.59 | 1296.19 |
| 32 | 61 | 0.00 | 87.74 | 9.68 | 504.19 | 520.59 | -1296.19 |
| 32 | 62 | 0.00 | -29.23 | -9.68 | -342.45 | -577.38 | 1564.06 |
| 33 | 62 | 0.00 | 29.23 | 9.68 | 342.45 | 577.38 | -1564.06 |
| 33 | 63 | 0.00 | 0.24 | -14.03 | -251.44 | -2.52 | 2627.73 |
| 34 | 63 | 0.00 | -0.24 | 14.03 | 251.44 | 2.52 | -2627.73 |
| 34 | 64 | 0.00 | 30.27 | -8.63 | -322.55 | 223.21 | 912.86 |
| 35 | 64 | 0.00 | -30.27 | 8.63 | 322.55 | -223.22 | -912.86 |
| 35 | 65 | 0.00 | 93.79 | -8.63 | -471.11 | 171.14 | 628.48 |
| 36 | 65 | 0.00 | -93.79 | 8.63 | 471.11 | -171.14 | -628.48 |
| 36 | 66 | 0.00 | 150.76 | -8.63 | -602.33 | 119.05 | 78.25 |
| 37 | 66 | 0.00 | -150.76 | 8.63 | 602.33 | -119.05 | -78.25 |
| 37 | 67 | 0.00 | 207.73 | -8.63 | -733.55 | 66.97 | -728.35 |
| 38 | 67 | 0.00 | -207.73 | 8.63 | 733.55 | -66.97 | 728.35 |
| 38 | 68 | 0.00 | 264.70 | -8.63 | -864.77 | 14.89 | -1791.32 |
| 39 | 68 | 0.00 | 243.70 | 0.73 | 886.47 | 552.38 | 932.60 |
| 39 | 78 | 0.00 | -191.73 | -0.73 | -742.02 | -568.90 | 47.13 |
| 40 | 78 | 0.00 | 191.73 | 0.73 | 742.02 | 568.90 | -47.13 |
| 40 | 79 | 0.00 | -150.55 | -9.20 | -602.86 | -94.37 | 76.34 |
| 41 | 79 | 0.00 | 150.55 | 9.20 | 602.86 | 94.38 | -76.34 |
| 41 | 80 | 0.00 | -93.58 | -9.20 | -471.64 | -149.01 | 625.62 |
| 42 | 80 | 0.00 | 93.58 | 9.20 | 471.64 | 149.01 | -625.62 |
| 42 | 81 | 0.00 | -30.08 | -9.20 | -323.13 | -203.64 | 908.55 |
| 43 | 81 | 0.00 | 30.08 | 9.20 | 323.13 | 203.64 | -908.55 |
| 43 | 82 | 0.00 | 0.01 | -14.83 | -250.43 | 2.90 | 2623.97 |
| 44 | 82 | 0.00 | -0.02 | 14.83 | 250.43 | -2.91 | -2623.97 |
| 44 | 83 | 0.00 | 29.59 | -9.53 | -332.41 | 188.51 | 891.81 |
| 45 | 83 | 0.00 | -29.59 | 9.53 | 332.41 | -188.51 | -891.81 |
| 45 | 84 | 0.00 | 93.10 | -9.53 | -480.97 | 132.39 | 610.51 |
| 46 | 84 | 0.00 | -93.10 | 9.53 | 480.97 | -132.39 | -610.51 |
| 46 | 85 | 0.00 | 139.79 | -11.48 | -617.34 | 406.96 | 781.84 |
| 47 | 85 | 0.00 | -139.79 | 11.48 | 617.34 | -406.96 | -781.84 |
| 47 | 86 | 0.00 | 191.76 | -11.48 | -761.79 | 342.09 | 35.86 |
| 48 | 86 | 0.00 | -191.76 | 11.48 | 761.79 | -342.09 | -35.86 |
| 48 | 87 | 0.00 | 243.74 | -11.48 | -906.24 | 277.22 | -944.02 |
| 49 | 87 | -112.50 | 265.85 | 10.28 | 868.54 | 35.92 | 1804.59 |
| 49 | 97 | 115.31 | -208.88 | -10.28 | -737.32 | -88.77 | -731.45 |
| 50 | 97 | -115.31 | 208.88 | 10.28 | 737.32 | 88.78 | 731.45 |
| 50 | 98 | 118.13 | -151.91 | -10.28 | -606.10 | -141.64 | 85.33 |
| 51 | 98 | -118.13 | 151.91 | 10.28 | 606.10 | 141.64 | -85.33 |
| 51 | 99 | 120.94 | -94.94 | -10.28 | -474.88 | -194.50 | 645.74 |
| 52 | 99 | -120.94 | 94.94 | 10.28 | 474.88 | 194.50 | -645.74 |
| 52 | 100 | 123.75 | -31.44 | -10.28 | -326.38 | -247.35 | 939.80 |
| 53 | 100 | -123.75 | 31.44 | 10.28 | 326.38 | 247.36 | -939.80 |
| 53 | 101 | 126.56 | 1.90 | -19.22 | -251.39 | -56.15 | 2613.59 |
| 54 | 101 | -126.56 | -1.90 | 19.22 | 251.39 | 56.15 | -2613.59 |
| 54 | 102 | 129.38 | 31.92 | -19.89 | -347.56 | 109.33 | 1528.25 |
| 55 | 102 | -129.38 | -31.92 | 19.89 | 347.56 | -109.33 | -1528.25 |
| 55 | 103 | 132.19 | 90.45 | -19.89 | -509.36 | 13.21 | 1252.67 |
| 56 | 103 | -132.19 | -90.45 | 19.89 | 509.36 | -13.21 | -1252.67 |
| 56 | 104 | 135.00 | 142.42 | -19.89 | -653.81 | -82.91 | 733.70 |
| 57 | 104 | -135.00 | -142.42 | 19.89 | 653.81 | 82.90 | -733.70 |
| 57 | 105 | 137.81 | 194.40 | -19.89 | -798.26 | -179.02 | -19.14 |
| 58 | 105 | -137.81 | -194.40 | 19.89 | 798.26 | 179.02 | 19.14 |
| 58 | 106 | 140.63 | 246.37 | -19.89 | -942.71 | -275.14 | -1005.88 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 59 | 106 | 281.25 | 288.64 | 10.91 | 845.51 | 160.01 | 1983.17 |
| 59 | 115 | -286.87 | -231.67 | -10.91 | -714.29 | -209.10 | -822.46 |
| 60 | 115 | 286.87 | 231.67 | 10.91 | 714.29 | 209.10 | 822.46 |
| 60 | 116 | -292.50 | -174.70 | -10.91 | -583.07 | -258.18 | 81.88 |
| 61 | 116 | 292.50 | 174.70 | 10.91 | 583.07 | 258.19 | -81.88 |
| 61 | 117 | -298.12 | -117.73 | -10.91 | -451.85 | -307.27 | 729.85 |
| 62 | 117 | 298.12 | 117.73 | 10.91 | 451.85 | 307.27 | -729.85 |
| 62 | 118 | -303.75 | -54.23 | -10.91 | -303.34 | -356.36 | 1111.47 |
| 63 | 118 | 303.75 | 54.23 | 10.91 | 303.34 | 356.36 | -1111.47 |
| 63 | 119 | -309.37 | -34.20 | -1.23 | -253.05 | 172.93 | 1266.41 |
| 64 | 119 | 309.37 | 34.20 | 1.23 | 253.05 | -172.93 | -1266.41 |
| 64 | 120 | -315.00 | 30.15 | -0.25 | -415.18 | 181.60 | 1487.36 |
| 65 | 120 | 315.00 | -30.15 | 0.25 | 415.18 | -181.60 | -1487.36 |
| 65 | 121 | -320.62 | 88.67 | -0.25 | -576.97 | 180.47 | 1204.77 |
| 66 | 121 | 320.62 | -88.67 | 0.25 | 576.97 | -180.47 | -1204.77 |
| 66 | 122 | -326.25 | 140.65 | -0.25 | -721.42 | 179.34 | 678.80 |
| 67 | 122 | 326.25 | -140.65 | 0.25 | 721.42 | -179.34 | -678.80 |
| 67 | 123 | -331.87 | 192.62 | -0.25 | -865.87 | 178.20 | -81.05 |
| 68 | 123 | 331.87 | -192.62 | 0.25 | 865.87 | -178.20 | 81.05 |
| 68 | 124 | -337.50 | 244.60 | -0.25 | -1010.32 | 177.07 | -1074.80 |
| 69 | 124 | 0.00 | 322.67 | -4.03 | 735.35 | 39.40 | 2014.37 |
| 69 | 133 | 0.00 | -256.94 | 3.77 | -584.03 | -26.22 | -721.21 |
| 70 | 133 | 0.00 | 256.94 | -3.77 | 584.03 | 26.22 | 721.22 |
| 70 | 134 | 0.00 | -190.87 | 3.52 | -432.63 | -15.54 | 270.35 |
| 71 | 134 | 0.00 | 190.87 | -3.52 | 432.63 | 15.54 | -270.35 |
| 71 | 135 | 0.00 | -40.93 | -1.99 | -290.89 | 111.02 | -525.96 |
| 72 | 135 | 0.00 | 40.93 | 1.99 | 290.89 | -111.02 | 525.96 |
| 72 | 136 | 0.00 | -52.17 | -7.43 | -374.31 | 186.60 | 932.04 |
| 73 | 136 | 0.00 | 52.17 | 7.43 | 374.31 | -186.60 | -932.04 |
| 73 | 137 | 0.00 | -0.19 | -7.43 | -518.76 | 139.95 | 1049.86 |
| 74 | 137 | 0.00 | 0.19 | 7.43 | 518.76 | -139.95 | -1049.86 |
| 74 | 138 | 0.00 | 60.47 | -14.66 | -670.47 | 158.43 | 1061.43 |
| 75 | 138 | 0.00 | -60.47 | 14.66 | 670.47 | -158.43 | -1061.42 |
| 75 | 139 | 0.00 | 118.99 | -14.66 | -832.27 | 79.22 | 652.40 |
| 76 | 139 | 0.00 | -118.99 | 14.66 | 832.27 | -79.22 | -652.40 |
| 76 | 140 | 0.00 | 170.97 | -14.66 | -976.72 | 0.00 | 0.00 |
| 77 | 16 | 995.77 | 0.00 | 0.19 | 0.00 | -1.82 | 0.00 |
| 77 | 17 | -995.77 | 0.00 | -0.19 | 0.00 | 0.82 | 0.00 |
| 78 | 17 | 995.77 | 0.00 | 0.19 | 0.00 | -0.82 | 0.00 |
| 78 | 18 | -995.77 | 0.00 | -0.19 | 0.00 | -0.12 | 0.00 |
| 79 | 33 | 1004.73 | 0.00 | -0.07 | 0.00 | 0.79 | 0.00 |
| 79 | 34 | -1004.73 | 0.00 | 0.07 | 0.00 | -0.23 | 0.00 |
| 80 | 34 | 1004.73 | 0.00 | -0.07 | 0.00 | 0.23 | 0.00 |
| 80 | 35 | -1004.73 | 0.00 | 0.07 | 0.00 | 0.14 | 0.00 |
| 81 | 50 | 996.55 | 0.00 | -0.01 | 0.00 | 0.18 | 0.00 |
| 81 | 51 | -996.55 | 0.00 | 0.01 | 0.00 | -0.16 | 0.00 |
| 82 | 51 | 996.55 | 0.00 | -0.01 | 0.00 | 0.16 | 0.00 |
| 82 | 52 | -996.55 | 0.00 | 0.01 | 0.00 | -0.11 | 0.00 |
| 83 | 52 | 996.55 | 0.00 | -0.01 | 0.00 | 0.11 | 0.00 |
| 83 | 53 | -996.55 | 0.00 | 0.01 | 0.00 | -0.06 | 0.00 |
| 84 | 53 | 996.55 | 0.00 | -0.01 | 0.00 | 0.06 | 0.00 |
| 84 | 54 | -996.55 | 0.00 | 0.01 | 0.00 | -0.03 | 0.00 |
| 85 | 69 | 1000.04 | 0.00 | 0.00 | 0.00 | 0.17 | 0.00 |
| 85 | 70 | -1000.04 | 0.00 | 0.00 | 0.00 | -0.13 | 0.00 |
| 86 | 70 | 1000.04 | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 |
| 86 | 71 | -1000.04 | 0.00 | 0.00 | 0.00 | -0.09 | 0.00 |
| 87 | 71 | 1000.04 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 |
| 87 | 72 | -1000.04 | 0.00 | 0.00 | 0.00 | -0.04 | 0.00 |
| 88 | 72 | 1000.04 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 |
| 88 | 73 | -1000.04 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 89 | 88 | 997.18 | 0.00 | -0.01 | 0.00 | 0.24 | 0.00 |
| 89 | 89 | -997.18 | 0.00 | 0.01 | 0.00 | -0.23 | 0.00 |
| 90 | 89 | 997.18 | 0.00 | -0.01 | 0.00 | 0.23 | 0.00 |
| 90 | 90 | -997.18 | 0.00 | 0.01 | 0.00 | -0.13 | 0.00 |
| 91 | 90 | 997.18 | 0.00 | -0.01 | 0.00 | 0.13 | 0.00 |
| 91 | 91 | -997.18 | 0.00 | 0.01 | 0.00 | -0.04 | 0.00 |
| 92 | 91 | 997.18 | 0.00 | -0.01 | 0.00 | 0.04 | 0.00 |
| 92 | 92 | -997.18 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 93 | 107 | 1004.52 | 0.00 | -0.03 | 0.00 | 0.36 | 0.00 |
| 93 | 108 | -1004.52 | 0.00 | 0.03 | 0.00 | -0.32 | 0.00 |
| 94 | 108 | 1004.52 | 0.00 | -0.03 | 0.00 | 0.32 | 0.00 |
| 94 | 109 | -1004.52 | 0.00 | 0.03 | 0.00 | -0.01 | 0.00 |
| 95 | 109 | 1004.52 | 0.00 | -0.03 | 0.00 | 0.01 | 0.00 |
| 95 | 110 | -1004.52 | 0.00 | 0.03 | 0.00 | 0.15 | 0.00 |
| 96 | 125 | 995.30 | 0.00 | 0.12 | 0.00 | -1.64 | 0.00 |
| 96 | 126 | -995.30 | 0.00 | -0.12 | 0.00 | 1.52 | 0.00 |
| 97 | 126 | 995.30 | 0.00 | 0.12 | 0.00 | -1.52 | 0.00 |
| 97 | 127 | -995.30 | 0.00 | -0.12 | 0.00 | 0.32 | 0.00 |
| 98 | 127 | 995.30 | 0.00 | 0.12 | 0.00 | -0.32 | 0.00 |
| 98 | 128 | -995.30 | 0.00 | -0.12 | 0.00 | -0.27 | 0.00 |
| 99 | 2 | 149.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -149.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 149.49 | 0.00 | -0.11 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -149.49 | 0.00 | 0.11 | 0.00 | 0.18 | 0.00 |
| 101 | 19 | 497.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -497.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 497.92 | 0.00 | 0.19 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -497.92 | 0.00 | -0.19 | 0.00 | -0.32 | 0.00 |
| 103 | 36 | 502.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -502.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 502.33 | 0.00 | -0.07 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -502.33 | 0.00 | 0.07 | 0.00 | 0.13 | 0.00 |
| 105 | 55 | 498.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -498.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 498.28 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -498.28 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 107 | 74 | 500.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -500.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 500.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -500.02 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 109 | 93 | 498.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -498.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 498.59 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -498.59 | 0.00 | 0.01 | 0.00 | 0.02 | 0.00 |
| 111 | 111 | 502.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -502.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 502.22 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -502.22 | 0.00 | 0.03 | 0.00 | 0.05 | 0.00 |
| 113 | 129 | 497.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -497.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 497.72 | 0.00 | 0.12 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -497.72 | 0.00 | -0.12 | 0.00 | -0.20 | 0.00 |
| 115 | 141 | 149.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -149.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 149.64 | 0.00 | -0.07 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -149.64 | 0.00 | 0.07 | 0.00 | 0.13 | 0.00 |
| 117 | 6 | 298.99 | 0.00 | -0.11 | 0.00 | 0.09 | 0.00 |
| 117 | 7 | -298.99 | 0.00 | 0.11 | 0.00 | 0.02 | 0.00 |
| 118 | 145 | 299.32 | 0.00 | -0.07 | 0.00 | -0.05 | 0.00 |
| 118 | 146 | -299.32 | 0.00 | 0.07 | 0.00 | 0.12 | 0.00 |
| 119 | 3 | 0.00 | 149.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -149.50 | 0.00 | 0.00 | 0.00 | 635.37 |
| 120 | 1 | 0.11 | -149.49 | 0.00 | 0.00 | 0.00 | -635.17 |
| 120 | 5 | -0.11 | 149.49 | 0.00 | 0.00 | 0.00 | -0.19 |
| 121 | 20 | 0.00 | 497.86 | -0.01 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | -497.86 | 0.01 | 0.00 | 0.00 | 921.03 |
| 122 | 15 | -0.19 | -497.92 | 0.00 | 0.00 | 0.00 | -921.48 |
| 122 | 22 | 0.19 | 497.92 | 0.00 | 0.00 | 0.00 | 0.32 |
| 123 | 37 | 0.00 | 375.92 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | -375.92 | 0.00 | 0.00 | 0.00 | 695.46 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 124 | 32 | 21.81 | -364.50 | 0.00 | 0.00 | 0.00 | -637.00 |
| 124 | 39 | -21.81 | 364.50 | 0.00 | 0.00 | 0.00 | -37.35 |
| 125 | 56 | 0.00 | -48.94 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.00 | 48.94 | 0.00 | 0.00 | -0.01 | -90.54 |
| 126 | 49 | 0.01 | -498.29 | 0.00 | 0.00 | 0.00 | -921.81 |
| 126 | 58 | -0.01 | 498.29 | 0.00 | 0.00 | 0.00 | -0.01 |
| 127 | 75 | 0.01 | 357.84 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | -0.01 | -357.84 | 0.00 | 0.00 | 0.00 | 662.03 |
| 128 | 68 | -8.11 | -346.47 | 0.00 | 0.00 | 0.00 | -654.86 |
| 128 | 77 | 8.11 | 346.47 | 0.00 | 0.00 | 0.00 | 13.87 |
| 129 | 94 | 0.01 | 347.54 | 0.00 | 0.00 | 0.00 | 0.01 |
| 129 | 87 | -0.01 | -347.54 | 0.00 | 0.00 | -0.01 | 642.96 |
| 130 | 87 | -0.01 | -315.85 | 0.00 | 0.00 | 0.00 | -584.31 |
| 130 | 96 | 0.01 | 315.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 112 | 0.00 | 502.30 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | -502.30 | 0.00 | 0.00 | 0.00 | 929.25 |
| 132 | 106 | 0.03 | -502.21 | 0.00 | 0.00 | 0.00 | -929.05 |
| 132 | 114 | -0.03 | 502.21 | 0.00 | 0.00 | 0.00 | -0.06 |
| 133 | 130 | 0.00 | 497.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | -497.58 | 0.00 | 0.00 | 0.00 | 920.51 |
| 134 | 124 | -0.12 | -497.72 | 0.00 | 0.00 | 0.00 | -921.00 |
| 134 | 132 | 0.12 | 497.72 | 0.00 | 0.00 | 0.00 | 0.20 |
| 135 | 142 | 0.00 | 130.65 | -363.38 | 622.10 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -130.65 | 363.38 | -622.10 | 1544.34 | 555.25 |
| 136 | 140 | 0.11 | -168.66 | -363.37 | 622.10 | 1544.34 | -716.60 |
| 136 | 144 | -0.11 | 168.66 | 363.37 | -622.10 | 0.00 | -0.19 |
| 137 | 2 | 0.00 | -149.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 149.50 | 0.00 | 0.00 | 0.00 | -635.37 |
| 138 | 7 | -0.11 | 149.49 | 0.00 | 0.00 | 0.00 | 635.35 |
| 138 | 4 | 0.11 | -149.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -497.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 497.85 | 0.00 | 0.00 | 0.00 | -921.03 |
| 140 | 18 | 0.19 | 497.92 | 0.00 | 0.00 | 0.00 | 921.15 |
| 140 | 21 | -0.19 | -497.92 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -502.40 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 502.40 | 0.00 | 0.00 | 0.00 | -929.45 |
| 142 | 35 | -0.07 | 502.33 | 0.00 | 0.00 | 0.00 | 929.31 |
| 142 | 38 | 0.07 | -502.33 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -498.27 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | 498.27 | 0.00 | 0.00 | 0.00 | -921.80 |
| 144 | 54 | -0.01 | 498.28 | 0.00 | 0.00 | 0.00 | 921.82 |
| 144 | 57 | 0.01 | -498.28 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | -500.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 500.01 | 0.00 | 0.00 | 0.00 | -925.03 |
| 146 | 73 | 0.00 | 500.02 | 0.00 | 0.00 | 0.00 | 925.04 |
| 146 | 76 | 0.00 | -500.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | -498.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | 498.59 | 0.00 | 0.00 | 0.00 | -922.39 |
| 148 | 92 | -0.01 | 498.59 | 0.00 | 0.00 | 0.00 | 922.39 |
| 148 | 95 | 0.01 | -498.59 | 0.00 | 0.00 | 0.00 | -0.01 |
| 149 | 111 | 0.00 | -502.29 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 502.29 | 0.00 | 0.00 | 0.00 | -929.25 |
| 150 | 110 | -0.03 | 502.21 | 0.00 | 0.00 | 0.00 | 929.10 |
| 150 | 113 | 0.03 | -502.21 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -497.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 497.58 | 0.00 | 0.00 | 0.00 | -920.51 |
| 152 | 128 | 0.12 | 497.72 | 0.00 | 0.00 | 0.00 | 920.78 |
| 152 | 131 | -0.12 | -497.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -149.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 149.67 | 0.00 | 0.00 | 0.00 | -636.11 |
| 154 | 146 | -0.07 | 149.64 | 0.00 | 0.00 | 0.00 | 635.99 |
| 154 | 143 | 0.07 | -149.64 | 0.00 | 0.00 | 0.00 | 0.00 |



HIPOTESIS 38

MOME X MIN sobrecarga + fr. + fc (ipf-75)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 170.68 | -9.99 | -920.89 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -118.70 | 9.99 | 776.44 | 44.97 | 651.11 |
| 2 | 8 | 0.00 | 118.70 | -9.99 | -776.44 | -44.97 | -651.11 |
| 2 | 9 | 0.00 | -60.20 | 9.99 | 614.71 | 89.94 | 1058.34 |
| 3 | 9 | 0.00 | 60.20 | -9.99 | -614.71 | -89.94 | -1058.34 |
| 3 | 10 | 0.00 | 1.76 | 9.99 | 443.80 | 134.92 | 1189.83 |
| 4 | 10 | 0.00 | -1.76 | -9.99 | -443.80 | -134.92 | -1189.83 |
| 4 | 11 | 0.00 | 52.32 | 1.11 | 298.36 | 19.91 | 929.39 |
| 5 | 11 | 0.00 | -52.32 | -1.11 | -298.36 | -19.91 | -929.40 |
| 5 | 12 | 0.00 | 124.01 | -3.63 | 256.59 | -81.64 | 976.31 |
| 6 | 12 | 0.00 | -124.01 | 3.63 | -256.59 | 81.64 | -976.31 |
| 6 | 13 | 0.00 | 190.97 | -3.63 | 414.27 | -97.97 | 267.62 |
| 7 | 13 | 0.00 | -190.97 | 3.63 | -414.27 | 97.97 | -267.62 |
| 7 | 14 | 0.00 | 257.03 | -3.84 | 565.89 | -120.94 | -724.60 |
| 8 | 14 | 0.00 | -257.03 | 3.84 | -565.89 | 120.94 | 724.60 |
| 8 | 15 | 0.00 | 322.77 | -4.05 | 717.51 | -145.97 | -2018.63 |
| 9 | 15 | 0.00 | 250.78 | 1.92 | -999.09 | 161.91 | 1221.78 |
| 9 | 23 | 0.00 | -198.81 | -1.92 | 854.64 | -157.33 | -210.19 |
| 10 | 23 | 0.00 | 198.81 | 1.92 | -854.64 | 157.33 | 210.19 |
| 10 | 24 | 0.00 | -146.83 | -1.92 | 710.19 | -152.75 | 567.50 |
| 11 | 24 | 0.00 | 146.83 | 1.92 | -710.19 | 152.75 | -567.50 |
| 11 | 25 | 0.00 | -94.86 | -1.92 | 565.74 | -148.17 | 1111.31 |
| 12 | 25 | 0.00 | 94.86 | 1.92 | -565.74 | 148.17 | -1111.31 |
| 12 | 26 | 0.00 | -36.36 | -1.92 | 404.00 | -143.58 | 1411.24 |
| 13 | 26 | 0.00 | 36.36 | 1.92 | -404.00 | 143.58 | -1411.24 |
| 13 | 27 | 0.00 | 28.04 | -1.01 | 241.72 | -148.93 | 1208.70 |
| 14 | 27 | 0.00 | -28.04 | 1.01 | -241.72 | 148.93 | -1208.70 |
| 14 | 28 | 0.00 | 47.69 | 4.99 | 302.38 | -344.42 | 1070.08 |
| 15 | 28 | 0.00 | -47.69 | -4.99 | -302.38 | 344.42 | -1070.08 |
| 15 | 29 | 0.00 | 111.21 | 4.99 | 450.94 | -308.75 | 707.31 |
| 16 | 29 | 0.00 | -111.21 | -4.99 | -450.94 | 308.75 | -707.31 |
| 16 | 30 | 0.00 | 168.18 | 4.99 | 582.16 | -273.08 | 78.69 |
| 17 | 30 | 0.00 | -168.18 | -4.99 | -582.16 | 273.08 | -78.69 |
| 17 | 31 | 0.00 | 225.15 | 4.99 | 713.38 | -237.41 | -806.29 |
| 18 | 31 | 0.00 | -225.15 | -4.99 | -713.38 | 237.41 | 806.29 |
| 18 | 32 | 0.00 | 282.12 | 4.99 | 844.60 | -201.73 | -1947.64 |
| 19 | 32 | 0.00 | 246.00 | -26.25 | -959.04 | 566.23 | 1027.74 |
| 19 | 40 | 0.00 | -194.02 | 26.25 | 814.59 | -434.89 | -37.69 |
| 20 | 40 | 0.00 | 194.02 | -26.25 | -814.59 | 434.89 | 37.69 |
| 20 | 41 | 0.00 | -142.05 | 26.25 | 670.14 | -303.55 | 718.48 |
| 21 | 41 | 0.00 | 142.05 | -26.25 | -670.14 | 303.55 | -718.48 |
| 21 | 42 | 0.00 | -90.07 | 26.25 | 525.69 | -172.22 | 1240.76 |
| 22 | 42 | 0.00 | 90.07 | -26.25 | -525.69 | 172.22 | -1240.76 |
| 22 | 43 | 0.00 | -31.57 | 26.25 | 363.95 | -40.88 | 1519.17 |
| 23 | 43 | 0.00 | 31.57 | -26.25 | -363.95 | 40.88 | -1519.17 |
| 23 | 44 | 0.00 | -1.77 | 17.34 | 246.65 | -78.55 | 2608.42 |
| 24 | 44 | 0.00 | 1.77 | -17.34 | -246.65 | 78.55 | -2608.42 |
| 24 | 45 | 0.00 | 31.69 | 7.99 | 317.69 | -248.94 | 938.59 |
| 25 | 45 | 0.00 | -31.69 | -7.99 | -317.69 | 248.94 | -938.59 |
| 25 | 46 | 0.00 | 95.21 | 7.99 | 466.26 | -199.74 | 647.83 |
| 26 | 46 | 0.00 | -95.21 | -7.99 | -466.26 | 199.73 | -647.83 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 26 | 47 | 0.00 | 152.18 | 7.99 | 597.48 | -150.53 | 91.22 |
| 27 | 47 | 0.00 | -152.18 | -7.99 | -597.48 | 150.53 | -91.22 |
| 27 | 48 | 0.00 | 209.15 | 7.99 | 728.70 | -101.33 | -721.76 |
| 28 | 48 | 0.00 | -209.15 | -7.99 | -728.70 | 101.32 | 721.76 |
| 28 | 49 | 0.00 | 266.12 | 7.99 | 859.92 | -52.12 | -1791.10 |
| 29 | 49 | 0.00 | 243.66 | -9.64 | -937.95 | -350.64 | 940.66 |
| 29 | 59 | 0.00 | -191.68 | 9.64 | 793.50 | 407.23 | 38.87 |
| 30 | 59 | 0.00 | 191.68 | -9.64 | -793.50 | -407.23 | -38.87 |
| 30 | 60 | 0.00 | -139.71 | 9.64 | 649.05 | 463.82 | 784.50 |
| 31 | 60 | 0.00 | 139.71 | -9.64 | -649.05 | -463.82 | -784.50 |
| 31 | 61 | 0.00 | -87.73 | 9.64 | 504.60 | 520.41 | 1296.25 |
| 32 | 61 | 0.00 | 87.74 | -9.64 | -504.60 | -520.41 | -1296.25 |
| 32 | 62 | 0.00 | -29.23 | 9.64 | 342.86 | 577.00 | 1564.13 |
| 33 | 62 | 0.00 | 29.23 | -9.64 | -342.86 | -577.00 | -1564.13 |
| 33 | 63 | 0.00 | 0.23 | 14.03 | 251.38 | 0.95 | 2627.72 |
| 34 | 63 | 0.00 | -0.23 | -14.03 | -251.38 | -0.95 | -2627.72 |
| 34 | 64 | 0.00 | 30.27 | 8.67 | 322.00 | -224.09 | 912.81 |
| 35 | 64 | 0.00 | -30.27 | -8.67 | -322.00 | 224.09 | -912.81 |
| 35 | 65 | 0.00 | 93.79 | 8.67 | 470.57 | -171.85 | 628.44 |
| 36 | 65 | 0.00 | -93.79 | -8.67 | -470.57 | 171.85 | -628.44 |
| 36 | 66 | 0.00 | 150.76 | 8.67 | 601.79 | -119.61 | 78.22 |
| 37 | 66 | 0.00 | -150.76 | -8.67 | -601.79 | 119.61 | -78.22 |
| 37 | 67 | 0.00 | 207.73 | 8.67 | 733.01 | -67.37 | -728.36 |
| 38 | 67 | 0.00 | -207.73 | -8.67 | -733.01 | 67.37 | 728.36 |
| 38 | 68 | 0.00 | 264.70 | 8.67 | 864.23 | -15.13 | -1791.31 |
| 39 | 68 | 0.00 | 243.71 | -0.69 | -886.96 | -552.26 | 932.70 |
| 39 | 78 | 0.00 | -191.74 | 0.69 | 742.51 | 568.59 | 47.06 |
| 40 | 78 | 0.00 | 191.74 | -0.69 | -742.51 | -568.59 | -47.06 |
| 40 | 79 | 0.00 | -150.55 | 9.17 | 603.38 | 93.84 | 76.37 |
| 41 | 79 | 0.00 | 150.55 | -9.17 | -603.38 | -93.84 | -76.37 |
| 41 | 80 | 0.00 | -93.58 | 9.17 | 472.16 | 148.34 | 625.66 |
| 42 | 80 | 0.00 | 93.58 | -9.17 | -472.16 | -148.33 | -625.66 |
| 42 | 81 | 0.00 | -30.08 | 9.17 | 323.66 | 202.82 | 908.60 |
| 43 | 81 | 0.00 | 30.08 | -9.17 | -323.66 | -202.82 | -908.60 |
| 43 | 82 | 0.00 | 0.01 | 14.83 | 250.50 | -4.52 | 2623.98 |
| 44 | 82 | 0.00 | -0.01 | -14.83 | -250.50 | 4.52 | -2623.98 |
| 44 | 83 | 0.00 | 29.58 | 9.57 | 331.84 | -188.42 | 891.77 |
| 45 | 83 | 0.00 | -29.58 | -9.57 | -331.84 | 188.43 | -891.77 |
| 45 | 84 | 0.00 | 93.10 | 9.57 | 480.41 | -132.14 | 610.49 |
| 46 | 84 | 0.00 | -93.10 | -9.57 | -480.41 | 132.14 | -610.48 |
| 46 | 85 | 0.00 | 139.79 | 11.52 | 616.92 | -406.98 | 781.82 |
| 47 | 85 | 0.00 | -139.79 | -11.52 | -616.92 | 406.98 | -781.82 |
| 47 | 86 | 0.00 | 191.76 | 11.52 | 761.37 | -341.92 | 35.84 |
| 48 | 86 | 0.00 | -191.76 | -11.52 | -761.38 | 341.92 | -35.84 |
| 48 | 87 | 0.00 | 243.74 | 11.52 | 905.83 | -276.86 | -944.03 |
| 49 | 87 | 112.50 | 267.06 | -10.15 | -869.16 | -36.67 | 1795.50 |
| 49 | 97 | -115.31 | -210.09 | 10.15 | 737.94 | 88.98 | -726.90 |
| 50 | 97 | 115.31 | 210.09 | -10.15 | -737.94 | -88.98 | 726.90 |
| 50 | 98 | -118.12 | -153.12 | 10.15 | 606.72 | 141.28 | 85.34 |
| 51 | 98 | 118.12 | 153.12 | -10.15 | -606.72 | -141.28 | -85.34 |
| 51 | 99 | -120.94 | -96.15 | 10.15 | 475.50 | 193.58 | 641.21 |
| 52 | 99 | 120.94 | 96.15 | -10.15 | -475.50 | -193.59 | -641.21 |
| 52 | 100 | -123.75 | -32.66 | 10.15 | 326.99 | 245.89 | 930.73 |
| 53 | 100 | 123.75 | 32.66 | -10.15 | -326.99 | -245.89 | -930.73 |
| 53 | 101 | -126.56 | 0.68 | 19.22 | 251.45 | 54.52 | 2599.94 |
| 54 | 101 | 126.56 | -0.68 | -19.21 | -251.45 | -54.52 | -2599.94 |
| 54 | 102 | -129.38 | 30.71 | 19.99 | 347.07 | -108.56 | 1510.10 |
| 55 | 102 | 129.38 | -30.71 | -19.99 | -347.07 | 108.56 | -1510.10 |
| 55 | 103 | -132.19 | 89.23 | 19.99 | 508.86 | -11.97 | 1230.00 |
| 56 | 103 | 132.19 | -89.23 | -19.99 | -508.86 | 11.97 | -1230.00 |
| 56 | 104 | -135.00 | 141.20 | 19.99 | 653.31 | 84.62 | 706.53 |
| 57 | 104 | 135.00 | -141.20 | -20.00 | -653.31 | -84.62 | -706.53 |
| 57 | 105 | -137.81 | 193.18 | 20.00 | 797.76 | 181.21 | -50.83 |
| 58 | 105 | 137.81 | -193.18 | -20.00 | -797.76 | -181.21 | 50.83 |
| 58 | 106 | -140.63 | 245.15 | 20.00 | 942.21 | 277.79 | -1042.08 |
| 59 | 106 | -281.25 | 276.11 | -10.95 | -845.23 | -164.79 | 1910.47 |
| 59 | 115 | 286.87 | -219.14 | 10.95 | 714.01 | 214.08 | -786.16 |
| 60 | 115 | -286.87 | 219.14 | -10.95 | -714.01 | -214.07 | 786.16 |
| 60 | 116 | 292.50 | -162.17 | 10.95 | 582.79 | 263.36 | 81.79 |
| 61 | 116 | -292.50 | 162.17 | -10.95 | -582.79 | -263.36 | -81.79 |
| 61 | 117 | 298.12 | -105.20 | 10.95 | 451.57 | 312.64 | 693.37 |
| 62 | 117 | -298.12 | 105.20 | -10.95 | -451.57 | -312.63 | -693.37 |
| 62 | 118 | 303.75 | -41.70 | 10.95 | 303.06 | 361.92 | 1038.59 |
| 63 | 118 | -303.75 | 41.70 | -10.95 | -303.06 | -361.92 | -1038.59 |
| 63 | 119 | 309.37 | -21.67 | 1.30 | 252.78 | -175.97 | 1156.98 |
| 64 | 119 | -309.37 | 21.67 | -1.30 | -252.78 | 175.97 | -1156.98 |
| 64 | 120 | 315.00 | 42.69 | 0.31 | 414.98 | -184.63 | 1341.47 |
| 65 | 120 | -315.00 | -42.69 | -0.31 | -414.98 | 184.63 | -1341.47 |
| 65 | 121 | 320.62 | 101.21 | 0.31 | 576.78 | -183.25 | 1022.44 |
| 66 | 121 | -320.62 | -101.21 | -0.31 | -576.78 | 183.25 | -1022.44 |
| 66 | 122 | 326.25 | 153.19 | 0.31 | 721.23 | -181.88 | 460.02 |
| 67 | 122 | -326.25 | -153.19 | -0.31 | -721.23 | 181.87 | -460.02 |
| 67 | 123 | 331.87 | 205.16 | 0.31 | 865.68 | -180.50 | -336.28 |
| 68 | 123 | -331.87 | -205.16 | -0.31 | -865.68 | 180.50 | 336.28 |
| 68 | 124 | 337.50 | 257.14 | 0.31 | 1010.13 | -179.12 | -1366.48 |
| 69 | 124 | 0.00 | 322.67 | 4.18 | -735.96 | -44.73 | 2014.24 |
| 69 | 133 | 0.00 | -256.93 | -3.93 | 584.67 | 31.18 | -721.10 |
| 70 | 133 | 0.00 | 256.94 | 3.93 | -584.67 | -31.17 | 721.10 |
| 70 | 134 | 0.00 | -190.86 | -3.68 | 433.30 | 20.07 | 270.44 |
| 71 | 134 | 0.00 | 190.86 | 3.68 | -433.30 | -20.07 | -270.44 |
| 71 | 135 | 0.00 | -40.93 | 2.05 | 290.82 | -112.30 | -525.99 |
| 72 | 135 | 0.00 | 40.93 | -2.05 | -290.82 | 112.31 | 525.99 |
| 72 | 136 | -360.00 | -32.16 | 7.33 | 374.64 | -184.86 | 677.37 |
| 73 | 136 | 360.00 | 32.16 | -7.33 | -374.64 | 184.86 | -677.37 |
| 73 | 137 | -365.63 | 19.82 | 7.33 | 519.09 | -138.65 | 695.15 |
| 74 | 137 | 365.63 | -19.82 | -7.33 | -519.09 | 138.65 | -695.15 |
| 74 | 138 | 0.00 | 60.45 | 14.64 | 670.47 | -158.20 | 1061.32 |
| 75 | 138 | 0.00 | -60.45 | -14.64 | -670.48 | 158.20 | -1061.32 |
| 75 | 139 | 0.00 | 118.98 | 14.64 | 832.27 | -79.10 | 652.35 |
| 76 | 139 | 0.00 | -118.98 | -14.64 | -832.27 | 79.10 | -652.35 |
| 76 | 140 | 0.00 | 170.95 | 14.64 | 976.72 | 0.00 | 0.00 |
| 77 | 16 | 995.77 | 0.00 | 0.19 | 0.00 | -1.82 | 0.00 |
| 77 | 17 | -995.77 | 0.00 | -0.19 | 0.00 | 0.82 | 0.00 |
| 78 | 17 | 995.77 | 0.00 | 0.19 | 0.00 | -0.82 | 0.00 |
| 78 | 18 | -995.77 | 0.00 | -0.19 | 0.00 | -0.12 | 0.00 |
| 79 | 33 | 1004.73 | 0.00 | -0.07 | 0.00 | 0.79 | 0.00 |
| 79 | 34 | -1004.73 | 0.00 | 0.07 | 0.00 | -0.23 | 0.00 |
| 80 | 34 | 1004.73 | 0.00 | -0.07 | 0.00 | 0.23 | 0.00 |
| 80 | 35 | -1004.73 | 0.00 | 0.07 | 0.00 | 0.14 | 0.00 |
| 81 | 50 | 996.55 | 0.00 | -0.01 | 0.00 | 0.18 | 0.00 |
| 81 | 51 | -996.55 | 0.00 | 0.01 | 0.00 | -0.16 | 0.00 |
| 82 | 51 | 996.55 | 0.00 | -0.01 | 0.00 | 0.16 | 0.00 |
| 82 | 52 | -996.55 | 0.00 | 0.01 | 0.00 | -0.11 | 0.00 |
| 83 | 52 | 996.55 | 0.00 | -0.01 | 0.00 | 0.11 | 0.00 |
| 83 | 53 | -996.55 | 0.00 | 0.01 | 0.00 | -0.06 | 0.00 |
| 84 | 53 | 996.55 | 0.00 | -0.01 | 0.00 | 0.06 | 0.00 |
| 84 | 54 | -996.55 | 0.00 | 0.01 | 0.00 | -0.03 | 0.00 |
| 85 | 69 | 1000.04 | 0.00 | 0.00 | 0.00 | 0.17 | 0.00 |
| 85 | 70 | -1000.04 | 0.00 | 0.00 | 0.00 | -0.13 | 0.00 |
| 86 | 70 | 1000.04 | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 |
| 86 | 71 | -1000.04 | 0.00 | 0.00 | 0.00 | -0.09 | 0.00 |
| 87 | 71 | 1000.04 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 |
| 87 | 72 | -1000.04 | 0.00 | 0.00 | 0.00 | -0.04 | 0.00 |
| 88 | 72 | 1000.04 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 |
| 88 | 73 | -1000.04 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 89 | 88 | 997.18 | 0.00 | -0.01 | 0.00 | 0.24 | 0.00 |
| 89 | 89 | -997.18 | 0.00 | 0.01 | 0.00 | -0.23 | 0.00 |
| 90 | 89 | 997.18 | 0.00 | -0.01 | 0.00 | 0.23 | 0.00 |
| 90 | 90 | -997.18 | 0.00 | 0.01 | 0.00 | -0.13 | 0.00 |
| 91 | 90 | 997.18 | 0.00 | -0.01 | 0.00 | 0.13 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 91 | 91 | -997.18 | 0.00 | 0.01 | 0.00 | -0.04 | 0.00 |
| 92 | 91 | 997.18 | 0.00 | -0.01 | 0.00 | 0.04 | 0.00 |
| 92 | 92 | -997.18 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 93 | 107 | 1004.52 | 0.00 | -0.03 | 0.00 | 0.36 | 0.00 |
| 93 | 108 | -1004.52 | 0.00 | 0.03 | 0.00 | -0.32 | 0.00 |
| 94 | 108 | 1004.52 | 0.00 | -0.03 | 0.00 | 0.32 | 0.00 |
| 94 | 109 | -1004.52 | 0.00 | 0.03 | 0.00 | -0.01 | 0.00 |
| 95 | 109 | 1004.52 | 0.00 | -0.03 | 0.00 | 0.01 | 0.00 |
| 95 | 110 | -1004.52 | 0.00 | 0.03 | 0.00 | 0.15 | 0.00 |
| 96 | 125 | 995.30 | 0.00 | 0.12 | 0.00 | -1.64 | 0.00 |
| 96 | 126 | -995.30 | 0.00 | -0.12 | 0.00 | 1.52 | 0.00 |
| 97 | 126 | 995.30 | 0.00 | 0.12 | 0.00 | -1.52 | 0.00 |
| 97 | 127 | -995.30 | 0.00 | -0.12 | 0.00 | 0.32 | 0.00 |
| 98 | 127 | 995.30 | 0.00 | 0.12 | 0.00 | -0.32 | 0.00 |
| 98 | 128 | -995.30 | 0.00 | -0.12 | 0.00 | -0.27 | 0.00 |
| 99 | 2 | 149.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -149.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 149.49 | 0.00 | -0.11 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -149.49 | 0.00 | 0.11 | 0.00 | 0.18 | 0.00 |
| 101 | 19 | 497.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -497.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 497.92 | 0.00 | 0.19 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -497.92 | 0.00 | -0.19 | 0.00 | -0.32 | 0.00 |
| 103 | 36 | 502.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -502.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 502.33 | 0.00 | -0.07 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -502.33 | 0.00 | 0.07 | 0.00 | 0.13 | 0.00 |
| 105 | 55 | 498.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -498.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 498.28 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -498.28 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 107 | 74 | 500.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -500.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 500.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -500.02 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 109 | 93 | 498.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -498.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 498.59 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -498.59 | 0.00 | 0.01 | 0.00 | 0.02 | 0.00 |
| 111 | 111 | 502.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -502.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 502.22 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -502.22 | 0.00 | 0.03 | 0.00 | 0.05 | 0.00 |
| 113 | 129 | 497.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -497.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 497.72 | 0.00 | 0.12 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -497.72 | 0.00 | -0.12 | 0.00 | -0.20 | 0.00 |
| 115 | 141 | 149.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -149.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 149.64 | 0.00 | -0.07 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -149.64 | 0.00 | 0.07 | 0.00 | 0.13 | 0.00 |
| 117 | 6 | 298.99 | 0.00 | -0.11 | 0.00 | 0.09 | 0.00 |
| 117 | 7 | -298.99 | 0.00 | 0.11 | 0.00 | 0.02 | 0.00 |
| 118 | 145 | 299.32 | 0.00 | -0.07 | 0.00 | -0.05 | 0.00 |
| 118 | 146 | -299.32 | 0.00 | 0.07 | 0.00 | 0.12 | 0.00 |
| 119 | 3 | 0.00 | 149.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -149.50 | 0.00 | 0.00 | 0.00 | 635.37 |
| 120 | 1 | 0.11 | -149.49 | 0.00 | 0.00 | 0.00 | -635.17 |
| 120 | 5 | -0.11 | 149.49 | 0.00 | 0.00 | 0.00 | -0.19 |
| 121 | 20 | 0.00 | 497.86 | -0.01 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | -497.86 | 0.01 | 0.00 | 0.00 | 921.03 |
| 122 | 15 | -0.19 | -497.92 | 0.00 | 0.00 | 0.00 | -921.48 |
| 122 | 22 | 0.19 | 497.92 | 0.00 | 0.00 | 0.00 | 0.32 |
| 123 | 37 | 0.00 | 502.40 | -0.01 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | -502.40 | 0.01 | 0.00 | 0.01 | 929.44 |
| 124 | 32 | 0.07 | -502.33 | 0.00 | 0.00 | 0.00 | -929.17 |
| 124 | 39 | -0.07 | 502.33 | 0.00 | 0.00 | 0.00 | -0.12 |
| 125 | 56 | 0.00 | 498.27 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.00 | -498.27 | 0.00 | 0.00 | 0.00 | 921.79 |
| 126 | 49 | 14.08 | 46.15 | 0.00 | 0.00 | 0.01 | 109.51 |
| 126 | 58 | -14.08 | -46.15 | 0.00 | 0.00 | 0.00 | -24.12 |
| 127 | 75 | 0.00 | -43.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.00 | 43.04 | 0.00 | 0.00 | 0.00 | -79.64 |
| 128 | 68 | -9.65 | -368.49 | 0.00 | 0.00 | 0.00 | -698.24 |
| 128 | 77 | 9.65 | 368.49 | 0.00 | 0.00 | 0.00 | 16.52 |
| 129 | 94 | 0.00 | -45.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | 45.86 | 0.00 | 0.00 | 0.00 | -84.86 |
| 130 | 87 | 6.50 | 48.03 | 0.00 | 0.00 | 0.00 | 100.01 |
| 130 | 96 | -6.50 | -48.03 | 0.00 | 0.00 | 0.00 | -11.13 |
| 131 | 112 | 0.00 | 377.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | -377.08 | 0.00 | 0.00 | 0.00 | 697.63 |
| 132 | 106 | 0.03 | -502.21 | 0.00 | 0.00 | 0.00 | -929.05 |
| 132 | 114 | -0.03 | 502.21 | 0.00 | 0.00 | 0.00 | -0.06 |
| 133 | 130 | 0.00 | 497.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | -497.58 | 0.00 | 0.00 | 0.00 | 920.51 |
| 134 | 124 | -0.12 | -497.72 | 0.00 | 0.00 | 0.00 | -921.00 |
| 134 | 132 | 0.12 | 497.72 | 0.00 | 0.00 | 0.00 | 0.20 |
| 135 | 142 | 0.00 | 168.70 | 363.38 | -622.10 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -168.70 | -363.38 | 622.10 | -1544.34 | 716.97 |
| 136 | 140 | 0.04 | -130.63 | 363.37 | -622.10 | -1544.34 | -555.13 |
| 136 | 144 | -0.04 | 130.63 | -363.37 | 622.10 | 0.00 | -0.07 |
| 137 | 2 | 0.00 | -149.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 149.50 | 0.00 | 0.00 | 0.00 | -635.37 |
| 138 | 7 | -0.11 | 149.49 | 0.00 | 0.00 | 0.00 | 635.35 |
| 138 | 4 | 0.11 | -149.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -497.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 497.85 | 0.00 | 0.00 | 0.00 | -921.03 |
| 140 | 18 | 0.19 | 497.92 | 0.00 | 0.00 | 0.00 | 921.15 |
| 140 | 21 | -0.19 | -497.92 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -502.40 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 502.40 | 0.00 | 0.00 | 0.00 | -929.45 |
| 142 | 35 | -0.07 | 502.33 | 0.00 | 0.00 | 0.00 | 929.31 |
| 142 | 38 | 0.07 | -502.33 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -498.27 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | 498.27 | 0.00 | 0.00 | 0.00 | -921.80 |
| 144 | 54 | -0.01 | 498.28 | 0.00 | 0.00 | 0.00 | 921.82 |
| 144 | 57 | 0.01 | -498.28 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | -500.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 500.01 | 0.00 | 0.00 | 0.00 | -925.03 |
| 146 | 73 | 0.00 | 500.02 | 0.00 | 0.00 | 0.00 | 925.04 |
| 146 | 76 | 0.00 | -500.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | -498.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | 498.59 | 0.00 | 0.00 | 0.00 | -922.39 |
| 148 | 92 | -0.01 | 498.59 | 0.00 | 0.00 | 0.00 | 922.39 |
| 148 | 95 | 0.01 | -498.59 | 0.00 | 0.00 | 0.00 | -0.01 |
| 149 | 111 | 0.00 | -502.29 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 502.29 | 0.00 | 0.00 | 0.00 | -929.25 |
| 150 | 110 | -0.03 | 502.21 | 0.00 | 0.00 | 0.00 | 929.10 |
| 150 | 113 | 0.03 | -502.21 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -497.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 497.58 | 0.00 | 0.00 | 0.00 | -920.51 |
| 152 | 128 | 0.12 | 497.72 | 0.00 | 0.00 | 0.00 | 920.78 |
| 152 | 131 | -0.12 | -497.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -149.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 149.67 | 0.00 | 0.00 | 0.00 | -636.11 |
| 154 | 146 | -0.07 | 149.64 | 0.00 | 0.00 | 0.00 | 635.99 |
| 154 | 143 | 0.07 | -149.64 | 0.00 | 0.00 | 0.00 | 0.00 |

HIPOTESIS 39

MOME Y MAX sobrecarga + fr. + fc (ipf-75)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 298.99 | -0.11 | 0.20 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -87.00 | -16.29 | -471.18 | -73.29 | 519.67 |
| 2 | 8 | 0.00 | 87.00 | 16.29 | 471.18 | 73.29 | -519.67 |
| 2 | 9 | 0.00 | -30.03 | -16.29 | -339.96 | -146.57 | 782.97 |
| 3 | 9 | 0.00 | 30.03 | 16.29 | 339.96 | 146.57 | -782.97 |
| 3 | 10 | 0.00 | 26.94 | -16.29 | -208.74 | -219.86 | 789.90 |
| 4 | 10 | 0.00 | -26.94 | 16.29 | 208.74 | 219.86 | -789.90 |
| 4 | 11 | 0.00 | 83.91 | -16.29 | -77.52 | -293.14 | 540.47 |
| 5 | 11 | 0.00 | -83.91 | 16.29 | 77.52 | 293.14 | -540.47 |
| 5 | 12 | 0.00 | 144.08 | -16.29 | 62.17 | -366.43 | 32.18 |
| 6 | 12 | 0.00 | -144.08 | 16.29 | -62.17 | 366.43 | -32.18 |
| 6 | 13 | 0.00 | 211.04 | -16.29 | 219.85 | -439.71 | -766.84 |
| 7 | 13 | 0.00 | -211.04 | 16.29 | -219.85 | 439.71 | 766.84 |
| 7 | 14 | 0.00 | 278.00 | -16.29 | 377.53 | -513.00 | -1867.19 |
| 8 | 14 | 0.00 | -278.00 | 16.29 | -377.53 | 513.00 | 1867.19 |
| 8 | 15 | 0.00 | 344.96 | -16.29 | 535.21 | -586.29 | -3268.85 |
| 9 | 15 | 0.00 | 533.93 | -15.04 | -47.38 | 586.29 | 3268.85 |
| 9 | 23 | 0.00 | -272.26 | 5.91 | -433.46 | -541.42 | -1643.72 |
| 10 | 23 | 0.00 | 272.26 | -5.91 | 433.46 | 541.42 | 1643.72 |
| 10 | 24 | 0.00 | -209.00 | 5.19 | -279.66 | -503.39 | -570.43 |
| 11 | 24 | 0.00 | 209.00 | -5.19 | 279.66 | 503.39 | 570.43 |
| 11 | 25 | 0.00 | -142.04 | 5.19 | -121.98 | -466.81 | 219.39 |
| 12 | 25 | 0.00 | 142.04 | -5.19 | 121.98 | 466.81 | -219.39 |
| 12 | 26 | 0.00 | -83.84 | 4.89 | 15.44 | -431.44 | 735.14 |
| 13 | 26 | 0.00 | 83.84 | -4.89 | -15.44 | 431.44 | -735.14 |
| 13 | 27 | 0.00 | 0.23 | -11.47 | 173.39 | -411.49 | -424.58 |
| 14 | 27 | 0.00 | -0.23 | 11.47 | -173.39 | 411.49 | 424.58 |
| 14 | 28 | 0.00 | 7.25 | -11.47 | 172.22 | -449.86 | -441.41 |
| 15 | 28 | 0.00 | -7.25 | 11.47 | -172.22 | 449.86 | 441.41 |
| 15 | 29 | 0.00 | 106.00 | -15.83 | -26.72 | -493.13 | 506.97 |
| 16 | 29 | 0.00 | -106.00 | 15.83 | 26.72 | 493.13 | -506.97 |
| 16 | 30 | 0.00 | 157.98 | -17.06 | -169.78 | -552.05 | -86.98 |
| 17 | 30 | 0.00 | -157.98 | 17.06 | 169.78 | 552.05 | 86.98 |
| 17 | 31 | 0.00 | 209.95 | -13.50 | -301.46 | -621.01 | -914.82 |
| 18 | 31 | 50.63 | -207.76 | 13.50 | 301.46 | 621.01 | 915.09 |
| 18 | 32 | 0.00 | 261.93 | -13.50 | -421.79 | -694.99 | -1976.55 |
| 19 | 32 | 0.00 | 260.82 | -30.33 | -724.90 | 694.99 | 1976.55 |
| 19 | 40 | 0.00 | -208.84 | 30.33 | 604.57 | -571.75 | -919.82 |
| 20 | 40 | 0.00 | 208.84 | -30.33 | -604.57 | 571.75 | 919.82 |
| 20 | 41 | 0.00 | -354.34 | 20.54 | 96.23 | -477.50 | -296.88 |
| 21 | 41 | 0.00 | 354.34 | -20.54 | -96.23 | 477.50 | 296.88 |
| 21 | 42 | 0.00 | -160.17 | 14.03 | -113.17 | -424.73 | -125.08 |
| 22 | 42 | 0.00 | 160.17 | -14.03 | 113.17 | 424.74 | 125.08 |
| 22 | 43 | 0.00 | -99.98 | 14.03 | 26.57 | -374.84 | 455.03 |
| 23 | 43 | 0.00 | 99.98 | -14.03 | -26.57 | 374.84 | -455.03 |
| 23 | 44 | 0.00 | -34.05 | 6.19 | 113.59 | -327.74 | 3307.71 |
| 24 | 44 | 0.00 | 34.05 | -6.19 | -113.59 | 327.73 | -3307.71 |
| 24 | 45 | 0.00 | 141.44 | -9.78 | -44.92 | -325.11 | 2850.82 |
| 25 | 45 | 0.00 | -141.44 | 9.78 | 44.92 | 325.11 | -2850.82 |
| 25 | 46 | 0.00 | 139.81 | -25.71 | 128.04 | -419.72 | 528.99 |
| 26 | 46 | 0.00 | -139.81 | 25.71 | -128.04 | 419.72 | -528.99 |
| 26 | 47 | 0.00 | 201.77 | -25.71 | 298.95 | -548.65 | -239.57 |
| 27 | 47 | 0.00 | -201.77 | 25.71 | -298.95 | 548.65 | 239.57 |
| 27 | 48 | 0.00 | 263.74 | -25.71 | 469.86 | -677.59 | -1286.97 |
| 28 | 48 | 0.00 | -263.74 | 25.71 | -469.86 | 677.58 | 1286.97 |
| 28 | 49 | 0.00 | 325.70 | -25.71 | 640.77 | -806.52 | -2613.21 |
| 29 | 49 | 0.00 | 327.75 | -8.52 | 712.86 | 806.52 | 2613.21 |
| 29 | 59 | 0.00 | -265.79 | 6.61 | -564.45 | -783.42 | -1277.75 |
| 30 | 59 | 0.00 | 265.79 | -6.61 | 564.45 | 783.42 | 1277.75 |
| 30 | 60 | 0.00 | -203.82 | 6.61 | -393.54 | -766.92 | -221.13 |
| 31 | 60 | 0.00 | 203.82 | -6.61 | 393.54 | 766.92 | 221.13 |
| 31 | 61 | 0.00 | -141.86 | 6.61 | -222.63 | -750.41 | 556.65 |
| 32 | 61 | 0.00 | 141.86 | -6.61 | 222.63 | 750.42 | -556.65 |
| 32 | 62 | 0.00 | -51.64 | -2.70 | -205.81 | -754.72 | 866.17 |
| 33 | 62 | 0.00 | 51.64 | 2.70 | 205.81 | 754.72 | -866.18 |
| 33 | 63 | 0.00 | 0.34 | -2.70 | -61.36 | -780.10 | 981.61 |
| 34 | 63 | 0.00 | -0.34 | 2.70 | 61.36 | 780.09 | -981.61 |
| 34 | 64 | 0.00 | 52.31 | -2.70 | 83.09 | -805.47 | 863.16 |
| 35 | 64 | 0.00 | -52.31 | 2.70 | -83.09 | 805.47 | -863.16 |
| 35 | 65 | 0.00 | 104.29 | -2.70 | 227.54 | -830.84 | 510.82 |
| 36 | 65 | 0.00 | -104.29 | 2.70 | -227.54 | 830.84 | -510.82 |
| 36 | 66 | 0.00 | 156.26 | -2.70 | 371.99 | -856.21 | -75.41 |
| 37 | 66 | 0.00 | -156.26 | 2.70 | -371.99 | 856.21 | 75.41 |
| 37 | 67 | 0.00 | 266.01 | -9.13 | 480.51 | -902.67 | -1293.73 |
| 38 | 67 | 0.00 | -266.01 | 9.13 | -480.51 | 902.67 | 1293.73 |
| 38 | 68 | 0.00 | 327.97 | -9.13 | 651.42 | -956.99 | -2630.18 |
| 39 | 68 | 0.00 | 327.93 | -16.84 | 684.20 | 956.99 | 2630.18 |
| 39 | 78 | 0.00 | -265.97 | 16.84 | -513.29 | -894.43 | -1293.91 |
| 40 | 78 | 0.00 | 265.97 | -16.84 | 513.29 | 894.42 | 1293.91 |
| 40 | 79 | 0.00 | -156.12 | 11.56 | -414.12 | -834.38 | -76.63 |
| 41 | 79 | 0.00 | 156.12 | -11.56 | 414.12 | 834.38 | 76.63 |
| 41 | 80 | 0.00 | -104.15 | 11.56 | -269.67 | -795.60 | 508.98 |
| 42 | 80 | 0.00 | 104.15 | -11.56 | 269.67 | 795.60 | -508.98 |
| 42 | 81 | 0.00 | -52.17 | 10.89 | -132.49 | -759.32 | 860.71 |
| 43 | 81 | -191.25 | 49.70 | -10.89 | 132.49 | 759.32 | -858.43 |
| 43 | 82 | 0.00 | -0.20 | 10.89 | 11.96 | -723.54 | 978.55 |
| 44 | 82 | -196.87 | -2.27 | -10.89 | -11.96 | 723.53 | -975.14 |
| 44 | 83 | 0.00 | 86.85 | 0.63 | 44.17 | -690.60 | 1062.50 |
| 45 | 83 | 0.00 | -86.85 | -0.63 | -44.17 | 690.60 | -1062.50 |
| 45 | 84 | 0.00 | 142.02 | 0.63 | 197.09 | -700.97 | 552.24 |
| 46 | 84 | 0.00 | -142.02 | -0.64 | -197.09 | 700.97 | -552.25 |
| 46 | 85 | 0.00 | 203.99 | 0.64 | 368.00 | -711.34 | -226.27 |
| 47 | 85 | 0.00 | -203.99 | -0.64 | -368.00 | 711.34 | 226.27 |
| 47 | 86 | 0.00 | 265.95 | -1.39 | 517.66 | -722.83 | -1283.63 |
| 48 | 86 | 0.00 | -265.95 | 1.39 | -517.66 | 722.83 | 1283.63 |
| 48 | 87 | 0.00 | 327.92 | -1.39 | 688.57 | -742.32 | -2619.82 |
| 49 | 87 | 0.00 | 325.95 | -24.84 | 638.97 | 742.32 | 2619.82 |
| 49 | 97 | 0.00 | -263.99 | 23.70 | -488.08 | -646.22 | -1292.45 |
| 50 | 97 | 0.00 | 263.99 | -23.70 | 488.08 | 646.22 | 1292.45 |
| 50 | 98 | 0.00 | -202.02 | 23.70 | -317.17 | -552.80 | -243.92 |
| 51 | 98 | 0.00 | 202.02 | -23.70 | 317.17 | 552.80 | 243.92 |
| 51 | 99 | 241.87 | -138.85 | 20.75 | -146.26 | -459.40 | 530.31 |
| 52 | 99 | -241.87 | 138.85 | -20.75 | 146.26 | 459.40 | -530.31 |
| 52 | 100 | 247.50 | -91.41 | 19.82 | -29.51 | -369.13 | 1252.40 |
| 53 | 100 | -247.50 | 91.41 | -19.82 | 29.51 | 369.12 | -1252.40 |
| 53 | 101 | 0.00 | 33.66 | -8.18 | -123.17 | -334.26 | 3306.65 |
| 54 | 101 | 0.00 | -33.66 | 8.18 | 123.17 | 334.27 | -3306.65 |
| 54 | 102 | 0.00 | 99.66 | -14.72 | -36.55 | -374.31 | 455.34 |
| 55 | 102 | 0.00 | -99.66 | 14.72 | 36.54 | 374.31 | -455.34 |
| 55 | 103 | 0.00 | 159.82 | -14.72 | 103.14 | -427.30 | -123.79 |
| 56 | 103 | 0.00 | -159.82 | 14.72 | -103.14 | 427.30 | 123.79 |
| 56 | 104 | 0.00 | 224.83 | -15.08 | 258.52 | -480.70 | -993.65 |
| 57 | 104 | 0.00 | -224.83 | 15.08 | -258.52 | 480.70 | 993.66 |
| 57 | 105 | 0.00 | 291.79 | -15.08 | 416.20 | -535.32 | -2156.03 |
| 58 | 105 | 0.00 | -291.79 | 15.08 | -416.20 | 535.33 | 2156.03 |
| 58 | 106 | 0.00 | 355.12 | -15.63 | 569.93 | -590.24 | -3587.26 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 59 | 106 | 0.00 | 563.25 | -9.29 | 44.14 | 590.24 | 3587.26 |
| 59 | 115 | 0.00 | -451.33 | 7.77 | -15.09 | -537.23 | -1304.45 |
| 60 | 115 | 0.00 | 451.33 | -7.77 | 15.09 | 537.22 | 1304.45 |
| 60 | 116 | 0.00 | -212.19 | 5.10 | -362.97 | -491.28 | -820.34 |
| 61 | 116 | 0.00 | 212.19 | -5.10 | 362.97 | 491.28 | 820.34 |
| 61 | 117 | 298.12 | -153.33 | 7.04 | -258.37 | -456.23 | 126.37 |
| 62 | 117 | -298.12 | 153.33 | -7.04 | 258.37 | 456.23 | -126.37 |
| 62 | 118 | 303.75 | -86.37 | 7.04 | -100.69 | -424.55 | 675.69 |
| 63 | 118 | -303.75 | 86.37 | -7.04 | 100.69 | 424.55 | -675.69 |
| 63 | 119 | 309.37 | 30.94 | -8.86 | -115.23 | -429.24 | 1160.42 |
| 64 | 119 | -309.37 | -30.94 | 8.86 | 115.23 | 429.24 | -1160.42 |
| 64 | 120 | 315.00 | 89.82 | -11.01 | -16.11 | -474.59 | 670.08 |
| 65 | 120 | -315.00 | -89.82 | 11.01 | 16.11 | 474.59 | -670.08 |
| 65 | 121 | 320.62 | 149.98 | -11.01 | 123.58 | -524.12 | 145.21 |
| 66 | 121 | -320.62 | -149.99 | 11.01 | -123.58 | 524.12 | -145.21 |
| 66 | 122 | 326.25 | 216.95 | -11.01 | 281.26 | -573.64 | -670.39 |
| 67 | 122 | -326.25 | -216.94 | 11.01 | -281.26 | 573.64 | 670.39 |
| 67 | 123 | 331.87 | 264.06 | -17.81 | 652.13 | -646.96 | -1149.44 |
| 68 | 123 | -331.87 | -264.06 | 17.81 | -652.13 | 646.96 | 1149.44 |
| 68 | 124 | 337.50 | 326.02 | -17.81 | 823.04 | -727.11 | -2467.14 |
| 69 | 124 | -337.50 | 318.71 | -20.20 | 328.43 | 727.11 | 2467.14 |
| 69 | 133 | 343.12 | -256.74 | 20.20 | -157.52 | -636.22 | -1162.38 |
| 70 | 133 | -343.12 | 256.74 | -20.20 | 157.52 | 636.22 | 1162.38 |
| 70 | 134 | 348.75 | -194.78 | 20.20 | 13.39 | -545.34 | -136.47 |
| 71 | 134 | -348.75 | 194.78 | -20.20 | -13.39 | 545.34 | 136.47 |
| 71 | 135 | 354.37 | -132.81 | 20.20 | 184.30 | -454.45 | 610.61 |
| 72 | 135 | -354.37 | 132.81 | -20.20 | -184.30 | 454.45 | -610.61 |
| 72 | 136 | 360.00 | -77.62 | 20.20 | 337.28 | -363.56 | 1088.83 |
| 73 | 136 | -360.00 | 77.62 | -20.20 | -337.28 | 363.56 | -1088.83 |
| 73 | 137 | 365.62 | -25.64 | 20.20 | 481.73 | -272.67 | 1331.16 |
| 74 | 137 | -365.62 | 25.64 | -20.20 | -481.73 | 272.67 | -1331.16 |
| 74 | 138 | 371.25 | 26.33 | 20.20 | 626.18 | -181.78 | 1339.61 |
| 75 | 138 | -371.25 | -26.33 | -20.20 | -626.18 | 181.78 | -1339.61 |
| 75 | 139 | 376.87 | 78.31 | 20.20 | 770.63 | -90.89 | 1114.17 |
| 76 | 139 | -376.87 | -78.31 | -20.20 | -770.63 | 90.89 | -1114.17 |
| 76 | 140 | -382.50 | 169.67 | 6.45 | 872.88 | 0.00 | -654.84 |
| 77 | 16 | 520.23 | 0.00 | 12.25 | 0.00 | 1055.13 | 0.00 |
| 77 | 17 | -520.23 | 0.00 | -12.83 | 0.00 | -1120.69 | 0.00 |
| 78 | 17 | 520.23 | 0.00 | 12.83 | 0.00 | 1120.69 | 0.00 |
| 78 | 18 | -518.06 | 0.00 | -13.29 | 0.00 | -1186.33 | 0.00 |
| 79 | 33 | 522.74 | 0.00 | -43.40 | 0.00 | 1965.10 | 0.00 |
| 79 | 34 | -522.74 | 0.00 | 43.40 | 0.00 | -1636.15 | 0.00 |
| 80 | 34 | 522.74 | 0.00 | -43.40 | 0.00 | 1636.15 | 0.00 |
| 80 | 35 | -522.79 | 0.00 | 43.36 | 0.00 | -1419.23 | 0.00 |
| 81 | 50 | 518.38 | 0.00 | 22.19 | 0.00 | 721.14 | 0.00 |
| 81 | 51 | -518.38 | 0.00 | -22.19 | 0.00 | -809.90 | 0.00 |
| 82 | 51 | 518.38 | 0.00 | 22.19 | 0.00 | 809.90 | 0.00 |
| 82 | 52 | -518.38 | 0.00 | -22.21 | 0.00 | -1031.92 | 0.00 |
| 83 | 52 | 518.38 | 0.00 | 22.21 | 0.00 | 1031.92 | 0.00 |
| 83 | 53 | -518.38 | 0.00 | -22.21 | 0.00 | -1254.00 | 0.00 |
| 84 | 53 | 518.38 | 0.00 | 22.21 | 0.00 | 1254.00 | 0.00 |
| 84 | 54 | -518.47 | 0.00 | -22.21 | 0.00 | -1365.04 | 0.00 |
| 85 | 69 | 520.22 | 0.00 | 14.31 | 0.00 | 881.86 | 0.00 |
| 85 | 70 | -520.30 | 0.00 | -14.32 | 0.00 | -982.06 | 0.00 |
| 86 | 70 | 520.30 | 0.00 | 14.32 | 0.00 | 982.06 | 0.00 |
| 86 | 71 | -520.61 | 0.00 | -14.33 | 0.00 | -1125.26 | 0.00 |
| 87 | 71 | 520.61 | 0.00 | 14.33 | 0.00 | 1125.26 | 0.00 |
| 87 | 72 | -520.61 | 0.00 | -14.33 | 0.00 | -1268.60 | 0.00 |
| 88 | 72 | 520.61 | 0.00 | 14.33 | 0.00 | 1268.60 | 0.00 |
| 88 | 73 | -520.61 | 0.00 | -14.33 | 0.00 | -1340.28 | 0.00 |
| 89 | 88 | 518.80 | 0.00 | 7.61 | 0.00 | 1164.63 | 0.00 |
| 89 | 89 | -518.80 | 0.00 | -7.61 | 0.00 | -1172.24 | 0.00 |
| 90 | 89 | 518.80 | 0.00 | 7.61 | 0.00 | 1172.24 | 0.00 |
| 90 | 90 | -518.80 | 0.00 | -7.61 | 0.00 | -1248.34 | 0.00 |
| 91 | 90 | 518.80 | 0.00 | 7.61 | 0.00 | 1248.34 | 0.00 |
| 91 | 91 | -517.54 | 0.00 | -7.63 | 0.00 | -1324.54 | 0.00 |
| 92 | 91 | 517.54 | 0.00 | 7.63 | 0.00 | 1324.54 | 0.00 |
| 92 | 92 | -517.54 | 0.00 | -7.64 | 0.00 | -1362.73 | 0.00 |
| 93 | 107 | 527.69 | 0.00 | -29.19 | 0.00 | 1820.31 | 0.00 |
| 93 | 108 | -527.69 | 0.00 | 29.19 | 0.00 | -1791.12 | 0.00 |
| 94 | 108 | 527.69 | 0.00 | -29.19 | 0.00 | 1791.12 | 0.00 |
| 94 | 109 | -522.63 | 0.00 | 29.18 | 0.00 | -1499.28 | 0.00 |
| 95 | 109 | 522.63 | 0.00 | -29.18 | 0.00 | 1499.28 | 0.00 |
| 95 | 110 | -517.57 | 0.00 | 29.15 | 0.00 | -1353.45 | 0.00 |
| 96 | 125 | 544.10 | 0.00 | 23.17 | 0.00 | 736.03 | 0.00 |
| 96 | 126 | -544.10 | 0.00 | -23.17 | 0.00 | -759.20 | 0.00 |
| 97 | 126 | 544.10 | 0.00 | 23.17 | 0.00 | 759.20 | 0.00 |
| 97 | 127 | -544.10 | 0.00 | -23.33 | 0.00 | -991.42 | 0.00 |
| 98 | 127 | 544.10 | 0.00 | 23.33 | 0.00 | 991.42 | 0.00 |
| 98 | 128 | -618.41 | 0.00 | -36.14 | 0.00 | -1113.22 | 0.00 |
| 99 | 2 | 149.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -149.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 149.49 | 0.00 | -0.11 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | 2.17 | 0.00 | -16.29 | 0.00 | -27.88 | 0.00 |
| 101 | 19 | 497.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -497.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 497.92 | 0.00 | 0.19 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -562.04 | 0.00 | -36.45 | 0.00 | -62.40 | 0.00 |
| 103 | 36 | 502.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -502.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 502.33 | 0.00 | -0.07 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | 95.79 | 0.00 | -43.94 | 0.00 | -75.23 | 0.00 |
| 105 | 55 | 498.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | 89.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 498.28 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -674.11 | 0.00 | -34.53 | 0.00 | -59.12 | 0.00 |
| 107 | 74 | 500.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | 81.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 500.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -669.90 | 0.00 | -27.54 | 0.00 | -47.15 | 0.00 |
| 109 | 93 | 498.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | 87.63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 498.59 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -580.62 | 0.00 | -27.42 | 0.00 | -46.94 | 0.00 |
| 111 | 111 | 502.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | 81.56 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 502.22 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | 55.16 | 0.00 | -30.26 | 0.00 | -51.81 | 0.00 |
| 113 | 129 | 497.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -497.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 497.72 | 0.00 | 0.12 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -590.99 | 0.00 | -38.35 | 0.00 | -65.66 | 0.00 |
| 115 | 141 | 149.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -149.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 149.64 | 0.00 | -0.07 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | 37.16 | 0.00 | -23.11 | 0.00 | -39.56 | 0.00 |
| 117 | 6 | 170.68 | 0.00 | -10.29 | 0.00 | 948.48 | 0.00 |
| 117 | 7 | -170.68 | 0.00 | 10.29 | 0.00 | -938.18 | 0.00 |
| 118 | 145 | 170.97 | 0.00 | -21.05 | 0.00 | 1032.55 | 0.00 |
| 118 | 146 | -170.97 | 0.00 | 20.67 | 0.00 | -1011.78 | 0.00 |
| 119 | 3 | 0.00 | 149.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -149.48 | 0.00 | 0.00 | -0.01 | 635.28 |
| 120 | 1 | 0.48 | -17.43 | 0.00 | 0.00 | 0.00 | -73.27 |
| 120 | 5 | -0.22 | -19.19 | 0.00 | 0.00 | 0.00 | -0.37 |
| 121 | 20 | 0.00 | 257.46 | 0.01 | 0.00 | 0.02 | 0.00 |
| 121 | 15 | 0.00 | -564.60 | 0.00 | 0.00 | -0.01 | 1044.52 |
| 122 | 15 | 2.56 | -258.45 | 0.00 | 0.00 | 0.02 | -473.76 |
| 122 | 22 | 0.49 | 314.89 | 0.00 | 0.00 | -0.01 | 0.84 |
| 123 | 37 | 0.00 | 502.45 | 0.00 | 0.00 | 0.02 | -0.01 |
| 123 | 32 | 0.00 | 99.94 | 0.00 | 0.00 | -0.01 | -184.90 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 124 | 32 | 1.85 | -291.63 | 0.00 | 0.00 | 0.02 | -536.37 |
| 124 | 39 | 0.41 | 263.25 | 0.00 | 0.00 | -0.02 | 0.71 |
| 125 | 56 | 0.00 | 276.88 | 0.00 | 0.00 | 0.01 | 0.00 |
| 125 | 49 | 0.01 | -273.94 | 0.01 | 0.00 | -0.01 | 506.81 |
| 126 | 49 | 20.36 | 89.04 | 0.00 | 0.00 | 0.01 | 199.61 |
| 126 | 58 | 0.27 | 271.08 | 0.00 | 0.00 | -0.02 | 0.47 |
| 127 | 75 | 0.01 | 275.71 | 0.01 | 0.00 | 0.01 | 0.00 |
| 127 | 68 | 0.00 | -499.71 | 0.00 | 0.00 | -0.02 | 924.46 |
| 128 | 68 | 2.47 | -267.33 | 0.00 | 0.00 | 0.02 | -490.35 |
| 128 | 77 | -1.67 | 276.17 | -0.01 | 0.00 | -0.02 | -2.86 |
| 129 | 94 | 0.00 | 270.64 | 0.00 | 0.00 | 0.01 | 0.00 |
| 129 | 87 | 0.00 | -499.79 | 0.00 | 0.00 | -0.02 | 924.63 |
| 130 | 87 | -2.62 | -319.69 | 0.00 | 0.00 | 0.01 | -595.90 |
| 130 | 96 | 0.78 | 297.07 | 0.00 | 0.00 | -0.01 | 1.35 |
| 131 | 112 | 0.00 | 289.56 | 0.01 | 0.00 | 0.01 | -0.01 |
| 131 | 106 | 0.00 | -291.24 | 0.00 | 0.00 | -0.01 | 538.80 |
| 132 | 106 | 26.72 | -583.87 | 0.00 | 0.00 | 0.01 | -1034.45 |
| 132 | 114 | 13.72 | 290.75 | -0.01 | 0.00 | -0.01 | 23.50 |
| 133 | 130 | 0.00 | 261.38 | -0.01 | 0.00 | 0.01 | 0.00 |
| 133 | 124 | 0.00 | -279.45 | 0.00 | 0.00 | -0.01 | 516.98 |
| 134 | 124 | 2.05 | -244.62 | -0.01 | 0.00 | 0.02 | -449.04 |
| 134 | 132 | 0.88 | 226.42 | 0.00 | 0.00 | -0.01 | 1.50 |
| 135 | 142 | 0.00 | 7.69 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -168.70 | -363.38 | 622.10 | -1544.34 | 716.97 |
| 136 | 140 | 0.11 | -168.66 | -363.37 | 622.10 | 1544.34 | -716.60 |
| 136 | 144 | -0.07 | 149.64 | 0.00 | 0.00 | 0.00 | -0.13 |
| 137 | 2 | 0.00 | -149.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 149.50 | 0.00 | 0.00 | 0.00 | -635.37 |
| 138 | 7 | -0.11 | 149.49 | 0.00 | 0.00 | 0.00 | 635.35 |
| 138 | 4 | 0.11 | -149.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -497.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 497.85 | 0.00 | 0.00 | 0.00 | -921.03 |
| 140 | 18 | 0.19 | 497.92 | 0.00 | 0.00 | 0.00 | 921.15 |
| 140 | 21 | -0.19 | -497.92 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -502.40 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 502.40 | 0.00 | 0.00 | 0.00 | -929.45 |
| 142 | 35 | -0.07 | 502.33 | 0.00 | 0.00 | 0.00 | 929.31 |
| 142 | 38 | 0.07 | -502.33 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -498.27 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | 498.27 | 0.00 | 0.00 | 0.00 | -921.80 |
| 144 | 54 | -0.01 | 498.28 | 0.00 | 0.00 | 0.00 | 921.82 |
| 144 | 57 | 0.01 | -498.28 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | -500.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 500.01 | 0.00 | 0.00 | 0.00 | -925.03 |
| 146 | 73 | 0.00 | 500.02 | 0.00 | 0.00 | 0.00 | 925.04 |
| 146 | 76 | 0.00 | -500.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | -498.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | 498.59 | 0.00 | 0.00 | 0.00 | -922.39 |
| 148 | 92 | -0.01 | 498.59 | 0.00 | 0.00 | 0.00 | 922.39 |
| 148 | 95 | 0.01 | -498.59 | 0.00 | 0.00 | 0.00 | -0.01 |
| 149 | 111 | 0.00 | -502.29 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 502.29 | 0.00 | 0.00 | 0.00 | -929.25 |
| 150 | 110 | -0.03 | 502.21 | 0.00 | 0.00 | 0.00 | 929.10 |
| 150 | 113 | 0.03 | -502.21 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -497.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 497.58 | 0.00 | 0.00 | 0.00 | -920.51 |
| 152 | 128 | 0.12 | 497.72 | 0.00 | 0.00 | 0.00 | 920.78 |
| 152 | 131 | -0.12 | -497.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -149.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 130.65 | -363.37 | 0.00 | -1544.34 | -555.25 |
| 154 | 146 | -0.04 | 130.63 | -363.37 | 0.00 | 1544.34 | 555.19 |
| 154 | 143 | 0.07 | -149.64 | 0.00 | 0.00 | 0.00 | 0.00 |



HIPOTESIS 40

MOME Y MIN sobrecarga + fr. + fc (ipf-75)

E S F U E R Z O S E N B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 298.99 | -0.11 | 0.20 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -228.79 | 16.39 | 180.68 | 73.76 | 1258.90 |
| 2 | 8 | 0.00 | 228.79 | -16.39 | -180.68 | -73.76 | -1258.91 |
| 2 | 9 | 0.00 | -126.87 | 16.39 | 168.62 | 147.52 | 2059.15 |
| 3 | 9 | 0.00 | 126.87 | -16.39 | -168.62 | -147.52 | -2059.15 |
| 3 | 10 | 0.00 | -24.94 | 16.39 | 156.56 | 221.29 | 2400.73 |
| 4 | 10 | 0.00 | 24.94 | -16.39 | -156.56 | -221.29 | -2400.73 |
| 4 | 11 | 0.00 | 76.98 | 16.39 | 144.50 | 295.05 | 2283.65 |
| 5 | 11 | 0.00 | -76.98 | -16.39 | -144.50 | -295.05 | -2283.65 |
| 5 | 12 | 0.00 | 182.10 | 16.39 | 123.97 | 368.81 | 1705.41 |
| 6 | 12 | 0.00 | -182.10 | -16.39 | -123.97 | -368.81 | -1705.41 |
| 6 | 13 | 0.00 | 294.02 | 16.39 | 85.45 | 442.57 | 634.14 |
| 7 | 13 | 0.00 | -294.02 | -16.39 | -85.45 | -442.57 | -634.14 |
| 7 | 14 | 0.00 | 405.93 | 16.39 | 46.93 | 516.33 | -940.75 |
| 8 | 14 | 0.00 | -405.93 | -16.39 | -46.93 | -516.34 | 940.75 |
| 8 | 15 | 0.00 | 517.85 | 16.39 | 8.41 | 590.10 | -3019.25 |
| 9 | 15 | 0.00 | 339.21 | 6.00 | -591.46 | -590.10 | 3019.25 |
| 9 | 23 | 0.00 | -272.25 | -6.00 | 433.78 | 549.85 | -1643.47 |
| 10 | 23 | 0.00 | 272.25 | 6.00 | -433.78 | -549.85 | 1643.47 |
| 10 | 24 | 0.00 | -208.99 | -5.27 | 279.94 | 511.18 | -570.22 |
| 11 | 24 | 0.00 | 208.99 | 5.27 | -279.94 | -511.18 | 570.22 |
| 11 | 25 | 0.00 | -142.03 | -5.27 | 122.26 | 474.26 | 219.58 |
| 12 | 25 | 0.00 | 142.03 | 5.27 | -122.26 | -474.26 | -219.58 |
| 12 | 26 | 0.00 | -83.84 | -4.96 | -15.18 | 438.48 | 735.30 |
| 13 | 26 | 0.00 | 83.84 | 4.96 | 15.18 | -438.48 | -735.30 |
| 13 | 27 | 0.00 | 0.22 | 11.30 | -172.90 | 417.38 | -424.51 |
| 14 | 27 | 0.00 | -0.22 | -11.30 | 172.90 | -417.38 | 424.51 |
| 14 | 28 | 0.00 | 7.24 | 11.30 | -171.72 | 455.01 | -441.29 |
| 15 | 28 | 0.00 | -7.24 | -11.30 | 171.72 | -455.01 | 441.29 |
| 15 | 29 | 39.37 | 108.18 | 15.75 | 26.97 | 494.54 | 507.14 |
| 16 | 29 | -39.37 | -108.18 | -15.75 | -26.97 | -494.54 | -507.14 |
| 16 | 30 | 45.00 | 160.16 | 16.97 | 170.03 | 553.09 | -86.65 |
| 17 | 30 | -45.00 | -160.16 | -16.97 | -170.03 | -553.09 | 86.65 |
| 17 | 31 | 0.00 | 209.94 | 13.42 | 301.71 | 621.67 | -914.58 |
| 18 | 31 | 0.00 | -209.94 | -13.42 | -301.71 | -621.67 | 914.58 |
| 18 | 32 | -56.25 | 259.72 | 13.42 | 422.04 | 695.27 | -1976.64 |
| 19 | 32 | 0.00 | 260.80 | 30.33 | 724.92 | -695.27 | 1976.25 |
| 19 | 40 | -61.87 | -211.07 | -30.33 | -604.59 | 572.01 | -919.86 |
| 20 | 40 | 0.00 | 208.83 | 30.33 | 604.59 | -572.01 | 919.57 |
| 20 | 41 | 0.00 | -354.33 | -20.42 | -96.84 | 473.70 | -296.70 |
| 21 | 41 | 0.00 | 354.33 | 20.42 | 96.84 | -473.70 | 296.70 |
| 21 | 42 | 0.00 | -160.17 | -13.90 | 112.56 | 421.55 | -124.97 |
| 22 | 42 | 0.00 | 160.17 | 13.90 | -112.56 | -421.56 | 124.97 |
| 22 | 43 | 0.00 | -99.98 | -13.90 | -27.19 | 372.23 | 455.12 |
| 23 | 43 | 0.00 | 99.98 | 13.90 | 27.19 | -372.23 | -455.12 |
| 23 | 44 | 0.00 | -34.05 | -6.09 | -114.27 | 325.71 | 3307.74 |
| 24 | 44 | 0.00 | 34.04 | 6.09 | 114.27 | -325.72 | -3307.74 |
| 24 | 45 | 0.00 | 141.44 | 9.69 | 45.14 | 324.91 | 2850.86 |
| 25 | 45 | 0.00 | -141.44 | -9.69 | -45.14 | -324.91 | -2850.85 |
| 25 | 46 | 0.00 | 139.80 | 25.62 | -127.64 | 418.89 | 529.08 |
| 26 | 46 | 0.00 | -139.80 | -25.62 | 127.64 | -418.89 | -529.08 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 | 47 | 0.00 | 201.76 | 25.62 | -298.55 | 547.41 | -239.42 | 59 | 106 | 0.00 | 563.24 | 9.29 | -44.26 | -585.28 | 3587.12 |
| 27 | 47 | 0.00 | -201.76 | -25.62 | 298.55 | -547.41 | 239.42 | 59 | 115 | 0.00 | -451.33 | -7.77 | 15.21 | 532.23 | -1304.35 |
| 27 | 48 | 0.00 | 263.73 | 25.62 | -469.46 | 675.94 | -1286.78 | 60 | 115 | 0.00 | 451.33 | 7.78 | -15.21 | -532.23 | 1304.35 |
| 28 | 48 | 0.00 | -263.73 | -25.62 | 469.46 | -675.94 | 1286.78 | 60 | 116 | 0.00 | -212.18 | -4.95 | 362.26 | 491.08 | -820.20 |
| 28 | 49 | 0.00 | 325.69 | 25.62 | -640.37 | 804.46 | -2612.97 | 61 | 116 | 0.00 | 212.18 | 4.95 | -362.26 | -491.08 | 820.20 |
| 29 | 49 | 0.00 | 327.74 | 8.47 | -712.35 | -804.45 | 2612.97 | 61 | 117 | -298.13 | -165.86 | -6.90 | 257.73 | 456.63 | 163.02 |
| 29 | 59 | 0.00 | -265.78 | -6.56 | 563.94 | 781.57 | -1277.54 | 62 | 117 | 298.13 | 165.86 | 6.90 | -257.73 | -456.63 | -163.02 |
| 30 | 59 | 0.00 | 265.78 | 6.56 | -563.94 | -781.57 | 1277.54 | 62 | 118 | -303.75 | -98.90 | -6.90 | 100.05 | 425.58 | 748.75 |
| 30 | 60 | 0.00 | -203.81 | -6.56 | 393.03 | 765.27 | -220.95 | 63 | 118 | 303.75 | 98.90 | 6.90 | -100.05 | -425.58 | -748.75 |
| 31 | 60 | 0.00 | 203.81 | 6.56 | -393.03 | -765.27 | 220.95 | 63 | 119 | -309.37 | 18.40 | 8.89 | 115.02 | 435.04 | 1269.96 |
| 31 | 61 | 0.00 | -141.85 | -6.56 | 222.12 | 748.97 | 556.79 | 64 | 119 | 309.37 | -18.40 | -8.89 | -115.02 | -435.04 | -1269.96 |
| 32 | 61 | 0.00 | 141.85 | 6.56 | -222.12 | -748.97 | -556.79 | 64 | 120 | -315.00 | 77.27 | 11.03 | 15.91 | 480.77 | 816.11 |
| 32 | 62 | 135.00 | -49.48 | 2.70 | 205.80 | 754.69 | 866.80 | 65 | 120 | 315.00 | -77.27 | -11.03 | -15.91 | -480.77 | -816.11 |
| 33 | 62 | -135.00 | 49.48 | -2.70 | -205.81 | -754.69 | -866.80 | 65 | 121 | -320.62 | 137.44 | 11.03 | -123.78 | 530.40 | 327.72 |
| 33 | 63 | 140.63 | 2.50 | 2.70 | 61.36 | 780.06 | 982.50 | 66 | 121 | 320.62 | -137.44 | -11.03 | 123.78 | -530.40 | -327.72 |
| 34 | 63 | -140.63 | -2.50 | -2.70 | -61.36 | -780.06 | -982.50 | 66 | 122 | -326.25 | 204.40 | 11.03 | -281.46 | 580.03 | -451.41 |
| 34 | 64 | 146.25 | 54.47 | 2.70 | -83.09 | 805.43 | 864.30 | 67 | 122 | 326.25 | -204.40 | -11.03 | 281.46 | -580.03 | 451.41 |
| 35 | 64 | -146.25 | -54.47 | -2.70 | 83.09 | -805.43 | -864.31 | 67 | 123 | -331.87 | 251.51 | 17.75 | -651.88 | 647.01 | -893.86 |
| 35 | 65 | 151.88 | 106.45 | 2.70 | -227.54 | 830.79 | 512.23 | 68 | 123 | 331.87 | -251.51 | -17.75 | 651.88 | -647.01 | 893.86 |
| 36 | 65 | -151.88 | -106.45 | -2.70 | 227.54 | -830.79 | -512.23 | 68 | 124 | -337.50 | 313.47 | 17.75 | -822.79 | 726.88 | -2175.05 |
| 36 | 66 | 157.50 | 158.42 | 2.70 | -371.99 | 856.16 | -73.74 | 69 | 124 | 337.50 | 278.66 | 20.19 | -328.32 | -726.88 | 2175.05 |
| 37 | 66 | -157.50 | -158.42 | -2.70 | 372.00 | -856.16 | 73.74 | 69 | 133 | -343.12 | -216.69 | -20.19 | 157.41 | 636.02 | -1070.51 |
| 37 | 67 | 0.00 | 266.01 | 9.08 | -480.06 | 901.27 | -1293.68 | 70 | 133 | 343.12 | 216.69 | 20.19 | -157.41 | -636.02 | 1070.51 |
| 38 | 67 | 0.00 | -266.01 | -9.08 | 480.06 | -901.26 | 1293.68 | 70 | 134 | -348.75 | -154.73 | -20.19 | -13.50 | 545.16 | -244.82 |
| 38 | 68 | 0.00 | 327.97 | 9.08 | -650.97 | 955.38 | -2630.13 | 71 | 134 | 348.75 | 154.72 | 20.19 | 13.50 | -545.16 | 244.82 |
| 39 | 68 | 0.00 | 327.93 | 16.80 | -683.75 | -955.37 | 2630.14 | 71 | 135 | -354.37 | -92.76 | -20.19 | -184.41 | 454.30 | 302.03 |
| 39 | 78 | 0.00 | -265.97 | -16.80 | 512.84 | 893.02 | -1293.87 | 72 | 135 | 354.37 | 92.76 | 20.19 | 184.41 | -454.30 | -302.03 |
| 40 | 78 | 0.00 | 265.97 | 16.80 | -512.84 | -893.02 | 1293.87 | 72 | 136 | -360.00 | -37.57 | -20.19 | -337.39 | 363.44 | 580.03 |
| 40 | 79 | 180.00 | -153.66 | -11.55 | 414.12 | 834.35 | -76.68 | 73 | 136 | 360.00 | 37.57 | 20.19 | 337.39 | -363.44 | -580.03 |
| 41 | 79 | -180.00 | 153.66 | 11.55 | -414.12 | -834.35 | 76.68 | 73 | 137 | -365.62 | 14.41 | -20.19 | -481.84 | 272.58 | 622.15 |
| 41 | 80 | 185.63 | -101.68 | -11.55 | 269.67 | 795.58 | 507.82 | 74 | 137 | 365.62 | -14.41 | 20.19 | 481.84 | -272.58 | -622.15 |
| 42 | 80 | -185.63 | 101.68 | 11.56 | -269.67 | -795.58 | -507.82 | 74 | 138 | -371.25 | 66.38 | -20.19 | -626.29 | 181.72 | 430.37 |
| 42 | 81 | 191.25 | -49.71 | -10.89 | 132.49 | 759.32 | 858.44 | 75 | 138 | 371.25 | -66.38 | 20.19 | 626.29 | -181.72 | -430.37 |
| 43 | 81 | -191.25 | 49.71 | 10.89 | -132.49 | -759.32 | -858.44 | 75 | 139 | -376.87 | 118.36 | -20.19 | -770.74 | 90.86 | 4.71 |
| 43 | 82 | 0.00 | -0.20 | -10.89 | -11.96 | 723.54 | 978.58 | 76 | 139 | 376.87 | -118.36 | 20.19 | 770.74 | -90.86 | -4.71 |
| 44 | 82 | -196.88 | -2.27 | 10.89 | 11.96 | -723.55 | -975.16 | 76 | 140 | 382.50 | 129.64 | -12.39 | -872.39 | 0.00 | 654.84 |
| 44 | 83 | 0.00 | 86.84 | -0.68 | -43.65 | 689.32 | 1062.58 | 77 | 16 | 518.08 | 0.00 | -12.06 | 0.00 | -1057.02 | 0.00 |
| 45 | 83 | 0.00 | -86.84 | 0.68 | 43.65 | -689.32 | -1062.58 | 77 | 17 | -518.08 | 0.00 | 12.64 | 0.00 | 1121.54 | 0.00 |
| 45 | 84 | 0.00 | 142.01 | -0.68 | -196.57 | 699.47 | 552.35 | 78 | 17 | 518.08 | 0.00 | -12.64 | 0.00 | -1121.54 | 0.00 |
| 46 | 84 | 0.00 | -142.01 | 0.68 | 196.57 | -699.47 | -552.35 | 78 | 18 | -520.25 | 0.00 | 13.09 | 0.00 | 1186.21 | 0.00 |
| 46 | 85 | 0.00 | 203.98 | -0.68 | -367.48 | 709.63 | -226.14 | 79 | 33 | 522.77 | 0.00 | 43.32 | 0.00 | -1964.28 | 0.00 |
| 47 | 85 | 0.00 | -203.98 | 0.68 | 367.48 | -709.63 | 226.14 | 79 | 34 | -522.77 | 0.00 | -43.32 | 0.00 | 1635.91 | 0.00 |
| 47 | 86 | 0.00 | 265.94 | 1.34 | -517.14 | 720.89 | -1283.46 | 80 | 34 | 522.77 | 0.00 | 43.32 | 0.00 | -1635.91 | 0.00 |
| 48 | 86 | 0.00 | -265.94 | -1.34 | 517.14 | -720.89 | 1283.46 | 80 | 35 | -522.72 | 0.00 | -43.29 | 0.00 | 1419.38 | 0.00 |
| 48 | 87 | 0.00 | 327.91 | 1.34 | -688.05 | 740.17 | -2619.63 | 81 | 50 | 518.49 | 0.00 | -22.20 | 0.00 | -720.95 | 0.00 |
| 49 | 87 | 0.00 | 325.94 | 24.72 | -638.43 | -740.18 | 2619.63 | 81 | 51 | -518.49 | 0.00 | 22.20 | 0.00 | 809.74 | 0.00 |
| 49 | 97 | 0.00 | -263.98 | -23.59 | 487.54 | 644.58 | -1292.30 | 82 | 51 | 518.49 | 0.00 | -22.20 | 0.00 | -809.74 | 0.00 |
| 50 | 97 | 0.00 | 263.98 | 23.59 | -487.54 | -644.58 | 1292.30 | 82 | 52 | -518.49 | 0.00 | 22.21 | 0.00 | 1031.81 | 0.00 |
| 50 | 98 | 0.00 | -202.01 | -23.59 | 316.63 | 551.67 | -243.81 | 83 | 52 | 518.49 | 0.00 | -22.21 | 0.00 | -1031.81 | 0.00 |
| 51 | 98 | 0.00 | 202.01 | 23.59 | -316.63 | -551.67 | 243.81 | 83 | 53 | -518.49 | 0.00 | 22.21 | 0.00 | 1253.94 | 0.00 |
| 51 | 99 | -241.87 | -141.26 | -20.64 | 145.72 | 458.78 | 521.28 | 84 | 53 | 518.49 | 0.00 | -22.21 | 0.00 | -1253.94 | 0.00 |
| 52 | 99 | 241.87 | 141.26 | 20.64 | -145.72 | -458.78 | -521.28 | 84 | 54 | -518.49 | 0.00 | 22.21 | 0.00 | 1365.00 | 0.00 |
| 52 | 100 | -247.50 | -93.82 | -19.72 | 29.02 | 368.95 | 1234.23 | 85 | 69 | 520.04 | 0.00 | -14.31 | 0.00 | -881.70 | 0.00 |
| 53 | 100 | 247.50 | 93.82 | 19.72 | -29.02 | -368.95 | -1234.23 | 85 | 70 | -519.97 | 0.00 | 14.32 | 0.00 | 981.94 | 0.00 |
| 53 | 101 | 0.00 | 33.66 | 8.10 | 123.72 | 333.24 | 3306.67 | 86 | 70 | 519.97 | 0.00 | -14.32 | 0.00 | -981.94 | 0.00 |
| 54 | 101 | 0.00 | -33.66 | -8.10 | -123.72 | -333.24 | -3306.67 | 86 | 71 | -520.28 | 0.00 | 14.34 | 0.00 | 1125.16 | 0.00 |
| 54 | 102 | 0.00 | 99.65 | 14.58 | 37.25 | 371.70 | 455.41 | 87 | 71 | 520.28 | 0.00 | -14.34 | 0.00 | -1125.16 | 0.00 |
| 55 | 102 | 0.00 | -99.65 | -14.58 | -37.25 | -371.70 | -455.41 | 87 | 72 | -520.28 | 0.00 | 14.34 | 0.00 | 1268.56 | 0.00 |
| 55 | 103 | 0.00 | 159.82 | 14.58 | -102.43 | 424.06 | -123.70 | 88 | 72 | 520.28 | 0.00 | -14.34 | 0.00 | -1268.56 | 0.00 |
| 56 | 103 | 0.00 | -159.82 | -14.58 | 102.43 | -424.06 | 123.70 | 88 | 73 | -520.28 | 0.00 | 14.34 | 0.00 | 1340.26 | 0.00 |
| 56 | 104 | 0.00 | 224.82 | 14.94 | -257.83 | 476.88 | -993.55 | 89 | 88 | 520.07 | 0.00 | -7.62 | 0.00 | -1164.41 | 0.00 |
| 57 | 104 | 0.00 | -224.82 | -14.94 | 257.83 | -476.88 | 993.55 | 89 | 89 | -520.07 | 0.00 | 7.62 | 0.00 | 1172.03 | 0.00 |
| 57 | 105 | 0.00 | 291.78 | 14.94 | -415.51 | 530.89 | -2155.91 | 90 | 89 | 520.07 | 0.00 | -7.62 | 0.00 | -1172.03 | 0.00 |
| 58 | 105 | 0.00 | -291.78 | -14.94 | 415.51 | -530.89 | 2155.91 | 90 | 90 | -520.07 | 0.00 | 7.62 | 0.00 | 1248.22 | 0.00 |
| 58 | 106 | 0.00 | 355.12 | 15.51 | -569.27 | 585.28 | -3587.12 | 91 | 90 | 520.07 | 0.00 | -7.62 | 0.00 | -1248.22 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 91 | 91 | -520.07 | 0.00 | 7.64 | 0.00 | 1324.51 | 0.00 |
| 92 | 91 | 520.07 | 0.00 | -7.64 | 0.00 | -1324.50 | 0.00 |
| 92 | 92 | -518.81 | 0.00 | 7.65 | 0.00 | 1362.74 | 0.00 |
| 93 | 107 | 517.55 | 0.00 | 29.16 | 0.00 | -1820.05 | 0.00 |
| 93 | 108 | -517.55 | 0.00 | -29.16 | 0.00 | 1790.89 | 0.00 |
| 94 | 108 | 517.55 | 0.00 | 29.16 | 0.00 | -1790.89 | 0.00 |
| 94 | 109 | -517.55 | 0.00 | -29.16 | 0.00 | 1499.29 | 0.00 |
| 95 | 109 | 517.55 | 0.00 | 29.16 | 0.00 | -1499.29 | 0.00 |
| 95 | 110 | -527.67 | 0.00 | -29.11 | 0.00 | 1353.57 | 0.00 |
| 96 | 125 | 491.55 | 0.00 | -23.06 | 0.00 | -737.46 | 0.00 |
| 96 | 126 | -491.55 | 0.00 | 23.06 | 0.00 | 760.52 | 0.00 |
| 97 | 126 | 491.55 | 0.00 | -23.06 | 0.00 | -760.52 | 0.00 |
| 97 | 127 | -517.83 | 0.00 | 23.24 | 0.00 | 991.67 | 0.00 |
| 98 | 127 | 517.83 | 0.00 | -23.24 | 0.00 | -991.67 | 0.00 |
| 98 | 128 | -618.45 | 0.00 | 36.20 | 0.00 | 1113.45 | 0.00 |
| 99 | 2 | 149.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -149.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 149.49 | 0.00 | -0.11 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -191.34 | 0.00 | 16.39 | 0.00 | 28.06 | 0.00 |
| 101 | 19 | 497.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -497.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 497.92 | 0.00 | 0.19 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -326.83 | 0.00 | 36.51 | 0.00 | 62.50 | 0.00 |
| 103 | 36 | 502.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -502.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 502.33 | 0.00 | -0.07 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -618.51 | 0.00 | 44.02 | 0.00 | 75.36 | 0.00 |
| 105 | 55 | 498.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -587.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 498.28 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | 20.85 | 0.00 | 34.67 | 0.00 | 59.36 | 0.00 |
| 107 | 74 | 500.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -582.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 500.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | 14.20 | 0.00 | 27.64 | 0.00 | 47.31 | 0.00 |
| 109 | 93 | 498.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -587.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 498.59 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -296.67 | 0.00 | 27.51 | 0.00 | 47.09 | 0.00 |
| 111 | 111 | 502.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -583.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 502.22 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -577.72 | 0.00 | 30.29 | 0.00 | 51.86 | 0.00 |
| 113 | 129 | 497.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -497.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 497.72 | 0.00 | 0.12 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -27.37 | 0.00 | 38.42 | 0.00 | 65.78 | 0.00 |
| 115 | 141 | 149.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -149.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 149.64 | 0.00 | -0.07 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -187.47 | 0.00 | 23.10 | 0.00 | 39.55 | 0.00 |
| 117 | 6 | 170.67 | 0.00 | 10.28 | 0.00 | -948.41 | 0.00 |
| 117 | 7 | -170.67 | 0.00 | -10.28 | 0.00 | 938.13 | 0.00 |
| 118 | 145 | 170.95 | 0.00 | 21.03 | 0.00 | -1032.48 | 0.00 |
| 118 | 146 | -170.95 | 0.00 | -20.64 | 0.00 | 1011.74 | 0.00 |
| 119 | 3 | 0.00 | 149.48 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -149.52 | 0.00 | 0.00 | 0.00 | 635.46 |
| 120 | 1 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.05 |
| 120 | 5 | -0.11 | 149.52 | 0.00 | 0.00 | 0.00 | -0.18 |
| 121 | 20 | 0.00 | 318.47 | 0.00 | 0.00 | -0.02 | 0.00 |
| 121 | 15 | 0.00 | -315.87 | 0.01 | 0.00 | 0.02 | 584.37 |
| 122 | 15 | 0.22 | -342.84 | 0.00 | 0.00 | -0.02 | -633.87 |
| 122 | 22 | -2.22 | 258.73 | -0.01 | 0.00 | 0.01 | -3.80 |
| 123 | 37 | 0.00 | 282.76 | 0.01 | 0.00 | -0.01 | 0.00 |
| 123 | 32 | 0.00 | -502.45 | 0.00 | 0.00 | 0.02 | 929.53 |
| 124 | 32 | 10.83 | -271.08 | 0.00 | 0.00 | -0.02 | -482.95 |
| 124 | 39 | 3.26 | 256.42 | 0.00 | 0.00 | 0.02 | 5.58 |
| 125 | 56 | 0.00 | 276.51 | -0.01 | 0.00 | -0.02 | 0.00 |
| 125 | 49 | -0.01 | -285.32 | -0.01 | 0.00 | 0.01 | 527.85 |
| 126 | 49 | -19.53 | -589.96 | 0.00 | 0.00 | -0.01 | -1124.86 |
| 126 | 58 | -2.75 | 284.59 | 0.00 | 0.00 | 0.02 | -4.70 |
| 127 | 75 | 0.00 | 499.71 | 0.00 | 0.00 | -0.02 | 0.00 |
| 127 | 68 | 0.00 | -269.93 | 0.00 | 0.00 | 0.01 | 499.38 |
| 128 | 68 | -0.63 | -269.04 | 0.00 | 0.00 | -0.02 | -498.78 |
| 128 | 77 | -0.88 | 274.14 | 0.00 | 0.00 | 0.02 | -1.52 |
| 129 | 94 | 0.00 | 499.79 | 0.00 | 0.00 | -0.02 | 0.00 |
| 129 | 87 | -0.01 | -270.84 | 0.01 | 0.00 | 0.01 | 501.04 |
| 130 | 87 | 1.80 | -272.43 | 0.00 | 0.00 | -0.01 | -500.95 |
| 130 | 96 | 19.25 | 588.36 | 0.00 | 0.00 | 0.01 | 32.97 |
| 131 | 112 | 0.00 | 271.23 | 0.00 | 0.00 | -0.01 | 0.00 |
| 131 | 106 | 0.00 | -323.90 | 0.00 | 0.00 | 0.01 | 599.23 |
| 132 | 106 | 0.01 | -497.44 | 0.00 | 0.00 | -0.02 | -920.25 |
| 132 | 114 | -12.52 | 290.77 | -0.01 | 0.00 | 0.02 | -21.44 |
| 133 | 130 | 0.00 | 236.67 | 0.00 | 0.00 | -0.01 | 0.00 |
| 133 | 124 | 0.00 | -522.59 | -0.02 | 0.00 | 0.01 | 966.79 |
| 134 | 124 | -0.22 | -230.77 | 0.01 | 0.00 | -0.01 | -427.32 |
| 134 | 132 | 0.06 | 522.65 | -0.01 | 0.00 | 0.02 | 0.10 |
| 135 | 142 | 0.00 | 8.16 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -130.65 | 363.38 | -622.10 | 1544.34 | 555.25 |
| 136 | 140 | 0.04 | -130.63 | 363.37 | -622.10 | -1544.34 | -555.13 |
| 136 | 144 | 6.03 | 8.87 | 0.00 | 0.00 | 0.00 | 10.32 |
| 137 | 2 | 0.00 | -149.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 149.50 | 0.00 | 0.00 | 0.00 | -635.37 |
| 138 | 7 | -0.11 | 149.49 | 0.00 | 0.00 | 0.00 | 635.35 |
| 138 | 4 | 0.11 | -149.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -497.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 497.85 | 0.00 | 0.00 | 0.00 | -921.03 |
| 140 | 18 | 0.19 | 497.92 | 0.00 | 0.00 | 0.00 | 921.15 |
| 140 | 21 | -0.19 | -497.92 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -502.40 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 502.40 | 0.00 | 0.00 | 0.00 | -929.45 |
| 142 | 35 | -0.07 | 502.33 | 0.00 | 0.00 | 0.00 | 929.31 |
| 142 | 38 | 0.07 | -502.33 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -498.27 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | 498.27 | 0.00 | 0.00 | 0.00 | -921.80 |
| 144 | 54 | -0.01 | 498.28 | 0.00 | 0.00 | 0.00 | 921.82 |
| 144 | 57 | 0.01 | -498.28 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | -500.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 500.01 | 0.00 | 0.00 | 0.00 | -925.03 |
| 146 | 73 | 0.00 | 500.02 | 0.00 | 0.00 | 0.00 | 925.04 |
| 146 | 76 | 0.00 | -500.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | -498.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | 498.59 | 0.00 | 0.00 | 0.00 | -922.39 |
| 148 | 92 | -0.01 | 498.59 | 0.00 | 0.00 | 0.00 | 922.39 |
| 148 | 95 | 0.01 | -498.59 | 0.00 | 0.00 | 0.00 | -0.01 |
| 149 | 111 | 0.00 | -502.29 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 502.29 | 0.00 | 0.00 | 0.00 | -929.25 |
| 150 | 110 | -0.03 | 502.21 | 0.00 | 0.00 | 0.00 | 929.10 |
| 150 | 113 | 0.03 | -502.21 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -497.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 497.58 | 0.00 | 0.00 | 0.00 | -920.51 |
| 152 | 128 | 0.12 | 497.72 | 0.00 | 0.00 | 0.00 | 920.78 |
| 152 | 131 | -0.12 | -497.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -149.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 168.70 | 363.37 | 0.00 | 1544.34 | -716.97 |
| 154 | 146 | -0.11 | 168.66 | 363.38 | 0.00 | -1544.34 | 716.79 |
| 154 | 143 | 0.07 | -149.64 | 0.00 | 0.00 | 0.00 | 0.00 |

HIPOTESIS 41

MOME Z MAX sobrecarga + fr. + fc (ipf-75)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 421.52 | -0.31 | 0.58 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | 59.67 | -0.20 | 0.37 | -0.89 | -246.05 |
| 2 | 8 | 0.00 | -59.67 | 0.20 | -0.37 | 0.89 | 246.05 |
| 2 | 9 | 0.00 | 69.66 | -0.20 | 0.37 | -1.79 | -537.06 |
| 3 | 9 | 0.00 | -69.66 | 0.20 | -0.37 | 1.79 | 537.06 |
| 3 | 10 | 0.00 | 79.65 | -0.20 | 0.37 | -2.68 | -873.02 |
| 4 | 10 | 0.00 | -79.65 | 0.20 | -0.37 | 2.68 | 873.02 |
| 4 | 11 | 0.00 | 89.64 | -0.20 | 0.37 | -3.57 | -1253.94 |
| 5 | 11 | 0.00 | -89.64 | 0.20 | -0.37 | 3.57 | 1253.94 |
| 5 | 12 | 0.00 | 99.63 | -0.20 | 0.37 | -4.46 | -1679.82 |
| 6 | 12 | 0.00 | -99.63 | 0.20 | -0.37 | 4.46 | 1679.82 |
| 6 | 13 | 0.00 | 109.62 | -0.20 | 0.37 | -5.36 | -2150.64 |
| 7 | 13 | 0.00 | -109.62 | 0.20 | -0.37 | 5.36 | 2150.64 |
| 7 | 14 | 0.00 | 119.61 | -0.20 | 0.37 | -6.25 | -2666.43 |
| 8 | 14 | 0.00 | -119.61 | 0.20 | -0.37 | 6.25 | 2666.43 |
| 8 | 15 | 0.00 | 548.68 | -0.04 | 0.12 | -1.43 | -4783.68 |
| 9 | 15 | 0.00 | 670.53 | -0.09 | 0.24 | 1.42 | 4783.68 |
| 9 | 23 | 5.62 | -484.45 | 0.06 | -0.15 | 0.69 | -2274.49 |
| 10 | 23 | -5.62 | 484.45 | -0.06 | 0.15 | -0.69 | 2274.49 |
| 10 | 24 | 11.25 | -17.27 | -0.23 | 0.68 | 9.40 | -1409.85 |
| 11 | 24 | -11.25 | 17.27 | 0.23 | -0.68 | -9.40 | 1409.85 |
| 11 | 25 | 16.87 | -3.73 | -0.24 | 0.70 | 8.45 | -1359.56 |
| 12 | 25 | -16.87 | 3.73 | 0.24 | -0.70 | -8.45 | 1359.55 |
| 12 | 26 | 22.50 | 6.26 | -0.24 | 0.70 | 7.39 | -1355.25 |
| 13 | 26 | -22.50 | -6.26 | 0.24 | -0.70 | -7.39 | 1355.25 |
| 13 | 27 | 28.12 | 36.43 | -0.25 | 0.73 | 5.66 | -1423.89 |
| 14 | 27 | -28.12 | -36.43 | 0.25 | -0.73 | -5.66 | 1423.89 |
| 14 | 28 | 33.75 | 46.42 | -0.25 | 0.73 | 4.54 | -1600.30 |
| 15 | 28 | -33.75 | -46.42 | 0.25 | -0.73 | -4.54 | 1600.30 |
| 15 | 29 | -39.37 | 52.02 | -0.25 | 0.73 | 3.40 | -1821.71 |
| 16 | 29 | 39.37 | -52.02 | 0.25 | -0.73 | -3.40 | 1821.71 |
| 16 | 30 | -45.00 | 62.01 | -0.25 | 0.73 | 2.28 | -2088.27 |
| 17 | 30 | 45.00 | -62.01 | 0.25 | -0.73 | -2.28 | 2088.27 |
| 17 | 31 | -50.62 | 488.16 | -0.09 | 0.24 | -4.69 | -2861.12 |
| 18 | 31 | 50.62 | -488.16 | 0.09 | -0.24 | 4.69 | 2861.12 |
| 18 | 32 | -56.25 | 592.11 | -0.09 | 0.24 | -5.12 | -5301.70 |
| 19 | 32 | 56.25 | 689.71 | -0.12 | 0.57 | 5.12 | 5301.70 |
| 19 | 40 | -61.87 | -505.74 | 0.12 | -0.58 | -4.50 | -2794.67 |
| 20 | 40 | 61.87 | 505.74 | -0.12 | 0.58 | 4.50 | 2794.67 |
| 20 | 41 | -67.50 | -39.15 | 0.01 | 0.07 | -0.37 | -1951.28 |
| 21 | 41 | 67.50 | 39.15 | -0.01 | -0.07 | 0.37 | 1951.28 |
| 21 | 42 | -73.13 | -29.00 | 0.01 | 0.07 | -0.31 | -1808.30 |
| 22 | 42 | 73.13 | 29.00 | -0.01 | -0.07 | 0.32 | 1808.30 |
| 22 | 43 | 78.75 | -14.52 | 0.01 | 0.07 | -0.26 | -1710.30 |
| 23 | 43 | -78.75 | 14.52 | -0.01 | -0.07 | 0.26 | 1710.30 |
| 23 | 44 | 84.38 | 17.38 | -0.01 | 0.16 | -0.07 | -1659.23 |
| 24 | 44 | -84.38 | -17.38 | 0.01 | -0.16 | 0.07 | 1659.23 |
| 24 | 45 | 90.00 | 27.37 | -0.01 | 0.16 | -0.10 | -1749.91 |
| 25 | 45 | -90.00 | -27.37 | 0.01 | -0.16 | 0.11 | 1749.91 |
| 25 | 46 | 95.63 | 37.36 | -0.01 | 0.16 | -0.14 | -1885.54 |
| 26 | 46 | -95.63 | -37.36 | 0.01 | -0.16 | 0.14 | 1885.54 |
| 26 | 47 | 101.25 | 47.58 | -0.06 | 1.95 | 2.65 | -2066.13 |
| 27 | 47 | -101.25 | -47.58 | 0.06 | -1.95 | -2.65 | 2066.13 |
| 27 | 48 | 106.88 | 502.41 | -0.10 | 0.42 | -1.63 | -2861.70 |
| 28 | 48 | -106.88 | -502.41 | 0.10 | -0.42 | 1.63 | 2861.70 |
| 28 | 49 | 112.50 | 606.36 | -0.10 | 0.42 | -2.06 | -5346.42 |
| 29 | 49 | -112.50 | 685.93 | -0.04 | 0.50 | 2.06 | 5346.42 |
| 29 | 59 | 118.12 | -502.06 | 0.05 | -0.53 | -1.87 | -2840.08 |
| 30 | 59 | -118.12 | 502.06 | -0.05 | 0.53 | 1.87 | 2840.08 |
| 30 | 60 | 123.75 | -37.33 | 0.00 | -0.11 | -0.13 | -2023.91 |
| 31 | 60 | -123.75 | 37.33 | 0.00 | 0.11 | 0.12 | 2023.91 |
| 31 | 61 | -129.37 | -31.65 | 0.00 | -0.11 | -0.12 | -1868.90 |
| 32 | 61 | 129.37 | 31.65 | 0.00 | 0.11 | 0.12 | 1868.90 |
| 32 | 62 | -135.00 | -21.66 | 0.00 | -0.11 | -0.10 | -1758.92 |
| 33 | 62 | 135.00 | 21.66 | 0.00 | 0.11 | 0.10 | 1758.92 |
| 33 | 63 | -140.62 | 10.12 | -0.01 | -0.02 | -0.07 | -1694.57 |
| 34 | 63 | 140.62 | -10.12 | 0.01 | 0.02 | 0.07 | 1694.57 |
| 34 | 64 | -146.25 | 20.11 | -0.01 | -0.02 | -0.11 | -1772.58 |
| 35 | 64 | 146.25 | -20.11 | 0.01 | 0.02 | 0.11 | 1772.58 |
| 35 | 65 | -151.87 | 30.10 | -0.01 | -0.02 | -0.15 | -1895.54 |
| 36 | 65 | 151.87 | -30.10 | 0.01 | 0.02 | 0.15 | 1895.54 |
| 36 | 66 | -157.50 | 40.09 | -0.01 | -0.02 | -0.20 | -2063.46 |
| 37 | 66 | 157.50 | -40.09 | 0.01 | 0.02 | 0.20 | 2063.46 |
| 37 | 67 | -163.12 | 502.59 | -0.05 | 0.47 | -1.40 | -2875.75 |
| 38 | 67 | 163.12 | -502.59 | 0.05 | -0.47 | 1.40 | 2875.75 |
| 38 | 68 | -168.75 | 686.31 | -0.05 | 0.43 | -1.63 | -5381.34 |
| 39 | 68 | 168.75 | 611.04 | -0.05 | 0.47 | 1.63 | 5381.33 |
| 39 | 78 | -174.37 | -507.09 | 0.05 | -0.47 | -1.41 | -2875.52 |
| 40 | 78 | 174.37 | 507.09 | -0.05 | 0.47 | 1.41 | 2875.52 |
| 40 | 79 | 180.00 | -39.63 | 0.01 | 0.00 | -0.05 | -2063.55 |
| 41 | 79 | -180.00 | 39.63 | -0.01 | 0.00 | 0.05 | 2063.55 |
| 41 | 80 | 185.63 | -29.64 | 0.01 | 0.00 | 0.01 | -1897.70 |
| 42 | 80 | -185.63 | 29.64 | -0.01 | 0.00 | -0.01 | 1897.70 |
| 42 | 81 | 191.25 | -19.65 | 0.01 | 0.00 | 0.07 | -1776.81 |
| 43 | 81 | -191.25 | 19.65 | -0.01 | 0.00 | -0.07 | 1776.81 |
| 43 | 82 | 196.88 | -9.66 | 0.01 | 0.00 | 0.14 | -1700.87 |
| 44 | 82 | -196.88 | 9.66 | -0.01 | 0.00 | -0.14 | 1700.87 |
| 44 | 83 | 202.50 | 22.18 | 0.00 | 0.09 | 0.12 | -1767.68 |
| 45 | 83 | -202.50 | -22.18 | 0.00 | -0.09 | -0.12 | 1767.67 |
| 45 | 84 | 208.12 | 32.17 | 0.00 | 0.09 | 0.12 | -1879.98 |
| 46 | 84 | -208.12 | -32.17 | 0.00 | -0.09 | -0.12 | 1879.99 |
| 46 | 85 | 213.75 | 42.16 | 0.00 | 0.09 | 0.12 | -2037.25 |
| 47 | 85 | -213.75 | -42.16 | 0.00 | -0.09 | -0.12 | 2037.25 |
| 47 | 86 | 219.37 | 507.08 | -0.05 | 0.53 | -1.94 | -2859.64 |
| 48 | 86 | -219.37 | -507.08 | 0.05 | -0.53 | 1.94 | 2859.64 |
| 48 | 87 | 225.00 | 690.89 | -0.05 | 0.51 | -2.16 | -5367.52 |
| 49 | 87 | -225.00 | 603.33 | -0.12 | 0.57 | 2.16 | 5367.52 |
| 49 | 97 | 230.62 | -499.38 | 0.12 | -0.57 | -1.64 | -2876.43 |
| 50 | 97 | -230.62 | 499.38 | -0.12 | 0.57 | 1.64 | 2876.43 |
| 50 | 98 | -236.25 | -46.50 | 0.00 | -0.07 | -0.45 | -2071.07 |
| 51 | 98 | 236.25 | 46.50 | 0.00 | 0.07 | 0.45 | 2071.07 |
| 51 | 99 | -241.87 | -36.51 | 0.00 | -0.07 | -0.45 | -1894.26 |
| 52 | 99 | 241.87 | 36.51 | 0.00 | 0.07 | 0.45 | 1894.27 |
| 52 | 100 | -247.50 | -26.52 | 0.00 | -0.07 | -0.45 | -1762.42 |
| 53 | 100 | 247.50 | 26.53 | 0.00 | 0.07 | 0.46 | 1762.42 |
| 53 | 101 | -253.12 | -16.54 | 0.00 | -0.07 | -0.45 | -1675.52 |
| 54 | 101 | 253.12 | 16.53 | 0.00 | 0.07 | 0.46 | 1675.52 |
| 54 | 102 | -258.75 | 15.38 | -0.02 | 0.04 | -0.69 | -1730.34 |
| 55 | 102 | 258.75 | -15.38 | 0.02 | -0.04 | 0.69 | 1730.34 |
| 55 | 103 | -264.37 | 25.37 | -0.02 | 0.04 | -0.78 | -1832.04 |
| 56 | 103 | 264.37 | -25.37 | 0.02 | -0.04 | 0.78 | 1832.04 |
| 56 | 104 | -270.00 | 35.53 | -0.02 | 0.04 | -0.89 | -1978.69 |
| 57 | 104 | 270.00 | -35.53 | 0.02 | -0.04 | 0.89 | 1978.69 |
| 57 | 105 | -275.62 | 501.83 | -0.12 | 0.61 | -4.10 | -2818.41 |
| 58 | 105 | 275.62 | -501.83 | 0.12 | -0.61 | 4.10 | 2818.40 |
| 58 | 106 | -281.25 | 685.70 | -0.11 | 0.59 | -4.56 | -5326.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 59 | 106 | 281.25 | 600.32 | -0.08 | 0.34 | 4.56 | 5326.00 |
| 59 | 115 | -286.87 | -496.37 | 0.08 | -0.34 | -4.18 | -2868.44 |
| 60 | 115 | 286.87 | 496.37 | -0.08 | 0.34 | 4.18 | 2868.44 |
| 60 | 116 | 292.50 | -57.89 | 0.13 | -0.64 | 2.32 | -2083.03 |
| 61 | 116 | -292.50 | 57.89 | -0.13 | 0.65 | -2.32 | 2083.04 |
| 61 | 117 | 298.12 | -47.90 | 0.13 | -0.65 | 2.90 | -1835.01 |
| 62 | 117 | -298.12 | 47.90 | -0.13 | 0.65 | -2.89 | 1835.01 |
| 62 | 118 | 303.75 | -37.91 | 0.13 | -0.65 | 3.47 | -1631.94 |
| 63 | 118 | -303.75 | 37.91 | -0.13 | 0.64 | -3.47 | 1631.94 |
| 63 | 119 | 309.37 | -27.92 | 0.13 | -0.64 | 4.05 | -1473.82 |
| 64 | 119 | -309.37 | 27.92 | -0.13 | 0.65 | -4.05 | 1473.82 |
| 64 | 120 | 315.00 | 2.12 | 0.12 | -0.61 | 5.22 | -1422.71 |
| 65 | 120 | -315.00 | -2.12 | -0.12 | 0.61 | -5.22 | 1422.71 |
| 65 | 121 | 320.62 | 12.11 | 0.12 | -0.61 | 5.75 | -1444.74 |
| 66 | 121 | -320.62 | -12.11 | -0.12 | 0.61 | -5.75 | 1444.74 |
| 66 | 122 | 326.25 | 25.63 | 0.11 | -0.59 | 6.23 | -1512.59 |
| 67 | 122 | -326.25 | -25.63 | -0.11 | 0.59 | -6.23 | 1512.59 |
| 67 | 123 | 331.87 | 492.31 | -0.06 | 0.24 | 0.42 | -2383.42 |
| 68 | 123 | -331.87 | -492.31 | 0.06 | -0.24 | -0.42 | 2383.42 |
| 68 | 124 | 337.50 | 678.35 | -0.07 | 0.32 | -1.19 | -4907.71 |
| 69 | 124 | -337.50 | 568.10 | -0.03 | 0.19 | 1.19 | 4907.71 |
| 69 | 133 | 343.13 | -139.34 | 0.16 | -0.52 | -4.89 | -2703.01 |
| 70 | 133 | -343.13 | 139.34 | -0.16 | 0.52 | 4.89 | 2703.01 |
| 70 | 134 | -348.75 | -89.31 | 0.12 | -0.39 | -3.17 | -2197.18 |
| 71 | 134 | 348.75 | 89.31 | -0.12 | 0.39 | 3.17 | 2197.18 |
| 71 | 135 | -354.37 | -79.32 | 0.12 | -0.39 | -2.64 | -1827.74 |
| 72 | 135 | 354.37 | 79.32 | -0.12 | 0.39 | 2.64 | 1827.74 |
| 72 | 136 | -360.00 | -69.33 | 0.12 | -0.39 | -2.11 | -1503.25 |
| 73 | 136 | 360.00 | 69.33 | -0.12 | 0.39 | 2.11 | 1503.25 |
| 73 | 137 | -365.62 | -59.34 | 0.12 | -0.39 | -1.58 | -1223.71 |
| 74 | 137 | 365.62 | 59.34 | -0.12 | 0.39 | 1.58 | 1223.71 |
| 74 | 138 | -371.25 | -49.35 | 0.12 | -0.39 | -1.05 | -989.13 |
| 75 | 138 | 371.25 | 49.35 | -0.12 | 0.39 | 1.05 | 989.13 |
| 75 | 139 | -376.87 | -39.36 | 0.12 | -0.39 | -0.53 | -799.51 |
| 76 | 139 | 376.87 | 39.36 | -0.12 | 0.39 | 0.53 | 799.51 |
| 76 | 140 | -726.75 | 337.36 | -0.11 | 0.37 | 0.00 | -1244.20 |
| 77 | 16 | 995.77 | 0.00 | 0.19 | 0.00 | -1.82 | 0.00 |
| 77 | 17 | -995.77 | 0.00 | -0.19 | 0.00 | 0.82 | 0.00 |
| 78 | 17 | 995.77 | 0.00 | 0.19 | 0.00 | -0.82 | 0.00 |
| 78 | 18 | -995.77 | 0.00 | -0.19 | 0.00 | -0.12 | 0.00 |
| 79 | 33 | 1004.73 | 0.00 | -0.07 | 0.00 | 0.79 | 0.00 |
| 79 | 34 | -1004.73 | 0.00 | 0.07 | 0.00 | -0.23 | 0.00 |
| 80 | 34 | 1004.73 | 0.00 | -0.07 | 0.00 | 0.23 | 0.00 |
| 80 | 35 | -1004.73 | 0.00 | 0.07 | 0.00 | 0.14 | 0.00 |
| 81 | 50 | 996.55 | 0.00 | -0.01 | 0.00 | 0.18 | 0.00 |
| 81 | 51 | -996.55 | 0.00 | 0.01 | 0.00 | -0.16 | 0.00 |
| 82 | 51 | 996.55 | 0.00 | -0.01 | 0.00 | 0.16 | 0.00 |
| 82 | 52 | -996.55 | 0.00 | 0.01 | 0.00 | -0.11 | 0.00 |
| 83 | 52 | 996.55 | 0.00 | -0.01 | 0.00 | 0.11 | 0.00 |
| 83 | 53 | -996.55 | 0.00 | 0.01 | 0.00 | -0.06 | 0.00 |
| 84 | 53 | 996.55 | 0.00 | -0.01 | 0.00 | 0.06 | 0.00 |
| 84 | 54 | -996.55 | 0.00 | 0.01 | 0.00 | -0.03 | 0.00 |
| 85 | 69 | 1000.04 | 0.00 | 0.00 | 0.00 | 0.17 | 0.00 |
| 85 | 70 | -1000.04 | 0.00 | 0.00 | 0.00 | -0.13 | 0.00 |
| 86 | 70 | 1000.04 | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 |
| 86 | 71 | -1000.04 | 0.00 | 0.00 | 0.00 | -0.09 | 0.00 |
| 87 | 71 | 1000.04 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 |
| 87 | 72 | -1000.04 | 0.00 | 0.00 | 0.00 | -0.04 | 0.00 |
| 88 | 72 | 1000.04 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 |
| 88 | 73 | -1000.04 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 89 | 88 | 997.18 | 0.00 | -0.01 | 0.00 | 0.24 | 0.00 |
| 89 | 89 | -997.18 | 0.00 | 0.01 | 0.00 | -0.23 | 0.00 |
| 90 | 89 | 997.18 | 0.00 | -0.01 | 0.00 | 0.23 | 0.00 |
| 90 | 90 | -997.18 | 0.00 | 0.01 | 0.00 | -0.13 | 0.00 |
| 91 | 90 | 997.18 | 0.00 | -0.01 | 0.00 | 0.13 | 0.00 |
| 91 | 91 | -997.18 | 0.00 | 0.01 | 0.00 | -0.04 | 0.00 |
| 92 | 91 | 997.18 | 0.00 | -0.01 | 0.00 | 0.04 | 0.00 |
| 92 | 92 | -997.18 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 93 | 107 | 1004.52 | 0.00 | -0.03 | 0.00 | 0.36 | 0.00 |
| 93 | 108 | -1004.52 | 0.00 | 0.03 | 0.00 | -0.32 | 0.00 |
| 94 | 108 | 1004.52 | 0.00 | -0.03 | 0.00 | 0.32 | 0.00 |
| 94 | 109 | -1004.52 | 0.00 | 0.03 | 0.00 | -0.01 | 0.00 |
| 95 | 109 | 1004.52 | 0.00 | -0.03 | 0.00 | 0.01 | 0.00 |
| 95 | 110 | -1004.52 | 0.00 | 0.03 | 0.00 | 0.15 | 0.00 |
| 96 | 125 | 995.30 | 0.00 | 0.12 | 0.00 | -1.64 | 0.00 |
| 96 | 126 | -995.30 | 0.00 | -0.12 | 0.00 | 1.52 | 0.00 |
| 97 | 126 | 995.30 | 0.00 | 0.12 | 0.00 | -1.52 | 0.00 |
| 97 | 127 | -995.30 | 0.00 | -0.12 | 0.00 | 0.32 | 0.00 |
| 98 | 127 | 995.30 | 0.00 | 0.12 | 0.00 | -0.32 | 0.00 |
| 98 | 128 | -995.30 | 0.00 | -0.12 | 0.00 | -0.27 | 0.00 |
| 99 | 2 | 149.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -149.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 149.49 | 0.00 | -0.11 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -149.49 | 0.00 | 0.11 | 0.00 | 0.18 | 0.00 |
| 101 | 19 | 497.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -497.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 497.92 | 0.00 | 0.19 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -497.92 | 0.00 | -0.19 | 0.00 | -0.32 | 0.00 |
| 103 | 36 | 502.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -502.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 502.33 | 0.00 | -0.07 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -502.33 | 0.00 | 0.07 | 0.00 | 0.13 | 0.00 |
| 105 | 55 | 498.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -498.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 498.28 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -498.28 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 107 | 74 | 500.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -500.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 500.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -500.02 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 109 | 93 | 498.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -498.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 498.59 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -498.59 | 0.00 | 0.01 | 0.00 | 0.02 | 0.00 |
| 111 | 111 | 502.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -502.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 502.22 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -502.22 | 0.00 | 0.03 | 0.00 | 0.05 | 0.00 |
| 113 | 129 | 497.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -497.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 497.72 | 0.00 | 0.12 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -497.72 | 0.00 | -0.12 | 0.00 | -0.20 | 0.00 |
| 115 | 141 | 149.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -130.65 | 363.38 | 0.00 | 0.00 | 0.00 | -622.10 |
| 116 | 143 | 149.64 | 0.00 | -0.07 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -130.63 | 363.38 | 0.04 | 0.00 | 0.07 | -622.10 |
| 117 | 6 | 298.99 | 0.00 | -0.11 | 0.00 | 0.09 | 0.00 |
| 117 | 7 | -298.99 | 0.00 | 0.11 | 0.00 | 0.02 | 0.00 |
| 118 | 145 | 337.36 | 726.75 | -0.11 | 0.00 | -0.07 | 726.75 |
| 118 | 146 | -299.32 | 0.00 | 0.07 | 0.00 | 0.12 | 0.00 |
| 119 | 3 | 0.00 | 149.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | 46.82 | 0.00 | 0.00 | 0.00 | -199.01 |
| 120 | 1 | -2.97 | 46.78 | 0.00 | 0.00 | 0.00 | 193.71 |
| 120 | 5 | -16.39 | 191.34 | 0.00 | 0.00 | 0.00 | -28.06 |
| 121 | 20 | 0.00 | 546.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | 80.38 | -0.01 | 0.00 | 0.00 | -148.71 |
| 122 | 15 | 16.89 | 62.58 | -0.01 | 0.00 | 0.00 | 144.71 |
| 122 | 22 | -36.51 | 326.83 | -0.01 | 0.00 | 0.00 | -62.50 |
| 123 | 37 | 0.00 | 262.22 | 0.00 | 0.00 | 0.00 | 0.01 |
| 123 | 32 | 0.00 | 122.21 | 0.00 | 0.00 | -0.01 | -226.12 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 124 | 32 | -35.64 | 116.50 | 0.00 | 0.00 | 0.00 | 154.54 |
| 124 | 39 | -44.01 | 618.53 | 0.00 | 0.00 | 0.00 | -75.36 |
| 125 | 56 | -0.01 | 553.88 | 0.00 | 0.00 | 0.00 | 0.01 |
| 125 | 49 | -0.01 | 114.61 | 0.01 | 0.00 | -0.01 | -212.05 |
| 126 | 49 | 22.22 | 109.73 | 0.00 | 0.00 | 0.01 | 241.06 |
| 126 | 58 | -34.67 | -20.85 | -0.01 | 0.00 | 0.00 | -59.36 |
| 127 | 75 | -0.01 | 547.21 | 0.00 | 0.00 | 0.00 | 0.01 |
| 127 | 68 | 0.00 | 108.94 | -0.01 | 0.00 | 0.00 | -201.56 |
| 128 | 68 | 14.33 | 102.22 | 0.00 | 0.00 | 0.01 | 213.67 |
| 128 | 77 | -27.64 | -14.20 | 0.00 | 0.00 | 0.00 | -47.31 |
| 129 | 94 | 0.01 | 338.57 | -0.01 | 0.00 | 0.00 | 0.01 |
| 129 | 87 | 0.00 | 114.20 | 0.00 | 0.00 | 0.00 | -211.30 |
| 130 | 87 | 7.64 | 109.54 | 0.00 | 0.00 | 0.00 | 215.79 |
| 130 | 96 | -27.51 | 296.68 | -0.01 | 0.00 | 0.00 | -47.09 |
| 131 | 112 | 0.00 | 571.89 | 0.00 | 0.00 | 0.00 | 0.01 |
| 131 | 106 | 0.00 | 109.63 | 0.01 | 0.00 | 0.00 | -202.84 |
| 132 | 106 | -28.20 | 109.15 | -0.01 | 0.00 | 0.00 | 153.68 |
| 132 | 114 | -30.29 | 577.72 | -0.01 | 0.00 | 0.01 | -51.86 |
| 133 | 130 | 0.00 | 279.81 | 0.00 | 0.00 | 0.00 | 0.01 |
| 133 | 124 | 0.00 | 74.66 | 0.00 | 0.00 | 0.00 | -138.13 |
| 134 | 124 | 5.78 | 74.55 | 0.00 | 0.00 | 0.00 | 147.84 |
| 134 | 132 | -38.42 | 27.37 | 0.00 | 0.00 | 0.00 | -65.78 |
| 135 | 142 | 0.00 | 149.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | 63.60 | 191.25 | -327.42 | 812.81 | -270.30 |
| 136 | 140 | -9.04 | 63.55 | 191.25 | -327.42 | -812.81 | 254.59 |
| 136 | 144 | -23.10 | 187.47 | 0.00 | 0.00 | 0.00 | -39.55 |
| 137 | 2 | 0.00 | -149.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 228.71 | 0.00 | 0.00 | 0.00 | -972.03 |
| 138 | 7 | -1.30 | 228.70 | 0.00 | 0.00 | 0.00 | 971.98 |
| 138 | 4 | 0.11 | -149.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -265.99 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 637.47 | 0.00 | 0.00 | 0.00 | -1179.31 |
| 140 | 18 | 1.95 | 637.40 | 0.00 | 0.00 | 0.00 | 1179.19 |
| 140 | 21 | 16.19 | -339.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -539.27 | 0.00 | 0.00 | 0.00 | 0.01 |
| 141 | 35 | 0.00 | 696.06 | 0.00 | 0.00 | 0.00 | -1287.70 |
| 142 | 35 | -12.69 | 695.94 | 0.00 | 0.00 | 0.00 | 1287.47 |
| 142 | 38 | 2.14 | -262.89 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -539.16 | 0.00 | 0.00 | 0.00 | 0.01 |
| 143 | 54 | -0.01 | 683.78 | 0.00 | 0.00 | 0.00 | -1264.99 |
| 144 | 54 | 32.65 | 683.60 | 0.00 | 0.00 | 0.00 | 1264.63 |
| 144 | 57 | 21.58 | -315.07 | 0.00 | 0.00 | 0.00 | -0.01 |
| 145 | 74 | 0.01 | -239.28 | 0.00 | 0.00 | 0.00 | 0.01 |
| 145 | 73 | 0.00 | 679.75 | 0.00 | 0.00 | 0.00 | -1257.53 |
| 146 | 73 | 25.39 | 679.55 | 0.00 | 0.00 | 0.00 | 1257.16 |
| 146 | 76 | -0.69 | -634.78 | 0.00 | 0.00 | 0.00 | -0.01 |
| 147 | 93 | 0.00 | -584.62 | 0.00 | 0.00 | 0.00 | 0.01 |
| 147 | 92 | 0.00 | 684.32 | 0.00 | 0.00 | 0.00 | -1265.99 |
| 148 | 92 | 22.89 | 684.10 | 0.00 | 0.00 | 0.00 | 1265.57 |
| 148 | 95 | -20.92 | -545.02 | 0.00 | 0.00 | 0.00 | -0.01 |
| 149 | 111 | 0.00 | -303.46 | 0.00 | 0.00 | 0.00 | 0.01 |
| 149 | 110 | 0.00 | 684.58 | 0.00 | 0.00 | 0.00 | -1266.44 |
| 150 | 110 | -3.34 | 684.40 | 0.00 | 0.00 | 0.00 | 1266.12 |
| 150 | 113 | 6.62 | -274.88 | 0.00 | 0.00 | 0.00 | -0.01 |
| 151 | 129 | 0.00 | -561.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 646.87 | 0.00 | 0.00 | 0.00 | -1196.71 |
| 152 | 128 | 2.94 | 646.72 | 0.00 | 0.00 | 0.00 | 1196.45 |
| 152 | 131 | 5.02 | -256.43 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -149.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 239.37 | 191.25 | 0.00 | 812.81 | -1017.31 |
| 154 | 146 | -1.27 | 239.27 | 191.25 | 0.00 | -812.81 | 1016.91 |
| 154 | 143 | 0.07 | -149.64 | 0.00 | 0.00 | 0.00 | 0.00 |



HIPOTESIS 42

MOME Z MIN sobrecarga + fr. + fc (ipf-75)

E S F U E R Z O S E N B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 298.99 | -0.11 | 0.20 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -324.45 | 0.34 | -0.63 | 1.52 | 1738.86 |
| 2 | 8 | 0.00 | 324.45 | -0.34 | 0.63 | -1.52 | -1738.86 |
| 2 | 9 | 0.00 | -200.52 | 0.34 | -0.63 | 3.04 | 2920.04 |
| 3 | 9 | 0.00 | 200.52 | -0.34 | 0.63 | -3.04 | -2920.04 |
| 3 | 10 | 0.00 | -78.39 | 0.32 | -0.60 | 4.35 | 3546.69 |
| 4 | 10 | 0.00 | 78.39 | -0.32 | 0.60 | -4.35 | -3546.69 |
| 4 | 11 | 0.00 | 45.54 | 0.32 | -0.60 | 5.80 | 3620.61 |
| 5 | 11 | 0.00 | -45.54 | -0.32 | 0.60 | -5.80 | -3620.61 |
| 5 | 12 | 0.00 | 169.47 | 0.32 | -0.60 | 7.25 | 3136.84 |
| 6 | 12 | 0.00 | -169.47 | -0.32 | 0.60 | -7.25 | -3136.84 |
| 6 | 13 | 0.00 | 290.96 | 0.31 | -0.57 | 8.33 | 2099.99 |
| 7 | 13 | 0.00 | -290.96 | -0.31 | 0.57 | -8.33 | -2099.99 |
| 7 | 14 | 0.00 | 345.59 | 0.31 | -0.59 | 9.83 | 574.47 |
| 8 | 14 | 0.00 | -345.59 | -0.31 | 0.59 | -9.83 | -574.47 |
| 8 | 15 | 0.00 | -0.76 | 0.00 | -0.01 | 0.16 | 27.29 |
| 9 | 15 | 0.00 | -0.66 | 0.01 | -0.02 | -0.16 | -27.29 |
| 9 | 23 | -5.62 | 0.66 | -0.01 | 0.02 | 0.13 | 14.33 |
| 10 | 23 | 5.62 | -0.66 | 0.01 | -0.02 | -0.13 | -14.33 |
| 10 | 24 | -11.25 | -379.88 | 0.15 | -0.45 | -5.97 | 1337.48 |
| 11 | 24 | 11.25 | 379.88 | -0.15 | 0.45 | 5.97 | -1337.47 |
| 11 | 25 | -16.87 | -259.50 | 0.16 | -0.48 | -5.36 | 2773.04 |
| 12 | 25 | 16.87 | 259.50 | -0.16 | 0.48 | 5.36 | -2773.04 |
| 12 | 26 | -22.50 | -145.15 | 0.15 | -0.44 | -4.50 | 3681.34 |
| 13 | 26 | 22.50 | 145.15 | -0.15 | 0.44 | 4.50 | -3681.34 |
| 13 | 27 | -28.13 | -21.22 | 0.15 | -0.44 | -3.83 | 4045.67 |
| 14 | 27 | 28.13 | 21.22 | -0.15 | 0.44 | 3.83 | -4045.66 |
| 14 | 28 | -33.75 | 102.71 | 0.15 | -0.44 | -3.16 | 3852.31 |
| 15 | 28 | 33.75 | -102.71 | -0.15 | 0.44 | 3.16 | -3852.30 |
| 15 | 29 | 39.37 | 221.60 | 0.13 | -0.39 | -2.48 | 3114.38 |
| 16 | 29 | -39.37 | -221.60 | -0.13 | 0.39 | 2.48 | -3114.39 |
| 16 | 30 | 45.00 | 345.53 | 0.13 | -0.39 | -1.89 | 1848.35 |
| 17 | 30 | -45.00 | -345.53 | -0.13 | 0.39 | 1.89 | -1848.35 |
| 17 | 31 | 50.62 | 331.07 | 0.06 | -0.14 | 3.06 | 288.93 |
| 18 | 31 | -50.62 | -331.07 | -0.06 | 0.14 | -3.06 | -288.93 |
| 18 | 32 | 56.25 | -0.38 | 0.00 | 0.01 | 0.21 | 41.89 |
| 19 | 32 | -56.25 | -5.49 | 0.00 | -0.02 | -0.21 | -41.89 |
| 19 | 40 | 61.88 | -312.94 | -0.10 | 0.42 | 1.95 | 189.86 |
| 20 | 40 | -61.88 | 312.94 | 0.10 | -0.42 | -1.95 | -189.86 |
| 20 | 41 | 67.50 | -365.98 | -0.49 | -4.74 | 20.68 | 1693.08 |
| 21 | 41 | -67.50 | 365.98 | 0.49 | 4.74 | -20.69 | -1693.07 |
| 21 | 42 | 73.12 | -242.40 | 0.00 | -0.19 | -0.13 | 3072.72 |
| 22 | 42 | -73.12 | 242.40 | 0.00 | 0.19 | 0.13 | -3072.72 |
| 22 | 43 | -78.75 | -132.57 | 0.00 | -0.16 | -0.04 | 3924.34 |
| 23 | 43 | 78.75 | 132.57 | 0.01 | 0.16 | 0.05 | -3924.34 |
| 23 | 44 | -84.37 | -8.64 | -0.01 | -0.16 | -0.06 | 4232.09 |
| 24 | 44 | 84.37 | 8.64 | 0.00 | 0.16 | 0.07 | -4232.10 |
| 24 | 45 | -90.00 | 115.29 | 0.00 | -0.16 | -0.09 | 3982.16 |
| 25 | 45 | 90.00 | -115.29 | 0.00 | 0.16 | 0.08 | -3982.16 |
| 25 | 46 | -95.62 | 229.63 | -0.01 | -0.12 | -0.09 | 3187.86 |
| 26 | 46 | 95.62 | -229.63 | 0.01 | 0.12 | 0.08 | -3187.85 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 26 | 47 | -101.25 | 353.09 | -0.01 | -0.13 | -0.18 | 1865.69 |
| 27 | 47 | 101.25 | -353.09 | 0.01 | 0.13 | 0.18 | -1865.69 |
| 27 | 48 | -106.87 | 309.72 | 0.12 | -0.57 | -0.11 | 374.90 |
| 28 | 48 | 106.87 | -309.72 | -0.12 | 0.57 | 0.11 | -374.90 |
| 28 | 49 | -112.50 | -5.51 | 0.00 | -0.01 | 0.07 | 47.93 |
| 29 | 49 | 112.50 | -1.24 | 0.00 | -0.02 | -0.07 | -47.93 |
| 29 | 59 | -118.12 | -312.80 | -0.05 | 0.47 | 0.45 | 341.10 |
| 30 | 59 | 118.12 | 312.80 | 0.05 | -0.47 | -0.45 | -341.10 |
| 30 | 60 | -123.75 | -364.96 | 0.00 | 0.03 | -0.29 | 1836.61 |
| 31 | 60 | 123.75 | 364.96 | -0.01 | -0.03 | 0.29 | -1836.61 |
| 31 | 61 | 129.37 | -236.71 | 0.01 | 0.02 | -0.26 | 3190.58 |
| 32 | 61 | -129.37 | 236.71 | 0.00 | -0.02 | 0.26 | -3190.58 |
| 32 | 62 | 135.00 | -122.45 | 0.00 | 0.05 | -0.22 | 4016.16 |
| 33 | 62 | -135.00 | 122.45 | 0.00 | -0.05 | 0.22 | -4016.16 |
| 33 | 63 | 140.63 | 1.48 | 0.00 | 0.05 | -0.21 | 4298.35 |
| 34 | 63 | -140.63 | -1.48 | 0.00 | -0.05 | 0.21 | -4298.35 |
| 34 | 64 | 146.25 | 125.41 | 0.00 | 0.05 | -0.20 | 4022.85 |
| 35 | 64 | -146.25 | -125.41 | 0.00 | -0.05 | 0.20 | -4022.85 |
| 35 | 65 | 151.87 | 239.68 | 0.00 | 0.08 | -0.21 | 3203.26 |
| 36 | 65 | -151.87 | -239.68 | 0.00 | -0.08 | 0.21 | -3203.26 |
| 36 | 66 | 157.50 | 363.61 | 0.00 | 0.08 | -0.22 | 1855.83 |
| 37 | 66 | -157.50 | -363.61 | 0.00 | -0.08 | 0.22 | -1855.83 |
| 37 | 67 | 163.12 | 313.35 | 0.05 | -0.52 | -0.07 | 357.34 |
| 38 | 67 | -163.12 | -313.35 | -0.05 | 0.52 | 0.08 | -357.34 |
| 38 | 68 | 168.75 | -1.20 | 0.00 | -0.02 | 0.06 | 49.78 |
| 39 | 68 | -168.75 | -5.83 | 0.00 | -0.01 | -0.06 | -49.78 |
| 39 | 78 | 174.37 | -308.33 | -0.05 | 0.53 | -0.07 | 358.63 |
| 40 | 78 | -174.37 | 308.33 | 0.05 | -0.53 | 0.07 | -358.63 |
| 40 | 79 | -180.00 | -363.82 | 0.00 | -0.07 | -0.34 | 1853.03 |
| 41 | 79 | 180.00 | 363.82 | 0.00 | 0.07 | 0.35 | -1853.03 |
| 41 | 80 | -185.62 | -239.89 | 0.00 | -0.07 | -0.34 | 3201.39 |
| 42 | 80 | 185.62 | 239.89 | 0.00 | 0.07 | 0.35 | -3201.39 |
| 42 | 81 | -191.25 | -125.62 | 0.00 | -0.04 | -0.35 | 4021.19 |
| 43 | 81 | 191.25 | 125.62 | 0.00 | 0.04 | 0.35 | -4021.19 |
| 43 | 82 | -196.87 | -1.69 | 0.00 | -0.04 | -0.37 | 4297.64 |
| 44 | 82 | 196.87 | 1.69 | 0.00 | 0.04 | 0.37 | -4297.64 |
| 44 | 83 | -202.50 | 122.24 | 0.00 | -0.04 | -0.38 | 4016.40 |
| 45 | 83 | 202.50 | -122.24 | 0.00 | 0.04 | 0.38 | -4016.40 |
| 45 | 84 | -208.12 | 236.52 | -0.01 | -0.01 | -0.44 | 3190.88 |
| 46 | 84 | 208.12 | -236.52 | 0.01 | 0.01 | 0.44 | -3190.87 |
| 46 | 85 | -213.75 | 360.45 | -0.01 | -0.01 | -0.47 | 1837.69 |
| 47 | 85 | 213.75 | -360.45 | 0.01 | 0.01 | 0.47 | -1837.68 |
| 47 | 86 | -219.37 | 308.29 | 0.05 | -0.47 | 0.45 | 343.77 |
| 48 | 86 | 219.37 | -308.29 | -0.05 | 0.47 | -0.45 | -343.77 |
| 48 | 87 | -225.00 | -5.87 | 0.00 | -0.02 | 0.09 | 56.39 |
| 49 | 87 | 225.00 | -2.06 | 0.00 | -0.03 | -0.09 | -56.39 |
| 49 | 97 | -230.62 | -313.61 | -0.12 | 0.61 | 0.20 | 370.37 |
| 50 | 97 | 230.62 | 313.61 | 0.12 | -0.61 | -0.20 | -370.37 |
| 50 | 98 | 236.25 | -354.94 | 0.03 | -0.04 | 0.30 | 1859.63 |
| 51 | 98 | -236.25 | 354.94 | -0.03 | 0.03 | -0.30 | -1859.63 |
| 51 | 99 | 241.87 | -231.01 | 0.03 | -0.03 | 0.43 | 3188.03 |
| 52 | 99 | -241.87 | 231.01 | -0.03 | 0.03 | -0.43 | -3188.03 |
| 52 | 100 | 247.50 | -116.69 | 0.02 | 0.00 | 0.54 | 3987.95 |
| 53 | 100 | -247.50 | 116.69 | -0.02 | 0.00 | -0.54 | -3987.94 |
| 53 | 101 | 253.12 | 7.24 | 0.02 | 0.00 | 0.64 | 4244.20 |
| 54 | 101 | -253.12 | -7.24 | -0.02 | 0.00 | -0.64 | -4244.20 |
| 54 | 102 | 258.75 | 131.17 | 0.02 | 0.00 | 0.75 | 3942.76 |
| 55 | 102 | -258.75 | -131.17 | -0.02 | 0.00 | -0.75 | -3942.76 |
| 55 | 103 | 264.37 | 245.49 | 0.02 | 0.03 | 0.77 | 3096.62 |
| 56 | 103 | -264.37 | -245.49 | -0.02 | -0.03 | -0.77 | -3096.62 |
| 56 | 104 | 270.00 | 369.38 | 0.02 | 0.03 | 0.84 | 1723.04 |
| 57 | 104 | -270.00 | -369.38 | -0.02 | -0.03 | -0.84 | -1723.04 |
| 57 | 105 | 275.62 | 315.98 | 0.12 | -0.57 | 2.63 | 225.63 |
| 58 | 105 | -275.62 | -315.98 | -0.12 | 0.57 | -2.63 | -225.63 |
| 58 | 106 | 281.25 | -2.04 | 0.00 | -0.03 | 0.14 | 77.68 |
| 59 | 106 | -281.25 | -8.83 | 0.01 | -0.07 | -0.14 | -77.68 |
| 59 | 115 | 286.87 | -323.21 | -0.06 | 0.23 | 2.72 | 302.99 |
| 60 | 115 | -286.87 | 323.21 | 0.06 | -0.23 | -2.72 | -302.99 |
| 60 | 116 | -292.50 | -349.80 | -0.06 | 0.31 | -1.77 | 1851.54 |
| 61 | 116 | 292.50 | 349.80 | 0.06 | -0.31 | 1.77 | -1851.54 |
| 61 | 117 | -298.12 | -225.87 | -0.06 | 0.31 | -2.03 | 3136.83 |
| 62 | 117 | 298.12 | 225.87 | 0.06 | -0.31 | 2.03 | -3136.83 |
| 62 | 118 | -303.75 | -111.42 | -0.07 | 0.36 | -2.34 | 3893.02 |
| 63 | 118 | 303.75 | 111.42 | 0.07 | -0.36 | 2.34 | -3893.02 |
| 63 | 119 | -309.37 | 12.51 | -0.07 | 0.36 | -2.65 | 4105.59 |
| 64 | 119 | 309.37 | -12.51 | 0.07 | -0.36 | 2.65 | -4105.59 |
| 64 | 120 | -315.00 | 136.44 | -0.07 | 0.36 | -2.96 | 3760.48 |
| 65 | 120 | 315.00 | -136.44 | 0.07 | -0.36 | 2.96 | -3760.48 |
| 65 | 121 | -320.62 | 250.77 | -0.08 | 0.40 | -3.37 | 2870.94 |
| 66 | 121 | 320.62 | -250.77 | 0.08 | -0.40 | 3.37 | -2870.94 |
| 66 | 122 | -326.25 | 371.17 | -0.07 | 0.37 | -3.67 | 1454.49 |
| 67 | 122 | 326.25 | -371.17 | 0.07 | -0.37 | 3.67 | -1454.49 |
| 67 | 123 | -331.87 | -9.11 | 0.02 | -0.09 | 0.71 | 140.99 |
| 68 | 123 | 331.87 | 9.11 | -0.02 | 0.09 | -0.71 | -140.99 |
| 68 | 124 | -337.50 | -9.11 | 0.02 | -0.09 | 0.78 | 171.98 |
| 69 | 124 | 337.50 | -20.75 | 0.02 | -0.08 | -0.78 | -171.98 |
| 69 | 133 | -343.13 | -325.49 | -0.23 | 0.79 | 7.26 | 622.63 |
| 70 | 133 | 343.13 | 325.49 | 0.23 | -0.79 | -7.26 | -622.63 |
| 70 | 134 | 348.75 | -310.87 | -0.19 | 0.64 | 5.25 | 2158.88 |
| 71 | 134 | -348.75 | 310.87 | 0.19 | -0.64 | -5.25 | -2158.88 |
| 71 | 135 | 354.37 | -189.39 | -0.20 | 0.67 | 4.58 | 3294.63 |
| 72 | 135 | -354.38 | 189.39 | 0.20 | -0.67 | -4.59 | -3294.63 |
| 72 | 136 | 360.00 | -65.46 | -0.20 | 0.67 | 3.67 | 3878.04 |
| 73 | 136 | -360.00 | 65.46 | 0.20 | -0.67 | -3.67 | -3878.04 |
| 73 | 137 | 365.63 | 58.47 | -0.20 | 0.67 | 2.75 | 3903.77 |
| 74 | 137 | -365.63 | -58.47 | 0.20 | -0.67 | -2.75 | -3903.77 |
| 74 | 138 | 371.25 | 180.62 | -0.21 | 0.71 | 1.93 | 3375.80 |
| 75 | 138 | -371.25 | -180.62 | 0.21 | -0.71 | -1.93 | -3375.80 |
| 75 | 139 | 376.88 | 304.55 | -0.21 | 0.71 | 0.96 | 2294.16 |
| 76 | 139 | -376.88 | -304.55 | 0.21 | -0.71 | -0.96 | -2294.16 |
| 76 | 140 | 726.75 | 261.28 | -0.04 | 0.12 | 0.00 | 1244.19 |
| 77 | 16 | 995.77 | 0.00 | 0.19 | 0.00 | -1.82 | 0.00 |
| 77 | 17 | -995.77 | 0.00 | -0.19 | 0.00 | 0.82 | 0.00 |
| 78 | 17 | 995.77 | 0.00 | 0.19 | 0.00 | -0.82 | 0.00 |
| 78 | 18 | -995.77 | 0.00 | -0.19 | 0.00 | -0.12 | 0.00 |
| 79 | 33 | 1004.73 | 0.00 | -0.07 | 0.00 | 0.79 | 0.00 |
| 79 | 34 | -1004.73 | 0.00 | 0.07 | 0.00 | -0.23 | 0.00 |
| 80 | 34 | 1004.73 | 0.00 | -0.07 | 0.00 | 0.23 | 0.00 |
| 80 | 35 | -1004.73 | 0.00 | 0.07 | 0.00 | 0.14 | 0.00 |
| 81 | 50 | 996.55 | 0.00 | -0.01 | 0.00 | 0.18 | 0.00 |
| 81 | 51 | -996.55 | 0.00 | 0.01 | 0.00 | -0.16 | 0.00 |
| 82 | 51 | 996.55 | 0.00 | -0.01 | 0.00 | 0.16 | 0.00 |
| 82 | 52 | -996.55 | 0.00 | 0.01 | 0.00 | -0.11 | 0.00 |
| 83 | 52 | 996.55 | 0.00 | -0.01 | 0.00 | 0.11 | 0.00 |
| 83 | 53 | -996.55 | 0.00 | 0.01 | 0.00 | -0.06 | 0.00 |
| 84 | 53 | 996.55 | 0.00 | -0.01 | 0.00 | 0.06 | 0.00 |
| 84 | 54 | -996.55 | 0.00 | 0.01 | 0.00 | -0.03 | 0.00 |
| 85 | 69 | 1000.04 | 0.00 | 0.00 | 0.00 | 0.17 | 0.00 |
| 85 | 70 | -1000.04 | 0.00 | 0.00 | 0.00 | -0.13 | 0.00 |
| 86 | 70 | 1000.04 | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 |
| 86 | 71 | -1000.04 | 0.00 | 0.00 | 0.00 | -0.09 | 0.00 |
| 87 | 71 | 1000.04 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 |
| 87 | 72 | -1000.04 | 0.00 | 0.00 | 0.00 | -0.04 | 0.00 |
| 88 | 72 | 1000.04 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 |
| 88 | 73 | -1000.04 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 89 | 88 | 997.18 | 0.00 | -0.01 | 0.00 | 0.24 | 0.00 |
| 89 | 89 | -997.18 | 0.00 | 0.01 | 0.00 | -0.23 | 0.00 |
| 90 | 89 | 997.18 | 0.00 | -0.01 | 0.00 | 0.23 | 0.00 |
| 90 | 90 | -997.18 | 0.00 | 0.01 | 0.00 | -0.13 | 0.00 |
| 91 | 90 | 997.18 | 0.00 | -0.01 | 0.00 | 0.13 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 91 | 91 | -997.18 | 0.00 | 0.01 | 0.00 | -0.04 | 0.00 |
| 92 | 91 | 997.18 | 0.00 | -0.01 | 0.00 | 0.04 | 0.00 |
| 92 | 92 | -997.18 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 93 | 107 | 1004.52 | 0.00 | -0.03 | 0.00 | 0.36 | 0.00 |
| 93 | 108 | -1004.52 | 0.00 | 0.03 | 0.00 | -0.32 | 0.00 |
| 94 | 108 | 1004.52 | 0.00 | -0.03 | 0.00 | 0.32 | 0.00 |
| 94 | 109 | -1004.52 | 0.00 | 0.03 | 0.00 | -0.01 | 0.00 |
| 95 | 109 | 1004.52 | 0.00 | -0.03 | 0.00 | 0.01 | 0.00 |
| 95 | 110 | -1004.52 | 0.00 | 0.03 | 0.00 | 0.15 | 0.00 |
| 96 | 125 | 995.30 | 0.00 | 0.12 | 0.00 | -1.64 | 0.00 |
| 96 | 126 | -995.30 | 0.00 | -0.12 | 0.00 | 1.52 | 0.00 |
| 97 | 126 | 995.30 | 0.00 | 0.12 | 0.00 | -1.52 | 0.00 |
| 97 | 127 | -995.30 | 0.00 | -0.12 | 0.00 | 0.32 | 0.00 |
| 98 | 127 | 995.30 | 0.00 | 0.12 | 0.00 | -0.32 | 0.00 |
| 98 | 128 | -995.30 | 0.00 | -0.12 | 0.00 | -0.27 | 0.00 |
| 99 | 2 | 149.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -149.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 149.49 | 0.00 | -0.11 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -149.49 | 0.00 | 0.11 | 0.00 | 0.18 | 0.00 |
| 101 | 19 | 497.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -497.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 497.92 | 0.00 | 0.19 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -497.92 | 0.00 | -0.19 | 0.00 | -0.32 | 0.00 |
| 103 | 36 | 502.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -502.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 502.33 | 0.00 | -0.07 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -502.33 | 0.00 | 0.07 | 0.00 | 0.13 | 0.00 |
| 105 | 55 | 498.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -498.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 498.28 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -498.28 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 107 | 74 | 500.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -500.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 500.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -500.02 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 109 | 93 | 498.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -498.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 498.59 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -498.59 | 0.00 | 0.01 | 0.00 | 0.02 | 0.00 |
| 111 | 111 | 502.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -502.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 502.22 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -502.22 | 0.00 | 0.03 | 0.00 | 0.05 | 0.00 |
| 113 | 129 | 497.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -497.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 497.72 | 0.00 | 0.12 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -497.72 | 0.00 | -0.12 | 0.00 | -0.20 | 0.00 |
| 115 | 141 | 149.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -168.70 | -363.38 | 0.00 | 0.00 | 0.00 | 622.10 |
| 116 | 143 | 149.64 | 0.00 | -0.07 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -168.66 | -363.38 | 0.11 | 0.00 | 0.19 | 622.10 |
| 117 | 6 | 298.99 | 0.00 | -0.11 | 0.00 | 0.09 | 0.00 |
| 117 | 7 | -298.99 | 0.00 | 0.11 | 0.00 | 0.02 | 0.00 |
| 118 | 145 | 261.28 | -726.75 | -0.04 | 0.00 | -0.02 | -726.75 |
| 118 | 146 | -299.32 | 0.00 | 0.07 | 0.00 | 0.12 | 0.00 |
| 119 | 3 | 0.00 | 149.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -228.71 | 0.00 | 0.00 | 0.00 | 972.03 |
| 120 | 1 | 0.91 | -228.66 | 0.00 | 0.00 | 0.00 | -970.23 |
| 120 | 5 | 16.29 | -2.17 | 0.00 | 0.00 | 0.00 | 27.88 |
| 121 | 20 | 0.00 | 576.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | -637.47 | 0.01 | 0.00 | 0.00 | 1179.32 |
| 122 | 15 | -29.17 | -627.71 | -0.01 | 0.00 | -0.01 | -1211.23 |
| 122 | 22 | 36.44 | 562.04 | 0.01 | 0.00 | -0.01 | 62.39 |
| 123 | 37 | 0.00 | 581.36 | 0.00 | 0.00 | 0.00 | -0.01 |
| 123 | 32 | 0.00 | -696.07 | 0.00 | 0.00 | 0.00 | 1287.73 |
| 124 | 32 | 8.04 | -692.34 | 0.00 | 0.00 | 0.00 | -1267.09 |
| 124 | 39 | 43.94 | -95.82 | 0.00 | 0.00 | 0.00 | 75.23 |
| 125 | 56 | 0.00 | 540.99 | -0.01 | 0.00 | 0.00 | -0.01 |
| 125 | 49 | 0.00 | -683.78 | 0.00 | 0.00 | 0.01 | 1265.04 |
| 126 | 49 | -32.66 | -683.59 | 0.00 | 0.00 | -0.01 | -1320.58 |
| 126 | 58 | 34.54 | 674.11 | 0.00 | 0.00 | 0.00 | 59.11 |
| 127 | 75 | 0.00 | 582.17 | 0.00 | 0.00 | 0.00 | -0.01 |
| 127 | 68 | 0.00 | -679.74 | 0.00 | 0.00 | 0.00 | 1257.57 |
| 128 | 68 | -25.38 | -679.55 | 0.00 | 0.00 | -0.01 | -1300.65 |
| 128 | 77 | 27.54 | 669.89 | 0.00 | 0.00 | 0.00 | 47.15 |
| 129 | 94 | -0.01 | 353.17 | 0.00 | 0.00 | 0.00 | -0.01 |
| 129 | 87 | 0.00 | -684.33 | 0.00 | 0.00 | 0.00 | 1266.03 |
| 130 | 87 | -22.88 | -684.10 | 0.00 | 0.00 | 0.01 | -1304.82 |
| 130 | 96 | 27.41 | 580.61 | 0.01 | 0.00 | 0.00 | 46.93 |
| 131 | 112 | 0.00 | 273.21 | 0.01 | 0.00 | 0.00 | -0.01 |
| 131 | 106 | 0.01 | -684.57 | 0.00 | 0.00 | 0.00 | 1266.47 |
| 132 | 106 | 2.61 | -683.95 | 0.01 | 0.00 | 0.00 | -1260.88 |
| 132 | 114 | 30.26 | -55.16 | -0.01 | 0.00 | 0.00 | 51.81 |
| 133 | 130 | 0.00 | 378.63 | 0.00 | 0.00 | 0.00 | -0.01 |
| 133 | 124 | 0.00 | -646.86 | 0.00 | 0.00 | -0.01 | 1196.71 |
| 134 | 124 | -36.12 | -623.18 | 0.00 | 0.00 | 0.00 | -1214.73 |
| 134 | 132 | 38.36 | 590.99 | 0.00 | 0.00 | 0.00 | 65.66 |
| 135 | 142 | 0.00 | 149.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -239.37 | -191.25 | 327.42 | -812.81 | 1017.31 |
| 136 | 140 | 1.13 | -239.26 | -191.25 | 327.42 | 812.81 | -1014.90 |
| 136 | 144 | 23.11 | -37.16 | 0.00 | 0.00 | 0.00 | 39.56 |
| 137 | 2 | 0.00 | -149.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | -46.82 | 0.00 | 0.00 | 0.00 | 199.01 |
| 138 | 7 | 3.37 | -46.82 | 0.00 | 0.00 | 0.00 | -199.00 |
| 138 | 4 | 0.11 | -149.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -521.55 | 0.00 | 0.00 | 0.00 | -0.01 |
| 139 | 18 | 0.00 | -80.38 | 0.00 | 0.00 | 0.00 | 148.70 |
| 140 | 18 | 3.48 | -80.34 | 0.00 | 0.00 | 0.00 | -148.62 |
| 140 | 21 | -1.43 | -597.35 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -249.36 | 0.00 | 0.00 | 0.00 | -0.01 |
| 141 | 35 | 0.00 | -122.21 | 0.00 | 0.00 | 0.00 | 226.08 |
| 142 | 35 | 43.29 | -122.26 | 0.00 | 0.00 | 0.00 | -226.17 |
| 142 | 38 | -1.82 | -269.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -593.12 | 0.00 | 0.00 | 0.00 | -0.01 |
| 143 | 54 | 0.00 | -114.61 | 0.00 | 0.00 | 0.00 | 212.01 |
| 144 | 54 | -9.83 | -114.50 | 0.00 | 0.00 | 0.00 | -211.82 |
| 144 | 57 | -19.52 | -589.86 | 0.00 | 0.00 | 0.00 | 0.01 |
| 145 | 74 | 0.00 | -582.56 | 0.00 | 0.00 | 0.00 | -0.01 |
| 145 | 73 | -0.01 | -108.94 | 0.00 | 0.00 | 0.00 | 201.52 |
| 146 | 73 | -4.93 | -108.80 | 0.00 | 0.00 | 0.00 | -201.26 |
| 146 | 76 | -16.34 | -584.12 | 0.00 | 0.00 | 0.00 | 0.01 |
| 147 | 93 | 0.00 | -549.90 | 0.00 | 0.00 | 0.00 | -0.01 |
| 147 | 92 | -0.01 | -114.21 | 0.00 | 0.00 | 0.00 | 211.26 |
| 148 | 92 | 0.68 | -114.08 | 0.00 | 0.00 | 0.00 | -211.03 |
| 148 | 95 | -18.24 | -592.82 | 0.00 | 0.00 | 0.00 | 0.01 |
| 149 | 111 | 0.00 | -291.04 | 0.00 | 0.00 | 0.00 | -0.01 |
| 149 | 110 | 0.00 | -109.63 | 0.00 | 0.00 | 0.00 | 202.81 |
| 150 | 110 | 28.94 | -109.60 | 0.00 | 0.00 | 0.00 | -202.75 |
| 150 | 113 | 0.05 | -616.47 | 0.00 | 0.00 | 0.00 | 0.01 |
| 151 | 129 | 0.00 | -310.67 | 0.00 | 0.00 | 0.00 | -0.01 |
| 151 | 128 | 0.00 | -74.66 | 0.00 | 0.00 | 0.00 | 138.11 |
| 152 | 128 | -5.78 | -74.55 | 0.00 | 0.00 | 0.00 | -137.92 |
| 152 | 131 | 0.07 | -598.19 | 0.00 | 0.00 | 0.00 | 0.01 |
| 153 | 141 | 0.00 | -149.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | -63.60 | -191.25 | 0.00 | -812.81 | 270.30 |
| 154 | 146 | 9.20 | -63.57 | -191.25 | 0.00 | 812.81 | -270.17 |
| 154 | 143 | 0.07 | -149.64 | 0.00 | 0.00 | 0.00 | 0.00 |

# MAX. Y MIN. DE SOBRECARGA (EC-1)

Ver nota en hipótesis simple.

proc Viaducto de Can Torres proyecto modificado (servicio)

HIPOTESIS 51

FUER X MAX sobrecarga + fr. + fc (ec-1)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 215.49 | -0.08 | 0.14 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -143.49 | 0.08 | -0.14 | 0.35 | 807.71 |
| 2 | 8 | 0.00 | 143.49 | -0.08 | 0.14 | -0.35 | -807.71 |
| 2 | 9 | 0.00 | -71.49 | 0.08 | -0.14 | 0.70 | 1291.42 |
| 3 | 9 | 0.00 | 71.49 | -0.08 | 0.14 | -0.70 | -1291.42 |
| 3 | 10 | 0.00 | 0.51 | 0.08 | -0.14 | 1.05 | 1451.13 |
| 4 | 10 | 0.00 | -0.51 | -0.08 | 0.14 | -1.05 | -1451.13 |
| 4 | 11 | 0.00 | 72.51 | 0.08 | -0.14 | 1.40 | 1286.84 |
| 5 | 11 | 0.00 | -72.51 | -0.08 | 0.14 | -1.40 | -1286.84 |
| 5 | 12 | 0.00 | 144.51 | 0.08 | -0.14 | 1.75 | 798.54 |
| 6 | 12 | 0.00 | -144.51 | -0.08 | 0.14 | -1.75 | -798.54 |
| 6 | 13 | 0.00 | 216.51 | 0.08 | -0.14 | 2.10 | -13.75 |
| 7 | 13 | 0.00 | -216.51 | -0.08 | 0.14 | -2.10 | 13.75 |
| 7 | 14 | 0.00 | 288.51 | 0.08 | -0.14 | 2.45 | -1150.04 |
| 8 | 14 | 0.00 | -288.51 | -0.08 | 0.14 | -2.45 | 1150.04 |
| 8 | 15 | 0.00 | 360.51 | 0.08 | -0.14 | 2.80 | -2610.33 |
| 9 | 15 | 0.00 | 357.17 | 0.06 | -0.17 | -2.80 | 2610.33 |
| 9 | 23 | -9.00 | -139.07 | 5.78 | -517.55 | 7.85 | -583.64 |
| 10 | 23 | 9.00 | 139.07 | -5.78 | 517.55 | -7.85 | 583.64 |
| 10 | 24 | -18.00 | -103.07 | 5.78 | -422.15 | 55.00 | -22.87 |
| 11 | 24 | 18.00 | 103.07 | -5.78 | 422.15 | -55.00 | 22.87 |
| 11 | 25 | -27.00 | -67.07 | 5.78 | -326.75 | 102.15 | 375.91 |
| 12 | 25 | 27.00 | 67.07 | -5.78 | 326.75 | -102.15 | -375.91 |
| 12 | 26 | -36.00 | -31.07 | 5.78 | -231.35 | 149.29 | 612.68 |
| 13 | 26 | 36.00 | 31.07 | -5.78 | 231.35 | -149.30 | -612.68 |
| 13 | 27 | -45.00 | 4.93 | 5.78 | -135.95 | 196.44 | 687.46 |
| 14 | 27 | 45.00 | -4.93 | -5.78 | 135.95 | -196.44 | -687.46 |
| 14 | 28 | -54.00 | 40.93 | 5.78 | -40.55 | 243.59 | 600.24 |
| 15 | 28 | 54.00 | -40.93 | -5.78 | 40.55 | -243.59 | -600.24 |
| 15 | 29 | -63.00 | 76.93 | 5.78 | 54.85 | 290.74 | 351.01 |
| 16 | 29 | 63.00 | -76.93 | -5.78 | -54.85 | -290.74 | -351.01 |
| 16 | 30 | -72.00 | 112.93 | 5.78 | 150.25 | 337.89 | -60.21 |
| 17 | 30 | 72.00 | -112.93 | -5.78 | -150.25 | -337.89 | 60.21 |
| 17 | 31 | -81.00 | 148.93 | 5.78 | 245.65 | 385.03 | -633.44 |
| 18 | 31 | 81.00 | -148.93 | -5.78 | -245.65 | -385.03 | 633.44 |
| 18 | 32 | -90.00 | 184.93 | 5.78 | 341.05 | 432.18 | -1368.66 |
| 19 | 32 | 90.00 | 177.11 | 23.32 | 547.43 | -432.19 | 1368.66 |
| 19 | 40 | -99.00 | -141.11 | -23.32 | -452.03 | 348.39 | -636.70 |
| 20 | 40 | 99.00 | 141.11 | 23.32 | 452.03 | -348.39 | 636.70 |
| 20 | 41 | -108.00 | -105.11 | -23.32 | -356.63 | 264.60 | -66.75 |
| 21 | 41 | 108.00 | 105.11 | 23.32 | 356.64 | -264.60 | 66.75 |
| 21 | 42 | -117.00 | -69.11 | -23.32 | -261.23 | 180.81 | 341.21 |
| 22 | 42 | 117.00 | 69.11 | 23.32 | 261.23 | -180.81 | -341.21 |
| 22 | 43 | -126.00 | -33.11 | -23.32 | -165.83 | 97.02 | 587.17 |
| 23 | 43 | 126.00 | 33.11 | 23.32 | 165.84 | -97.02 | -587.17 |
| 23 | 44 | -135.00 | 2.89 | -23.32 | -70.44 | 13.23 | 671.13 |
| 24 | 44 | 135.00 | -2.89 | 23.32 | 70.43 | -13.23 | -671.13 |
| 24 | 45 | -144.00 | 38.89 | -23.32 | 24.97 | -70.56 | 593.09 |
| 25 | 45 | 144.00 | -38.89 | 23.32 | -24.97 | 70.56 | -593.09 |
| 25 | 46 | -153.00 | 74.89 | -23.32 | 120.37 | -154.36 | 353.04 |
| 26 | 46 | 153.00 | -74.89 | 23.32 | -120.37 | 154.36 | -353.04 |
| 26 | 47 | -162.00 | 110.89 | -23.32 | 215.77 | -238.15 | -49.00 |
| 27 | 47 | 162.00 | -110.89 | 23.32 | -215.77 | 238.15 | 49.00 |
| 27 | 48 | -171.00 | 146.89 | -23.32 | 311.17 | -321.94 | -613.04 |
| 28 | 48 | 171.00 | -146.89 | 23.32 | -311.16 | 321.94 | 613.04 |
| 28 | 49 | -180.00 | 182.89 | -23.32 | 406.56 | -405.73 | -1339.08 |
| 29 | 49 | 180.00 | 176.12 | 8.63 | 520.73 | 405.73 | 1339.08 |
| 29 | 59 | -189.00 | -140.12 | -8.63 | -425.33 | -423.43 | -611.56 |
| 30 | 59 | 189.00 | 140.12 | 8.63 | 425.33 | 423.43 | 611.56 |
| 30 | 60 | -198.00 | -104.12 | -8.63 | -329.93 | -441.14 | -46.04 |
| 31 | 60 | 198.00 | 104.12 | 8.64 | 329.93 | 441.14 | 46.04 |
| 31 | 61 | -207.00 | -68.12 | -8.64 | -234.53 | -458.85 | 357.47 |
| 32 | 61 | 207.00 | 68.12 | 8.64 | 234.53 | 458.85 | -357.47 |
| 32 | 62 | -216.00 | -32.12 | -8.64 | -139.13 | -476.55 | 598.99 |
| 33 | 62 | 216.00 | 32.12 | 8.64 | 139.13 | 476.55 | -598.99 |
| 33 | 63 | -225.00 | 3.88 | -8.64 | -43.73 | -494.26 | 678.51 |
| 34 | 63 | 225.00 | -3.88 | 8.64 | 43.73 | 494.26 | -678.51 |
| 34 | 64 | -234.00 | 39.88 | -8.64 | 51.67 | -511.97 | 596.03 |
| 35 | 64 | 234.00 | -39.88 | 8.63 | -51.67 | 511.97 | -596.03 |
| 35 | 65 | -243.00 | 75.88 | -8.63 | 147.07 | -529.67 | 351.55 |
| 36 | 65 | 243.00 | -75.88 | 8.64 | -147.07 | 529.67 | -351.55 |
| 36 | 66 | -252.00 | 111.88 | -8.64 | 242.47 | -547.38 | -54.93 |
| 37 | 66 | 252.00 | -111.88 | 8.63 | -242.47 | 547.38 | 54.93 |
| 37 | 67 | -261.00 | 147.88 | -8.63 | 337.87 | -565.09 | -623.41 |
| 38 | 67 | 261.00 | -147.88 | 8.63 | -337.87 | 565.08 | 623.41 |
| 38 | 68 | -270.00 | 183.88 | -8.63 | 433.27 | -582.79 | -1353.89 |
| 39 | 68 | 270.00 | 176.99 | -0.85 | 468.34 | 582.79 | 1353.89 |
| 39 | 78 | -279.00 | -140.99 | 0.85 | -372.94 | -557.84 | -622.46 |
| 40 | 78 | 279.00 | 140.99 | -0.84 | 372.94 | 557.84 | 622.46 |
| 40 | 79 | -288.00 | -104.99 | 0.84 | -277.54 | -532.88 | -53.03 |
| 41 | 79 | 288.00 | 104.99 | -0.85 | 277.54 | 532.88 | 53.03 |
| 41 | 80 | -297.00 | -68.99 | 0.85 | -182.14 | -507.93 | 354.40 |
| 42 | 80 | 297.00 | 68.99 | -0.84 | 182.14 | 507.93 | -354.40 |
| 42 | 81 | -306.00 | -32.99 | 0.84 | -86.74 | -482.97 | 599.83 |
| 43 | 81 | 306.00 | 32.99 | -0.85 | 86.74 | 482.97 | -599.83 |
| 43 | 82 | -315.00 | 3.01 | 0.85 | 8.66 | -458.02 | 683.26 |
| 44 | 82 | 315.00 | -3.01 | -0.85 | -8.66 | 458.01 | -683.26 |
| 44 | 83 | -324.00 | 39.01 | 0.85 | 104.06 | -433.06 | 604.69 |
| 45 | 83 | 324.00 | -39.01 | -0.85 | -104.06 | 433.06 | -604.69 |
| 45 | 84 | -333.00 | 75.01 | 0.85 | 199.46 | -408.11 | 364.12 |
| 46 | 84 | 333.00 | -75.01 | -0.85 | -199.46 | 408.11 | -364.12 |
| 46 | 85 | -342.00 | 111.01 | 0.85 | 294.86 | -383.15 | -38.45 |
| 47 | 85 | 342.00 | -111.01 | -0.85 | -294.86 | 383.15 | 38.45 |
| 47 | 86 | -351.00 | 147.01 | 0.85 | 390.26 | -358.19 | -603.02 |
| 48 | 86 | 351.00 | -147.01 | -0.85 | -390.26 | 358.19 | 603.02 |
| 48 | 87 | -360.00 | 183.01 | 0.85 | 485.66 | -333.24 | -1329.59 |
| 49 | 87 | 360.00 | 174.32 | -5.91 | 423.10 | 333.24 | 1329.59 |
| 49 | 97 | -369.00 | -138.32 | 5.91 | -327.70 | -285.51 | -610.16 |
| 50 | 97 | 369.00 | 138.32 | -5.91 | 327.70 | 285.51 | 610.16 |
| 50 | 98 | -378.00 | -102.32 | 5.91 | -232.30 | -237.79 | -52.73 |
| 51 | 98 | 378.00 | 102.32 | -5.91 | 232.30 | 237.79 | 52.73 |
| 51 | 99 | -387.00 | -66.32 | 5.91 | -136.90 | -190.06 | 342.69 |
| 52 | 99 | 387.00 | 66.32 | -5.91 | 136.90 | 190.06 | -342.69 |
| 52 | 100 | -396.00 | -30.32 | 5.91 | -41.50 | -142.34 | 576.12 |
| 53 | 100 | 396.00 | 30.32 | -5.91 | 41.50 | 142.33 | -576.12 |
| 53 | 101 | -405.00 | 5.68 | 5.91 | 53.90 | -94.61 | 647.55 |
| 54 | 101 | 405.00 | -5.68 | -5.91 | -53.90 | 94.61 | -647.55 |
| 54 | 102 | -414.00 | 41.68 | 5.91 | 149.30 | -46.88 | 556.98 |
| 55 | 102 | 414.00 | -41.68 | -5.91 | -149.30 | 46.88 | -556.98 |
| 55 | 103 | -423.00 | 77.68 | 5.91 | 244.70 | 0.85 | 304.40 |
| 56 | 103 | 423.00 | -77.68 | -5.91 | -244.70 | -0.85 | -304.40 |
| 56 | 104 | -432.00 | 113.68 | 5.91 | 340.10 | 48.57 | -110.17 |
| 57 | 104 | 432.00 | -113.68 | -5.91 | -340.10 | -48.57 | 110.17 |
| 57 | 105 | -441.00 | 149.68 | 5.91 | 435.50 | 96.30 | -686.74 |
| 58 | 105 | 441.00 | -149.68 | -5.91 | -435.50 | -96.30 | 686.74 |
| 58 | 106 | -450.00 | 185.68 | 5.91 | 530.90 | 144.03 | -1425.32 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 59 | 106 | 450.00 | 184.40 | -13.38 | -329.81 | 143.23 | 1425.47 |
| 59 | 115 | -459.00 | -148.40 | 13.38 | 234.41 | -104.15 | -660.71 |
| 60 | 115 | 459.00 | 148.40 | -13.38 | -234.41 | 104.15 | 660.71 |
| 60 | 116 | -468.00 | -112.40 | 13.38 | 139.01 | -65.08 | -57.94 |
| 61 | 116 | 468.00 | 112.40 | -13.38 | -139.01 | 65.08 | 57.94 |
| 61 | 117 | -477.00 | -76.40 | 13.38 | 43.61 | -26.01 | 382.82 |
| 62 | 117 | 477.00 | 76.40 | -13.38 | -43.61 | 26.01 | -382.82 |
| 62 | 118 | -486.00 | -40.40 | 13.38 | -51.79 | 13.07 | 661.58 |
| 63 | 118 | 486.00 | 40.40 | -13.38 | 51.79 | -13.07 | -661.58 |
| 63 | 119 | -495.00 | -4.40 | 13.38 | -147.19 | 52.14 | 778.34 |
| 64 | 119 | 495.00 | 4.40 | -13.38 | 147.19 | -52.14 | -778.34 |
| 64 | 120 | -504.00 | 31.60 | 13.38 | -242.59 | 91.21 | 733.10 |
| 65 | 120 | 504.00 | -31.60 | -13.38 | 242.59 | -91.21 | -733.10 |
| 65 | 121 | -513.00 | 67.60 | 13.38 | -337.99 | 130.28 | 525.87 |
| 66 | 121 | 513.00 | -67.60 | -13.38 | 337.99 | -130.28 | -525.87 |
| 66 | 122 | -522.00 | 103.60 | 13.38 | -433.39 | 169.36 | 156.63 |
| 67 | 122 | 522.00 | -103.60 | -13.38 | 433.39 | -169.36 | -156.63 |
| 67 | 123 | -531.00 | 139.60 | 13.38 | -528.79 | 208.43 | -374.61 |
| 68 | 123 | 531.00 | -139.60 | -13.38 | 528.79 | -208.43 | 374.61 |
| 68 | 124 | -540.00 | 175.60 | 13.38 | -624.19 | 247.50 | -1067.85 |
| 69 | 124 | 540.00 | 141.01 | 2.18 | -134.45 | -247.51 | 1067.85 |
| 69 | 133 | -549.00 | -105.01 | -2.18 | 39.05 | 216.57 | -498.34 |
| 70 | 133 | 549.00 | 105.01 | 2.17 | -39.05 | -216.57 | 498.34 |
| 70 | 134 | -572.85 | -165.75 | -0.33 | 8.33 | -73.75 | -123.13 |
| 71 | 134 | 572.85 | 165.75 | 0.33 | -8.33 | 73.75 | 123.13 |
| 71 | 135 | -596.70 | -93.75 | -0.33 | 8.33 | -61.46 | 503.10 |
| 72 | 135 | 596.70 | 93.75 | 0.33 | -8.33 | 61.46 | -503.10 |
| 72 | 136 | -620.55 | -21.75 | -0.33 | 8.33 | -49.17 | 805.34 |
| 73 | 136 | 620.55 | 21.75 | 0.33 | -8.33 | 49.17 | -805.34 |
| 73 | 137 | -644.40 | 50.25 | -0.33 | 8.33 | -36.87 | 783.58 |
| 74 | 137 | 644.40 | -50.25 | 0.33 | -8.33 | 36.87 | -783.58 |
| 74 | 138 | -668.25 | 122.25 | -0.33 | 8.33 | -24.58 | 437.82 |
| 75 | 138 | 668.25 | -122.25 | 0.33 | -8.33 | 24.58 | -437.82 |
| 75 | 139 | -692.10 | 194.25 | -0.33 | 8.33 | -12.29 | -231.94 |
| 76 | 139 | 692.10 | -194.25 | 0.33 | -8.33 | 12.29 | 231.94 |
| 76 | 140 | -715.95 | 266.25 | -0.33 | 8.33 | 0.00 | -1225.71 |
| 77 | 16 | 1112.48 | 0.00 | -1.78 | 0.00 | 18.24 | 0.00 |
| 77 | 17 | -1112.48 | 0.00 | 1.78 | 0.00 | -8.80 | 0.00 |
| 78 | 17 | 1112.48 | 0.00 | -1.78 | 0.00 | 8.80 | 0.00 |
| 78 | 18 | -1112.48 | 0.00 | 1.78 | 0.00 | 0.11 | 0.00 |
| 79 | 33 | 1138.09 | 0.00 | 0.12 | 0.00 | -2.79 | 0.00 |
| 79 | 34 | -1138.09 | 0.00 | -0.12 | 0.00 | 1.89 | 0.00 |
| 80 | 34 | 1138.09 | 0.00 | 0.12 | 0.00 | -1.89 | 0.00 |
| 80 | 35 | -1138.09 | 0.00 | -0.12 | 0.00 | 1.30 | 0.00 |
| 81 | 50 | 1135.97 | 0.00 | -0.14 | 0.00 | 3.57 | 0.00 |
| 81 | 51 | -1135.97 | 0.00 | 0.14 | 0.00 | -3.02 | 0.00 |
| 82 | 51 | 1135.97 | 0.00 | -0.14 | 0.00 | 3.02 | 0.00 |
| 82 | 52 | -1135.97 | 0.00 | 0.14 | 0.00 | -1.67 | 0.00 |
| 83 | 52 | 1135.97 | 0.00 | -0.14 | 0.00 | 1.67 | 0.00 |
| 83 | 53 | -1135.97 | 0.00 | 0.14 | 0.00 | -0.32 | 0.00 |
| 84 | 53 | 1135.97 | 0.00 | -0.14 | 0.00 | 0.32 | 0.00 |
| 84 | 54 | -1135.97 | 0.00 | 0.14 | 0.00 | 0.36 | 0.00 |
| 85 | 69 | 1136.08 | 0.00 | -0.11 | 0.00 | 3.19 | 0.00 |
| 85 | 70 | -1136.08 | 0.00 | 0.11 | 0.00 | -2.40 | 0.00 |
| 86 | 70 | 1136.08 | 0.00 | -0.11 | 0.00 | 2.40 | 0.00 |
| 86 | 71 | -1136.08 | 0.00 | 0.11 | 0.00 | -1.27 | 0.00 |
| 87 | 71 | 1136.08 | 0.00 | -0.11 | 0.00 | 1.27 | 0.00 |
| 87 | 72 | -1136.08 | 0.00 | 0.11 | 0.00 | -0.14 | 0.00 |
| 88 | 72 | 1136.08 | 0.00 | -0.11 | 0.00 | 0.14 | 0.00 |
| 88 | 73 | -1136.08 | 0.00 | 0.11 | 0.00 | 0.42 | 0.00 |
| 89 | 88 | 1138.05 | 0.00 | -0.12 | 0.00 | 1.29 | 0.00 |
| 89 | 89 | -1138.05 | 0.00 | 0.12 | 0.00 | -1.16 | 0.00 |
| 90 | 89 | 1138.05 | 0.00 | -0.12 | 0.00 | 1.16 | 0.00 |
| 90 | 90 | -1138.05 | 0.00 | 0.12 | 0.00 | 0.07 | 0.00 |
| 91 | 90 | 1138.05 | 0.00 | -0.12 | 0.00 | -0.07 | 0.00 |
| 91 | 91 | -1138.05 | 0.00 | 0.12 | 0.00 | 1.31 | 0.00 |
| 92 | 91 | 1138.05 | 0.00 | -0.12 | 0.00 | -1.31 | 0.00 |
| 92 | 92 | -1138.05 | 0.00 | 0.12 | 0.00 | 1.93 | 0.00 |
| 93 | 107 | 1142.09 | 0.00 | 0.61 | 0.00 | -11.24 | 0.00 |
| 93 | 108 | -1142.09 | 0.00 | -0.61 | 0.00 | 10.62 | 0.00 |
| 94 | 108 | 1142.09 | 0.00 | 0.61 | 0.00 | -10.62 | 0.00 |
| 94 | 109 | -1142.09 | 0.00 | -0.61 | 0.00 | 4.50 | 0.00 |
| 95 | 109 | 1142.09 | 0.00 | 0.61 | 0.00 | -4.50 | 0.00 |
| 95 | 110 | -1142.09 | 0.00 | -0.61 | 0.00 | 1.44 | 0.00 |
| 96 | 125 | 1136.75 | 0.00 | -1.82 | 0.00 | 26.46 | 0.00 |
| 96 | 126 | -1136.75 | 0.00 | 1.82 | 0.00 | -24.64 | 0.00 |
| 97 | 126 | 1136.75 | 0.00 | -1.82 | 0.00 | 24.64 | 0.00 |
| 97 | 127 | -1136.75 | 0.00 | 1.82 | 0.00 | -6.44 | 0.00 |
| 98 | 127 | 1136.75 | 0.00 | -1.82 | 0.00 | 6.44 | 0.00 |
| 98 | 128 | -1136.75 | 0.00 | 1.82 | 0.00 | 2.65 | 0.00 |
| 99 | 2 | 199.98 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -199.98 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 199.99 | 0.00 | -0.81 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -199.99 | 0.00 | 0.81 | 0.00 | 1.38 | 0.00 |
| 101 | 19 | 562.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -562.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 561.98 | 0.00 | -1.29 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -561.98 | 0.00 | 1.29 | 0.00 | 2.21 | 0.00 |
| 103 | 36 | 576.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -576.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 576.41 | 0.00 | -2.10 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -576.41 | 0.00 | 2.10 | 0.00 | 3.60 | 0.00 |
| 105 | 55 | 575.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -575.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 574.67 | 0.00 | 0.61 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -574.67 | 0.00 | -0.61 | 0.00 | -1.04 | 0.00 |
| 107 | 74 | 574.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -574.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 574.43 | 0.00 | 0.37 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -574.43 | 0.00 | -0.37 | 0.00 | -0.63 | 0.00 |
| 109 | 93 | 576.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -576.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 575.83 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -575.83 | 0.00 | -0.06 | 0.00 | -0.11 | 0.00 |
| 111 | 111 | 578.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -578.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 577.79 | 0.00 | -2.06 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -577.79 | 0.00 | 2.06 | 0.00 | 3.53 | 0.00 |
| 113 | 129 | 574.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -574.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 573.90 | 0.00 | 2.18 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -573.90 | 0.00 | -2.18 | 0.00 | -3.73 | 0.00 |
| 115 | 141 | 213.25 | 178.99 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -213.25 | -178.99 | 0.00 | 0.00 | 0.00 | 306.43 |
| 116 | 143 | 213.20 | 178.99 | -0.46 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -213.20 | -178.99 | 0.46 | 0.00 | 0.79 | 306.43 |
| 117 | 6 | 396.15 | 0.00 | 0.22 | 0.00 | -2.77 | 0.00 |
| 117 | 7 | -396.15 | 0.00 | -0.22 | 0.00 | 2.55 | 0.00 |
| 118 | 145 | 421.63 | 357.98 | -0.30 | 0.00 | -3.73 | 357.98 |
| 118 | 146 | -421.63 | -357.98 | 0.30 | 0.00 | 4.02 | 0.00 |
| 119 | 3 | 0.00 | 107.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -107.75 | 0.00 | 0.00 | 0.00 | 457.92 |
| 120 | 1 | 23.73 | -134.51 | 0.00 | 0.00 | 0.00 | -531.04 |
| 120 | 5 | -23.73 | 134.51 | 0.00 | 0.00 | 0.00 | -40.63 |
| 121 | 20 | 0.00 | -34.11 | 0.01 | 0.00 | 0.01 | 0.00 |
| 121 | 15 | 0.00 | 34.11 | -0.01 | 0.00 | -0.01 | -63.12 |
| 122 | 15 | 44.39 | -197.51 | 0.00 | 0.00 | 0.01 | -289.40 |
| 122 | 22 | -44.39 | 197.51 | 0.00 | 0.00 | 0.00 | -76.00 |
| 123 | 37 | 0.01 | 366.68 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | -0.01 | -366.68 | 0.00 | 0.00 | 0.00 | 678.37 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 124 | 32 | 42.96 | -452.45 | -0.01 | 0.00 | 0.00 | -763.50 |
| 124 | 39 | -42.96 | 452.45 | 0.01 | 0.00 | 0.00 | -73.54 |
| 125 | 56 | 0.01 | 181.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | -0.01 | -181.05 | 0.00 | 0.00 | 0.00 | 334.93 |
| 126 | 49 | 39.31 | -25.16 | 0.00 | 0.00 | 0.01 | 20.77 |
| 126 | 58 | -39.31 | 25.16 | 0.00 | 0.00 | 0.00 | -67.30 |
| 127 | 75 | 0.02 | 189.25 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | -0.02 | -189.25 | 0.00 | 0.00 | 0.00 | 350.10 |
| 128 | 68 | 33.10 | -23.99 | -0.01 | 0.00 | -0.01 | 12.30 |
| 128 | 77 | -33.10 | 23.99 | 0.01 | 0.00 | 0.00 | -56.66 |
| 129 | 94 | 0.01 | 207.27 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | -0.01 | -207.27 | 0.00 | 0.00 | 0.00 | 383.45 |
| 130 | 87 | 37.74 | -23.46 | 0.00 | 0.00 | 0.00 | 21.23 |
| 130 | 96 | -37.74 | 23.46 | 0.00 | 0.00 | 0.01 | -64.62 |
| 131 | 112 | 0.01 | 211.96 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | -0.01 | -211.96 | 0.00 | 0.00 | 0.00 | 392.12 |
| 132 | 106 | 36.71 | -264.30 | 0.01 | 0.00 | 0.00 | -426.11 |
| 132 | 114 | -36.71 | 264.30 | -0.01 | 0.00 | 0.00 | -62.85 |
| 133 | 130 | 0.00 | 174.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | -174.38 | 0.00 | 0.00 | 0.00 | 322.61 |
| 134 | 124 | 50.36 | -59.80 | 0.00 | 0.00 | 0.00 | -24.41 |
| 134 | 132 | -50.36 | 59.80 | 0.00 | 0.00 | 0.00 | -86.21 |
| 135 | 142 | 0.00 | 107.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -107.87 | 0.00 | 0.00 | 0.00 | 458.46 |
| 136 | 140 | 32.96 | -143.54 | -127.01 | 217.45 | 539.80 | -553.64 |
| 136 | 144 | -32.96 | 143.54 | 127.01 | -217.45 | 0.00 | -56.42 |
| 137 | 2 | 0.00 | -107.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 107.75 | 0.00 | 0.00 | 0.00 | -457.92 |
| 138 | 7 | 23.79 | -23.08 | 0.00 | 0.00 | 0.00 | -98.08 |
| 138 | 4 | -23.79 | 23.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -358.82 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 358.82 | 0.00 | 0.00 | 0.00 | -663.81 |
| 140 | 18 | 44.33 | 471.14 | 0.00 | 0.00 | 0.00 | 871.60 |
| 140 | 21 | -44.33 | -471.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -279.66 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 279.66 | 0.00 | 0.00 | 0.00 | -517.37 |
| 142 | 35 | 42.60 | 477.33 | 0.00 | 0.00 | 0.00 | 883.06 |
| 142 | 38 | -42.60 | -477.33 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.01 | -384.01 | 0.00 | 0.00 | 0.00 | 0.01 |
| 143 | 54 | -0.01 | 384.01 | 0.00 | 0.00 | 0.00 | -710.39 |
| 144 | 54 | 39.21 | 518.68 | 0.00 | 0.00 | 0.00 | 959.56 |
| 144 | 57 | -39.21 | -518.68 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.01 | -186.83 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | -0.01 | 186.83 | 0.00 | 0.00 | 0.00 | -345.63 |
| 146 | 73 | 33.04 | 501.35 | 0.00 | 0.00 | 0.00 | 927.49 |
| 146 | 76 | -33.04 | -501.35 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.01 | -459.25 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | -0.01 | 459.25 | 0.00 | 0.00 | 0.00 | -849.61 |
| 148 | 92 | 37.63 | 520.69 | 0.00 | 0.00 | 0.00 | 963.26 |
| 148 | 95 | -37.63 | -520.69 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.01 | -216.98 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | -0.01 | 216.98 | 0.00 | 0.00 | 0.00 | -401.41 |
| 150 | 110 | 36.49 | 488.62 | 0.00 | 0.00 | 0.00 | 903.94 |
| 150 | 113 | -36.49 | -488.62 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -234.98 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 234.98 | 0.00 | 0.00 | 0.00 | -434.71 |
| 152 | 128 | 50.38 | 451.36 | 0.00 | 0.00 | 0.00 | 835.00 |
| 152 | 131 | -50.38 | -451.36 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -107.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 107.87 | 0.00 | 0.00 | 0.00 | -458.46 |
| 154 | 146 | 32.98 | -31.77 | -127.01 | 0.00 | 539.80 | -135.02 |
| 154 | 143 | -32.98 | 31.77 | 127.01 | 0.00 | 0.00 | 0.00 |



HIPOTESIS 52

FUER X MIN sobrecarga + fr. + fc (ec-1)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 215.52 | -0.93 | -3.53 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -143.52 | 0.93 | 3.53 | 4.20 | 807.85 |
| 2 | 8 | 0.00 | 143.52 | -0.93 | -3.53 | -4.20 | -807.85 |
| 2 | 9 | 0.00 | -71.52 | 0.93 | 3.53 | 8.40 | 1291.71 |
| 3 | 9 | 0.00 | 71.52 | -0.93 | -3.53 | -8.40 | -1291.71 |
| 3 | 10 | 0.00 | 0.48 | 0.93 | 3.53 | 12.61 | 1451.57 |
| 4 | 10 | 0.00 | -0.48 | -0.93 | -3.53 | -12.61 | -1451.57 |
| 4 | 11 | 0.00 | 72.48 | 0.93 | 3.53 | 16.81 | 1287.42 |
| 5 | 11 | 0.00 | -72.48 | -0.93 | -3.53 | -16.81 | -1287.42 |
| 5 | 12 | 0.00 | 144.48 | 0.93 | 3.53 | 21.01 | 799.28 |
| 6 | 12 | 0.00 | -144.48 | -0.93 | -3.53 | -21.01 | -799.28 |
| 6 | 13 | 0.00 | 216.48 | 0.93 | 3.53 | 25.21 | -12.87 |
| 7 | 13 | 0.00 | -216.48 | -0.93 | -3.53 | -25.21 | 12.87 |
| 7 | 14 | 0.00 | 288.48 | 0.93 | 3.53 | 29.41 | -1149.02 |
| 8 | 14 | 0.00 | -288.48 | -0.93 | -3.53 | -29.41 | 1149.02 |
| 8 | 15 | 0.00 | 360.48 | 0.93 | 3.53 | 33.62 | -2609.16 |
| 9 | 15 | 0.00 | 360.69 | -3.83 | 1.13 | -33.62 | 2609.16 |
| 9 | 23 | 9.00 | -288.69 | 3.83 | -1.13 | 29.71 | -1164.04 |
| 10 | 23 | -9.00 | 288.69 | -3.83 | 1.13 | -29.71 | 1164.04 |
| 10 | 24 | 18.00 | -216.69 | 3.83 | -1.13 | 25.80 | -42.93 |
| 11 | 24 | -18.00 | 216.69 | -3.83 | 1.13 | -25.80 | 42.93 |
| 11 | 25 | 27.00 | -144.69 | 3.83 | -1.13 | 21.89 | 754.19 |
| 12 | 25 | -27.00 | 144.69 | -3.83 | 1.13 | -21.89 | -754.19 |
| 12 | 26 | 36.00 | -72.69 | -3.94 | 1.47 | -14.48 | 1227.31 |
| 13 | 26 | -36.00 | 72.69 | -3.83 | 1.13 | -17.98 | -1227.31 |
| 13 | 27 | 45.00 | -0.69 | 3.83 | -1.13 | 14.07 | 1376.42 |
| 14 | 27 | -45.00 | 0.69 | -3.83 | 1.13 | -14.07 | -1376.42 |
| 14 | 28 | 54.00 | 71.31 | 3.83 | -1.13 | 10.16 | 1201.54 |
| 15 | 28 | -54.00 | -71.31 | -3.83 | 1.13 | -10.16 | -1201.54 |
| 15 | 29 | 63.00 | 143.31 | 3.83 | -1.13 | 6.25 | 702.66 |
| 16 | 29 | -63.00 | -143.31 | 3.94 | -1.47 | 4.28 | -702.66 |
| 16 | 30 | 72.00 | 215.31 | -3.94 | 1.47 | -0.88 | -120.23 |
| 17 | 30 | -72.00 | -215.31 | 3.94 | -1.47 | 0.88 | 120.23 |
| 17 | 31 | 81.00 | 287.31 | -3.94 | 1.47 | 2.52 | -1267.11 |
| 18 | 31 | -81.00 | -287.31 | 3.94 | -1.47 | -2.52 | 1267.11 |
| 18 | 32 | 90.00 | 359.31 | -3.94 | 1.47 | 5.92 | -2738.00 |
| 19 | 32 | -90.00 | 364.83 | 4.80 | -1.41 | -5.92 | 2738.00 |
| 19 | 40 | 99.00 | -292.83 | -4.80 | 1.41 | 5.48 | -1274.25 |
| 20 | 40 | -99.00 | 292.83 | 4.80 | -1.41 | -5.48 | 1274.25 |
| 20 | 41 | 108.00 | -220.83 | -4.80 | 1.41 | 5.04 | -134.51 |
| 21 | 41 | -108.00 | 220.83 | 4.80 | -1.41 | -5.04 | 134.51 |
| 21 | 42 | 117.00 | -148.83 | -4.80 | 1.41 | 4.60 | 681.23 |
| 22 | 42 | -117.00 | 148.83 | 4.80 | -1.41 | -4.60 | -681.23 |
| 22 | 43 | 126.00 | -76.83 | -4.80 | 1.41 | 4.16 | 1172.97 |
| 23 | 43 | -126.00 | 76.83 | 4.80 | -1.41 | -4.16 | -1172.97 |
| 23 | 44 | 135.00 | -4.83 | -4.80 | 1.41 | 3.72 | 1340.71 |
| 24 | 44 | -135.00 | 4.83 | 4.80 | -1.41 | -3.72 | -1340.71 |
| 24 | 45 | 144.00 | 67.17 | -4.80 | 1.41 | 3.28 | 1184.46 |
| 25 | 45 | -144.00 | -67.17 | 4.80 | -1.41 | -3.28 | -1184.46 |
| 25 | 46 | 153.00 | 139.17 | -4.80 | 1.41 | 2.84 | 704.20 |
| 26 | 46 | -153.00 | -139.17 | 4.80 | -1.41 | -2.84 | -704.20 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 26 | 47 | 162.00 | 211.17 | -4.80 | 1.41 | 2.39 | -100.06 |
| 27 | 47 | -162.00 | -211.17 | 4.80 | -1.41 | -2.39 | 100.06 |
| 27 | 48 | 171.00 | 283.17 | -4.80 | 1.41 | 1.95 | -1228.32 |
| 28 | 48 | -171.00 | -283.17 | 4.80 | -1.41 | -1.95 | 1228.32 |
| 28 | 49 | 180.00 | 355.17 | -4.80 | 1.41 | 1.51 | -2680.58 |
| 29 | 49 | -180.00 | 363.20 | 4.79 | -0.64 | -1.51 | 2680.58 |
| 29 | 59 | 189.00 | -291.20 | -4.79 | 0.64 | 1.10 | -1224.16 |
| 30 | 59 | -189.00 | 291.20 | 4.79 | -0.64 | -1.10 | 1224.16 |
| 30 | 60 | 198.00 | -219.20 | -4.79 | 0.64 | 0.69 | -91.74 |
| 31 | 60 | -198.00 | 219.20 | 4.79 | -0.64 | -0.69 | 91.74 |
| 31 | 61 | 207.00 | -147.20 | -4.79 | 0.64 | 0.27 | 716.68 |
| 32 | 61 | -207.00 | 147.20 | 4.79 | -0.64 | -0.27 | -716.68 |
| 32 | 62 | 216.00 | -75.20 | -4.79 | 0.64 | -0.14 | 1201.10 |
| 33 | 62 | -216.00 | 75.20 | 4.79 | -0.64 | 0.14 | -1201.10 |
| 33 | 63 | 225.00 | -3.20 | -4.79 | 0.64 | -0.55 | 1361.51 |
| 34 | 63 | -225.00 | 3.20 | 4.79 | -0.64 | 0.55 | -1361.51 |
| 34 | 64 | 234.00 | 68.80 | -4.79 | 0.64 | -0.97 | 1197.93 |
| 35 | 64 | -234.00 | -68.80 | 4.79 | -0.64 | 0.97 | -1197.93 |
| 35 | 65 | 243.00 | 140.80 | -4.79 | 0.64 | -1.38 | 710.35 |
| 36 | 65 | -243.00 | -140.80 | 4.79 | -0.64 | 1.38 | -710.35 |
| 36 | 66 | 252.00 | 212.80 | -4.79 | 0.64 | -1.79 | -101.23 |
| 37 | 66 | -252.00 | -212.80 | 4.79 | -0.64 | 1.79 | 101.23 |
| 37 | 67 | 261.00 | 284.80 | -4.79 | 0.64 | -2.21 | -1236.82 |
| 38 | 67 | -261.00 | -284.80 | 4.79 | -0.64 | 2.21 | 1236.82 |
| 38 | 68 | 270.00 | 356.80 | -4.79 | 0.64 | -2.62 | -2696.40 |
| 39 | 68 | -270.00 | 363.35 | 4.80 | -1.24 | 2.62 | 2696.40 |
| 39 | 78 | 279.00 | -291.35 | -4.80 | 1.24 | -3.07 | -1239.32 |
| 40 | 78 | -279.00 | 291.35 | 4.80 | -1.24 | 3.07 | 1239.32 |
| 40 | 79 | 288.00 | -219.35 | -4.80 | 1.24 | -3.53 | -106.24 |
| 41 | 79 | -288.00 | 219.35 | 4.80 | -1.24 | 3.53 | 106.24 |
| 41 | 80 | 297.00 | -147.35 | -4.80 | 1.24 | -3.98 | 702.84 |
| 42 | 80 | -297.00 | 147.35 | 4.80 | -1.24 | 3.98 | -702.84 |
| 42 | 81 | 306.00 | -75.35 | -4.80 | 1.24 | -4.43 | 1187.93 |
| 43 | 81 | -306.00 | 75.35 | 4.80 | -1.24 | 4.43 | -1187.93 |
| 43 | 82 | 315.00 | -3.35 | -4.80 | 1.24 | -4.88 | 1349.01 |
| 44 | 82 | -315.00 | 3.35 | 4.80 | -1.24 | 4.88 | -1349.01 |
| 44 | 83 | 324.00 | 68.65 | -4.80 | 1.24 | -5.34 | 1186.09 |
| 45 | 83 | -324.00 | -68.65 | 4.80 | -1.24 | 5.34 | -1186.09 |
| 45 | 84 | 333.00 | 140.65 | -4.80 | 1.24 | -5.79 | 699.17 |
| 46 | 84 | -333.00 | -140.65 | 4.80 | -1.24 | 5.79 | -699.17 |
| 46 | 85 | 342.00 | 212.65 | -4.80 | 1.24 | -6.24 | -111.75 |
| 47 | 85 | -342.00 | -212.65 | 4.80 | -1.24 | 6.24 | 111.75 |
| 47 | 86 | 351.00 | 284.65 | -4.80 | 1.24 | -6.70 | -1246.67 |
| 48 | 86 | -351.00 | -284.65 | 4.80 | -1.24 | 6.70 | 1246.67 |
| 48 | 87 | 360.00 | 356.65 | -4.80 | 1.24 | -7.15 | -2705.59 |
| 49 | 87 | -360.00 | 184.65 | 15.32 | -423.09 | -333.59 | 1358.54 |
| 49 | 97 | 369.00 | -148.65 | -15.32 | 327.69 | 285.81 | -624.61 |
| 50 | 97 | -369.00 | 148.65 | 15.32 | -327.69 | -285.81 | 624.61 |
| 50 | 98 | 378.00 | -112.65 | -15.32 | 232.29 | 238.03 | -52.67 |
| 51 | 98 | -378.00 | 112.65 | 15.32 | -232.29 | -238.03 | 52.67 |
| 51 | 99 | 387.00 | -76.65 | -15.32 | 136.89 | 190.26 | 357.27 |
| 52 | 99 | -387.00 | 76.65 | 15.32 | -136.89 | -190.25 | -357.27 |
| 52 | 100 | 396.00 | -40.65 | -15.32 | 41.49 | 142.48 | 605.20 |
| 53 | 100 | -396.00 | 40.65 | 15.32 | -41.49 | -142.48 | -605.20 |
| 53 | 101 | 405.00 | -4.65 | -15.32 | -53.91 | 94.70 | 691.14 |
| 54 | 101 | -405.00 | 4.65 | 15.32 | 53.91 | -94.70 | -691.14 |
| 54 | 102 | 414.00 | 31.35 | -15.32 | -149.31 | 46.92 | 615.08 |
| 55 | 102 | -414.00 | -31.35 | 15.32 | 149.31 | -46.92 | -615.08 |
| 55 | 103 | 423.00 | 67.35 | -15.32 | -244.71 | -0.85 | 377.01 |
| 56 | 103 | -423.00 | -67.35 | 15.32 | 244.71 | 0.85 | -377.01 |
| 56 | 104 | 432.00 | 103.35 | -15.32 | -340.11 | -48.63 | -23.05 |
| 57 | 104 | -432.00 | -103.35 | 15.32 | 340.11 | 48.63 | 23.05 |
| 57 | 105 | 441.00 | 139.35 | -15.32 | -435.51 | -96.41 | -585.11 |
| 58 | 105 | -441.00 | -139.35 | 15.32 | 435.51 | 96.41 | 585.11 |
| 58 | 106 | 450.00 | 175.35 | -15.32 | -530.91 | -144.19 | -1309.18 |
| 59 | 106 | -450.00 | 178.56 | -3.93 | -330.18 | 144.18 | 1309.18 |
| 59 | 115 | 459.00 | -142.56 | 3.93 | 234.78 | -105.36 | -602.64 |
| 60 | 115 | -459.00 | 142.56 | -3.93 | -234.78 | 105.36 | 602.64 |
| 60 | 116 | 468.00 | -106.56 | 3.93 | 139.38 | -66.55 | -58.11 |
| 61 | 116 | -468.00 | 106.56 | -3.93 | -139.38 | 66.55 | 58.11 |
| 61 | 117 | 477.00 | -70.56 | 3.93 | 43.98 | -27.73 | 324.42 |
| 62 | 117 | -477.00 | 70.56 | -3.93 | -43.98 | 27.73 | -324.42 |
| 62 | 118 | 486.00 | -34.56 | 3.93 | -51.42 | 11.09 | 544.95 |
| 63 | 118 | -486.00 | 34.56 | -3.93 | 51.42 | -11.09 | -544.95 |
| 63 | 119 | 495.00 | 1.44 | 3.93 | -146.82 | 49.91 | 603.48 |
| 64 | 119 | -495.00 | -1.44 | -3.93 | 146.82 | -49.91 | -603.48 |
| 64 | 120 | 504.00 | 37.44 | 3.93 | -242.22 | 88.72 | 500.02 |
| 65 | 120 | -504.00 | -37.44 | -3.93 | 242.22 | -88.72 | -500.02 |
| 65 | 121 | 513.00 | 73.44 | 3.93 | -337.62 | 127.54 | 234.55 |
| 66 | 121 | -513.00 | -73.44 | -3.93 | 337.62 | -127.54 | -234.55 |
| 66 | 122 | 522.00 | 109.44 | 3.93 | -433.02 | 166.36 | -192.92 |
| 67 | 122 | -522.00 | -109.44 | -3.93 | 433.02 | -166.36 | 192.92 |
| 67 | 123 | 531.00 | 145.44 | 3.93 | -528.42 | 205.18 | -782.39 |
| 68 | 123 | -531.00 | -145.44 | -3.93 | 528.42 | -205.18 | 782.39 |
| 68 | 124 | 540.00 | 181.44 | 3.93 | -623.82 | 243.99 | -1533.86 |
| 69 | 124 | -540.00 | 219.26 | 11.48 | -134.59 | -244.00 | 1533.86 |
| 69 | 133 | 549.00 | -183.26 | -11.48 | 39.19 | 213.50 | -644.16 |
| 70 | 133 | -549.00 | 183.26 | 11.48 | -39.19 | -213.50 | 644.16 |
| 70 | 134 | 572.85 | -266.80 | 0.22 | -7.97 | 76.66 | 108.25 |
| 71 | 134 | -572.85 | 266.80 | -0.22 | 7.97 | -76.66 | -108.25 |
| 71 | 135 | 596.70 | -194.80 | 0.22 | -7.97 | 63.88 | 1104.49 |
| 72 | 135 | -596.70 | 194.80 | -0.22 | 7.97 | -63.88 | -1104.49 |
| 72 | 136 | 620.55 | -122.80 | 0.22 | -7.97 | 51.10 | 1776.73 |
| 73 | 136 | -620.55 | 122.80 | -0.22 | 7.97 | -51.10 | -1776.73 |
| 73 | 137 | 644.40 | -50.80 | 0.22 | -7.97 | 38.33 | 2124.98 |
| 74 | 137 | -644.40 | 50.80 | -0.22 | 7.97 | -38.33 | -2124.98 |
| 74 | 138 | 668.25 | 21.20 | 0.22 | -7.97 | 25.55 | 2149.22 |
| 75 | 138 | -668.25 | -21.20 | -0.22 | 7.97 | -25.55 | -2149.22 |
| 75 | 139 | 692.10 | 93.20 | 0.22 | -7.97 | 12.78 | 1849.46 |
| 76 | 139 | -692.10 | -93.20 | -0.22 | 7.97 | -12.78 | -1849.46 |
| 76 | 140 | 715.95 | 165.20 | 0.22 | -7.97 | 0.00 | 1225.70 |
| 77 | 16 | -89.54 | 0.00 | 1.83 | 0.00 | -18.64 | 0.00 |
| 77 | 17 | 89.54 | 0.00 | -1.83 | 0.00 | 8.96 | 0.00 |
| 78 | 17 | -89.54 | 0.00 | 1.83 | 0.00 | -8.96 | 0.00 |
| 78 | 18 | 89.54 | 0.00 | -1.83 | 0.00 | -0.17 | 0.00 |
| 79 | 33 | -85.72 | 0.00 | -0.28 | 0.00 | 4.61 | 0.00 |
| 79 | 34 | 85.72 | 0.00 | 0.28 | 0.00 | -2.48 | 0.00 |
| 80 | 34 | -85.72 | 0.00 | -0.28 | 0.00 | 2.48 | 0.00 |
| 80 | 35 | 85.72 | 0.00 | 0.28 | 0.00 | -1.08 | 0.00 |
| 81 | 50 | -85.39 | 0.00 | 0.08 | 0.00 | -2.43 | 0.00 |
| 81 | 51 | 85.39 | 0.00 | -0.08 | 0.00 | 2.09 | 0.00 |
| 82 | 51 | -85.39 | 0.00 | 0.08 | 0.00 | -2.09 | 0.00 |
| 82 | 52 | 85.39 | 0.00 | -0.08 | 0.00 | 1.25 | 0.00 |
| 83 | 52 | -85.39 | 0.00 | 0.08 | 0.00 | -1.25 | 0.00 |
| 83 | 53 | 85.39 | 0.00 | -0.08 | 0.00 | 0.42 | 0.00 |
| 84 | 53 | -85.39 | 0.00 | 0.08 | 0.00 | -0.42 | 0.00 |
| 84 | 54 | 85.39 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 |
| 85 | 69 | -85.24 | 0.00 | 0.05 | 0.00 | -1.65 | 0.00 |
| 85 | 70 | 85.24 | 0.00 | -0.05 | 0.00 | 1.26 | 0.00 |
| 86 | 70 | -85.24 | 0.00 | 0.05 | 0.00 | -1.26 | 0.00 |
| 86 | 71 | 85.24 | 0.00 | -0.05 | 0.00 | 0.71 | 0.00 |
| 87 | 71 | -85.24 | 0.00 | 0.05 | 0.00 | -0.71 | 0.00 |
| 87 | 72 | 85.24 | 0.00 | -0.05 | 0.00 | 0.16 | 0.00 |
| 88 | 72 | -85.24 | 0.00 | 0.06 | 0.00 | -0.16 | 0.00 |
| 88 | 73 | 85.24 | 0.00 | -0.06 | 0.00 | -0.11 | 0.00 |
| 89 | 88 | -86.47 | 0.00 | 0.07 | 0.00 | -0.15 | 0.00 |
| 89 | 89 | 86.47 | 0.00 | -0.07 | 0.00 | 0.08 | 0.00 |
| 90 | 89 | -86.47 | 0.00 | 0.07 | 0.00 | -0.08 | 0.00 |
| 90 | 90 | 86.47 | 0.00 | -0.07 | 0.00 | -0.59 | 0.00 |
| 91 | 90 | -86.47 | 0.00 | 0.07 | 0.00 | 0.59 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 91 | 91 | 86.47 | 0.00 | -0.07 | 0.00 | -1.27 | 0.00 |
| 92 | 91 | -86.47 | 0.00 | 0.07 | 0.00 | 1.27 | 0.00 |
| 92 | 92 | 86.47 | 0.00 | -0.07 | 0.00 | -1.60 | 0.00 |
| 93 | 107 | -90.78 | 0.00 | -0.73 | 0.00 | 12.87 | 0.00 |
| 93 | 108 | 90.78 | 0.00 | 0.73 | 0.00 | -12.14 | 0.00 |
| 94 | 108 | -90.78 | 0.00 | -0.73 | 0.00 | 12.14 | 0.00 |
| 94 | 109 | 90.78 | 0.00 | 0.73 | 0.00 | -4.82 | 0.00 |
| 95 | 109 | -90.78 | 0.00 | -0.73 | 0.00 | 4.82 | 0.00 |
| 95 | 110 | 90.78 | 0.00 | 0.73 | 0.00 | -1.16 | 0.00 |
| 96 | 125 | -114.49 | 0.00 | 1.85 | 0.00 | -26.78 | 0.00 |
| 96 | 126 | 114.49 | 0.00 | -1.85 | 0.00 | 24.94 | 0.00 |
| 97 | 126 | -114.49 | 0.00 | 1.85 | 0.00 | -24.94 | 0.00 |
| 97 | 127 | 114.49 | 0.00 | -1.85 | 0.00 | 6.48 | 0.00 |
| 98 | 127 | -114.49 | 0.00 | 1.85 | 0.00 | -6.48 | 0.00 |
| 98 | 128 | 114.49 | 0.00 | -1.85 | 0.00 | -2.74 | 0.00 |
| 99 | 2 | -41.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | 41.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | -41.52 | 0.00 | 10.88 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | 41.52 | 0.00 | -10.88 | 0.00 | -18.63 | 0.00 |
| 101 | 19 | -60.33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | 60.33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | -60.25 | 0.00 | 16.42 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | 60.25 | 0.00 | -16.42 | 0.00 | -28.11 | 0.00 |
| 103 | 36 | -80.99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | 80.99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | -81.03 | 0.00 | 30.48 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | 81.03 | 0.00 | -30.48 | 0.00 | -52.19 | 0.00 |
| 105 | 55 | -76.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | 76.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | -76.39 | 0.00 | -6.98 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | 76.39 | 0.00 | 6.98 | 0.00 | 11.96 | 0.00 |
| 107 | 74 | -72.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | 72.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | -72.42 | 0.00 | -3.54 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | 72.42 | 0.00 | 3.54 | 0.00 | 6.06 | 0.00 |
| 109 | 93 | -76.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | 76.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | -76.50 | 0.00 | 0.44 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | 76.50 | 0.00 | -0.44 | 0.00 | -0.76 | 0.00 |
| 111 | 111 | -75.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | 75.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | -75.30 | 0.00 | 12.36 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | 75.30 | 0.00 | -12.36 | 0.00 | -21.15 | 0.00 |
| 113 | 129 | -66.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | 66.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | -66.54 | 0.00 | 9.82 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | 66.54 | 0.00 | -9.82 | 0.00 | -16.81 | 0.00 |
| 115 | 141 | -58.97 | -178.99 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | 58.97 | 178.99 | 0.00 | 0.00 | 0.00 | -306.43 |
| 116 | 143 | -58.94 | -178.99 | 13.27 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | 58.94 | 178.99 | -13.27 | 0.00 | -22.71 | -306.43 |
| 117 | 6 | -71.61 | 0.00 | -0.23 | 0.00 | 2.80 | 0.00 |
| 117 | 7 | 71.61 | 0.00 | 0.23 | 0.00 | -2.57 | 0.00 |
| 118 | 145 | -96.60 | -357.98 | 0.28 | 0.00 | 3.75 | -357.98 |
| 118 | 146 | 96.60 | 357.98 | -0.28 | 0.00 | -4.03 | 0.00 |
| 119 | 3 | 0.00 | 107.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -107.75 | 0.00 | 0.00 | 0.00 | 457.92 |
| 120 | 1 | -23.79 | 23.08 | 0.00 | 0.00 | 0.00 | 57.36 |
| 120 | 5 | 23.79 | -23.08 | 0.00 | 0.00 | 0.00 | 40.72 |
| 121 | 20 | 0.00 | 425.13 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | -425.13 | 0.00 | 0.00 | 0.00 | 786.50 |
| 122 | 15 | -44.32 | -471.14 | 0.00 | 0.00 | -0.01 | -947.49 |
| 122 | 22 | 44.32 | 471.14 | 0.00 | 0.00 | 0.00 | 75.88 |
| 123 | 37 | -0.01 | 265.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.01 | -265.79 | 0.00 | 0.00 | 0.00 | 491.70 |
| 124 | 32 | -42.60 | -477.33 | 0.01 | 0.00 | 0.00 | -956.00 |
| 124 | 39 | 42.60 | 477.33 | -0.01 | 0.00 | 0.00 | 72.94 |
| 125 | 56 | -0.01 | 169.93 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.01 | -169.93 | 0.00 | 0.00 | 0.00 | 314.36 |
| 126 | 49 | -39.21 | -518.69 | 0.00 | 0.00 | -0.01 | -1026.71 |
| 126 | 58 | 39.21 | 518.69 | 0.00 | 0.00 | 0.00 | 67.12 |
| 127 | 75 | -0.02 | 209.44 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.02 | -209.44 | 0.00 | 0.00 | 0.00 | 387.47 |
| 128 | 68 | -33.05 | -501.35 | 0.01 | 0.00 | 0.01 | -984.07 |
| 128 | 77 | 33.05 | 501.35 | -0.01 | 0.00 | 0.00 | 56.56 |
| 129 | 94 | -0.01 | 196.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.01 | -196.80 | 0.00 | 0.00 | 0.00 | 364.09 |
| 130 | 87 | -37.64 | -520.69 | 0.00 | 0.00 | 0.00 | -1027.71 |
| 130 | 96 | 37.64 | 520.69 | 0.00 | 0.00 | -0.01 | 64.43 |
| 131 | 112 | -0.01 | 188.38 | 0.00 | 0.00 | -0.01 | 0.00 |
| 131 | 106 | 0.01 | -188.38 | 0.00 | 0.00 | 0.00 | 348.50 |
| 132 | 106 | -36.49 | -488.62 | -0.01 | 0.00 | 0.00 | -966.42 |
| 132 | 114 | 36.49 | 488.62 | 0.01 | 0.00 | 0.01 | 62.47 |
| 133 | 130 | -0.01 | 354.40 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.01 | -354.40 | 0.00 | 0.00 | 0.00 | 655.64 |
| 134 | 124 | -50.38 | -451.36 | 0.00 | 0.00 | 0.00 | -921.27 |
| 134 | 132 | 50.38 | 451.36 | 0.00 | 0.00 | 0.00 | 86.26 |
| 135 | 142 | 0.00 | 107.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -107.87 | 0.00 | 0.00 | 0.00 | 458.46 |
| 136 | 140 | -32.98 | 31.77 | 127.01 | -217.44 | -539.80 | 78.56 |
| 136 | 144 | 32.98 | -31.77 | -127.01 | 217.44 | 0.00 | 56.45 |
| 137 | 2 | 0.00 | -107.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 107.75 | 0.00 | 0.00 | 0.00 | -457.92 |
| 138 | 7 | -23.73 | 134.51 | 0.00 | 0.00 | 0.00 | 571.67 |
| 138 | 4 | 23.73 | -134.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -358.82 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 358.82 | 0.00 | 0.00 | 0.00 | -663.81 |
| 140 | 18 | -44.39 | 197.51 | 0.00 | 0.00 | 0.00 | 365.40 |
| 140 | 21 | 44.39 | -197.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -185.19 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 185.19 | 0.00 | 0.00 | 0.00 | -342.61 |
| 142 | 35 | -42.96 | 452.45 | 0.00 | 0.00 | 0.00 | 837.03 |
| 142 | 38 | 42.96 | -452.45 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | -0.01 | -222.10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.01 | 222.10 | 0.00 | 0.00 | 0.00 | -410.90 |
| 144 | 54 | -39.31 | 25.16 | 0.00 | 0.00 | 0.00 | 46.55 |
| 144 | 57 | 39.31 | -25.16 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | -0.01 | -199.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.01 | 199.87 | 0.00 | 0.00 | 0.00 | -369.75 |
| 146 | 73 | -33.10 | 23.99 | 0.00 | 0.00 | 0.00 | 44.38 |
| 146 | 76 | 33.10 | -23.99 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | -0.01 | -395.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.01 | 395.50 | 0.00 | 0.00 | 0.00 | -731.68 |
| 148 | 92 | -37.75 | 23.46 | 0.00 | 0.00 | 0.00 | 43.41 |
| 148 | 95 | 37.75 | -23.46 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | -0.01 | -221.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.01 | 221.05 | 0.00 | 0.00 | 0.00 | -408.95 |
| 150 | 110 | -36.71 | 264.30 | 0.00 | 0.00 | 0.00 | 488.96 |
| 150 | 113 | 36.71 | -264.30 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -236.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 236.14 | 0.00 | 0.00 | 0.00 | -436.86 |
| 152 | 128 | -50.36 | 59.80 | 0.00 | 0.00 | 0.00 | 110.63 |
| 152 | 131 | 50.36 | -59.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -107.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 107.87 | 0.00 | 0.00 | 0.00 | -458.46 |
| 154 | 146 | -32.96 | 143.54 | 127.01 | 0.00 | -539.80 | 610.06 |
| 154 | 143 | 32.96 | -143.54 | -127.01 | 0.00 | 0.00 | 0.00 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS 53

FUER Y MAX sobrecarga + fr. + fc (ec-1)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 396.15 | 0.22 | 2.18 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -259.57 | -0.22 | -2.18 | -0.99 | 1475.37 |
| 2 | 8 | 0.00 | 259.57 | 0.22 | 2.18 | 0.99 | -1475.37 |
| 2 | 9 | 0.00 | -166.45 | -0.54 | -1.57 | -4.89 | 1880.74 |
| 3 | 9 | 0.00 | 166.45 | 0.54 | 1.57 | 4.89 | -1880.74 |
| 3 | 10 | 0.00 | -84.92 | -0.21 | -2.23 | -2.88 | 2636.26 |
| 4 | 10 | 0.00 | 84.92 | 0.21 | 2.23 | 2.88 | -2636.26 |
| 4 | 11 | 0.00 | -17.97 | -0.30 | -2.13 | -5.43 | 323.53 |
| 5 | 11 | 0.00 | 17.97 | 0.30 | 2.13 | 5.43 | -323.53 |
| 5 | 12 | 0.00 | -17.97 | -0.30 | -2.13 | -6.79 | 404.41 |
| 6 | 12 | 0.00 | 17.97 | 0.30 | 2.13 | 6.79 | -404.41 |
| 6 | 13 | 0.00 | -17.97 | -0.30 | -2.13 | -8.14 | 485.30 |
| 7 | 13 | 0.00 | 17.97 | 0.30 | 2.13 | 8.14 | -485.30 |
| 7 | 14 | 0.00 | -17.97 | -0.30 | -2.13 | -9.50 | 566.18 |
| 8 | 14 | 0.00 | 17.97 | 0.30 | 2.13 | 9.50 | -566.18 |
| 8 | 15 | 0.00 | -17.97 | -0.30 | -2.13 | -10.86 | 647.06 |
| 9 | 15 | 0.00 | 583.72 | -2.05 | 0.97 | -8.32 | 2603.04 |
| 9 | 23 | 4.50 | -531.78 | 2.09 | -1.06 | 10.05 | -2048.14 |
| 10 | 23 | -4.50 | 531.78 | -2.09 | 1.06 | -10.05 | 2048.14 |
| 10 | 24 | 9.00 | -395.20 | 2.09 | -1.06 | 8.89 | 29.57 |
| 11 | 24 | -9.00 | 395.20 | -2.09 | 1.06 | -8.89 | -29.57 |
| 11 | 25 | 13.50 | -258.63 | 2.09 | -1.06 | 7.73 | 1492.70 |
| 12 | 25 | -13.50 | 258.63 | -2.09 | 1.06 | -7.73 | -1492.70 |
| 12 | 26 | 18.00 | -150.03 | 1.78 | -0.22 | 6.20 | 2076.20 |
| 13 | 26 | -18.00 | 150.03 | -1.78 | 0.22 | -6.20 | -2076.20 |
| 13 | 27 | 22.50 | -50.03 | 2.00 | -0.80 | 7.22 | 1888.53 |
| 14 | 27 | -22.50 | 50.03 | -2.00 | 0.80 | -7.22 | -1888.53 |
| 14 | 28 | 27.00 | -47.29 | 1.85 | -0.35 | 9.47 | -405.17 |
| 15 | 28 | -27.00 | 47.30 | -1.85 | 0.35 | -9.47 | 405.17 |
| 15 | 29 | 31.50 | -47.30 | 1.85 | -0.35 | 7.23 | -200.33 |
| 16 | 29 | -31.50 | 47.30 | -1.85 | 0.35 | -7.23 | 200.33 |
| 16 | 30 | 36.00 | -47.30 | 1.85 | -0.35 | 4.99 | 4.51 |
| 17 | 30 | -36.00 | 47.30 | -1.85 | 0.35 | -4.99 | -4.51 |
| 17 | 31 | 40.50 | -47.30 | 1.85 | -0.35 | 2.75 | 209.36 |
| 18 | 31 | -40.50 | 47.30 | -1.85 | 0.35 | -2.75 | -209.35 |
| 18 | 32 | 45.00 | -47.30 | 1.85 | -0.35 | 0.51 | 414.20 |
| 19 | 32 | -45.00 | 582.35 | 2.33 | -0.52 | 0.88 | 2532.52 |
| 19 | 40 | 49.50 | -540.28 | -2.23 | 0.03 | -3.30 | -2310.03 |
| 20 | 40 | -49.50 | 540.28 | 2.23 | -0.03 | 3.30 | 2310.03 |
| 20 | 41 | 54.00 | -403.71 | -2.23 | 0.03 | -2.75 | -194.03 |
| 21 | 41 | -54.00 | 403.71 | 2.23 | -0.03 | 2.75 | 194.03 |
| 21 | 42 | 58.50 | -267.13 | -2.23 | 0.03 | -2.21 | 1307.39 |
| 22 | 42 | -58.50 | 267.13 | 2.23 | -0.03 | 2.21 | -1307.39 |
| 22 | 43 | 63.00 | -150.94 | -2.44 | 1.13 | 1.29 | 2098.71 |
| 23 | 43 | -63.00 | 150.93 | 2.44 | -1.13 | -1.29 | -2098.71 |
| 23 | 44 | 67.50 | -69.41 | -2.29 | 0.39 | 1.48 | -860.17 |
| 24 | 44 | -67.50 | 69.41 | 2.29 | -0.39 | -1.48 | 860.16 |
| 24 | 45 | 72.00 | -69.39 | -2.29 | 0.39 | 1.81 | -607.70 |
| 25 | 45 | -72.00 | 69.39 | 2.29 | -0.39 | -1.81 | 607.70 |
| 25 | 46 | 76.50 | -69.39 | -2.29 | 0.39 | 2.10 | -303.45 |
| 26 | 46 | -76.50 | 69.39 | 2.29 | -0.39 | -2.10 | 303.45 |
| 26 | 47 | 81.00 | -69.39 | -2.29 | 0.39 | 2.39 | 0.79 |
| 27 | 47 | -81.00 | 69.39 | 2.29 | -0.39 | -2.39 | -0.79 |
| 27 | 48 | 85.50 | -69.39 | -2.29 | 0.39 | 2.68 | 305.04 |
| 28 | 48 | -85.50 | 69.39 | 2.29 | -0.39 | -2.68 | -305.04 |
| 28 | 49 | 90.00 | -69.39 | -2.29 | 0.39 | 2.96 | 609.29 |
| 29 | 49 | -90.00 | 581.18 | 2.40 | -0.26 | 0.77 | 2496.36 |
| 29 | 59 | 94.50 | -538.65 | -2.34 | -0.20 | -2.20 | -2273.94 |
| 30 | 59 | -94.50 | 538.65 | 2.33 | 0.20 | 2.20 | 2273.94 |
| 30 | 60 | 99.00 | -402.07 | -2.33 | -0.20 | -2.13 | -165.32 |
| 31 | 60 | -99.00 | 402.07 | 2.33 | 0.20 | 2.13 | 165.32 |
| 31 | 61 | 103.50 | -265.50 | -2.33 | -0.20 | -2.06 | 1328.73 |
| 32 | 61 | -103.50 | 265.50 | 2.33 | 0.20 | 2.06 | -1328.73 |
| 32 | 62 | 108.00 | -150.92 | -2.45 | 0.76 | -1.24 | 2105.85 |
| 33 | 62 | -108.00 | 150.92 | 2.45 | -0.76 | 1.24 | -2105.85 |
| 33 | 63 | 112.50 | -69.01 | -2.34 | -0.01 | -0.80 | -863.73 |
| 34 | 63 | -112.50 | 69.01 | 2.34 | 0.01 | 0.80 | 863.73 |
| 34 | 64 | 117.00 | -69.00 | -2.34 | -0.01 | -0.72 | -613.12 |
| 35 | 64 | -117.00 | 69.00 | 2.34 | 0.01 | 0.72 | 613.12 |
| 35 | 65 | 121.50 | -69.00 | -2.34 | -0.01 | -0.66 | -310.59 |
| 36 | 65 | -121.50 | 69.00 | 2.34 | 0.01 | 0.66 | 310.59 |
| 36 | 66 | 126.00 | -69.00 | -2.34 | -0.01 | -0.61 | -8.07 |
| 37 | 66 | -126.00 | 69.00 | 2.34 | 0.01 | 0.60 | 8.07 |
| 37 | 67 | 130.50 | -69.00 | -2.34 | -0.01 | -0.55 | 294.46 |
| 38 | 67 | -130.50 | 69.00 | 2.34 | 0.01 | 0.55 | -294.46 |
| 38 | 68 | 135.00 | -69.00 | -2.34 | -0.01 | -0.49 | 596.99 |
| 39 | 68 | -135.00 | 580.20 | 2.32 | 0.50 | -0.79 | 2478.38 |
| 39 | 78 | 139.50 | -538.13 | -2.26 | -1.03 | -0.01 | -2270.57 |
| 40 | 78 | -139.50 | 538.13 | 2.26 | 1.03 | 0.01 | 2270.57 |
| 40 | 79 | 144.00 | -401.55 | -2.26 | -1.03 | 0.39 | -164.28 |
| 41 | 79 | -144.00 | 401.55 | 2.26 | 1.03 | -0.39 | 164.28 |
| 41 | 80 | 148.50 | -264.98 | -2.26 | -1.03 | 0.80 | 1327.42 |
| 42 | 80 | -148.50 | 264.98 | 2.26 | 1.03 | -0.79 | -1327.42 |
| 42 | 81 | 153.00 | -150.00 | -2.39 | -0.03 | 1.41 | 2105.81 |
| 43 | 81 | -153.00 | 150.00 | 2.39 | 0.03 | -1.41 | -2105.81 |
| 43 | 82 | 157.50 | -69.30 | -2.27 | -0.97 | 2.68 | -926.20 |
| 44 | 82 | -157.50 | 69.30 | 2.27 | 0.97 | -2.68 | 926.20 |
| 44 | 83 | 162.00 | -69.30 | -2.27 | -0.97 | 3.06 | -622.33 |
| 45 | 83 | -162.00 | 69.30 | 2.27 | 0.97 | -3.06 | 622.33 |
| 45 | 84 | 166.50 | -69.30 | -2.27 | -0.97 | 3.44 | -318.46 |
| 46 | 84 | -166.50 | 69.30 | 2.27 | 0.97 | -3.44 | 318.46 |
| 46 | 85 | 171.00 | -69.30 | -2.27 | -0.97 | 3.82 | -14.60 |
| 47 | 85 | -171.00 | 69.30 | 2.27 | 0.97 | -3.82 | 14.59 |
| 47 | 86 | 175.50 | -69.30 | -2.27 | -0.97 | 4.19 | 289.27 |
| 48 | 86 | -175.50 | 69.30 | 2.27 | 0.97 | -4.20 | -289.28 |
| 48 | 87 | 180.00 | -69.30 | -2.27 | -0.97 | 4.57 | 593.14 |
| 49 | 87 | -180.00 | 580.75 | 2.39 | -1.78 | 5.35 | 2484.62 |
| 49 | 97 | 184.50 | -539.61 | -2.28 | 1.18 | -6.64 | -2290.24 |
| 50 | 97 | -184.50 | 539.61 | 2.28 | -1.19 | 6.63 | 2290.24 |
| 50 | 98 | 189.00 | -403.04 | -2.28 | 1.19 | -6.33 | -177.26 |
| 51 | 98 | -189.00 | 403.04 | 2.28 | -1.19 | 6.34 | 177.26 |
| 51 | 99 | 193.50 | -266.46 | -2.28 | 1.19 | -6.03 | 1321.14 |
| 52 | 99 | -193.50 | 266.46 | 2.28 | -1.19 | 6.04 | -1321.14 |
| 52 | 100 | 198.00 | -150.26 | -2.49 | 2.32 | -6.16 | 2116.31 |
| 53 | 100 | -198.00 | 150.26 | 2.49 | -2.32 | 6.16 | -2116.31 |
| 53 | 101 | 202.50 | -71.05 | -2.29 | 1.26 | -4.04 | -914.64 |
| 54 | 101 | -202.50 | 71.05 | 2.29 | -1.26 | 4.04 | 914.64 |
| 54 | 102 | 207.00 | -71.05 | -2.29 | 1.26 | -3.78 | -602.90 |
| 55 | 102 | -207.00 | 71.05 | 2.29 | -1.26 | 3.78 | 602.90 |
| 55 | 103 | 211.50 | -71.05 | -2.29 | 1.26 | -3.52 | -291.15 |
| 56 | 103 | -211.50 | 71.05 | 2.29 | -1.26 | 3.52 | 291.15 |
| 56 | 104 | 216.00 | -71.05 | -2.29 | 1.26 | -3.25 | 20.59 |
| 57 | 104 | -216.00 | 71.05 | 2.29 | -1.26 | 3.25 | -20.59 |
| 57 | 105 | 220.50 | -71.05 | -2.29 | 1.26 | -2.99 | 332.34 |
| 58 | 105 | -220.50 | 71.05 | 2.29 | -1.26 | 2.99 | -332.34 |
| 58 | 106 | 225.00 | -71.05 | -2.29 | 1.26 | -2.73 | 644.08 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 59 | 106 | 225.00 | 578.01 | -1.47 | 0.71 | -1.57 | 2506.49 |
| 59 | 115 | -229.50 | -538.59 | 1.64 | -1.45 | -4.16 | -2324.38 |
| 60 | 115 | 229.50 | 538.59 | -1.64 | 1.45 | 4.16 | 2324.38 |
| 60 | 116 | -234.00 | -402.02 | 1.64 | -1.45 | -7.38 | -200.01 |
| 61 | 116 | 234.00 | 402.02 | -1.64 | 1.45 | 7.38 | 200.01 |
| 61 | 117 | -238.50 | -265.44 | 1.64 | -1.45 | -10.59 | 1309.78 |
| 62 | 117 | 238.50 | 265.44 | -1.64 | 1.45 | 10.60 | -1309.78 |
| 62 | 118 | -243.00 | -157.95 | 1.43 | -0.60 | -10.32 | 2211.38 |
| 63 | 118 | 243.00 | 157.95 | -1.43 | 0.60 | 10.33 | -2211.38 |
| 63 | 119 | -247.50 | -71.49 | 1.64 | -1.48 | -13.98 | -869.60 |
| 64 | 119 | 247.50 | 71.49 | -1.64 | 1.48 | 13.98 | 869.60 |
| 64 | 120 | -252.00 | -71.49 | 1.64 | -1.48 | -17.19 | -539.91 |
| 65 | 120 | 252.00 | 71.49 | -1.64 | 1.48 | 17.19 | 539.91 |
| 65 | 121 | -256.50 | -71.49 | 1.64 | -1.48 | -20.41 | -210.22 |
| 66 | 121 | 256.50 | 71.49 | -1.64 | 1.48 | 20.41 | 210.22 |
| 66 | 122 | -261.00 | -71.49 | 1.64 | -1.48 | -23.62 | 119.47 |
| 67 | 122 | 261.00 | 71.49 | -1.64 | 1.48 | 23.62 | -119.47 |
| 67 | 123 | -265.50 | -71.49 | 1.64 | -1.48 | -26.84 | 449.16 |
| 68 | 123 | 265.50 | 71.49 | -1.64 | 1.48 | 26.84 | -449.16 |
| 68 | 124 | -270.00 | -71.49 | 1.64 | -1.48 | -30.05 | 778.85 |
| 69 | 124 | -270.00 | 573.91 | -0.21 | 4.38 | -30.24 | 4674.41 |
| 69 | 133 | 274.50 | -542.64 | 0.21 | -4.38 | 41.74 | -2118.34 |
| 70 | 133 | -274.50 | 542.64 | -0.21 | 4.38 | -41.74 | 2118.34 |
| 70 | 134 | 286.42 | -406.06 | 0.21 | -4.38 | 35.78 | -4.94 |
| 71 | 134 | -286.42 | 406.06 | -0.20 | 4.38 | -35.78 | 4.94 |
| 71 | 135 | 298.35 | -269.49 | 0.20 | -4.38 | 29.81 | 1493.87 |
| 72 | 135 | -298.35 | 269.49 | -0.20 | 4.38 | -29.81 | -1493.87 |
| 72 | 136 | 310.27 | -132.91 | 0.20 | -4.38 | 23.85 | 2378.09 |
| 73 | 136 | -310.27 | 132.91 | -0.21 | 4.38 | -23.85 | -2378.09 |
| 73 | 137 | 322.20 | -96.60 | 0.28 | -4.52 | 16.81 | -627.73 |
| 74 | 137 | -322.20 | 96.60 | -0.28 | 4.52 | -16.81 | 627.73 |
| 74 | 138 | 334.13 | -96.60 | 0.28 | -4.52 | 11.21 | -214.20 |
| 75 | 138 | -334.13 | 96.60 | -0.28 | 4.52 | -11.21 | 214.20 |
| 75 | 139 | 346.05 | -96.60 | 0.28 | -4.52 | 5.60 | 199.32 |
| 76 | 139 | -346.05 | 96.60 | -0.28 | 4.52 | -5.60 | -199.32 |
| 76 | 140 | 357.98 | -96.60 | 0.28 | -4.52 | 0.00 | 612.85 |
| 77 | 16 | 717.67 | 0.00 | 0.14 | 0.00 | -1.31 | 0.00 |
| 77 | 17 | -717.67 | 0.00 | -0.14 | 0.00 | 0.59 | 0.00 |
| 78 | 17 | 717.67 | 0.00 | 0.14 | 0.00 | -0.59 | 0.00 |
| 78 | 18 | -717.67 | 0.00 | -0.14 | 0.00 | -0.08 | 0.00 |
| 79 | 33 | 724.13 | 0.00 | -0.05 | 0.00 | 0.57 | 0.00 |
| 79 | 34 | -724.13 | 0.00 | 0.05 | 0.00 | -0.17 | 0.00 |
| 80 | 34 | 724.13 | 0.00 | -0.05 | 0.00 | 0.17 | 0.00 |
| 80 | 35 | -724.13 | 0.00 | 0.05 | 0.00 | 0.10 | 0.00 |
| 81 | 50 | 718.24 | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 |
| 81 | 51 | -718.24 | 0.00 | 0.00 | 0.00 | -0.11 | 0.00 |
| 82 | 51 | 718.24 | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 |
| 82 | 52 | -718.24 | 0.00 | 0.00 | 0.00 | -0.08 | 0.00 |
| 83 | 52 | 718.24 | 0.00 | 0.00 | 0.00 | 0.08 | 0.00 |
| 83 | 53 | -718.24 | 0.00 | 0.00 | 0.00 | -0.04 | 0.00 |
| 84 | 53 | 718.24 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 |
| 84 | 54 | -718.24 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 85 | 69 | 720.75 | 0.00 | 0.00 | 0.00 | 0.12 | 0.00 |
| 85 | 70 | -720.75 | 0.00 | 0.00 | 0.00 | -0.10 | 0.00 |
| 86 | 70 | 720.75 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 |
| 86 | 71 | -720.75 | 0.00 | 0.00 | 0.00 | -0.06 | 0.00 |
| 87 | 71 | 720.75 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 |
| 87 | 72 | -720.75 | 0.00 | 0.00 | 0.00 | -0.03 | 0.00 |
| 88 | 72 | 720.75 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 |
| 88 | 73 | -720.75 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 89 | 88 | 718.69 | 0.00 | -0.01 | 0.00 | 0.17 | 0.00 |
| 89 | 89 | -718.69 | 0.00 | 0.01 | 0.00 | -0.16 | 0.00 |
| 90 | 89 | 718.69 | 0.00 | -0.01 | 0.00 | 0.16 | 0.00 |
| 90 | 90 | -718.69 | 0.00 | 0.01 | 0.00 | -0.10 | 0.00 |
| 91 | 90 | 718.69 | 0.00 | -0.01 | 0.00 | 0.10 | 0.00 |
| 91 | 91 | -718.69 | 0.00 | 0.01 | 0.00 | -0.03 | 0.00 |
| 92 | 91 | 718.69 | 0.00 | -0.01 | 0.00 | 0.03 | 0.00 |
| 92 | 92 | -718.69 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 93 | 107 | 723.98 | 0.00 | -0.02 | 0.00 | 0.26 | 0.00 |
| 93 | 108 | -723.98 | 0.00 | 0.02 | 0.00 | -0.23 | 0.00 |
| 94 | 108 | 723.98 | 0.00 | -0.02 | 0.00 | 0.23 | 0.00 |
| 94 | 109 | -723.98 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| 95 | 109 | 723.98 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 95 | 110 | -723.98 | 0.00 | 0.02 | 0.00 | 0.11 | 0.00 |
| 96 | 125 | 717.33 | 0.00 | 0.09 | 0.00 | -1.18 | 0.00 |
| 96 | 126 | -717.33 | 0.00 | -0.09 | 0.00 | 1.09 | 0.00 |
| 97 | 126 | 717.33 | 0.00 | 0.09 | 0.00 | -1.09 | 0.00 |
| 97 | 127 | -717.33 | 0.00 | -0.09 | 0.00 | 0.23 | 0.00 |
| 98 | 127 | 717.33 | 0.00 | 0.09 | 0.00 | -0.23 | 0.00 |
| 98 | 128 | -717.33 | 0.00 | -0.09 | 0.00 | -0.20 | 0.00 |
| 99 | 2 | 107.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -107.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 107.74 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -107.74 | 0.00 | 0.08 | 0.00 | 0.13 | 0.00 |
| 101 | 19 | 358.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -358.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 358.86 | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -358.86 | 0.00 | -0.14 | 0.00 | -0.23 | 0.00 |
| 103 | 36 | 362.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -362.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 362.04 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -362.04 | 0.00 | 0.05 | 0.00 | 0.09 | 0.00 |
| 105 | 55 | 359.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -359.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 359.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -359.12 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 107 | 74 | 360.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -360.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 360.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -360.38 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 109 | 93 | 359.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -359.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 359.34 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -359.34 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 111 | 111 | 362.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -362.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 361.96 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -361.96 | 0.00 | 0.02 | 0.00 | 0.04 | 0.00 |
| 113 | 129 | 358.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -358.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 358.72 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -358.72 | 0.00 | -0.09 | 0.00 | -0.15 | 0.00 |
| 115 | 141 | 132.25 | 357.98 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -132.25 | -357.98 | 0.00 | 0.00 | 0.00 | 612.85 |
| 116 | 143 | 132.21 | 357.97 | -0.33 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -132.21 | -357.97 | 0.33 | 0.00 | 0.56 | 612.85 |
| 117 | 6 | 215.49 | 0.00 | -0.08 | 0.00 | 0.07 | 0.00 |
| 117 | 7 | -215.49 | 0.00 | 0.08 | 0.00 | 0.01 | 0.00 |
| 118 | 145 | 266.25 | 715.95 | -0.33 | 0.00 | -7.44 | 715.95 |
| 118 | 146 | -266.25 | -715.95 | 0.33 | 0.00 | 7.77 | 0.00 |
| 119 | 3 | 0.00 | 199.98 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -199.98 | 0.00 | 0.00 | 0.00 | 849.92 |
| 120 | 1 | -10.88 | 41.52 | 0.00 | 0.00 | 0.00 | 157.82 |
| 120 | 5 | 10.88 | -41.52 | 0.00 | 0.00 | 0.00 | 18.63 |
| 121 | 20 | 0.00 | 562.09 | -0.01 | 0.00 | 0.01 | 0.00 |
| 121 | 15 | 0.00 | -562.09 | 0.01 | 0.00 | 0.00 | 1039.87 |
| 122 | 15 | -16.42 | 60.25 | 0.00 | 0.00 | -0.01 | 83.36 |
| 122 | 22 | 16.42 | -60.25 | 0.00 | 0.00 | 0.00 | 28.11 |
| 123 | 37 | 0.00 | 576.73 | 0.01 | 0.00 | -0.01 | 0.00 |
| 123 | 32 | 0.00 | -576.73 | -0.01 | 0.00 | 0.00 | 1066.94 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 124 | 32 | -30.48 | 81.03 | 0.01 | 0.00 | 0.00 | 97.73 |
| 124 | 39 | 30.48 | -81.03 | -0.01 | 0.00 | -0.02 | 52.19 |
| 125 | 56 | 0.00 | 575.06 | 0.00 | 0.00 | 0.01 | 0.01 |
| 125 | 49 | 0.00 | -575.06 | 0.00 | 0.00 | 0.01 | 1063.88 |
| 126 | 49 | 6.99 | 76.39 | 0.00 | 0.00 | 0.01 | 153.29 |
| 126 | 58 | -6.99 | -76.39 | 0.00 | 0.00 | 0.00 | -11.95 |
| 127 | 75 | 0.00 | 574.81 | -0.01 | 0.00 | -0.01 | 0.00 |
| 127 | 68 | 0.00 | -574.81 | 0.01 | 0.00 | 0.00 | 1063.41 |
| 128 | 68 | 3.54 | 72.42 | 0.00 | 0.00 | 0.00 | 140.05 |
| 128 | 77 | -3.54 | -72.42 | 0.00 | 0.00 | 0.01 | -6.05 |
| 129 | 94 | 0.00 | 576.26 | 0.00 | 0.00 | 0.00 | -0.01 |
| 129 | 87 | 0.00 | -576.26 | 0.00 | 0.00 | 0.00 | 1066.06 |
| 130 | 87 | -0.45 | 76.50 | 0.00 | 0.00 | 0.00 | 140.79 |
| 130 | 96 | 0.45 | -76.50 | 0.00 | 0.00 | 0.00 | 0.76 |
| 131 | 112 | 0.00 | 578.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | -578.20 | 0.00 | 0.00 | 0.00 | 1069.66 |
| 132 | 106 | -12.36 | 75.30 | -0.01 | 0.00 | 0.00 | 118.16 |
| 132 | 114 | 12.36 | -75.30 | 0.01 | 0.00 | 0.00 | 21.15 |
| 133 | 130 | 0.00 | 574.18 | 0.00 | 0.00 | 0.01 | 0.00 |
| 133 | 124 | 0.00 | -574.18 | 0.00 | 0.00 | 0.00 | 1062.23 |
| 134 | 124 | -9.82 | 66.54 | 0.00 | 0.00 | 0.00 | 106.29 |
| 134 | 132 | 9.82 | -66.54 | 0.00 | 0.00 | 0.00 | 16.81 |
| 135 | 142 | 0.00 | 213.25 | 178.99 | -306.43 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -213.25 | -178.99 | 306.43 | -760.70 | 906.31 |
| 136 | 140 | -13.27 | 58.94 | 178.99 | -306.43 | -760.70 | 227.78 |
| 136 | 144 | 13.27 | -58.94 | -178.99 | 306.43 | 0.00 | 22.71 |
| 137 | 2 | 0.00 | 41.52 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | -41.52 | 0.00 | 0.00 | 0.00 | 176.47 |
| 138 | 7 | -0.81 | 199.99 | 0.00 | 0.00 | 0.00 | 849.94 |
| 138 | 4 | 0.81 | -199.99 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | 60.33 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | -60.33 | 0.00 | 0.00 | 0.00 | 111.60 |
| 140 | 18 | -1.29 | 561.98 | 0.00 | 0.00 | 0.00 | 1039.66 |
| 140 | 21 | 1.29 | -561.98 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | 80.99 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | -80.99 | 0.00 | 0.00 | 0.00 | 149.83 |
| 142 | 35 | -2.10 | 576.41 | 0.00 | 0.00 | 0.00 | 1066.36 |
| 142 | 38 | 2.10 | -576.41 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | 76.47 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | -76.47 | 0.00 | 0.00 | 0.00 | 141.45 |
| 144 | 54 | 0.61 | 574.67 | 0.00 | 0.00 | 0.00 | 1063.14 |
| 144 | 57 | -0.61 | -574.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | 72.52 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | -72.52 | 0.00 | 0.00 | 0.00 | 134.15 |
| 146 | 73 | 0.37 | 574.44 | 0.00 | 0.00 | 0.00 | 1062.70 |
| 146 | 76 | -0.37 | -574.44 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | 76.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | -76.59 | 0.00 | 0.00 | 0.00 | 141.68 |
| 148 | 92 | 0.07 | 575.83 | 0.00 | 0.00 | 0.00 | 1065.28 |
| 148 | 95 | -0.07 | -575.83 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | 75.32 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | -75.32 | 0.00 | 0.00 | 0.00 | 139.33 |
| 150 | 110 | -2.07 | 577.79 | 0.00 | 0.00 | 0.00 | 1068.91 |
| 150 | 113 | 2.07 | -577.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | 66.73 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | -66.73 | 0.00 | 0.00 | 0.00 | 123.45 |
| 152 | 128 | 2.18 | 573.90 | 0.00 | 0.00 | 0.00 | 1061.71 |
| 152 | 131 | -2.18 | -573.90 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | 58.97 | 178.99 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | -58.97 | -178.99 | 0.00 | -760.70 | 250.62 |
| 154 | 146 | -0.46 | 213.20 | 178.99 | 0.00 | -760.70 | 906.09 |
| 154 | 143 | 0.46 | -213.20 | -178.99 | 0.00 | 0.00 | 0.00 |



HIPOTESIS 54

FUER Y MIN sobrecarga + fr. + fc (ec-1)

E S F U E R Z O S E N B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | -71.61 | -0.23 | -2.17 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | 71.61 | 0.23 | 2.17 | 1.04 | -322.23 |
| 2 | 8 | 0.00 | -71.61 | -0.23 | -2.17 | -1.04 | 322.23 |
| 2 | 9 | 0.00 | 71.61 | 0.23 | 2.17 | 2.08 | -644.47 |
| 3 | 9 | 0.00 | -71.61 | -0.23 | -2.17 | -2.08 | 644.47 |
| 3 | 10 | 0.00 | 71.61 | 0.23 | 2.17 | 3.12 | -966.70 |
| 4 | 10 | 0.00 | -71.61 | -0.23 | -2.17 | -3.12 | 966.70 |
| 4 | 11 | 0.00 | 108.16 | 0.31 | 2.09 | 5.66 | 2123.35 |
| 5 | 11 | 0.00 | -108.16 | -0.31 | -2.09 | -5.66 | -2123.34 |
| 5 | 12 | 0.00 | 244.74 | 0.31 | 2.09 | 7.07 | 1329.32 |
| 6 | 12 | 0.00 | -244.74 | -0.31 | -2.09 | -7.07 | -1329.32 |
| 6 | 13 | 0.00 | 381.31 | 0.31 | 2.09 | 8.48 | -79.28 |
| 7 | 13 | 0.00 | -381.31 | -0.31 | -2.09 | -8.48 | 79.28 |
| 7 | 14 | 0.00 | 517.89 | 0.31 | 2.09 | 9.90 | -2102.48 |
| 8 | 14 | 0.00 | -517.89 | -0.31 | -2.09 | -9.90 | 2102.48 |
| 8 | 15 | 0.00 | 549.46 | 0.31 | 2.09 | 11.31 | -4556.51 |
| 9 | 15 | 0.00 | -71.59 | 2.12 | -1.15 | 10.75 | -645.92 |
| 9 | 23 | -4.50 | 71.59 | -2.12 | 1.15 | -9.73 | 331.73 |
| 10 | 23 | 4.50 | -71.59 | 2.12 | -1.15 | 9.73 | -331.73 |
| 10 | 24 | -9.00 | 71.59 | -2.12 | 1.15 | -8.72 | 17.54 |
| 11 | 24 | 9.00 | -71.59 | 2.12 | -1.15 | 8.72 | -17.54 |
| 11 | 25 | -13.50 | 71.59 | -2.12 | 1.15 | -7.70 | -296.65 |
| 12 | 25 | 13.50 | -71.59 | 2.12 | -1.15 | 7.70 | 296.65 |
| 12 | 26 | -18.00 | 71.59 | -2.12 | 1.15 | -6.68 | -610.83 |
| 13 | 26 | 18.00 | -71.59 | 2.12 | -1.15 | 6.68 | 610.83 |
| 13 | 27 | -22.50 | 71.59 | -2.12 | 1.15 | -5.67 | -925.02 |
| 14 | 27 | 22.50 | -71.59 | 2.12 | -1.15 | 5.67 | 925.02 |
| 14 | 28 | -27.00 | 156.73 | -1.80 | 0.25 | -4.74 | 2176.36 |
| 15 | 28 | 27.00 | -156.73 | 1.80 | -0.25 | 4.74 | -2176.36 |
| 15 | 29 | -31.50 | 265.32 | -2.11 | 1.09 | -6.83 | 1284.47 |
| 16 | 29 | 31.50 | -265.32 | 2.11 | -1.09 | 6.83 | -1284.47 |
| 16 | 30 | -36.00 | 401.90 | -2.11 | 1.09 | -5.75 | -208.80 |
| 17 | 30 | 36.00 | -401.90 | 2.11 | -1.09 | 5.75 | 208.80 |
| 17 | 31 | -40.50 | 538.47 | -2.11 | 1.09 | -4.67 | -2316.65 |
| 18 | 31 | 40.50 | -538.47 | 2.11 | -1.09 | 4.67 | 2316.65 |
| 18 | 32 | -45.00 | 577.36 | -1.84 | 0.34 | 0.28 | -2470.31 |
| 19 | 32 | 45.00 | -69.91 | -2.28 | 0.25 | 0.43 | -606.94 |
| 19 | 40 | -49.50 | 69.91 | 2.28 | -0.25 | -0.73 | 300.32 |
| 20 | 40 | 49.50 | -69.91 | -2.28 | 0.25 | 0.73 | -300.32 |
| 20 | 41 | -54.00 | 69.91 | 2.28 | -0.25 | -1.03 | -6.30 |
| 21 | 41 | 54.00 | -69.91 | -2.28 | 0.25 | 1.03 | 6.30 |
| 21 | 42 | -58.50 | 69.91 | 2.28 | -0.25 | -1.33 | -312.92 |
| 22 | 42 | 58.50 | -69.91 | -2.28 | 0.25 | 1.33 | 312.92 |
| 22 | 43 | -63.00 | 69.91 | 2.28 | -0.25 | -1.63 | -619.54 |
| 23 | 43 | 63.00 | -69.91 | -2.28 | 0.25 | 1.63 | 619.54 |
| 23 | 44 | -67.50 | 69.91 | 2.28 | -0.25 | -1.93 | -926.16 |
| 24 | 44 | 67.50 | -69.91 | -2.28 | 0.25 | 1.93 | 926.16 |
| 24 | 45 | -72.00 | 148.66 | 2.50 | -1.33 | -4.93 | 2111.05 |
| 25 | 45 | 72.00 | -148.66 | -2.50 | 1.33 | 4.93 | -2111.05 |
| 25 | 46 | -76.50 | 264.86 | 2.29 | -0.23 | -4.12 | 1322.32 |
| 26 | 46 | 76.50 | -264.86 | -2.29 | 0.23 | 4.12 | -1322.32 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 26 | 47 | -81.00 | 401.44 | 2.29 | -0.23 | -4.39 | -168.87 |
| 27 | 47 | 81.00 | -401.44 | -2.29 | 0.23 | 4.39 | 168.87 |
| 27 | 48 | -85.50 | 538.01 | 2.29 | -0.23 | -4.67 | -2274.65 |
| 28 | 48 | 85.50 | -538.01 | -2.29 | 0.23 | 4.67 | 2274.65 |
| 28 | 49 | -90.00 | 579.18 | 2.40 | -0.85 | -3.78 | -2464.26 |
| 29 | 49 | 90.00 | -69.41 | -2.34 | -0.06 | -0.02 | -598.01 |
| 29 | 59 | -94.50 | 69.41 | 2.34 | 0.06 | -0.01 | 293.67 |
| 30 | 59 | 94.50 | -69.41 | -2.34 | -0.06 | 0.01 | -293.67 |
| 30 | 60 | -99.00 | 69.41 | 2.34 | 0.06 | -0.04 | -10.66 |
| 31 | 60 | 99.00 | -69.41 | -2.34 | -0.06 | 0.04 | 10.66 |
| 31 | 61 | -103.50 | 69.41 | 2.34 | 0.06 | -0.06 | -315.00 |
| 32 | 61 | 103.50 | -69.41 | -2.34 | -0.06 | 0.06 | 315.00 |
| 32 | 62 | -108.00 | 69.41 | 2.34 | 0.06 | -0.09 | -619.34 |
| 33 | 62 | 108.00 | -69.41 | -2.34 | -0.06 | 0.09 | 619.34 |
| 33 | 63 | -112.50 | 69.41 | 2.34 | 0.06 | -0.12 | -923.68 |
| 34 | 63 | 112.50 | -69.41 | -2.34 | -0.06 | 0.12 | 923.68 |
| 34 | 64 | -117.00 | 150.52 | 2.46 | -0.83 | -0.92 | 2108.92 |
| 35 | 64 | 117.00 | -150.52 | -2.45 | 0.83 | 0.92 | -2108.92 |
| 35 | 65 | -121.50 | 265.10 | 2.34 | 0.13 | -1.29 | 1326.87 |
| 36 | 65 | 121.50 | -265.10 | -2.34 | -0.13 | 1.29 | -1326.87 |
| 36 | 66 | -126.00 | 401.68 | 2.34 | 0.13 | -1.36 | -165.39 |
| 37 | 66 | 126.00 | -401.68 | -2.34 | -0.13 | 1.36 | 165.39 |
| 37 | 67 | -130.50 | 538.25 | 2.34 | 0.13 | -1.42 | -2272.24 |
| 38 | 67 | 130.50 | -538.25 | -2.34 | -0.13 | 1.42 | 2272.24 |
| 38 | 68 | -135.00 | 580.56 | 2.39 | -0.37 | -0.29 | -2485.65 |
| 39 | 68 | 135.00 | -69.14 | -2.26 | -0.90 | 1.56 | -598.29 |
| 39 | 78 | -139.50 | 69.14 | 2.26 | 0.90 | -1.95 | 295.13 |
| 40 | 78 | 139.50 | -69.14 | -2.26 | -0.90 | 1.95 | -295.13 |
| 40 | 79 | -144.00 | 69.14 | 2.26 | 0.90 | -2.34 | -8.03 |
| 41 | 79 | 144.00 | -69.14 | -2.26 | -0.90 | 2.34 | 8.03 |
| 41 | 80 | -148.50 | 69.14 | 2.26 | 0.90 | -2.72 | -311.18 |
| 42 | 80 | 148.50 | -69.14 | -2.26 | -0.90 | 2.72 | 311.18 |
| 42 | 81 | -153.00 | 69.14 | 2.26 | 0.90 | -3.11 | -614.34 |
| 43 | 81 | 153.00 | -69.14 | -2.26 | -0.90 | 3.11 | 614.34 |
| 43 | 82 | -157.50 | 69.15 | 2.26 | 0.90 | -3.52 | -865.58 |
| 44 | 82 | 157.50 | -69.15 | -2.26 | -0.90 | 3.52 | 865.58 |
| 44 | 83 | -162.00 | 150.61 | 2.38 | 0.11 | -4.36 | 2109.36 |
| 45 | 83 | 162.00 | -150.61 | -2.38 | -0.11 | 4.36 | -2109.36 |
| 45 | 84 | -166.50 | 265.59 | 2.25 | 1.11 | -5.72 | 1325.14 |
| 46 | 84 | 166.50 | -265.58 | -2.25 | -1.11 | 5.72 | -1325.14 |
| 46 | 85 | -171.00 | 402.16 | 2.25 | 1.11 | -6.16 | -169.30 |
| 47 | 85 | 171.00 | -402.16 | -2.25 | -1.11 | 6.16 | 169.30 |
| 47 | 86 | -175.50 | 538.74 | 2.25 | 1.11 | -6.61 | -2278.32 |
| 48 | 86 | 175.50 | -538.74 | -2.25 | -1.11 | 6.61 | 2278.32 |
| 48 | 87 | -180.00 | 581.11 | 2.31 | 0.63 | -5.50 | -2495.32 |
| 49 | 87 | 180.00 | -70.35 | -2.28 | 1.30 | -4.71 | -616.43 |
| 49 | 97 | -184.50 | 70.35 | 2.28 | -1.30 | 4.39 | 307.85 |
| 50 | 97 | 184.50 | -70.35 | -2.28 | 1.30 | -4.39 | -307.85 |
| 50 | 98 | -189.00 | 70.35 | 2.28 | -1.30 | 4.08 | -0.73 |
| 51 | 98 | 189.00 | -70.35 | -2.28 | 1.30 | -4.08 | 0.73 |
| 51 | 99 | -193.50 | 70.35 | 2.28 | -1.30 | 3.77 | -309.31 |
| 52 | 99 | 193.50 | -70.35 | -2.28 | 1.30 | -3.78 | 309.31 |
| 52 | 100 | -198.00 | 70.35 | 2.28 | -1.30 | 3.46 | -617.89 |
| 53 | 100 | 198.00 | -70.35 | -2.28 | 1.30 | -3.46 | 617.89 |
| 53 | 101 | -202.50 | 70.36 | 2.28 | -1.30 | 3.12 | -874.67 |
| 54 | 101 | 202.50 | -70.36 | -2.28 | 1.30 | -3.13 | 874.67 |
| 54 | 102 | -207.00 | 151.29 | 2.46 | -2.20 | 3.20 | 2084.58 |
| 55 | 102 | 207.00 | -151.29 | -2.46 | 2.20 | -3.21 | -2084.58 |
| 55 | 103 | -211.50 | 267.49 | 2.25 | -1.06 | 0.43 | 1290.83 |
| 56 | 103 | 211.50 | -267.49 | -2.25 | 1.06 | -0.43 | -1290.83 |
| 56 | 104 | -216.00 | 404.07 | 2.25 | -1.06 | -0.03 | -212.19 |
| 57 | 104 | 216.00 | -404.07 | -2.25 | 1.06 | 0.03 | 212.19 |
| 57 | 105 | -220.50 | 540.64 | 2.25 | -1.06 | -0.49 | -2329.79 |
| 58 | 105 | 220.50 | -540.64 | -2.25 | 1.06 | 0.49 | 2329.79 |
| 58 | 106 | -225.00 | 582.72 | 2.35 | -1.61 | 2.06 | -2554.45 |
| 59 | 106 | -225.00 | -47.24 | 1.48 | -0.71 | 0.83 | -441.82 |
| 59 | 115 | 229.50 | 47.24 | -1.48 | 0.71 | 3.09 | 221.27 |
| 60 | 115 | -229.50 | -47.24 | 1.48 | -0.71 | -3.09 | -221.27 |
| 60 | 116 | 234.00 | 47.24 | -1.48 | 0.71 | 7.00 | 0.73 |
| 61 | 116 | -234.00 | -47.24 | 1.48 | -0.71 | -7.00 | -0.73 |
| 61 | 117 | 238.50 | 47.24 | -1.48 | 0.71 | 10.91 | -219.82 |
| 62 | 117 | -238.50 | -47.24 | 1.48 | -0.71 | -10.91 | 219.82 |
| 62 | 118 | 243.00 | 47.24 | -1.48 | 0.71 | 14.83 | -440.36 |
| 63 | 118 | -243.00 | -47.24 | 1.48 | -0.71 | -14.83 | 440.36 |
| 63 | 119 | 247.50 | 49.95 | -1.56 | 1.14 | 15.09 | 1840.90 |
| 64 | 119 | -247.50 | -49.95 | 1.56 | -1.14 | -15.09 | -1840.90 |
| 64 | 120 | 252.00 | 150.62 | -1.41 | 0.53 | 15.36 | 2010.04 |
| 65 | 120 | -252.00 | -150.62 | 1.41 | -0.53 | -15.36 | -2010.04 |
| 65 | 121 | 256.50 | 258.11 | -1.61 | 1.39 | 20.31 | 1415.97 |
| 66 | 121 | -256.50 | -258.11 | 1.61 | -1.39 | -20.31 | -1415.97 |
| 66 | 122 | 261.00 | 394.69 | -1.61 | 1.39 | 23.62 | -60.82 |
| 67 | 122 | -261.00 | -394.69 | 1.61 | -1.39 | -23.62 | 60.82 |
| 67 | 123 | 265.50 | 531.26 | -1.61 | 1.39 | 26.93 | -2152.19 |
| 68 | 123 | -265.50 | -531.26 | 1.61 | -1.39 | -26.93 | 2152.19 |
| 68 | 124 | 270.00 | 583.78 | -1.57 | 1.27 | 27.44 | -2734.75 |
| 69 | 124 | 270.00 | -43.00 | 0.21 | -4.42 | 30.05 | -778.81 |
| 69 | 133 | -274.50 | 43.00 | -0.21 | 4.42 | -41.58 | 593.32 |
| 70 | 133 | 274.50 | -43.00 | 0.21 | -4.42 | 41.57 | -593.32 |
| 70 | 134 | -286.43 | 43.00 | -0.21 | 4.42 | -35.64 | 421.01 |
| 71 | 134 | 286.43 | -43.00 | 0.21 | -4.42 | 35.64 | -421.01 |
| 71 | 135 | -298.35 | 43.00 | -0.21 | 4.42 | -29.70 | 248.70 |
| 72 | 135 | 298.35 | -43.00 | 0.21 | -4.42 | 29.70 | -248.70 |
| 72 | 136 | -310.28 | 43.00 | -0.21 | 4.42 | -23.76 | 76.39 |
| 73 | 136 | 310.28 | -43.00 | 0.21 | -4.42 | 23.76 | -76.39 |
| 73 | 137 | -322.20 | 110.26 | -0.29 | 4.57 | -16.77 | 2302.01 |
| 74 | 137 | 322.20 | -110.26 | 0.29 | -4.57 | 16.77 | -2302.01 |
| 74 | 138 | -334.13 | 192.18 | -0.07 | 3.78 | -13.11 | 1459.84 |
| 75 | 138 | 334.13 | -192.18 | 0.07 | -3.78 | 13.11 | -1459.84 |
| 75 | 139 | -346.05 | 285.06 | -0.29 | 4.53 | -5.56 | 956.03 |
| 76 | 139 | 346.05 | -285.06 | 0.29 | -4.53 | 5.56 | -956.03 |
| 76 | 140 | -357.97 | 421.63 | -0.29 | 4.53 | 0.00 | -612.86 |
| 77 | 16 | 717.67 | 0.00 | 0.14 | 0.00 | -1.31 | 0.00 |
| 77 | 17 | -717.67 | 0.00 | -0.14 | 0.00 | 0.59 | 0.00 |
| 78 | 17 | 717.67 | 0.00 | 0.14 | 0.00 | -0.59 | 0.00 |
| 78 | 18 | -717.67 | 0.00 | -0.14 | 0.00 | -0.08 | 0.00 |
| 79 | 33 | 724.13 | 0.00 | -0.05 | 0.00 | 0.57 | 0.00 |
| 79 | 34 | -724.13 | 0.00 | 0.05 | 0.00 | -0.17 | 0.00 |
| 80 | 34 | 724.13 | 0.00 | -0.05 | 0.00 | 0.17 | 0.00 |
| 80 | 35 | -724.13 | 0.00 | 0.05 | 0.00 | 0.10 | 0.00 |
| 81 | 50 | 718.24 | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 |
| 81 | 51 | -718.24 | 0.00 | 0.00 | 0.00 | -0.11 | 0.00 |
| 82 | 51 | 718.24 | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 |
| 82 | 52 | -718.24 | 0.00 | 0.00 | 0.00 | -0.08 | 0.00 |
| 83 | 52 | 718.24 | 0.00 | 0.00 | 0.00 | 0.08 | 0.00 |
| 83 | 53 | -718.24 | 0.00 | 0.00 | 0.00 | -0.04 | 0.00 |
| 84 | 53 | 718.24 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 |
| 84 | 54 | -718.24 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 85 | 69 | 720.75 | 0.00 | 0.00 | 0.00 | 0.12 | 0.00 |
| 85 | 70 | -720.75 | 0.00 | 0.00 | 0.00 | -0.10 | 0.00 |
| 86 | 70 | 720.75 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 |
| 86 | 71 | -720.75 | 0.00 | 0.00 | 0.00 | -0.06 | 0.00 |
| 87 | 71 | 720.75 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 |
| 87 | 72 | -720.75 | 0.00 | 0.00 | 0.00 | -0.03 | 0.00 |
| 88 | 72 | 720.75 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 |
| 88 | 73 | -720.75 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 89 | 88 | 718.69 | 0.00 | -0.01 | 0.00 | 0.17 | 0.00 |
| 89 | 89 | -718.69 | 0.00 | 0.01 | 0.00 | -0.16 | 0.00 |
| 90 | 89 | 718.69 | 0.00 | -0.01 | 0.00 | 0.16 | 0.00 |
| 90 | 90 | -718.69 | 0.00 | 0.01 | 0.00 | -0.10 | 0.00 |
| 91 | 90 | 718.69 | 0.00 | -0.01 | 0.00 | 0.10 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 91 | 91 | -718.69 | 0.00 | 0.01 | 0.00 | -0.03 | 0.00 |
| 92 | 91 | 718.69 | 0.00 | -0.01 | 0.00 | 0.03 | 0.00 |
| 92 | 92 | -718.69 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 93 | 107 | 723.98 | 0.00 | -0.02 | 0.00 | 0.26 | 0.00 |
| 93 | 108 | -723.98 | 0.00 | 0.02 | 0.00 | -0.23 | 0.00 |
| 94 | 108 | 723.98 | 0.00 | -0.02 | 0.00 | 0.23 | 0.00 |
| 94 | 109 | -723.98 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| 95 | 109 | 723.98 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 95 | 110 | -723.98 | 0.00 | 0.02 | 0.00 | 0.11 | 0.00 |
| 96 | 125 | 717.33 | 0.00 | 0.09 | 0.00 | -1.18 | 0.00 |
| 96 | 126 | -717.33 | 0.00 | -0.09 | 0.00 | 1.09 | 0.00 |
| 97 | 126 | 717.33 | 0.00 | 0.09 | 0.00 | -1.09 | 0.00 |
| 97 | 127 | -717.33 | 0.00 | -0.09 | 0.00 | 0.23 | 0.00 |
| 98 | 127 | 717.33 | 0.00 | 0.09 | 0.00 | -0.23 | 0.00 |
| 98 | 128 | -717.33 | 0.00 | -0.09 | 0.00 | -0.20 | 0.00 |
| 99 | 2 | 107.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -107.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 107.74 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -107.74 | 0.00 | 0.08 | 0.00 | 0.13 | 0.00 |
| 101 | 19 | 358.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -358.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 358.86 | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -358.86 | 0.00 | -0.14 | 0.00 | -0.23 | 0.00 |
| 103 | 36 | 362.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -362.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 362.04 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -362.04 | 0.00 | 0.05 | 0.00 | 0.09 | 0.00 |
| 105 | 55 | 359.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -359.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 359.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -359.12 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 107 | 74 | 360.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -360.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 360.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -360.38 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 109 | 93 | 359.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -359.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 359.34 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -359.34 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 111 | 111 | 362.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -362.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 361.96 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -361.96 | 0.00 | 0.02 | 0.00 | 0.04 | 0.00 |
| 113 | 129 | 358.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -358.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 358.72 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -358.72 | 0.00 | -0.09 | 0.00 | -0.15 | 0.00 |
| 115 | 141 | 81.71 | -357.98 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -81.71 | 357.98 | 0.00 | 0.00 | 0.00 | -612.85 |
| 116 | 143 | 83.49 | -357.98 | 0.22 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -83.49 | 357.98 | -0.22 | 0.00 | -0.38 | -612.85 |
| 117 | 6 | 215.49 | 0.00 | -0.08 | 0.00 | 0.07 | 0.00 |
| 117 | 7 | -215.49 | 0.00 | 0.08 | 0.00 | 0.01 | 0.00 |
| 118 | 145 | 165.20 | -715.95 | 0.22 | 0.00 | 7.37 | -715.95 |
| 118 | 146 | -165.20 | 715.95 | -0.22 | 0.00 | -7.59 | 0.00 |
| 119 | 3 | 0.00 | -41.52 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | 41.52 | 0.00 | 0.00 | 0.00 | -176.47 |
| 120 | 1 | 0.81 | -199.99 | 0.00 | 0.00 | 0.00 | -848.56 |
| 120 | 5 | -0.81 | 199.99 | 0.00 | 0.00 | 0.00 | -1.38 |
| 121 | 20 | 0.00 | -60.33 | 0.01 | 0.00 | -0.01 | 0.00 |
| 121 | 15 | 0.00 | 60.33 | -0.01 | 0.00 | 0.00 | -111.61 |
| 122 | 15 | 1.29 | -561.98 | 0.00 | 0.00 | 0.01 | -1037.44 |
| 122 | 22 | -1.29 | 561.98 | 0.00 | 0.00 | 0.00 | -2.21 |
| 123 | 37 | 0.00 | -80.99 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | 80.99 | 0.00 | 0.00 | -0.02 | -149.85 |
| 124 | 32 | 2.10 | -576.41 | 0.00 | 0.00 | 0.00 | -1062.77 |
| 124 | 39 | -2.10 | 576.41 | 0.00 | 0.00 | 0.00 | -3.60 |
| 125 | 56 | -0.01 | -76.47 | -0.01 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.01 | 76.47 | 0.01 | 0.00 | -0.02 | -141.47 |
| 126 | 49 | -0.61 | -574.67 | 0.00 | 0.00 | -0.01 | -1064.18 |
| 126 | 58 | 0.61 | 574.67 | 0.00 | 0.00 | 0.00 | 1.04 |
| 127 | 75 | 0.01 | -72.52 | 0.01 | 0.00 | 0.01 | 0.00 |
| 127 | 68 | -0.01 | 72.52 | -0.01 | 0.00 | 0.00 | -134.18 |
| 128 | 68 | -0.37 | -574.44 | 0.00 | 0.00 | 0.00 | -1063.34 |
| 128 | 77 | 0.37 | 574.44 | 0.00 | 0.00 | -0.01 | 0.63 |
| 129 | 94 | 0.00 | -76.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | 76.59 | 0.00 | 0.00 | 0.00 | -141.70 |
| 130 | 87 | -0.07 | -575.83 | 0.00 | 0.00 | 0.00 | -1065.39 |
| 130 | 96 | 0.07 | 575.83 | 0.00 | 0.00 | 0.00 | 0.11 |
| 131 | 112 | 0.00 | -75.32 | -0.01 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | 75.32 | 0.01 | 0.00 | 0.00 | -139.35 |
| 132 | 106 | 2.06 | -577.79 | 0.01 | 0.00 | 0.00 | -1065.38 |
| 132 | 114 | -2.06 | 577.79 | -0.01 | 0.00 | 0.00 | -3.53 |
| 133 | 130 | 0.00 | -66.73 | -0.01 | 0.00 | -0.01 | 0.00 |
| 133 | 124 | 0.00 | 66.73 | 0.01 | 0.00 | 0.00 | -123.45 |
| 134 | 124 | -2.18 | -573.90 | 0.00 | 0.00 | 0.00 | -1065.44 |
| 134 | 132 | 2.18 | 573.90 | 0.00 | 0.00 | 0.00 | 3.74 |
| 135 | 142 | 0.00 | -58.97 | -178.99 | 306.43 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | 58.97 | 178.99 | -306.43 | 760.70 | -250.62 |
| 136 | 140 | 0.46 | -213.20 | -178.99 | 306.43 | 760.70 | -905.30 |
| 136 | 144 | -0.46 | 213.20 | 178.99 | -306.43 | 0.00 | -0.79 |
| 137 | 2 | 0.00 | -199.98 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 199.98 | 0.00 | 0.00 | 0.00 | -849.92 |
| 138 | 7 | 10.88 | -41.52 | 0.00 | 0.00 | 0.00 | -176.46 |
| 138 | 4 | -10.88 | 41.52 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -562.10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 562.10 | 0.00 | 0.00 | 0.00 | -1039.87 |
| 140 | 18 | 16.42 | -60.25 | 0.00 | 0.00 | 0.00 | -111.47 |
| 140 | 21 | -16.42 | 60.25 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -576.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 576.72 | 0.00 | 0.00 | 0.00 | -1066.94 |
| 142 | 35 | 30.48 | -81.03 | 0.00 | 0.00 | 0.00 | -149.89 |
| 142 | 38 | -30.48 | 81.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -575.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | 575.07 | 0.00 | 0.00 | 0.00 | -1063.87 |
| 144 | 54 | -6.98 | -76.39 | 0.00 | 0.00 | 0.00 | -141.31 |
| 144 | 57 | 6.98 | 76.39 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | -574.81 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 574.81 | 0.00 | 0.00 | 0.00 | -1063.41 |
| 146 | 73 | -3.54 | -72.42 | 0.00 | 0.00 | 0.00 | -133.97 |
| 146 | 76 | 3.54 | 72.42 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | -576.25 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | 576.25 | 0.00 | 0.00 | 0.00 | -1066.06 |
| 148 | 92 | 0.44 | -76.50 | 0.00 | 0.00 | 0.00 | -141.52 |
| 148 | 95 | -0.44 | 76.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | -578.19 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 578.19 | 0.00 | 0.00 | 0.00 | -1069.66 |
| 150 | 110 | 12.35 | -75.30 | 0.00 | 0.00 | 0.00 | -139.29 |
| 150 | 113 | -12.35 | 75.30 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -574.18 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 574.18 | 0.00 | 0.00 | 0.00 | -1062.24 |
| 152 | 128 | 9.82 | -66.54 | 0.00 | 0.00 | 0.00 | -123.10 |
| 152 | 131 | -9.82 | 66.54 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -213.25 | -178.99 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 213.25 | 178.99 | 0.00 | 760.70 | -906.31 |
| 154 | 146 | 13.27 | -58.94 | -178.99 | 0.00 | 760.70 | -250.50 |
| 154 | 143 | -13.27 | 58.94 | 178.99 | 0.00 | 0.00 | 0.00 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS 55

FUER Z MAX sobrecarga + fr. + fc (ec-1)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 111.44 | 23.79 | 629.05 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -110.65 | -23.79 | -624.37 | -107.04 | 499.70 |
| 2 | 8 | 0.00 | 110.65 | 23.79 | 624.37 | 107.04 | -499.70 |
| 2 | 9 | 0.00 | -87.51 | -23.79 | -560.46 | -214.07 | 978.98 |
| 3 | 9 | 0.00 | 87.51 | 23.79 | 560.46 | 214.07 | -978.98 |
| 3 | 10 | 0.00 | -19.23 | -23.79 | -376.91 | -321.11 | 1219.14 |
| 4 | 10 | 0.00 | 19.23 | 23.79 | 376.91 | 321.11 | -1219.14 |
| 4 | 11 | 0.00 | 49.06 | -23.79 | -193.35 | -428.15 | 1152.01 |
| 5 | 11 | 0.00 | -49.06 | 23.79 | 193.35 | 428.15 | -1152.01 |
| 5 | 12 | 0.00 | 117.35 | -23.79 | -9.80 | -535.19 | 777.58 |
| 6 | 12 | 0.00 | -117.35 | 23.79 | 9.80 | 535.19 | -777.58 |
| 6 | 13 | 0.00 | 185.64 | -23.79 | 173.76 | -642.22 | 95.86 |
| 7 | 13 | 0.00 | -185.64 | 23.79 | -173.76 | 642.22 | -95.86 |
| 7 | 14 | 0.00 | 253.92 | -23.79 | 357.31 | -749.26 | -893.15 |
| 8 | 14 | 0.00 | -253.92 | 23.79 | -357.31 | 749.26 | 893.15 |
| 8 | 15 | 0.00 | 269.71 | -23.79 | 401.74 | -856.30 | -2097.59 |
| 9 | 15 | 0.00 | 321.41 | 26.09 | -84.14 | -408.65 | 2241.64 |
| 9 | 23 | -4.50 | -260.31 | -26.09 | -80.39 | 301.82 | -940.82 |
| 10 | 23 | 4.50 | 260.31 | 26.09 | 80.39 | -301.82 | 940.82 |
| 10 | 24 | -9.00 | -223.52 | -26.09 | -180.47 | 195.00 | 155.77 |
| 11 | 24 | 9.00 | 223.52 | 26.09 | 180.47 | -194.99 | -155.77 |
| 11 | 25 | -13.50 | -186.73 | -26.09 | -280.55 | 88.17 | 1086.83 |
| 12 | 25 | 13.50 | 186.73 | 26.09 | 280.55 | -88.17 | -1086.83 |
| 12 | 26 | -18.00 | -127.59 | -26.09 | -321.40 | -18.66 | 1835.46 |
| 13 | 26 | 18.00 | 127.59 | 26.09 | 321.40 | 18.66 | -1835.46 |
| 13 | 27 | -22.50 | -23.31 | -26.09 | -242.61 | -125.48 | 2182.97 |
| 14 | 27 | 22.50 | 23.31 | 26.09 | 242.61 | 125.48 | -2182.98 |
| 14 | 28 | -27.00 | 80.98 | -26.09 | -163.81 | -232.31 | 2061.19 |
| 15 | 28 | 27.00 | -80.98 | 26.09 | 163.81 | 232.31 | -2061.20 |
| 15 | 29 | -31.50 | 185.27 | -26.09 | -85.02 | -339.13 | 1470.12 |
| 16 | 29 | 31.50 | -185.27 | 26.09 | 85.02 | 339.13 | -1470.12 |
| 16 | 30 | -36.00 | 289.56 | -26.09 | -6.22 | -445.96 | 409.75 |
| 17 | 30 | 36.00 | -289.56 | 26.09 | 6.22 | 445.96 | -409.75 |
| 17 | 31 | -40.50 | 393.84 | -26.09 | 72.57 | -552.79 | -1119.91 |
| 18 | 31 | 40.50 | -393.84 | 26.09 | -72.57 | 552.79 | 1119.91 |
| 18 | 32 | -45.00 | 445.63 | -26.09 | 12.24 | -659.61 | -3026.99 |
| 19 | 32 | 45.00 | 130.85 | 30.50 | 649.23 | -554.23 | 1895.77 |
| 19 | 40 | -49.50 | -130.07 | -30.50 | -644.55 | 427.58 | -1300.71 |
| 20 | 40 | 49.50 | 130.07 | 30.50 | 644.55 | -427.58 | 1300.71 |
| 20 | 41 | -54.00 | -129.28 | -30.50 | -639.87 | 300.92 | -709.20 |
| 21 | 41 | 54.00 | 129.28 | 30.50 | 639.87 | -300.92 | 709.20 |
| 21 | 42 | -58.50 | -128.49 | -30.50 | -635.19 | 174.26 | -121.23 |
| 22 | 42 | 58.50 | 128.49 | 30.50 | 635.19 | -174.26 | 121.23 |
| 22 | 43 | -63.00 | -105.35 | -30.50 | -571.28 | 47.60 | 446.32 |
| 23 | 43 | 63.00 | 105.35 | 30.50 | 571.28 | -47.60 | -446.33 |
| 23 | 44 | -67.50 | -37.07 | -30.50 | -387.72 | -79.05 | 774.76 |
| 24 | 44 | 67.50 | 37.07 | 30.50 | 387.72 | 79.05 | -774.76 |
| 24 | 45 | -72.00 | 31.22 | -30.50 | -204.17 | -205.71 | 795.90 |
| 25 | 45 | 72.00 | -31.22 | 30.50 | 204.17 | 205.71 | -795.90 |
| 25 | 46 | -76.50 | 99.51 | -30.50 | -20.61 | -332.37 | 509.74 |
| 26 | 46 | 76.50 | -99.51 | 30.50 | 20.61 | 332.37 | -509.74 |
| 26 | 47 | -81.00 | 167.80 | -30.50 | 162.94 | -459.03 | -83.71 |
| 27 | 47 | 81.00 | -167.80 | 30.50 | -162.94 | 459.03 | 83.71 |
| 27 | 48 | -85.50 | 236.08 | -30.50 | 346.50 | -585.69 | -984.45 |
| 28 | 48 | 85.50 | -236.08 | 30.50 | -346.50 | 585.69 | 984.45 |
| 28 | 49 | -90.00 | 251.87 | -30.50 | 390.93 | -712.34 | -2100.61 |
| 29 | 49 | -90.00 | 134.14 | 25.13 | 657.78 | -261.53 | 1887.90 |
| 29 | 59 | 94.50 | -133.36 | -25.13 | -653.10 | 159.04 | -1294.01 |
| 30 | 59 | -94.50 | 133.36 | 25.13 | 653.10 | -159.04 | 1294.01 |
| 30 | 60 | 99.00 | -132.57 | -25.13 | -648.42 | 56.55 | -703.66 |
| 31 | 60 | -99.00 | 132.57 | 25.13 | 648.42 | -56.55 | 703.66 |
| 31 | 61 | 103.50 | -131.78 | -25.13 | -643.74 | -45.94 | -116.85 |
| 32 | 61 | -103.50 | 131.78 | 25.13 | 643.74 | 45.94 | 116.85 |
| 32 | 62 | 108.00 | -108.64 | -25.13 | -579.83 | -148.44 | 449.53 |
| 33 | 62 | -108.00 | 108.65 | 25.13 | 579.83 | 148.44 | -449.53 |
| 33 | 63 | 112.50 | -40.36 | -25.13 | -396.28 | -250.93 | 776.80 |
| 34 | 63 | -112.50 | 40.36 | 25.13 | 396.28 | 250.93 | -776.80 |
| 34 | 64 | 117.00 | 27.93 | -25.13 | -212.72 | -353.42 | 796.78 |
| 35 | 64 | -117.00 | -27.93 | 25.13 | 212.72 | 353.42 | -796.78 |
| 35 | 65 | 121.50 | 96.22 | -25.13 | -29.17 | -455.91 | 509.46 |
| 36 | 65 | -121.50 | -96.22 | 25.13 | 29.17 | 455.91 | -509.46 |
| 36 | 66 | 126.00 | 164.51 | -25.13 | 154.39 | -558.41 | -85.16 |
| 37 | 66 | -126.00 | -164.51 | 25.13 | -154.39 | 558.41 | 85.16 |
| 37 | 67 | 130.50 | 232.79 | -25.13 | 337.94 | -660.90 | -987.06 |
| 38 | 67 | -130.50 | -232.79 | 25.13 | -337.94 | 660.90 | 987.06 |
| 38 | 68 | 135.00 | 248.58 | -25.13 | 382.37 | -763.39 | -2104.39 |
| 39 | 68 | -135.00 | 251.66 | 25.84 | -380.08 | -784.92 | 2101.81 |
| 39 | 78 | 139.50 | -236.02 | -25.84 | 336.05 | 679.23 | -986.60 |
| 40 | 78 | -139.50 | 236.02 | 25.84 | -336.05 | -679.23 | 986.60 |
| 40 | 79 | 144.00 | -167.74 | -25.84 | 152.50 | 573.54 | -86.13 |
| 41 | 79 | -144.00 | 167.74 | 25.84 | -152.50 | -573.54 | 86.13 |
| 41 | 80 | 148.50 | -99.45 | -25.84 | -31.06 | 467.85 | 507.04 |
| 42 | 80 | -148.50 | 99.45 | 25.84 | 31.06 | -467.85 | -507.04 |
| 42 | 81 | 153.00 | -31.16 | -25.84 | -214.61 | 362.16 | 792.92 |
| 43 | 81 | -153.00 | 31.16 | 25.84 | 214.61 | -362.16 | -792.92 |
| 43 | 82 | 157.50 | 37.13 | -25.84 | -398.17 | 256.47 | 771.51 |
| 44 | 82 | -157.50 | -37.13 | 25.84 | 398.17 | -256.47 | -771.51 |
| 44 | 83 | 162.00 | 105.41 | -25.84 | -581.72 | 150.78 | 442.80 |
| 45 | 83 | -162.00 | -105.42 | 25.84 | 581.72 | -150.78 | -442.80 |
| 45 | 84 | 166.50 | 128.70 | -25.84 | -646.03 | 45.09 | -125.70 |
| 46 | 84 | -166.50 | -128.70 | 25.84 | 646.03 | -45.09 | 125.70 |
| 46 | 85 | 171.00 | 129.49 | -25.84 | -650.71 | -60.60 | -714.62 |
| 47 | 85 | -171.00 | -129.49 | 25.84 | 650.71 | 60.60 | 714.62 |
| 47 | 86 | 175.50 | 130.28 | -25.84 | -655.39 | -166.29 | -1307.08 |
| 48 | 86 | -175.50 | -130.28 | 25.84 | 655.39 | 166.29 | 1307.08 |
| 48 | 87 | 180.00 | 131.06 | -25.84 | -660.07 | -271.99 | -1903.09 |
| 49 | 87 | -180.00 | 253.01 | 29.40 | -385.50 | -738.62 | 2116.78 |
| 49 | 97 | 184.50 | -237.38 | -29.40 | 341.46 | 616.91 | -995.48 |
| 50 | 97 | -184.50 | 237.38 | 29.40 | -341.46 | -616.91 | 995.48 |
| 50 | 98 | 189.00 | -169.09 | -29.40 | 157.91 | 495.19 | -88.92 |
| 51 | 98 | -189.00 | 169.09 | 29.40 | -157.91 | -495.19 | 88.92 |
| 51 | 99 | 193.50 | -100.80 | -29.40 | -25.65 | 373.48 | 510.34 |
| 52 | 99 | -193.50 | 100.80 | 29.40 | 25.65 | -373.48 | -510.34 |
| 52 | 100 | 198.00 | -32.51 | -29.40 | -209.20 | 251.76 | 802.31 |
| 53 | 100 | -198.00 | 32.51 | 29.40 | 209.20 | -251.77 | -802.31 |
| 53 | 101 | 202.50 | 35.77 | -29.40 | -392.76 | 130.05 | 786.99 |
| 54 | 101 | -202.50 | -35.77 | 29.40 | 392.76 | -130.05 | -786.99 |
| 54 | 102 | 207.00 | 104.06 | -29.40 | -576.31 | 8.34 | 464.37 |
| 55 | 102 | -207.00 | -104.06 | 29.40 | 576.31 | -8.34 | -464.37 |
| 55 | 103 | 211.50 | 127.35 | -29.40 | -640.62 | -113.37 | -98.04 |
| 56 | 103 | -211.50 | -127.35 | 29.40 | 640.62 | 113.38 | 98.04 |
| 56 | 104 | 216.00 | 128.14 | -29.40 | -645.30 | -235.09 | -680.87 |
| 57 | 104 | -216.00 | -128.14 | 29.40 | 645.30 | 235.09 | 680.87 |
| 57 | 105 | 220.50 | 128.92 | -29.40 | -649.98 | -356.80 | -1267.25 |
| 58 | 105 | -220.50 | -128.92 | 29.40 | 649.98 | 356.80 | 1267.25 |
| 58 | 106 | 225.00 | 129.71 | -29.40 | -654.66 | -478.52 | -1857.17 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 59 | 106 | -225.00 | 381.52 | 27.25 | -31.49 | -408.76 | 3080.49 |
| 59 | 115 | 229.50 | -365.88 | -27.25 | -3.18 | 296.69 | -1380.92 |
| 60 | 115 | -229.50 | 365.88 | 27.25 | 3.18 | -296.69 | 1380.92 |
| 60 | 116 | 234.00 | -297.59 | -27.25 | -177.37 | 184.63 | 103.90 |
| 61 | 116 | -234.00 | 297.59 | 27.25 | 177.37 | -184.63 | -103.90 |
| 61 | 117 | 238.50 | -229.30 | -27.25 | -351.57 | 72.57 | 1281.44 |
| 62 | 117 | -238.50 | 229.30 | 27.25 | 351.57 | -72.57 | -1281.44 |
| 62 | 118 | 243.00 | -138.67 | -27.25 | -466.54 | -39.49 | 2134.80 |
| 63 | 118 | -243.00 | 138.67 | 27.25 | 466.54 | 39.49 | -2134.80 |
| 63 | 119 | 247.50 | -2.88 | -27.25 | -461.86 | -151.55 | 2445.30 |
| 64 | 119 | -247.50 | 2.88 | 27.25 | 461.86 | 151.55 | -2445.29 |
| 64 | 120 | 252.00 | 132.91 | -27.25 | -457.18 | -263.61 | 2144.75 |
| 65 | 120 | -252.00 | -132.91 | 27.25 | 457.18 | 263.61 | -2144.75 |
| 65 | 121 | 256.50 | 223.69 | -27.25 | -333.25 | -375.67 | 1300.65 |
| 66 | 121 | -256.50 | -223.70 | 27.25 | 333.25 | 375.67 | -1300.65 |
| 66 | 122 | 261.00 | 291.98 | -27.25 | -149.69 | -487.73 | 132.39 |
| 67 | 122 | -261.00 | -291.98 | 27.25 | 149.69 | 487.73 | -132.39 |
| 67 | 123 | 265.50 | 360.27 | -27.25 | 33.86 | -599.79 | -1343.17 |
| 68 | 123 | -265.50 | -360.27 | 27.25 | -33.86 | 599.79 | 1343.17 |
| 68 | 124 | 270.00 | 376.06 | -27.25 | 78.29 | -711.85 | -3034.14 |
| 69 | 124 | 270.00 | 255.51 | 32.96 | -401.05 | -979.61 | 1996.25 |
| 69 | 133 | -274.50 | -239.87 | -32.96 | 357.02 | 841.88 | -847.73 |
| 70 | 133 | 274.50 | 239.87 | 32.96 | -357.02 | -841.88 | 847.73 |
| 70 | 134 | -271.58 | -171.59 | -32.96 | 173.46 | 721.61 | 72.86 |
| 71 | 134 | 271.58 | 171.59 | 32.96 | -173.46 | -721.61 | -72.86 |
| 71 | 135 | -268.65 | -103.30 | -32.96 | -10.09 | 601.34 | 686.16 |
| 72 | 135 | 268.65 | 103.30 | 32.96 | 10.09 | -601.34 | -686.16 |
| 72 | 136 | -265.73 | -35.01 | -32.96 | -193.65 | 481.07 | 992.16 |
| 73 | 136 | 265.73 | 35.01 | 32.96 | 193.65 | -481.07 | -992.16 |
| 73 | 137 | -262.80 | 33.28 | -32.96 | -377.20 | 360.80 | 990.87 |
| 74 | 137 | 262.80 | -33.28 | 32.96 | 377.20 | -360.80 | -990.87 |
| 74 | 138 | -259.88 | 101.56 | -32.96 | -560.76 | 240.54 | 682.28 |
| 75 | 138 | 259.88 | -101.56 | 32.96 | 560.76 | -240.54 | -682.28 |
| 75 | 139 | -256.95 | 124.85 | -32.96 | -625.06 | 120.27 | 133.91 |
| 76 | 139 | 256.95 | -124.85 | 32.96 | 625.06 | -120.27 | -133.91 |
| 76 | 140 | -254.03 | 125.64 | -32.96 | -629.74 | 0.00 | -434.89 |
| 77 | 16 | 666.88 | 0.00 | 44.32 | 0.00 | 52.93 | 0.00 |
| 77 | 17 | -666.88 | 0.00 | -44.32 | 0.00 | -287.85 | 0.00 |
| 78 | 17 | 666.88 | 0.00 | 44.32 | 0.00 | 287.85 | 0.00 |
| 78 | 18 | -666.88 | 0.00 | -44.32 | 0.00 | -509.48 | 0.00 |
| 79 | 33 | 929.96 | 0.00 | 42.60 | 0.00 | -490.26 | 0.00 |
| 79 | 34 | -929.96 | 0.00 | -42.60 | 0.00 | 167.32 | 0.00 |
| 80 | 34 | 929.96 | 0.00 | 42.60 | 0.00 | -167.32 | 0.00 |
| 80 | 35 | -929.96 | 0.00 | -42.60 | 0.00 | -45.71 | 0.00 |
| 81 | 50 | 544.04 | 0.00 | 39.21 | 0.00 | -224.45 | 0.00 |
| 81 | 51 | -544.04 | 0.00 | -39.21 | 0.00 | 67.61 | 0.00 |
| 82 | 51 | 544.04 | 0.00 | 39.21 | 0.00 | -67.61 | 0.00 |
| 82 | 52 | -544.04 | 0.00 | -39.21 | 0.00 | -324.49 | 0.00 |
| 83 | 52 | 544.04 | 0.00 | 39.21 | 0.00 | 324.49 | 0.00 |
| 83 | 53 | -544.04 | 0.00 | -39.21 | 0.00 | -716.59 | 0.00 |
| 84 | 53 | 544.03 | 0.00 | 39.21 | 0.00 | 716.59 | 0.00 |
| 84 | 54 | -544.03 | 0.00 | -39.21 | 0.00 | -912.65 | 0.00 |
| 85 | 69 | 525.22 | 0.00 | 33.04 | 0.00 | -173.82 | 0.00 |
| 85 | 70 | -525.22 | 0.00 | -33.04 | 0.00 | -57.43 | 0.00 |
| 86 | 70 | 525.22 | 0.00 | 33.04 | 0.00 | 57.43 | 0.00 |
| 86 | 71 | -525.22 | 0.00 | -33.04 | 0.00 | -387.79 | 0.00 |
| 87 | 71 | 525.22 | 0.00 | 33.04 | 0.00 | 387.79 | 0.00 |
| 87 | 72 | -525.22 | 0.00 | -33.04 | 0.00 | -718.15 | 0.00 |
| 88 | 72 | 525.22 | 0.00 | 33.04 | 0.00 | 718.15 | 0.00 |
| 88 | 73 | -525.22 | 0.00 | -33.04 | 0.00 | -883.33 | 0.00 |
| 89 | 88 | 545.52 | 0.00 | 37.63 | 0.00 | -61.13 | 0.00 |
| 89 | 89 | -545.52 | 0.00 | -37.63 | 0.00 | 23.50 | 0.00 |
| 90 | 89 | 545.52 | 0.00 | 37.63 | 0.00 | -23.50 | 0.00 |
| 90 | 90 | -545.52 | 0.00 | -37.63 | 0.00 | -352.82 | 0.00 |
| 91 | 90 | 545.52 | 0.00 | 37.63 | 0.00 | 352.82 | 0.00 |
| 91 | 91 | -545.52 | 0.00 | -37.63 | 0.00 | -729.14 | 0.00 |
| 92 | 91 | 545.52 | 0.00 | 37.63 | 0.00 | 729.14 | 0.00 |
| 92 | 92 | -545.52 | 0.00 | -37.63 | 0.00 | -917.30 | 0.00 |
| 93 | 107 | 748.23 | 0.00 | 36.49 | 0.00 | -160.17 | 0.00 |
| 93 | 108 | -748.23 | 0.00 | -36.49 | 0.00 | 123.68 | 0.00 |
| 94 | 108 | 748.23 | 0.00 | 36.49 | 0.00 | -123.68 | 0.00 |
| 94 | 109 | -748.23 | 0.00 | -36.49 | 0.00 | -241.22 | 0.00 |
| 95 | 109 | 748.23 | 0.00 | 36.49 | 0.00 | 241.22 | 0.00 |
| 95 | 110 | -748.23 | 0.00 | -36.49 | 0.00 | -423.67 | 0.00 |
| 96 | 125 | 483.73 | 0.00 | 50.38 | 0.00 | -31.02 | 0.00 |
| 96 | 126 | -483.73 | 0.00 | -50.38 | 0.00 | -19.36 | 0.00 |
| 97 | 126 | 483.73 | 0.00 | 50.38 | 0.00 | 19.36 | 0.00 |
| 97 | 127 | -483.73 | 0.00 | -50.38 | 0.00 | -523.19 | 0.00 |
| 98 | 127 | 483.73 | 0.00 | 50.38 | 0.00 | 523.19 | 0.00 |
| 98 | 128 | -483.73 | 0.00 | -50.38 | 0.00 | -775.10 | 0.00 |
| 99 | 2 | 107.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -107.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | -23.08 | 0.00 | 23.79 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | 23.08 | 0.00 | -23.79 | 0.00 | -40.72 | 0.00 |
| 101 | 19 | 358.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -358.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 471.14 | 0.00 | 44.32 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -471.14 | 0.00 | -44.32 | 0.00 | -75.88 | 0.00 |
| 103 | 36 | 362.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -362.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 477.33 | 0.00 | 42.60 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -477.33 | 0.00 | -42.60 | 0.00 | -72.94 | 0.00 |
| 105 | 55 | 359.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -359.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 518.68 | 0.00 | 39.21 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -518.68 | 0.00 | -39.21 | 0.00 | -67.13 | 0.00 |
| 107 | 74 | 360.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -360.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 501.35 | 0.00 | 33.04 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -501.35 | 0.00 | -33.04 | 0.00 | -56.56 | 0.00 |
| 109 | 93 | 359.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -359.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 520.68 | 0.00 | 37.63 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -520.68 | 0.00 | -37.63 | 0.00 | -64.43 | 0.00 |
| 111 | 111 | 362.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -362.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 488.62 | 0.00 | 36.49 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -488.62 | 0.00 | -36.49 | 0.00 | -62.47 | 0.00 |
| 113 | 129 | 358.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -358.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 451.36 | 0.00 | 50.38 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -451.36 | 0.00 | -50.38 | 0.00 | -86.26 | 0.00 |
| 115 | 141 | 107.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -107.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | -31.77 | -127.01 | 32.98 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | 31.77 | 127.01 | -32.98 | 0.00 | -56.45 | -217.44 |
| 117 | 6 | 111.44 | 0.00 | 23.79 | 0.00 | -693.56 | 0.00 |
| 117 | 7 | -111.44 | 0.00 | -23.79 | 0.00 | 669.77 | 0.00 |
| 118 | 145 | 97.89 | -254.03 | 32.98 | 0.00 | -719.03 | -254.03 |
| 118 | 146 | -97.89 | 254.03 | -32.98 | 0.00 | 686.06 | 0.00 |
| 119 | 3 | 0.00 | 107.16 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -107.16 | 0.00 | 0.00 | 0.00 | 455.42 |
| 120 | 1 | -0.78 | -107.16 | 0.00 | 0.00 | 0.00 | -456.75 |
| 120 | 5 | 0.78 | 107.16 | 0.00 | 0.00 | 0.00 | 1.34 |
| 121 | 20 | 0.00 | 357.01 | 0.03 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | -357.01 | -0.03 | 0.00 | 0.00 | 660.47 |
| 122 | 15 | 2.89 | -357.17 | 0.03 | 0.00 | -0.01 | -655.82 |
| 122 | 22 | -2.89 | 357.17 | -0.03 | 0.00 | -0.01 | -4.95 |
| 123 | 37 | 0.00 | 361.71 | 0.02 | 0.00 | -0.02 | 0.00 |
| 123 | 32 | 0.00 | -361.71 | -0.02 | 0.00 | 0.00 | 669.17 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 124 | 32 | 10.97 | -387.45 | 0.01 | 0.00 | 0.00 | -698.00 |
| 124 | 39 | -10.97 | 387.45 | -0.01 | 0.00 | 0.00 | -18.79 |
| 125 | 56 | 0.00 | -64.32 | 0.02 | 0.00 | -0.01 | 0.00 |
| 125 | 49 | 0.00 | 64.32 | -0.02 | 0.00 | -0.01 | -119.02 |
| 126 | 49 | -0.02 | -209.82 | 0.01 | 0.00 | 0.01 | -388.20 |
| 126 | 58 | 0.02 | 209.82 | -0.01 | 0.00 | 0.00 | 0.04 |
| 127 | 75 | 0.00 | -33.73 | 0.02 | 0.00 | 0.01 | 0.00 |
| 127 | 68 | 0.00 | 33.73 | -0.02 | 0.00 | 0.00 | -62.41 |
| 128 | 68 | 9.45 | 59.21 | 0.02 | 0.00 | 0.00 | 125.73 |
| 128 | 77 | -9.45 | -59.21 | -0.02 | 0.00 | 0.02 | -16.18 |
| 129 | 94 | 0.00 | 361.17 | 0.02 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | -361.17 | -0.02 | 0.00 | 0.00 | 668.18 |
| 130 | 87 | 5.04 | 62.56 | 0.02 | 0.00 | 0.01 | 124.37 |
| 130 | 96 | -5.04 | -62.56 | -0.02 | 0.00 | 0.00 | -8.62 |
| 131 | 112 | 0.00 | 219.66 | 0.01 | 0.00 | -0.01 | 0.00 |
| 131 | 106 | 0.00 | -219.66 | -0.01 | 0.00 | 0.00 | 406.37 |
| 132 | 106 | -0.44 | -216.74 | 0.01 | 0.00 | 0.00 | -401.73 |
| 132 | 114 | 0.44 | 216.74 | -0.01 | 0.00 | -0.01 | 0.74 |
| 133 | 130 | 0.00 | 231.78 | 0.01 | 0.00 | 0.01 | 0.00 |
| 133 | 124 | 0.00 | -231.78 | -0.01 | 0.00 | 0.00 | 428.79 |
| 134 | 124 | 3.75 | -181.01 | 0.01 | 0.00 | 0.00 | -328.45 |
| 134 | 132 | -3.75 | 181.01 | -0.01 | 0.00 | 0.00 | -6.42 |
| 135 | 142 | 0.00 | 134.04 | 357.97 | -612.85 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -134.04 | -357.97 | 612.85 | -1521.39 | 569.66 |
| 136 | 140 | 0.24 | -81.71 | 357.98 | -612.85 | -1521.39 | -346.85 |
| 136 | 144 | -0.24 | 81.71 | -357.98 | 612.85 | 0.00 | -0.41 |
| 137 | 2 | 0.00 | -107.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 107.75 | 0.00 | 0.00 | 0.00 | -457.92 |
| 138 | 7 | -0.08 | 107.74 | 0.00 | 0.00 | 0.00 | 457.91 |
| 138 | 4 | 0.08 | -107.74 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -358.82 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 358.82 | 0.00 | 0.00 | 0.00 | -663.81 |
| 140 | 18 | 0.14 | 358.86 | 0.00 | 0.00 | 0.00 | 663.89 |
| 140 | 21 | -0.14 | -358.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -362.09 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 362.09 | 0.00 | 0.00 | 0.00 | -669.87 |
| 142 | 35 | -0.05 | 362.04 | 0.00 | 0.00 | 0.00 | 669.77 |
| 142 | 38 | 0.05 | -362.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -359.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | 359.11 | 0.00 | 0.00 | 0.00 | -664.36 |
| 144 | 54 | 0.00 | 359.12 | 0.00 | 0.00 | 0.00 | 664.38 |
| 144 | 57 | 0.00 | -359.12 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | -360.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 360.37 | 0.00 | 0.00 | 0.00 | -666.68 |
| 146 | 73 | 0.00 | 360.37 | 0.00 | 0.00 | 0.00 | 666.70 |
| 146 | 76 | 0.00 | -360.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | -359.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | 359.34 | 0.00 | 0.00 | 0.00 | -664.79 |
| 148 | 92 | -0.01 | 359.34 | 0.00 | 0.00 | 0.00 | 664.78 |
| 148 | 95 | 0.01 | -359.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | -362.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 362.02 | 0.00 | 0.00 | 0.00 | -669.73 |
| 150 | 110 | -0.02 | 361.96 | 0.00 | 0.00 | 0.00 | 669.62 |
| 150 | 113 | 0.02 | -361.96 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -358.61 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 358.61 | 0.00 | 0.00 | 0.00 | -663.43 |
| 152 | 128 | 0.09 | 358.72 | 0.00 | 0.00 | 0.00 | 663.63 |
| 152 | 131 | -0.09 | -358.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -81.71 | 357.98 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 81.71 | -357.98 | 0.00 | -1521.39 | -347.26 |
| 154 | 146 | -0.33 | 132.21 | 357.97 | 0.00 | -1521.39 | 561.89 |
| 154 | 143 | 0.33 | -132.21 | -357.97 | 0.00 | 0.00 | 0.00 |



HIPOTESIS 56

FUER Z MIN sobrecarga + fr. + fc (ec-1)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 111.42 | -23.73 | -629.20 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -110.63 | 23.73 | 624.52 | 106.80 | 499.60 |
| 2 | 8 | 0.00 | 110.63 | -23.73 | -624.52 | -106.80 | -499.60 |
| 2 | 9 | 0.00 | -87.49 | 23.73 | 560.61 | 213.61 | 978.78 |
| 3 | 9 | 0.00 | 87.49 | -23.73 | -560.61 | -213.61 | -978.78 |
| 3 | 10 | 0.00 | -19.20 | 23.73 | 377.05 | 320.41 | 1218.84 |
| 4 | 10 | 0.00 | 19.20 | -23.73 | -377.05 | -320.41 | -1218.84 |
| 4 | 11 | 0.00 | 49.08 | 23.73 | 193.50 | 427.22 | 1151.60 |
| 5 | 11 | 0.00 | -49.08 | -23.73 | -193.50 | -427.22 | -1151.60 |
| 5 | 12 | 0.00 | 117.37 | 23.73 | 9.94 | 534.02 | 777.08 |
| 6 | 12 | 0.00 | -117.37 | -23.73 | -9.94 | -534.02 | -777.08 |
| 6 | 13 | 0.00 | 185.66 | 23.73 | -173.61 | 640.82 | 95.26 |
| 7 | 13 | 0.00 | -185.66 | -23.73 | 173.61 | -640.82 | -95.26 |
| 7 | 14 | 0.00 | 253.95 | 23.73 | -357.17 | 747.63 | -893.86 |
| 8 | 14 | 0.00 | -253.95 | -23.73 | 357.17 | -747.63 | 893.86 |
| 8 | 15 | 0.00 | 269.73 | 23.73 | -401.60 | 854.43 | -2098.39 |
| 9 | 15 | 0.00 | 324.95 | -25.99 | 83.88 | 408.54 | 2240.88 |
| 9 | 23 | 4.50 | -263.84 | 25.99 | 80.65 | -302.15 | -940.13 |
| 10 | 23 | -4.50 | 263.84 | -25.99 | -80.65 | 302.15 | 940.13 |
| 10 | 24 | 9.00 | -227.05 | 25.99 | 180.73 | -195.76 | 156.40 |
| 11 | 24 | -9.00 | 227.05 | -25.99 | -180.73 | 195.76 | -156.40 |
| 11 | 25 | 13.50 | -190.27 | 25.99 | 280.81 | -89.38 | 1087.39 |
| 12 | 25 | -13.50 | 190.27 | -25.99 | -280.81 | 89.38 | -1087.39 |
| 12 | 26 | 18.00 | -131.13 | 25.99 | 321.66 | 17.01 | 1835.96 |
| 13 | 26 | -18.00 | 131.13 | -25.99 | -321.66 | -17.01 | -1835.96 |
| 13 | 27 | 22.50 | -26.84 | 25.99 | 242.87 | 123.40 | 2183.41 |
| 14 | 27 | -22.50 | 26.84 | -25.99 | -242.87 | -123.40 | -2183.41 |
| 14 | 28 | 27.00 | 77.45 | 25.99 | 164.07 | 229.79 | 2061.56 |
| 15 | 28 | -27.00 | -77.45 | -25.99 | -164.07 | -229.79 | -2061.56 |
| 15 | 29 | 31.50 | 181.73 | 25.99 | 85.28 | 336.17 | 1470.42 |
| 16 | 29 | -31.50 | -181.73 | -25.99 | -85.28 | -336.17 | -1470.42 |
| 16 | 30 | 36.00 | 286.02 | 25.99 | 6.48 | 442.56 | 409.98 |
| 17 | 30 | -36.00 | -286.02 | -25.99 | -6.48 | -442.56 | -409.98 |
| 17 | 31 | 40.50 | 390.31 | 25.99 | -72.31 | 548.95 | -1119.74 |
| 18 | 31 | -40.50 | -390.31 | -25.99 | 72.31 | -548.95 | 1119.74 |
| 18 | 32 | 45.00 | 442.10 | 25.99 | -11.98 | 655.34 | -3026.89 |
| 19 | 32 | -45.00 | 134.39 | -30.50 | -649.38 | 556.35 | 1896.04 |
| 19 | 40 | 49.50 | -133.61 | 30.50 | 644.70 | -429.68 | -1301.04 |
| 20 | 40 | -49.50 | 133.61 | -30.50 | -644.70 | 429.68 | 1301.04 |
| 20 | 41 | 54.00 | -132.82 | 30.50 | 640.02 | -303.01 | -709.57 |
| 21 | 41 | -54.00 | 132.82 | -30.50 | -640.02 | 303.01 | 709.57 |
| 21 | 42 | 58.50 | -132.03 | 30.50 | 635.34 | -176.34 | -121.65 |
| 22 | 42 | -58.50 | 132.03 | -30.50 | -635.34 | 176.34 | 121.65 |
| 22 | 43 | 63.00 | -108.89 | 30.50 | 571.44 | -49.67 | 445.85 |
| 23 | 43 | -63.00 | 108.89 | -30.50 | -571.44 | 49.67 | -445.85 |
| 23 | 44 | 67.50 | -40.61 | 30.50 | 387.88 | 77.01 | 774.24 |
| 24 | 44 | -67.50 | 40.61 | -30.50 | -387.88 | -77.01 | -774.24 |
| 24 | 45 | 72.00 | 27.68 | 30.50 | 204.33 | 203.68 | 795.33 |
| 25 | 45 | -72.00 | -27.68 | -30.50 | -204.33 | -203.68 | -795.33 |
| 25 | 46 | 76.50 | 95.97 | 30.50 | 20.77 | 330.35 | 509.12 |
| 26 | 46 | -76.50 | -95.97 | -30.50 | -20.77 | -330.35 | -509.12 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 26 | 47 | 81.00 | 164.26 | 30.50 | -162.78 | 457.02 | -84.37 |
| 27 | 47 | -81.00 | -164.26 | -30.50 | 162.78 | -457.02 | 84.37 |
| 27 | 48 | 85.50 | 232.54 | 30.50 | -346.34 | 583.69 | -985.16 |
| 28 | 48 | -85.50 | -232.54 | -30.50 | 346.34 | -583.69 | 985.16 |
| 28 | 49 | 90.00 | 248.33 | 30.50 | -390.77 | 710.36 | -2101.37 |
| 29 | 49 | 90.00 | 130.48 | -25.13 | -657.90 | 263.47 | 1887.00 |
| 29 | 59 | -94.50 | -129.70 | 25.13 | 653.22 | -160.98 | -1293.61 |
| 30 | 59 | 94.50 | 129.70 | -25.13 | -653.22 | 160.98 | 1293.61 |
| 30 | 60 | -99.00 | -128.91 | 25.13 | 648.54 | -58.49 | -703.77 |
| 31 | 60 | 99.00 | 128.91 | -25.13 | -648.54 | 58.49 | 703.77 |
| 31 | 61 | -103.50 | -128.12 | 25.13 | 643.86 | 44.00 | -117.47 |
| 32 | 61 | 103.50 | 128.12 | -25.12 | -643.86 | -44.00 | 117.47 |
| 32 | 62 | -108.00 | -104.98 | 25.12 | 579.95 | 146.49 | 448.41 |
| 33 | 62 | 108.00 | 104.98 | -25.13 | -579.95 | -146.49 | -448.41 |
| 33 | 63 | -112.50 | -36.70 | 25.13 | 396.40 | 248.98 | 775.18 |
| 34 | 63 | 112.50 | 36.70 | -25.13 | -396.40 | -248.98 | -775.18 |
| 34 | 64 | -117.00 | 31.59 | 25.13 | 212.84 | 351.47 | 794.64 |
| 35 | 64 | 117.00 | -31.59 | -25.13 | -212.84 | -351.47 | -794.65 |
| 35 | 65 | -121.50 | 99.88 | 25.13 | 29.29 | 453.96 | 506.82 |
| 36 | 65 | 121.50 | -99.88 | -25.13 | -29.29 | -453.96 | -506.82 |
| 36 | 66 | -126.00 | 168.17 | 25.13 | -154.27 | 556.45 | -88.30 |
| 37 | 66 | 126.00 | -168.17 | -25.13 | 154.27 | -556.45 | 88.30 |
| 37 | 67 | -130.50 | 236.45 | 25.13 | -337.82 | 658.94 | -990.71 |
| 38 | 67 | 130.50 | -236.45 | -25.13 | 337.82 | -658.94 | 990.71 |
| 38 | 68 | -135.00 | 252.24 | 25.13 | -382.25 | 761.43 | -2108.54 |
| 39 | 68 | 135.00 | 248.60 | -25.84 | 380.21 | 786.90 | 2106.25 |
| 39 | 78 | -139.50 | -232.96 | 25.84 | -336.18 | -681.19 | -988.84 |
| 40 | 78 | 139.50 | 232.96 | -25.84 | 336.18 | 681.19 | 988.84 |
| 40 | 79 | -144.00 | -164.67 | 25.84 | -152.62 | -575.49 | -86.18 |
| 41 | 79 | 144.00 | 164.67 | -25.84 | 152.62 | 575.48 | 86.18 |
| 41 | 80 | -148.50 | -96.39 | 25.84 | 30.93 | -469.78 | 509.20 |
| 42 | 80 | 148.50 | 96.39 | -25.84 | -30.93 | 469.78 | -509.20 |
| 42 | 81 | -153.00 | -28.10 | 25.84 | 214.49 | -364.08 | 797.28 |
| 43 | 81 | 153.00 | 28.10 | -25.84 | -214.49 | 364.07 | -797.28 |
| 43 | 82 | -157.50 | 40.19 | 25.84 | 398.04 | -258.37 | 778.06 |
| 44 | 82 | 157.50 | -40.19 | -25.84 | -398.04 | 258.37 | -778.06 |
| 44 | 83 | -162.00 | 108.48 | 25.84 | 581.60 | -152.66 | 451.55 |
| 45 | 83 | 162.00 | -108.48 | -25.84 | -581.60 | 152.67 | -451.55 |
| 45 | 84 | -166.50 | 131.76 | 25.84 | 645.90 | -46.96 | -114.75 |
| 46 | 84 | 166.50 | -131.76 | -25.84 | -645.90 | 46.96 | 114.75 |
| 46 | 85 | -171.00 | 132.55 | 25.84 | 650.58 | 58.75 | -701.47 |
| 47 | 85 | 171.00 | -132.55 | -25.84 | -650.58 | -58.75 | 701.47 |
| 47 | 86 | -175.50 | 133.34 | 25.84 | 655.26 | 164.45 | -1291.74 |
| 48 | 86 | 175.50 | -133.34 | -25.84 | -655.26 | -164.45 | 1291.74 |
| 48 | 87 | -180.00 | 134.13 | 25.84 | 659.94 | 270.16 | -1885.55 |
| 49 | 87 | 180.00 | 247.53 | -29.40 | 385.61 | 740.85 | 2099.50 |
| 49 | 97 | -184.50 | -231.89 | 29.40 | -341.58 | -619.15 | -986.91 |
| 50 | 97 | 184.50 | 231.89 | -29.39 | 341.58 | 619.14 | 986.91 |
| 50 | 98 | -189.00 | -163.60 | 29.39 | -158.02 | -497.44 | -89.06 |
| 51 | 98 | 189.00 | 163.60 | -29.40 | 158.02 | 497.44 | 89.06 |
| 51 | 99 | -193.50 | -95.31 | 29.40 | 25.53 | -375.74 | 501.48 |
| 52 | 99 | 193.50 | 95.31 | -29.40 | -25.53 | 375.74 | -501.48 |
| 52 | 100 | -198.00 | -27.03 | 29.40 | 209.09 | -254.04 | 784.74 |
| 53 | 100 | 198.00 | 27.03 | -29.39 | -209.09 | 254.04 | -784.74 |
| 53 | 101 | -202.50 | 41.26 | 29.39 | 392.64 | -132.33 | 760.70 |
| 54 | 101 | 202.50 | -41.26 | -29.39 | -392.64 | 132.34 | -760.70 |
| 54 | 102 | -207.00 | 109.55 | 29.39 | 576.20 | -10.63 | 429.37 |
| 55 | 102 | 207.00 | -109.55 | -29.40 | -576.20 | 10.63 | -429.37 |
| 55 | 103 | -211.50 | 132.84 | 29.40 | 640.50 | 111.07 | -141.76 |
| 56 | 103 | 211.50 | -132.84 | -29.40 | -640.50 | -111.07 | 141.76 |
| 56 | 104 | -216.00 | 133.62 | 29.40 | 645.18 | 232.77 | -733.30 |
| 57 | 104 | 216.00 | -133.62 | -29.39 | -645.18 | -232.78 | 733.30 |
| 57 | 105 | -220.50 | 134.41 | 29.39 | 649.86 | 354.48 | -1328.39 |
| 58 | 105 | 220.50 | -134.41 | -29.40 | -649.86 | -354.48 | 1328.39 |
| 58 | 106 | -225.00 | 135.20 | 29.40 | 654.54 | 476.18 | -1927.02 |
| 59 | 106 | 225.00 | 383.13 | -27.27 | 31.56 | 412.51 | 3127.15 |
| 59 | 115 | -229.50 | -367.50 | 27.27 | 3.11 | -300.35 | -1404.33 |
| 60 | 115 | 229.50 | 367.50 | -27.27 | -3.11 | 300.35 | 1404.33 |
| 60 | 116 | -234.00 | -299.21 | 27.27 | 177.31 | -188.20 | 103.74 |
| 61 | 116 | 234.00 | 299.21 | -27.27 | -177.31 | 188.20 | -103.74 |
| 61 | 117 | -238.50 | -230.92 | 27.27 | 351.50 | -76.04 | 1304.53 |
| 62 | 117 | 238.50 | 230.92 | -27.27 | -351.50 | 76.04 | -1304.53 |
| 62 | 118 | -243.00 | -140.28 | 27.27 | 466.47 | 36.12 | 2181.14 |
| 63 | 118 | 243.00 | 140.28 | -27.27 | -466.47 | -36.12 | -2181.14 |
| 63 | 119 | -247.50 | -4.50 | 27.27 | 461.79 | 148.28 | 2514.88 |
| 64 | 119 | 247.50 | 4.50 | -27.27 | -461.79 | -148.28 | -2514.88 |
| 64 | 120 | -252.00 | 131.29 | 27.27 | 457.11 | 260.43 | 2237.58 |
| 65 | 120 | 252.00 | -131.29 | -27.27 | -457.11 | -260.43 | -2237.58 |
| 65 | 121 | -256.50 | 222.08 | 27.27 | 333.18 | 372.59 | 1416.74 |
| 66 | 121 | 256.50 | -222.08 | -27.27 | -333.18 | -372.59 | -1416.74 |
| 66 | 122 | -261.00 | 290.37 | 27.27 | 149.62 | 484.75 | 271.73 |
| 67 | 122 | 261.00 | -290.37 | -27.27 | -149.62 | -484.75 | -271.73 |
| 67 | 123 | -265.50 | 358.65 | 27.27 | -33.93 | 596.91 | -1180.58 |
| 68 | 123 | 265.50 | -358.65 | -27.27 | 33.93 | -596.91 | 1180.58 |
| 68 | 124 | -270.00 | 374.44 | 27.27 | -78.36 | 709.07 | -2848.31 |
| 69 | 124 | -270.00 | 283.26 | -32.98 | 401.19 | 980.29 | 2182.22 |
| 69 | 133 | 274.50 | -267.62 | 32.98 | -357.16 | -842.48 | -924.81 |
| 70 | 133 | -274.50 | 267.62 | -32.98 | 357.16 | 842.48 | 924.81 |
| 70 | 134 | 271.58 | -199.34 | 32.98 | -173.60 | -722.12 | 131.05 |
| 71 | 134 | -271.58 | 199.34 | -32.98 | 173.60 | 722.12 | -131.05 |
| 71 | 135 | 268.65 | -131.05 | 32.98 | 9.95 | -601.77 | 879.61 |
| 72 | 135 | -268.65 | 131.05 | -32.98 | -9.95 | 601.77 | -879.61 |
| 72 | 136 | 265.72 | -62.76 | 32.98 | 193.51 | -481.42 | 1320.88 |
| 73 | 136 | -265.72 | 62.76 | -32.98 | -193.51 | 481.42 | -1320.88 |
| 73 | 137 | 262.80 | 5.53 | 32.98 | 377.06 | -361.06 | 1454.85 |
| 74 | 137 | -262.80 | -5.53 | -32.98 | -377.06 | 361.06 | -1454.85 |
| 74 | 138 | 259.88 | 73.81 | 32.98 | 560.62 | -240.71 | 1281.54 |
| 75 | 138 | -259.88 | -73.81 | -32.98 | -560.62 | 240.71 | -1281.53 |
| 75 | 139 | 256.95 | 97.10 | 32.98 | 624.92 | -120.35 | 868.42 |
| 76 | 139 | -256.95 | -97.10 | -32.98 | -624.92 | 120.35 | -868.42 |
| 76 | 140 | 254.03 | 97.89 | 32.98 | 629.60 | 0.00 | 434.89 |
| 77 | 16 | 670.40 | 0.00 | -44.39 | 0.00 | -52.18 | 0.00 |
| 77 | 17 | -670.40 | 0.00 | 44.39 | 0.00 | 287.46 | 0.00 |
| 78 | 17 | 670.40 | 0.00 | -44.39 | 0.00 | -287.46 | 0.00 |
| 78 | 18 | -670.40 | 0.00 | 44.39 | 0.00 | 509.43 | 0.00 |
| 79 | 33 | 929.97 | 0.00 | -42.96 | 0.00 | 494.01 | 0.00 |
| 79 | 34 | -929.97 | 0.00 | 42.96 | 0.00 | -168.40 | 0.00 |
| 80 | 34 | 929.97 | 0.00 | -42.96 | 0.00 | 168.40 | 0.00 |
| 80 | 35 | -929.97 | 0.00 | 42.96 | 0.00 | 46.38 | 0.00 |
| 81 | 50 | 543.96 | 0.00 | -39.31 | 0.00 | 226.72 | 0.00 |
| 81 | 51 | -543.96 | 0.00 | 39.31 | 0.00 | -69.49 | 0.00 |
| 82 | 51 | 543.96 | 0.00 | -39.31 | 0.00 | 69.49 | 0.00 |
| 82 | 52 | -543.96 | 0.00 | 39.31 | 0.00 | 323.60 | 0.00 |
| 83 | 52 | 543.96 | 0.00 | -39.31 | 0.00 | -323.60 | 0.00 |
| 83 | 53 | -543.96 | 0.00 | 39.31 | 0.00 | 716.69 | 0.00 |
| 84 | 53 | 543.96 | 0.00 | -39.31 | 0.00 | -716.69 | 0.00 |
| 84 | 54 | -543.96 | 0.00 | 39.31 | 0.00 | 913.24 | 0.00 |
| 85 | 69 | 525.62 | 0.00 | -33.09 | 0.00 | 175.36 | 0.00 |
| 85 | 70 | -525.62 | 0.00 | 33.09 | 0.00 | 56.30 | 0.00 |
| 86 | 70 | 525.62 | 0.00 | -33.09 | 0.00 | -56.30 | 0.00 |
| 86 | 71 | -525.62 | 0.00 | 33.09 | 0.00 | 387.24 | 0.00 |
| 87 | 71 | 525.62 | 0.00 | -33.09 | 0.00 | -387.24 | 0.00 |
| 87 | 72 | -525.62 | 0.00 | 33.09 | 0.00 | 718.17 | 0.00 |
| 88 | 72 | 525.62 | 0.00 | -33.09 | 0.00 | -718.17 | 0.00 |
| 88 | 73 | -525.62 | 0.00 | 33.09 | 0.00 | 883.64 | 0.00 |
| 89 | 88 | 543.11 | 0.00 | -37.75 | 0.00 | 63.47 | 0.00 |
| 89 | 89 | -543.11 | 0.00 | 37.75 | 0.00 | -25.72 | 0.00 |
| 90 | 89 | 543.11 | 0.00 | -37.75 | 0.00 | 25.72 | 0.00 |
| 90 | 90 | -543.11 | 0.00 | 37.75 | 0.00 | 351.73 | 0.00 |
| 91 | 90 | 543.11 | 0.00 | -37.75 | 0.00 | -351.73 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 91 | 91 | -543.11 | 0.00 | 37.75 | 0.00 | 729.19 | 0.00 |
| 92 | 91 | 543.11 | 0.00 | -37.75 | 0.00 | -729.19 | 0.00 |
| 92 | 92 | -543.11 | 0.00 | 37.75 | 0.00 | 917.92 | 0.00 |
| 93 | 107 | 757.98 | 0.00 | -36.71 | 0.00 | 163.01 | 0.00 |
| 93 | 108 | -757.98 | 0.00 | 36.71 | 0.00 | -126.30 | 0.00 |
| 94 | 108 | 757.98 | 0.00 | -36.71 | 0.00 | 126.30 | 0.00 |
| 94 | 109 | -757.98 | 0.00 | 36.71 | 0.00 | 240.79 | 0.00 |
| 95 | 109 | 757.98 | 0.00 | -36.71 | 0.00 | -240.79 | 0.00 |
| 95 | 110 | -757.98 | 0.00 | 36.71 | 0.00 | 424.33 | 0.00 |
| 96 | 125 | 538.53 | 0.00 | -50.36 | 0.00 | 30.70 | 0.00 |
| 96 | 126 | -538.53 | 0.00 | 50.36 | 0.00 | 19.66 | 0.00 |
| 97 | 126 | 538.53 | 0.00 | -50.36 | 0.00 | -19.66 | 0.00 |
| 97 | 127 | -538.53 | 0.00 | 50.36 | 0.00 | 523.23 | 0.00 |
| 98 | 127 | 538.53 | 0.00 | -50.36 | 0.00 | -523.23 | 0.00 |
| 98 | 128 | -538.53 | 0.00 | 50.36 | 0.00 | 775.01 | 0.00 |
| 99 | 2 | 107.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -107.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 134.51 | 0.00 | -23.73 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -134.51 | 0.00 | 23.73 | 0.00 | 40.63 | 0.00 |
| 101 | 19 | 358.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -358.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 197.51 | 0.00 | -44.39 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -197.51 | 0.00 | 44.39 | 0.00 | 76.00 | 0.00 |
| 103 | 36 | 362.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -362.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 452.45 | 0.00 | -42.96 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -452.45 | 0.00 | 42.96 | 0.00 | 73.54 | 0.00 |
| 105 | 55 | 359.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -359.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 25.15 | 0.00 | -39.31 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -25.15 | 0.00 | 39.31 | 0.00 | 67.30 | 0.00 |
| 107 | 74 | 360.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -360.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 23.98 | 0.00 | -33.09 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -23.98 | 0.00 | 33.09 | 0.00 | 56.66 | 0.00 |
| 109 | 93 | 359.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -359.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 23.46 | 0.00 | -37.75 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -23.46 | 0.00 | 37.75 | 0.00 | 64.62 | 0.00 |
| 111 | 111 | 362.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -362.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 264.30 | 0.00 | -36.71 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -264.30 | 0.00 | 36.71 | 0.00 | 62.85 | 0.00 |
| 113 | 129 | 358.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -358.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 59.80 | 0.00 | -50.36 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -59.80 | 0.00 | 50.36 | 0.00 | 86.21 | 0.00 |
| 115 | 141 | 107.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -107.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 143.54 | 127.01 | -32.96 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -143.54 | -127.01 | 32.96 | 0.00 | 56.42 | 217.45 |
| 117 | 6 | 111.42 | 0.00 | -23.73 | 0.00 | 693.56 | 0.00 |
| 117 | 7 | -111.42 | 0.00 | 23.73 | 0.00 | -669.83 | 0.00 |
| 118 | 145 | 125.64 | 254.03 | -32.96 | 0.00 | 719.12 | 254.03 |
| 118 | 146 | -125.64 | -254.03 | 32.96 | 0.00 | -686.16 | 0.00 |
| 119 | 3 | 0.00 | 107.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -107.75 | 0.00 | 0.00 | 0.00 | 457.92 |
| 120 | 1 | 0.94 | -108.33 | 0.00 | 0.00 | 0.00 | -458.81 |
| 120 | 5 | -0.94 | 108.33 | 0.00 | 0.00 | 0.00 | -1.60 |
| 121 | 20 | 0.00 | 215.83 | -0.02 | 0.00 | 0.01 | 0.00 |
| 121 | 15 | 0.00 | -215.83 | 0.02 | 0.00 | 0.00 | 399.30 |
| 122 | 15 | -3.93 | -219.16 | -0.02 | 0.00 | 0.01 | -412.17 |
| 122 | 22 | 3.93 | 219.16 | 0.02 | 0.00 | -0.01 | 6.72 |
| 123 | 37 | 0.00 | 434.60 | -0.02 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | -434.60 | 0.02 | 0.00 | 0.00 | 804.03 |
| 124 | 32 | 0.96 | -362.42 | -0.02 | 0.00 | 0.00 | -668.83 |
| 124 | 39 | -0.96 | 362.42 | 0.02 | 0.00 | 0.01 | -1.65 |
| 125 | 56 | 0.00 | -63.66 | -0.02 | 0.00 | -0.02 | 0.00 |
| 125 | 49 | 0.00 | 63.66 | 0.02 | 0.00 | 0.00 | -117.79 |
| 126 | 49 | -14.63 | -422.89 | -0.01 | 0.00 | -0.01 | -807.40 |
| 126 | 58 | 14.63 | 422.89 | 0.01 | 0.00 | 0.01 | 25.04 |
| 127 | 75 | 0.00 | 359.91 | -0.02 | 0.00 | -0.02 | 0.00 |
| 127 | 68 | 0.00 | -359.91 | 0.02 | 0.00 | -0.01 | 665.84 |
| 128 | 68 | 4.00 | -183.48 | -0.02 | 0.00 | -0.01 | -332.60 |
| 128 | 77 | -4.00 | 183.48 | 0.02 | 0.00 | 0.00 | -6.85 |
| 129 | 94 | 0.00 | 421.93 | -0.01 | 0.00 | -0.01 | 0.00 |
| 129 | 87 | 0.00 | -421.93 | 0.01 | 0.00 | 0.00 | 780.58 |
| 130 | 87 | 2.14 | -180.97 | -0.01 | 0.00 | 0.00 | -331.11 |
| 130 | 96 | -2.14 | 180.97 | 0.01 | 0.00 | 0.00 | -3.67 |
| 131 | 112 | 0.00 | 356.74 | -0.01 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | -356.74 | 0.01 | 0.00 | 0.02 | 659.98 |
| 132 | 106 | 2.49 | -221.45 | -0.01 | 0.00 | 0.01 | -405.44 |
| 132 | 114 | -2.49 | 221.45 | 0.01 | 0.00 | 0.01 | -4.25 |
| 133 | 130 | 0.00 | 176.77 | -0.01 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | -176.77 | 0.01 | 0.00 | 0.00 | 327.03 |
| 134 | 124 | 6.32 | -205.45 | -0.01 | 0.00 | 0.00 | -369.25 |
| 134 | 132 | -6.32 | 205.45 | 0.01 | 0.00 | 0.00 | -10.83 |
| 135 | 142 | 0.00 | 83.50 | -357.98 | 612.85 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -83.50 | 357.98 | -612.85 | 1521.39 | 354.86 |
| 136 | 140 | 0.33 | -132.21 | -357.98 | 612.85 | 1521.39 | -561.33 |
| 136 | 144 | -0.33 | 132.21 | 357.98 | -612.85 | 0.00 | -0.56 |
| 137 | 2 | 0.00 | -107.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 107.75 | 0.00 | 0.00 | 0.00 | -457.92 |
| 138 | 7 | -0.08 | 107.74 | 0.00 | 0.00 | 0.00 | 457.91 |
| 138 | 4 | 0.08 | -107.74 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -358.82 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 358.82 | 0.00 | 0.00 | 0.00 | -663.81 |
| 140 | 18 | 0.14 | 358.86 | 0.00 | 0.00 | 0.00 | 663.89 |
| 140 | 21 | -0.14 | -358.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -362.09 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 362.09 | 0.00 | 0.00 | 0.00 | -669.87 |
| 142 | 35 | -0.05 | 362.04 | 0.00 | 0.00 | 0.00 | 669.77 |
| 142 | 38 | 0.05 | -362.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -359.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | 359.11 | 0.00 | 0.00 | 0.00 | -664.36 |
| 144 | 54 | 0.00 | 359.12 | 0.00 | 0.00 | 0.00 | 664.38 |
| 144 | 57 | 0.00 | -359.12 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | -360.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 360.37 | 0.00 | 0.00 | 0.00 | -666.68 |
| 146 | 73 | 0.00 | 360.37 | 0.00 | 0.00 | 0.00 | 666.70 |
| 146 | 76 | 0.00 | -360.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | -359.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | 359.34 | 0.00 | 0.00 | 0.00 | -664.79 |
| 148 | 92 | -0.01 | 359.34 | 0.00 | 0.00 | 0.00 | 664.78 |
| 148 | 95 | 0.01 | -359.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | -362.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 362.02 | 0.00 | 0.00 | 0.00 | -669.73 |
| 150 | 110 | -0.02 | 361.96 | 0.00 | 0.00 | 0.00 | 669.62 |
| 150 | 113 | 0.02 | -361.96 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -358.61 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 358.61 | 0.00 | 0.00 | 0.00 | -663.43 |
| 152 | 128 | 0.09 | 358.72 | 0.00 | 0.00 | 0.00 | 663.63 |
| 152 | 131 | -0.09 | -358.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -134.04 | -357.98 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 134.04 | 357.98 | 0.00 | 1521.39 | -569.66 |
| 154 | 146 | 0.22 | 83.49 | -357.97 | 0.00 | 1521.39 | 354.85 |
| 154 | 143 | -0.22 | -83.49 | 357.97 | 0.00 | 0.00 | 0.00 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS 57

MOME X MAX sobrecarga + fr. + fc (ec-1)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 197.41 | 9.02 | 679.23 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -105.69 | -15.68 | -667.20 | -70.57 | 477.38 |
| 2 | 8 | 0.00 | 105.69 | 15.68 | 667.20 | 70.57 | -477.38 |
| 2 | 9 | 0.00 | -82.55 | -15.68 | -603.29 | -141.15 | 934.34 |
| 3 | 9 | 0.00 | 82.55 | 15.68 | 603.29 | 141.15 | -934.34 |
| 3 | 10 | 0.00 | -14.27 | -15.68 | -419.74 | -211.72 | 1152.18 |
| 4 | 10 | 0.00 | 14.26 | 15.68 | 419.74 | 211.72 | -1152.18 |
| 4 | 11 | 0.00 | 54.02 | -15.68 | -236.18 | -282.30 | 1062.72 |
| 5 | 11 | 0.00 | -54.02 | 15.68 | 236.18 | 282.30 | -1062.72 |
| 5 | 12 | 0.00 | 115.66 | -5.40 | -231.52 | -121.46 | 343.62 |
| 6 | 12 | 0.00 | -115.66 | 5.40 | 231.52 | 121.46 | -343.63 |
| 6 | 13 | 0.00 | 152.44 | -5.40 | -331.60 | -145.75 | -259.60 |
| 7 | 13 | 0.00 | -152.44 | 5.40 | 331.60 | 145.75 | 259.60 |
| 7 | 14 | 0.00 | 210.61 | 2.32 | -513.84 | 73.16 | -998.78 |
| 8 | 14 | 0.00 | -210.61 | -2.32 | 513.84 | -73.16 | 998.78 |
| 8 | 15 | 0.00 | 278.89 | 2.32 | -697.39 | 83.61 | -2100.16 |
| 9 | 15 | 0.00 | 314.45 | 5.79 | 876.93 | -116.04 | 2098.98 |
| 9 | 23 | 4.50 | -246.16 | -5.79 | -693.37 | 79.40 | -845.60 |
| 10 | 23 | -4.50 | 246.16 | 5.79 | 693.37 | -79.40 | 845.60 |
| 10 | 24 | 9.00 | -121.53 | -17.11 | -592.67 | 314.47 | -422.46 |
| 11 | 24 | -9.00 | 121.53 | 17.11 | 592.67 | -314.47 | 422.46 |
| 11 | 25 | 13.50 | -120.74 | -17.11 | -587.99 | 226.92 | 114.64 |
| 12 | 25 | -13.50 | 120.74 | 17.11 | 587.99 | -226.92 | -114.64 |
| 12 | 26 | 18.00 | -97.60 | -17.11 | -524.08 | 139.36 | 631.34 |
| 13 | 26 | -18.00 | 97.60 | 17.11 | 524.08 | -139.36 | -631.34 |
| 13 | 27 | 22.50 | 1.62 | -20.49 | -465.86 | 203.89 | 2475.95 |
| 14 | 27 | -22.50 | -1.62 | 20.49 | 465.86 | -203.89 | -2475.95 |
| 14 | 28 | 27.00 | 109.59 | -17.11 | -517.90 | 324.99 | 477.89 |
| 15 | 28 | -27.00 | -109.59 | 17.11 | 517.90 | -324.99 | -477.89 |
| 15 | 29 | 31.50 | 132.88 | -17.11 | -582.21 | 237.41 | -109.42 |
| 16 | 29 | -31.50 | -132.88 | 17.11 | 582.21 | -237.41 | 109.42 |
| 16 | 30 | 36.00 | 133.67 | -17.11 | -586.89 | 149.83 | -717.15 |
| 17 | 30 | -36.00 | -133.67 | 17.11 | 586.89 | -149.83 | 717.15 |
| 17 | 31 | 40.50 | 251.62 | -5.93 | -716.94 | 198.49 | -1161.50 |
| 18 | 31 | -40.50 | -251.62 | 5.93 | 716.94 | -198.49 | 1161.50 |
| 18 | 32 | 45.00 | 319.91 | -5.93 | -900.50 | 161.24 | -2455.43 |
| 19 | 32 | -45.00 | 324.59 | 11.31 | 920.40 | -161.01 | 2455.38 |
| 19 | 40 | 49.50 | -256.31 | -11.31 | -736.85 | 99.56 | -1156.34 |
| 20 | 40 | -49.50 | 256.31 | 11.31 | 736.85 | -99.56 | 1156.35 |
| 20 | 41 | 54.00 | -132.81 | -25.61 | -643.23 | 295.65 | -709.50 |
| 21 | 41 | -54.00 | 132.81 | 25.61 | 643.23 | -295.65 | 709.50 |
| 21 | 42 | 58.50 | -132.02 | -25.61 | -638.55 | 169.85 | -121.61 |
| 22 | 42 | -58.50 | 132.02 | 25.61 | 638.55 | -169.85 | 121.61 |
| 22 | 43 | 63.00 | -108.89 | -25.61 | -574.65 | 44.06 | 445.86 |
| 23 | 43 | -63.00 | 108.89 | 25.60 | 574.65 | -44.05 | -445.86 |
| 23 | 44 | 67.50 | -2.88 | -22.96 | -503.73 | 109.47 | 2437.54 |
| 24 | 44 | -67.50 | 2.89 | 22.96 | 503.73 | -109.47 | -2437.54 |
| 24 | 45 | 72.00 | 104.49 | -18.15 | -560.21 | 228.04 | 445.36 |
| 25 | 45 | -72.00 | -104.49 | 18.15 | 560.21 | -228.04 | -445.36 |
| 25 | 46 | 76.50 | 127.78 | -18.15 | -624.51 | 135.78 | -118.98 |
| 26 | 46 | -76.50 | -127.78 | 18.15 | 624.51 | -135.78 | 118.98 |
| 26 | 47 | 81.00 | 128.56 | -18.15 | -629.19 | 43.52 | -703.73 |
| 27 | 47 | -81.00 | -128.56 | 18.15 | 629.19 | -43.52 | 703.73 |
| 27 | 48 | 85.50 | 251.46 | -8.18 | -729.73 | 86.77 | -1139.82 |
| 28 | 48 | -85.50 | -251.46 | 8.18 | 729.73 | -86.77 | 1139.82 |
| 28 | 49 | 90.00 | 319.74 | -8.18 | -913.29 | 39.41 | -2433.01 |
| 29 | 49 | -90.00 | 323.78 | 9.10 | 923.50 | -39.41 | 2433.01 |
| 29 | 59 | 94.50 | -255.49 | -9.10 | -739.94 | -12.11 | -1137.63 |
| 30 | 59 | -94.50 | 255.49 | 9.10 | 739.94 | 12.11 | 1137.63 |
| 30 | 60 | 99.00 | -132.57 | -20.28 | -650.84 | 59.49 | -703.66 |
| 31 | 60 | -99.00 | 132.57 | 20.28 | 650.84 | -59.49 | 703.66 |
| 31 | 61 | 103.50 | -131.78 | -20.28 | -646.16 | -42.33 | -116.85 |
| 32 | 61 | -103.50 | 131.78 | 20.28 | 646.16 | 42.33 | 116.85 |
| 32 | 62 | 108.00 | -108.64 | -20.28 | -582.25 | -144.14 | 449.53 |
| 33 | 62 | -108.00 | 108.65 | 20.28 | 582.25 | 144.14 | -449.53 |
| 33 | 63 | 112.50 | -2.03 | -19.86 | -513.93 | 19.41 | 2445.21 |
| 34 | 63 | -112.50 | 2.03 | 19.86 | 513.93 | -19.41 | -2445.21 |
| 34 | 64 | 117.00 | 104.99 | -18.89 | -570.55 | 222.41 | 448.77 |
| 35 | 64 | -117.00 | -104.99 | 18.89 | 570.55 | -222.41 | -448.77 |
| 35 | 65 | 121.50 | 128.27 | -18.89 | -634.86 | 126.82 | -117.81 |
| 36 | 65 | -121.50 | -128.27 | 18.89 | 634.86 | -126.82 | 117.81 |
| 36 | 66 | 126.00 | 129.06 | -18.89 | -639.54 | 31.23 | -704.80 |
| 37 | 66 | -126.00 | -129.06 | 18.89 | 639.54 | -31.23 | 704.80 |
| 37 | 67 | 130.50 | 251.72 | -8.65 | -734.02 | 61.47 | -1137.12 |
| 38 | 67 | -130.50 | -251.72 | 8.65 | 734.02 | -61.47 | 1137.12 |
| 38 | 68 | 135.00 | 320.00 | -8.65 | -917.58 | 11.95 | -2431.48 |
| 39 | 68 | -135.00 | 323.35 | 9.09 | 918.74 | -11.95 | 2431.48 |
| 39 | 78 | 139.50 | -255.07 | -9.09 | -735.18 | -39.55 | -1138.02 |
| 40 | 78 | -139.50 | 255.07 | 9.09 | 735.18 | 39.55 | 1138.02 |
| 40 | 79 | 144.00 | -132.18 | -19.63 | -644.23 | 2.78 | -706.43 |
| 41 | 79 | -144.00 | 132.18 | 19.63 | 644.23 | -2.78 | 706.43 |
| 41 | 80 | 148.50 | -131.39 | -19.63 | -639.55 | -96.15 | -121.40 |
| 42 | 80 | -148.50 | 131.39 | 19.63 | 639.55 | 96.14 | 121.40 |
| 42 | 81 | 153.00 | -108.25 | -19.63 | -575.64 | -195.07 | 443.21 |
| 43 | 81 | -153.00 | 108.25 | 19.64 | 575.64 | 195.07 | -443.21 |
| 43 | 82 | 157.50 | -1.23 | -20.70 | -515.89 | -9.09 | 2439.41 |
| 44 | 82 | -157.50 | 1.23 | 20.70 | 515.89 | 9.09 | -2439.41 |
| 44 | 83 | 162.00 | 105.42 | -21.00 | -583.66 | 157.82 | 442.80 |
| 45 | 83 | -162.00 | -105.42 | 21.00 | 583.66 | -157.82 | -442.80 |
| 45 | 84 | 166.50 | 128.70 | -21.00 | -647.96 | 52.75 | -125.70 |
| 46 | 84 | -166.50 | -128.70 | 21.00 | 647.96 | -52.75 | 125.70 |
| 46 | 85 | 171.00 | 129.49 | -21.00 | -652.64 | -52.32 | -714.62 |
| 47 | 85 | -171.00 | -129.49 | 21.00 | 652.64 | 52.32 | 714.62 |
| 47 | 86 | 175.50 | 252.38 | -9.33 | -743.49 | 27.47 | -1152.10 |
| 48 | 86 | -175.50 | -252.38 | 9.33 | 743.49 | -27.47 | 1152.10 |
| 48 | 87 | 180.00 | 320.66 | -9.33 | -927.05 | -25.09 | -2449.43 |
| 49 | 87 | -180.00 | 324.63 | 8.84 | 923.39 | 25.08 | 2449.43 |
| 49 | 97 | 184.50 | -256.35 | -8.84 | -739.83 | -75.44 | -1150.21 |
| 50 | 97 | -184.50 | 256.35 | 8.84 | 739.83 | 75.44 | 1150.21 |
| 50 | 98 | 189.00 | -133.31 | -20.10 | -644.71 | -14.71 | -708.13 |
| 51 | 98 | -189.00 | 133.31 | 20.10 | 644.71 | 14.71 | 708.13 |
| 51 | 99 | 193.50 | -132.52 | -20.10 | -640.03 | -115.75 | -117.99 |
| 52 | 99 | -193.50 | 132.52 | 20.10 | 640.03 | 115.75 | 117.99 |
| 52 | 100 | 198.00 | -109.39 | -20.10 | -576.12 | -216.79 | 451.73 |
| 53 | 100 | -198.00 | 109.39 | 20.10 | 576.12 | 216.79 | -451.73 |
| 53 | 101 | 202.50 | -2.24 | -23.52 | -513.42 | -84.08 | 2450.85 |
| 54 | 101 | -202.50 | 2.24 | 23.52 | 513.42 | 84.08 | -2450.85 |
| 54 | 102 | 207.00 | 104.06 | -24.60 | -581.83 | 6.43 | 464.37 |
| 55 | 102 | -207.00 | -104.06 | 24.60 | 581.83 | -6.43 | -464.37 |
| 55 | 103 | 211.50 | 127.35 | -24.60 | -646.14 | -114.84 | -98.04 |
| 56 | 103 | -211.50 | -127.35 | 24.60 | 646.14 | 114.84 | 98.04 |
| 56 | 104 | 216.00 | 128.14 | -24.60 | -650.82 | -236.12 | -680.87 |
| 57 | 104 | -216.00 | -128.14 | 24.60 | 650.82 | 236.12 | 680.88 |
| 57 | 105 | 220.50 | 251.49 | -10.97 | -741.13 | -68.96 | -1121.21 |
| 58 | 105 | -220.50 | -251.49 | 10.97 | 741.13 | 68.96 | 1121.21 |
| 58 | 106 | 225.00 | 319.78 | -10.97 | -924.69 | -128.88 | -2414.55 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 59 | 106 | 225.00 | 323.70 | 9.44 | 902.72 | 128.70 | 2484.47 |
| 59 | 115 | -229.50 | -255.41 | -9.44 | -719.17 | -181.74 | -1173.50 |
| 60 | 115 | 229.50 | 255.41 | 9.44 | 719.17 | 181.73 | 1173.50 |
| 60 | 116 | -234.00 | -137.59 | -20.92 | -589.86 | -134.78 | -715.42 |
| 61 | 116 | 234.00 | 137.59 | 20.91 | 589.86 | 134.78 | 715.42 |
| 61 | 117 | -238.50 | -136.80 | -20.91 | -585.18 | -239.47 | -90.06 |
| 62 | 117 | 238.50 | 136.80 | 20.91 | 585.18 | 239.47 | 90.06 |
| 62 | 118 | -243.00 | -113.66 | -20.91 | -521.27 | -344.16 | 514.88 |
| 63 | 118 | 243.00 | 113.66 | 20.91 | 521.27 | 344.16 | -514.88 |
| 63 | 119 | -247.50 | -5.80 | -21.78 | -470.91 | -158.24 | 2532.73 |
| 64 | 119 | 247.50 | 5.80 | 21.78 | 470.91 | 158.24 | -2532.73 |
| 64 | 120 | -252.00 | 93.64 | -16.47 | -532.48 | 8.47 | 705.25 |
| 65 | 120 | 252.00 | -93.64 | 16.47 | 532.48 | -8.47 | -705.25 |
| 65 | 121 | -256.50 | 116.93 | -16.47 | -596.79 | -76.20 | 205.69 |
| 66 | 121 | 256.50 | -116.93 | 16.47 | 596.79 | 76.20 | -205.69 |
| 66 | 122 | -261.00 | 117.72 | -16.47 | -601.47 | -160.88 | -314.28 |
| 67 | 122 | 261.00 | -117.72 | 16.47 | 601.47 | 160.88 | 314.28 |
| 67 | 123 | -265.50 | 241.93 | -4.86 | -697.96 | 39.66 | -714.75 |
| 68 | 123 | 265.50 | -241.93 | 4.86 | 697.96 | -39.66 | 714.75 |
| 68 | 124 | -270.00 | 310.22 | -4.86 | -881.52 | 7.23 | -1949.10 |
| 69 | 124 | -270.00 | 292.50 | -3.69 | 719.79 | -73.81 | 2182.17 |
| 69 | 133 | 274.50 | -224.21 | 3.69 | -536.24 | 79.86 | -1027.55 |
| 70 | 133 | -274.50 | 224.21 | -3.69 | 536.24 | -79.86 | 1027.55 |
| 70 | 134 | 271.58 | -155.93 | 3.69 | -352.68 | 68.45 | -167.04 |
| 71 | 134 | -271.58 | 155.93 | -3.69 | 352.68 | -68.45 | 167.04 |
| 71 | 135 | 268.65 | -129.33 | -2.36 | -234.52 | 193.17 | 445.55 |
| 72 | 135 | -268.65 | 129.33 | 2.36 | 234.52 | -193.17 | -445.55 |
| 72 | 136 | 265.72 | -67.51 | -16.40 | -270.65 | 407.27 | 1235.36 |
| 73 | 136 | -265.72 | 67.51 | 16.40 | 270.65 | -407.27 | -1235.36 |
| 73 | 137 | 262.80 | 0.78 | -16.40 | -454.20 | 305.45 | 1390.72 |
| 74 | 137 | -262.80 | -0.78 | 16.40 | 454.20 | -305.45 | -1390.72 |
| 74 | 138 | 259.87 | 69.06 | -16.40 | -637.76 | 203.64 | 1238.78 |
| 75 | 138 | -259.87 | -69.06 | 16.40 | 637.76 | -203.64 | -1238.78 |
| 75 | 139 | 256.95 | 92.35 | -16.40 | -702.06 | 101.82 | 847.04 |
| 76 | 139 | -256.95 | -92.35 | 16.40 | 702.06 | -101.82 | -847.04 |
| 76 | 140 | 254.02 | 93.14 | -16.40 | -706.74 | 0.00 | 434.89 |
| 77 | 16 | 717.67 | 0.00 | 0.14 | 0.00 | -1.31 | 0.00 |
| 77 | 17 | -717.67 | 0.00 | -0.14 | 0.00 | 0.59 | 0.00 |
| 78 | 17 | 717.67 | 0.00 | 0.14 | 0.00 | -0.59 | 0.00 |
| 78 | 18 | -717.67 | 0.00 | -0.14 | 0.00 | -0.08 | 0.00 |
| 79 | 33 | 724.13 | 0.00 | -0.05 | 0.00 | 0.57 | 0.00 |
| 79 | 34 | -724.13 | 0.00 | 0.05 | 0.00 | -0.17 | 0.00 |
| 80 | 34 | 724.13 | 0.00 | -0.05 | 0.00 | 0.17 | 0.00 |
| 80 | 35 | -724.13 | 0.00 | 0.05 | 0.00 | 0.10 | 0.00 |
| 81 | 50 | 718.24 | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 |
| 81 | 51 | -718.24 | 0.00 | 0.00 | 0.00 | -0.11 | 0.00 |
| 82 | 51 | 718.24 | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 |
| 82 | 52 | -718.24 | 0.00 | 0.00 | 0.00 | -0.08 | 0.00 |
| 83 | 52 | 718.24 | 0.00 | 0.00 | 0.00 | 0.08 | 0.00 |
| 83 | 53 | -718.24 | 0.00 | 0.00 | 0.00 | -0.04 | 0.00 |
| 84 | 53 | 718.24 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 |
| 84 | 54 | -718.24 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 85 | 69 | 720.75 | 0.00 | 0.00 | 0.00 | 0.12 | 0.00 |
| 85 | 70 | -720.75 | 0.00 | 0.00 | 0.00 | -0.10 | 0.00 |
| 86 | 70 | 720.75 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 |
| 86 | 71 | -720.75 | 0.00 | 0.00 | 0.00 | -0.06 | 0.00 |
| 87 | 71 | 720.75 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 |
| 87 | 72 | -720.75 | 0.00 | 0.00 | 0.00 | -0.03 | 0.00 |
| 88 | 72 | 720.75 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 |
| 88 | 73 | -720.75 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 89 | 88 | 718.69 | 0.00 | -0.01 | 0.00 | 0.17 | 0.00 |
| 89 | 89 | -718.69 | 0.00 | 0.01 | 0.00 | -0.16 | 0.00 |
| 90 | 89 | 718.69 | 0.00 | -0.01 | 0.00 | 0.16 | 0.00 |
| 90 | 90 | -718.69 | 0.00 | 0.01 | 0.00 | -0.10 | 0.00 |
| 91 | 90 | 718.69 | 0.00 | -0.01 | 0.00 | 0.10 | 0.00 |
| 91 | 91 | -718.69 | 0.00 | 0.01 | 0.00 | -0.03 | 0.00 |
| 92 | 91 | 718.69 | 0.00 | -0.01 | 0.00 | 0.03 | 0.00 |
| 92 | 92 | -718.69 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 93 | 107 | 723.98 | 0.00 | -0.02 | 0.00 | 0.26 | 0.00 |
| 93 | 108 | -723.98 | 0.00 | 0.02 | 0.00 | -0.23 | 0.00 |
| 94 | 108 | 723.98 | 0.00 | -0.02 | 0.00 | 0.23 | 0.00 |
| 94 | 109 | -723.98 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| 95 | 109 | 723.98 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 95 | 110 | -723.98 | 0.00 | 0.02 | 0.00 | 0.11 | 0.00 |
| 96 | 125 | 717.33 | 0.00 | 0.09 | 0.00 | -1.18 | 0.00 |
| 96 | 126 | -717.33 | 0.00 | -0.09 | 0.00 | 1.09 | 0.00 |
| 97 | 126 | 717.33 | 0.00 | 0.09 | 0.00 | -1.09 | 0.00 |
| 97 | 127 | -717.33 | 0.00 | -0.09 | 0.00 | 0.23 | 0.00 |
| 98 | 127 | 717.33 | 0.00 | 0.09 | 0.00 | -0.23 | 0.00 |
| 98 | 128 | -717.33 | 0.00 | -0.09 | 0.00 | -0.20 | 0.00 |
| 99 | 2 | 107.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -107.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 107.74 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -107.74 | 0.00 | 0.08 | 0.00 | 0.13 | 0.00 |
| 101 | 19 | 358.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -358.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 358.86 | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -358.86 | 0.00 | -0.14 | 0.00 | -0.23 | 0.00 |
| 103 | 36 | 362.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -362.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 362.04 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -362.04 | 0.00 | 0.05 | 0.00 | 0.09 | 0.00 |
| 105 | 55 | 359.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -359.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 359.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -359.12 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 107 | 74 | 360.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -360.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 360.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -360.38 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 109 | 93 | 359.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -359.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 359.34 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -359.34 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 111 | 111 | 362.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -362.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 361.96 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -361.96 | 0.00 | 0.02 | 0.00 | 0.04 | 0.00 |
| 113 | 129 | 358.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -358.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 358.72 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -358.72 | 0.00 | -0.09 | 0.00 | -0.15 | 0.00 |
| 115 | 141 | 107.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -107.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 107.85 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -107.85 | 0.00 | 0.05 | 0.00 | 0.09 | 0.00 |
| 117 | 6 | 215.49 | 0.00 | -0.08 | 0.00 | 0.07 | 0.00 |
| 117 | 7 | -215.49 | 0.00 | 0.08 | 0.00 | 0.01 | 0.00 |
| 118 | 145 | 215.72 | 0.00 | -0.05 | 0.00 | -0.03 | 0.00 |
| 118 | 146 | -215.72 | 0.00 | 0.05 | 0.00 | 0.09 | 0.00 |
| 119 | 3 | 0.00 | 107.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -107.75 | 0.00 | 0.00 | 0.00 | 457.92 |
| 120 | 1 | 0.08 | -107.74 | 0.00 | 0.00 | 0.00 | -457.78 |
| 120 | 5 | -0.08 | 107.74 | 0.00 | 0.00 | 0.00 | -0.13 |
| 121 | 20 | 0.00 | 358.81 | 0.00 | 0.00 | -0.01 | 0.00 |
| 121 | 15 | 0.00 | -358.81 | 0.00 | 0.00 | 0.00 | 663.81 |
| 122 | 15 | -0.14 | -358.86 | 0.00 | 0.00 | -0.01 | -664.13 |
| 122 | 22 | 0.14 | 358.86 | 0.00 | 0.00 | 0.00 | 0.23 |
| 123 | 37 | 0.00 | 362.09 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | -362.09 | 0.00 | 0.00 | 0.00 | 669.87 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 124 | 32 | 0.05 | -362.04 | 0.00 | 0.00 | 0.00 | -669.68 |
| 124 | 39 | -0.05 | 362.04 | 0.00 | 0.00 | -0.01 | -0.09 |
| 125 | 56 | 0.00 | 359.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.00 | -359.11 | 0.00 | 0.00 | 0.00 | 664.36 |
| 126 | 49 | 0.00 | -359.13 | 0.00 | 0.00 | -0.01 | -664.38 |
| 126 | 58 | 0.00 | 359.13 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 75 | 0.00 | 360.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.00 | -360.37 | 0.00 | 0.00 | 0.01 | 666.69 |
| 128 | 68 | 0.00 | -360.38 | 0.00 | 0.00 | 0.00 | -666.69 |
| 128 | 77 | 0.00 | 360.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 94 | 0.00 | 359.35 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | -359.35 | 0.00 | 0.00 | 0.00 | 664.79 |
| 130 | 87 | 0.01 | -359.34 | -0.01 | 0.00 | -0.01 | -664.77 |
| 130 | 96 | -0.01 | 359.34 | 0.01 | 0.00 | 0.00 | -0.02 |
| 131 | 112 | 0.00 | 362.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | -362.02 | 0.00 | 0.00 | 0.00 | 669.73 |
| 132 | 106 | 0.02 | -361.95 | 0.00 | 0.00 | 0.00 | -669.59 |
| 132 | 114 | -0.02 | 361.95 | 0.00 | 0.00 | -0.01 | -0.04 |
| 133 | 130 | 0.00 | 358.62 | 0.00 | 0.00 | 0.01 | 0.00 |
| 133 | 124 | 0.00 | -358.62 | 0.00 | 0.00 | 0.00 | 663.43 |
| 134 | 124 | -0.09 | -358.73 | 0.00 | 0.00 | 0.00 | -663.77 |
| 134 | 132 | 0.09 | 358.73 | 0.00 | 0.00 | -0.01 | 0.15 |
| 135 | 142 | 0.00 | 83.50 | -357.98 | 612.85 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -83.50 | 357.98 | -612.85 | 1521.39 | 354.86 |
| 136 | 140 | 0.33 | -132.21 | -357.98 | 612.85 | 1521.39 | -561.33 |
| 136 | 144 | -0.33 | 132.21 | 357.98 | -612.85 | 0.00 | -0.56 |
| 137 | 2 | 0.00 | -107.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 107.75 | 0.00 | 0.00 | 0.00 | -457.92 |
| 138 | 7 | -0.08 | 107.74 | 0.00 | 0.00 | 0.00 | 457.91 |
| 138 | 4 | 0.08 | -107.74 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -358.82 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 358.82 | 0.00 | 0.00 | 0.00 | -663.81 |
| 140 | 18 | 0.14 | 358.86 | 0.00 | 0.00 | 0.00 | 663.89 |
| 140 | 21 | -0.14 | -358.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -362.09 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 362.09 | 0.00 | 0.00 | 0.00 | -669.87 |
| 142 | 35 | -0.05 | 362.04 | 0.00 | 0.00 | 0.00 | 669.77 |
| 142 | 38 | 0.05 | -362.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -359.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | 359.11 | 0.00 | 0.00 | 0.00 | -664.36 |
| 144 | 54 | 0.00 | 359.12 | 0.00 | 0.00 | 0.00 | 664.38 |
| 144 | 57 | 0.00 | -359.12 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | -360.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 360.37 | 0.00 | 0.00 | 0.00 | -666.68 |
| 146 | 73 | 0.00 | 360.37 | 0.00 | 0.00 | 0.00 | 666.70 |
| 146 | 76 | 0.00 | -360.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | -359.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | 359.34 | 0.00 | 0.00 | 0.00 | -664.79 |
| 148 | 92 | -0.01 | 359.34 | 0.00 | 0.00 | 0.00 | 664.78 |
| 148 | 95 | 0.01 | -359.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | -362.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 362.02 | 0.00 | 0.00 | 0.00 | -669.73 |
| 150 | 110 | -0.02 | 361.96 | 0.00 | 0.00 | 0.00 | 669.62 |
| 150 | 113 | 0.02 | -361.96 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -358.61 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 358.61 | 0.00 | 0.00 | 0.00 | -663.43 |
| 152 | 128 | 0.09 | 358.72 | 0.00 | 0.00 | 0.00 | 663.63 |
| 152 | 131 | -0.09 | -358.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -107.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 107.87 | 0.00 | 0.00 | 0.00 | -458.46 |
| 154 | 146 | -0.05 | 107.85 | 0.00 | 0.00 | 0.00 | 458.37 |
| 154 | 143 | 0.05 | -107.85 | 0.00 | 0.00 | 0.00 | 0.00 |



HIPOTESIS 58

MOME X MIN sobrecarga + fr. + fc (ec-1)

E S F U E R Z O S E N B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 197.44 | -9.23 | -678.90 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -105.73 | 15.57 | 667.47 | 70.05 | 477.57 |
| 2 | 8 | 0.00 | 105.73 | -15.57 | -667.47 | -70.05 | -477.57 |
| 2 | 9 | 0.00 | -82.59 | 15.57 | 603.56 | 140.11 | 934.71 |
| 3 | 9 | 0.00 | 82.59 | -15.57 | -603.56 | -140.11 | -934.71 |
| 3 | 10 | 0.00 | -14.31 | 15.57 | 420.00 | 210.16 | 1152.74 |
| 4 | 10 | 0.00 | 14.31 | -15.57 | -420.00 | -210.16 | -1152.74 |
| 4 | 11 | 0.00 | 53.98 | 15.57 | 236.45 | 280.21 | 1063.48 |
| 5 | 11 | 0.00 | -53.98 | -15.57 | -236.45 | -280.21 | -1063.48 |
| 5 | 12 | 0.00 | 115.62 | 5.42 | 231.46 | 121.87 | 344.35 |
| 6 | 12 | 0.00 | -115.62 | -5.42 | -231.46 | -121.87 | -344.35 |
| 6 | 13 | 0.00 | 152.41 | 5.42 | 331.54 | 146.24 | -258.73 |
| 7 | 13 | 0.00 | -152.41 | -5.42 | -331.54 | -146.24 | 258.73 |
| 7 | 14 | 0.00 | 210.58 | -2.31 | 513.83 | -72.81 | -997.87 |
| 8 | 14 | 0.00 | -210.58 | 2.31 | -513.83 | 72.81 | 997.87 |
| 8 | 15 | 0.00 | 278.86 | -2.31 | 697.39 | -83.21 | -2099.11 |
| 9 | 15 | 0.00 | 310.93 | -5.80 | -876.92 | 115.64 | 2100.29 |
| 9 | 23 | -4.50 | -242.65 | 5.80 | 693.36 | -78.97 | -846.75 |
| 10 | 23 | 4.50 | 242.65 | -5.80 | -693.36 | 78.97 | 846.75 |
| 10 | 24 | -9.00 | -118.02 | 16.85 | 593.41 | -308.29 | -423.63 |
| 11 | 24 | 9.00 | 118.02 | -16.85 | -593.41 | 308.29 | 423.63 |
| 11 | 25 | -13.50 | -117.23 | 16.85 | 588.73 | -221.89 | 113.68 |
| 12 | 25 | 13.50 | 117.23 | -16.85 | -588.73 | 221.89 | -113.68 |
| 12 | 26 | -18.00 | -94.10 | 16.85 | 524.82 | -135.49 | 630.57 |
| 13 | 26 | 18.00 | 94.10 | -16.85 | -524.82 | 135.49 | -630.57 |
| 13 | 27 | -22.50 | 5.12 | 20.47 | 465.89 | -207.40 | 2475.34 |
| 14 | 27 | 22.50 | -5.12 | -20.47 | -465.89 | 207.41 | -2475.34 |
| 14 | 28 | -27.00 | 113.10 | 17.08 | 518.00 | -325.37 | 477.45 |
| 15 | 28 | 27.00 | -113.10 | -17.08 | -517.99 | 325.37 | -477.45 |
| 15 | 29 | -31.50 | 136.39 | 17.08 | 582.30 | -237.94 | -109.65 |
| 16 | 29 | 31.50 | -136.39 | -17.08 | -582.30 | 237.94 | 109.65 |
| 16 | 30 | -36.00 | 137.17 | 17.08 | 586.98 | -150.50 | -717.17 |
| 17 | 30 | 36.00 | -137.17 | -17.08 | -586.98 | 150.50 | 717.17 |
| 17 | 31 | -40.50 | 255.13 | 5.85 | 717.12 | -204.01 | -1161.43 |
| 18 | 31 | 40.50 | -255.13 | -5.85 | -717.12 | 204.01 | 1161.43 |
| 18 | 32 | -45.00 | 323.42 | 5.85 | 900.68 | -167.11 | -2455.19 |
| 19 | 32 | 45.00 | 321.06 | -11.42 | -919.95 | 166.88 | 2455.23 |
| 19 | 40 | -49.50 | -252.78 | 11.42 | 736.39 | -104.92 | -1156.10 |
| 20 | 40 | 49.50 | 252.78 | -11.42 | -736.39 | 104.92 | 1156.10 |
| 20 | 41 | -54.00 | -129.29 | 25.61 | 643.39 | -297.74 | -709.27 |
| 21 | 41 | 54.00 | 129.29 | -25.61 | -643.39 | 297.74 | 709.27 |
| 21 | 42 | -58.50 | -128.50 | 25.61 | 638.71 | -171.93 | -121.27 |
| 22 | 42 | 58.50 | 128.50 | -25.61 | -638.71 | 171.93 | 121.27 |
| 22 | 43 | -63.00 | -105.36 | 25.61 | 574.80 | -46.12 | 446.32 |
| 23 | 43 | 63.00 | 105.36 | -25.61 | -574.80 | 46.12 | -446.32 |
| 23 | 44 | -67.50 | 0.64 | 23.02 | 503.53 | -114.13 | 2438.07 |
| 24 | 44 | 67.50 | -0.64 | -23.02 | -503.53 | 114.13 | -2438.07 |
| 24 | 45 | -72.00 | 108.01 | 18.21 | 559.99 | -230.85 | 445.96 |
| 25 | 45 | 72.00 | -108.01 | -18.21 | -559.99 | 230.85 | -445.96 |
| 25 | 46 | -76.50 | 131.30 | 18.21 | 624.29 | -138.35 | -118.25 |
| 26 | 46 | 76.50 | -131.30 | -18.21 | -624.29 | 138.35 | 118.25 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 26 | 47 | -81.00 | 132.09 | 18.21 | 628.97 | -45.84 | -702.89 |
| 27 | 47 | 81.00 | -132.09 | -18.21 | -628.97 | 45.85 | 702.89 |
| 27 | 48 | -85.50 | 254.98 | 8.13 | 730.00 | -89.90 | -1138.93 |
| 28 | 48 | 85.50 | -254.98 | -8.13 | -730.00 | 89.90 | 1138.93 |
| 28 | 49 | -90.00 | 323.27 | 8.13 | 913.56 | -42.74 | -2432.02 |
| 29 | 49 | 90.00 | 320.12 | -9.15 | -923.12 | 42.74 | 2432.02 |
| 29 | 59 | -94.50 | -251.83 | 9.15 | 739.56 | 9.03 | -1137.16 |
| 30 | 59 | 94.50 | 251.83 | -9.15 | -739.56 | -9.03 | 1137.16 |
| 30 | 60 | -99.00 | -128.91 | 20.28 | 650.96 | -61.44 | -703.77 |
| 31 | 60 | 99.00 | 128.91 | -20.28 | -650.96 | 61.43 | 703.77 |
| 31 | 61 | -103.50 | -128.12 | 20.28 | 646.28 | 40.38 | -117.47 |
| 32 | 61 | 103.50 | 128.12 | -20.27 | -646.28 | -40.38 | 117.47 |
| 32 | 62 | -108.00 | -104.98 | 20.27 | 582.37 | 142.20 | 448.41 |
| 33 | 62 | 108.00 | 104.98 | -20.28 | -582.37 | -142.19 | -448.41 |
| 33 | 63 | -112.50 | 1.63 | 19.86 | 513.86 | -22.48 | 2443.54 |
| 34 | 63 | 112.50 | -1.63 | -19.86 | -513.86 | 22.48 | -2443.54 |
| 34 | 64 | -117.00 | 108.65 | 18.90 | 570.41 | -224.41 | 446.54 |
| 35 | 64 | 117.00 | -108.65 | -18.90 | -570.41 | 224.41 | -446.54 |
| 35 | 65 | -121.50 | 131.93 | 18.90 | 634.71 | -128.78 | -120.53 |
| 36 | 65 | 121.50 | -131.93 | -18.90 | -634.71 | 128.78 | 120.53 |
| 36 | 66 | -126.00 | 132.72 | 18.90 | 639.39 | -33.14 | -708.02 |
| 37 | 66 | 126.00 | -132.72 | -18.90 | -639.39 | 33.15 | 708.02 |
| 37 | 67 | -130.50 | 255.38 | 8.60 | 734.33 | -64.33 | -1140.91 |
| 38 | 67 | 130.50 | -255.38 | -8.60 | -734.33 | 64.33 | 1140.91 |
| 38 | 68 | -135.00 | 323.67 | 8.60 | 917.89 | -15.04 | -2435.78 |
| 39 | 68 | 135.00 | 320.29 | -9.14 | -918.40 | 15.05 | 2435.78 |
| 39 | 78 | -139.50 | -252.00 | 9.14 | 734.84 | 36.67 | -1140.13 |
| 40 | 78 | 139.50 | 252.00 | -9.14 | -734.84 | -36.67 | 1140.13 |
| 40 | 79 | -144.00 | -129.12 | 19.62 | 644.37 | -4.74 | -706.41 |
| 41 | 79 | 144.00 | 129.12 | -19.62 | -644.37 | 4.74 | 706.41 |
| 41 | 80 | -148.50 | -128.33 | 19.62 | 639.69 | 94.12 | -119.17 |
| 42 | 80 | 148.50 | 128.33 | -19.62 | -639.69 | -94.12 | 119.17 |
| 42 | 81 | -153.00 | -105.19 | 19.62 | 575.78 | 192.98 | 447.65 |
| 43 | 81 | 153.00 | 105.19 | -19.62 | -575.78 | -192.99 | -447.65 |
| 43 | 82 | -157.50 | 1.83 | 20.69 | 515.96 | 5.87 | 2446.00 |
| 44 | 82 | 157.50 | -1.83 | -20.69 | -515.96 | -5.87 | -2446.00 |
| 44 | 83 | -162.00 | 108.48 | 21.00 | 583.53 | -159.70 | 451.55 |
| 45 | 83 | 162.00 | -108.48 | -21.00 | -583.53 | 159.71 | -451.55 |
| 45 | 84 | -166.50 | 131.76 | 21.00 | 647.84 | -54.62 | -114.75 |
| 46 | 84 | 166.50 | -131.76 | -21.00 | -647.84 | 54.63 | 114.75 |
| 46 | 85 | -171.00 | 132.55 | 21.00 | 652.52 | 50.46 | -701.47 |
| 47 | 85 | 171.00 | -132.55 | -21.00 | -652.52 | -50.46 | 701.47 |
| 47 | 86 | -175.50 | 255.44 | 9.27 | 743.90 | -30.65 | -1136.84 |
| 48 | 86 | 175.50 | -255.44 | -9.27 | -743.90 | 30.65 | 1136.84 |
| 48 | 87 | -180.00 | 323.73 | 9.27 | 927.45 | 21.63 | -2431.98 |
| 49 | 87 | 180.00 | 319.14 | -8.90 | -923.04 | -21.63 | 2431.98 |
| 49 | 97 | -184.50 | -250.86 | 8.90 | 739.49 | 72.26 | -1141.49 |
| 50 | 97 | 184.50 | 250.86 | -8.90 | -739.49 | -72.26 | 1141.49 |
| 50 | 98 | -189.00 | -127.82 | 20.06 | 644.91 | 12.61 | -708.19 |
| 51 | 98 | 189.00 | 127.82 | -20.06 | -644.91 | -12.61 | 708.19 |
| 51 | 99 | -193.50 | -127.04 | 20.06 | 640.23 | 113.45 | -126.76 |
| 52 | 99 | 193.50 | 127.04 | -20.06 | -640.23 | -113.45 | 126.76 |
| 52 | 100 | -198.00 | -103.90 | 20.06 | 576.33 | 214.29 | 434.24 |
| 53 | 100 | 198.00 | 103.90 | -20.06 | -576.33 | -214.29 | -434.25 |
| 53 | 101 | -202.50 | 3.25 | 23.49 | 513.55 | 80.03 | 2424.62 |
| 54 | 101 | 202.50 | -3.25 | -23.49 | -513.55 | -80.02 | -2424.62 |
| 54 | 102 | -207.00 | 109.55 | 24.60 | 581.72 | -8.72 | 429.37 |
| 55 | 102 | 207.00 | -109.55 | -24.60 | -581.72 | 8.72 | -429.37 |
| 55 | 103 | -211.50 | 132.84 | 24.60 | 646.02 | 112.54 | -141.76 |
| 56 | 103 | 211.50 | -132.84 | -24.60 | -646.02 | -112.54 | 141.76 |
| 56 | 104 | -216.00 | 133.62 | 24.60 | 650.70 | 233.80 | -733.30 |
| 57 | 104 | 216.00 | -133.62 | -24.60 | -650.70 | -233.81 | 733.30 |
| 57 | 105 | -220.50 | 256.98 | 10.86 | 741.61 | 64.03 | -1182.45 |
| 58 | 105 | 220.50 | -256.98 | -10.86 | -741.61 | -64.03 | 1182.45 |
| 58 | 106 | -225.00 | 325.27 | 10.86 | 925.16 | 123.48 | -2484.53 |
| 59 | 106 | -225.00 | 319.46 | -9.50 | -902.51 | -123.30 | 2414.61 |
| 59 | 115 | 229.50 | -251.18 | 9.50 | 718.96 | 176.61 | -1138.66 |
| 60 | 115 | -229.50 | 251.18 | -9.50 | -718.96 | -176.61 | 1138.66 |
| 60 | 116 | 234.00 | -133.36 | 20.94 | 589.76 | 134.21 | -715.68 |
| 61 | 116 | -234.00 | 133.36 | -20.94 | -589.76 | -134.21 | 715.68 |
| 61 | 117 | 238.50 | -132.58 | 20.94 | 585.08 | 239.00 | -125.31 |
| 62 | 117 | -238.50 | 132.58 | -20.94 | -585.08 | -239.00 | 125.31 |
| 62 | 118 | 243.00 | -109.44 | 20.94 | 521.18 | 343.78 | 444.65 |
| 63 | 118 | -243.00 | 109.44 | -20.94 | -521.18 | -343.78 | -444.66 |
| 63 | 119 | 247.50 | -1.58 | 21.81 | 470.84 | 154.96 | 2427.46 |
| 64 | 119 | -247.50 | 1.58 | -21.81 | -470.84 | -154.96 | -2427.46 |
| 64 | 120 | 252.00 | 97.87 | 16.62 | 531.74 | -6.06 | 564.90 |
| 65 | 120 | -252.00 | -97.87 | -16.62 | -531.74 | 6.06 | -564.90 |
| 65 | 121 | 256.50 | 121.16 | 16.62 | 596.04 | 79.31 | 30.34 |
| 66 | 121 | -256.50 | -121.16 | -16.62 | -596.04 | -79.31 | -30.34 |
| 66 | 122 | 261.00 | 121.95 | 16.62 | 600.72 | 164.69 | -524.64 |
| 67 | 122 | -261.00 | -121.95 | -16.62 | -600.72 | -164.69 | 524.64 |
| 67 | 123 | 265.50 | 246.17 | 4.85 | 697.96 | -39.25 | -960.34 |
| 68 | 123 | -265.50 | -246.17 | -4.85 | -697.96 | 39.25 | 960.34 |
| 68 | 124 | 270.00 | 314.46 | 4.85 | 881.52 | -6.87 | -2229.74 |
| 69 | 124 | 270.00 | 264.77 | 3.70 | -719.80 | 73.44 | 1996.67 |
| 69 | 133 | -274.50 | -196.48 | -3.70 | 536.24 | -79.54 | -950.88 |
| 70 | 133 | 274.50 | 196.48 | 3.70 | -536.24 | 79.54 | 950.88 |
| 70 | 134 | -271.57 | -128.19 | -3.70 | 352.69 | -68.18 | -225.58 |
| 71 | 134 | 271.57 | 128.19 | 3.70 | -352.69 | 68.18 | 225.58 |
| 71 | 135 | -268.65 | -101.60 | 2.35 | 234.57 | -193.10 | 251.73 |
| 72 | 135 | 268.65 | 101.60 | -2.35 | -234.57 | 193.10 | -251.73 |
| 72 | 136 | -265.73 | -39.79 | 16.46 | 270.34 | -408.47 | 906.15 |
| 73 | 136 | 265.73 | 39.79 | -16.46 | -270.34 | 408.47 | -906.15 |
| 73 | 137 | -262.80 | 28.50 | 16.46 | 453.90 | -306.35 | 926.36 |
| 74 | 137 | 262.80 | -28.50 | -16.46 | -453.90 | 306.35 | -926.36 |
| 74 | 138 | -259.88 | 96.78 | 16.46 | 637.45 | -204.23 | 639.28 |
| 75 | 138 | 259.88 | -96.78 | -16.46 | -637.45 | 204.23 | -639.28 |
| 75 | 139 | -256.95 | 120.07 | 16.46 | 701.76 | -102.12 | 112.40 |
| 76 | 139 | 256.95 | -120.07 | -16.46 | -701.76 | 102.12 | -112.40 |
| 76 | 140 | -254.03 | 120.86 | 16.46 | 706.44 | 0.00 | -434.89 |
| 77 | 16 | 717.67 | 0.00 | 0.14 | 0.00 | -1.31 | 0.00 |
| 77 | 17 | -717.67 | 0.00 | -0.14 | 0.00 | 0.59 | 0.00 |
| 78 | 17 | 717.67 | 0.00 | 0.14 | 0.00 | -0.59 | 0.00 |
| 78 | 18 | -717.67 | 0.00 | -0.14 | 0.00 | -0.08 | 0.00 |
| 79 | 33 | 724.13 | 0.00 | -0.05 | 0.00 | 0.57 | 0.00 |
| 79 | 34 | -724.13 | 0.00 | 0.05 | 0.00 | -0.17 | 0.00 |
| 80 | 34 | 724.13 | 0.00 | -0.05 | 0.00 | 0.17 | 0.00 |
| 80 | 35 | -724.13 | 0.00 | 0.05 | 0.00 | 0.10 | 0.00 |
| 81 | 50 | 718.24 | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 |
| 81 | 51 | -718.24 | 0.00 | 0.00 | 0.00 | -0.11 | 0.00 |
| 82 | 51 | 718.24 | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 |
| 82 | 52 | -718.24 | 0.00 | 0.00 | 0.00 | -0.08 | 0.00 |
| 83 | 52 | 718.24 | 0.00 | 0.00 | 0.00 | 0.08 | 0.00 |
| 83 | 53 | -718.24 | 0.00 | 0.00 | 0.00 | -0.04 | 0.00 |
| 84 | 53 | 718.24 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 |
| 84 | 54 | -718.24 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 85 | 69 | 720.75 | 0.00 | 0.00 | 0.00 | 0.12 | 0.00 |
| 85 | 70 | -720.75 | 0.00 | 0.00 | 0.00 | -0.10 | 0.00 |
| 86 | 70 | 720.75 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 |
| 86 | 71 | -720.75 | 0.00 | 0.00 | 0.00 | -0.06 | 0.00 |
| 87 | 71 | 720.75 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 |
| 87 | 72 | -720.75 | 0.00 | 0.00 | 0.00 | -0.03 | 0.00 |
| 88 | 72 | 720.75 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 |
| 88 | 73 | -720.75 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 89 | 88 | 718.69 | 0.00 | -0.01 | 0.00 | 0.17 | 0.00 |
| 89 | 89 | -718.69 | 0.00 | 0.01 | 0.00 | -0.16 | 0.00 |
| 90 | 89 | 718.69 | 0.00 | -0.01 | 0.00 | 0.16 | 0.00 |
| 90 | 90 | -718.69 | 0.00 | 0.01 | 0.00 | -0.10 | 0.00 |
| 91 | 90 | 718.69 | 0.00 | -0.01 | 0.00 | 0.10 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 91 | 91 | -718.69 | 0.00 | 0.01 | 0.00 | -0.03 | 0.00 |
| 92 | 91 | 718.69 | 0.00 | -0.01 | 0.00 | 0.03 | 0.00 |
| 92 | 92 | -718.69 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 93 | 107 | 723.98 | 0.00 | -0.02 | 0.00 | 0.26 | 0.00 |
| 93 | 108 | -723.98 | 0.00 | 0.02 | 0.00 | -0.23 | 0.00 |
| 94 | 108 | 723.98 | 0.00 | -0.02 | 0.00 | 0.23 | 0.00 |
| 94 | 109 | -723.98 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| 95 | 109 | 723.98 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 95 | 110 | -723.98 | 0.00 | 0.02 | 0.00 | 0.11 | 0.00 |
| 96 | 125 | 717.33 | 0.00 | 0.09 | 0.00 | -1.18 | 0.00 |
| 96 | 126 | -717.33 | 0.00 | -0.09 | 0.00 | 1.09 | 0.00 |
| 97 | 126 | 717.33 | 0.00 | 0.09 | 0.00 | -1.09 | 0.00 |
| 97 | 127 | -717.33 | 0.00 | -0.09 | 0.00 | 0.23 | 0.00 |
| 98 | 127 | 717.33 | 0.00 | 0.09 | 0.00 | -0.23 | 0.00 |
| 98 | 128 | -717.33 | 0.00 | -0.09 | 0.00 | -0.20 | 0.00 |
| 99 | 2 | 107.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -107.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 107.74 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -107.74 | 0.00 | 0.08 | 0.00 | 0.13 | 0.00 |
| 101 | 19 | 358.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -358.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 358.86 | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -358.86 | 0.00 | -0.14 | 0.00 | -0.23 | 0.00 |
| 103 | 36 | 362.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -362.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 362.04 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -362.04 | 0.00 | 0.05 | 0.00 | 0.09 | 0.00 |
| 105 | 55 | 359.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -359.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 359.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -359.12 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 107 | 74 | 360.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -360.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 360.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -360.38 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 109 | 93 | 359.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -359.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 359.34 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -359.34 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 111 | 111 | 362.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -362.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 361.96 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -361.96 | 0.00 | 0.02 | 0.00 | 0.04 | 0.00 |
| 113 | 129 | 358.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -358.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 358.72 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -358.72 | 0.00 | -0.09 | 0.00 | -0.15 | 0.00 |
| 115 | 141 | 107.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -107.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 107.85 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -107.85 | 0.00 | 0.05 | 0.00 | 0.09 | 0.00 |
| 117 | 6 | 215.49 | 0.00 | -0.08 | 0.00 | 0.07 | 0.00 |
| 117 | 7 | -215.49 | 0.00 | 0.08 | 0.00 | 0.01 | 0.00 |
| 118 | 145 | 215.72 | 0.00 | -0.05 | 0.00 | -0.03 | 0.00 |
| 118 | 146 | -215.72 | 0.00 | 0.05 | 0.00 | 0.09 | 0.00 |
| 119 | 3 | 0.00 | 107.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -107.75 | 0.00 | 0.00 | 0.00 | 457.92 |
| 120 | 1 | 0.08 | -107.74 | 0.00 | 0.00 | 0.00 | -457.78 |
| 120 | 5 | -0.08 | 107.74 | 0.00 | 0.00 | 0.00 | -0.13 |
| 121 | 20 | 0.00 | 358.81 | 0.00 | 0.00 | -0.01 | 0.00 |
| 121 | 15 | 0.00 | -358.81 | 0.00 | 0.00 | 0.00 | 663.81 |
| 122 | 15 | -0.14 | -358.86 | 0.00 | 0.00 | -0.01 | -664.13 |
| 122 | 22 | 0.14 | 358.86 | 0.00 | 0.00 | 0.00 | 0.23 |
| 123 | 37 | 0.00 | 362.09 | 0.00 | 0.00 | 0.00 | 0.00 |
| 123 | 32 | 0.00 | -362.09 | 0.00 | 0.00 | 0.00 | 669.87 |
| 124 | 32 | 0.05 | -362.04 | 0.00 | 0.00 | 0.00 | -669.68 |
| 124 | 39 | -0.05 | 362.04 | 0.00 | 0.00 | -0.01 | -0.09 |
| 125 | 56 | 0.00 | 359.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125 | 49 | 0.00 | -359.11 | 0.00 | 0.00 | 0.00 | 664.36 |
| 126 | 49 | 0.00 | -359.13 | 0.00 | 0.00 | -0.01 | -664.38 |
| 126 | 58 | 0.00 | 359.13 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 75 | 0.00 | 360.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 127 | 68 | 0.00 | -360.37 | 0.00 | 0.00 | 0.01 | 666.69 |
| 128 | 68 | 0.00 | -360.38 | 0.00 | 0.00 | 0.00 | -666.69 |
| 128 | 77 | 0.00 | 360.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 94 | 0.00 | 359.35 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129 | 87 | 0.00 | -359.35 | 0.00 | 0.00 | 0.00 | 664.79 |
| 130 | 87 | 0.01 | -359.34 | -0.01 | 0.00 | -0.01 | -664.77 |
| 130 | 96 | -0.01 | 359.34 | 0.01 | 0.00 | 0.00 | -0.02 |
| 131 | 112 | 0.00 | 362.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 131 | 106 | 0.00 | -362.02 | 0.00 | 0.00 | 0.00 | 669.73 |
| 132 | 106 | 0.02 | -361.95 | 0.00 | 0.00 | 0.00 | -669.59 |
| 132 | 114 | -0.02 | 361.95 | 0.00 | 0.00 | -0.01 | -0.04 |
| 133 | 130 | 0.00 | 358.62 | 0.00 | 0.00 | 0.01 | 0.00 |
| 133 | 124 | 0.00 | -358.62 | 0.00 | 0.00 | 0.00 | 663.43 |
| 134 | 124 | -0.09 | -358.73 | 0.00 | 0.00 | 0.00 | -663.77 |
| 134 | 132 | 0.09 | 358.73 | 0.00 | 0.00 | -0.01 | 0.15 |
| 135 | 142 | 0.00 | 134.04 | 357.97 | -612.85 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -134.04 | -357.97 | 612.85 | -1521.39 | 569.66 |
| 136 | 140 | -0.22 | -83.49 | 357.98 | -612.85 | -1521.40 | -355.23 |
| 136 | 144 | 0.22 | 83.49 | -357.98 | 612.85 | 0.00 | 0.38 |
| 137 | 2 | 0.00 | -107.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 107.75 | 0.00 | 0.00 | 0.00 | -457.92 |
| 138 | 7 | -0.08 | 107.74 | 0.00 | 0.00 | 0.00 | 457.91 |
| 138 | 4 | 0.08 | -107.74 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -358.82 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 358.82 | 0.00 | 0.00 | 0.00 | -663.81 |
| 140 | 18 | 0.14 | 358.86 | 0.00 | 0.00 | 0.00 | 663.89 |
| 140 | 21 | -0.14 | -358.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -362.09 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 362.09 | 0.00 | 0.00 | 0.00 | -669.87 |
| 142 | 35 | -0.05 | 362.04 | 0.00 | 0.00 | 0.00 | 669.77 |
| 142 | 38 | 0.05 | -362.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -359.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | 359.11 | 0.00 | 0.00 | 0.00 | -664.36 |
| 144 | 54 | 0.00 | 359.12 | 0.00 | 0.00 | 0.00 | 664.38 |
| 144 | 57 | 0.00 | -359.12 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | -360.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 360.37 | 0.00 | 0.00 | 0.00 | -666.68 |
| 146 | 73 | 0.00 | 360.37 | 0.00 | 0.00 | 0.00 | 666.70 |
| 146 | 76 | 0.00 | -360.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | -359.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | 359.34 | 0.00 | 0.00 | 0.00 | -664.79 |
| 148 | 92 | -0.01 | 359.34 | 0.00 | 0.00 | 0.00 | 664.78 |
| 148 | 95 | 0.01 | -359.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | -362.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 362.02 | 0.00 | 0.00 | 0.00 | -669.73 |
| 150 | 110 | -0.02 | 361.96 | 0.00 | 0.00 | 0.00 | 669.62 |
| 150 | 113 | 0.02 | -361.96 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -358.61 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 358.61 | 0.00 | 0.00 | 0.00 | -663.43 |
| 152 | 128 | 0.09 | 358.72 | 0.00 | 0.00 | 0.00 | 663.63 |
| 152 | 131 | -0.09 | -358.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -107.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 107.87 | 0.00 | 0.00 | 0.00 | -458.46 |
| 154 | 146 | -0.05 | 107.85 | 0.00 | 0.00 | 0.00 | 458.37 |
| 154 | 143 | 0.05 | -107.85 | 0.00 | 0.00 | 0.00 | 0.00 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS 59

MOME Y MAX sobrecarga + fr. + fc (ec-1)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 215.49 | -0.08 | 0.14 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -110.65 | -23.79 | -624.37 | -107.04 | 499.70 |
| 2 | 8 | 0.00 | 110.65 | 23.79 | 624.37 | 107.04 | -499.70 |
| 2 | 9 | 0.00 | -87.51 | -23.79 | -560.46 | -214.08 | 978.98 |
| 3 | 9 | 0.00 | 87.51 | 23.79 | 560.46 | 214.08 | -978.98 |
| 3 | 10 | 0.00 | -19.23 | -23.79 | -376.90 | -321.12 | 1219.14 |
| 4 | 10 | 0.00 | 19.23 | 23.79 | 376.90 | 321.12 | -1219.14 |
| 4 | 11 | 0.00 | 49.06 | -23.79 | -193.35 | -428.16 | 1152.01 |
| 5 | 11 | 0.00 | -49.06 | 23.79 | 193.35 | 428.16 | -1152.01 |
| 5 | 12 | 0.00 | 117.35 | -23.79 | -9.79 | -535.20 | 777.58 |
| 6 | 12 | 0.00 | -117.35 | 23.79 | 9.79 | 535.20 | -777.58 |
| 6 | 13 | 0.00 | 185.64 | -23.79 | 173.76 | -642.24 | 95.86 |
| 7 | 13 | 0.00 | -185.64 | 23.79 | -173.76 | 642.24 | -95.86 |
| 7 | 14 | 0.00 | 253.92 | -23.79 | 357.32 | -749.28 | -893.16 |
| 8 | 14 | 0.00 | -253.92 | 23.79 | -357.32 | 749.28 | 893.16 |
| 8 | 15 | 0.00 | 269.71 | -23.79 | 401.75 | -856.32 | -2097.59 |
| 9 | 15 | 0.00 | 263.11 | -8.72 | 458.85 | 856.32 | 2097.59 |
| 9 | 23 | 4.50 | -247.47 | 8.72 | -414.81 | -806.49 | -930.86 |
| 10 | 23 | -4.50 | 247.47 | -8.72 | 414.81 | 806.49 | 930.86 |
| 10 | 24 | 9.00 | -179.18 | 8.72 | -231.26 | -756.67 | 21.12 |
| 11 | 24 | -9.00 | 179.18 | -8.72 | 231.26 | 756.67 | -21.12 |
| 11 | 25 | 13.50 | -110.89 | 8.72 | -47.70 | -706.85 | 665.80 |
| 12 | 25 | -13.50 | 110.89 | -8.72 | 47.70 | 706.85 | -665.80 |
| 12 | 26 | 18.00 | -42.61 | 8.72 | 135.85 | -657.02 | 1003.20 |
| 13 | 26 | -18.00 | 42.61 | -8.72 | -135.85 | 657.02 | -1003.20 |
| 13 | 27 | 22.50 | 2.30 | 1.69 | 251.35 | -631.49 | 1341.19 |
| 14 | 27 | -22.50 | -2.30 | -1.69 | -251.35 | 631.49 | -1341.19 |
| 14 | 28 | 27.00 | 70.59 | 1.69 | 434.91 | -613.32 | 1169.19 |
| 15 | 28 | -27.00 | -70.59 | -1.69 | -434.91 | 613.32 | -1169.19 |
| 15 | 29 | -31.50 | 79.57 | -9.54 | 266.93 | -635.04 | 1371.04 |
| 16 | 29 | 31.50 | -79.57 | 9.54 | -266.93 | 635.04 | -1371.04 |
| 16 | 30 | -36.00 | 196.70 | -21.34 | 338.94 | -701.59 | 22.49 |
| 17 | 30 | 36.00 | -196.70 | 21.34 | -338.94 | 701.59 | -22.49 |
| 17 | 31 | -40.50 | 264.99 | -17.95 | 517.39 | -790.06 | -1008.37 |
| 18 | 31 | 40.50 | -264.99 | 17.95 | -517.39 | 790.06 | 1008.37 |
| 18 | 32 | -45.00 | 280.78 | -17.95 | 561.82 | -881.42 | -2254.62 |
| 19 | 32 | 45.00 | 264.07 | -20.01 | 424.09 | 881.42 | 2254.62 |
| 19 | 40 | -49.50 | -248.43 | 20.01 | -380.06 | -801.93 | -1067.60 |
| 20 | 40 | 49.50 | 248.43 | -20.02 | 380.06 | 801.93 | 1067.60 |
| 20 | 41 | -54.00 | -180.14 | 19.98 | -196.47 | -722.45 | -95.32 |
| 21 | 41 | 54.00 | 180.14 | -19.98 | 196.47 | 722.45 | 95.32 |
| 21 | 42 | -58.50 | -111.85 | 19.98 | -12.92 | -643.10 | 569.64 |
| 22 | 42 | 58.50 | 111.85 | -19.98 | 12.92 | 643.10 | -569.64 |
| 22 | 43 | -63.00 | -66.47 | 8.06 | 104.01 | -587.49 | 1134.40 |
| 23 | 43 | 63.00 | 66.47 | -8.06 | -104.01 | 587.49 | -1134.40 |
| 23 | 44 | -67.50 | 1.81 | 6.91 | 278.90 | -562.55 | 1287.88 |
| 24 | 44 | 67.50 | -1.81 | -6.91 | -278.90 | 562.55 | -1287.88 |
| 24 | 45 | -72.00 | 12.21 | -3.17 | 81.80 | -542.58 | 1584.67 |
| 25 | 45 | 72.00 | -12.21 | 3.17 | -81.80 | 542.58 | -1584.67 |
| 25 | 46 | -76.50 | 128.21 | -17.47 | 155.54 | -631.59 | 762.70 |
| 26 | 46 | 76.50 | -128.21 | 17.47 | -155.54 | 631.59 | -762.70 |
| 26 | 47 | -81.00 | 196.49 | -17.47 | 339.10 | -720.76 | 40.11 |
| 27 | 47 | 81.00 | -196.49 | 17.47 | -339.10 | 720.76 | -40.11 |
| 27 | 48 | -85.50 | 264.78 | -17.47 | 522.65 | -809.94 | -989.76 |
| 28 | 48 | 85.50 | -264.78 | 17.47 | -522.65 | 809.94 | 989.76 |
| 28 | 49 | -90.00 | 280.57 | -17.47 | 567.08 | -899.11 | -2235.06 |
| 29 | 49 | 90.00 | 263.39 | -21.64 | 415.85 | 899.11 | 2235.06 |
| 29 | 59 | -94.50 | -270.36 | 12.61 | -451.97 | -848.09 | -1150.14 |
| 30 | 59 | 94.50 | 270.36 | -12.61 | 451.97 | 848.09 | 1150.14 |
| 30 | 60 | -99.00 | -202.08 | 12.61 | -268.42 | -801.92 | -79.16 |
| 31 | 60 | 99.00 | 202.08 | -12.61 | 268.42 | 801.92 | 79.16 |
| 31 | 61 | -103.50 | -133.79 | 12.61 | -84.86 | -755.75 | 684.52 |
| 32 | 61 | 103.50 | 133.79 | -12.61 | 84.86 | 755.75 | -684.52 |
| 32 | 62 | -108.00 | -65.50 | 12.50 | 96.58 | -709.62 | 1140.91 |
| 33 | 62 | 108.00 | 65.50 | -12.50 | -96.58 | 709.62 | -1140.91 |
| 33 | 63 | -112.50 | 2.79 | 12.50 | 280.14 | -663.96 | 1290.01 |
| 34 | 63 | 112.50 | -2.79 | -12.50 | -280.14 | 663.96 | -1290.01 |
| 34 | 64 | -117.00 | 60.08 | -8.98 | -37.37 | -684.16 | 1179.61 |
| 35 | 64 | 117.00 | -60.08 | 8.98 | 37.37 | 684.16 | -1179.61 |
| 35 | 65 | -121.50 | 128.37 | -8.98 | 146.18 | -735.14 | 763.59 |
| 36 | 65 | 121.50 | -128.37 | 8.98 | -146.18 | 735.14 | -763.59 |
| 36 | 66 | -126.00 | 203.10 | -10.89 | 303.69 | -788.54 | -134.38 |
| 37 | 66 | 126.00 | -203.10 | 10.90 | -303.69 | 788.54 | 134.38 |
| 37 | 67 | -130.50 | 271.39 | -11.12 | 484.02 | -849.07 | -1194.01 |
| 38 | 67 | 130.50 | -271.39 | 11.12 | -484.02 | 849.07 | 1194.01 |
| 38 | 68 | -135.00 | 287.18 | -11.12 | 528.45 | -909.68 | -2469.05 |
| 39 | 68 | 135.00 | 289.79 | -17.77 | 472.27 | 909.68 | 2469.05 |
| 39 | 78 | -139.50 | -274.16 | 17.77 | -428.24 | -840.28 | -1166.26 |
| 40 | 78 | 139.50 | 274.16 | -17.77 | 428.24 | 840.28 | 1166.26 |
| 40 | 79 | -144.00 | -202.46 | 16.52 | -256.19 | -774.03 | -78.46 |
| 41 | 79 | 144.00 | 202.46 | -16.52 | 256.19 | 774.03 | 78.46 |
| 41 | 80 | -148.50 | -134.18 | 16.52 | -72.63 | -710.28 | 686.97 |
| 42 | 80 | 148.50 | 134.18 | -16.52 | 72.63 | 710.28 | -686.97 |
| 42 | 81 | 153.00 | -69.12 | 16.26 | 108.10 | -647.49 | 1142.17 |
| 43 | 81 | -153.00 | 69.12 | -16.26 | -108.10 | 647.49 | -1142.17 |
| 43 | 82 | 157.50 | -2.47 | -8.54 | -284.87 | -611.59 | 1285.74 |
| 44 | 82 | -157.50 | 2.47 | 8.54 | 284.87 | 611.59 | -1285.74 |
| 44 | 83 | 162.00 | 65.81 | -8.54 | -101.32 | -660.60 | 1135.24 |
| 45 | 83 | -162.00 | -65.81 | 8.54 | 101.32 | 660.59 | -1135.24 |
| 45 | 84 | 166.50 | 134.10 | -8.54 | 82.24 | -709.60 | 677.45 |
| 46 | 84 | -166.50 | -134.10 | 8.54 | -82.24 | 709.60 | -677.45 |
| 46 | 85 | 171.00 | 202.39 | -8.54 | 265.79 | -758.62 | -87.64 |
| 47 | 85 | -171.00 | -202.39 | 8.54 | -265.79 | 758.61 | 87.64 |
| 47 | 86 | 175.50 | 270.68 | -9.33 | 441.10 | -808.05 | -1160.02 |
| 48 | 86 | -175.50 | -270.68 | 9.33 | -441.10 | 808.06 | 1160.02 |
| 48 | 87 | 180.00 | 263.78 | -17.71 | 416.77 | -884.02 | -2246.21 |
| 49 | 87 | -180.00 | 281.35 | -20.02 | 565.67 | 884.02 | 2246.21 |
| 49 | 97 | 184.50 | -265.71 | 19.58 | -529.41 | -805.44 | -997.41 |
| 50 | 97 | -184.50 | 265.71 | -19.58 | 529.41 | 805.44 | 997.41 |
| 50 | 98 | 189.00 | -197.42 | 19.58 | -345.85 | -727.89 | 36.65 |
| 51 | 98 | -189.00 | 197.42 | -19.58 | 345.85 | 727.89 | -36.65 |
| 51 | 99 | 193.50 | -129.46 | 14.87 | -162.30 | -650.37 | 764.88 |
| 52 | 99 | -193.50 | 129.46 | -14.87 | 162.30 | 650.37 | -764.88 |
| 52 | 100 | 198.00 | -61.17 | 14.87 | 21.26 | -572.87 | 1185.82 |
| 53 | 100 | -198.00 | 61.17 | -14.87 | -21.26 | 572.87 | -1185.82 |
| 53 | 101 | 202.50 | -3.07 | -10.13 | -294.27 | -580.14 | 1300.98 |
| 54 | 101 | -202.50 | 3.07 | 10.13 | 294.27 | 580.14 | -1300.98 |
| 54 | 102 | 207.00 | 65.22 | -11.11 | -119.31 | -616.15 | 1153.14 |
| 55 | 102 | -207.00 | -65.22 | 11.11 | 119.31 | 616.15 | -1153.14 |
| 55 | 103 | 211.50 | 110.53 | -21.30 | -3.04 | -656.75 | 593.80 |
| 56 | 103 | -211.50 | -110.53 | 21.30 | 3.04 | 656.75 | -593.80 |
| 56 | 104 | 216.00 | 178.82 | -21.30 | 180.51 | -742.02 | -65.22 |
| 57 | 104 | -216.00 | -178.82 | 21.30 | -180.51 | 742.02 | 65.22 |
| 57 | 105 | 220.50 | 247.11 | -21.30 | 364.07 | -827.30 | -1031.54 |
| 58 | 105 | -220.50 | -247.11 | 21.30 | -364.07 | 827.30 | 1031.54 |
| 58 | 106 | 225.00 | 262.89 | -21.31 | 408.51 | -912.60 | -2213.28 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 59 | 106 | -225.00 | 276.62 | -12.85 | 554.13 | 912.60 | 2213.28 |
| 59 | 115 | 229.50 | -260.99 | 12.26 | -513.77 | -844.97 | -985.73 |
| 60 | 115 | -229.50 | 260.98 | -12.26 | 513.77 | 844.97 | 985.73 |
| 60 | 116 | 234.00 | -194.02 | 10.58 | -332.01 | -785.67 | 27.19 |
| 61 | 116 | -234.00 | 194.02 | -10.58 | 332.01 | 785.67 | -27.19 |
| 61 | 117 | 238.50 | -125.73 | 10.58 | -148.46 | -727.49 | 738.64 |
| 62 | 117 | -238.50 | 125.73 | -10.58 | 148.46 | 727.49 | -738.64 |
| 62 | 118 | 243.00 | -71.98 | -12.68 | -423.46 | -697.01 | 1145.98 |
| 63 | 118 | -243.00 | 71.98 | 12.68 | 423.46 | 697.01 | -1145.98 |
| 63 | 119 | 247.50 | -3.69 | -12.68 | -239.91 | -743.48 | 1308.24 |
| 64 | 119 | -247.50 | 3.69 | 12.68 | 239.91 | 743.47 | -1308.24 |
| 64 | 120 | 252.00 | 64.60 | -13.16 | -65.59 | -790.79 | 1163.20 |
| 65 | 120 | -252.00 | -64.60 | 13.16 | 65.59 | 790.79 | -1163.20 |
| 65 | 121 | 256.50 | 132.89 | -13.16 | 117.96 | -839.43 | 710.87 |
| 66 | 121 | -256.50 | -132.89 | 13.16 | -117.96 | 839.43 | -710.87 |
| 66 | 122 | 261.00 | 177.94 | -19.52 | 227.95 | -893.75 | -42.04 |
| 67 | 122 | -261.00 | -177.94 | 19.52 | -227.95 | 893.75 | 42.04 |
| 67 | 123 | 265.50 | 246.22 | -19.52 | 411.50 | -971.01 | -1004.39 |
| 68 | 123 | -265.50 | -246.22 | 19.52 | -411.50 | 971.01 | 1004.39 |
| 68 | 124 | 270.00 | 262.01 | -19.52 | 455.93 | -1048.27 | -2182.16 |
| 69 | 124 | -270.00 | 283.26 | -23.37 | 392.82 | 1048.27 | 2182.16 |
| 69 | 133 | 274.50 | -267.62 | 23.37 | -348.79 | -932.52 | -924.75 |
| 70 | 133 | -274.50 | 267.62 | -23.37 | 348.79 | 932.52 | 924.75 |
| 70 | 134 | 271.58 | -199.33 | 23.37 | -165.23 | -799.30 | 131.09 |
| 71 | 134 | -271.58 | 199.33 | -23.37 | 165.23 | 799.30 | -131.10 |
| 71 | 135 | 268.65 | -131.05 | 23.37 | 18.32 | -666.08 | 879.65 |
| 72 | 135 | -268.65 | 131.05 | -23.37 | -18.32 | 666.08 | -879.65 |
| 72 | 136 | 265.73 | -62.76 | 23.37 | 201.88 | -532.87 | 1320.91 |
| 73 | 136 | -265.73 | 62.76 | -23.37 | -201.88 | 532.87 | -1320.91 |
| 73 | 137 | 262.80 | 5.53 | 23.37 | 385.43 | -399.65 | 1454.88 |
| 74 | 137 | -262.80 | -5.53 | -23.37 | -385.43 | 399.65 | -1454.88 |
| 74 | 138 | 259.88 | 73.82 | 23.37 | 568.99 | -266.43 | 1281.55 |
| 75 | 138 | -259.88 | -73.82 | -23.37 | -568.99 | 266.43 | -1281.55 |
| 75 | 139 | 256.95 | 97.10 | 23.37 | 633.29 | -133.22 | 868.43 |
| 76 | 139 | -256.95 | -97.10 | -23.37 | -633.29 | 133.22 | -868.43 |
| 76 | 140 | -612.00 | 146.99 | 2.05 | 629.17 | 0.00 | -1047.74 |
| 77 | 16 | 367.00 | 0.00 | 4.69 | 0.00 | 752.86 | 0.00 |
| 77 | 17 | -556.75 | 0.00 | -22.97 | 0.00 | -797.12 | 0.00 |
| 78 | 17 | 556.75 | 0.00 | 22.97 | 0.00 | 797.12 | 0.00 |
| 78 | 18 | -552.94 | 0.00 | -24.90 | 0.00 | -918.07 | 0.00 |
| 79 | 33 | 369.98 | 0.00 | -30.55 | 0.00 | 1368.43 | 0.00 |
| 79 | 34 | -369.98 | 0.00 | 30.55 | 0.00 | -1136.84 | 0.00 |
| 80 | 34 | 369.98 | 0.00 | -30.55 | 0.00 | 1136.84 | 0.00 |
| 80 | 35 | -567.91 | 0.00 | -10.48 | 0.00 | -1038.07 | 0.00 |
| 81 | 50 | 367.32 | 0.00 | 15.27 | 0.00 | 500.68 | 0.00 |
| 81 | 51 | -367.32 | 0.00 | -15.27 | 0.00 | -561.76 | 0.00 |
| 82 | 51 | 367.32 | 0.00 | 15.27 | 0.00 | 561.76 | 0.00 |
| 82 | 52 | -366.86 | 0.00 | -15.40 | 0.00 | -715.31 | 0.00 |
| 83 | 52 | 366.86 | 0.00 | 15.40 | 0.00 | 715.31 | 0.00 |
| 83 | 53 | -366.86 | 0.00 | -15.40 | 0.00 | -869.32 | 0.00 |
| 84 | 53 | 366.86 | 0.00 | 15.40 | 0.00 | 869.32 | 0.00 |
| 84 | 54 | -566.61 | 0.00 | -32.16 | 0.00 | -1000.23 | 0.00 |
| 85 | 69 | 366.71 | 0.00 | 9.77 | 0.00 | 611.20 | 0.00 |
| 85 | 70 | -368.56 | 0.00 | -9.93 | 0.00 | -680.51 | 0.00 |
| 86 | 70 | 368.56 | 0.00 | 9.93 | 0.00 | 680.51 | 0.00 |
| 86 | 71 | -368.46 | 0.00 | -9.95 | 0.00 | -779.84 | 0.00 |
| 87 | 71 | 368.46 | 0.00 | 9.95 | 0.00 | 779.84 | 0.00 |
| 87 | 72 | -368.46 | 0.00 | -9.95 | 0.00 | -879.30 | 0.00 |
| 88 | 72 | 368.46 | 0.00 | 9.95 | 0.00 | 879.30 | 0.00 |
| 88 | 73 | -566.78 | 0.00 | -26.90 | 0.00 | -984.82 | 0.00 |
| 89 | 88 | 366.42 | 0.00 | 5.14 | 0.00 | 810.43 | 0.00 |
| 89 | 89 | -366.42 | 0.00 | -5.14 | 0.00 | -815.57 | 0.00 |
| 90 | 89 | 366.42 | 0.00 | 5.14 | 0.00 | 815.57 | 0.00 |
| 90 | 90 | -366.42 | 0.00 | -5.14 | 0.00 | -867.02 | 0.00 |
| 91 | 90 | 366.42 | 0.00 | 5.14 | 0.00 | 867.02 | 0.00 |
| 91 | 91 | -365.99 | 0.00 | -5.26 | 0.00 | -918.98 | 0.00 |
| 92 | 91 | 365.99 | 0.00 | 5.26 | 0.00 | 918.98 | 0.00 |
| 92 | 92 | -566.31 | 0.00 | -27.60 | 0.00 | -1002.12 | 0.00 |
| 93 | 107 | 374.67 | 0.00 | -21.19 | 0.00 | 1277.19 | 0.00 |
| 93 | 108 | -374.67 | 0.00 | 21.19 | 0.00 | -1256.00 | 0.00 |
| 94 | 108 | 374.67 | 0.00 | -21.19 | 0.00 | 1256.00 | 0.00 |
| 94 | 109 | -374.67 | 0.00 | 21.19 | 0.00 | -1044.10 | 0.00 |
| 95 | 109 | 374.67 | 0.00 | -21.19 | 0.00 | 1044.10 | 0.00 |
| 95 | 110 | -562.61 | 0.00 | -12.92 | 0.00 | -1008.21 | 0.00 |
| 96 | 125 | 394.23 | 0.00 | 13.59 | 0.00 | 541.56 | 0.00 |
| 96 | 126 | -394.23 | 0.00 | -13.59 | 0.00 | -555.14 | 0.00 |
| 97 | 126 | 394.23 | 0.00 | 13.59 | 0.00 | 555.14 | 0.00 |
| 97 | 127 | -581.27 | 0.00 | -33.87 | 0.00 | -701.84 | 0.00 |
| 98 | 127 | 581.27 | 0.00 | 33.87 | 0.00 | 701.84 | 0.00 |
| 98 | 128 | -539.34 | 0.00 | -37.35 | 0.00 | -876.62 | 0.00 |
| 99 | 2 | 107.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -107.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 107.74 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | 23.08 | 0.00 | -23.79 | 0.00 | -40.72 | 0.00 |
| 101 | 19 | 358.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -358.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 358.86 | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -471.14 | 0.00 | -44.32 | 0.00 | -75.88 | 0.00 |
| 103 | 36 | 362.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -362.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 362.04 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -477.33 | 0.00 | -42.60 | 0.00 | -72.94 | 0.00 |
| 105 | 55 | 359.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -359.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 359.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -518.68 | 0.00 | -39.21 | 0.00 | -67.13 | 0.00 |
| 107 | 74 | 360.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -360.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 360.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -501.35 | 0.00 | -33.04 | 0.00 | -56.56 | 0.00 |
| 109 | 93 | 359.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -359.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 359.34 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -520.68 | 0.00 | -37.63 | 0.00 | -64.43 | 0.00 |
| 111 | 111 | 362.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -362.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 361.96 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -488.62 | 0.00 | -36.49 | 0.00 | -62.47 | 0.00 |
| 113 | 129 | 358.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -358.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 358.72 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -451.36 | 0.00 | -50.38 | 0.00 | -86.26 | 0.00 |
| 115 | 141 | 107.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -107.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 107.85 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | 31.77 | 127.01 | -32.98 | 0.00 | -56.45 | -217.44 |
| 117 | 6 | 106.85 | 0.00 | -16.86 | 0.00 | 716.35 | 0.00 |
| 117 | 7 | -106.88 | 0.00 | 16.86 | 0.00 | -699.49 | 0.00 |
| 118 | 145 | 93.40 | -254.03 | -28.13 | 0.00 | 770.30 | -254.03 |
| 118 | 146 | -93.04 | 254.03 | 26.52 | 0.00 | -743.48 | 0.00 |
| 119 | 3 | 0.00 | -0.31 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -108.34 | 0.00 | 0.00 | 0.00 | 460.42 |
| 120 | 1 | -1.09 | 14.70 | 0.00 | 0.00 | 0.00 | 60.61 |
| 120 | 5 | -0.93 | 108.37 | 0.00 | 0.00 | 0.00 | -1.60 |
| 121 | 20 | 0.00 | 360.62 | 0.00 | 0.00 | 0.02 | 0.00 |
| 121 | 15 | 0.00 | 34.11 | -0.01 | 0.00 | -0.01 | -63.12 |
| 122 | 15 | -13.19 | -423.16 | -0.01 | 0.00 | 0.02 | -805.43 |
| 122 | 22 | 7.01 | 389.46 | 0.00 | 0.00 | -0.01 | 12.00 |
| 123 | 37 | 0.00 | 433.85 | 0.00 | 0.00 | 0.02 | 0.00 |
| 123 | 32 | 0.00 | 72.53 | 0.00 | 0.00 | -0.02 | -134.20 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 124 | 32 | -0.85 | -361.66 | 0.00 | 0.00 | 0.01 | -670.53 |
| 124 | 39 | 29.09 | -72.57 | -0.01 | 0.00 | -0.02 | 49.81 |
| 125 | 56 | 0.00 | 422.88 | -0.02 | 0.00 | 0.03 | 0.00 |
| 125 | 49 | 0.00 | -359.39 | 0.01 | 0.00 | -0.02 | 664.88 |
| 126 | 49 | 14.64 | 63.65 | -0.01 | 0.00 | 0.02 | 142.83 |
| 126 | 58 | -0.01 | 358.98 | 0.01 | 0.00 | -0.03 | -0.01 |
| 127 | 75 | 0.00 | 202.02 | 0.02 | 0.00 | 0.02 | 0.00 |
| 127 | 68 | 0.01 | -239.36 | 0.00 | 0.00 | -0.02 | 442.84 |
| 128 | 68 | -1.61 | -181.61 | 0.01 | 0.00 | 0.02 | -338.74 |
| 128 | 77 | 5.99 | 240.59 | 0.00 | 0.00 | -0.02 | 10.25 |
| 129 | 94 | 0.00 | 359.95 | 0.00 | 0.00 | 0.02 | 0.00 |
| 129 | 87 | 0.00 | 62.55 | 0.00 | 0.00 | -0.02 | -115.75 |
| 130 | 87 | 5.04 | 62.56 | 0.02 | 0.00 | 0.01 | 124.37 |
| 130 | 96 | 5.03 | 423.91 | -0.01 | 0.00 | -0.03 | 8.62 |
| 131 | 112 | -0.01 | 222.41 | -0.01 | 0.00 | 0.01 | -0.01 |
| 131 | 106 | -0.01 | -418.54 | -0.01 | 0.00 | -0.01 | 774.33 |
| 132 | 106 | 0.13 | -217.63 | 0.00 | 0.00 | 0.01 | -402.36 |
| 132 | 114 | 8.68 | 189.55 | -0.01 | 0.00 | -0.01 | 14.86 |
| 133 | 130 | 0.00 | 189.85 | 0.01 | 0.00 | 0.01 | 0.00 |
| 133 | 124 | 0.00 | -234.28 | 0.00 | 0.00 | -0.01 | 433.42 |
| 134 | 124 | 3.23 | -384.90 | 0.01 | 0.00 | 0.01 | -706.52 |
| 134 | 132 | 0.23 | 168.47 | 0.00 | 0.00 | -0.01 | 0.39 |
| 135 | 142 | 0.00 | 107.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -132.25 | -357.97 | 612.85 | -1521.39 | 562.06 |
| 136 | 140 | 0.33 | -132.21 | -357.98 | 612.85 | 1521.39 | -561.33 |
| 136 | 144 | 0.22 | 83.49 | -357.98 | 612.85 | 0.00 | 0.38 |
| 137 | 2 | 0.00 | -107.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 107.75 | 0.00 | 0.00 | 0.00 | -457.92 |
| 138 | 7 | -0.08 | 107.74 | 0.00 | 0.00 | 0.00 | 457.91 |
| 138 | 4 | 0.08 | -107.74 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -358.82 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 358.82 | 0.00 | 0.00 | 0.00 | -663.81 |
| 140 | 18 | 0.14 | 358.86 | 0.00 | 0.00 | 0.00 | 663.89 |
| 140 | 21 | -0.14 | -358.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -362.09 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 362.09 | 0.00 | 0.00 | 0.00 | -669.87 |
| 142 | 35 | -0.05 | 362.04 | 0.00 | 0.00 | 0.00 | 669.77 |
| 142 | 38 | 0.05 | -362.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -359.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | 359.11 | 0.00 | 0.00 | 0.00 | -664.36 |
| 144 | 54 | 0.00 | 359.12 | 0.00 | 0.00 | 0.00 | 664.38 |
| 144 | 57 | 0.00 | -359.12 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | -360.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 360.37 | 0.00 | 0.00 | 0.00 | -666.68 |
| 146 | 73 | 0.00 | 360.37 | 0.00 | 0.00 | 0.00 | 666.70 |
| 146 | 76 | 0.00 | -360.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | -359.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | 359.34 | 0.00 | 0.00 | 0.00 | -664.79 |
| 148 | 92 | -0.01 | 359.34 | 0.00 | 0.00 | 0.00 | 664.78 |
| 148 | 95 | 0.01 | -359.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | -362.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 362.02 | 0.00 | 0.00 | 0.00 | -669.73 |
| 150 | 110 | -0.02 | 361.96 | 0.00 | 0.00 | 0.00 | 669.62 |
| 150 | 113 | 0.02 | -361.96 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -358.61 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 358.61 | 0.00 | 0.00 | 0.00 | -663.43 |
| 152 | 128 | 0.09 | 358.72 | 0.00 | 0.00 | 0.00 | 663.63 |
| 152 | 131 | -0.09 | -358.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -107.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 81.71 | -357.98 | 0.00 | -1521.39 | -347.26 |
| 154 | 146 | -0.24 | 81.71 | -357.97 | 0.00 | 1521.39 | 347.25 |
| 154 | 143 | 0.05 | -107.85 | 0.00 | 0.00 | 0.00 | 0.00 |



HIPOTESIS 60

MOME Y MIN sobrecarga + fr. + fc (ec-1)

E S F U E R Z O S E N B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 215.49 | -0.08 | 0.14 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -110.63 | 23.73 | 624.51 | 106.81 | 499.60 |
| 2 | 8 | 0.00 | 110.63 | -23.73 | -624.51 | -106.81 | -499.60 |
| 2 | 9 | 0.00 | -87.49 | 23.73 | 560.61 | 213.61 | 978.78 |
| 3 | 9 | 0.00 | 87.49 | -23.73 | -560.61 | -213.61 | -978.78 |
| 3 | 10 | 0.00 | -19.20 | 23.73 | 377.05 | 320.42 | 1218.84 |
| 4 | 10 | 0.00 | 19.20 | -23.73 | -377.05 | -320.42 | -1218.84 |
| 4 | 11 | 0.00 | 49.08 | 23.73 | 193.50 | 427.23 | 1151.60 |
| 5 | 11 | 0.00 | -49.08 | -23.73 | -193.50 | -427.23 | -1151.60 |
| 5 | 12 | 0.00 | 117.37 | 23.73 | 9.94 | 534.03 | 777.08 |
| 6 | 12 | 0.00 | -117.37 | -23.73 | -9.94 | -534.03 | -777.08 |
| 6 | 13 | 0.00 | 185.66 | 23.73 | -173.61 | 640.84 | 95.25 |
| 7 | 13 | 0.00 | -185.66 | -23.73 | 173.61 | -640.84 | -95.25 |
| 7 | 14 | 0.00 | 253.95 | 23.73 | -357.17 | 747.65 | -893.86 |
| 8 | 14 | 0.00 | -253.95 | -23.74 | 357.17 | -747.65 | 893.86 |
| 8 | 15 | 0.00 | 269.73 | 23.74 | -401.60 | 854.45 | -2098.40 |
| 9 | 15 | 0.00 | 259.58 | 8.62 | -458.57 | -854.45 | 2098.40 |
| 9 | 23 | -4.50 | -243.94 | -8.62 | 414.54 | 805.09 | -931.57 |
| 10 | 23 | 4.50 | 243.94 | 8.62 | -414.54 | -805.09 | 931.57 |
| 10 | 24 | -9.00 | -175.65 | -8.62 | 230.98 | 755.74 | 20.51 |
| 11 | 24 | 9.00 | 175.65 | 8.62 | -230.98 | -755.74 | -20.51 |
| 11 | 25 | -13.50 | -107.37 | -8.62 | 47.43 | 706.38 | 665.30 |
| 12 | 25 | 13.50 | 107.37 | 8.62 | -47.43 | -706.38 | -665.30 |
| 12 | 26 | -18.00 | -39.08 | -8.62 | -136.13 | 657.02 | 1002.79 |
| 13 | 26 | 18.00 | 39.08 | 8.62 | 136.13 | -657.02 | -1002.79 |
| 13 | 27 | -22.50 | 5.83 | -1.50 | -251.88 | 631.37 | 1340.82 |
| 14 | 27 | 22.50 | -5.83 | 1.50 | 251.88 | -631.37 | -1340.82 |
| 14 | 28 | -27.00 | 74.12 | -1.50 | -435.43 | 614.04 | 1168.93 |
| 15 | 28 | 27.00 | -74.12 | 1.50 | 435.43 | -614.04 | -1168.93 |
| 15 | 29 | 31.50 | 76.05 | 9.69 | -267.37 | 632.30 | 1371.33 |
| 16 | 29 | -31.50 | -76.05 | -9.69 | 267.37 | -632.30 | -1371.33 |
| 16 | 30 | 36.00 | 193.18 | 21.21 | -338.63 | 698.02 | 22.68 |
| 17 | 30 | -36.00 | -193.18 | -21.21 | 338.62 | -698.02 | -22.68 |
| 17 | 31 | 40.50 | 261.46 | 17.83 | -517.08 | 785.93 | -1008.21 |
| 18 | 31 | -40.50 | -261.46 | -17.83 | 517.08 | -785.93 | 1008.21 |
| 18 | 32 | 45.00 | 277.25 | 17.83 | -561.51 | 876.74 | -2254.55 |
| 19 | 32 | -45.00 | 267.59 | 19.92 | -423.56 | -876.74 | 2254.55 |
| 19 | 40 | 49.50 | -251.96 | -19.92 | 379.53 | 797.67 | -1067.63 |
| 20 | 40 | -49.50 | 251.96 | 19.92 | -379.53 | -797.67 | 1067.63 |
| 20 | 41 | 54.00 | -183.67 | -19.89 | 195.95 | 718.61 | -95.46 |
| 21 | 41 | -54.00 | 183.67 | 19.89 | -195.95 | -718.61 | 95.46 |
| 21 | 42 | 58.50 | -115.39 | -19.89 | 12.39 | 639.68 | 569.44 |
| 22 | 42 | -58.50 | 115.39 | 19.89 | -12.39 | -639.68 | -569.44 |
| 22 | 43 | 63.00 | -70.01 | -7.92 | -104.79 | 584.24 | 1134.09 |
| 23 | 43 | -63.00 | 70.01 | 7.92 | 104.79 | -584.25 | -1134.09 |
| 23 | 44 | 67.50 | -1.72 | -6.77 | -279.68 | 559.95 | 1287.51 |
| 24 | 44 | -67.50 | 1.72 | 6.77 | 279.68 | -559.95 | -1287.51 |
| 24 | 45 | 72.00 | 56.37 | 17.40 | 28.33 | 541.54 | 1177.59 |
| 25 | 45 | -72.00 | -56.37 | -17.40 | -28.33 | -541.54 | -1177.59 |
| 25 | 46 | 76.50 | 124.66 | 17.40 | -155.22 | 630.42 | 762.29 |
| 26 | 46 | -76.50 | -124.66 | -17.40 | 155.22 | -630.42 | -762.29 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 26 | 47 | 81.00 | 192.94 | 17.40 | -338.78 | 719.30 | 39.70 |
| 27 | 47 | -81.00 | -192.94 | -17.40 | 338.78 | -719.30 | -39.70 |
| 27 | 48 | 85.50 | 261.23 | 17.40 | -522.33 | 808.18 | -990.19 |
| 28 | 48 | -85.50 | -261.23 | -17.40 | 522.33 | -808.18 | 990.19 |
| 28 | 49 | 90.00 | 277.02 | 17.40 | -566.76 | 897.05 | -2235.49 |
| 29 | 49 | -90.00 | 267.02 | 21.60 | -415.41 | -897.05 | 2235.49 |
| 29 | 59 | 94.50 | -273.99 | -12.54 | 451.28 | 846.10 | -1150.25 |
| 30 | 59 | -94.50 | 273.99 | 12.54 | -451.28 | -846.10 | 1150.25 |
| 30 | 60 | 99.00 | -205.70 | -12.54 | 267.73 | 800.24 | -78.95 |
| 31 | 60 | -99.00 | 205.70 | 12.54 | -267.73 | -800.25 | 78.95 |
| 31 | 61 | 103.50 | -137.41 | -12.54 | 84.17 | 754.39 | 685.06 |
| 32 | 61 | -103.50 | 137.41 | 12.54 | -84.17 | -754.39 | -685.06 |
| 32 | 62 | 108.00 | -69.12 | -12.43 | -97.27 | 708.58 | 1141.77 |
| 33 | 62 | -108.00 | 69.12 | 12.43 | 97.27 | -708.58 | -1141.77 |
| 33 | 63 | 112.50 | -0.84 | -12.43 | -280.83 | 663.24 | 1291.18 |
| 34 | 63 | -112.50 | 0.84 | 12.43 | 280.83 | -663.24 | -1291.18 |
| 34 | 64 | 117.00 | 56.45 | 8.93 | 37.64 | 683.44 | 1181.13 |
| 35 | 64 | -117.00 | -56.45 | -8.93 | -37.64 | -683.44 | -1181.13 |
| 35 | 65 | 121.50 | 124.74 | 8.93 | -145.91 | 734.21 | 765.46 |
| 36 | 65 | -121.50 | -124.74 | -8.93 | 145.91 | -734.21 | -765.47 |
| 36 | 66 | 126.00 | 199.48 | 10.85 | -303.31 | 786.95 | -132.16 |
| 37 | 66 | -126.00 | -199.48 | -10.84 | 303.31 | -786.95 | 132.16 |
| 37 | 67 | 130.50 | 267.76 | 11.07 | -483.64 | 847.26 | -1191.43 |
| 38 | 67 | -130.50 | -267.76 | -11.07 | 483.64 | -847.26 | 1191.43 |
| 38 | 68 | 135.00 | 283.55 | 11.07 | -528.07 | 907.64 | -2466.13 |
| 39 | 68 | -135.00 | 293.02 | 17.71 | -471.59 | -907.64 | 2466.13 |
| 39 | 78 | 139.50 | -277.38 | -17.71 | 427.55 | 838.53 | -1164.79 |
| 40 | 78 | -139.50 | 277.38 | 17.71 | -427.55 | -838.53 | 1164.79 |
| 40 | 79 | 144.00 | -205.69 | -16.44 | 255.61 | 772.47 | -78.44 |
| 41 | 79 | -144.00 | 205.69 | 16.44 | -255.61 | -772.47 | 78.44 |
| 41 | 80 | 148.50 | -137.40 | -16.44 | 72.06 | 709.07 | 685.53 |
| 42 | 80 | -148.50 | 137.40 | 16.44 | -72.06 | -709.07 | -685.53 |
| 42 | 81 | -153.00 | -65.88 | -16.18 | -108.67 | 646.65 | 1145.12 |
| 43 | 81 | 153.00 | 65.88 | 16.18 | 108.67 | -646.65 | -1145.12 |
| 43 | 82 | -157.50 | 0.75 | 8.47 | 285.61 | 610.84 | 1290.16 |
| 44 | 82 | 157.50 | -0.75 | -8.46 | -285.61 | -610.84 | -1290.16 |
| 44 | 83 | -162.00 | 69.04 | 8.46 | 102.06 | 659.51 | 1141.12 |
| 45 | 83 | 162.00 | -69.04 | -8.47 | -102.06 | -659.51 | -1141.12 |
| 45 | 84 | -166.50 | 137.32 | 8.47 | -81.50 | 708.18 | 684.79 |
| 46 | 84 | 166.50 | -137.33 | -8.46 | 81.50 | -708.18 | -684.79 |
| 46 | 85 | -171.00 | 205.61 | 8.46 | -265.05 | 756.85 | -78.83 |
| 47 | 85 | 171.00 | -205.61 | -8.47 | 265.05 | -756.85 | 78.83 |
| 47 | 86 | -175.50 | 273.90 | 9.25 | -440.36 | 805.95 | -1149.74 |
| 48 | 86 | 175.50 | -273.90 | -9.25 | 440.36 | -805.95 | 1149.74 |
| 48 | 87 | -180.00 | 267.00 | 17.66 | -416.34 | 881.68 | -2234.46 |
| 49 | 87 | 180.00 | 276.50 | 19.95 | -565.29 | -881.68 | 2234.46 |
| 49 | 97 | -184.50 | -260.86 | -19.51 | 529.03 | 803.44 | -991.49 |
| 50 | 97 | 184.50 | 260.86 | 19.51 | -529.03 | -803.44 | 991.49 |
| 50 | 98 | -189.00 | -192.58 | -19.51 | 345.47 | 726.23 | 36.74 |
| 51 | 98 | 189.00 | 192.58 | 19.51 | -345.47 | -726.23 | -36.74 |
| 51 | 99 | -193.50 | -123.96 | -14.80 | 161.91 | 649.04 | 756.21 |
| 52 | 99 | 193.50 | 123.96 | 14.80 | -161.91 | -649.04 | -756.21 |
| 52 | 100 | -198.00 | -55.68 | -14.80 | -21.64 | 571.88 | 1168.38 |
| 53 | 100 | 198.00 | 55.68 | 14.80 | 21.64 | -571.88 | -1168.38 |
| 53 | 101 | -202.50 | 2.42 | 10.00 | 295.02 | 578.11 | 1274.77 |
| 54 | 101 | 202.50 | -2.42 | -10.00 | -295.02 | -578.11 | -1274.77 |
| 54 | 102 | -207.00 | 70.71 | 10.97 | 120.06 | 613.51 | 1118.21 |
| 55 | 102 | 207.00 | -70.71 | -10.97 | -120.06 | -613.52 | -1118.21 |
| 55 | 103 | -211.50 | 116.02 | 21.21 | 3.56 | 653.85 | 550.18 |
| 56 | 103 | 211.50 | -116.02 | -21.21 | -3.56 | -653.85 | -550.18 |
| 56 | 104 | -216.00 | 184.31 | 21.21 | -180.00 | 738.73 | -117.57 |
| 57 | 104 | 216.00 | -184.31 | -21.21 | 180.00 | -738.73 | 117.57 |
| 57 | 105 | -220.50 | 252.59 | 21.21 | -363.55 | 823.60 | -1092.61 |
| 58 | 105 | 220.50 | -252.59 | -21.21 | 363.55 | -823.60 | 1092.61 |
| 58 | 106 | -225.00 | 268.38 | 21.22 | -407.99 | 908.50 | -2283.07 |
| 59 | 106 | 225.00 | 280.86 | 12.77 | -553.79 | -908.50 | 2283.07 |
| 59 | 115 | -229.50 | -265.22 | -12.18 | 513.43 | 841.25 | -1020.49 |
| 60 | 115 | 229.50 | 265.22 | 12.18 | -513.43 | -841.25 | 1020.49 |
| 60 | 116 | -234.00 | -195.61 | -10.49 | 331.67 | 782.34 | 27.24 |
| 61 | 116 | 234.00 | 195.61 | 10.49 | -331.67 | -782.34 | -27.24 |
| 61 | 117 | -238.50 | -127.33 | -10.49 | 148.12 | 724.55 | 761.85 |
| 62 | 117 | 238.50 | 127.33 | 10.49 | -148.12 | -724.55 | -761.85 |
| 62 | 118 | -243.00 | -73.59 | 12.56 | 423.98 | 697.94 | 1192.38 |
| 63 | 118 | 243.00 | 73.59 | -12.56 | -423.98 | -697.94 | -1192.38 |
| 63 | 119 | -247.50 | -5.30 | 12.56 | 240.43 | 743.87 | 1377.87 |
| 64 | 119 | 247.50 | 5.30 | -12.56 | -240.43 | -743.87 | -1377.87 |
| 64 | 120 | -252.00 | 62.99 | 13.04 | 66.11 | 790.65 | 1256.07 |
| 65 | 120 | 252.00 | -62.99 | -13.04 | -66.11 | -790.65 | -1256.07 |
| 65 | 121 | -256.50 | 131.27 | 13.04 | -117.44 | 838.75 | 826.97 |
| 66 | 121 | 256.50 | -131.27 | -13.04 | 117.44 | -838.75 | -826.97 |
| 66 | 122 | -261.00 | 176.32 | 19.45 | -227.64 | 893.66 | 97.34 |
| 67 | 122 | 261.00 | -176.32 | -19.45 | 227.64 | -893.66 | -97.34 |
| 67 | 123 | -265.50 | 244.61 | 19.45 | -411.20 | 970.62 | -841.78 |
| 68 | 123 | 265.50 | -244.61 | -19.45 | 411.20 | -970.62 | 841.78 |
| 68 | 124 | -270.00 | 260.40 | 19.45 | -455.63 | 1047.59 | -1996.32 |
| 69 | 124 | 270.00 | 255.51 | 23.35 | -392.68 | -1047.59 | 1996.32 |
| 69 | 133 | -274.50 | -239.88 | -23.35 | 348.65 | 931.91 | -847.79 |
| 70 | 133 | 274.50 | 239.88 | 23.35 | -348.65 | -931.92 | 847.79 |
| 70 | 134 | -271.58 | -171.59 | -23.35 | 165.10 | 798.78 | 72.81 |
| 71 | 134 | 271.58 | 171.59 | 23.35 | -165.10 | -798.78 | -72.81 |
| 71 | 135 | -268.65 | -103.30 | -23.35 | -18.46 | 665.65 | 686.11 |
| 72 | 135 | 268.65 | 103.30 | 23.35 | 18.46 | -665.65 | -686.12 |
| 72 | 136 | -265.73 | -35.01 | -23.35 | -202.01 | 532.52 | 992.13 |
| 73 | 136 | 265.73 | 35.01 | 23.35 | 202.01 | -532.52 | -992.13 |
| 73 | 137 | -262.80 | 33.27 | -23.35 | -385.57 | 399.39 | 990.84 |
| 74 | 137 | 262.80 | -33.27 | 23.35 | 385.57 | -399.39 | -990.84 |
| 74 | 138 | -259.88 | 101.56 | -23.35 | -569.12 | 266.26 | 682.27 |
| 75 | 138 | 259.88 | -101.56 | 23.35 | 569.12 | -266.26 | -682.27 |
| 75 | 139 | -256.95 | 124.85 | -23.35 | -633.43 | 133.13 | 133.90 |
| 76 | 139 | 256.95 | -124.85 | 23.35 | 633.43 | -133.13 | -133.90 |
| 76 | 140 | -612.00 | 146.99 | -2.18 | -628.75 | 0.00 | -1047.74 |
| 77 | 16 | 363.52 | 0.00 | -4.56 | 0.00 | -754.18 | 0.00 |
| 77 | 17 | -553.28 | 0.00 | 23.24 | 0.00 | 796.01 | 0.00 |
| 78 | 17 | 553.28 | 0.00 | -23.24 | 0.00 | -796.01 | 0.00 |
| 78 | 18 | -556.45 | 0.00 | 25.15 | 0.00 | 918.27 | 0.00 |
| 79 | 33 | 369.96 | 0.00 | 30.50 | 0.00 | -1367.81 | 0.00 |
| 79 | 34 | -369.96 | 0.00 | -30.50 | 0.00 | 1136.65 | 0.00 |
| 80 | 34 | 369.96 | 0.00 | 30.50 | 0.00 | -1136.65 | 0.00 |
| 80 | 35 | -567.90 | 0.00 | 10.78 | 0.00 | 1038.65 | 0.00 |
| 81 | 50 | 367.47 | 0.00 | -15.28 | 0.00 | -500.36 | 0.00 |
| 81 | 51 | -367.47 | 0.00 | 15.28 | 0.00 | 561.48 | 0.00 |
| 82 | 51 | 367.47 | 0.00 | -15.28 | 0.00 | -561.48 | 0.00 |
| 82 | 52 | -366.87 | 0.00 | 15.40 | 0.00 | 715.22 | 0.00 |
| 83 | 52 | 366.87 | 0.00 | -15.40 | 0.00 | -715.22 | 0.00 |
| 83 | 53 | -366.87 | 0.00 | 15.40 | 0.00 | 869.27 | 0.00 |
| 84 | 53 | 366.87 | 0.00 | -15.40 | 0.00 | -869.27 | 0.00 |
| 84 | 54 | -566.71 | 0.00 | 32.30 | 0.00 | 1000.97 | 0.00 |
| 85 | 69 | 367.78 | 0.00 | -9.91 | 0.00 | -611.02 | 0.00 |
| 85 | 70 | -367.95 | 0.00 | 9.93 | 0.00 | 680.42 | 0.00 |
| 86 | 70 | 367.95 | 0.00 | -9.93 | 0.00 | -680.42 | 0.00 |
| 86 | 71 | -368.05 | 0.00 | 9.95 | 0.00 | 779.77 | 0.00 |
| 87 | 71 | 368.05 | 0.00 | -9.95 | 0.00 | -779.77 | 0.00 |
| 87 | 72 | -368.05 | 0.00 | 9.95 | 0.00 | 879.27 | 0.00 |
| 88 | 72 | 368.05 | 0.00 | -9.95 | 0.00 | -879.27 | 0.00 |
| 88 | 73 | -566.39 | 0.00 | 27.02 | 0.00 | 985.53 | 0.00 |
| 89 | 88 | 368.85 | 0.00 | -5.16 | 0.00 | -810.05 | 0.00 |
| 89 | 89 | -368.85 | 0.00 | 5.16 | 0.00 | 815.21 | 0.00 |
| 90 | 89 | 368.85 | 0.00 | -5.16 | 0.00 | -815.21 | 0.00 |
| 90 | 90 | -368.85 | 0.00 | 5.16 | 0.00 | 866.79 | 0.00 |
| 91 | 90 | 368.85 | 0.00 | -5.16 | 0.00 | -866.79 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 91 | 91 | -368.42 | 0.00 | 5.26 | 0.00 | 918.95 | 0.00 |
| 92 | 91 | 368.42 | 0.00 | -5.26 | 0.00 | -918.95 | 0.00 |
| 92 | 92 | -567.93 | 0.00 | 27.76 | 0.00 | 1002.90 | 0.00 |
| 93 | 107 | 364.93 | 0.00 | 21.17 | 0.00 | -1276.89 | 0.00 |
| 93 | 108 | -364.93 | 0.00 | -21.17 | 0.00 | 1255.72 | 0.00 |
| 94 | 108 | 364.93 | 0.00 | 21.17 | 0.00 | -1255.72 | 0.00 |
| 94 | 109 | -364.93 | 0.00 | -21.17 | 0.00 | 1044.07 | 0.00 |
| 95 | 109 | 364.93 | 0.00 | 21.17 | 0.00 | -1044.07 | 0.00 |
| 95 | 110 | -572.35 | 0.00 | 13.16 | 0.00 | 1008.90 | 0.00 |
| 96 | 125 | 339.48 | 0.00 | -13.50 | 0.00 | -542.68 | 0.00 |
| 96 | 126 | -339.48 | 0.00 | 13.50 | 0.00 | 556.19 | 0.00 |
| 97 | 126 | 339.48 | 0.00 | -13.50 | 0.00 | -556.19 | 0.00 |
| 97 | 127 | -526.53 | 0.00 | 34.03 | 0.00 | 701.47 | 0.00 |
| 98 | 127 | 526.53 | 0.00 | -34.03 | 0.00 | -701.47 | 0.00 |
| 98 | 128 | -568.70 | 0.00 | 37.51 | 0.00 | 877.03 | 0.00 |
| 99 | 2 | 107.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -107.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 107.74 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -134.51 | 0.00 | 23.73 | 0.00 | 40.63 | 0.00 |
| 101 | 19 | 358.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -358.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 358.86 | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -197.51 | 0.00 | 44.39 | 0.00 | 76.00 | 0.00 |
| 103 | 36 | 362.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -362.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 362.04 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -452.45 | 0.00 | 42.96 | 0.00 | 73.54 | 0.00 |
| 105 | 55 | 359.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -359.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 359.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -25.15 | 0.00 | 39.31 | 0.00 | 67.30 | 0.00 |
| 107 | 74 | 360.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -360.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 360.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -23.98 | 0.00 | 33.09 | 0.00 | 56.66 | 0.00 |
| 109 | 93 | 359.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -359.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 359.34 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -23.46 | 0.00 | 37.75 | 0.00 | 64.62 | 0.00 |
| 111 | 111 | 362.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -362.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 361.96 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -264.30 | 0.00 | 36.71 | 0.00 | 62.85 | 0.00 |
| 113 | 129 | 358.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -358.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 358.72 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -59.80 | 0.00 | 50.36 | 0.00 | 86.21 | 0.00 |
| 115 | 141 | 107.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -107.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 107.85 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -143.54 | -127.01 | 32.96 | 0.00 | 56.42 | 217.45 |
| 117 | 6 | 106.88 | 0.00 | 16.98 | 0.00 | -716.39 | 0.00 |
| 117 | 7 | -106.84 | 0.00 | -16.97 | 0.00 | 699.42 | 0.00 |
| 118 | 145 | 121.12 | 254.03 | 28.19 | 0.00 | -770.17 | 254.03 |
| 118 | 146 | -120.75 | -254.03 | -26.59 | 0.00 | 743.28 | 0.00 |
| 119 | 3 | 0.00 | 121.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -107.13 | 0.00 | 0.00 | 0.00 | 455.29 |
| 120 | 1 | 0.93 | -108.37 | 0.00 | 0.00 | -0.01 | -458.95 |
| 120 | 5 | -0.94 | 108.33 | 0.00 | 0.00 | 0.00 | -1.60 |
| 121 | 20 | 0.00 | 234.97 | 0.01 | 0.00 | -0.01 | 0.00 |
| 121 | 15 | 0.00 | -360.50 | 0.00 | 0.00 | 0.02 | 666.93 |
| 122 | 15 | -8.14 | -390.13 | 0.01 | 0.00 | -0.02 | -735.69 |
| 122 | 22 | -2.90 | 360.66 | 0.01 | 0.00 | 0.03 | -4.96 |
| 123 | 37 | 0.00 | 361.71 | 0.02 | 0.00 | -0.02 | 0.00 |
| 123 | 32 | 0.00 | 71.74 | 0.01 | 0.00 | 0.02 | -132.74 |
| 124 | 32 | 0.96 | -362.42 | -0.01 | 0.00 | -0.03 | -668.85 |
| 124 | 39 | -27.41 | 433.83 | 0.00 | 0.00 | 0.02 | -46.92 |
| 125 | 56 | 0.00 | -63.66 | -0.02 | 0.00 | -0.02 | 0.00 |
| 125 | 49 | 0.01 | -209.07 | 0.00 | 0.00 | 0.02 | 386.77 |
| 126 | 49 | 0.00 | -359.40 | -0.01 | 0.00 | -0.02 | -664.90 |
| 126 | 58 | 0.33 | 213.83 | 0.00 | 0.00 | 0.01 | 0.56 |
| 127 | 75 | 0.00 | 360.23 | -0.02 | 0.00 | -0.02 | 0.00 |
| 127 | 68 | 0.00 | -200.28 | 0.00 | 0.00 | 0.02 | 370.51 |
| 128 | 68 | -9.45 | -419.08 | 0.01 | 0.00 | -0.02 | -791.50 |
| 128 | 77 | 0.14 | 208.52 | 0.00 | 0.00 | 0.02 | 0.25 |
| 129 | 94 | 0.00 | 206.54 | 0.00 | 0.00 | -0.01 | 0.00 |
| 129 | 87 | 0.00 | 1.54 | 0.00 | 0.00 | 0.01 | -2.86 |
| 130 | 87 | -0.06 | -359.94 | 0.00 | 0.00 | -0.02 | -665.99 |
| 130 | 96 | 0.66 | 200.32 | 0.00 | 0.00 | 0.01 | 1.12 |
| 131 | 112 | 0.01 | 418.54 | 0.01 | 0.00 | -0.01 | 0.00 |
| 131 | 106 | 0.00 | -356.74 | 0.01 | 0.00 | 0.02 | 659.98 |
| 132 | 106 | 1.72 | -357.50 | -0.01 | 0.00 | -0.02 | -658.42 |
| 132 | 114 | -2.13 | 215.37 | 0.01 | 0.00 | 0.01 | -3.64 |
| 133 | 130 | 0.00 | 172.35 | 0.00 | 0.00 | -0.01 | 0.00 |
| 133 | 124 | 0.00 | -189.87 | -0.01 | 0.00 | 0.01 | 351.25 |
| 134 | 124 | 11.59 | -209.55 | 0.00 | 0.00 | -0.01 | -367.83 |
| 134 | 132 | 0.12 | 188.77 | 0.00 | 0.00 | 0.01 | 0.21 |
| 135 | 142 | 0.00 | 81.71 | -357.97 | 612.85 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -81.71 | 357.97 | -612.85 | 1521.39 | 347.26 |
| 136 | 140 | -0.22 | -83.49 | 357.98 | -612.85 | -1521.40 | -355.23 |
| 136 | 144 | -0.05 | 107.85 | 0.00 | 0.00 | 0.00 | -0.09 |
| 137 | 2 | 0.00 | -107.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 107.75 | 0.00 | 0.00 | 0.00 | -457.92 |
| 138 | 7 | -0.08 | 107.74 | 0.00 | 0.00 | 0.00 | 457.91 |
| 138 | 4 | 0.08 | -107.74 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -358.82 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 358.82 | 0.00 | 0.00 | 0.00 | -663.81 |
| 140 | 18 | 0.14 | 358.86 | 0.00 | 0.00 | 0.00 | 663.89 |
| 140 | 21 | -0.14 | -358.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -362.09 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 362.09 | 0.00 | 0.00 | 0.00 | -669.87 |
| 142 | 35 | -0.05 | 362.04 | 0.00 | 0.00 | 0.00 | 669.77 |
| 142 | 38 | 0.05 | -362.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -359.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | 0.00 | 359.11 | 0.00 | 0.00 | 0.00 | -664.36 |
| 144 | 54 | 0.00 | 359.12 | 0.00 | 0.00 | 0.00 | 664.38 |
| 144 | 57 | 0.00 | -359.12 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.00 | -360.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 360.37 | 0.00 | 0.00 | 0.00 | -666.68 |
| 146 | 73 | 0.00 | 360.37 | 0.00 | 0.00 | 0.00 | 666.70 |
| 146 | 76 | 0.00 | -360.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | -359.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | 359.34 | 0.00 | 0.00 | 0.00 | -664.79 |
| 148 | 92 | -0.01 | 359.34 | 0.00 | 0.00 | 0.00 | 664.78 |
| 148 | 95 | 0.01 | -359.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | -362.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 362.02 | 0.00 | 0.00 | 0.00 | -669.73 |
| 150 | 110 | -0.02 | 361.96 | 0.00 | 0.00 | 0.00 | 669.62 |
| 150 | 113 | 0.02 | -361.96 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -358.61 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 358.61 | 0.00 | 0.00 | 0.00 | -663.43 |
| 152 | 128 | 0.09 | 358.72 | 0.00 | 0.00 | 0.00 | 663.63 |
| 152 | 131 | -0.09 | -358.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -107.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 134.04 | 357.98 | 0.00 | 1521.39 | -569.66 |
| 154 | 146 | 0.13 | 134.00 | 357.97 | 0.00 | -1521.39 | 569.49 |
| 154 | 143 | 0.05 | -107.85 | 0.00 | 0.00 | 0.00 | 0.00 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS 61

MOME Z MAX sobrecarga + fr. + fc (ec-1)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 345.03 | -7.93 | -94.02 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | 71.61 | 0.23 | 2.16 | 1.05 | -322.23 |
| 2 | 8 | 0.00 | -71.61 | -0.23 | -2.16 | -1.05 | 322.23 |
| 2 | 9 | 0.00 | 71.61 | 0.23 | 2.16 | 2.10 | -644.47 |
| 3 | 9 | 0.00 | -71.61 | -0.23 | -2.16 | -2.10 | 644.47 |
| 3 | 10 | 0.00 | 71.61 | 0.23 | 2.16 | 3.15 | -966.70 |
| 4 | 10 | 0.00 | -71.61 | -0.23 | -2.16 | -3.15 | 966.70 |
| 4 | 11 | 0.00 | 71.61 | 0.23 | 2.16 | 4.20 | -1288.94 |
| 5 | 11 | 0.00 | -71.61 | -0.23 | -2.16 | -4.20 | 1288.94 |
| 5 | 12 | 0.00 | 71.61 | 0.23 | 2.16 | 5.25 | -1611.17 |
| 6 | 12 | 0.00 | -71.61 | -0.23 | -2.16 | -5.25 | 1611.17 |
| 6 | 13 | 0.00 | 71.61 | 0.23 | 2.16 | 6.30 | -1933.41 |
| 7 | 13 | 0.00 | -71.61 | -0.23 | -2.16 | -6.30 | 1933.41 |
| 7 | 14 | 0.00 | 71.61 | 0.23 | 2.16 | 7.35 | -2255.64 |
| 8 | 14 | 0.00 | -71.61 | -0.23 | -2.16 | -7.35 | 2255.64 |
| 8 | 15 | 0.00 | 549.46 | 0.32 | 2.09 | 11.38 | -4556.53 |
| 9 | 15 | 0.00 | 559.53 | -2.09 | 1.10 | -11.38 | 4556.53 |
| 9 | 23 | -4.50 | -528.26 | 2.09 | -1.10 | 10.24 | -2049.19 |
| 10 | 23 | 4.50 | 528.26 | -2.09 | 1.10 | -10.24 | 2049.19 |
| 10 | 24 | -9.00 | -43.77 | 1.85 | -0.37 | 18.55 | -1225.44 |
| 11 | 24 | 9.00 | 43.77 | -1.85 | 0.37 | -18.55 | 1225.44 |
| 11 | 25 | -13.50 | -42.40 | 1.85 | -0.34 | 16.24 | -1026.27 |
| 12 | 25 | 13.50 | 42.40 | -1.85 | 0.34 | -16.24 | 1026.27 |
| 12 | 26 | -18.00 | -2.51 | -2.10 | 1.12 | -3.11 | -865.46 |
| 13 | 26 | 18.00 | 2.51 | 2.10 | -1.12 | 3.11 | 865.46 |
| 13 | 27 | -22.50 | 70.86 | -2.13 | 1.16 | -5.59 | -934.92 |
| 14 | 27 | 22.50 | -70.86 | 2.13 | -1.16 | 5.59 | 934.92 |
| 14 | 28 | -27.00 | 70.86 | -2.13 | 1.16 | -4.58 | -1245.82 |
| 15 | 28 | 27.00 | -70.86 | 2.13 | -1.16 | 4.58 | 1245.82 |
| 15 | 29 | -31.50 | 70.86 | -2.13 | 1.16 | -3.57 | -1556.72 |
| 16 | 29 | 31.50 | -70.86 | 2.13 | -1.16 | 3.57 | 1556.72 |
| 16 | 30 | -36.00 | 70.86 | -2.13 | 1.16 | -2.56 | -1867.61 |
| 17 | 30 | 36.00 | -70.86 | 2.13 | -1.16 | 2.56 | 1867.61 |
| 17 | 31 | 40.50 | 534.95 | -2.11 | 1.13 | -4.91 | -2316.69 |
| 18 | 31 | -40.50 | -534.95 | 2.11 | -1.13 | 4.92 | 2316.69 |
| 18 | 32 | 45.00 | 566.53 | -2.11 | 1.13 | -3.84 | -4855.52 |
| 19 | 32 | -45.00 | 571.56 | 2.23 | -0.03 | 3.84 | 4855.52 |
| 19 | 40 | 49.50 | -540.28 | -2.23 | 0.03 | -3.30 | -2310.03 |
| 20 | 40 | -49.50 | 540.28 | 2.23 | -0.03 | 3.30 | 2310.03 |
| 20 | 41 | 54.00 | -68.10 | -2.30 | 0.41 | 0.66 | -1824.84 |
| 21 | 41 | -54.00 | 68.10 | 2.30 | -0.41 | -0.66 | 1824.84 |
| 21 | 42 | 58.50 | -68.04 | -2.32 | 0.43 | 0.80 | -1526.65 |
| 22 | 42 | -58.50 | 68.04 | 2.32 | -0.43 | -0.80 | 1526.65 |
| 22 | 43 | 63.00 | -68.04 | -2.32 | 0.43 | 0.93 | -1228.46 |
| 23 | 43 | -63.00 | 68.04 | 2.32 | -0.43 | -0.94 | 1228.46 |
| 23 | 44 | 67.50 | 10.33 | -2.40 | 0.83 | 1.78 | -1043.38 |
| 24 | 44 | -67.50 | -10.33 | 2.40 | -0.83 | -1.78 | 1043.38 |
| 24 | 45 | 72.00 | 65.19 | -2.48 | 1.15 | 1.53 | -1244.11 |
| 25 | 45 | -72.00 | -65.19 | 2.48 | -1.15 | -1.53 | 1244.11 |
| 25 | 46 | 76.50 | 65.19 | -2.48 | 1.15 | 0.96 | -1545.43 |
| 26 | 46 | -76.50 | -65.19 | 2.48 | -1.15 | -0.96 | 1545.43 |
| 26 | 47 | 81.00 | 65.19 | -2.48 | 1.15 | 0.39 | -1846.75 |
| 27 | 47 | -81.00 | -65.19 | 2.48 | -1.15 | -0.39 | 1846.75 |
| 27 | 48 | 85.50 | 534.48 | -2.47 | 1.17 | -1.71 | -2275.38 |
| 28 | 48 | -85.50 | -534.48 | 2.47 | -1.17 | 1.71 | 2275.38 |
| 28 | 49 | 90.00 | 566.05 | -2.47 | 1.17 | -2.26 | -4812.06 |
| 29 | 49 | -90.00 | 569.92 | 2.34 | 0.20 | 2.26 | 4812.06 |
| 29 | 59 | 94.50 | -538.65 | -2.34 | -0.20 | -2.20 | -2273.94 |
| 30 | 59 | -94.50 | 538.65 | 2.33 | 0.20 | 2.20 | 2273.94 |
| 30 | 60 | -99.00 | -64.01 | -2.34 | 0.00 | -0.98 | -1823.57 |
| 31 | 60 | 99.00 | 64.01 | 2.34 | 0.00 | 0.98 | 1823.57 |
| 31 | 61 | -103.50 | -64.01 | -2.34 | 0.00 | -0.92 | -1527.54 |
| 32 | 61 | 103.50 | 64.01 | 2.34 | 0.00 | 0.92 | 1527.54 |
| 32 | 62 | -108.00 | -64.01 | -2.34 | 0.00 | -0.87 | -1231.51 |
| 33 | 62 | 108.00 | 64.01 | 2.34 | 0.00 | 0.87 | 1231.51 |
| 33 | 63 | -112.50 | 12.13 | -2.40 | 0.32 | -0.33 | -1065.71 |
| 34 | 63 | 112.50 | -12.13 | 2.40 | -0.32 | 0.33 | 1065.71 |
| 34 | 64 | -117.00 | 68.11 | -2.45 | 0.70 | -1.11 | -1239.94 |
| 35 | 64 | 117.00 | -68.11 | 2.45 | -0.70 | 1.11 | 1239.94 |
| 35 | 65 | -121.50 | 68.11 | -2.45 | 0.70 | -1.55 | -1538.44 |
| 36 | 65 | 121.50 | -68.11 | 2.45 | -0.70 | 1.55 | 1538.44 |
| 36 | 66 | -126.00 | 68.11 | -2.45 | 0.70 | -1.98 | -1836.94 |
| 37 | 66 | 126.00 | -68.11 | 2.45 | -0.70 | 1.98 | 1836.93 |
| 37 | 67 | -130.50 | 538.25 | -2.45 | 0.78 | -3.60 | -2272.24 |
| 38 | 67 | 130.50 | -538.25 | 2.45 | -0.78 | 3.60 | 2272.24 |
| 38 | 68 | -135.00 | 569.83 | -2.45 | 0.78 | -4.07 | -4809.92 |
| 39 | 68 | 135.00 | 566.25 | 2.34 | -0.16 | 4.07 | 4809.92 |
| 39 | 78 | -139.50 | -534.98 | 2.46 | -1.09 | -0.98 | -2272.33 |
| 40 | 78 | 139.50 | 534.98 | -2.46 | 1.09 | 0.98 | 2272.33 |
| 40 | 79 | 144.00 | -67.92 | 2.45 | -1.03 | 0.68 | -1838.04 |
| 41 | 79 | -144.00 | 67.92 | -2.45 | 1.03 | -0.68 | 1838.04 |
| 41 | 80 | 148.50 | -67.92 | 2.45 | -1.03 | 1.15 | -1540.39 |
| 42 | 80 | -148.50 | 67.92 | -2.45 | 1.03 | -1.15 | 1540.39 |
| 42 | 81 | 153.00 | -67.92 | 2.45 | -1.03 | 1.61 | -1242.74 |
| 43 | 81 | -153.00 | 67.92 | -2.45 | 1.03 | -1.61 | 1242.74 |
| 43 | 82 | 157.50 | -11.72 | 2.41 | -0.63 | 2.53 | -1070.84 |
| 44 | 82 | -157.50 | 11.72 | -2.41 | 0.63 | -2.53 | 1070.84 |
| 44 | 83 | 162.00 | 64.67 | 2.35 | -0.29 | 1.96 | -1240.12 |
| 45 | 83 | -162.00 | -64.67 | -2.35 | 0.29 | -1.96 | 1240.12 |
| 45 | 84 | 166.50 | 64.67 | 2.35 | -0.29 | 1.94 | -1539.11 |
| 46 | 84 | -166.50 | -64.67 | -2.35 | 0.29 | -1.94 | 1539.11 |
| 46 | 85 | 171.00 | 64.67 | 2.35 | -0.29 | 1.92 | -1838.10 |
| 47 | 85 | -171.00 | -64.67 | -2.35 | 0.29 | -1.91 | 1838.10 |
| 47 | 86 | 175.50 | 535.59 | 2.33 | -0.08 | 0.33 | -2291.03 |
| 48 | 86 | -175.50 | -535.59 | -2.33 | 0.08 | -0.33 | 2291.03 |
| 48 | 87 | 180.00 | 567.16 | 2.33 | -0.08 | 0.25 | -4832.71 |
| 49 | 87 | -180.00 | 570.89 | -2.46 | 2.22 | -0.25 | 4832.71 |
| 49 | 97 | 184.50 | -539.61 | 2.46 | -2.22 | 0.73 | -2290.24 |
| 50 | 97 | -184.50 | 539.61 | -2.46 | 2.22 | -0.73 | 2290.24 |
| 50 | 98 | -189.00 | -64.37 | 2.45 | -2.13 | 2.76 | -1849.99 |
| 51 | 98 | 189.00 | 64.37 | -2.45 | 2.13 | -2.76 | 1849.99 |
| 51 | 99 | -193.50 | -64.37 | 2.45 | -2.13 | 3.21 | -1552.33 |
| 52 | 99 | 193.50 | 64.37 | -2.45 | 2.13 | -3.21 | 1552.33 |
| 52 | 100 | -198.00 | -64.37 | 2.45 | -2.13 | 3.66 | -1254.67 |
| 53 | 100 | 198.00 | 64.37 | -2.45 | 2.13 | -3.66 | 1254.67 |
| 53 | 101 | -202.50 | -9.49 | 2.37 | -1.76 | 3.80 | -1058.16 |
| 54 | 101 | 202.50 | 9.49 | -2.37 | 1.76 | -3.79 | 1058.16 |
| 54 | 102 | -207.00 | 69.00 | 2.28 | -1.31 | 2.84 | -1247.28 |
| 55 | 102 | 207.00 | -69.00 | -2.28 | 1.31 | -2.84 | 1247.28 |
| 55 | 103 | -211.50 | 69.00 | 2.28 | -1.31 | 2.54 | -1549.81 |
| 56 | 103 | 211.50 | -69.00 | -2.28 | 1.31 | -2.54 | 1549.81 |
| 56 | 104 | -216.00 | 69.07 | 2.28 | -1.31 | 2.23 | -1852.34 |
| 57 | 104 | 216.00 | -69.07 | -2.28 | 1.31 | -2.23 | 1852.34 |
| 57 | 105 | -220.50 | 540.64 | 2.25 | -1.06 | -0.49 | -2329.79 |
| 58 | 105 | 220.50 | -540.64 | -2.25 | 1.06 | 0.49 | 2329.79 |
| 58 | 106 | -225.00 | 572.22 | 2.25 | -1.06 | -0.95 | -4878.24 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 59 | 106 | 225.00 | 569.87 | -1.64 | 1.45 | 0.95 | 4878.24 |
| 59 | 115 | -229.50 | -538.59 | 1.64 | -1.45 | -4.16 | -2324.38 |
| 60 | 115 | 229.50 | 538.59 | -1.64 | 1.45 | 4.16 | 2324.38 |
| 60 | 116 | 234.00 | -66.52 | -1.41 | 0.49 | 1.45 | -1858.95 |
| 61 | 116 | -234.00 | 66.52 | 1.41 | -0.49 | -1.45 | 1858.95 |
| 61 | 117 | 238.50 | -66.52 | -1.41 | 0.49 | 5.69 | -1567.59 |
| 62 | 117 | -238.50 | 66.52 | 1.41 | -0.49 | -5.69 | 1567.59 |
| 62 | 118 | 243.00 | -66.52 | -1.41 | 0.49 | 9.93 | -1276.22 |
| 63 | 118 | -243.00 | 66.52 | 1.41 | -0.49 | -9.93 | 1276.22 |
| 63 | 119 | 247.50 | -66.52 | -1.41 | 0.49 | 14.17 | -984.85 |
| 64 | 119 | -247.50 | 66.52 | 1.41 | -0.49 | -14.17 | 984.85 |
| 64 | 120 | 252.00 | 6.32 | -1.43 | 0.53 | 21.61 | -931.57 |
| 65 | 120 | -252.00 | -6.32 | 1.43 | -0.53 | -21.61 | 931.57 |
| 65 | 121 | 256.50 | 45.86 | -1.48 | 0.70 | 26.58 | -1107.84 |
| 66 | 121 | -256.50 | -45.86 | 1.48 | -0.70 | -26.58 | 1107.84 |
| 66 | 122 | 261.00 | 47.24 | -1.48 | 0.71 | 30.48 | -1322.55 |
| 67 | 122 | -261.00 | -47.24 | 1.48 | -0.71 | -30.48 | 1322.55 |
| 67 | 123 | 265.50 | 531.26 | -1.61 | 1.39 | 26.93 | -2152.20 |
| 68 | 123 | -265.50 | -531.26 | 1.61 | -1.39 | -26.93 | 2152.20 |
| 68 | 124 | 270.00 | 562.84 | -1.61 | 1.39 | 30.24 | -4674.42 |
| 69 | 124 | -270.00 | 573.91 | -0.21 | 4.38 | -30.24 | 4674.41 |
| 69 | 133 | 274.50 | -85.21 | 4.96 | -4.67 | 39.97 | -2285.51 |
| 70 | 133 | -274.50 | 85.21 | -4.96 | 4.67 | -39.98 | 2285.51 |
| 70 | 134 | -286.43 | -46.08 | 0.24 | -4.36 | 34.84 | -1984.02 |
| 71 | 134 | 286.43 | 46.08 | -0.24 | 4.36 | -34.84 | 1984.02 |
| 71 | 135 | -298.35 | -46.08 | 0.24 | -4.36 | 29.04 | -1755.49 |
| 72 | 135 | 298.35 | 46.08 | -0.24 | 4.36 | -29.04 | 1755.49 |
| 72 | 136 | -310.28 | -46.08 | 0.24 | -4.36 | 23.23 | -1526.96 |
| 73 | 136 | 310.28 | 46.08 | -0.24 | 4.36 | -23.23 | 1526.96 |
| 73 | 137 | -322.20 | -46.08 | 0.24 | -4.36 | 17.42 | -1298.44 |
| 74 | 137 | 322.20 | 46.08 | -0.24 | 4.36 | -17.42 | 1298.44 |
| 74 | 138 | -334.12 | -46.08 | 0.24 | -4.36 | 11.61 | -1069.91 |
| 75 | 138 | 334.13 | 46.08 | -0.24 | 4.36 | -11.61 | 1069.91 |
| 75 | 139 | -346.05 | -46.08 | 0.24 | -4.36 | 5.81 | -841.38 |
| 76 | 139 | 346.05 | 46.08 | -0.24 | 4.36 | -5.81 | 841.38 |
| 76 | 140 | -715.95 | 266.25 | 0.13 | -7.66 | 0.00 | -1225.71 |
| 77 | 16 | 717.67 | 0.00 | 0.14 | 0.00 | -1.31 | 0.00 |
| 77 | 17 | -717.67 | 0.00 | -0.14 | 0.00 | 0.59 | 0.00 |
| 78 | 17 | 717.67 | 0.00 | 0.14 | 0.00 | -0.59 | 0.00 |
| 78 | 18 | -717.67 | 0.00 | -0.14 | 0.00 | -0.08 | 0.00 |
| 79 | 33 | 724.13 | 0.00 | -0.05 | 0.00 | 0.57 | 0.00 |
| 79 | 34 | -724.13 | 0.00 | 0.05 | 0.00 | -0.17 | 0.00 |
| 80 | 34 | 724.13 | 0.00 | -0.05 | 0.00 | 0.17 | 0.00 |
| 80 | 35 | -724.13 | 0.00 | 0.05 | 0.00 | 0.10 | 0.00 |
| 81 | 50 | 718.24 | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 |
| 81 | 51 | -718.24 | 0.00 | 0.00 | 0.00 | -0.11 | 0.00 |
| 82 | 51 | 718.24 | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 |
| 82 | 52 | -718.24 | 0.00 | 0.00 | 0.00 | -0.08 | 0.00 |
| 83 | 52 | 718.24 | 0.00 | 0.00 | 0.00 | 0.08 | 0.00 |
| 83 | 53 | -718.24 | 0.00 | 0.00 | 0.00 | -0.04 | 0.00 |
| 84 | 53 | 718.24 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 |
| 84 | 54 | -718.24 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 85 | 69 | 720.75 | 0.00 | 0.00 | 0.00 | 0.12 | 0.00 |
| 85 | 70 | -720.75 | 0.00 | 0.00 | 0.00 | -0.10 | 0.00 |
| 86 | 70 | 720.75 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 |
| 86 | 71 | -720.75 | 0.00 | 0.00 | 0.00 | -0.06 | 0.00 |
| 87 | 71 | 720.75 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 |
| 87 | 72 | -720.75 | 0.00 | 0.00 | 0.00 | -0.03 | 0.00 |
| 88 | 72 | 720.75 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 |
| 88 | 73 | -720.75 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 89 | 88 | 718.69 | 0.00 | -0.01 | 0.00 | 0.17 | 0.00 |
| 89 | 89 | -718.69 | 0.00 | 0.01 | 0.00 | -0.16 | 0.00 |
| 90 | 89 | 718.69 | 0.00 | -0.01 | 0.00 | 0.16 | 0.00 |
| 90 | 90 | -718.69 | 0.00 | 0.01 | 0.00 | -0.10 | 0.00 |
| 91 | 90 | 718.69 | 0.00 | -0.01 | 0.00 | 0.10 | 0.00 |
| 91 | 91 | -718.69 | 0.00 | 0.01 | 0.00 | -0.03 | 0.00 |
| 92 | 91 | 718.69 | 0.00 | -0.01 | 0.00 | 0.03 | 0.00 |
| 92 | 92 | -718.69 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 93 | 107 | 723.98 | 0.00 | -0.02 | 0.00 | 0.26 | 0.00 |
| 93 | 108 | -723.98 | 0.00 | 0.02 | 0.00 | -0.23 | 0.00 |
| 94 | 108 | 723.98 | 0.00 | -0.02 | 0.00 | 0.23 | 0.00 |
| 94 | 109 | -723.98 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| 95 | 109 | 723.98 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 95 | 110 | -723.98 | 0.00 | 0.02 | 0.00 | 0.11 | 0.00 |
| 96 | 125 | 717.33 | 0.00 | 0.09 | 0.00 | -1.18 | 0.00 |
| 96 | 126 | -717.33 | 0.00 | -0.09 | 0.00 | 1.09 | 0.00 |
| 97 | 126 | 717.33 | 0.00 | 0.09 | 0.00 | -1.09 | 0.00 |
| 97 | 127 | -717.33 | 0.00 | -0.09 | 0.00 | 0.23 | 0.00 |
| 98 | 127 | 717.33 | 0.00 | 0.09 | 0.00 | -0.23 | 0.00 |
| 98 | 128 | -717.33 | 0.00 | -0.09 | 0.00 | -0.20 | 0.00 |
| 99 | 2 | 107.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -107.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 107.74 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -107.74 | 0.00 | 0.08 | 0.00 | 0.13 | 0.00 |
| 101 | 19 | 358.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -358.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 358.86 | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -358.86 | 0.00 | -0.14 | 0.00 | -0.23 | 0.00 |
| 103 | 36 | 362.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -362.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 362.04 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -362.04 | 0.00 | 0.05 | 0.00 | 0.09 | 0.00 |
| 105 | 55 | 359.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -359.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 359.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -359.12 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 107 | 74 | 360.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -360.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 360.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -360.38 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 109 | 93 | 359.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -359.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 359.34 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -359.34 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 111 | 111 | 362.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -362.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 361.96 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -361.96 | 0.00 | 0.02 | 0.00 | 0.04 | 0.00 |
| 113 | 129 | 358.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -358.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 358.72 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -358.72 | 0.00 | -0.09 | 0.00 | -0.15 | 0.00 |
| 115 | 141 | 107.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -81.71 | 357.98 | 0.00 | 0.00 | 0.00 | -612.85 |
| 116 | 143 | 107.85 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -83.49 | 357.98 | -0.22 | 0.00 | -0.38 | -612.85 |
| 117 | 6 | 215.49 | 0.00 | -0.08 | 0.00 | 0.07 | 0.00 |
| 117 | 7 | -215.49 | 0.00 | 0.08 | 0.00 | 0.01 | 0.00 |
| 118 | 145 | 266.25 | 715.95 | -0.33 | 0.00 | -7.44 | 715.95 |
| 118 | 146 | -215.72 | 0.00 | 0.05 | 0.00 | 0.09 | 0.00 |
| 119 | 3 | 0.00 | 107.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | 41.52 | 0.00 | 0.00 | 0.00 | -176.47 |
| 120 | 1 | -6.93 | 41.22 | 0.00 | 0.00 | 0.00 | 163.30 |
| 120 | 5 | -23.73 | 134.51 | 0.00 | 0.00 | 0.00 | -40.63 |
| 121 | 20 | 0.00 | 251.66 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | 60.33 | -0.01 | 0.00 | 0.00 | -111.61 |
| 122 | 15 | 14.12 | 42.83 | 0.01 | 0.00 | -0.01 | 103.42 |
| 122 | 22 | -44.39 | 197.51 | 0.00 | 0.00 | 0.00 | -76.00 |
| 123 | 37 | 0.00 | 274.75 | 0.00 | 0.00 | 0.00 | 0.01 |
| 123 | 32 | 0.00 | 80.99 | 0.00 | 0.00 | -0.02 | -149.85 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 124 | 32 | -1.81 | 67.52 | -0.01 | 0.00 | 0.00 | 121.82 |
| 124 | 39 | -42.96 | 452.45 | 0.01 | 0.00 | 0.00 | -73.54 |
| 125 | 56 | 0.00 | 528.20 | 0.00 | 0.00 | 0.00 | 0.01 |
| 125 | 49 | 0.01 | 76.47 | 0.01 | 0.00 | -0.02 | -141.47 |
| 126 | 49 | 21.24 | 67.33 | 0.00 | 0.00 | 0.01 | 160.94 |
| 126 | 58 | -39.31 | 25.16 | 0.00 | 0.00 | 0.00 | -67.30 |
| 127 | 75 | 0.00 | 459.33 | 0.00 | 0.00 | 0.00 | 0.01 |
| 127 | 68 | -0.01 | 72.52 | -0.01 | 0.00 | 0.00 | -134.18 |
| 128 | 68 | 14.75 | 65.28 | 0.00 | 0.00 | 0.00 | 146.04 |
| 128 | 77 | -33.10 | 23.99 | 0.01 | 0.00 | 0.00 | -56.66 |
| 129 | 94 | 0.00 | 424.90 | 0.00 | 0.00 | 0.00 | 0.01 |
| 129 | 87 | 0.00 | 76.59 | 0.00 | 0.00 | 0.00 | -141.70 |
| 130 | 87 | 13.81 | 68.85 | 0.00 | 0.00 | 0.00 | 151.05 |
| 130 | 96 | -37.74 | 23.46 | 0.00 | 0.00 | 0.01 | -64.62 |
| 131 | 112 | -0.01 | 229.78 | 0.00 | 0.00 | 0.00 | 0.01 |
| 131 | 106 | 0.00 | 75.32 | 0.01 | 0.00 | 0.00 | -139.35 |
| 132 | 106 | -0.40 | 65.74 | 0.00 | 0.00 | 0.00 | 120.95 |
| 132 | 114 | -36.71 | 264.30 | -0.01 | 0.00 | 0.00 | -62.85 |
| 133 | 130 | 0.00 | 384.90 | 0.00 | 0.00 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | 66.73 | 0.01 | 0.00 | 0.00 | -123.45 |
| 134 | 124 | 17.66 | 49.68 | 0.00 | 0.00 | 0.00 | 122.13 |
| 134 | 132 | -50.36 | 59.80 | 0.00 | 0.00 | 0.00 | -86.21 |
| 135 | 142 | 0.00 | 107.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | 58.97 | 178.99 | -306.43 | 760.70 | -250.62 |
| 136 | 140 | -12.30 | 58.76 | 178.99 | -306.43 | -760.70 | 228.68 |
| 136 | 144 | -32.96 | 143.54 | 127.01 | -217.45 | 0.00 | -56.42 |
| 137 | 2 | 0.00 | -107.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 199.98 | 0.00 | 0.00 | 0.00 | -849.92 |
| 138 | 7 | -0.81 | 199.99 | 0.00 | 0.00 | 0.00 | 849.94 |
| 138 | 4 | 0.08 | -107.74 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -425.13 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 562.10 | 0.00 | 0.00 | 0.00 | -1039.87 |
| 140 | 18 | -1.29 | 561.98 | 0.00 | 0.00 | 0.00 | 1039.66 |
| 140 | 21 | -7.01 | -389.46 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -399.26 | 0.00 | 0.00 | 0.00 | 0.01 |
| 141 | 35 | 0.00 | 576.72 | 0.00 | 0.00 | 0.00 | -1066.94 |
| 142 | 35 | -2.10 | 576.41 | 0.00 | 0.00 | 0.00 | 1066.36 |
| 142 | 38 | 1.27 | -446.59 | 0.00 | 0.00 | 0.00 | -0.01 |
| 143 | 55 | 0.00 | -250.90 | 0.00 | 0.00 | 0.00 | 0.01 |
| 143 | 54 | 0.00 | 575.07 | 0.00 | 0.00 | 0.00 | -1063.87 |
| 144 | 54 | 0.61 | 574.67 | 0.00 | 0.00 | 0.00 | 1063.14 |
| 144 | 57 | -16.21 | -400.22 | 0.00 | 0.00 | 0.00 | -0.01 |
| 145 | 74 | 0.00 | -426.81 | 0.00 | 0.00 | 0.00 | 0.01 |
| 145 | 73 | 0.00 | 574.81 | 0.00 | 0.00 | 0.00 | -1063.41 |
| 146 | 73 | 0.37 | 574.44 | 0.00 | 0.00 | 0.00 | 1062.70 |
| 146 | 76 | 0.84 | -451.37 | 0.00 | 0.00 | 0.00 | -0.01 |
| 147 | 93 | 0.00 | -204.86 | 0.00 | 0.00 | 0.00 | 0.01 |
| 147 | 92 | 0.00 | 576.25 | 0.00 | 0.00 | 0.00 | -1066.06 |
| 148 | 92 | 0.07 | 575.83 | 0.00 | 0.00 | 0.00 | 1065.28 |
| 148 | 95 | -24.44 | -500.85 | 0.00 | 0.00 | 0.00 | -0.01 |
| 149 | 111 | 0.00 | -407.04 | 0.00 | 0.00 | 0.00 | 0.01 |
| 149 | 110 | 0.00 | 578.19 | 0.00 | 0.00 | 0.00 | -1069.66 |
| 150 | 110 | -2.07 | 577.79 | 0.00 | 0.00 | 0.00 | 1068.91 |
| 150 | 113 | 0.02 | -361.96 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -389.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 574.18 | 0.00 | 0.00 | 0.00 | -1062.24 |
| 152 | 128 | 2.18 | 573.90 | 0.00 | 0.00 | 0.00 | 1061.72 |
| 152 | 131 | 4.53 | -200.47 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -107.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 213.25 | 178.99 | 0.00 | 760.70 | -906.31 |
| 154 | 146 | -0.46 | 213.20 | 178.99 | 0.00 | -760.70 | 906.09 |
| 154 | 143 | 0.05 | -107.85 | 0.00 | 0.00 | 0.00 | 0.00 |



HIPOTESIS 62

MOME Z MIN sobrecarga + fr. + fc (ec-1)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0.00 | 215.49 | -0.08 | 0.14 | 0.00 | 0.00 |
| 1 | 8 | 0.00 | -259.57 | -0.22 | -2.17 | -1.00 | 1475.37 |
| 2 | 8 | 0.00 | 259.57 | 0.22 | 2.17 | 1.00 | -1475.37 |
| 2 | 9 | 0.00 | -123.00 | -0.22 | -2.17 | -2.00 | 2336.16 |
| 3 | 9 | 0.00 | 123.00 | 0.22 | 2.17 | 2.00 | -2336.16 |
| 3 | 10 | 0.00 | -84.92 | -0.21 | -2.23 | -2.90 | 2636.27 |
| 4 | 10 | 0.00 | 84.92 | 0.22 | 2.23 | 2.90 | -2636.27 |
| 4 | 11 | 0.00 | 37.46 | -0.22 | -2.23 | -3.87 | 2774.77 |
| 5 | 11 | 0.00 | -37.46 | 0.21 | 2.23 | 3.87 | -2774.78 |
| 5 | 12 | 0.00 | 159.67 | -0.21 | -2.23 | -4.84 | 2299.15 |
| 6 | 12 | 0.00 | -159.67 | 0.22 | 2.23 | 4.84 | -2299.15 |
| 6 | 13 | 0.00 | 207.80 | -0.24 | -2.17 | -6.60 | 1588.52 |
| 7 | 13 | 0.00 | -207.80 | 0.24 | 2.17 | 6.60 | -1588.52 |
| 7 | 14 | 0.00 | -12.52 | -0.30 | -2.13 | -9.47 | 567.96 |
| 8 | 14 | 0.00 | 12.52 | 0.30 | 2.13 | 9.47 | -567.96 |
| 8 | 15 | 0.00 | -17.98 | -0.30 | -2.13 | -10.93 | 647.10 |
| 9 | 15 | 0.00 | -68.07 | 2.13 | -1.19 | 10.93 | -647.10 |
| 9 | 23 | 4.50 | 68.07 | -2.13 | 1.19 | -9.92 | 332.78 |
| 10 | 23 | -4.50 | -68.07 | 2.13 | -1.19 | 9.92 | -332.78 |
| 10 | 24 | 9.00 | -308.46 | -1.84 | 0.36 | -18.07 | 1425.43 |
| 11 | 24 | -9.00 | 308.46 | 1.84 | -0.36 | 18.07 | -1425.43 |
| 11 | 25 | 13.50 | -173.26 | -1.84 | 0.33 | -15.73 | 2504.00 |
| 12 | 25 | -13.50 | 173.26 | 1.84 | -0.33 | 15.73 | -2504.00 |
| 12 | 26 | 18.00 | -36.69 | 2.05 | -0.98 | 2.80 | 2968.39 |
| 13 | 26 | -18.00 | 36.68 | -2.05 | 0.98 | -2.80 | -2968.39 |
| 13 | 27 | 22.50 | -14.21 | 2.04 | -0.94 | 3.76 | 3051.01 |
| 14 | 27 | -22.50 | 14.21 | -2.04 | 0.94 | -3.77 | -3051.01 |
| 14 | 28 | 27.00 | 26.16 | 2.05 | -0.98 | 0.09 | 2998.41 |
| 15 | 28 | -27.00 | -26.16 | -2.05 | 0.98 | -0.09 | -2998.41 |
| 15 | 29 | 31.50 | 162.74 | 2.05 | -0.98 | -1.26 | 2565.39 |
| 16 | 29 | -31.50 | -162.74 | -2.05 | 0.98 | 1.26 | -2565.39 |
| 16 | 30 | 36.00 | 299.32 | 2.05 | -0.98 | -2.62 | 1517.78 |
| 17 | 30 | -36.00 | -299.32 | -2.05 | 0.98 | 2.62 | -1517.78 |
| 17 | 31 | -40.50 | -15.81 | 2.00 | -0.85 | 1.14 | 527.81 |
| 18 | 31 | 40.50 | 15.81 | -2.00 | 0.85 | -1.14 | -527.81 |
| 18 | 32 | -45.00 | -15.81 | 2.00 | -0.85 | -0.43 | 606.93 |
| 19 | 32 | 45.00 | -69.91 | -2.28 | 0.25 | 0.43 | -606.94 |
| 19 | 40 | -49.50 | 14.09 | 2.31 | -0.54 | 0.57 | 358.96 |
| 20 | 40 | 49.50 | -14.09 | -2.31 | 0.54 | -0.57 | -358.96 |
| 20 | 41 | -54.00 | -304.33 | 2.23 | -2.63 | 2.56 | 1495.97 |
| 21 | 41 | 54.00 | 304.33 | -2.23 | 2.63 | -2.56 | -1495.97 |
| 21 | 42 | -58.50 | -167.89 | 2.43 | -0.88 | -5.15 | 2566.78 |
| 22 | 42 | 58.50 | 167.89 | -2.43 | 0.88 | 5.15 | -2566.78 |
| 22 | 43 | -63.00 | -31.32 | 2.43 | -0.88 | -4.78 | 3023.00 |
| 23 | 43 | 63.00 | 31.32 | -2.43 | 0.88 | 4.78 | -3023.00 |
| 23 | 44 | -67.50 | -2.51 | 2.39 | -0.82 | -1.88 | 3173.74 |
| 24 | 44 | 67.50 | 2.51 | -2.39 | 0.82 | 1.88 | -3173.74 |
| 24 | 45 | -72.00 | 31.53 | 2.43 | -0.88 | -4.05 | 3036.68 |
| 25 | 45 | 72.00 | -31.53 | -2.43 | 0.88 | 4.05 | -3036.67 |
| 25 | 46 | -76.50 | 168.11 | 2.43 | -0.88 | -3.68 | 2595.48 |
| 26 | 46 | 76.50 | -168.11 | -2.43 | 0.88 | 3.68 | -2595.48 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 26 | 47 | -81.00 | 304.50 | 2.43 | -0.88 | -3.34 | 1539.70 |
| 27 | 47 | 81.00 | -304.50 | -2.43 | 0.88 | 3.34 | -1539.70 |
| 27 | 48 | -85.50 | -15.59 | 2.40 | -0.85 | -0.23 | 519.88 |
| 28 | 48 | 85.50 | 15.59 | -2.40 | 0.85 | 0.23 | -519.88 |
| 28 | 49 | -90.00 | -65.85 | 2.48 | -1.02 | 0.28 | 610.08 |
| 29 | 49 | 90.00 | -19.54 | -2.39 | 0.08 | -0.28 | -610.08 |
| 29 | 59 | -94.50 | 19.54 | 2.39 | -0.08 | 0.46 | 530.15 |
| 30 | 59 | 94.50 | -19.54 | -2.39 | 0.08 | -0.46 | -530.15 |
| 30 | 60 | 99.00 | -306.73 | 2.39 | -0.39 | -1.84 | 1524.44 |
| 31 | 60 | -99.00 | 306.73 | -2.39 | 0.39 | 1.84 | -1524.44 |
| 31 | 61 | 103.50 | -170.16 | 2.39 | -0.39 | -1.64 | 2589.48 |
| 32 | 61 | -103.50 | 170.16 | -2.39 | 0.39 | 1.64 | -2589.48 |
| 32 | 62 | 108.00 | -33.59 | 2.39 | -0.39 | -1.44 | 3039.93 |
| 33 | 62 | -108.00 | 33.59 | -2.39 | 0.39 | 1.45 | -3039.93 |
| 33 | 63 | 112.50 | -2.18 | 2.40 | -0.29 | 0.12 | 3219.12 |
| 34 | 63 | -112.50 | 2.18 | -2.40 | 0.29 | -0.12 | -3219.12 |
| 34 | 64 | 117.00 | 29.26 | 2.39 | -0.39 | -1.04 | 3042.06 |
| 35 | 64 | -117.00 | -29.26 | -2.39 | 0.39 | 1.05 | -3042.06 |
| 35 | 65 | 121.50 | 165.84 | 2.39 | -0.39 | -0.84 | 2595.09 |
| 36 | 65 | -121.50 | -165.84 | -2.39 | 0.39 | 0.84 | -2595.09 |
| 36 | 66 | 126.00 | 302.41 | 2.39 | -0.39 | -0.65 | 1533.54 |
| 37 | 66 | -126.00 | -302.41 | -2.39 | 0.39 | 0.65 | -1533.54 |
| 37 | 67 | 130.50 | -19.25 | 2.40 | -0.49 | 1.87 | 523.24 |
| 38 | 67 | -130.50 | 19.25 | -2.40 | 0.49 | -1.87 | -523.24 |
| 38 | 68 | 135.00 | -19.25 | 2.40 | -0.49 | 2.10 | 601.86 |
| 39 | 68 | -135.00 | -65.99 | -2.35 | 0.28 | -2.10 | -601.86 |
| 39 | 78 | 139.50 | 15.75 | -2.40 | 0.79 | -0.73 | 518.13 |
| 40 | 78 | -139.50 | -15.75 | 2.40 | -0.79 | 0.73 | -518.13 |
| 40 | 79 | -144.00 | -302.58 | -2.41 | 0.69 | -3.34 | 1534.41 |
| 41 | 79 | 144.00 | 302.58 | 2.41 | -0.69 | 3.34 | -1534.41 |
| 41 | 80 | -148.50 | -166.00 | -2.41 | 0.69 | -3.59 | 2596.71 |
| 42 | 80 | 148.50 | 166.00 | 2.41 | -0.69 | 3.59 | -2596.70 |
| 42 | 81 | -153.00 | -29.43 | -2.41 | 0.69 | -3.84 | 3044.41 |
| 43 | 81 | 153.00 | 29.43 | 2.40 | -0.69 | 3.84 | -3044.41 |
| 43 | 82 | -157.50 | 2.12 | -2.40 | 0.60 | -2.70 | 3219.12 |
| 44 | 82 | 157.50 | -2.12 | 2.40 | -0.60 | 2.71 | -3219.11 |
| 44 | 83 | -162.00 | 33.42 | -2.41 | 0.69 | -4.34 | 3041.05 |
| 45 | 83 | 162.00 | -33.42 | 2.41 | -0.69 | 4.34 | -3041.05 |
| 45 | 84 | -166.50 | 170.00 | -2.41 | 0.69 | -4.58 | 2591.34 |
| 46 | 84 | 166.50 | -170.00 | 2.40 | -0.69 | 4.58 | -2591.34 |
| 46 | 85 | -171.00 | 306.56 | -2.40 | 0.69 | -4.83 | 1527.04 |
| 47 | 85 | 171.00 | -306.56 | 2.41 | -0.69 | 4.83 | -1527.04 |
| 47 | 86 | -175.50 | -16.13 | -2.39 | 0.39 | -2.29 | 535.88 |
| 48 | 86 | 175.50 | 16.13 | 2.39 | -0.39 | 2.29 | -535.88 |
| 48 | 87 | -180.00 | -16.13 | -2.39 | 0.39 | -2.48 | 616.43 |
| 49 | 87 | 180.00 | -70.35 | 2.46 | -2.11 | 2.48 | -616.43 |
| 49 | 97 | -184.50 | 20.14 | -2.38 | 1.84 | -2.86 | 525.02 |
| 50 | 97 | 184.50 | -20.14 | 2.38 | -1.84 | 2.86 | -525.02 |
| 50 | 98 | 189.00 | -306.08 | -2.39 | 1.79 | -5.67 | 1533.41 |
| 51 | 98 | -189.00 | 306.08 | 2.39 | -1.79 | 5.67 | -1533.41 |
| 51 | 99 | 193.50 | -169.68 | -2.39 | 1.78 | -5.83 | 2596.28 |
| 52 | 99 | -193.50 | 169.68 | 2.39 | -1.78 | 5.83 | -2596.29 |
| 52 | 100 | 198.00 | -33.11 | -2.39 | 1.78 | -6.00 | 3044.57 |
| 53 | 100 | -198.00 | 33.11 | 2.39 | -1.78 | 6.00 | -3044.57 |
| 53 | 101 | 202.50 | 1.42 | -2.36 | 1.70 | -3.66 | 3185.49 |
| 54 | 101 | -202.50 | -1.42 | 2.36 | -1.70 | 3.66 | -3185.49 |
| 54 | 102 | 207.00 | 29.74 | -2.39 | 1.78 | -6.34 | 3042.37 |
| 55 | 102 | -207.00 | -29.74 | 2.39 | -1.78 | 6.34 | -3042.37 |
| 55 | 103 | 211.50 | 166.32 | -2.39 | 1.78 | -6.51 | 2593.24 |
| 56 | 103 | -211.50 | -166.32 | 2.39 | -1.78 | 6.51 | -2593.24 |
| 56 | 104 | 216.00 | 302.63 | -2.39 | 1.78 | -6.69 | 1529.52 |
| 57 | 104 | -216.00 | -302.63 | 2.39 | -1.78 | 6.69 | -1529.52 |
| 57 | 105 | 220.50 | -14.86 | -2.31 | 1.46 | -1.03 | 382.96 |
| 58 | 105 | -220.50 | 14.86 | 2.31 | -1.46 | 1.03 | -382.96 |
| 58 | 106 | 225.00 | -71.05 | -2.29 | 1.26 | -2.73 | 644.08 |
| 59 | 106 | -225.00 | -19.73 | 1.56 | -1.17 | 2.73 | -644.08 |
| 59 | 115 | 229.50 | 19.73 | -1.56 | 1.17 | 0.83 | 547.30 |
| 60 | 115 | -229.50 | -19.73 | 1.56 | -1.17 | -0.83 | -547.30 |
| 60 | 116 | -234.00 | -303.49 | 1.47 | -0.70 | -6.30 | 1519.13 |
| 61 | 116 | 234.00 | 303.49 | -1.47 | 0.70 | 6.30 | -1519.13 |
| 61 | 117 | -238.50 | -166.91 | 1.47 | -0.70 | -10.26 | 2585.51 |
| 62 | 117 | 238.50 | 166.91 | -1.47 | 0.70 | 10.26 | -2585.51 |
| 62 | 118 | -243.00 | -30.34 | 1.47 | -0.70 | -14.22 | 3037.30 |
| 63 | 118 | 243.00 | 30.34 | -1.47 | 0.70 | 14.22 | -3037.30 |
| 63 | 119 | -247.50 | 10.32 | 1.47 | -0.71 | -16.04 | 3107.47 |
| 64 | 119 | 247.50 | -10.32 | -1.47 | 0.71 | 16.04 | -3107.47 |
| 64 | 120 | -252.00 | 32.51 | 1.47 | -0.70 | -22.14 | 3042.12 |
| 65 | 120 | 252.00 | -32.51 | -1.47 | 0.70 | 22.14 | -3042.13 |
| 65 | 121 | -256.50 | 169.09 | 1.47 | -0.70 | -26.10 | 2596.50 |
| 66 | 121 | 256.50 | -169.09 | -1.47 | 0.70 | 26.10 | -2596.50 |
| 66 | 122 | -261.00 | 304.30 | 1.47 | -0.71 | -30.04 | 1536.63 |
| 67 | 122 | 261.00 | -304.30 | -1.47 | 0.71 | 30.04 | -1536.63 |
| 67 | 123 | -265.50 | -71.49 | 1.64 | -1.48 | -26.84 | 449.16 |
| 68 | 123 | 265.50 | 71.49 | -1.64 | 1.48 | 26.84 | -449.16 |
| 68 | 124 | -270.00 | -71.49 | 1.64 | -1.48 | -30.05 | 778.85 |
| 69 | 124 | 270.00 | -43.00 | 0.21 | -4.42 | 30.05 | -778.85 |
| 69 | 133 | -274.50 | 26.15 | -4.89 | 4.58 | -42.26 | 598.90 |
| 70 | 133 | 274.50 | -26.15 | 4.89 | -4.58 | 42.26 | -598.90 |
| 70 | 134 | 286.43 | -232.80 | -0.22 | 4.35 | -35.30 | 1649.86 |
| 71 | 134 | -286.43 | 232.80 | 0.22 | -4.35 | 35.30 | -1649.86 |
| 71 | 135 | 298.35 | -184.85 | -0.24 | 4.41 | -28.97 | 2452.77 |
| 72 | 135 | -298.35 | 184.85 | 0.24 | -4.41 | 28.97 | -2452.77 |
| 72 | 136 | 310.28 | -62.48 | -0.24 | 4.41 | -23.17 | 3019.81 |
| 73 | 136 | -310.28 | 62.48 | 0.24 | -4.41 | 23.17 | -3019.81 |
| 73 | 137 | 322.20 | 59.74 | -0.24 | 4.41 | -17.38 | 2972.73 |
| 74 | 137 | -322.20 | -59.74 | 0.24 | -4.41 | 17.38 | -2972.72 |
| 74 | 138 | 334.13 | 97.96 | -0.25 | 4.37 | -11.52 | 2766.04 |
| 75 | 138 | -334.13 | -97.96 | 0.25 | -4.37 | 11.52 | -2766.04 |
| 75 | 139 | 346.05 | 234.54 | -0.25 | 4.37 | -5.76 | 1996.74 |
| 76 | 139 | -346.05 | -234.54 | 0.25 | -4.37 | 5.76 | -1996.74 |
| 76 | 140 | 715.95 | 165.20 | 0.22 | -7.97 | 0.00 | 1225.70 |
| 77 | 16 | 717.67 | 0.00 | 0.14 | 0.00 | -1.31 | 0.00 |
| 77 | 17 | -717.67 | 0.00 | -0.14 | 0.00 | 0.59 | 0.00 |
| 78 | 17 | 717.67 | 0.00 | 0.14 | 0.00 | -0.59 | 0.00 |
| 78 | 18 | -717.67 | 0.00 | -0.14 | 0.00 | -0.08 | 0.00 |
| 79 | 33 | 724.13 | 0.00 | -0.05 | 0.00 | 0.57 | 0.00 |
| 79 | 34 | -724.13 | 0.00 | 0.05 | 0.00 | -0.17 | 0.00 |
| 80 | 34 | 724.13 | 0.00 | -0.05 | 0.00 | 0.17 | 0.00 |
| 80 | 35 | -724.13 | 0.00 | 0.05 | 0.00 | 0.10 | 0.00 |
| 81 | 50 | 718.24 | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 |
| 81 | 51 | -718.24 | 0.00 | 0.00 | 0.00 | -0.11 | 0.00 |
| 82 | 51 | 718.24 | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 |
| 82 | 52 | -718.24 | 0.00 | 0.00 | 0.00 | -0.08 | 0.00 |
| 83 | 52 | 718.24 | 0.00 | 0.00 | 0.00 | 0.08 | 0.00 |
| 83 | 53 | -718.24 | 0.00 | 0.00 | 0.00 | -0.04 | 0.00 |
| 84 | 53 | 718.24 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 |
| 84 | 54 | -718.24 | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 85 | 69 | 720.75 | 0.00 | 0.00 | 0.00 | 0.12 | 0.00 |
| 85 | 70 | -720.75 | 0.00 | 0.00 | 0.00 | -0.10 | 0.00 |
| 86 | 70 | 720.75 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 |
| 86 | 71 | -720.75 | 0.00 | 0.00 | 0.00 | -0.06 | 0.00 |
| 87 | 71 | 720.75 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 |
| 87 | 72 | -720.75 | 0.00 | 0.00 | 0.00 | -0.03 | 0.00 |
| 88 | 72 | 720.75 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 |
| 88 | 73 | -720.75 | 0.00 | 0.00 | 0.00 | -0.01 | 0.00 |
| 89 | 88 | 718.69 | 0.00 | -0.01 | 0.00 | 0.17 | 0.00 |
| 89 | 89 | -718.69 | 0.00 | 0.01 | 0.00 | -0.16 | 0.00 |
| 90 | 89 | 718.69 | 0.00 | -0.01 | 0.00 | 0.16 | 0.00 |
| 90 | 90 | -718.69 | 0.00 | 0.01 | 0.00 | -0.10 | 0.00 |
| 91 | 90 | 718.69 | 0.00 | -0.01 | 0.00 | 0.10 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 91 | 91 | -718.69 | 0.00 | 0.01 | 0.00 | -0.03 | 0.00 |
| 92 | 91 | 718.69 | 0.00 | -0.01 | 0.00 | 0.03 | 0.00 |
| 92 | 92 | -718.69 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 93 | 107 | 723.98 | 0.00 | -0.02 | 0.00 | 0.26 | 0.00 |
| 93 | 108 | -723.98 | 0.00 | 0.02 | 0.00 | -0.23 | 0.00 |
| 94 | 108 | 723.98 | 0.00 | -0.02 | 0.00 | 0.23 | 0.00 |
| 94 | 109 | -723.98 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| 95 | 109 | 723.98 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 95 | 110 | -723.98 | 0.00 | 0.02 | 0.00 | 0.11 | 0.00 |
| 96 | 125 | 717.33 | 0.00 | 0.09 | 0.00 | -1.18 | 0.00 |
| 96 | 126 | -717.33 | 0.00 | -0.09 | 0.00 | 1.09 | 0.00 |
| 97 | 126 | 717.33 | 0.00 | 0.09 | 0.00 | -1.09 | 0.00 |
| 97 | 127 | -717.33 | 0.00 | -0.09 | 0.00 | 0.23 | 0.00 |
| 98 | 127 | 717.33 | 0.00 | 0.09 | 0.00 | -0.23 | 0.00 |
| 98 | 128 | -717.33 | 0.00 | -0.09 | 0.00 | -0.20 | 0.00 |
| 99 | 2 | 107.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -107.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 107.74 | 0.00 | -0.08 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -107.74 | 0.00 | 0.08 | 0.00 | 0.13 | 0.00 |
| 101 | 19 | 358.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -358.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 358.86 | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -358.86 | 0.00 | -0.14 | 0.00 | -0.23 | 0.00 |
| 103 | 36 | 362.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -362.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 362.04 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -362.04 | 0.00 | 0.05 | 0.00 | 0.09 | 0.00 |
| 105 | 55 | 359.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -359.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 359.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -359.12 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 107 | 74 | 360.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -360.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 360.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -360.38 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 109 | 93 | 359.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -359.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 359.34 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -359.34 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 111 | 111 | 362.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -362.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 361.96 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -361.96 | 0.00 | 0.02 | 0.00 | 0.04 | 0.00 |
| 113 | 129 | 358.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -358.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 358.72 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -358.72 | 0.00 | -0.09 | 0.00 | -0.15 | 0.00 |
| 115 | 141 | 107.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -134.04 | -357.98 | 0.00 | 0.00 | 0.00 | 612.85 |
| 116 | 143 | 107.85 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -132.21 | -357.97 | 0.33 | 0.00 | 0.56 | 612.85 |
| 117 | 6 | 215.49 | 0.00 | -0.08 | 0.00 | 0.07 | 0.00 |
| 117 | 7 | -215.49 | 0.00 | 0.08 | 0.00 | 0.01 | 0.00 |
| 118 | 145 | 165.20 | -715.95 | 0.22 | 0.00 | 7.37 | -715.95 |
| 118 | 146 | -215.72 | 0.00 | 0.05 | 0.00 | 0.09 | 0.00 |
| 119 | 3 | 0.00 | 107.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -199.98 | 0.00 | 0.00 | 0.00 | 849.92 |
| 120 | 1 | 0.65 | -199.97 | 0.00 | 0.00 | 0.00 | -848.75 |
| 120 | 5 | 23.79 | -23.08 | 0.00 | 0.00 | 0.00 | 40.72 |
| 121 | 20 | 0.00 | 392.83 | 0.00 | 0.00 | 0.00 | 0.00 |
| 121 | 15 | 0.00 | -562.09 | 0.01 | 0.00 | 0.00 | 1039.87 |
| 122 | 15 | -1.74 | -561.92 | -0.01 | 0.00 | 0.01 | -1042.54 |
| 122 | 22 | 44.32 | 471.14 | 0.00 | 0.00 | 0.00 | 75.88 |
| 123 | 37 | 0.00 | 210.38 | 0.00 | 0.00 | 0.00 | -0.01 |
| 123 | 32 | 0.00 | -576.73 | -0.01 | 0.00 | 0.00 | 1066.94 |
| 124 | 32 | -24.35 | -555.34 | 0.01 | 0.00 | 0.00 | -1069.08 |
| 124 | 39 | 42.60 | 477.33 | -0.01 | 0.00 | 0.00 | 72.94 |
| 125 | 56 | 0.01 | 403.76 | 0.00 | 0.00 | 0.00 | -0.01 |
| 125 | 49 | 0.00 | -575.06 | 0.00 | 0.00 | 0.01 | 1063.88 |
| 126 | 49 | -32.16 | -553.69 | 0.00 | 0.00 | -0.01 | -1079.40 |
| 126 | 58 | 39.21 | 518.69 | 0.00 | 0.00 | 0.00 | 67.12 |
| 127 | 75 | 0.01 | 419.08 | 0.01 | 0.00 | -0.01 | -0.01 |
| 127 | 68 | 0.00 | -574.81 | 0.01 | 0.00 | 0.00 | 1063.41 |
| 128 | 68 | -28.55 | -548.88 | 0.00 | 0.00 | 0.00 | -1064.32 |
| 128 | 77 | 33.05 | 501.35 | -0.01 | 0.00 | 0.00 | 56.56 |
| 129 | 94 | 0.00 | 501.08 | 0.00 | 0.00 | 0.00 | -0.01 |
| 129 | 87 | 0.00 | -576.26 | 0.00 | 0.00 | 0.00 | 1066.06 |
| 130 | 87 | -31.98 | -552.83 | 0.00 | 0.00 | 0.00 | -1077.49 |
| 130 | 96 | 37.64 | 520.69 | 0.00 | 0.00 | -0.01 | 64.43 |
| 131 | 112 | 0.00 | 200.36 | 0.00 | 0.00 | 0.00 | -0.01 |
| 131 | 106 | 0.00 | -578.20 | 0.00 | 0.00 | 0.00 | 1069.66 |
| 132 | 106 | 0.05 | -577.25 | 0.00 | 0.00 | 0.00 | -1067.83 |
| 132 | 114 | 36.49 | 488.62 | 0.01 | 0.00 | 0.01 | 62.47 |
| 133 | 130 | 0.00 | 429.19 | 0.00 | 0.00 | 0.00 | -0.01 |
| 133 | 124 | 0.00 | -574.18 | 0.00 | 0.00 | 0.00 | 1062.23 |
| 134 | 124 | -2.18 | -573.90 | 0.00 | 0.00 | 0.00 | -1065.44 |
| 134 | 132 | 50.38 | 451.36 | 0.00 | 0.00 | 0.00 | 86.26 |
| 135 | 142 | 0.00 | 107.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -213.25 | -178.99 | 306.43 | -760.70 | 906.31 |
| 136 | 140 | 0.41 | -213.19 | -178.99 | 306.43 | 760.70 | -905.37 |
| 136 | 144 | 32.98 | -31.77 | -127.01 | 217.44 | 0.00 | 56.45 |
| 137 | 2 | 0.00 | -107.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | -41.52 | 0.00 | 0.00 | 0.00 | 176.47 |
| 138 | 7 | 10.88 | -41.52 | 0.00 | 0.00 | 0.00 | -176.46 |
| 138 | 4 | 0.08 | -107.74 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -424.88 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | -60.33 | 0.00 | 0.00 | 0.00 | 111.61 |
| 140 | 18 | 16.42 | -60.26 | 0.00 | 0.00 | 0.00 | -111.47 |
| 140 | 21 | 9.90 | 32.29 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -227.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | -80.99 | 0.00 | 0.00 | 0.00 | 149.83 |
| 142 | 35 | 30.48 | -81.03 | 0.00 | 0.00 | 0.00 | -149.89 |
| 142 | 38 | -0.06 | -447.83 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -394.99 | 0.00 | 0.00 | 0.00 | -0.01 |
| 143 | 54 | 0.00 | -76.47 | 0.00 | 0.00 | 0.00 | 141.45 |
| 144 | 54 | -6.98 | -76.39 | 0.00 | 0.00 | 0.00 | -141.31 |
| 144 | 57 | -12.58 | -421.66 | 0.00 | 0.00 | 0.00 | 0.01 |
| 145 | 74 | 0.00 | -490.93 | 0.00 | 0.00 | 0.00 | -0.01 |
| 145 | 73 | 0.00 | -72.52 | 0.00 | 0.00 | 0.00 | 134.15 |
| 146 | 73 | -3.54 | -72.42 | 0.00 | 0.00 | 0.00 | -133.97 |
| 146 | 76 | 0.01 | -360.38 | 0.00 | 0.00 | 0.00 | 0.01 |
| 147 | 93 | 0.00 | -495.54 | 0.00 | 0.00 | 0.00 | -0.01 |
| 147 | 92 | 0.00 | -76.59 | 0.00 | 0.00 | 0.00 | 141.68 |
| 148 | 92 | 0.44 | -76.50 | 0.00 | 0.00 | 0.00 | -141.52 |
| 148 | 95 | -10.17 | -397.44 | 0.00 | 0.00 | 0.00 | 0.01 |
| 149 | 111 | 0.00 | -499.89 | 0.00 | 0.00 | 0.00 | -0.01 |
| 149 | 110 | 0.00 | -75.32 | 0.00 | 0.00 | 0.00 | 139.33 |
| 150 | 110 | 12.35 | -75.30 | 0.00 | 0.00 | 0.00 | -139.29 |
| 150 | 113 | 16.97 | -479.01 | 0.00 | 0.00 | 0.00 | 0.01 |
| 151 | 129 | 0.00 | -168.54 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | -66.73 | 0.00 | 0.00 | 0.00 | 123.45 |
| 152 | 128 | 9.82 | -66.54 | 0.00 | 0.00 | 0.00 | -123.10 |
| 152 | 131 | 3.59 | -205.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -107.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | -58.97 | -178.99 | 0.00 | -760.70 | 250.62 |
| 154 | 146 | 13.27 | -58.94 | -178.99 | 0.00 | 760.70 | -250.50 |
| 154 | 143 | 0.05 | -107.85 | 0.00 | 0.00 | 0.00 | 0.00 |

# ENVOLVENTES

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS 201

FUER X MAX envolvente (ELS)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 9145.39 | 470.59 | -1.01 | 574.41 | 0.00 | 1628.93 |
| 1 | 8 | -9176.91 | -165.02 | 0.39 | -0.73 | 1.75 | -498.36 |
| 2 | 8 | 9176.92 | 165.02 | -0.39 | 0.73 | -1.75 | 498.36 |
| 2 | 9 | -9202.16 | -33.04 | 0.39 | -0.73 | 3.49 | -67.63 |
| 3 | 9 | 9575.40 | 33.04 | -0.39 | 0.73 | -3.49 | -174.41 |
| 3 | 10 | -9618.46 | 78.82 | 0.39 | -0.73 | 5.24 | 29.81 |
| 4 | 10 | 9618.46 | -78.82 | -0.39 | 0.73 | -5.24 | -29.81 |
| 4 | 11 | -9691.35 | 71.25 | 0.39 | -0.73 | 6.98 | -461.10 |
| 5 | 11 | 9691.34 | -71.25 | -0.39 | 0.73 | -6.98 | 461.10 |
| 5 | 12 | -9697.35 | -14.59 | 0.39 | -0.73 | 8.73 | -565.92 |
| 6 | 12 | 9697.35 | 14.59 | -0.39 | 0.73 | -8.73 | 565.92 |
| 6 | 13 | -9618.03 | -233.42 | 0.39 | -0.73 | 10.47 | -40.20 |
| 7 | 13 | 9588.60 | 233.42 | -0.39 | 0.73 | -10.47 | 36.25 |
| 7 | 14 | -9630.03 | -78.56 | 0.39 | -0.73 | 12.22 | 1062.86 |
| 8 | 14 | 9630.05 | 78.56 | -0.39 | 0.73 | -12.22 | -1062.86 |
| 8 | 15 | -13825.79 | 670.59 | 0.39 | -0.73 | 13.96 | -1843.61 |
| 9 | 15 | 13898.38 | 506.33 | 0.30 | -0.89 | -13.96 | 1967.14 |
| 9 | 23 | -11069.59 | -681.11 | -0.36 | 1.08 | 15.40 | -979.87 |
| 10 | 23 | 11069.59 | 681.11 | 0.36 | -1.08 | -15.40 | 979.87 |
| 10 | 24 | -11139.85 | -183.69 | -0.36 | 1.08 | 13.76 | 832.74 |
| 11 | 24 | 11695.73 | 183.69 | 0.36 | -1.08 | -13.76 | -1236.88 |
| 11 | 25 | -11138.73 | -29.35 | -0.36 | 1.08 | 12.12 | 1088.59 |
| 12 | 25 | 11138.77 | 29.35 | 0.36 | -1.08 | -12.12 | -1088.59 |
| 12 | 26 | -11242.69 | -71.66 | -0.36 | 1.08 | 10.48 | 1220.72 |
| 13 | 26 | 11242.67 | 71.66 | 0.36 | -1.08 | -10.48 | -1220.73 |
| 13 | 27 | -11220.58 | 16.24 | -0.36 | 1.08 | 8.84 | 1484.70 |
| 14 | 27 | 11220.59 | -16.24 | 0.36 | -1.08 | -8.84 | -1484.71 |
| 14 | 28 | -11202.26 | 151.43 | -0.36 | 1.08 | 7.21 | 1123.26 |
| 15 | 28 | 11202.26 | -151.43 | 0.36 | -1.08 | -7.21 | -1123.26 |
| 15 | 29 | -11216.04 | 153.23 | -0.36 | 1.08 | 5.57 | 381.04 |
| 16 | 29 | 11216.00 | -153.23 | 0.36 | -1.08 | -5.57 | -381.04 |
| 16 | 30 | -10582.63 | 42.08 | -0.36 | 1.08 | 3.93 | 128.81 |
| 17 | 30 | 10582.66 | -42.08 | 0.36 | -1.08 | -3.93 | -128.81 |
| 17 | 31 | -10594.54 | 419.32 | -0.36 | 1.08 | 2.29 | -523.00 |
| 18 | 31 | 10594.55 | -419.32 | 0.36 | -1.08 | -2.29 | 523.00 |
| 18 | 32 | -14717.45 | 1331.57 | -0.36 | 1.08 | 0.65 | -6032.84 |
| 19 | 32 | 14798.50 | 817.85 | 0.02 | 0.16 | -0.65 | 6170.84 |
| 19 | 40 | -10594.72 | -702.49 | -0.02 | -0.16 | 0.56 | -1176.28 |
| 20 | 40 | 10594.74 | 702.49 | 0.02 | 0.16 | -0.56 | 1176.28 |
| 20 | 41 | -10669.75 | -267.19 | -0.02 | -0.17 | 0.52 | 696.59 |
| 21 | 41 | 10669.76 | 267.19 | 0.02 | 0.17 | -0.52 | -696.59 |
| 21 | 42 | -10678.44 | -92.87 | -0.02 | -0.17 | 0.43 | 1276.83 |
| 22 | 42 | 10678.43 | 92.87 | 0.02 | 0.17 | -0.43 | -1276.83 |
| 22 | 43 | -10765.20 | -115.20 | -0.02 | -0.17 | 0.34 | 1643.48 |
| 23 | 43 | 10765.18 | 115.20 | 0.02 | 0.17 | -0.34 | -1643.48 |
| 23 | 44 | -10725.91 | -7.32 | -0.02 | -0.17 | 0.25 | 2052.07 |
| 24 | 44 | 10725.92 | 7.32 | 0.02 | 0.17 | -0.25 | -2052.07 |
| 24 | 45 | -10690.38 | 147.85 | -0.02 | -0.17 | 0.16 | 1745.32 |
| 25 | 45 | 10690.38 | -147.85 | 0.02 | 0.17 | -0.16 | -1745.32 |
| 25 | 46 | -10690.31 | 169.63 | -0.02 | -0.17 | 0.07 | 966.94 |
| 26 | 46 | 10690.31 | -169.63 | 0.02 | 0.17 | -0.07 | -966.94 |
| 26 | 47 | -9361.98 | 78.46 | -0.02 | -0.17 | -0.02 | 85.52 |
| 27 | 47 | 9361.97 | -78.46 | 0.02 | 0.17 | 0.02 | -85.52 |
| 27 | 48 | -9376.00 | 475.68 | -0.02 | -0.17 | -0.11 | -786.06 |
| 28 | 48 | 9375.99 | -475.68 | 0.02 | 0.17 | 0.11 | 786.06 |
| 28 | 49 | -13500.99 | 1407.91 | -0.02 | -0.17 | -0.20 | -6605.61 |
| 29 | 49 | 13580.66 | 908.07 | 0.01 | 0.00 | 0.20 | 6741.19 |
| 29 | 59 | -9378.91 | -772.72 | -0.01 | 0.00 | -0.23 | -1396.82 |
| 30 | 59 | 9378.92 | 772.72 | 0.01 | 0.00 | 0.23 | 1396.82 |
| 30 | 60 | -9459.76 | -255.32 | -0.01 | 0.00 | -0.26 | 773.41 |
| 31 | 60 | 9459.75 | 255.32 | 0.01 | 0.00 | 0.26 | -773.41 |
| 31 | 61 | -9493.01 | -81.00 | -0.01 | 0.00 | -0.29 | 1293.59 |
| 32 | 61 | 9493.01 | 81.00 | 0.01 | 0.00 | 0.29 | -1293.59 |
| 32 | 62 | -9584.84 | -103.33 | -0.01 | 0.00 | -0.33 | 1605.45 |
| 33 | 62 | 9584.85 | 103.33 | 0.01 | 0.00 | 0.33 | -1605.45 |
| 33 | 63 | -9550.59 | 4.55 | -0.01 | 0.00 | -0.36 | 1959.23 |
| 34 | 63 | 9550.58 | -4.55 | 0.01 | 0.00 | 0.36 | -1959.24 |
| 34 | 64 | -9520.01 | 159.72 | -0.01 | 0.00 | -0.39 | 1597.67 |
| 35 | 64 | 9520.00 | -159.72 | 0.01 | 0.00 | 0.39 | -1597.67 |
| 35 | 65 | -9522.58 | 181.50 | -0.01 | 0.00 | -0.42 | 766.36 |
| 36 | 65 | 9522.58 | -181.50 | 0.01 | 0.00 | 0.42 | -766.36 |
| 36 | 66 | -9547.96 | 90.33 | -0.01 | 0.00 | -0.45 | 55.09 |
| 37 | 66 | 9547.96 | -90.33 | 0.01 | 0.00 | 0.45 | -55.09 |
| 37 | 67 | -9555.72 | 487.55 | -0.01 | 0.00 | -0.48 | -864.72 |
| 38 | 67 | 9555.71 | -487.55 | 0.01 | 0.00 | 0.48 | 864.72 |
| 38 | 68 | -13674.44 | 1419.78 | -0.01 | 0.00 | -0.51 | -6732.51 |
| 39 | 68 | 13755.63 | 916.11 | -0.02 | -0.02 | 0.51 | 6870.68 |
| 39 | 78 | -9547.61 | -780.76 | 0.02 | 0.02 | -0.42 | -1484.96 |
| 40 | 78 | 9547.60 | 780.76 | -0.02 | -0.02 | 0.42 | 1484.96 |
| 40 | 79 | -9625.54 | -263.36 | 0.02 | 0.02 | -0.34 | 725.68 |
| 41 | 79 | 9625.55 | 263.36 | -0.02 | -0.02 | 0.34 | -725.68 |
| 41 | 80 | -9655.13 | -89.04 | 0.02 | 0.02 | -0.25 | 1290.41 |
| 42 | 80 | 9655.14 | 89.04 | -0.02 | -0.02 | 0.25 | -1290.41 |
| 42 | 81 | -9756.22 | -111.37 | 0.02 | 0.02 | -0.17 | 1635.98 |
| 43 | 81 | 9756.22 | 111.37 | -0.02 | -0.02 | 0.17 | -1635.98 |
| 43 | 82 | -9731.23 | -3.49 | 0.02 | 0.02 | -0.08 | 2023.47 |
| 44 | 82 | 9731.23 | 3.49 | -0.02 | -0.02 | 0.08 | -2023.47 |
| 44 | 83 | -9709.92 | 151.68 | 0.02 | 0.02 | 0.00 | 1695.61 |
| 45 | 83 | 9709.92 | -151.68 | -0.02 | -0.02 | 0.00 | -1695.62 |
| 45 | 84 | -9720.64 | 173.46 | 0.02 | 0.02 | 0.09 | 897.07 |
| 46 | 84 | 9720.64 | -173.46 | -0.02 | -0.02 | -0.09 | -897.07 |
| 46 | 85 | -9762.50 | 82.29 | 0.02 | 0.02 | 0.17 | 214.01 |
| 47 | 85 | 9762.50 | -82.29 | -0.02 | -0.02 | -0.17 | -214.01 |
| 47 | 86 | -9767.26 | 479.51 | 0.02 | 0.02 | 0.26 | -672.34 |
| 48 | 86 | 9767.25 | -479.51 | -0.02 | -0.02 | -0.26 | 672.34 |
| 48 | 87 | -13882.99 | 1411.74 | 0.02 | 0.02 | 0.34 | -6506.65 |
| 49 | 87 | 13959.10 | 893.58 | -0.05 | 0.00 | -0.34 | 6636.18 |
| 49 | 97 | -9748.09 | -758.23 | 0.05 | 0.00 | 0.59 | -1354.54 |
| 50 | 97 | 9748.09 | 758.23 | -0.05 | 0.00 | -0.59 | 1354.54 |
| 50 | 98 | -9820.77 | -240.84 | 0.05 | 0.00 | 0.83 | 753.91 |
| 51 | 98 | 9820.78 | 240.84 | -0.05 | 0.00 | -0.83 | -753.91 |
| 51 | 99 | -9837.55 | -66.51 | 0.05 | 0.00 | 1.08 | 1216.86 |
| 52 | 99 | 9837.56 | 66.51 | -0.05 | 0.00 | -1.08 | -1216.87 |
| 52 | 100 | -9932.38 | -88.85 | 0.05 | 0.00 | 1.32 | 1466.23 |
| 53 | 100 | 9932.37 | 88.85 | -0.05 | 0.00 | -1.32 | -1466.23 |
| 53 | 101 | -9901.11 | 19.04 | 0.05 | 0.00 | 1.57 | 1757.52 |
| 54 | 101 | 9901.10 | -19.04 | -0.05 | 0.00 | -1.57 | -1757.52 |
| 54 | 102 | -9873.52 | 174.20 | 0.05 | 0.00 | 1.81 | 1333.46 |
| 55 | 102 | 9873.53 | -174.20 | -0.05 | 0.00 | -1.81 | -1333.46 |
| 55 | 103 | -9881.37 | 195.99 | 0.05 | 0.00 | 2.06 | 437.77 |
| 56 | 103 | 9881.37 | -195.99 | -0.05 | 0.00 | -2.06 | -437.77 |
| 56 | 104 | -9924.06 | 104.82 | 0.05 | 0.00 | 2.31 | -339.66 |
| 57 | 104 | 9924.06 | -104.82 | -0.05 | 0.00 | -2.31 | 339.66 |
| 57 | 105 | -9938.11 | 502.04 | 0.05 | 0.00 | 2.55 | -1329.85 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 58 | 105 | 9938.12 | -502.04 | -0.05 | 0.00 | -2.55 | 1329.85 |
| 58 | 106 | -14063.15 | 1434.27 | 0.05 | 0.00 | 2.80 | -7268.02 |
| 59 | 106 | 14144.12 | 973.32 | -0.30 | 1.49 | -2.80 | 7405.84 |
| 59 | 115 | -9942.40 | -837.97 | 0.30 | -1.49 | 4.13 | -1767.86 |
| 60 | 115 | 9942.40 | 837.97 | -0.30 | 1.49 | -4.13 | 1767.86 |
| 60 | 116 | -10023.27 | -320.58 | 0.30 | -1.49 | 5.46 | 695.99 |
| 61 | 116 | 10023.26 | 320.57 | -0.30 | 1.49 | -5.46 | -695.99 |
| 61 | 117 | -10065.62 | -146.25 | 0.30 | -1.49 | 6.80 | 1509.47 |
| 62 | 117 | 10065.62 | 146.25 | -0.30 | 1.49 | -6.80 | -1509.47 |
| 62 | 118 | -10157.52 | -168.58 | 0.30 | -1.49 | 8.13 | 2114.95 |
| 63 | 118 | 10157.52 | 168.59 | -0.30 | 1.49 | -8.13 | -2114.95 |
| 63 | 119 | -10123.35 | -60.70 | 0.30 | -1.49 | 9.46 | 2762.35 |
| 64 | 119 | 10123.35 | 60.70 | -0.30 | 1.49 | -9.46 | -2762.35 |
| 64 | 120 | -10092.86 | 94.47 | 0.30 | -1.49 | 10.79 | 2694.40 |
| 65 | 120 | 10092.86 | -94.47 | -0.30 | 1.49 | -10.79 | -2694.40 |
| 65 | 121 | -10085.84 | 116.25 | 0.30 | -1.49 | 12.13 | 2159.63 |
| 66 | 121 | 10085.83 | -116.25 | -0.30 | 1.49 | -12.13 | -2159.63 |
| 66 | 122 | -10151.88 | 25.08 | 0.30 | -1.49 | 13.46 | 1736.45 |
| 67 | 122 | 10151.88 | -25.08 | -0.30 | 1.49 | -13.46 | -1736.45 |
| 67 | 123 | -10159.96 | 422.30 | 0.30 | -1.49 | 14.79 | 1110.22 |
| 68 | 123 | 10159.95 | -422.30 | -0.30 | 1.49 | -14.79 | -1110.22 |
| 68 | 124 | -14223.71 | 1344.51 | 0.30 | -1.49 | 16.12 | -4464.09 |
| 69 | 124 | 14305.91 | 661.80 | 0.45 | -1.53 | -16.12 | 4604.00 |
| 69 | 133 | -10126.29 | -240.61 | -0.45 | 1.53 | 14.11 | -753.19 |
| 70 | 133 | 10126.28 | 240.61 | 0.45 | -1.53 | -14.11 | 753.19 |
| 70 | 134 | -10167.61 | 121.48 | -0.45 | 1.53 | 12.09 | -1216.86 |
| 71 | 134 | 10214.54 | -121.48 | 0.45 | -1.53 | -12.09 | 1231.07 |
| 71 | 135 | -10313.59 | -103.17 | -0.45 | 1.53 | 10.08 | -1191.25 |
| 72 | 135 | 10313.59 | 103.17 | 0.45 | -1.53 | -10.08 | 1191.25 |
| 72 | 136 | -10276.25 | 34.77 | -0.45 | 1.53 | 8.06 | -990.95 |
| 73 | 136 | 10276.24 | -34.77 | 0.45 | -1.53 | -8.06 | 990.95 |
| 73 | 137 | -10203.07 | 190.15 | -0.45 | 1.53 | 6.05 | -1438.82 |
| 74 | 137 | 10203.08 | -190.15 | 0.45 | -1.53 | -6.05 | 1438.82 |
| 74 | 138 | -10121.74 | 262.69 | -0.45 | 1.53 | 4.03 | -2424.75 |
| 75 | 138 | 9062.08 | -285.29 | 0.46 | -1.59 | -4.18 | 1980.31 |
| 75 | 139 | -8993.11 | 430.24 | -0.46 | 1.59 | 2.09 | -3443.26 |
| 76 | 139 | 8993.11 | -430.24 | 0.46 | -1.59 | -2.09 | 3443.26 |
| 76 | 140 | -8938.39 | 631.07 | -0.46 | 1.59 | 0.00 | -5836.93 |
| 77 | 16 | 2920.59 | 72.58 | 0.48 | 0.00 | -4.67 | 747.57 |
| 77 | 17 | -2862.76 | -72.58 | -0.48 | 0.00 | 2.14 | -362.90 |
| 78 | 17 | 2862.76 | 72.58 | 0.48 | 0.00 | -2.14 | 362.90 |
| 78 | 18 | -2801.76 | -72.58 | -0.48 | 0.00 | -0.24 | 0.00 |
| 79 | 33 | 3149.53 | -81.08 | -0.55 | 0.00 | 5.80 | -1019.99 |
| 79 | 34 | -3066.82 | 81.08 | 0.55 | 0.00 | -1.64 | 405.40 |
| 80 | 34 | 3066.82 | -81.08 | -0.55 | 0.00 | 1.64 | -405.40 |
| 80 | 35 | -3005.82 | 81.08 | 0.55 | 0.00 | 1.10 | 0.00 |
| 81 | 50 | 3358.00 | 79.66 | -0.14 | 0.00 | 3.85 | 2509.29 |
| 81 | 51 | -3275.78 | -79.66 | 0.14 | 0.00 | -2.93 | -1991.50 |
| 82 | 51 | 3275.78 | 79.66 | -0.14 | 0.00 | 2.93 | 1991.50 |
| 82 | 52 | -3156.44 | -79.66 | 0.14 | 0.00 | -1.52 | -1194.89 |
| 83 | 52 | 3156.44 | 79.66 | -0.14 | 0.00 | 1.52 | 1194.90 |
| 83 | 53 | -3047.32 | -79.66 | 0.14 | 0.00 | -0.10 | -398.30 |
| 84 | 53 | 3047.32 | 79.66 | -0.14 | 0.00 | 0.10 | 398.29 |
| 84 | 54 | -2986.32 | -79.66 | 0.14 | 0.00 | 0.61 | 0.00 |
| 85 | 69 | 3342.09 | -81.18 | -0.14 | 0.00 | 3.19 | -2312.00 |
| 85 | 70 | -3297.54 | 81.18 | 0.14 | 0.00 | -2.71 | 2029.50 |
| 86 | 70 | 3297.54 | -81.18 | -0.14 | 0.00 | 2.71 | -2029.50 |
| 86 | 71 | -3178.20 | 81.18 | 0.14 | 0.00 | -1.32 | 1217.70 |
| 87 | 71 | 3178.20 | -81.18 | -0.14 | 0.00 | 1.32 | -1217.70 |
| 87 | 72 | -3069.08 | 81.18 | 0.14 | 0.00 | 0.07 | 405.90 |
| 88 | 72 | 3069.08 | -81.18 | -0.14 | 0.00 | -0.07 | -405.89 |
| 88 | 73 | -3008.08 | 81.18 | 0.14 | 0.00 | 0.77 | 0.00 |
| 89 | 88 | 3287.68 | 76.10 | -0.20 | 0.00 | 4.33 | 1978.60 |
| 89 | 89 | -3275.18 | -76.10 | 0.20 | 0.00 | -4.13 | -1902.50 |
| 90 | 89 | 3275.18 | 76.10 | -0.20 | 0.00 | 4.13 | 1902.50 |
| 90 | 90 | -3155.84 | -76.10 | 0.20 | 0.00 | -2.13 | -1141.50 |
| 91 | 90 | 3155.84 | 76.10 | -0.20 | 0.00 | 2.13 | 1141.50 |
| 91 | 91 | -3046.72 | -76.10 | 0.20 | 0.00 | -0.13 | -380.50 |
| 92 | 91 | 3046.72 | 76.10 | -0.20 | 0.00 | 0.13 | 380.50 |
| 92 | 92 | -2985.72 | -76.10 | 0.20 | 0.00 | 0.87 | 0.00 |
| 93 | 107 | 3239.36 | -80.98 | -0.42 | 0.00 | 5.13 | -1295.68 |
| 93 | 108 | -3227.89 | 80.98 | 0.42 | 0.00 | -4.71 | 1214.70 |
| 94 | 108 | 3227.89 | -80.98 | -0.42 | 0.00 | 4.71 | -1214.70 |
| 94 | 109 | -3118.77 | 80.98 | 0.42 | 0.00 | -0.52 | 404.90 |
| 95 | 109 | 3118.77 | -80.98 | -0.42 | 0.00 | 0.52 | -404.90 |
| 95 | 110 | -3057.77 | 80.98 | 0.42 | 0.00 | 1.57 | 0.00 |
| 96 | 125 | 2990.80 | 82.20 | 0.29 | 0.00 | -4.06 | 1315.20 |
| 96 | 126 | -2979.32 | -82.20 | -0.29 | 0.00 | 3.76 | -1233.00 |
| 97 | 126 | 2979.32 | 82.20 | 0.29 | 0.00 | -3.76 | 1233.00 |
| 97 | 127 | -2870.20 | -82.20 | -0.29 | 0.00 | 0.86 | -411.00 |
| 98 | 127 | 2870.20 | 82.20 | 0.29 | 0.00 | -0.86 | 411.00 |
| 98 | 128 | -2809.20 | -82.20 | -0.29 | 0.00 | -0.59 | 0.00 |
| 99 | 2 | 578.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -578.71 | 16.88 | 0.00 | 0.00 | 0.00 | -28.73 |
| 100 | 4 | 578.68 | 0.00 | -1.76 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -578.68 | 16.88 | 1.76 | 0.00 | 3.01 | -28.73 |
| 101 | 19 | 1389.43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -1389.43 | -36.29 | 0.00 | 0.00 | 0.00 | 61.77 |
| 102 | 21 | 1389.58 | 0.00 | 2.53 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -1389.58 | -36.29 | -2.53 | 0.00 | -4.33 | 61.77 |
| 103 | 36 | 1519.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -1519.22 | 40.54 | 0.00 | 0.00 | 0.00 | -69.00 |
| 104 | 38 | 1518.76 | 0.00 | -13.71 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -1518.76 | 40.54 | 13.71 | 0.00 | 23.47 | -69.00 |
| 105 | 55 | 1496.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -1496.17 | -39.83 | 0.00 | 0.00 | 0.00 | 67.79 |
| 106 | 57 | 1496.02 | 0.00 | 35.75 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -1496.02 | -39.83 | -35.75 | 0.00 | -61.21 | 67.79 |
| 107 | 74 | 1494.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -1494.64 | 40.59 | 0.00 | 0.00 | 0.00 | -69.08 |
| 108 | 76 | 1494.44 | 0.00 | 20.69 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -1494.44 | 40.59 | -20.69 | 0.00 | -35.41 | -69.08 |
| 109 | 93 | 1495.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -1495.09 | -38.05 | 0.00 | 0.00 | 0.00 | 64.76 |
| 110 | 95 | 1494.85 | 0.00 | 24.84 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -1494.85 | -38.05 | -24.84 | 0.00 | -42.52 | 64.76 |
| 111 | 111 | 1532.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -1532.61 | 40.49 | 0.00 | 0.00 | 0.00 | -68.91 |
| 112 | 113 | 1531.92 | 0.00 | -2.81 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -1531.92 | 40.49 | 2.81 | 0.00 | 4.80 | -68.91 |
| 113 | 129 | 1390.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -1390.93 | -41.10 | 0.00 | 0.00 | 0.00 | 69.95 |
| 114 | 131 | 1391.28 | 0.00 | 3.32 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -1391.28 | -41.10 | -3.32 | 0.00 | -5.68 | 69.95 |
| 115 | 141 | 623.81 | 498.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -623.81 | -485.02 | 0.00 | 0.00 | 0.00 | 830.49 |
| 116 | 143 | 623.56 | 498.59 | -1.66 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -623.56 | -485.02 | 1.66 | 0.00 | 2.84 | 830.49 |
| 117 | 6 | 1148.36 | -33.76 | -0.79 | 0.00 | 0.66 | -33.76 |
| 117 | 7 | -1148.36 | 33.76 | 0.79 | 0.00 | 0.13 | 0.00 |
| 118 | 145 | 1237.25 | 970.05 | -0.63 | 0.00 | -0.43 | 970.05 |
| 118 | 146 | -1237.25 | -970.05 | 0.63 | 0.00 | 1.06 | 0.00 |
| 119 | 3 | 0.00 | 337.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -337.38 | 0.00 | 0.00 | 0.01 | 1433.88 |
| 120 | 1 | 29.78 | -479.07 | 16.87 | -28.73 | -71.77 | -1985.07 |
| 120 | 5 | -29.78 | 479.07 | -16.87 | 28.73 | -0.02 | -50.98 |
| 121 | 20 | 0.00 | 1014.30 | -0.15 | 0.00 | 0.01 | -0.01 |
| 121 | 15 | 0.00 | -1014.30 | 0.15 | 0.00 | 0.03 | 1876.45 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 122 | 15 | 71.79 | -859.29 | -36.44 | 61.77 | 66.75 | -1466.79 |
| 122 | 22 | -71.79 | 859.29 | 36.44 | -61.77 | -0.35 | -122.91 |
| 123 | 37 | 0.01 | 930.65 | -0.08 | 0.00 | -0.05 | 0.00 |
| 123 | 32 | -0.01 | -930.65 | 0.08 | 0.00 | -0.18 | 1721.69 |
| 124 | 32 | 143.02 | -1386.60 | 40.55 | -69.00 | -75.15 | -2320.41 |
| 124 | 39 | -143.02 | 1386.60 | -40.55 | 69.00 | -0.27 | -244.83 |
| 125 | 56 | 0.02 | 1287.72 | -0.05 | 0.00 | -0.24 | 0.00 |
| 125 | 49 | -0.02 | -1287.72 | 0.05 | 0.00 | -0.23 | 2382.33 |
| 126 | 49 | 53.65 | -889.21 | 0.00 | 0.00 | -0.04 | -1553.17 |
| 126 | 58 | -53.65 | 889.21 | 0.00 | 0.00 | -0.03 | -91.85 |
| 127 | 75 | 0.02 | 1046.07 | 0.06 | 0.00 | -0.07 | 0.00 |
| 127 | 68 | -0.02 | -1046.07 | -0.06 | 0.00 | -0.07 | 1935.22 |
| 128 | 68 | 78.36 | -872.13 | 0.24 | 0.00 | 0.06 | -1479.26 |
| 128 | 77 | -78.36 | 872.13 | -0.24 | 0.00 | 0.06 | -134.14 |
| 129 | 94 | 0.03 | 1039.05 | 0.10 | 0.00 | -0.10 | 0.00 |
| 129 | 87 | -0.03 | -1039.05 | -0.10 | 0.00 | -0.09 | 1922.25 |
| 130 | 87 | 77.77 | -875.59 | 38.11 | -64.76 | -70.49 | -1486.67 |
| 130 | 96 | -77.77 | 875.59 | -38.11 | 64.76 | -0.10 | -133.16 |
| 131 | 112 | 0.02 | 1384.17 | -0.08 | 0.00 | -0.01 | 0.00 |
| 131 | 106 | -0.02 | -1384.17 | 0.08 | 0.00 | 0.06 | 2560.73 |
| 132 | 106 | 118.49 | -1118.48 | 40.43 | -68.91 | -74.96 | -1866.33 |
| 132 | 114 | -118.49 | 1118.48 | -40.43 | 68.91 | 0.02 | -202.86 |
| 133 | 130 | 0.01 | 1070.08 | 0.01 | 0.00 | -0.01 | 0.00 |
| 133 | 124 | -0.01 | -1070.08 | -0.01 | 0.00 | 0.05 | 1979.64 |
| 134 | 124 | 74.37 | -726.12 | -41.15 | 69.95 | 76.00 | -1216.02 |
| 134 | 132 | -74.37 | 726.12 | 41.15 | -69.95 | -0.01 | -127.33 |
| 135 | 142 | 0.00 | 357.22 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -357.22 | 0.00 | 0.00 | -0.01 | 1518.20 |
| 136 | 140 | 48.03 | -531.61 | -395.38 | 677.03 | 1680.38 | -2177.11 |
| 136 | 144 | -48.03 | 531.61 | 395.38 | -677.03 | 0.00 | -82.23 |
| 137 | 2 | 0.00 | -337.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 337.38 | 0.00 | 0.00 | 0.00 | -1433.88 |
| 138 | 7 | 29.05 | 241.86 | 16.88 | 0.00 | -71.57 | 1027.92 |
| 138 | 4 | -29.05 | -241.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -1223.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 1223.38 | 0.00 | 0.00 | 0.00 | -2263.26 |
| 140 | 18 | 73.12 | 1021.48 | -36.30 | 0.00 | 66.77 | 1889.72 |
| 140 | 21 | -73.12 | -1021.48 | 0.01 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.01 | -1069.43 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | -0.01 | 1069.43 | 0.00 | 0.00 | 0.00 | -1978.43 |
| 142 | 35 | 142.38 | 539.20 | 40.53 | 0.00 | -74.60 | 997.54 |
| 142 | 38 | -142.38 | -539.20 | 0.01 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.01 | -1109.70 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 54 | -0.01 | 1109.70 | 0.00 | 0.00 | 0.00 | -2052.95 |
| 144 | 54 | 53.57 | 1026.93 | 0.00 | 0.00 | 0.00 | 1899.84 |
| 144 | 57 | -53.57 | -1026.93 | 0.00 | 0.00 | 0.00 | 0.01 |
| 145 | 74 | 0.02 | -1054.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | -0.02 | 1054.01 | 0.00 | 0.00 | 0.00 | -1949.92 |
| 146 | 73 | 78.27 | 1045.19 | 0.00 | 0.00 | 0.00 | 1933.62 |
| 146 | 76 | -78.27 | -1045.19 | 0.00 | 0.00 | 0.00 | -0.01 |
| 147 | 93 | 0.01 | -1027.48 | 0.00 | 0.00 | 0.00 | 0.01 |
| 147 | 92 | -0.01 | 1027.48 | 0.00 | 0.00 | 0.00 | -1900.84 |
| 148 | 92 | 77.67 | 1019.82 | 38.06 | 0.00 | -70.06 | 1886.66 |
| 148 | 95 | -77.67 | -1019.82 | -0.01 | 0.00 | -0.05 | -0.01 |
| 149 | 111 | 0.01 | -1208.30 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | -0.01 | 1208.30 | 0.00 | 0.00 | 0.00 | -2235.37 |
| 150 | 110 | 117.99 | 1026.29 | 40.52 | 0.00 | -74.49 | 1898.63 |
| 150 | 113 | -117.99 | -1026.29 | -0.03 | 0.00 | 0.01 | -0.01 |
| 151 | 129 | 0.00 | -956.45 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 956.45 | 0.00 | 0.00 | 0.00 | -1769.44 |
| 152 | 128 | 75.39 | 964.44 | -41.12 | 0.00 | 75.60 | 1784.21 |
| 152 | 131 | -75.39 | -964.44 | 0.02 | 0.00 | -0.02 | 0.00 |
| 153 | 141 | 0.00 | -357.22 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 357.22 | 0.00 | 0.00 | 0.01 | -1518.20 |
| 154 | 146 | 47.44 | 224.63 | -395.38 | 0.00 | 1680.49 | 954.67 |
| 154 | 143 | -47.44 | -224.63 | 408.95 | 0.00 | 0.00 | 0.00 |

## DESPLAZAMIENTOS DE NUDOS

| NUDO | DESP. X | DESP. Y | DESP. Z | GIRO X | GIRO Y | GIRO Z |
|---|---|---|---|---|---|---|
| 1 | 0.317832 | -0.000711 | -0.000185 | -0.000039 | 0.000043 | -0.000112 |
| 2 | 0.000011 | -0.000239 | 0.000000 | -0.000078 | -0.000004 | 0.000000 |
| 3 | 0.318077 | -0.000346 | -0.000074 | 0.000116 | -0.000064 | -0.000331 |
| 4 | 0.000011 | -0.000239 | 0.000000 | 0.000078 | 0.000004 | 0.000000 |
| 5 | 0.318059 | -0.000339 | -0.000206 | -0.000115 | 0.000060 | -0.000167 |
| 7 | 0.000000 | -0.000017 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 8 | 0.313853 | -0.001997 | -0.000377 | -0.000121 | 0.000043 | -0.000241 |
| 9 | 0.309871 | -0.003205 | -0.000569 | -0.000190 | 0.000043 | -0.000189 |
| 10 | 0.305844 | -0.003747 | -0.000761 | -0.000243 | 0.000042 | -0.000043 |
| 11 | 0.301810 | -0.003544 | -0.000952 | -0.000281 | 0.000042 | 0.000068 |
| 12 | 0.297771 | -0.003016 | -0.001142 | -0.000305 | 0.000042 | 0.000106 |
| 13 | 0.293737 | -0.002509 | -0.001331 | -0.000314 | 0.000042 | 0.000089 |
| 14 | 0.289708 | -0.002144 | -0.001520 | -0.000308 | 0.000042 | 0.000069 |
| 15 | 0.285468 | -0.001608 | -0.001707 | -0.000287 | 0.000041 | -0.000178 |
| 17 | 0.000878 | -0.000501 | -0.000004 | -0.000001 | 0.000000 | -0.000258 |
| 18 | 0.002489 | -0.000907 | -0.000011 | -0.000001 | 0.000000 | -0.000324 |
| 19 | 0.002491 | -0.000949 | -0.000011 | -0.000033 | -0.000002 | -0.000324 |
| 20 | 0.285558 | -0.000964 | 0.002070 | 0.000399 | -0.000058 | -0.000175 |
| 21 | 0.002491 | -0.000945 | -0.000011 | 0.000031 | 0.000002 | -0.000324 |
| 22 | 0.285554 | -0.000960 | -0.002219 | -0.000401 | 0.000056 | -0.000175 |
| 23 | 0.281134 | -0.004047 | -0.001891 | -0.000374 | 0.000041 | -0.000521 |
| 24 | 0.276934 | -0.006788 | -0.002075 | -0.000447 | 0.000042 | -0.000508 |
| 25 | 0.272700 | -0.008775 | -0.002264 | -0.000505 | 0.000043 | -0.000362 |
| 26 | 0.268491 | -0.010128 | -0.002458 | -0.000548 | 0.000045 | -0.000225 |
| 27 | 0.264277 | -0.010826 | -0.002661 | -0.000576 | 0.000047 | -0.000055 |
| 28 | 0.260065 | -0.010612 | -0.002875 | -0.000589 | 0.000050 | 0.000115 |
| 29 | 0.255853 | -0.009688 | -0.003102 | -0.000588 | 0.000053 | 0.000220 |
| 30 | 0.251676 | -0.008491 | -0.003345 | -0.000572 | 0.000057 | 0.000269 |
| 31 | 0.247534 | -0.007088 | -0.003607 | -0.000541 | 0.000061 | 0.000294 |
| 32 | 0.243186 | -0.005406 | -0.003889 | -0.000495 | 0.000066 | -0.000002 |
| 34 | 0.002258 | -0.000797 | 0.000003 | 0.000001 | 0.000000 | -0.000477 |
| 35 | 0.004999 | -0.001249 | 0.000007 | 0.000001 | 0.000000 | -0.000551 |
| 36 | 0.005001 | -0.001292 | 0.000007 | -0.000035 | -0.000002 | -0.000551 |
| 37 | 0.243341 | -0.004281 | 0.004857 | 0.000663 | -0.000088 | -0.000003 |
| 38 | 0.005001 | -0.001294 | 0.000007 | 0.000037 | 0.000002 | -0.000551 |
| 39 | 0.243341 | -0.004283 | -0.004972 | -0.000664 | 0.000088 | -0.000003 |
| 40 | 0.238833 | -0.007203 | -0.004209 | -0.000572 | 0.000071 | -0.000399 |
| 41 | 0.234682 | -0.009382 | -0.004547 | -0.000633 | 0.000074 | -0.000379 |
| 42 | 0.230527 | -0.010858 | -0.004899 | -0.000680 | 0.000077 | -0.000251 |
| 43 | 0.226367 | -0.011697 | -0.005259 | -0.000712 | 0.000078 | -0.000107 |
| 44 | 0.222203 | -0.011849 | -0.005624 | -0.000730 | 0.000078 | 0.000070 |
| 45 | 0.218044 | -0.011055 | -0.005988 | -0.000732 | 0.000078 | 0.000248 |
| 46 | 0.213887 | -0.009518 | -0.006346 | -0.000720 | 0.000076 | 0.000361 |
| 47 | 0.209805 | -0.007703 | -0.006694 | -0.000693 | 0.000073 | 0.000387 |
| 48 | 0.205796 | -0.005882 | -0.007027 | -0.000651 | 0.000069 | 0.000361 |
| 49 | 0.201581 | -0.004015 | -0.007339 | -0.000595 | 0.000064 | 0.000012 |
| 51 | 0.004351 | -0.000657 | 0.000000 | 0.000000 | 0.000000 | -0.001225 |
| 52 | 0.024386 | -0.001674 | 0.000001 | 0.000000 | 0.000000 | -0.002598 |
| 53 | 0.054890 | -0.002719 | 0.000004 | 0.000000 | 0.000000 | -0.003324 |
| 54 | 0.071865 | -0.003163 | 0.000005 | 0.000000 | 0.000000 | -0.003397 |
| 55 | 0.071867 | -0.003206 | 0.000005 | -0.000035 | -0.000002 | -0.003397 |
| 56 | 0.201735 | -0.002740 | 0.009242 | 0.000788 | -0.000087 | 0.000007 |
| 57 | 0.071867 | -0.003207 | 0.000005 | 0.000036 | 0.000002 | -0.003397 |
| 58 | 0.201735 | -0.002742 | -0.009362 | -0.000785 | 0.000087 | 0.000007 |
| 59 | 0.197361 | -0.005869 | -0.007618 | -0.000669 | 0.000059 | -0.000432 |
| 60 | 0.193343 | -0.008300 | -0.007872 | -0.000730 | 0.000053 | -0.000451 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 61 | 0.189319 | -0.010185 | -0.008100 | -0.000775 | 0.000047 | -0.000354 |
| 62 | 0.185288 | -0.011555 | -0.008302 | -0.000805 | 0.000041 | -0.000233 |
| 63 | 0.181253 | -0.012322 | -0.008479 | -0.000821 | 0.000036 | -0.000070 |
| 64 | 0.177222 | -0.012186 | -0.008629 | -0.000822 | 0.000030 | 0.000103 |
| 65 | 0.173193 | -0.011312 | -0.008753 | -0.000808 | 0.000024 | 0.000219 |
| 66 | 0.169162 | -0.010113 | -0.008851 | -0.000779 | 0.000018 | 0.000271 |
| 67 | 0.165129 | -0.008730 | -0.008921 | -0.000736 | 0.000012 | 0.000292 |
| 68 | 0.160891 | -0.007064 | -0.008964 | -0.000678 | 0.000006 | 0.000000 |
| 70 | 0.001210 | -0.000347 | 0.000000 | 0.000000 | 0.000000 | -0.000619 |
| 71 | 0.015364 | -0.001371 | 0.000001 | 0.000000 | 0.000000 | -0.002022 |
| 72 | 0.040201 | -0.002424 | 0.000003 | 0.000000 | 0.000000 | -0.002763 |
| 73 | 0.054376 | -0.002872 | 0.000005 | 0.000000 | 0.000000 | -0.002837 |
| 74 | 0.054378 | -0.002915 | 0.000005 | -0.000035 | -0.000002 | -0.002837 |
| 75 | 0.160909 | -0.005774 | 0.008839 | 0.000706 | -0.000011 | 0.000023 |
| 76 | 0.054378 | -0.002916 | 0.000005 | 0.000036 | 0.000002 | -0.002837 |
| 77 | 0.160909 | -0.005776 | -0.008954 | -0.000705 | 0.000011 | 0.000022 |
| 78 | 0.156648 | -0.008829 | -0.008978 | -0.000742 | 0.000000 | -0.000386 |
| 79 | 0.152608 | -0.010924 | -0.008964 | -0.000791 | -0.000006 | -0.000355 |
| 80 | 0.148562 | -0.012264 | -0.008926 | -0.000825 | -0.000012 | -0.000216 |
| 81 | 0.144509 | -0.012915 | -0.008862 | -0.000845 | -0.000017 | -0.000061 |
| 82 | 0.140451 | -0.012839 | -0.008774 | -0.000850 | -0.000022 | 0.000123 |
| 83 | 0.136396 | -0.011786 | -0.008664 | -0.000840 | -0.000027 | 0.000306 |
| 84 | 0.132341 | -0.009977 | -0.008531 | -0.000815 | -0.000032 | 0.000419 |
| 85 | 0.128284 | -0.007883 | -0.008376 | -0.000775 | -0.000037 | 0.000455 |
| 86 | 0.124223 | -0.005713 | -0.008201 | -0.000721 | -0.000041 | 0.000444 |
| 87 | 0.119959 | -0.003435 | -0.008007 | -0.000652 | -0.000045 | 0.000106 |
| 89 | 0.000110 | -0.000100 | 0.000000 | 0.000000 | 0.000000 | -0.000163 |
| 90 | 0.009187 | -0.001114 | 0.000001 | 0.000000 | 0.000000 | -0.001476 |
| 91 | 0.028279 | -0.002155 | 0.000003 | 0.000000 | 0.000000 | -0.002171 |
| 92 | 0.039474 | -0.002599 | 0.000005 | 0.000000 | 0.000000 | -0.002241 |
| 93 | 0.039476 | -0.002641 | 0.000005 | -0.000035 | -0.000002 | -0.002241 |
| 94 | 0.120063 | -0.005048 | -0.010268 | -0.000787 | -0.000063 | 0.000108 |
| 95 | 0.039476 | -0.002642 | 0.000005 | 0.000035 | 0.000002 | -0.002241 |
| 96 | 0.120062 | -0.005050 | 0.010151 | 0.000787 | 0.000063 | 0.000108 |
| 97 | 0.115689 | -0.004844 | -0.007790 | -0.000710 | -0.000049 | -0.000334 |
| 98 | 0.111639 | 0.001693 | -0.000066 | 0.000000 | 0.000000 | 0.000428 |
| 99 | 0.107585 | 0.003314 | -0.000066 | 0.000000 | 0.000000 | 0.000285 |
| 100 | 0.103526 | 0.004253 | -0.000066 | 0.000000 | 0.000000 | 0.000128 |
| 101 | 0.099465 | 0.007276 | -0.000071 | 0.000000 | 0.000000 | -0.000009 |
| 102 | 0.095409 | 0.006864 | -0.000071 | 0.000000 | 0.000000 | -0.000203 |
| 103 | 0.091354 | 0.005517 | -0.000072 | 0.000000 | 0.000000 | -0.000452 |
| 104 | 0.087298 | 0.002860 | -0.000072 | 0.000000 | 0.000000 | -0.000751 |
| 105 | 0.083238 | -0.001155 | -0.000072 | 0.000000 | 0.000000 | -0.001053 |
| 106 | 0.078974 | -0.006281 | -0.000073 | 0.000000 | 0.000000 | -0.001628 |
| 108 | 0.000080 | -0.000106 | 0.000000 | 0.000000 | 0.000000 | -0.000108 |
| 109 | 0.005662 | -0.001185 | 0.000003 | 0.000000 | 0.000000 | -0.000833 |
| 110 | 0.010184 | -0.001645 | 0.000005 | 0.000000 | 0.000000 | -0.000907 |
| 111 | 0.010186 | -0.001690 | 0.000005 | -0.000036 | -0.000002 | -0.000907 |
| 112 | 0.078991 | -0.006340 | -0.000584 | -0.000007 | -0.000013 | -0.001592 |
| 113 | 0.010186 | -0.001691 | 0.000005 | 0.000037 | 0.000002 | -0.000907 |
| 114 | 0.078992 | -0.006340 | 0.000437 | 0.000007 | 0.000013 | -0.001592 |
| 115 | 0.074704 | -0.016214 | -0.000073 | 0.000000 | 0.000000 | -0.002122 |
| 116 | 0.070637 | -0.026250 | -0.000074 | 0.000000 | 0.000000 | -0.001929 |
| 117 | 0.066564 | -0.034197 | -0.000075 | 0.000000 | 0.000000 | -0.001414 |
| 118 | 0.062483 | -0.039305 | -0.000076 | 0.000000 | 0.000000 | -0.000737 |
| 119 | 0.058400 | -0.041009 | -0.000077 | 0.000000 | 0.000000 | 0.000055 |
| 120 | 0.054320 | -0.038833 | -0.000078 | -0.000001 | 0.000000 | 0.000864 |
| 121 | 0.050243 | -0.033059 | -0.000080 | -0.000001 | 0.000000 | 0.001556 |
| 122 | 0.046164 | -0.024516 | -0.000082 | -0.000001 | 0.000001 | 0.002058 |
| 123 | 0.042080 | -0.014069 | -0.000084 | -0.000001 | 0.000001 | 0.002337 |
| 124 | 0.037795 | -0.002632 | -0.000087 | -0.000001 | 0.000001 | 0.002055 |
| 126 | 0.000081 | -0.000093 | 0.000000 | 0.000000 | 0.000000 | -0.000109 |
| 127 | 0.005740 | -0.001031 | -0.000013 | -0.000002 | 0.000000 | -0.000845 |
| 128 | 0.010324 | -0.001428 | -0.000022 | -0.000002 | 0.000000 | -0.000919 |
| 129 | 0.010326 | -0.001470 | -0.000022 | -0.000033 | -0.000002 | -0.000919 |
| 130 | 0.037801 | -0.002606 | -0.000229 | 0.000027 | -0.000007 | 0.002056 |
| 131 | 0.010326 | -0.001463 | -0.000022 | 0.000030 | 0.000002 | -0.000919 |
| 132 | 0.037803 | -0.002602 | 0.000055 | -0.000029 | 0.000008 | 0.002056 |
| 133 | 0.033506 | 0.004731 | -0.000090 | -0.000001 | 0.000001 | 0.001454 |
| 134 | 0.029422 | 0.010448 | -0.000094 | -0.000001 | 0.000001 | 0.001003 |
| 135 | 0.025325 | 0.013783 | -0.000098 | -0.000001 | 0.000001 | 0.000474 |
| 136 | 0.021225 | 0.014721 | -0.000103 | -0.000001 | 0.000001 | -0.000023 |
| 137 | 0.017132 | 0.013554 | -0.000108 | 0.000000 | 0.000001 | -0.000508 |
| 138 | 0.013047 | 0.010198 | -0.000113 | 0.000000 | 0.000001 | -0.001030 |
| 139 | 0.009090 | 0.004398 | -0.000118 | 0.000000 | 0.000001 | -0.001605 |
| 140 | 0.006127 | -0.004114 | -0.000131 | 0.000000 | 0.000001 | -0.002858 |
| 141 | 0.001239 | -0.000475 | -0.000014 | -0.000147 | -0.000325 | -0.000012 |
| 142 | 0.005936 | -0.003984 | -0.000184 | 0.000062 | -0.000004 | -0.002908 |
| 143 | 0.001258 | -0.000522 | 0.000017 | 0.000162 | 0.000329 | -0.000012 |
| 144 | 0.005948 | -0.003984 | -0.000083 | -0.000058 | 0.000007 | -0.002908 |
| 146 | 0.000011 | -0.000028 | 0.000000 | 0.000000 | 0.000003 | -0.000017 |

HIPOTESIS 202

FUER X MIN envolvente (ELS)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 6982.16 | 432.86 | -0.36 | 0.68 | 0.00 | 1152.57 |
| 1 | 8 | -7004.19 | -228.71 | 0.36 | -0.68 | 1.64 | 288.81 |
| 2 | 8 | 7004.27 | 228.71 | -0.36 | 0.68 | -1.64 | -288.81 |
| 2 | 9 | -7021.47 | -73.83 | 0.36 | -0.68 | 3.28 | 951.76 |
| 3 | 9 | 7308.84 | 73.83 | -0.36 | 0.68 | -3.28 | -1138.13 |
| 3 | 10 | -7339.77 | 65.54 | 0.36 | -0.68 | 4.92 | 1118.52 |
| 4 | 10 | 7339.74 | -65.54 | -0.36 | 0.68 | -4.92 | -1118.52 |
| 4 | 11 | -7393.66 | 112.95 | 0.36 | -0.68 | 6.56 | 592.69 |
| 5 | 11 | 7393.73 | -112.95 | -0.36 | 0.68 | -6.56 | -592.69 |
| 5 | 12 | -7396.17 | 100.10 | 0.36 | -0.68 | 8.20 | 124.60 |
| 6 | 12 | 7396.13 | -100.10 | -0.36 | 0.68 | -8.20 | -124.60 |
| 6 | 13 | -7332.88 | -15.16 | 0.36 | -0.68 | 9.84 | -97.53 |
| 7 | 13 | 7310.20 | 15.15 | -0.36 | 0.68 | -9.84 | 94.49 |
| 7 | 14 | -7339.94 | 157.33 | 0.36 | -0.68 | 11.48 | -114.66 |
| 8 | 14 | 7339.89 | -157.33 | -0.36 | 0.68 | -11.48 | 114.66 |
| 8 | 15 | -10568.47 | 787.42 | 0.36 | -0.68 | 13.12 | -3458.68 |
| 9 | 15 | 10495.99 | 650.13 | 0.28 | -0.83 | -13.12 | 3335.15 |
| 9 | 23 | -8300.55 | -798.34 | -0.35 | 1.02 | 14.72 | -1828.76 |
| 10 | 23 | 8300.52 | 798.34 | 0.35 | -1.02 | -14.72 | 1828.76 |
| 10 | 24 | -8337.34 | -343.70 | -0.35 | 1.02 | 13.16 | 659.09 |
| 11 | 24 | 8765.32 | 343.71 | 0.35 | -1.02 | -13.16 | -970.28 |
| 11 | 25 | -8319.13 | -153.23 | -0.35 | 1.02 | 11.61 | 1625.90 |
| 12 | 25 | 8319.25 | 153.23 | 0.35 | -1.02 | -11.61 | -1625.90 |
| 12 | 26 | -8381.96 | -114.19 | -0.35 | 1.02 | 10.05 | 2175.09 |
| 13 | 26 | 8381.92 | 114.19 | 0.35 | -1.02 | -10.05 | -2175.10 |
| 13 | 27 | -8347.60 | 25.12 | -0.35 | 1.02 | 8.50 | 2503.48 |
| 14 | 27 | 8347.55 | -25.12 | 0.35 | -1.02 | -8.50 | -2503.48 |
| 14 | 28 | -8316.11 | 200.84 | -0.35 | 1.02 | 6.94 | 2027.94 |
| 15 | 28 | 8316.20 | -200.84 | 0.35 | -1.02 | -6.94 | -2027.94 |
| 15 | 29 | -8309.48 | 273.85 | -0.35 | 1.02 | 5.39 | 936.86 |
| 16 | 29 | 8309.42 | -273.86 | 0.35 | -1.02 | -5.39 | -936.86 |
| 16 | 30 | -7804.38 | 259.89 | -0.35 | 1.02 | 3.84 | -99.27 |
| 17 | 30 | 7804.42 | -259.89 | 0.35 | -1.02 | -3.84 | 99.27 |
| 17 | 31 | -7796.20 | 621.99 | -0.35 | 1.02 | 2.28 | -1765.41 |
| 18 | 31 | 7796.17 | -621.99 | 0.35 | -1.02 | -2.28 | 1765.41 |
| 18 | 32 | -10953.44 | 1396.05 | -0.35 | 1.02 | 0.73 | -7494.57 |
| 19 | 32 | 10872.38 | 979.64 | 0.02 | 0.15 | -0.73 | 7356.57 |
| 19 | 40 | -7618.06 | -819.18 | -0.02 | -0.15 | 0.64 | -2076.92 |
| 20 | 40 | 7618.03 | 819.18 | 0.02 | 0.15 | -0.64 | 2076.92 |
| 20 | 41 | -7656.94 | -423.21 | -0.02 | -0.16 | 0.60 | 467.68 |
| 21 | 41 | 7656.97 | 423.21 | 0.02 | 0.16 | -0.60 | -467.68 |
| 21 | 42 | -7644.73 | -212.75 | -0.02 | -0.16 | 0.51 | 1755.17 |
| 22 | 42 | 7644.77 | 212.76 | 0.02 | 0.16 | -0.51 | -1755.17 |
| 22 | 43 | -7692.66 | -153.73 | -0.02 | -0.16 | 0.42 | 2535.21 |
| 23 | 43 | 7692.60 | 153.73 | 0.02 | 0.16 | -0.42 | -2535.21 |
| 23 | 44 | -7643.44 | 5.56 | -0.02 | -0.16 | 0.33 | 3004.54 |
| 24 | 44 | 7643.47 | -5.56 | 0.02 | 0.16 | -0.33 | -3004.54 |
| 24 | 45 | -7597.19 | 201.26 | -0.02 | -0.16 | 0.24 | 2580.07 |
| 25 | 45 | 7597.22 | -201.26 | 0.02 | 0.16 | -0.24 | -2580.07 |
| 25 | 46 | -7578.25 | 294.25 | -0.02 | -0.16 | 0.15 | 1449.45 |
| 26 | 46 | 7578.20 | -294.25 | 0.02 | 0.16 | -0.15 | -1449.45 |
| 26 | 47 | -6536.47 | 300.27 | -0.02 | -0.16 | 0.06 | -103.50 |
| 27 | 47 | 6536.48 | -300.27 | 0.02 | 0.16 | -0.06 | 103.50 |
| 27 | 48 | -6528.37 | 682.35 | -0.02 | -0.16 | -0.02 | -1991.87 |
| 28 | 48 | 6528.33 | -682.35 | 0.02 | 0.16 | 0.02 | 1991.87 |
| 28 | 49 | -9685.67 | 1476.39 | -0.02 | -0.16 | -0.11 | -8033.16 |
| 29 | 49 | 9606.03 | 1066.75 | 0.01 | 0.02 | 0.11 | 7897.58 |
| 29 | 59 | -6351.76 | -886.32 | -0.01 | -0.02 | -0.14 | -2266.39 |
| 30 | 59 | 6351.81 | 886.32 | 0.01 | 0.02 | 0.14 | 2266.38 |
| 30 | 60 | -6395.13 | -411.70 | -0.01 | -0.02 | -0.17 | 577.73 |
| 31 | 60 | 6395.08 | 411.70 | 0.01 | 0.02 | 0.17 | -577.73 |
| 31 | 61 | -6401.78 | -201.25 | -0.01 | -0.02 | -0.20 | 1808.32 |
| 32 | 61 | 6401.80 | 201.25 | 0.01 | 0.02 | 0.20 | -1808.32 |
| 32 | 62 | -6453.59 | -142.23 | -0.01 | -0.02 | -0.23 | 2535.50 |
| 33 | 62 | 6453.62 | 142.23 | 0.01 | 0.02 | 0.23 | -2535.50 |
| 33 | 63 | -6408.33 | 17.07 | -0.01 | -0.02 | -0.26 | 2951.98 |
| 34 | 63 | 6408.28 | -17.07 | 0.01 | 0.02 | 0.26 | -2951.98 |
| 34 | 64 | -6365.82 | 212.76 | -0.01 | -0.02 | -0.29 | 2474.65 |
| 35 | 64 | 6365.84 | -212.76 | 0.01 | 0.02 | 0.29 | -2474.64 |
| 35 | 65 | -6348.90 | 305.76 | -0.01 | -0.02 | -0.32 | 1292.61 |
| 36 | 65 | 6348.88 | -305.76 | 0.01 | 0.02 | 0.32 | -1292.61 |
| 36 | 66 | -6349.50 | 311.78 | -0.01 | -0.02 | -0.35 | -139.98 |
| 37 | 66 | 6349.52 | -311.78 | 0.01 | 0.02 | 0.35 | 139.98 |
| 37 | 67 | -6336.58 | 693.86 | -0.01 | -0.02 | -0.38 | -2076.14 |
| 38 | 67 | 6336.59 | -693.86 | 0.01 | 0.02 | 0.38 | 2076.14 |
| 38 | 68 | -9489.10 | 1487.90 | -0.01 | -0.02 | -0.41 | -8165.24 |
| 39 | 68 | 9407.90 | 1072.96 | -0.02 | 0.00 | 0.41 | 8027.08 |
| 39 | 78 | -6148.80 | -892.53 | 0.02 | 0.00 | -0.34 | -2363.94 |
| 40 | 78 | 6148.81 | 892.53 | -0.02 | 0.00 | 0.34 | 2363.95 |
| 40 | 79 | -6189.91 | -417.91 | 0.02 | 0.00 | -0.27 | 511.39 |
| 41 | 79 | 6189.94 | 417.91 | -0.02 | 0.00 | 0.27 | -511.39 |
| 41 | 80 | -6193.80 | -207.46 | 0.02 | 0.00 | -0.20 | 1776.37 |
| 42 | 80 | 6193.77 | 207.46 | -0.02 | 0.00 | 0.20 | -1776.37 |
| 42 | 81 | -6252.69 | -148.44 | 0.02 | 0.00 | -0.13 | 2529.61 |
| 43 | 81 | 6252.70 | 148.44 | -0.02 | 0.00 | 0.13 | -2529.62 |
| 43 | 82 | -6214.54 | 10.86 | 0.02 | 0.00 | -0.06 | 2972.14 |
| 44 | 82 | 6214.51 | -10.85 | -0.02 | 0.00 | 0.06 | -2972.15 |
| 44 | 83 | -6179.19 | 206.55 | 0.02 | 0.00 | 0.01 | 2520.86 |
| 45 | 83 | 6179.21 | -206.55 | -0.02 | 0.00 | -0.01 | -2520.86 |
| 45 | 84 | -6168.55 | 299.55 | 0.02 | 0.00 | 0.08 | 1364.15 |
| 46 | 84 | 6168.57 | -299.55 | -0.02 | 0.00 | -0.08 | -1364.15 |
| 46 | 85 | -6181.88 | 305.57 | 0.02 | 0.00 | 0.15 | -46.63 |
| 47 | 85 | 6181.87 | -305.57 | -0.02 | 0.00 | -0.15 | 46.62 |
| 47 | 86 | -6166.62 | 687.65 | 0.02 | 0.00 | 0.22 | -1956.92 |
| 48 | 86 | 6166.61 | -687.65 | -0.02 | 0.00 | -0.22 | 1956.92 |
| 48 | 87 | -9316.82 | 1481.69 | 0.02 | 0.00 | 0.29 | -8020.15 |
| 49 | 87 | 9240.71 | 1061.47 | -0.05 | 0.05 | -0.29 | 7890.62 |
| 49 | 97 | -5979.31 | -881.03 | 0.05 | -0.05 | 0.49 | -2281.31 |
| 50 | 97 | 5979.31 | 881.03 | -0.05 | 0.05 | -0.49 | 2281.31 |
| 50 | 98 | -6016.36 | -406.41 | 0.05 | -0.05 | 0.70 | 541.65 |
| 51 | 98 | 6016.39 | 406.41 | -0.05 | 0.05 | -0.70 | -541.65 |
| 51 | 99 | -6010.39 | -195.96 | 0.05 | -0.05 | 0.90 | 1754.59 |
| 52 | 99 | 6010.38 | 195.96 | -0.05 | 0.05 | -0.90 | -1754.60 |
| 52 | 100 | -6064.47 | -136.94 | 0.05 | -0.05 | 1.11 | 2460.08 |
| 53 | 100 | 6064.46 | 136.94 | -0.05 | 0.05 | -1.11 | -2460.08 |
| 53 | 101 | -6021.47 | 22.35 | 0.05 | -0.05 | 1.31 | 2854.86 |
| 54 | 101 | 6021.47 | -22.35 | -0.05 | 0.05 | -1.31 | -2854.86 |
| 54 | 102 | -5981.31 | 218.05 | 0.05 | -0.05 | 1.52 | 2355.82 |
| 55 | 102 | 5981.34 | -218.05 | -0.05 | 0.05 | -1.52 | -2355.82 |
| 55 | 103 | -5968.46 | 311.05 | 0.05 | -0.05 | 1.72 | 1150.63 |
| 56 | 103 | 5968.45 | -311.05 | -0.05 | 0.05 | -1.72 | -1150.63 |
| 56 | 104 | -5982.40 | 317.06 | 0.05 | -0.05 | 1.93 | -306.48 |
| 57 | 104 | 5982.40 | -317.06 | -0.05 | 0.05 | -1.93 | 306.48 |
| 57 | 105 | -5974.30 | 699.14 | 0.05 | -0.05 | 2.13 | -2270.42 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 58 | 105 | 5974.30 | -699.14 | -0.05 | 0.05 | -2.13 | 2270.42 |
| 58 | 106 | -9131.65 | 1493.18 | 0.05 | -0.05 | 2.34 | -8387.29 |
| 59 | 106 | 9050.69 | 1095.59 | -0.18 | 0.93 | -2.34 | 8249.46 |
| 59 | 115 | -5796.44 | -915.16 | 0.18 | -0.93 | 3.16 | -2488.48 |
| 60 | 115 | 5796.44 | 915.16 | -0.18 | 0.93 | -3.16 | 2488.48 |
| 60 | 116 | -5839.79 | -440.54 | 0.18 | -0.93 | 3.98 | 485.42 |
| 61 | 116 | 5839.78 | 440.54 | -0.18 | 0.93 | -3.98 | -485.42 |
| 61 | 117 | -5853.48 | -230.09 | 0.18 | -0.93 | 4.80 | 1845.54 |
| 62 | 117 | 5853.48 | 230.09 | -0.18 | 0.93 | -4.80 | -1845.54 |
| 62 | 118 | -5905.33 | -171.07 | 0.18 | -0.93 | 5.62 | 2702.50 |
| 63 | 118 | 5905.33 | 171.07 | -0.18 | 0.93 | -5.62 | -2702.50 |
| 63 | 119 | -5860.09 | -11.78 | 0.18 | -0.93 | 6.44 | 3248.76 |
| 64 | 119 | 5860.11 | 11.78 | -0.18 | 0.93 | -6.44 | -3248.76 |
| 64 | 120 | -5817.71 | 183.92 | 0.18 | -0.93 | 7.26 | 2901.20 |
| 65 | 120 | 5817.70 | -183.92 | -0.18 | 0.93 | -7.26 | -2901.20 |
| 65 | 121 | -5793.38 | 276.92 | 0.18 | -0.93 | 8.08 | 1851.20 |
| 66 | 121 | 5793.39 | -276.92 | -0.18 | 0.93 | -8.08 | -1851.20 |
| 66 | 122 | -5825.32 | 282.94 | 0.18 | -0.93 | 8.90 | 544.12 |
| 67 | 122 | 5825.32 | -282.94 | -0.18 | 0.93 | -8.90 | -544.12 |
| 67 | 123 | -5812.62 | 665.02 | 0.18 | -0.93 | 9.72 | -1262.29 |
| 68 | 123 | 5812.62 | -665.02 | -0.18 | 0.93 | -9.72 | 1262.29 |
| 68 | 124 | -8922.79 | 1451.34 | 0.18 | -0.93 | 10.54 | -7221.71 |
| 69 | 124 | 8840.59 | 1015.89 | 0.29 | -0.98 | -10.54 | 7081.81 |
| 69 | 133 | -5603.36 | -615.35 | -0.29 | 0.98 | 9.22 | -1976.24 |
| 70 | 133 | 5603.36 | 615.35 | 0.29 | -0.98 | -9.22 | 1976.24 |
| 70 | 134 | -5616.26 | -260.32 | -0.29 | 0.98 | 7.90 | -535.80 |
| 71 | 134 | 5652.40 | 260.32 | 0.29 | -0.98 | -7.90 | 546.74 |
| 71 | 135 | -5709.75 | -357.08 | -0.29 | 0.98 | 6.58 | 938.38 |
| 72 | 135 | 5709.75 | 357.08 | 0.29 | -0.98 | -6.58 | -938.38 |
| 72 | 136 | -5662.08 | -174.65 | -0.29 | 0.98 | 5.27 | 2204.09 |
| 73 | 136 | 5662.08 | 174.65 | 0.29 | -0.98 | -5.27 | -2204.09 |
| 73 | 137 | -5586.82 | 21.22 | -0.29 | 0.98 | 3.95 | 2627.71 |
| 74 | 137 | 5586.83 | -21.22 | 0.29 | -0.98 | -3.95 | -2627.71 |
| 74 | 138 | -5505.28 | 153.30 | -0.29 | 0.98 | 2.63 | 2294.04 |
| 75 | 138 | 4689.34 | -153.30 | 0.29 | -0.98 | -2.63 | -2322.48 |
| 75 | 139 | -4617.32 | 323.66 | -0.29 | 0.98 | 1.32 | 1396.10 |
| 76 | 139 | 4617.32 | -323.66 | 0.29 | -0.98 | -1.32 | -1396.10 |
| 76 | 140 | -4556.27 | 537.06 | -0.29 | 0.98 | 0.00 | -511.35 |
| 77 | 16 | 1271.77 | -72.58 | 2.59 | 0.00 | -25.98 | -747.57 |
| 77 | 17 | -1213.94 | 72.58 | -2.59 | 0.00 | 12.27 | 362.90 |
| 78 | 17 | 1213.94 | -72.58 | 2.59 | 0.00 | -12.27 | -362.90 |
| 78 | 18 | -1152.94 | 72.58 | -2.59 | 0.00 | -0.66 | 0.00 |
| 79 | 33 | 1479.70 | 81.08 | -0.51 | 0.00 | 7.08 | 1019.99 |
| 79 | 34 | -1396.99 | -81.08 | 0.51 | 0.00 | -3.20 | -405.40 |
| 80 | 34 | 1396.99 | 81.08 | -0.51 | 0.00 | 3.20 | 405.40 |
| 80 | 35 | -1335.99 | -81.08 | 0.51 | 0.00 | -0.64 | 0.00 |
| 81 | 50 | 1683.77 | -79.66 | 0.07 | 0.00 | -1.35 | -2509.29 |
| 81 | 51 | -1601.56 | 79.66 | -0.07 | 0.00 | 0.87 | 1991.50 |
| 82 | 51 | 1601.56 | -79.66 | 0.07 | 0.00 | -0.87 | -1991.50 |
| 82 | 52 | -1482.21 | 79.66 | -0.07 | 0.00 | 0.13 | 1194.89 |
| 83 | 52 | 1482.22 | -79.66 | 0.07 | 0.00 | -0.13 | -1194.90 |
| 83 | 53 | -1373.10 | 79.66 | -0.07 | 0.00 | -0.61 | 398.30 |
| 84 | 53 | 1373.10 | -79.66 | 0.07 | 0.00 | 0.61 | -398.29 |
| 84 | 54 | -1312.10 | 79.66 | -0.07 | 0.00 | -0.98 | 0.00 |
| 85 | 69 | 1659.21 | 81.18 | 0.06 | 0.00 | -1.37 | 2312.00 |
| 85 | 70 | -1614.66 | -81.18 | -0.06 | 0.00 | 1.18 | -2029.50 |
| 86 | 70 | 1614.66 | 81.18 | 0.06 | 0.00 | -1.18 | 2029.50 |
| 86 | 71 | -1495.32 | -81.18 | -0.06 | 0.00 | 0.62 | -1217.70 |
| 87 | 71 | 1495.32 | 81.18 | 0.06 | 0.00 | -0.62 | 1217.70 |
| 87 | 72 | -1386.20 | -81.18 | -0.06 | 0.00 | 0.06 | -405.90 |
| 88 | 72 | 1386.20 | 81.18 | 0.06 | 0.00 | -0.06 | 405.89 |
| 88 | 73 | -1325.20 | -81.18 | -0.06 | 0.00 | -0.22 | 0.00 |
| 89 | 88 | 1603.21 | -76.10 | 0.02 | 0.00 | 1.17 | -1978.60 |
| 89 | 89 | -1590.71 | 76.10 | -0.02 | 0.00 | -1.19 | 1902.50 |
| 90 | 89 | 1590.71 | -76.10 | 0.02 | 0.00 | 1.19 | -1902.50 |
| 90 | 90 | -1471.37 | 76.10 | -0.02 | 0.00 | -1.39 | 1141.50 |
| 91 | 90 | 1471.37 | -76.10 | 0.02 | 0.00 | 1.39 | -1141.50 |
| 91 | 91 | -1362.25 | 76.10 | -0.02 | 0.00 | -1.59 | 380.50 |
| 92 | 91 | 1362.25 | -76.10 | 0.02 | 0.00 | 1.59 | -380.50 |
| 92 | 92 | -1301.25 | 76.10 | -0.02 | 0.00 | -1.69 | 0.00 |
| 93 | 107 | 1534.65 | 80.98 | -0.84 | 0.00 | 14.04 | 1295.68 |
| 93 | 108 | -1523.18 | -80.98 | 0.84 | 0.00 | -13.20 | -1214.70 |
| 94 | 108 | 1523.18 | 80.98 | -0.84 | 0.00 | 13.20 | 1214.70 |
| 94 | 109 | -1414.06 | -80.98 | 0.84 | 0.00 | -4.84 | -404.90 |
| 95 | 109 | 1414.06 | 80.98 | -0.84 | 0.00 | 4.84 | 404.90 |
| 95 | 110 | -1353.06 | -80.98 | 0.84 | 0.00 | -0.66 | 0.00 |
| 96 | 125 | 1193.88 | -82.20 | 2.45 | 0.00 | -35.04 | -1315.20 |
| 96 | 126 | -1182.41 | 82.20 | -2.45 | 0.00 | 32.59 | 1233.00 |
| 97 | 126 | 1182.41 | -82.20 | 2.45 | 0.00 | -32.59 | -1233.00 |
| 97 | 127 | -1073.29 | 82.20 | -2.45 | 0.00 | 8.08 | 411.00 |
| 98 | 127 | 1073.29 | -82.20 | 2.45 | 0.00 | -8.08 | -411.00 |
| 98 | 128 | -1012.29 | 82.20 | -2.45 | 0.00 | -4.18 | 0.00 |
| 99 | 2 | 222.85 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -222.85 | -16.88 | 0.00 | 0.00 | 0.00 | 28.73 |
| 100 | 4 | 222.83 | 0.00 | 12.69 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -222.83 | -16.88 | -12.69 | 0.00 | -21.72 | 28.73 |
| 101 | 19 | 467.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -467.91 | 36.29 | 0.00 | 0.00 | 0.00 | -61.77 |
| 102 | 21 | 468.22 | 0.00 | 40.54 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -468.22 | 36.29 | -40.54 | 0.00 | -69.40 | -61.77 |
| 103 | 36 | 518.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -518.21 | -40.54 | 0.00 | 0.00 | 0.00 | 69.00 |
| 104 | 38 | 517.92 | 0.00 | 141.89 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -517.92 | -40.54 | -141.89 | 0.00 | -242.92 | 69.00 |
| 105 | 55 | 517.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -517.67 | 39.83 | 0.00 | 0.00 | 0.00 | -67.79 |
| 106 | 57 | 517.89 | 0.00 | 12.33 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -517.89 | 39.83 | -12.33 | 0.00 | -21.10 | -67.79 |
| 107 | 74 | 556.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -556.48 | -40.59 | 0.00 | 0.00 | 0.00 | 69.08 |
| 108 | 76 | 556.63 | 0.00 | 51.37 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -556.63 | -40.59 | -51.37 | 0.00 | -87.93 | 69.08 |
| 109 | 93 | 517.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -517.71 | 38.05 | 0.00 | 0.00 | 0.00 | -64.76 |
| 110 | 95 | 517.88 | 0.00 | 46.70 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -517.88 | 38.05 | -46.70 | 0.00 | -79.95 | -64.76 |
| 111 | 111 | 548.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -548.13 | -40.49 | 0.00 | 0.00 | 0.00 | 68.91 |
| 112 | 113 | 547.87 | 0.00 | 111.52 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -547.87 | -40.49 | -111.52 | 0.00 | -190.91 | 68.91 |
| 113 | 129 | 429.95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -429.95 | 41.10 | 0.00 | 0.00 | 0.00 | -69.95 |
| 114 | 131 | 430.82 | 0.00 | 30.51 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -430.82 | 41.10 | -30.51 | 0.00 | -52.23 | -69.95 |
| 115 | 141 | 199.13 | -460.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -199.13 | 446.77 | 0.00 | 0.00 | 0.00 | -765.00 |
| 116 | 143 | 199.06 | -460.34 | 28.64 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -199.06 | 446.77 | -28.64 | 0.00 | -49.03 | -765.00 |
| 117 | 6 | 492.05 | 33.76 | -0.56 | 0.00 | 3.07 | 33.76 |
| 117 | 7 | -492.05 | -33.76 | 0.56 | 0.00 | -2.52 | 0.00 |
| 118 | 145 | 468.36 | -945.51 | 0.06 | 0.00 | 3.60 | -945.51 |
| 118 | 146 | -468.36 | 945.51 | -0.06 | 0.00 | -3.65 | 0.00 |
| 119 | 3 | 0.00 | 337.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -337.38 | 0.00 | 0.00 | 0.01 | 1433.88 |
| 120 | 1 | -29.05 | -241.86 | -16.93 | 28.73 | 71.71 | -1077.65 |
| 120 | 5 | 29.05 | 241.86 | 16.93 | -28.73 | -0.03 | 49.73 |
| 121 | 20 | 0.00 | 1024.62 | -0.14 | 0.00 | 0.01 | -0.01 |
| 121 | 15 | 0.00 | -1024.62 | 0.14 | 0.00 | 0.02 | 1895.54 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 122 | 15 | -73.12 | -1021.47 | 36.20 | -61.77 | -67.17 | -2014.91 |
| 122 | 22 | 73.12 | 1021.47 | -36.20 | 61.77 | -0.04 | 125.18 |
| 123 | 37 | -0.01 | 1243.76 | -0.07 | 0.00 | -0.05 | 0.00 |
| 123 | 32 | 0.01 | -1243.76 | 0.07 | 0.00 | -0.17 | 2300.98 |
| 124 | 32 | -142.38 | -539.20 | -40.54 | 69.00 | 74.66 | -1241.22 |
| 124 | 39 | 142.38 | 539.20 | 40.54 | -69.00 | -0.44 | 243.76 |
| 125 | 56 | -0.02 | 1339.08 | -0.05 | 0.00 | -0.24 | 0.00 |
| 125 | 49 | 0.02 | -1339.08 | 0.05 | 0.00 | -0.22 | 2477.33 |
| 126 | 49 | -53.56 | -1026.95 | 0.15 | 0.00 | -0.12 | -1991.53 |
| 126 | 58 | 53.56 | 1026.95 | -0.15 | 0.00 | -0.12 | 91.73 |
| 127 | 75 | -0.02 | 1381.80 | 0.06 | 0.00 | -0.07 | -0.01 |
| 127 | 68 | 0.02 | -1381.80 | -0.06 | 0.00 | -0.07 | 2556.32 |
| 128 | 68 | -78.27 | -1045.20 | -0.03 | 0.00 | 0.06 | -2067.59 |
| 128 | 77 | 78.27 | 1045.20 | 0.03 | 0.00 | 0.05 | 134.00 |
| 129 | 94 | -0.03 | 1165.90 | 0.10 | 0.00 | -0.10 | 0.00 |
| 129 | 87 | 0.03 | -1165.90 | -0.10 | 0.00 | -0.10 | 2156.89 |
| 130 | 87 | -77.66 | -1019.81 | -38.09 | 64.76 | 70.40 | -2019.62 |
| 130 | 96 | 77.66 | 1019.81 | 38.09 | -64.76 | 0.03 | 132.97 |
| 131 | 112 | -0.02 | 1229.39 | -0.08 | 0.00 | -0.02 | 0.00 |
| 131 | 106 | 0.02 | -1229.39 | 0.08 | 0.00 | 0.07 | 2274.38 |
| 132 | 106 | -117.99 | -1026.30 | -40.48 | 68.91 | 74.80 | -2100.61 |
| 132 | 114 | 117.99 | 1026.30 | 40.48 | -68.91 | -0.03 | 201.99 |
| 133 | 130 | -0.01 | 1214.00 | 0.01 | 0.00 | -0.01 | 0.00 |
| 133 | 124 | 0.01 | -1214.00 | -0.01 | 0.00 | 0.04 | 2245.92 |
| 134 | 124 | -75.40 | -964.45 | 41.11 | -69.95 | -76.04 | -1913.29 |
| 134 | 132 | 75.40 | 964.45 | -41.11 | 69.95 | 0.06 | 129.07 |
| 135 | 142 | 0.00 | 357.22 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -357.22 | 0.00 | 0.00 | -0.01 | 1518.20 |
| 136 | 140 | -47.44 | -224.63 | 395.38 | -677.02 | -1680.35 | -1035.89 |
| 136 | 144 | 47.44 | 224.63 | -395.38 | 677.02 | 0.00 | 81.22 |
| 137 | 2 | 0.00 | -337.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 337.38 | 0.00 | 0.00 | 0.00 | -1433.88 |
| 138 | 7 | -29.78 | 479.07 | -16.88 | 0.00 | 71.57 | 2036.05 |
| 138 | 4 | 29.78 | -479.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -1324.45 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 1324.45 | 0.00 | 0.00 | 0.00 | -2450.25 |
| 140 | 18 | -71.79 | 859.30 | 36.30 | 0.00 | -66.77 | 1589.69 |
| 140 | 21 | 71.79 | -859.30 | -0.01 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | -0.01 | -939.01 | 0.00 | 0.00 | 0.00 | 0.01 |
| 141 | 35 | 0.01 | 939.01 | 0.00 | 0.00 | 0.00 | -1737.19 |
| 142 | 35 | -143.01 | 1386.62 | -40.53 | 0.00 | 74.60 | 2565.24 |
| 142 | 38 | 143.01 | -1386.62 | -0.01 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | -0.02 | -1093.42 | 0.00 | 0.00 | 0.00 | 0.01 |
| 143 | 54 | 0.02 | 1093.42 | 0.00 | 0.00 | 0.00 | -2022.81 |
| 144 | 54 | -53.66 | 889.19 | 0.00 | 0.00 | 0.00 | 1645.02 |
| 144 | 57 | 53.66 | -889.19 | 0.00 | 0.00 | 0.00 | 0.01 |
| 145 | 74 | -0.02 | -1338.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.02 | 1338.49 | 0.00 | 0.00 | 0.00 | -2476.22 |
| 146 | 73 | -78.36 | 872.11 | 0.00 | 0.00 | 0.00 | 1613.40 |
| 146 | 76 | 78.36 | -872.11 | 0.00 | 0.00 | 0.00 | -0.01 |
| 147 | 93 | -0.01 | -1064.56 | 0.00 | 0.00 | 0.00 | 0.01 |
| 147 | 92 | 0.01 | 1064.56 | 0.00 | 0.00 | 0.00 | -1969.44 |
| 148 | 92 | -77.79 | 875.59 | -38.06 | 0.00 | 70.06 | 1619.83 |
| 148 | 95 | 77.79 | -875.59 | 0.01 | 0.00 | 0.05 | 0.00 |
| 149 | 111 | -0.01 | -1057.30 | 0.00 | 0.00 | 0.00 | -0.01 |
| 149 | 110 | 0.01 | 1057.30 | 0.00 | 0.00 | 0.00 | -1955.98 |
| 150 | 110 | -118.48 | 1118.47 | -40.52 | 0.00 | 74.49 | 2069.16 |
| 150 | 113 | 118.48 | -1118.47 | 0.03 | 0.00 | -0.01 | 0.00 |
| 151 | 129 | -0.01 | -1185.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.01 | 1185.86 | 0.00 | 0.00 | 0.00 | -2193.84 |
| 152 | 128 | -74.37 | 726.13 | 41.12 | 0.00 | -75.60 | 1343.33 |
| 152 | 131 | 74.37 | -726.13 | -0.02 | 0.00 | 0.02 | 0.00 |
| 153 | 141 | 0.00 | -357.22 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 357.22 | 0.00 | 0.00 | 0.01 | -1518.20 |
| 154 | 146 | -48.03 | 531.61 | 395.38 | 0.00 | -1680.51 | 2259.34 |
| 154 | 143 | 48.03 | -531.61 | -408.95 | 0.00 | 0.00 | 0.00 |

## DESPLAZAMIENTOS DE NUDOS

| NUDO | DESP. X | DESP. Y | DESP. Z | GIRO X | GIRO Y | GIRO Z |
|---|---|---|---|---|---|---|
| 1 | 0.061671 | -0.001025 | -0.000194 | 0.000000 | -0.000003 | -0.000784 |
| 2 | -0.000011 | -0.000242 | 0.000000 | -0.000079 | 0.000004 | 0.000000 |
| 3 | 0.061642 | -0.000729 | -0.000203 | 0.000110 | 0.000008 | -0.000809 |
| 4 | -0.000011 | -0.000242 | 0.000000 | 0.000079 | -0.000004 | 0.000000 |
| 5 | 0.061619 | -0.000733 | -0.000188 | -0.000111 | -0.000014 | -0.000946 |
| 7 | 0.000000 | -0.000018 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 8 | 0.060822 | -0.005378 | -0.000181 | 0.000000 | -0.000003 | -0.000808 |
| 9 | 0.059970 | -0.008813 | -0.000169 | 0.000000 | -0.000003 | -0.000549 |
| 10 | 0.059058 | -0.010417 | -0.000158 | -0.000001 | -0.000002 | -0.000151 |
| 11 | 0.058137 | -0.010086 | -0.000146 | -0.000001 | -0.000002 | 0.000187 |
| 12 | 0.057212 | -0.008503 | -0.000136 | -0.000001 | -0.000002 | 0.000384 |
| 13 | 0.056291 | -0.006396 | -0.000126 | -0.000001 | -0.000002 | 0.000430 |
| 14 | 0.055378 | -0.004345 | -0.000117 | -0.000001 | -0.000002 | 0.000364 |
| 15 | 0.054192 | -0.002511 | -0.000110 | -0.000002 | -0.000001 | -0.000140 |
| 17 | -0.000878 | -0.000500 | -0.000004 | -0.000001 | 0.000000 | 0.000258 |
| 18 | -0.002489 | -0.000907 | -0.000011 | -0.000001 | 0.000000 | 0.000324 |
| 19 | -0.002491 | -0.000949 | -0.000011 | -0.000033 | 0.000002 | 0.000324 |
| 20 | 0.054181 | -0.002547 | -0.000365 | 0.000010 | 0.000007 | -0.000146 |
| 21 | -0.002491 | -0.000944 | -0.000011 | 0.000031 | -0.000002 | 0.000324 |
| 22 | 0.054175 | -0.002541 | 0.000144 | -0.000013 | -0.000010 | -0.000146 |
| 23 | 0.052908 | -0.005868 | -0.000104 | -0.000001 | -0.000001 | -0.000737 |
| 24 | 0.051803 | -0.009985 | -0.000099 | -0.000001 | -0.000001 | -0.000759 |
| 25 | 0.050656 | -0.013049 | -0.000096 | -0.000001 | -0.000001 | -0.000527 |
| 26 | 0.049545 | -0.014920 | -0.000093 | -0.000001 | -0.000001 | -0.000256 |
| 27 | 0.048430 | -0.015420 | -0.000091 | 0.000000 | 0.000000 | 0.000076 |
| 28 | 0.047322 | -0.014199 | -0.000090 | 0.000000 | 0.000000 | 0.000395 |
| 29 | 0.046216 | -0.011654 | -0.000089 | 0.000000 | 0.000000 | 0.000585 |
| 30 | 0.045160 | -0.008624 | -0.000089 | 0.000000 | 0.000000 | 0.000624 |
| 31 | 0.044151 | -0.005615 | -0.000089 | 0.000001 | 0.000000 | 0.000524 |
| 32 | 0.042878 | -0.003088 | -0.000089 | 0.000001 | 0.000000 | -0.000133 |
| 34 | -0.002258 | -0.000798 | 0.000003 | 0.000001 | 0.000000 | 0.000477 |
| 35 | -0.004999 | -0.001249 | 0.000007 | 0.000001 | 0.000000 | 0.000551 |
| 36 | -0.005001 | -0.001292 | 0.000007 | -0.000035 | 0.000002 | 0.000551 |
| 37 | 0.042857 | -0.003102 | -0.000407 | 0.000020 | 0.000013 | -0.000173 |
| 38 | -0.005001 | -0.001295 | 0.000007 | 0.000037 | -0.000002 | 0.000551 |
| 39 | 0.042857 | -0.003105 | 0.000227 | -0.000018 | -0.000013 | -0.000173 |
| 40 | 0.041629 | -0.006815 | -0.000089 | 0.000001 | 0.000000 | -0.000873 |
| 41 | 0.040646 | -0.011682 | -0.000089 | 0.000001 | 0.000000 | -0.000937 |
| 42 | 0.039661 | -0.015741 | -0.000090 | 0.000001 | 0.000000 | -0.000756 |
| 43 | 0.038671 | -0.018679 | -0.000090 | 0.000001 | 0.000000 | -0.000481 |
| 44 | 0.037682 | -0.020181 | -0.000090 | 0.000001 | 0.000000 | -0.000124 |
| 45 | 0.036700 | -0.019795 | -0.000090 | 0.000001 | 0.000000 | 0.000244 |
| 46 | 0.035725 | -0.017815 | -0.000091 | 0.000000 | 0.000000 | 0.000505 |
| 47 | 0.034849 | -0.015023 | -0.000091 | 0.000000 | 0.000000 | 0.000598 |
| 48 | 0.034073 | -0.012086 | -0.000091 | 0.000000 | 0.000000 | 0.000537 |
| 49 | 0.033032 | -0.009411 | -0.000091 | 0.000000 | 0.000000 | -0.000060 |
| 51 | -0.004351 | -0.000657 | 0.000000 | 0.000000 | 0.000000 | 0.001225 |
| 52 | -0.024386 | -0.001674 | 0.000001 | 0.000000 | 0.000000 | 0.002598 |
| 53 | -0.054890 | -0.002718 | 0.000004 | 0.000000 | 0.000000 | 0.003324 |
| 54 | -0.071865 | -0.003163 | 0.000005 | 0.000000 | 0.000000 | 0.003397 |
| 55 | -0.071867 | -0.003206 | 0.000005 | -0.000035 | 0.000002 | 0.003397 |
| 56 | 0.033011 | -0.009384 | -0.000602 | 0.000017 | 0.000015 | -0.000043 |
| 57 | -0.071867 | -0.003207 | 0.000005 | 0.000036 | -0.000002 | 0.003397 |
| 58 | 0.033011 | -0.009466 | 0.000726 | 0.000014 | -0.000015 | -0.000021 |
| 59 | 0.032014 | -0.012645 | -0.000092 | 0.000000 | 0.000000 | -0.000733 |
| 60 | 0.031262 | -0.016732 | -0.000092 | 0.000000 | 0.000000 | -0.000739 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 61 | 0.030506 | -0.019770 | -0.000092 | 0.000000 | 0.000000 | -0.000512 |
| 62 | 0.029743 | -0.021510 | -0.000092 | 0.000000 | 0.000000 | -0.000206 |
| 63 | 0.028979 | -0.021704 | -0.000092 | 0.000000 | 0.000000 | 0.000165 |
| 64 | 0.028223 | -0.019986 | -0.000093 | 0.000000 | 0.000000 | 0.000528 |
| 65 | 0.027472 | -0.016746 | -0.000093 | 0.000000 | 0.000000 | 0.000760 |
| 66 | 0.026722 | -0.012853 | -0.000093 | 0.000000 | 0.000000 | 0.000817 |
| 67 | 0.025973 | -0.008977 | -0.000093 | 0.000000 | 0.000000 | 0.000710 |
| 68 | 0.024961 | -0.005636 | -0.000093 | 0.000000 | 0.000000 | 0.000036 |
| 70 | -0.001210 | -0.000347 | 0.000000 | 0.000000 | 0.000000 | 0.000619 |
| 71 | -0.015364 | -0.001371 | 0.000001 | 0.000000 | 0.000000 | 0.002022 |
| 72 | -0.040201 | -0.002425 | 0.000004 | 0.000000 | 0.000000 | 0.002763 |
| 73 | -0.054376 | -0.002873 | 0.000005 | 0.000000 | 0.000000 | 0.002837 |
| 74 | -0.054378 | -0.002916 | 0.000005 | -0.000035 | 0.000002 | 0.002837 |
| 75 | 0.024943 | -0.005559 | -0.000058 | 0.000061 | 0.000013 | -0.000026 |
| 76 | -0.054378 | -0.002917 | 0.000005 | 0.000036 | -0.000002 | 0.002837 |
| 77 | 0.024943 | -0.005561 | -0.000128 | -0.000061 | -0.000013 | -0.000026 |
| 78 | 0.023973 | -0.008656 | -0.000093 | 0.000000 | 0.000000 | -0.000726 |
| 79 | 0.023251 | -0.012911 | -0.000093 | 0.000000 | 0.000000 | -0.000811 |
| 80 | 0.022526 | -0.016450 | -0.000093 | 0.000000 | 0.000000 | -0.000650 |
| 81 | 0.021793 | -0.018959 | -0.000093 | 0.000000 | 0.000000 | -0.000396 |
| 82 | 0.021058 | -0.020121 | -0.000093 | 0.000000 | 0.000000 | -0.000059 |
| 83 | 0.020330 | -0.019487 | -0.000092 | 0.000000 | 0.000000 | 0.000289 |
| 84 | 0.019606 | -0.017352 | -0.000092 | 0.000000 | 0.000000 | 0.000529 |
| 85 | 0.018881 | -0.014478 | -0.000092 | 0.000000 | 0.000000 | 0.000619 |
| 86 | 0.018155 | -0.011418 | -0.000092 | 0.000000 | 0.000000 | 0.000572 |
| 87 | 0.017168 | -0.008555 | -0.000092 | 0.000000 | 0.000000 | -0.000010 |
| 89 | -0.000110 | -0.000100 | 0.000000 | 0.000000 | 0.000000 | 0.000163 |
| 90 | -0.009187 | -0.001112 | 0.000001 | 0.000000 | 0.000000 | 0.001476 |
| 91 | -0.028279 | -0.002151 | 0.000004 | 0.000000 | 0.000000 | 0.002171 |
| 92 | -0.039474 | -0.002593 | 0.000005 | 0.000000 | 0.000000 | 0.002241 |
| 93 | -0.039476 | -0.002636 | 0.000005 | -0.000035 | 0.000002 | 0.002241 |
| 94 | 0.017147 | -0.008407 | 0.000606 | 0.000113 | 0.000013 | 0.000011 |
| 95 | -0.039476 | -0.002637 | 0.000005 | 0.000035 | -0.000002 | 0.002241 |
| 96 | 0.017147 | -0.008408 | -0.000791 | -0.000112 | -0.000013 | 0.000011 |
| 97 | 0.016203 | -0.011530 | -0.000092 | 0.000000 | 0.000000 | -0.000673 |
| 98 | 0.015506 | -0.015322 | -0.000092 | 0.000000 | 0.000000 | -0.000673 |
| 99 | 0.014806 | -0.018055 | -0.000092 | 0.000000 | 0.000000 | -0.000447 |
| 100 | 0.014101 | -0.019504 | -0.000092 | 0.000000 | 0.000000 | -0.000148 |
| 101 | 0.013394 | -0.019449 | -0.000092 | 0.000000 | 0.000000 | 0.000212 |
| 102 | 0.012695 | -0.017551 | -0.000093 | 0.000000 | 0.000000 | 0.000556 |
| 103 | 0.012000 | -0.014227 | -0.000093 | 0.000000 | 0.000000 | 0.000763 |
| 104 | 0.011305 | -0.010374 | -0.000094 | 0.000000 | 0.000000 | 0.000790 |
| 105 | 0.010609 | -0.006693 | -0.000094 | 0.000000 | 0.000000 | 0.000644 |
| 106 | 0.009649 | -0.003734 | -0.000095 | 0.000000 | 0.000000 | -0.000075 |
| 108 | -0.000080 | -0.000107 | 0.000000 | 0.000000 | 0.000000 | 0.000108 |
| 109 | -0.005662 | -0.001195 | 0.000004 | 0.000001 | 0.000000 | 0.000833 |
| 110 | -0.010184 | -0.001659 | 0.000007 | 0.000000 | 0.000000 | 0.000907 |
| 111 | -0.010186 | -0.001704 | 0.000007 | -0.000036 | 0.000002 | 0.000907 |
| 112 | 0.009631 | -0.003545 | 0.000416 | 0.000112 | 0.000013 | -0.000112 |
| 113 | -0.010186 | -0.001705 | 0.000007 | 0.000037 | -0.000002 | 0.000907 |
| 114 | 0.009632 | -0.003546 | -0.000605 | -0.000111 | -0.000013 | -0.000112 |
| 115 | 0.008711 | -0.007382 | -0.000096 | 0.000000 | 0.000000 | -0.000875 |
| 116 | 0.008040 | -0.012391 | -0.000097 | 0.000000 | 0.000000 | -0.000977 |
| 117 | 0.007364 | -0.016714 | -0.000098 | 0.000000 | 0.000000 | -0.000813 |
| 118 | 0.006680 | -0.019943 | -0.000100 | -0.000001 | 0.000000 | -0.000533 |
| 119 | 0.005996 | -0.021660 | -0.000103 | -0.000001 | 0.000001 | -0.000148 |
| 120 | 0.005319 | -0.021315 | -0.000105 | -0.000001 | 0.000001 | 0.000270 |
| 121 | 0.004648 | -0.019103 | -0.000109 | -0.000001 | 0.000001 | 0.000603 |
| 122 | 0.003976 | -0.015680 | -0.000113 | -0.000001 | 0.000001 | 0.000809 |
| 123 | 0.003302 | -0.011501 | -0.000117 | -0.000002 | 0.000001 | 0.000900 |
| 124 | 0.002369 | -0.006846 | -0.000123 | -0.000002 | 0.000001 | 0.000478 |
| 126 | -0.000081 | -0.000088 | 0.000000 | 0.000000 | 0.000000 | 0.000109 |
| 127 | -0.005740 | -0.000981 | -0.000015 | -0.000002 | 0.000000 | 0.000845 |
| 128 | -0.010324 | -0.001358 | -0.000027 | -0.000002 | 0.000000 | 0.000919 |
| 129 | -0.010326 | -0.001399 | -0.000027 | -0.000032 | 0.000002 | 0.000919 |
| 130 | 0.002359 | -0.006760 | 0.000021 | 0.000066 | 0.000009 | 0.000477 |
| 131 | -0.010326 | -0.001391 | -0.000027 | 0.000028 | -0.000002 | 0.000919 |
| 132 | 0.002364 | -0.006753 | -0.000266 | -0.000070 | -0.000006 | 0.000477 |
| 133 | 0.001461 | -0.007096 | -0.000130 | -0.000002 | 0.000002 | -0.000052 |
| 134 | 0.000785 | -0.013921 | -0.000139 | -0.000002 | 0.000003 | -0.000595 |
| 135 | 0.000085 | -0.016211 | -0.000151 | -0.000002 | 0.000003 | -0.000318 |
| 136 | -0.000616 | -0.016933 | -0.000164 | -0.000001 | 0.000003 | 0.000095 |
| 137 | -0.001308 | -0.015431 | -0.000178 | -0.000001 | 0.000003 | 0.000552 |
| 138 | -0.001986 | -0.011830 | -0.000192 | -0.000001 | 0.000003 | 0.000924 |
| 139 | -0.002496 | -0.006775 | -0.000206 | 0.000000 | 0.000003 | 0.001125 |
| 140 | -0.003982 | -0.001123 | -0.000212 | 0.000000 | 0.000003 | 0.001605 |
| 141 | -0.001255 | -0.000090 | 0.000014 | -0.000038 | 0.000328 | 0.000012 |
| 142 | -0.003695 | -0.000771 | -0.000211 | 0.000125 | -0.000100 | 0.001810 |
| 143 | -0.001240 | -0.000043 | -0.000017 | 0.000023 | -0.000325 | 0.000012 |
| 144 | -0.003670 | -0.000770 | -0.000215 | -0.000125 | 0.000106 | 0.001810 |
| 146 | -0.000011 | -0.000024 | 0.000000 | 0.000000 | 0.000002 | 0.000017 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS 203

FUER Y MAX envolvente (ELS)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 7049.68 | 909.80 | -0.74 | 1.40 | 0.00 | 1267.49 |
| 1 | 8 | -7072.97 | -582.74 | 0.73 | -1.37 | 3.28 | 2028.31 |
| 2 | 8 | 7073.07 | 582.74 | -0.73 | 1.37 | -3.28 | -2028.31 |
| 2 | 9 | -7091.53 | -306.38 | 0.71 | -1.34 | 6.43 | 3969.91 |
| 3 | 9 | 7378.89 | 306.38 | -0.71 | 1.34 | -6.43 | -4156.28 |
| 3 | 10 | -7411.08 | -47.30 | 0.17 | -2.96 | 2.28 | 3568.30 |
| 4 | 10 | 7411.05 | 47.30 | -0.17 | 2.96 | -2.28 | -3568.30 |
| 4 | 11 | -9686.32 | 30.60 | 0.12 | -2.94 | 2.20 | 256.42 |
| 5 | 11 | 9686.30 | -30.60 | -0.12 | 2.94 | -2.20 | -256.42 |
| 5 | 12 | -9691.08 | -55.24 | 0.12 | -2.94 | 2.75 | 331.04 |
| 6 | 12 | 9691.08 | 55.24 | -0.12 | 2.94 | -2.75 | -331.04 |
| 6 | 13 | -9610.53 | -274.07 | 0.12 | -2.94 | 3.30 | 1036.22 |
| 7 | 13 | 9581.11 | 274.07 | -0.12 | 2.94 | -3.30 | -1040.17 |
| 7 | 14 | -9621.32 | -119.21 | 0.12 | -2.94 | 3.85 | 2318.76 |
| 8 | 14 | 9621.33 | 119.21 | -0.12 | 2.94 | -3.85 | -2318.76 |
| 8 | 15 | -10645.92 | 628.11 | 0.08 | -2.86 | 2.87 | -1076.56 |
| 9 | 15 | 10718.60 | 1341.49 | 0.18 | -0.56 | -11.31 | 8490.64 |
| 9 | 23 | -8538.54 | -1052.71 | -0.18 | 0.56 | 10.51 | -2865.00 |
| 10 | 23 | 8538.51 | 1052.71 | 0.18 | -0.56 | -10.51 | 2865.00 |
| 10 | 24 | -8590.71 | -554.06 | -0.18 | 0.56 | 9.72 | 646.75 |
| 11 | 24 | 9018.70 | 554.07 | 0.18 | -0.56 | -9.72 | -957.95 |
| 11 | 25 | -8587.91 | -319.58 | -0.18 | 0.56 | 8.92 | 2439.42 |
| 12 | 25 | 8588.03 | 319.58 | 0.18 | -0.56 | -8.93 | -2439.42 |
| 12 | 26 | -8666.14 | -236.53 | -0.18 | 0.56 | 8.13 | 3616.46 |
| 13 | 26 | 8666.09 | 236.53 | 0.18 | -0.56 | -8.13 | -3616.46 |
| 13 | 27 | -8647.18 | -71.91 | -0.19 | 0.59 | 8.07 | 3303.03 |
| 14 | 27 | 8647.14 | 71.91 | 0.19 | -0.59 | -8.07 | -3303.03 |
| 14 | 28 | -11106.69 | 11.88 | 1.57 | 0.50 | 15.19 | -551.58 |
| 15 | 28 | 11106.69 | -11.88 | -1.57 | -0.50 | -15.19 | 551.59 |
| 15 | 29 | -11106.18 | -66.23 | 1.57 | 0.50 | 11.67 | -482.34 |
| 16 | 29 | 11106.15 | 66.23 | -1.57 | -0.50 | -11.67 | 482.33 |
| 16 | 30 | -10458.48 | -257.31 | 1.57 | 0.50 | 8.14 | 436.52 |
| 17 | 30 | 10458.50 | 257.31 | -1.57 | -0.50 | -8.14 | -436.52 |
| 17 | 31 | -10456.07 | 40.01 | 1.57 | 0.50 | 4.62 | 1315.44 |
| 18 | 31 | 10456.08 | -40.01 | -1.57 | -0.50 | -4.62 | -1315.44 |
| 18 | 32 | -11228.90 | 811.65 | 1.60 | 0.40 | 1.11 | -2767.98 |
| 19 | 32 | 11411.24 | 1289.72 | -0.10 | 0.73 | 4.75 | 9616.94 |
| 19 | 40 | -8172.38 | -1085.25 | 0.10 | -0.73 | -4.31 | -3062.52 |
| 20 | 40 | 8172.35 | 1085.25 | -0.10 | 0.73 | 4.30 | 3062.52 |
| 20 | 41 | -8227.53 | -586.60 | 0.10 | -0.73 | -3.86 | 596.72 |
| 21 | 41 | 8227.56 | 586.60 | -0.10 | 0.73 | 3.86 | -596.72 |
| 21 | 42 | -8231.64 | -352.12 | 0.10 | -0.73 | -3.41 | 2536.46 |
| 22 | 42 | 8231.67 | 352.12 | -0.10 | 0.73 | 3.41 | -2536.46 |
| 22 | 43 | -8295.87 | -269.07 | 0.10 | -0.73 | -2.96 | 3860.61 |
| 23 | 43 | 8295.82 | 269.07 | -0.10 | 0.73 | 2.96 | -3860.61 |
| 23 | 44 | -8262.97 | -105.61 | 0.10 | -0.73 | -2.35 | 4096.55 |
| 24 | 44 | 8263.00 | 105.61 | -0.10 | 0.73 | 2.35 | -4096.55 |
| 24 | 45 | -10447.38 | -27.68 | -2.30 | 0.22 | 1.70 | -25.72 |
| 25 | 45 | 10447.38 | 27.68 | 2.30 | -0.22 | -1.70 | 25.72 |
| 25 | 46 | -10432.12 | -105.79 | -2.30 | 0.22 | 1.93 | 221.53 |
| 26 | 46 | 10432.12 | 105.79 | 2.30 | -0.22 | -1.93 | -221.53 |
| 26 | 47 | -9088.60 | -296.86 | -2.30 | 0.22 | 2.15 | 815.29 |
| 27 | 47 | 9088.59 | 296.86 | 2.30 | -0.22 | -2.15 | -815.29 |
| 27 | 48 | -9087.43 | 0.46 | -2.30 | 0.22 | 2.37 | 1868.45 |
| 28 | 48 | 9087.43 | -0.46 | 2.30 | -0.22 | -2.37 | -1868.45 |
| 28 | 49 | -10184.26 | 773.64 | -2.30 | 0.24 | 2.64 | -2023.38 |
| 29 | 49 | 10466.44 | 1280.40 | -0.03 | 0.50 | 1.94 | 9931.43 |
| 29 | 59 | -7228.49 | -1075.94 | 0.03 | -0.50 | -1.78 | -3421.84 |
| 30 | 59 | 7228.53 | 1075.94 | -0.04 | 0.50 | 1.78 | 3421.84 |
| 30 | 60 | -7288.17 | -577.29 | 0.04 | -0.50 | -1.63 | 192.54 |
| 31 | 60 | 7288.12 | 577.29 | -0.03 | 0.50 | 1.63 | -192.54 |
| 31 | 61 | -7311.13 | -342.81 | 0.03 | -0.50 | -1.47 | 2085.25 |
| 32 | 61 | 7311.15 | 342.81 | -0.03 | 0.50 | 1.48 | -2085.24 |
| 32 | 62 | -7379.25 | -259.79 | 0.04 | -0.53 | -1.25 | 2650.45 |
| 33 | 62 | 7379.29 | 259.79 | -0.04 | 0.53 | 1.25 | -2650.45 |
| 33 | 63 | -7350.31 | -96.75 | 0.04 | -0.53 | -1.00 | 2996.14 |
| 34 | 63 | 7350.26 | 96.75 | -0.04 | 0.53 | 1.00 | -2996.15 |
| 34 | 64 | -9125.13 | -18.43 | -2.34 | -0.06 | -0.89 | -613.48 |
| 35 | 64 | 9125.12 | 18.43 | 2.34 | 0.06 | 0.89 | 613.48 |
| 35 | 65 | -9112.51 | -96.54 | -2.34 | -0.06 | -0.82 | -407.38 |
| 36 | 65 | 9112.52 | 96.54 | 2.34 | 0.06 | 0.82 | 407.38 |
| 36 | 66 | -9122.71 | -287.61 | -2.34 | -0.06 | -0.76 | 368.31 |
| 37 | 66 | 9122.71 | 287.61 | 2.34 | 0.06 | 0.76 | -368.31 |
| 37 | 67 | -9115.28 | 9.71 | -2.34 | -0.06 | -0.69 | 1385.00 |
| 38 | 67 | 9115.27 | -9.71 | 2.34 | 0.06 | 0.69 | -1385.00 |
| 38 | 68 | -10208.89 | 782.37 | -2.34 | -0.05 | -0.58 | -2551.72 |
| 39 | 68 | 10593.79 | 1287.78 | -0.07 | 0.47 | 2.39 | 9649.80 |
| 39 | 78 | -7351.01 | -1083.32 | 0.07 | -0.47 | -2.07 | -3103.02 |
| 40 | 78 | 7351.02 | 1083.32 | -0.07 | 0.47 | 2.08 | 3103.03 |
| 40 | 79 | -7408.44 | -584.67 | 0.07 | -0.47 | -1.76 | 547.82 |
| 41 | 79 | 7408.47 | 584.67 | -0.07 | 0.46 | 1.75 | -547.82 |
| 41 | 80 | -7428.63 | -350.19 | 0.07 | -0.46 | -1.44 | 2480.18 |
| 42 | 80 | 7428.60 | 350.19 | -0.07 | 0.47 | 1.44 | -2480.18 |
| 42 | 81 | -7503.84 | -267.27 | 0.08 | -0.51 | -1.03 | 3075.41 |
| 43 | 81 | 7503.85 | 267.27 | -0.08 | 0.51 | 1.03 | -3075.42 |
| 43 | 82 | -7482.00 | -103.94 | 0.08 | -0.51 | -0.62 | 3881.16 |
| 44 | 82 | 7481.97 | 103.94 | -0.08 | 0.51 | 0.63 | -3881.16 |
| 44 | 83 | -9163.17 | -24.64 | -2.24 | -1.00 | 2.98 | -97.95 |
| 45 | 83 | 9163.17 | 24.64 | 2.24 | 1.00 | -2.98 | 97.95 |
| 45 | 84 | -9158.70 | -102.75 | -2.24 | -1.00 | 3.46 | 132.68 |
| 46 | 84 | 9158.70 | 102.75 | 2.24 | 1.00 | -3.47 | -132.68 |
| 46 | 85 | -9185.37 | -293.82 | -2.24 | -1.00 | 3.94 | 928.35 |
| 47 | 85 | 9185.37 | 293.82 | 2.24 | 1.00 | -3.94 | -928.35 |
| 47 | 86 | -9174.95 | 3.50 | -2.24 | -1.00 | 4.42 | 1970.28 |
| 48 | 86 | 9174.94 | -3.50 | 2.24 | 1.00 | -4.42 | -1970.28 |
| 48 | 87 | -10260.84 | 776.44 | -2.24 | -1.01 | 4.89 | -1960.84 |
| 49 | 87 | 10741.93 | 1265.92 | -0.15 | 0.55 | 2.03 | 9868.28 |
| 49 | 97 | -7496.85 | -1061.46 | 0.15 | -0.55 | -1.33 | -3421.96 |
| 50 | 97 | 7496.84 | 1061.46 | -0.15 | 0.55 | 1.33 | 3421.96 |
| 50 | 98 | -7550.21 | -562.81 | 0.15 | -0.55 | -0.64 | 129.87 |
| 51 | 98 | 7550.23 | 562.81 | -0.15 | 0.55 | 0.64 | -129.87 |
| 51 | 99 | -7560.55 | -328.33 | 0.15 | -0.55 | 0.05 | 1963.55 |
| 52 | 99 | 7560.54 | 328.33 | -0.15 | 0.55 | -0.05 | -1963.55 |
| 52 | 100 | -7630.95 | -245.51 | 0.16 | -0.60 | 0.90 | 2464.81 |
| 53 | 100 | 7630.94 | 245.50 | -0.16 | 0.60 | -0.90 | -2464.81 |
| 53 | 101 | -7604.26 | -82.57 | 0.16 | -0.60 | 1.62 | 2754.50 |
| 54 | 101 | 7604.25 | 82.57 | -0.16 | 0.60 | -1.62 | -2754.50 |
| 54 | 102 | -9174.90 | -8.06 | -2.25 | 1.25 | -2.40 | -809.49 |
| 55 | 102 | 9174.91 | 8.06 | 2.25 | -1.25 | 2.40 | 809.49 |
| 55 | 103 | -9167.55 | -86.18 | -2.25 | 1.25 | -1.93 | -649.21 |
| 56 | 103 | 9167.55 | 86.18 | 2.25 | -1.25 | 1.93 | 649.21 |
| 56 | 104 | -9195.06 | -277.25 | -2.25 | 1.25 | -1.47 | 78.88 |
| 57 | 104 | 9195.06 | 277.25 | 2.25 | -1.25 | 1.47 | -78.88 |
| 57 | 105 | -9193.92 | 20.07 | -2.25 | 1.25 | -1.00 | 1043.76 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 58 | 105 | 9193.93 | -20.07 | 2.25 | -1.25 | 1.00 | -1043.76 |
| 58 | 106 | -10289.75 | 790.34 | -2.25 | 1.24 | -0.68 | -2868.00 |
| 59 | 106 | 10877.00 | 1317.09 | -0.30 | 1.40 | 2.70 | 9959.27 |
| 59 | 115 | -7639.06 | -1112.62 | 0.30 | -1.40 | -1.37 | -3284.61 |
| 60 | 115 | 7639.06 | 1112.62 | -0.30 | 1.40 | 1.37 | 3284.61 |
| 60 | 116 | -7698.72 | -613.98 | 0.30 | -1.40 | -0.04 | 494.84 |
| 61 | 116 | 7698.71 | 613.98 | -0.30 | 1.40 | 0.04 | -494.84 |
| 61 | 117 | -7728.72 | -379.49 | 0.30 | -1.40 | 1.29 | 2552.38 |
| 62 | 117 | 7728.73 | 379.49 | -0.30 | 1.40 | -1.29 | -2552.38 |
| 62 | 118 | -7796.89 | -297.11 | 0.31 | -1.48 | 2.98 | 3285.95 |
| 63 | 118 | 7796.88 | 297.11 | -0.31 | 1.48 | -2.98 | -3285.96 |
| 63 | 119 | -9844.91 | -140.60 | 0.34 | -1.63 | 5.30 | 3793.80 |
| 64 | 119 | 9844.91 | 140.60 | -0.34 | 1.63 | -5.30 | -3793.79 |
| 64 | 120 | -9746.36 | -75.17 | 1.88 | -2.72 | -8.68 | 834.77 |
| 65 | 120 | 9746.36 | 75.17 | -1.88 | 2.72 | 8.68 | -834.77 |
| 65 | 121 | -9733.15 | -153.28 | 1.88 | -2.72 | -10.79 | 1315.10 |
| 66 | 121 | 9733.15 | 153.28 | -1.88 | 2.72 | 10.79 | -1315.10 |
| 66 | 122 | -9793.00 | -344.35 | 1.88 | -2.72 | -12.90 | 2356.56 |
| 67 | 122 | 9793.01 | 344.35 | -1.88 | 2.72 | 12.90 | -2356.56 |
| 67 | 123 | -9794.89 | -47.03 | 1.88 | -2.72 | -15.00 | 3644.53 |
| 68 | 123 | 9794.89 | 47.03 | -1.88 | 2.72 | 15.00 | -3644.53 |
| 68 | 124 | -10844.73 | 726.50 | 1.85 | -2.58 | -18.51 | -338.53 |
| 69 | 124 | 9144.34 | 1128.37 | 0.25 | -0.75 | -8.95 | 8269.27 |
| 69 | 133 | -5980.80 | -726.97 | -0.04 | -3.56 | 49.45 | -2642.96 |
| 70 | 133 | 5980.80 | 726.97 | 0.04 | 3.56 | -49.45 | 2642.96 |
| 70 | 134 | -5992.46 | -335.27 | -0.04 | -3.56 | 42.38 | -822.90 |
| 71 | 134 | 6028.60 | 335.27 | 0.04 | 3.56 | -42.38 | 833.84 |
| 71 | 135 | -6028.69 | -397.47 | -0.25 | 0.75 | 5.60 | 755.88 |
| 72 | 135 | 6028.69 | 397.48 | 0.25 | -0.75 | -5.60 | -755.88 |
| 72 | 136 | -5986.08 | -195.62 | -0.21 | 0.63 | 3.81 | 1418.97 |
| 73 | 136 | 5986.08 | 195.62 | 0.21 | -0.63 | -3.81 | -1418.97 |
| 73 | 137 | -5915.89 | -46.74 | -0.09 | 0.30 | 1.21 | -672.83 |
| 74 | 137 | 5915.89 | 46.74 | 0.09 | -0.30 | -1.21 | 672.83 |
| 74 | 138 | -7907.16 | -43.58 | 0.02 | -3.62 | 13.60 | -2206.62 |
| 75 | 138 | 6847.50 | 43.58 | -0.02 | 3.62 | -13.60 | 2169.67 |
| 75 | 139 | -6755.92 | -21.22 | 0.02 | -3.62 | 6.80 | -1879.08 |
| 76 | 139 | 6755.92 | 21.22 | -0.02 | 3.62 | -6.80 | 1879.08 |
| 76 | 140 | -6678.59 | 57.03 | 0.02 | -3.62 | 0.00 | -1967.61 |
| 77 | 16 | 1624.61 | 83.38 | 0.72 | 0.00 | -6.96 | 809.79 |
| 77 | 17 | -1566.77 | -78.80 | -0.72 | 0.00 | 3.14 | -380.14 |
| 78 | 17 | 1566.77 | 78.80 | 0.72 | 0.00 | -3.14 | 380.14 |
| 78 | 18 | -1505.77 | -72.58 | -0.72 | 0.00 | -0.46 | 0.00 |
| 79 | 33 | 1818.49 | 94.66 | -0.30 | 0.00 | 3.20 | 1115.39 |
| 79 | 34 | -1735.78 | -87.76 | 0.30 | 0.00 | -0.93 | -423.79 |
| 80 | 34 | 1735.78 | 87.76 | -0.30 | 0.00 | 0.93 | 423.79 |
| 80 | 35 | -1674.79 | -81.08 | 0.30 | 0.00 | 0.56 | 0.00 |
| 81 | 50 | 2020.56 | 118.57 | -0.01 | 0.00 | 0.47 | 3182.69 |
| 81 | 51 | -1938.35 | -112.02 | 0.01 | 0.00 | -0.40 | -2433.68 |
| 82 | 51 | 1938.35 | 112.02 | -0.01 | 0.00 | 0.40 | 2433.68 |
| 82 | 52 | -1819.01 | -100.87 | 0.01 | 0.00 | -0.30 | -1366.52 |
| 83 | 52 | 1819.01 | 100.87 | -0.01 | 0.00 | 0.30 | 1366.52 |
| 83 | 53 | -1709.89 | -88.18 | 0.01 | 0.00 | -0.20 | -421.43 |
| 84 | 53 | 1709.89 | 88.18 | -0.01 | 0.00 | 0.20 | 421.42 |
| 84 | 54 | -1648.91 | -79.66 | 0.01 | 0.00 | -0.15 | 0.00 |
| 85 | 69 | 1996.48 | 119.35 | -0.02 | 0.00 | 0.57 | 2897.69 |
| 85 | 70 | -1951.93 | -115.48 | 0.02 | 0.00 | -0.51 | -2489.06 |
| 86 | 70 | 1951.93 | 115.48 | -0.02 | 0.00 | 0.51 | 2489.06 |
| 86 | 71 | -1832.59 | -103.11 | 0.02 | 0.00 | -0.33 | -1394.33 |
| 87 | 71 | 1832.59 | 103.11 | -0.02 | 0.00 | 0.33 | 1394.33 |
| 87 | 72 | -1723.47 | -89.91 | 0.02 | 0.00 | -0.15 | -429.59 |
| 88 | 72 | 1723.47 | 89.91 | -0.02 | 0.00 | 0.15 | 429.59 |
| 88 | 73 | -1662.42 | -81.18 | 0.02 | 0.00 | -0.06 | 0.00 |
| 89 | 88 | 1945.29 | 108.21 | -0.02 | 0.00 | 0.67 | 2435.70 |
| 89 | 89 | -1932.79 | -107.23 | 0.02 | 0.00 | -0.65 | -2327.99 |
| 90 | 89 | 1932.79 | 107.23 | -0.02 | 0.00 | 0.65 | 2327.99 |
| 90 | 90 | -1813.45 | -96.47 | 0.02 | 0.00 | -0.40 | -1307.44 |
| 91 | 90 | 1813.45 | 96.47 | -0.02 | 0.00 | 0.40 | 1307.44 |
| 91 | 91 | -1704.33 | -84.38 | 0.02 | 0.00 | -0.15 | -403.00 |
| 92 | 91 | 1704.33 | 84.38 | -0.02 | 0.00 | 0.15 | 403.00 |
| 92 | 92 | -1643.53 | -76.10 | 0.02 | 0.00 | -0.03 | 0.00 |
| 93 | 107 | 1888.89 | 98.74 | -0.16 | 0.00 | 1.78 | 1454.18 |
| 93 | 108 | -1877.41 | -97.81 | 0.16 | 0.00 | -1.63 | -1355.90 |
| 94 | 108 | 1877.41 | 97.81 | -0.16 | 0.00 | 1.63 | 1355.90 |
| 94 | 109 | -1768.29 | -88.20 | 0.16 | 0.00 | -0.07 | -424.65 |
| 95 | 109 | 1768.29 | 88.20 | -0.16 | 0.00 | 0.07 | 424.65 |
| 95 | 110 | -1706.47 | -80.98 | 0.15 | 0.00 | 0.69 | 0.00 |
| 96 | 125 | 1650.63 | 99.96 | 0.49 | 0.00 | -6.69 | 1473.70 |
| 96 | 126 | -1639.16 | -99.03 | -0.49 | 0.00 | 6.20 | -1374.20 |
| 97 | 126 | 1639.16 | 99.03 | 0.49 | 0.00 | -6.20 | 1374.20 |
| 97 | 127 | -1530.04 | -89.42 | -0.49 | 0.00 | 1.30 | -430.75 |
| 98 | 127 | 1530.04 | 89.42 | 0.49 | 0.00 | -1.30 | 430.75 |
| 98 | 128 | -1473.31 | -82.20 | -0.48 | 0.00 | -1.13 | 0.00 |
| 99 | 2 | 337.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -335.72 | -16.88 | 0.00 | 0.00 | 0.00 | 28.73 |
| 100 | 4 | 337.37 | 0.00 | -0.41 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -335.70 | -16.88 | 0.41 | 0.00 | 0.70 | 28.73 |
| 101 | 19 | 725.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -725.88 | -36.29 | 0.00 | 0.00 | 0.00 | 61.77 |
| 102 | 21 | 725.89 | 0.00 | 0.73 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -726.13 | -36.29 | -0.72 | 0.00 | -1.23 | 61.77 |
| 103 | 36 | 810.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -810.67 | -40.54 | 0.00 | 0.00 | 0.00 | 69.00 |
| 104 | 38 | 810.49 | 0.00 | -0.30 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -810.36 | -40.54 | 0.30 | 0.00 | 0.51 | 69.00 |
| 105 | 55 | 797.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -797.54 | -39.83 | 0.00 | 0.00 | 0.00 | 67.79 |
| 106 | 57 | 797.54 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -797.62 | -39.83 | 0.01 | 0.00 | 0.02 | 67.79 |
| 107 | 74 | 804.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -804.31 | -40.59 | 0.00 | 0.00 | 0.00 | 69.08 |
| 108 | 76 | 804.55 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -804.34 | -40.59 | 0.02 | 0.00 | 0.03 | 69.08 |
| 109 | 93 | 793.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -794.88 | -38.05 | 0.00 | 0.00 | 0.00 | 64.76 |
| 110 | 95 | 793.86 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -794.89 | -38.05 | 0.02 | 0.00 | 0.04 | 64.76 |
| 111 | 111 | 830.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -826.54 | -40.49 | 0.00 | 0.00 | 0.00 | 68.91 |
| 112 | 113 | 830.32 | 0.00 | -0.17 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -826.17 | -40.49 | 0.15 | 0.00 | 0.26 | 68.91 |
| 113 | 129 | 688.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -709.47 | -41.10 | 0.00 | 0.00 | 0.00 | 69.95 |
| 114 | 131 | 689.00 | 0.00 | 0.54 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -710.08 | -41.10 | -0.48 | 0.00 | -0.83 | 69.95 |
| 115 | 141 | 542.21 | 670.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -542.21 | -657.15 | 0.00 | 0.00 | 0.00 | 1125.17 |
| 116 | 143 | 542.03 | 670.72 | -0.46 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -542.03 | -657.15 | 0.46 | 0.00 | 0.80 | 1125.17 |
| 117 | 6 | 671.42 | 33.76 | -0.41 | 0.00 | 0.34 | 33.76 |
| 117 | 7 | -671.42 | -33.76 | 0.41 | 0.00 | 0.07 | 0.00 |
| 118 | 145 | 1084.24 | 1314.30 | -0.46 | 0.00 | -0.33 | 1314.30 |
| 118 | 146 | -1084.24 | -1314.30 | 0.46 | 0.00 | 0.79 | 0.00 |
| 119 | 3 | 0.00 | 578.71 | -16.88 | 28.73 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -578.71 | 16.88 | -28.73 | 71.74 | 2459.54 |
| 120 | 1 | -12.69 | -222.83 | -16.93 | 28.73 | 71.71 | -968.76 |
| 120 | 5 | 12.69 | 222.83 | 16.93 | -28.73 | -0.03 | 21.72 |
| 121 | 20 | 0.00 | 1389.43 | 36.05 | -61.77 | -0.29 | -0.01 |
| 121 | 15 | 0.00 | -1389.43 | -36.05 | 61.77 | -67.42 | 2570.45 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 122 | 15 | -40.54 | -468.21 | 36.21 | -61.77 | -67.18 | -935.59 |
| 122 | 22 | 40.54 | 468.21 | -36.21 | 61.77 | -0.04 | 69.39 |
| 123 | 37 | 0.00 | 1519.23 | -40.62 | 69.00 | -0.04 | 0.00 |
| 123 | 32 | 0.00 | -1519.23 | 40.62 | -69.00 | 74.84 | 2810.59 |
| 124 | 32 | -141.90 | -517.93 | -40.54 | 69.00 | 74.66 | -1201.04 |
| 124 | 39 | 141.90 | 517.93 | 40.54 | -69.00 | -0.44 | 242.93 |
| 125 | 56 | 0.00 | 1496.16 | 39.95 | -67.79 | -0.29 | 0.00 |
| 125 | 49 | 0.00 | -1496.16 | -39.95 | 67.79 | -73.95 | 2767.94 |
| 126 | 49 | -12.32 | -517.90 | 39.86 | -67.79 | -73.69 | -979.18 |
| 126 | 58 | 12.32 | 517.90 | -39.86 | 67.79 | 0.00 | 21.12 |
| 127 | 75 | 0.00 | 1494.65 | -40.54 | 69.08 | -0.08 | -0.01 |
| 127 | 68 | 0.00 | -1494.65 | 40.54 | -69.08 | 75.03 | 2765.10 |
| 128 | 68 | -51.36 | -556.63 | -40.63 | 69.08 | 75.15 | -1117.65 |
| 128 | 77 | 51.36 | 556.63 | 40.63 | -69.08 | 0.03 | 87.93 |
| 129 | 94 | -0.01 | 1495.09 | 38.05 | -64.76 | 0.03 | -0.01 |
| 129 | 87 | 0.01 | -1495.09 | -38.05 | 64.76 | -70.36 | 2765.94 |
| 130 | 87 | -46.68 | -517.87 | 38.12 | -64.76 | -70.49 | -1037.99 |
| 130 | 96 | 46.68 | 517.87 | -38.12 | 64.76 | -0.10 | 79.95 |
| 131 | 112 | 0.00 | 1532.62 | -40.56 | 68.91 | -0.01 | 0.00 |
| 131 | 106 | 0.00 | -1532.62 | 40.56 | -68.91 | 74.98 | 2835.37 |
| 132 | 106 | -111.51 | -547.89 | -40.48 | 68.91 | 74.81 | -1204.45 |
| 132 | 114 | 111.51 | 547.89 | 40.48 | -68.91 | -0.04 | 190.90 |
| 133 | 130 | -0.01 | 1390.92 | 41.05 | -69.95 | -0.07 | 0.00 |
| 133 | 124 | 0.01 | -1390.92 | -41.05 | 69.95 | -76.06 | 2573.22 |
| 134 | 124 | -30.51 | -430.82 | 41.11 | -69.95 | -76.03 | -849.23 |
| 134 | 132 | 30.51 | 430.82 | -41.11 | 69.95 | 0.07 | 52.23 |
| 135 | 142 | 0.00 | 623.81 | 485.02 | -830.49 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -623.81 | -485.02 | 830.49 | -2061.35 | 2651.18 |
| 136 | 140 | -28.64 | -199.07 | 446.77 | -765.00 | -1898.76 | -895.05 |
| 136 | 144 | 28.64 | 199.07 | -446.77 | 765.00 | 0.00 | 49.02 |
| 137 | 2 | 0.00 | -222.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 222.85 | 16.88 | 0.00 | 71.57 | -947.09 |
| 138 | 7 | -1.76 | 578.68 | -16.88 | 0.00 | 71.57 | 2459.41 |
| 138 | 4 | 1.76 | -578.68 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -467.91 | -0.01 | 0.00 | 0.00 | -0.01 |
| 139 | 18 | 0.00 | 467.91 | -36.28 | 0.00 | -66.79 | -865.64 |
| 140 | 18 | 2.53 | 1389.58 | 36.30 | 0.00 | -66.77 | 2570.72 |
| 140 | 21 | -2.53 | -1389.58 | -0.01 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -518.19 | 0.00 | 0.00 | 0.00 | 0.02 |
| 141 | 35 | 0.00 | 518.19 | 40.54 | 0.00 | 74.59 | -958.70 |
| 142 | 35 | -13.71 | 1518.75 | -40.53 | 0.00 | 74.60 | 2809.68 |
| 142 | 38 | 13.71 | -1518.75 | -0.01 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -517.68 | 0.25 | 0.00 | 0.06 | 0.00 |
| 143 | 54 | 0.00 | 517.68 | -40.08 | 0.00 | -73.08 | -957.72 |
| 144 | 54 | 35.76 | 1496.01 | 39.75 | 0.00 | -73.21 | 2767.63 |
| 144 | 57 | -35.76 | -1496.01 | 0.08 | 0.00 | 0.08 | 0.01 |
| 145 | 74 | 0.00 | -556.47 | 0.06 | 0.00 | 0.10 | 0.00 |
| 145 | 73 | 0.00 | 556.47 | 40.53 | 0.00 | 74.76 | -1029.51 |
| 146 | 73 | 20.69 | 1494.44 | -40.57 | 0.00 | 74.68 | 2764.70 |
| 146 | 76 | -20.69 | -1494.44 | -0.02 | 0.00 | -0.01 | 0.00 |
| 147 | 93 | 0.00 | -517.72 | -0.06 | 0.00 | -0.08 | 0.01 |
| 147 | 92 | 0.00 | 517.72 | -37.99 | 0.00 | -69.96 | -957.80 |
| 148 | 92 | 24.83 | 1494.85 | 38.06 | 0.00 | -70.06 | 2765.44 |
| 148 | 95 | -24.83 | -1494.85 | -0.01 | 0.00 | -0.05 | 0.00 |
| 149 | 111 | 0.00 | -548.12 | 0.02 | 0.00 | -0.02 | 0.00 |
| 149 | 110 | 0.00 | 548.12 | 40.47 | 0.00 | 74.45 | -1014.05 |
| 150 | 110 | -2.81 | 1531.93 | -40.52 | 0.00 | 74.49 | 2834.04 |
| 150 | 113 | 2.81 | -1531.93 | 0.03 | 0.00 | -0.01 | 0.00 |
| 151 | 129 | 0.00 | -429.95 | -0.05 | 0.00 | 0.01 | 0.00 |
| 151 | 128 | 0.00 | 429.95 | -41.05 | 0.00 | -75.65 | -795.42 |
| 152 | 128 | 3.31 | 1391.28 | 41.12 | 0.00 | -75.60 | 2573.87 |
| 152 | 131 | -3.31 | -1391.28 | -0.02 | 0.00 | 0.02 | 0.00 |
| 153 | 141 | 0.00 | -199.13 | 460.34 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 199.13 | -446.77 | 0.00 | -1898.90 | -846.32 |
| 154 | 146 | -1.66 | 623.56 | 485.02 | 0.00 | -2061.48 | 2650.14 |
| 154 | 143 | 1.66 | -623.56 | -498.59 | 0.00 | 0.00 | 0.00 |

## DESPLAZAMIENTOS DE NUDOS

| NUDO | DESP. X | DESP. Y | DESP. Z | GIRO X | GIRO Y | GIRO Z |
|---|---|---|---|---|---|---|
| 1 | 0.269758 | -0.000523 | -0.000098 | 0.000000 | -0.000002 | 0.000418 |
| 2 | 0.000011 | -0.000075 | 0.000012 | -0.000032 | -0.000004 | 0.000000 |
| 3 | 0.267106 | -0.000250 | -0.000024 | 0.000128 | -0.000102 | -0.000332 |
| 4 | 0.000011 | -0.000075 | -0.000014 | 0.000032 | 0.000004 | 0.000000 |
| 5 | 0.267091 | -0.000250 | -0.000246 | -0.000131 | 0.000098 | -0.000331 |
| 7 | 0.000000 | -0.000013 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 8 | 0.115993 | 0.002619 | -0.000099 | 0.000000 | -0.000002 | 0.000649 |
| 9 | 0.114652 | 0.005113 | -0.000089 | 0.000001 | -0.000002 | 0.000481 |
| 10 | 0.113255 | 0.007069 | -0.000080 | 0.000001 | -0.000002 | 0.000330 |
| 11 | 0.102250 | 0.008264 | -0.000071 | 0.000001 | -0.000002 | 0.000091 |
| 12 | 0.093680 | 0.008165 | -0.000091 | 0.000000 | -0.000001 | -0.000229 |
| 13 | 0.092285 | 0.006235 | -0.000087 | 0.000000 | -0.000001 | -0.000619 |
| 14 | 0.090896 | 0.002552 | -0.000083 | -0.000001 | -0.000001 | -0.000933 |
| 15 | 0.105911 | -0.001182 | -0.000030 | 0.000001 | -0.000001 | 0.000189 |
| 17 | -0.000815 | -0.000394 | -0.000015 | -0.000004 | 0.000000 | 0.000242 |
| 18 | -0.002331 | -0.000711 | -0.000041 | -0.000005 | 0.000000 | 0.000306 |
| 19 | -0.002333 | -0.000168 | 0.002800 | 0.000444 | 0.000002 | 0.000306 |
| 20 | 0.103344 | -0.000529 | 0.003776 | 0.000632 | -0.000114 | -0.000101 |
| 21 | -0.002333 | -0.000163 | -0.002826 | -0.000447 | -0.000002 | 0.000306 |
| 22 | 0.103340 | -0.000524 | -0.003928 | -0.000637 | 0.000111 | -0.000101 |
| 23 | 0.099212 | 0.001768 | -0.000083 | -0.000002 | -0.000002 | 0.000765 |
| 24 | 0.097599 | 0.004740 | -0.000076 | -0.000001 | -0.000001 | 0.000645 |
| 25 | 0.095945 | 0.007633 | -0.000071 | -0.000001 | -0.000001 | 0.000542 |
| 26 | 0.094325 | 0.009701 | -0.000067 | -0.000001 | -0.000001 | 0.000367 |
| 27 | 0.083295 | 0.010884 | -0.000065 | -0.000001 | 0.000000 | 0.000145 |
| 28 | 0.081707 | 0.011055 | -0.000063 | 0.000000 | 0.000000 | -0.000122 |
| 29 | 0.080122 | 0.009886 | -0.000063 | 0.000000 | 0.000000 | -0.000460 |
| 30 | 0.078584 | 0.006984 | -0.000063 | 0.000000 | 0.000000 | -0.000810 |
| 31 | 0.077094 | 0.002641 | -0.000063 | 0.000001 | 0.000000 | -0.001081 |
| 32 | 0.201925 | -0.001567 | -0.000046 | 0.000000 | 0.000000 | 0.000208 |
| 34 | 0.002084 | -0.000652 | 0.000001 | 0.000000 | 0.000000 | -0.000444 |
| 35 | 0.004648 | -0.001018 | 0.000003 | 0.000000 | 0.000000 | -0.000516 |
| 36 | 0.004650 | 0.000547 | 0.008475 | 0.001033 | -0.000002 | -0.000516 |
| 37 | 0.201830 | 0.000160 | 0.010570 | 0.001248 | -0.000229 | -0.000071 |
| 38 | 0.004650 | 0.000545 | -0.008469 | -0.001032 | 0.000002 | -0.000516 |
| 39 | 0.201831 | 0.000158 | -0.010684 | -0.001258 | 0.000229 | -0.000071 |
| 40 | 0.083548 | 0.002293 | -0.000072 | 0.000000 | 0.000000 | 0.000918 |
| 41 | 0.081937 | 0.005667 | -0.000072 | 0.000000 | 0.000000 | 0.000695 |
| 42 | 0.077669 | 0.008454 | -0.000071 | 0.000000 | 0.000000 | 0.000485 |
| 43 | 0.076140 | 0.010101 | -0.000071 | 0.000000 | 0.000000 | 0.000215 |
| 44 | 0.074610 | 0.010413 | -0.000071 | 0.000000 | 0.000000 | -0.000046 |
| 45 | 0.064162 | 0.009952 | -0.000069 | 0.000000 | 0.000000 | -0.000234 |
| 46 | 0.062699 | 0.008308 | -0.000070 | 0.000000 | 0.000000 | -0.000536 |
| 47 | 0.061335 | 0.005109 | -0.000070 | 0.000000 | 0.000000 | -0.000863 |
| 48 | 0.060070 | 0.000498 | -0.000070 | 0.000000 | 0.000000 | -0.001125 |
| 49 | 0.073739 | -0.003145 | 0.001062 | 0.000056 | -0.000079 | 0.000023 |
| 51 | 0.000000 | -0.000550 | -0.000001 | 0.000000 | 0.000000 | 0.000000 |
| 52 | -0.019750 | -0.001393 | -0.000004 | 0.000000 | 0.000000 | 0.002140 |
| 53 | -0.045175 | -0.002247 | -0.000009 | 0.000000 | 0.000000 | 0.002795 |
| 54 | -0.059486 | -0.002607 | -0.000011 | 0.000000 | 0.000000 | 0.002865 |
| 55 | -0.059488 | -0.000976 | 0.020541 | 0.001341 | 0.000002 | 0.002865 |
| 56 | 0.073614 | -0.001365 | 0.023064 | 0.001552 | -0.000237 | 0.000028 |
| 57 | -0.059488 | -0.000977 | -0.020531 | -0.001340 | -0.000002 | 0.002865 |
| 58 | 0.073615 | -0.001366 | -0.023187 | -0.001551 | 0.000237 | 0.000028 |
| 59 | 0.072995 | 0.000481 | -0.000067 | 0.000000 | 0.000000 | 0.001035 |
| 60 | 0.071639 | 0.004379 | -0.000068 | 0.000000 | 0.000000 | 0.000808 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 61 | 0.070276 | 0.007659 | -0.000068 | 0.000000 | 0.000000 | 0.000588 |
| 62 | 0.068904 | 0.009742 | -0.000068 | 0.000000 | 0.000000 | 0.000304 |
| 63 | 0.067537 | 0.010426 | -0.000068 | 0.000000 | 0.000000 | 0.000072 |
| 64 | 0.057929 | 0.010256 | -0.000069 | 0.000000 | 0.000000 | -0.000193 |
| 65 | 0.056640 | 0.008735 | -0.000069 | 0.000000 | 0.000000 | -0.000524 |
| 66 | 0.055350 | 0.005537 | -0.000070 | 0.000000 | 0.000000 | -0.000867 |
| 67 | 0.054058 | 0.000902 | -0.000070 | 0.000000 | 0.000000 | -0.001132 |
| 68 | 0.128877 | -0.002909 | -0.000059 | 0.000000 | 0.000001 | 0.000253 |
| 70 | 0.000000 | -0.000290 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 71 | 0.012552 | -0.001140 | -0.000002 | 0.000000 | 0.000000 | -0.001679 |
| 72 | 0.033443 | -0.002002 | -0.000007 | 0.000000 | 0.000000 | -0.002346 |
| 73 | 0.045517 | -0.002365 | -0.000010 | 0.000000 | 0.000000 | -0.002418 |
| 74 | 0.045519 | -0.000068 | 0.025681 | 0.001660 | -0.000002 | -0.002418 |
| 75 | 0.128703 | -0.000488 | 0.028756 | 0.001857 | -0.000012 | -0.000025 |
| 76 | 0.045519 | -0.000069 | -0.025675 | -0.001659 | 0.000002 | -0.002418 |
| 77 | 0.128704 | -0.000489 | -0.028880 | -0.001861 | 0.000012 | -0.000025 |
| 78 | 0.051585 | 0.000803 | -0.000068 | 0.000000 | 0.000000 | 0.001026 |
| 79 | 0.050264 | 0.004620 | -0.000068 | 0.000000 | 0.000000 | 0.000785 |
| 80 | 0.048938 | 0.007779 | -0.000068 | 0.000000 | 0.000000 | 0.000560 |
| 81 | 0.047604 | 0.009729 | -0.000067 | 0.000000 | 0.000000 | 0.000276 |
| 82 | 0.038847 | 0.010344 | -0.000067 | 0.000000 | 0.000000 | 0.000019 |
| 83 | 0.037585 | 0.010109 | -0.000068 | 0.000000 | 0.000000 | -0.000202 |
| 84 | 0.036359 | 0.008577 | -0.000067 | 0.000000 | 0.000000 | -0.000518 |
| 85 | 0.035131 | 0.005444 | -0.000067 | 0.000000 | 0.000000 | -0.000842 |
| 86 | 0.033902 | 0.000971 | -0.000067 | 0.000000 | 0.000000 | -0.001083 |
| 87 | 0.045390 | -0.002659 | -0.000030 | 0.000001 | -0.000001 | -0.000179 |
| 89 | -0.000086 | -0.000084 | 0.000000 | 0.000000 | 0.000000 | 0.000132 |
| 90 | -0.007596 | -0.000920 | 0.000002 | 0.000000 | 0.000000 | 0.001238 |
| 91 | -0.023823 | -0.001768 | 0.000009 | 0.000001 | 0.000000 | 0.001864 |
| 92 | -0.033464 | -0.002124 | 0.000015 | 0.000001 | 0.000000 | 0.001931 |
| 93 | -0.033466 | 0.000025 | 0.021887 | 0.001546 | 0.000002 | 0.001931 |
| 94 | 0.044353 | -0.000365 | 0.024782 | 0.001754 | 0.000170 | 0.000106 |
| 95 | -0.033466 | 0.000023 | -0.021878 | -0.001545 | -0.000002 | 0.001931 |
| 96 | 0.044353 | -0.000366 | -0.024901 | -0.001756 | -0.000170 | 0.000106 |
| 97 | 0.044674 | 0.001534 | -0.000070 | 0.000000 | 0.000000 | 0.001118 |
| 98 | 0.043280 | 0.005805 | -0.000070 | 0.000000 | 0.000000 | 0.000886 |
| 99 | 0.041881 | 0.009425 | -0.000070 | 0.000000 | 0.000000 | 0.000657 |
| 100 | 0.040473 | 0.011796 | -0.000070 | 0.000000 | 0.000000 | 0.000359 |
| 101 | 0.039189 | 0.012690 | -0.000071 | 0.000000 | 0.000000 | 0.000111 |
| 102 | 0.037783 | 0.012579 | -0.000071 | 0.000000 | 0.000000 | -0.000192 |
| 103 | 0.036379 | 0.011014 | -0.000071 | 0.000000 | 0.000000 | -0.000545 |
| 104 | 0.034973 | 0.007669 | -0.000072 | 0.000000 | 0.000000 | -0.000912 |
| 105 | 0.033562 | 0.002775 | -0.000072 | 0.000000 | 0.000000 | -0.001203 |
| 106 | 0.060283 | -0.001892 | 0.000010 | 0.000005 | -0.000002 | -0.000379 |
| 108 | 0.000070 | -0.000087 | 0.000000 | 0.000000 | 0.000000 | -0.000096 |
| 109 | 0.005125 | -0.000965 | 0.000028 | 0.000004 | 0.000000 | -0.000762 |
| 110 | 0.009277 | -0.001336 | 0.000051 | 0.000005 | 0.000000 | -0.000833 |
| 111 | 0.009279 | 0.000601 | 0.012939 | 0.001288 | -0.000002 | -0.000833 |
| 112 | 0.059489 | 0.000190 | 0.015437 | 0.001496 | 0.000197 | -0.000120 |
| 113 | 0.009279 | 0.000600 | -0.012937 | -0.001287 | 0.000002 | -0.000833 |
| 114 | 0.059491 | 0.000189 | -0.015560 | -0.001504 | -0.000197 | -0.000120 |
| 115 | 0.018301 | 0.001044 | -0.000071 | 0.000000 | 0.000000 | 0.000748 |
| 116 | 0.017117 | 0.003529 | -0.000072 | 0.000000 | 0.000000 | 0.000499 |
| 117 | 0.015926 | 0.005386 | -0.000074 | 0.000000 | 0.000000 | 0.000296 |
| 118 | 0.014728 | 0.006206 | -0.000076 | -0.000001 | 0.000001 | 0.000066 |
| 119 | 0.013528 | 0.005943 | -0.000078 | -0.000001 | 0.000001 | -0.000122 |
| 120 | 0.012335 | 0.005038 | -0.000082 | -0.000001 | 0.000001 | -0.000263 |
| 121 | 0.010801 | 0.003717 | -0.000088 | -0.000002 | 0.000001 | -0.000367 |
| 122 | 0.009611 | 0.001648 | -0.000093 | -0.000002 | 0.000001 | -0.000485 |
| 123 | 0.026971 | -0.000504 | -0.000099 | -0.000002 | 0.000002 | -0.000480 |
| 124 | 0.016181 | -0.001435 | 0.000016 | 0.000004 | 0.000002 | 0.000670 |
| 126 | -0.000071 | -0.000068 | -0.000001 | -0.000001 | 0.000000 | 0.000098 |
| 127 | -0.005202 | -0.000744 | -0.000068 | -0.000009 | 0.000000 | 0.000773 |
| 128 | -0.009417 | -0.001023 | -0.000119 | -0.000010 | 0.000000 | 0.000846 |
| 129 | -0.009419 | -0.000227 | 0.006229 | 0.000674 | 0.000002 | 0.000846 |
| 130 | 0.016036 | -0.000555 | 0.006732 | 0.000711 | 0.000171 | 0.001203 |
| 131 | -0.009419 | -0.000218 | -0.006290 | -0.000679 | -0.000002 | 0.000846 |
| 132 | 0.016040 | -0.000547 | -0.006892 | -0.000717 | -0.000169 | 0.001203 |
| 133 | 0.015658 | 0.006101 | -0.000093 | -0.000001 | 0.000001 | 0.001778 |
| 134 | 0.014226 | 0.013664 | -0.000097 | -0.000001 | 0.000001 | 0.001376 |
| 135 | 0.012777 | 0.018685 | -0.000102 | -0.000001 | 0.000001 | 0.000778 |
| 136 | 0.011325 | 0.020783 | -0.000108 | -0.000001 | 0.000001 | 0.000155 |
| 137 | 0.009852 | 0.020171 | -0.000063 | 0.000002 | 0.000004 | -0.000473 |
| 138 | 0.008426 | 0.016575 | -0.000084 | 0.000002 | 0.000005 | -0.001182 |
| 139 | 0.007165 | 0.009654 | -0.000139 | -0.000001 | -0.000002 | -0.001933 |
| 140 | 0.000092 | -0.000498 | -0.000094 | 0.000000 | -0.000003 | -0.000756 |
| 141 | -0.001181 | -0.000041 | 0.000014 | -0.000022 | 0.000311 | 0.000012 |
| 142 | -0.001637 | -0.000198 | 0.000011 | 0.000134 | 0.000105 | 0.000148 |
| 143 | -0.001167 | -0.000041 | -0.000018 | 0.000022 | -0.000308 | 0.000012 |
| 144 | -0.001624 | -0.000198 | -0.000273 | -0.000140 | -0.000102 | 0.000148 |
| 146 | -0.000008 | -0.000012 | 0.000000 | 0.000000 | 0.000004 | 0.000012 |

HIPOTESIS 204

FUER Y MIN envolvente (ELS)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 9077.87 | 277.52 | -0.60 | -1.48 | 0.00 | 1514.01 |
| 1 | 8 | -9108.12 | -80.52 | 0.60 | 1.48 | 2.69 | -767.27 |
| 2 | 8 | 9108.13 | 80.52 | -0.60 | -1.48 | -2.69 | 767.27 |
| 2 | 9 | -9132.11 | 51.46 | 0.60 | 1.48 | 5.38 | -720.36 |
| 3 | 9 | 9505.35 | -51.46 | -0.60 | -1.48 | -5.38 | 478.32 |
| 3 | 10 | -9547.15 | 171.49 | 0.19 | -0.36 | 2.60 | -455.38 |
| 4 | 10 | 9547.16 | -171.49 | -0.19 | 0.36 | -2.60 | 455.38 |
| 4 | 11 | -7398.69 | 253.59 | 0.31 | -0.53 | 5.55 | 1817.58 |
| 5 | 11 | 7398.76 | -253.59 | -0.31 | 0.53 | -5.56 | -1817.58 |
| 5 | 12 | -7402.44 | 360.01 | 0.36 | -0.62 | 8.09 | 1182.99 |
| 6 | 12 | 7402.40 | -360.01 | -0.36 | 0.62 | -8.08 | -1183.00 |
| 6 | 13 | -7340.37 | 373.94 | 0.66 | 1.44 | 17.89 | -365.94 |
| 7 | 13 | 7317.69 | -373.94 | -0.66 | -1.44 | -17.89 | 362.90 |
| 7 | 14 | -7348.65 | 683.01 | 0.66 | 1.44 | 20.87 | -2437.87 |
| 8 | 14 | 7348.61 | -683.01 | -0.66 | -1.44 | -20.87 | 2437.87 |
| 8 | 15 | -13748.34 | 1420.94 | 0.40 | -0.70 | 14.47 | -7740.00 |
| 9 | 15 | 13675.77 | 415.38 | 2.46 | -2.13 | -4.27 | 410.77 |
| 9 | 23 | -10841.73 | -270.45 | -2.46 | 2.13 | 3.80 | 1463.30 |
| 10 | 23 | 10841.73 | 270.45 | 2.46 | -2.13 | -3.80 | -1463.30 |
| 10 | 24 | -10906.73 | 147.05 | -2.46 | 2.13 | 3.32 | 1627.48 |
| 11 | 24 | 11462.60 | -147.05 | 2.46 | -2.13 | -3.32 | -2031.63 |
| 11 | 25 | -10900.33 | 221.48 | -2.46 | 2.13 | 2.85 | 594.52 |
| 12 | 25 | 10900.37 | -221.48 | 2.46 | -2.13 | -2.85 | -594.52 |
| 12 | 26 | -10999.01 | 99.24 | -2.46 | 2.13 | 2.37 | -202.53 |
| 13 | 26 | 10999.00 | -99.24 | 2.46 | -2.13 | -2.37 | 202.53 |
| 13 | 27 | -10921.00 | 113.45 | -0.45 | 1.27 | 5.36 | 2941.10 |
| 14 | 27 | 10921.00 | -113.45 | 0.45 | -1.27 | -5.36 | -2941.10 |
| 14 | 28 | -8350.93 | 310.18 | -0.41 | 1.16 | 2.59 | 2749.98 |
| 15 | 28 | 8351.02 | -310.18 | 0.41 | -1.16 | -2.59 | -2749.98 |
| 15 | 29 | -8348.46 | 426.42 | -0.38 | 1.07 | 0.46 | 1782.35 |
| 16 | 29 | 8348.40 | -426.42 | 0.38 | -1.07 | -0.47 | -1782.35 |
| 16 | 30 | -7847.53 | 456.46 | -0.38 | 1.07 | -1.24 | -41.00 |
| 17 | 30 | 7847.58 | -456.46 | 0.38 | -1.07 | 1.25 | 41.00 |
| 17 | 31 | -7843.54 | 862.57 | -0.38 | 1.07 | -2.95 | -2692.39 |
| 18 | 31 | 7843.51 | -862.57 | 0.38 | -1.07 | 2.96 | 2692.39 |
| 18 | 32 | -14340.74 | 1741.34 | -0.41 | 1.17 | -4.68 | -9140.92 |
| 19 | 32 | 14360.90 | 326.01 | -2.27 | 0.37 | -0.19 | 2111.67 |
| 19 | 40 | -10151.78 | -290.56 | 2.27 | -0.37 | -0.17 | 868.95 |
| 20 | 40 | 10151.80 | 290.56 | -2.27 | 0.37 | 0.17 | -868.95 |
| 20 | 41 | -10220.65 | 126.94 | 2.27 | -0.37 | -0.54 | 1125.03 |
| 21 | 41 | 10220.66 | -126.94 | -2.27 | 0.37 | 0.54 | -1125.03 |
| 21 | 42 | -10223.16 | 201.36 | 2.27 | -0.37 | -0.90 | 183.42 |
| 22 | 42 | 10223.16 | -201.36 | -2.27 | 0.37 | 0.90 | -183.42 |
| 22 | 43 | -10303.74 | 79.13 | 2.27 | -0.37 | -1.27 | -522.22 |
| 23 | 43 | 10303.71 | -79.13 | -2.27 | 0.37 | 1.27 | 522.22 |
| 23 | 44 | -10106.38 | 103.71 | -0.10 | 0.30 | 0.47 | 2456.68 |
| 24 | 44 | 10106.38 | -103.71 | 0.10 | -0.30 | -0.47 | -2456.68 |
| 24 | 45 | -7678.19 | 301.54 | -0.10 | 0.30 | -0.04 | 2665.19 |
| 25 | 45 | 7678.22 | -301.54 | 0.10 | -0.30 | 0.03 | -2665.19 |
| 25 | 46 | -7664.31 | 418.25 | -0.09 | 0.25 | -0.69 | 1738.06 |
| 26 | 46 | 7664.27 | -418.25 | 0.09 | -0.25 | 0.69 | -1738.06 |
| 26 | 47 | -6627.60 | 448.30 | -0.09 | 0.25 | -1.10 | -435.96 |
| 27 | 47 | 6627.61 | -448.30 | 0.09 | -0.25 | 1.11 | 435.96 |
| 27 | 48 | -6624.56 | 854.41 | -0.09 | 0.25 | -1.53 | -3053.52 |
| 28 | 48 | 6624.52 | -854.41 | 0.09 | -0.25 | 1.53 | 3053.52 |
| 28 | 49 | -12799.90 | 1731.63 | -0.10 | 0.23 | -1.99 | -9485.60 |
| 29 | 49 | 12922.74 | 317.88 | -2.34 | -0.07 | 0.23 | 1586.23 |
| 29 | 59 | -8714.80 | -282.43 | 2.34 | 0.07 | -0.29 | 1354.01 |
| 30 | 59 | 8714.82 | 282.43 | -2.34 | -0.07 | 0.29 | -1354.02 |
| 30 | 60 | -8789.48 | 135.07 | 2.34 | 0.07 | -0.35 | 1569.68 |
| 31 | 60 | 8789.46 | -135.07 | -2.34 | -0.07 | 0.35 | -1569.68 |
| 31 | 61 | -8816.53 | 209.49 | 2.34 | 0.07 | -0.41 | 584.83 |
| 32 | 61 | 8816.54 | -209.49 | -2.34 | -0.07 | 0.42 | -584.83 |
| 32 | 62 | -8902.17 | 87.26 | 2.34 | 0.07 | -0.47 | -158.78 |
| 33 | 62 | 8902.19 | -87.26 | -2.34 | -0.07 | 0.48 | 158.78 |
| 33 | 63 | -8608.62 | 117.64 | -0.06 | 0.49 | -1.01 | 3410.76 |
| 34 | 63 | 8608.60 | -117.64 | 0.06 | -0.49 | 1.01 | -3410.76 |
| 34 | 64 | -6497.45 | 315.52 | -0.06 | 0.49 | -1.24 | 3031.95 |
| 35 | 64 | 6497.47 | -315.52 | 0.06 | -0.49 | 1.24 | -3031.95 |
| 35 | 65 | -6485.60 | 432.41 | -0.06 | 0.45 | -1.57 | 2041.66 |
| 36 | 65 | 6485.56 | -432.41 | 0.06 | -0.45 | 1.57 | -2041.66 |
| 36 | 66 | -6491.25 | 462.46 | -0.06 | 0.45 | -1.83 | -23.93 |
| 37 | 66 | 6491.27 | -462.46 | 0.06 | -0.45 | 1.83 | 23.93 |
| 37 | 67 | -6483.39 | 868.57 | -0.06 | 0.45 | -2.09 | -2701.23 |
| 38 | 67 | 6483.41 | -868.57 | 0.05 | -0.45 | 2.08 | 2701.23 |
| 38 | 68 | -12650.91 | 1746.31 | -0.05 | 0.45 | -2.39 | -9184.60 |
| 39 | 68 | 12873.49 | 322.92 | -2.27 | -0.96 | 1.64 | 2086.44 |
| 39 | 78 | -8659.28 | -287.47 | 2.27 | 0.96 | -2.01 | 881.65 |
| 40 | 78 | 8659.26 | 287.47 | -2.27 | -0.96 | 2.01 | -881.65 |
| 40 | 79 | -8731.02 | 130.03 | 2.27 | 0.96 | -2.39 | 1124.23 |
| 41 | 79 | 8731.03 | -130.03 | -2.27 | -0.96 | 2.39 | -1124.23 |
| 41 | 80 | -8754.42 | 204.45 | 2.27 | 0.96 | -2.76 | 170.44 |
| 42 | 80 | 8754.43 | -204.45 | -2.27 | -0.96 | 2.76 | -170.44 |
| 42 | 81 | -8849.33 | 82.22 | 2.27 | 0.96 | -3.13 | -552.96 |
| 43 | 81 | 8849.32 | -82.22 | -2.27 | -0.96 | 3.13 | 552.96 |
| 43 | 82 | -8463.76 | 112.06 | -0.04 | 0.57 | -1.08 | 2616.21 |
| 44 | 82 | 8463.77 | -112.06 | 0.04 | -0.57 | 1.07 | -2616.21 |
| 44 | 83 | -6361.44 | 310.01 | -0.04 | 0.57 | -1.26 | 2668.70 |
| 45 | 83 | 6361.46 | -310.01 | 0.04 | -0.57 | 1.26 | -2668.70 |
| 45 | 84 | -6355.86 | 426.94 | -0.04 | 0.54 | -1.54 | 1699.74 |
| 46 | 84 | 6355.89 | -426.94 | 0.04 | -0.54 | 1.54 | -1699.75 |
| 46 | 85 | -6374.26 | 456.99 | -0.04 | 0.54 | -1.71 | -347.37 |
| 47 | 85 | 6374.25 | -456.99 | 0.04 | -0.55 | 1.71 | 347.37 |
| 47 | 86 | -6364.06 | 863.10 | -0.04 | 0.55 | -1.89 | -3002.14 |
| 48 | 86 | 6364.05 | -863.10 | 0.04 | -0.54 | 1.89 | 3002.14 |
| 48 | 87 | -12533.97 | 1740.56 | -0.04 | 0.55 | -2.05 | -9443.34 |
| 49 | 87 | 12862.88 | 307.70 | -2.31 | 1.26 | -5.00 | 1497.62 |
| 49 | 97 | -8645.68 | -272.26 | 2.31 | -1.26 | 4.83 | 1399.32 |
| 50 | 97 | 8645.68 | 272.26 | -2.31 | 1.26 | -4.83 | -1399.32 |
| 50 | 98 | -8712.18 | 145.24 | 2.31 | -1.26 | 4.66 | 1572.62 |
| 51 | 98 | 8712.18 | -145.24 | -2.31 | 1.26 | -4.66 | -1572.62 |
| 51 | 99 | -8722.77 | 219.67 | 2.31 | -1.26 | 4.49 | 549.98 |
| 52 | 99 | 8722.78 | -219.66 | -2.31 | 1.26 | -4.49 | -549.98 |
| 52 | 100 | -8811.41 | 97.43 | 2.31 | -1.26 | 4.32 | -236.70 |
| 53 | 100 | 8811.40 | -97.43 | -2.31 | 1.26 | -4.32 | 236.70 |
| 53 | 101 | -8318.32 | 124.01 | -0.09 | 0.63 | -0.97 | 3358.10 |
| 54 | 101 | 8318.32 | -124.01 | 0.09 | -0.63 | 0.97 | -3358.10 |
| 54 | 102 | -6214.19 | 319.50 | -0.08 | 0.59 | -1.51 | 3698.58 |
| 55 | 102 | 6214.21 | -319.50 | 0.08 | -0.59 | 1.51 | -3698.59 |
| 55 | 103 | -6206.39 | 436.52 | -0.08 | 0.59 | -1.88 | 1973.82 |
| 56 | 103 | 6206.38 | -436.52 | 0.08 | -0.59 | 1.88 | -1973.82 |
| 56 | 104 | -6225.40 | 466.57 | -0.08 | 0.59 | -2.25 | -111.02 |
| 57 | 104 | 6225.40 | -466.57 | 0.08 | -0.59 | 2.25 | 111.01 |
| 57 | 105 | -6222.37 | 872.68 | -0.08 | 0.59 | -2.62 | -2810.80 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 58 | 105 | 6222.36 | -872.68 | 0.08 | -0.59 | 2.62 | 2810.80 | 90 | 89 | 1929.05 | -107.23 | -0.03 | 0.00 | 0.72 | -2327.99 |
| 58 | 106 | -12398.80 | 1752.82 | -0.08 | 0.60 | -2.85 | -9393.44 | 90 | 90 | -1809.71 | 96.47 | 0.03 | 0.00 | -0.45 | 1307.44 |
| 59 | 106 | 12374.06 | 379.61 | 1.31 | 0.15 | -1.09 | 2570.67 | 91 | 90 | 1809.71 | -96.47 | -0.03 | 0.00 | 0.45 | -1307.44 |
| 59 | 115 | -8157.15 | -344.16 | -1.31 | -0.15 | 5.77 | 631.39 | 91 | 91 | -1700.59 | 84.38 | 0.03 | 0.00 | -0.18 | 403.00 |
| 60 | 115 | 8157.15 | 344.16 | 1.31 | 0.15 | -5.77 | -631.38 | 92 | 91 | 1700.59 | -84.38 | -0.03 | 0.00 | 0.18 | -403.00 |
| 60 | 116 | -8222.83 | 73.34 | -1.31 | -0.15 | 10.45 | 1108.86 | 92 | 92 | -1639.39 | 76.10 | 0.03 | 0.00 | -0.04 | 0.00 |
| 61 | 116 | 8222.83 | -73.34 | 1.31 | 0.15 | -10.45 | -1108.86 | 93 | 107 | 1903.96 | -98.74 | -0.19 | 0.00 | 2.21 | -1454.18 |
| 61 | 117 | -8250.00 | 147.76 | -1.31 | -0.15 | 15.13 | 385.50 | 93 | 108 | -1892.48 | 97.81 | 0.19 | 0.00 | -2.02 | 1355.90 |
| 62 | 117 | 8250.00 | -147.76 | 1.31 | 0.15 | -15.14 | -385.50 | 94 | 108 | 1892.48 | -97.81 | -0.19 | 0.00 | 2.02 | -1355.90 |
| 62 | 118 | -8326.71 | 25.53 | -1.31 | -0.15 | 19.82 | -96.30 | 94 | 109 | -1783.36 | 88.20 | 0.19 | 0.00 | -0.10 | 424.65 |
| 63 | 118 | 8326.71 | -25.53 | 1.31 | 0.15 | -19.82 | 96.30 | 95 | 109 | 1783.36 | -88.20 | -0.19 | 0.00 | 0.10 | -424.65 |
| 63 | 119 | -6138.53 | 69.47 | 0.08 | -0.49 | 6.50 | 3705.70 | 95 | 110 | -1723.19 | 80.98 | 0.19 | 0.00 | 0.86 | 0.00 |
| 64 | 119 | 6138.54 | -69.47 | -0.08 | 0.49 | -6.50 | -3705.70 | 96 | 125 | 1574.73 | -99.96 | 0.58 | 0.00 | -7.97 | -1473.70 |
| 64 | 120 | -6101.21 | 270.45 | 0.08 | -0.46 | 6.20 | 4087.26 | 96 | 126 | -1563.26 | 99.03 | -0.58 | 0.00 | 7.38 | 1374.20 |
| 65 | 120 | 6101.20 | -270.45 | -0.08 | 0.46 | -6.21 | -4087.26 | 97 | 126 | 1563.26 | -99.03 | 0.58 | 0.00 | -7.38 | -1374.20 |
| 65 | 121 | -6081.95 | 387.48 | 0.08 | -0.46 | 6.56 | 2584.81 | 97 | 127 | -1454.14 | 89.42 | -0.58 | 0.00 | 1.55 | 430.75 |
| 66 | 121 | 6081.95 | -387.48 | -0.08 | 0.46 | -6.56 | -2584.82 | 98 | 127 | 1454.14 | -89.42 | 0.58 | 0.00 | -1.55 | -430.75 |
| 66 | 122 | -6118.95 | 417.53 | 0.08 | -0.46 | 6.91 | 717.17 | 98 | 128 | -1388.87 | 82.20 | -0.59 | 0.00 | -1.39 | 0.00 |
| 67 | 122 | 6118.94 | -417.52 | -0.08 | 0.46 | -6.91 | -717.17 | 99 | 2 | 337.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 67 | 123 | -6111.31 | 823.63 | 0.08 | -0.46 | 7.26 | -1757.95 | 99 | 3 | -339.05 | 16.88 | 0.00 | 0.00 | 0.00 | -28.73 |
| 68 | 123 | 6111.31 | -823.64 | -0.08 | 0.46 | -7.26 | 1757.95 | 100 | 4 | 337.37 | 0.00 | -0.41 | 0.00 | 0.00 | 0.00 |
| 68 | 124 | -12234.27 | 1682.77 | 0.11 | -0.60 | 9.01 | -7721.72 | 100 | 5 | -339.03 | 16.88 | 0.41 | 0.00 | 0.71 | -28.73 |
| 69 | 124 | 13934.66 | 135.13 | 0.57 | -5.66 | 17.11 | -294.03 | 101 | 19 | 725.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 69 | 133 | -9748.85 | 186.17 | -0.57 | 5.66 | -30.25 | 2026.54 | 101 | 20 | -725.40 | 36.29 | 0.00 | 0.00 | 0.00 | -61.77 |
| 70 | 133 | 9748.84 | -186.17 | 0.57 | -5.66 | 30.25 | -2026.54 | 102 | 21 | 725.89 | 0.00 | 0.73 | 0.00 | 0.00 | 0.00 |
| 70 | 134 | -9791.41 | 448.35 | -0.57 | 5.66 | -25.93 | -92.70 | 102 | 22 | -725.65 | 36.29 | -0.73 | 0.00 | -1.25 | -61.77 |
| 71 | 134 | 9838.33 | -448.35 | 0.57 | -5.66 | 25.93 | 106.91 | 103 | 36 | 810.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 71 | 135 | -9938.62 | 123.80 | -0.57 | 5.66 | -21.61 | -1273.10 | 103 | 37 | -810.93 | 40.54 | 0.00 | 0.00 | 0.00 | -69.00 |
| 72 | 135 | 9938.63 | -123.80 | 0.57 | -5.66 | 21.61 | 1273.10 | 104 | 38 | 810.49 | 0.00 | -0.30 | 0.00 | 0.00 | 0.00 |
| 72 | 136 | -9902.52 | 161.84 | -0.57 | 5.66 | -17.29 | -1829.26 | 104 | 39 | -810.62 | 40.54 | 0.30 | 0.00 | 0.52 | -69.00 |
| 73 | 136 | 9902.52 | -161.85 | 0.57 | -5.66 | 17.29 | 1829.27 | 105 | 55 | 797.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 73 | 137 | -9830.59 | 284.59 | -0.65 | 5.81 | -11.91 | -186.01 | 105 | 56 | -797.38 | 39.83 | 0.00 | 0.00 | 0.00 | -67.79 |
| 74 | 137 | 9830.59 | -284.60 | 0.65 | -5.81 | 11.91 | 186.01 | 106 | 57 | 797.54 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 74 | 138 | -7756.99 | 403.67 | -0.57 | 1.93 | 5.14 | 829.34 | 106 | 58 | -797.46 | 39.83 | 0.01 | 0.00 | 0.02 | -67.79 |
| 75 | 138 | 6941.05 | -403.67 | 0.57 | -1.93 | -5.14 | -857.79 | 107 | 74 | 804.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 75 | 139 | -6885.34 | 595.61 | -0.58 | 1.97 | 2.61 | -1228.41 | 107 | 75 | -804.73 | 40.59 | 0.00 | 0.00 | 0.00 | -69.08 |
| 76 | 139 | 6885.34 | -595.61 | 0.58 | -1.97 | -2.61 | 1228.41 | 108 | 76 | 804.55 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 76 | 140 | -6840.60 | 831.25 | -0.59 | 2.00 | 0.00 | -4422.66 | 108 | 77 | -804.77 | 40.59 | 0.02 | 0.00 | 0.03 | -69.08 |
| 77 | 16 | 1623.64 | -83.38 | 0.73 | 0.00 | -7.08 | -809.79 | 109 | 93 | 793.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 77 | 17 | -1565.81 | 78.80 | -0.73 | 0.00 | 3.20 | 380.14 | 109 | 94 | -792.80 | 38.05 | 0.00 | 0.00 | 0.00 | -64.76 |
| 78 | 17 | 1565.81 | -78.80 | 0.73 | 0.00 | -3.20 | -380.14 | 110 | 95 | 793.86 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 |
| 78 | 18 | -1504.81 | 72.58 | -0.73 | 0.00 | -0.47 | 0.00 | 110 | 96 | -792.82 | 38.05 | 0.03 | 0.00 | 0.05 | -64.76 |
| 79 | 33 | 1819.03 | -94.66 | -0.30 | 0.00 | 3.26 | -1115.39 | 111 | 111 | 830.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 79 | 34 | -1736.31 | 87.76 | 0.30 | 0.00 | -0.95 | 423.79 | 111 | 112 | -834.95 | 40.49 | 0.00 | 0.00 | 0.00 | -68.91 |
| 80 | 34 | 1736.31 | -87.76 | -0.30 | 0.00 | 0.95 | -423.79 | 112 | 113 | 830.32 | 0.00 | -0.17 | 0.00 | 0.00 | 0.00 |
| 80 | 35 | -1675.31 | 81.08 | 0.30 | 0.00 | 0.57 | 0.00 | 112 | 114 | -834.48 | 40.49 | 0.19 | 0.00 | 0.33 | -68.91 |
| 81 | 50 | 2020.29 | -118.57 | -0.01 | 0.00 | 0.49 | -3182.69 | 113 | 129 | 688.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 81 | 51 | -1938.08 | 112.02 | 0.01 | 0.00 | -0.42 | 2433.68 | 113 | 130 | -667.18 | 41.10 | 0.00 | 0.00 | 0.00 | -69.95 |
| 82 | 51 | 1938.08 | -112.02 | -0.01 | 0.00 | 0.42 | -2433.68 | 114 | 131 | 689.00 | 0.00 | 0.54 | 0.00 | 0.00 | 0.00 |
| 82 | 52 | -1818.74 | 100.87 | 0.01 | 0.00 | -0.31 | 1366.52 | 114 | 132 | -667.93 | 41.10 | -0.59 | 0.00 | -1.01 | -69.95 |
| 83 | 52 | 1818.74 | -100.87 | -0.01 | 0.00 | 0.31 | -1366.52 | 115 | 141 | 416.68 | -670.71 | 0.00 | 0.00 | 0.00 | 0.00 |
| 83 | 53 | -1709.62 | 88.18 | 0.01 | 0.00 | -0.21 | 421.43 | 115 | 142 | -416.68 | 657.14 | 0.00 | 0.00 | 0.00 | -1125.16 |
| 84 | 53 | 1709.62 | -88.18 | -0.01 | 0.00 | 0.21 | -421.42 | 116 | 143 | 416.57 | -670.71 | -0.28 | 0.00 | 0.00 | 0.00 |
| 84 | 54 | -1648.60 | 79.66 | 0.01 | 0.00 | -0.15 | 0.00 | 116 | 144 | -416.57 | 657.14 | 0.28 | 0.00 | 0.47 | -1125.16 |
| 85 | 69 | 1997.22 | -119.35 | -0.02 | 0.00 | 0.62 | -2897.69 | 117 | 6 | 678.08 | -33.76 | -0.41 | 0.00 | 0.34 | -33.76 |
| 85 | 70 | -1952.67 | 115.48 | 0.02 | 0.00 | -0.55 | 2489.06 | 117 | 7 | -678.08 | 33.76 | 0.41 | 0.00 | 0.07 | 0.00 |
| 86 | 70 | 1952.67 | -115.48 | -0.02 | 0.00 | 0.55 | -2489.06 | 118 | 145 | 901.21 | -1314.29 | -0.29 | 0.00 | -0.19 | -1314.29 |
| 86 | 71 | -1833.33 | 103.11 | 0.02 | 0.00 | -0.35 | 1394.33 | 118 | 146 | -901.21 | 1314.29 | 0.29 | 0.00 | 0.48 | 0.00 |
| 87 | 71 | 1833.33 | -103.11 | -0.02 | 0.00 | 0.35 | -1394.33 | 119 | 3 | 0.00 | 222.85 | 16.84 | -28.73 | -0.02 | 0.00 |
| 87 | 72 | -1724.21 | 89.91 | 0.02 | 0.00 | -0.16 | 429.59 | 119 | 1 | 0.00 | -222.85 | -16.84 | 28.73 | -71.75 | 947.09 |
| 88 | 72 | 1724.21 | -89.91 | -0.02 | 0.00 | 0.16 | -429.59 | 120 | 1 | 1.76 | -578.68 | 16.87 | -28.73 | -71.77 | -2456.40 |
| 88 | 73 | -1663.26 | 81.18 | 0.02 | 0.00 | -0.06 | 0.00 | 120 | 5 | -1.76 | 578.68 | -16.87 | 28.73 | -0.02 | -3.01 |
| 89 | 88 | 1941.54 | -108.21 | -0.03 | 0.00 | 0.75 | -2435.70 | 121 | 20 | 0.00 | 467.92 | -36.44 | 61.77 | -0.01 | -0.01 |
| 89 | 89 | -1929.05 | 107.23 | 0.03 | 0.00 | -0.72 | 2327.99 | 121 | 15 | 0.00 | -467.92 | 36.44 | -61.77 | 67.15 | 865.62 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 122 | 15 | -2.53 | -1389.58 | -36.45 | 61.77 | 66.76 | -2575.06 |
| 122 | 22 | 2.53 | 1389.58 | 36.45 | -61.77 | -0.35 | 4.33 |
| 123 | 37 | 0.01 | 518.22 | 40.50 | -69.00 | -0.25 | 0.01 |
| 123 | 32 | -0.01 | -518.22 | -40.50 | 69.00 | -75.36 | 958.66 |
| 124 | 32 | 13.71 | -1518.76 | 40.55 | -69.00 | -75.14 | -2786.25 |
| 124 | 39 | -13.71 | 1518.76 | -40.55 | 69.00 | -0.26 | -23.46 |
| 125 | 56 | 0.00 | 517.65 | -39.88 | 67.79 | -0.24 | 0.00 |
| 125 | 49 | 0.00 | -517.65 | 39.88 | -67.79 | 73.44 | 957.68 |
| 126 | 49 | -35.75 | -1496.03 | -39.70 | 67.79 | 73.53 | -2828.87 |
| 126 | 58 | 35.75 | 1496.03 | 39.70 | -67.79 | -0.15 | 61.22 |
| 127 | 75 | 0.00 | 556.48 | 40.42 | -69.08 | -0.03 | 0.01 |
| 127 | 68 | 0.00 | -556.48 | -40.42 | 69.08 | -75.16 | 1029.46 |
| 128 | 68 | -20.69 | -1494.45 | 40.84 | -69.08 | -75.03 | -2800.15 |
| 128 | 77 | 20.69 | 1494.45 | -40.84 | 69.08 | 0.08 | 35.41 |
| 129 | 94 | -0.01 | 517.73 | -37.96 | 64.76 | -0.10 | 0.01 |
| 129 | 87 | 0.01 | -517.73 | 37.96 | -64.76 | 70.30 | 957.73 |
| 130 | 87 | -24.84 | -1494.84 | -38.11 | 64.76 | 70.41 | -2808.01 |
| 130 | 96 | 24.84 | 1494.84 | 38.11 | -64.76 | 0.03 | 42.52 |
| 131 | 112 | 0.00 | 548.11 | 40.48 | -68.91 | -0.05 | 0.00 |
| 131 | 106 | 0.00 | -548.11 | -40.48 | 68.91 | -74.89 | 1014.01 |
| 132 | 106 | 2.80 | -1531.93 | 40.43 | -68.91 | -74.97 | -2829.27 |
| 132 | 114 | -2.80 | 1531.93 | -40.43 | 68.91 | 0.02 | -4.80 |
| 133 | 130 | 0.00 | 429.96 | -41.10 | 69.95 | 0.00 | -0.01 |
| 133 | 124 | 0.00 | -429.96 | 41.10 | -69.95 | 76.08 | 795.38 |
| 134 | 124 | -3.31 | -1391.29 | -41.15 | 69.95 | 76.00 | -2579.55 |
| 134 | 132 | 3.31 | 1391.29 | 41.15 | -69.95 | -0.01 | 5.67 |
| 135 | 142 | 0.00 | 199.13 | -446.77 | 765.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -199.13 | 446.77 | -765.00 | 1898.76 | 846.32 |
| 136 | 140 | 1.66 | -623.56 | -485.02 | 830.49 | 2061.35 | -2647.30 |
| 136 | 144 | -1.66 | 623.56 | 485.02 | -830.49 | 0.00 | -2.84 |
| 137 | 2 | 0.00 | -578.71 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 578.71 | -16.88 | 0.00 | -71.57 | -2459.54 |
| 138 | 7 | 12.69 | 222.83 | 16.88 | 0.00 | -71.57 | 947.03 |
| 138 | 4 | -12.69 | -222.83 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -1389.43 | 0.01 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 1389.43 | 36.28 | 0.00 | 66.79 | -2570.46 |
| 140 | 18 | 40.54 | 468.22 | -36.30 | 0.00 | 66.77 | 866.21 |
| 140 | 21 | -40.54 | -468.22 | 0.01 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -1519.22 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 1519.22 | -40.54 | 0.00 | -74.59 | -2810.55 |
| 142 | 35 | 141.90 | 517.93 | 40.53 | 0.00 | -74.60 | 958.19 |
| 142 | 38 | -141.90 | -517.93 | 0.01 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -1496.16 | -0.25 | 0.00 | -0.06 | 0.01 |
| 143 | 54 | 0.00 | 1496.16 | 40.08 | 0.00 | 73.08 | -2767.88 |
| 144 | 54 | 12.33 | 517.89 | -39.75 | 0.00 | 73.21 | 958.13 |
| 144 | 57 | -12.33 | -517.89 | -0.08 | 0.00 | -0.08 | 0.01 |
| 145 | 74 | 0.00 | -1494.64 | -0.06 | 0.00 | -0.10 | 0.00 |
| 145 | 73 | 0.00 | 1494.64 | -40.53 | 0.00 | -74.76 | -2765.06 |
| 146 | 73 | 51.37 | 556.63 | 40.57 | 0.00 | -74.68 | 1029.79 |
| 146 | 76 | -51.37 | -556.63 | 0.02 | 0.00 | 0.01 | -0.01 |
| 147 | 93 | 0.00 | -1495.09 | 0.06 | 0.00 | 0.08 | 0.00 |
| 147 | 92 | 0.00 | 1495.09 | 37.99 | 0.00 | 69.96 | -2765.91 |
| 148 | 92 | 46.70 | 517.88 | -38.06 | 0.00 | 70.06 | 958.10 |
| 148 | 95 | -46.70 | -517.88 | 0.01 | 0.00 | 0.05 | -0.01 |
| 149 | 111 | 0.00 | -1532.62 | -0.02 | 0.00 | 0.02 | -0.01 |
| 149 | 110 | 0.00 | 1532.62 | -40.47 | 0.00 | -74.45 | -2835.33 |
| 150 | 110 | 111.51 | 547.88 | 40.52 | 0.00 | -74.49 | 1013.58 |
| 150 | 113 | -111.51 | -547.88 | -0.03 | 0.00 | 0.01 | -0.01 |
| 151 | 129 | 0.00 | -1390.93 | 0.05 | 0.00 | -0.01 | 0.00 |
| 151 | 128 | 0.00 | 1390.93 | 41.05 | 0.00 | 75.65 | -2573.22 |
| 152 | 128 | 30.51 | 430.82 | -41.12 | 0.00 | 75.60 | 797.01 |
| 152 | 131 | -30.51 | -430.82 | 0.02 | 0.00 | -0.02 | 0.00 |
| 153 | 141 | 0.00 | -623.81 | -498.59 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 623.81 | 485.02 | 0.00 | 2061.48 | -2651.18 |
| 154 | 146 | 28.64 | 199.06 | -446.77 | 0.00 | 1898.90 | 846.02 |
| 154 | 143 | -28.64 | -199.06 | 460.34 | 0.00 | 0.00 | 0.00 |

## DESPLAZAMIENTOS DE NUDOS

| NUDO | DESP. X | DESP. Y | DESP. Z | GIRO X | GIRO Y | GIRO Z |
|---|---|---|---|---|---|---|
| 1 | 0.115352 | -0.004629 | -0.000228 | 0.000000 | -0.000004 | -0.001340 |
| 2 | -0.000011 | -0.003907 | -0.000011 | -0.000152 | 0.000004 | 0.000000 |
| 3 | 0.114853 | -0.004319 | -0.000276 | 0.000060 | 0.000043 | -0.000571 |
| 4 | -0.000011 | -0.003907 | 0.000011 | 0.000152 | -0.000004 | 0.000000 |
| 5 | 0.114826 | -0.004319 | -0.000091 | -0.000060 | -0.000049 | -0.000571 |
| 6 | 0.000000 | -0.003420 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 7 | 0.000000 | -0.003449 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 8 | 0.266893 | -0.013525 | -0.000200 | 0.000000 | -0.000004 | -0.001725 |
| 9 | 0.263396 | -0.020808 | -0.000182 | -0.000001 | -0.000004 | -0.001253 |
| 10 | 0.259886 | -0.025073 | -0.000166 | -0.000001 | -0.000003 | -0.000556 |
| 11 | 0.265938 | -0.025878 | -0.000151 | -0.000001 | -0.000003 | 0.000141 |
| 12 | 0.262375 | -0.023613 | -0.000137 | -0.000001 | -0.000003 | 0.000741 |
| 13 | 0.258817 | -0.018930 | -0.000123 | -0.000002 | -0.000003 | 0.001172 |
| 14 | 0.255232 | -0.012649 | -0.000111 | -0.000002 | -0.000002 | 0.001404 |
| 15 | 0.239414 | -0.006226 | -0.000113 | -0.000001 | -0.000002 | -0.000434 |
| 16 | 0.000000 | -0.003420 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 17 | 0.000815 | -0.004323 | -0.000003 | -0.000001 | 0.000000 | -0.000242 |
| 18 | 0.002331 | -0.005069 | -0.000008 | -0.000001 | 0.000000 | -0.000306 |
| 19 | 0.002333 | -0.005533 | -0.002645 | -0.000504 | -0.000002 | -0.000306 |
| 20 | 0.237709 | -0.006498 | -0.003717 | -0.000533 | 0.000093 | -0.000244 |
| 21 | 0.002333 | -0.005529 | 0.002628 | 0.000502 | 0.000002 | -0.000306 |
| 22 | 0.237704 | -0.006494 | 0.003544 | 0.000532 | -0.000095 | -0.000244 |
| 23 | 0.235907 | -0.015026 | -0.000087 | 0.000000 | 0.000000 | -0.002006 |
| 24 | 0.232415 | -0.024824 | -0.000086 | 0.000000 | 0.000000 | -0.001899 |
| 25 | 0.228689 | -0.032723 | -0.000084 | 0.000000 | 0.000000 | -0.001409 |
| 26 | 0.224989 | -0.037897 | -0.000083 | 0.000000 | 0.000000 | -0.000760 |
| 27 | 0.230650 | -0.039809 | -0.000082 | 0.000000 | 0.000000 | -0.000008 |
| 28 | 0.226877 | -0.037960 | -0.000082 | 0.000000 | 0.000000 | 0.000768 |
| 29 | 0.223144 | -0.032682 | -0.000081 | 0.000000 | 0.000000 | 0.001403 |
| 30 | 0.219527 | -0.024929 | -0.000081 | 0.000000 | 0.000000 | 0.001826 |
| 31 | 0.215865 | -0.015662 | -0.000081 | 0.000000 | 0.000000 | 0.001974 |
| 32 | 0.087529 | -0.006850 | -0.000097 | 0.000001 | 0.000000 | -0.000112 |
| 33 | 0.000000 | -0.003420 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 34 | -0.002084 | -0.004808 | 0.000006 | 0.000001 | 0.000000 | 0.000444 |
| 35 | -0.004648 | -0.005608 | 0.000012 | 0.000001 | 0.000000 | 0.000516 |
| 36 | -0.004650 | -0.007004 | -0.008460 | -0.001117 | 0.000002 | 0.000516 |
| 37 | 0.088155 | -0.008037 | -0.010698 | -0.001161 | 0.000229 | -0.000022 |
| 38 | -0.004650 | -0.007007 | 0.008484 | 0.001118 | -0.000002 | 0.000516 |
| 39 | 0.088154 | -0.008039 | 0.010556 | 0.001174 | -0.000229 | -0.000022 |
| 40 | 0.198184 | -0.016307 | -0.000073 | 0.000001 | 0.000000 | -0.002204 |
| 41 | 0.194579 | -0.026917 | -0.000073 | 0.000001 | 0.000000 | -0.002060 |
| 42 | 0.193705 | -0.035535 | -0.000074 | 0.000001 | 0.000000 | -0.001553 |
| 43 | 0.190081 | -0.041266 | -0.000074 | 0.000001 | 0.000000 | -0.000860 |
| 44 | 0.186455 | -0.043474 | -0.000074 | 0.000001 | 0.000000 | -0.000044 |
| 45 | 0.191757 | -0.041738 | -0.000074 | 0.000001 | 0.000000 | 0.000766 |
| 46 | 0.188083 | -0.036352 | -0.000075 | 0.000001 | 0.000000 | 0.001457 |
| 47 | 0.184485 | -0.028264 | -0.000075 | 0.000001 | 0.000000 | 0.001910 |
| 48 | 0.180960 | -0.018642 | -0.000075 | 0.000001 | 0.000000 | 0.002061 |
| 49 | 0.163598 | -0.010106 | -0.000077 | 0.000001 | 0.000000 | -0.000047 |
| 50 | 0.000000 | -0.003420 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 51 | 0.000000 | -0.004516 | 0.000002 | 0.000000 | 0.000000 | 0.000000 |
| 52 | 0.019750 | -0.006249 | 0.000010 | 0.000001 | 0.000000 | -0.002140 |
| 53 | 0.045175 | -0.008076 | 0.000024 | 0.000001 | 0.000000 | -0.002795 |
| 54 | 0.059486 | -0.008871 | 0.000031 | 0.000001 | 0.000000 | -0.002865 |
| 55 | 0.059488 | -0.009915 | -0.020531 | -0.001424 | -0.000002 | -0.002865 |
| 56 | 0.164719 | -0.010923 | -0.023196 | -0.001467 | 0.000237 | -0.000034 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 57 | 0.059488 | -0.009916 | 0.020542 | 0.001425 | 0.000002 | -0.002865 |
| 58 | 0.164719 | -0.010924 | 0.023056 | 0.001468 | -0.000237 | -0.000034 |
| 59 | 0.157532 | -0.018868 | -0.000079 | 0.000000 | 0.000000 | -0.002173 |
| 60 | 0.154113 | -0.029281 | -0.000079 | 0.000000 | 0.000000 | -0.002008 |
| 61 | 0.150689 | -0.037585 | -0.000079 | 0.000000 | 0.000000 | -0.001477 |
| 62 | 0.147261 | -0.042914 | -0.000079 | 0.000000 | 0.000000 | -0.000769 |
| 63 | 0.143832 | -0.044677 | -0.000079 | 0.000000 | 0.000000 | 0.000051 |
| 64 | 0.148646 | -0.042512 | -0.000078 | 0.000000 | 0.000000 | 0.000855 |
| 65 | 0.145148 | -0.036737 | -0.000078 | 0.000000 | 0.000000 | 0.001529 |
| 66 | 0.141651 | -0.028347 | -0.000078 | 0.000000 | 0.000000 | 0.001967 |
| 67 | 0.138153 | -0.018459 | -0.000078 | 0.000000 | 0.000000 | 0.002107 |
| 68 | 0.060382 | -0.009630 | -0.000088 | 0.000001 | 0.000000 | 0.000015 |
| 69 | 0.000000 | -0.003420 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 70 | 0.000000 | -0.004000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 71 | -0.012552 | -0.005745 | 0.000006 | 0.000001 | 0.000000 | 0.001679 |
| 72 | -0.033443 | -0.007585 | 0.000016 | 0.000001 | 0.000000 | 0.002346 |
| 73 | -0.045517 | -0.008386 | 0.000021 | 0.000001 | 0.000000 | 0.002418 |
| 74 | -0.045519 | -0.010154 | -0.025670 | -0.001744 | 0.000002 | 0.002418 |
| 75 | 0.058664 | -0.011144 | -0.028889 | -0.001772 | 0.000012 | 0.000023 |
| 76 | -0.045519 | -0.010155 | 0.025685 | 0.001744 | -0.000002 | 0.002418 |
| 77 | 0.058663 | -0.011145 | 0.028747 | 0.001777 | -0.000012 | 0.000023 |
| 78 | 0.130127 | -0.018496 | -0.000079 | 0.000000 | 0.000000 | -0.002180 |
| 79 | 0.126681 | -0.028972 | -0.000079 | 0.000000 | 0.000000 | -0.002021 |
| 80 | 0.123227 | -0.037353 | -0.000079 | 0.000000 | 0.000000 | -0.001493 |
| 81 | 0.119767 | -0.042761 | -0.000079 | 0.000000 | 0.000000 | -0.000784 |
| 82 | 0.123722 | -0.044654 | -0.000079 | 0.000000 | 0.000000 | 0.000022 |
| 83 | 0.120159 | -0.042543 | -0.000079 | 0.000000 | 0.000000 | 0.000851 |
| 84 | 0.116597 | -0.036773 | -0.000079 | 0.000000 | 0.000000 | 0.001537 |
| 85 | 0.113032 | -0.028328 | -0.000079 | 0.000000 | 0.000000 | 0.001989 |
| 86 | 0.109465 | -0.018310 | -0.000079 | 0.000000 | 0.000000 | 0.002146 |
| 87 | 0.091866 | -0.009177 | -0.000081 | 0.000001 | 0.000000 | 0.000054 |
| 88 | 0.000000 | -0.003420 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 89 | 0.000086 | -0.003589 | 0.000000 | 0.000000 | 0.000000 | -0.000132 |
| 90 | 0.007596 | -0.005321 | 0.000006 | 0.000001 | 0.000000 | -0.001238 |
| 91 | 0.023823 | -0.007148 | 0.000019 | 0.000001 | 0.000000 | -0.001864 |
| 92 | 0.033464 | -0.007943 | 0.000027 | 0.000001 | 0.000000 | -0.001931 |
| 93 | 0.033466 | -0.009615 | -0.021877 | -0.001629 | -0.000002 | -0.001931 |
| 94 | 0.094196 | -0.010620 | -0.024914 | -0.001669 | -0.000170 | 0.000027 |
| 95 | 0.033466 | -0.009616 | 0.021890 | 0.001630 | 0.000002 | -0.001931 |
| 96 | 0.094195 | -0.010621 | 0.024771 | 0.001673 | 0.000170 | 0.000027 |
| 97 | 0.088193 | -0.017755 | -0.000075 | 0.000000 | 0.000000 | -0.002094 |
| 98 | 0.084807 | -0.027789 | -0.000076 | 0.000000 | 0.000000 | -0.001924 |
| 99 | 0.081425 | -0.035707 | -0.000075 | 0.000000 | 0.000000 | -0.001396 |
| 100 | 0.078039 | -0.040682 | -0.000076 | 0.000000 | 0.000000 | -0.000700 |
| 101 | 0.074651 | -0.042160 | -0.000076 | 0.000000 | 0.000000 | 0.000101 |
| 102 | 0.071269 | -0.039746 | -0.000076 | 0.000000 | 0.000000 | 0.000891 |
| 103 | 0.067889 | -0.033877 | -0.000076 | 0.000000 | 0.000000 | 0.001524 |
| 104 | 0.064510 | -0.025608 | -0.000077 | 0.000000 | 0.000000 | 0.001907 |
| 105 | 0.061130 | -0.016101 | -0.000078 | 0.000000 | 0.000000 | 0.001979 |
| 106 | 0.031237 | -0.007549 | -0.000095 | 0.000001 | 0.000000 | -0.000119 |
| 107 | 0.000000 | -0.003420 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 108 | -0.000070 | -0.003601 | 0.000000 | 0.000000 | 0.000000 | 0.000096 |
| 109 | -0.005125 | -0.005471 | 0.000009 | 0.000001 | 0.000000 | 0.000762 |
| 110 | -0.009277 | -0.006284 | 0.000016 | 0.000001 | 0.000000 | 0.000833 |
| 111 | -0.009279 | -0.007979 | -0.012927 | -0.001374 | 0.000002 | 0.000833 |
| 112 | 0.030257 | -0.009014 | -0.015572 | -0.001408 | -0.000197 | -0.000188 |
| 113 | -0.009279 | -0.007981 | 0.012948 | 0.001375 | -0.000002 | 0.000833 |
| 114 | 0.030257 | -0.009016 | 0.015425 | 0.001418 | 0.000198 | -0.000188 |
| 115 | 0.065854 | -0.017309 | -0.000082 | 0.000000 | 0.000000 | -0.002301 |
| 116 | 0.062292 | -0.028437 | -0.000082 | 0.000000 | 0.000000 | -0.002167 |
| 117 | 0.058694 | -0.037531 | -0.000083 | 0.000000 | 0.000000 | -0.001643 |
| 118 | 0.055088 | -0.043620 | -0.000084 | 0.000000 | 0.000000 | -0.000916 |
| 119 | 0.051480 | -0.045998 | -0.000085 | 0.000000 | 0.000000 | -0.000050 |
| 120 | 0.047876 | -0.044113 | -0.000087 | -0.000001 | 0.000000 | 0.000840 |
| 121 | 0.044274 | -0.038250 | -0.000089 | -0.000001 | 0.000000 | 0.001606 |
| 122 | 0.040670 | -0.029308 | -0.000091 | -0.000001 | 0.000001 | 0.002158 |
| 123 | 0.018502 | -0.018540 | -0.000095 | -0.000001 | 0.000001 | 0.002431 |
| 124 | 0.024235 | -0.007219 | -0.000120 | -0.000001 | 0.000001 | 0.000726 |
| 125 | 0.000000 | -0.003420 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 126 | 0.000071 | -0.003587 | 0.000000 | 0.000000 | 0.000000 | -0.000098 |
| 127 | 0.005202 | -0.005311 | -0.000008 | -0.000001 | 0.000000 | -0.000773 |
| 128 | 0.009417 | -0.006059 | -0.000014 | -0.000001 | 0.000000 | -0.000846 |
| 129 | 0.009419 | -0.006659 | -0.006280 | -0.000753 | -0.000002 | -0.000846 |
| 130 | 0.025553 | -0.007590 | -0.007103 | -0.000724 | -0.000156 | 0.000534 |
| 131 | 0.009419 | -0.006653 | 0.006241 | 0.000750 | 0.000002 | -0.000846 |
| 132 | 0.025557 | -0.007585 | 0.006914 | 0.000722 | 0.000159 | 0.000534 |
| 133 | 0.019343 | -0.011987 | -0.000125 | -0.000002 | 0.000002 | -0.001133 |
| 134 | 0.015982 | -0.017137 | -0.000136 | -0.000002 | 0.000002 | -0.000968 |
| 135 | 0.012634 | -0.021112 | -0.000147 | -0.000002 | 0.000003 | -0.000621 |
| 136 | 0.009284 | -0.022995 | -0.000159 | -0.000001 | 0.000003 | -0.000083 |
| 137 | 0.005942 | -0.021991 | -0.000172 | -0.000001 | 0.000003 | 0.000531 |
| 138 | 0.002611 | -0.018107 | -0.000185 | -0.000001 | 0.000003 | 0.001077 |
| 139 | -0.000586 | -0.011956 | -0.000200 | 0.000000 | 0.000003 | 0.001439 |
| 140 | 0.002146 | -0.004723 | -0.000246 | 0.000000 | 0.000004 | -0.000533 |
| 141 | 0.001163 | -0.003952 | -0.000014 | -0.000165 | -0.000307 | -0.000012 |
| 142 | 0.003500 | -0.004399 | -0.000305 | 0.000068 | 0.000027 | -0.001516 |
| 143 | 0.001184 | -0.003952 | 0.000018 | 0.000165 | 0.000312 | -0.000012 |
| 144 | 0.003525 | -0.004398 | -0.000098 | -0.000067 | -0.000021 | -0.001516 |
| 145 | 0.000000 | -0.003420 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 146 | 0.000008 | -0.003452 | 0.000000 | 0.000000 | 0.000004 | -0.000013 |

HIPOTESIS 205

FUER Z MAX envolvente (ELS)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 6982.16 | 447.14 | 29.05 | 668.99 | 0.00 | 1152.57 |
| 1 | 8 | -7005.46 | -264.26 | -23.97 | -650.94 | -119.28 | 402.76 |
| 2 | 8 | 7005.55 | 264.26 | 23.97 | 650.94 | 119.28 | -402.76 |
| 2 | 9 | -7024.01 | -131.07 | -23.35 | -561.12 | -210.11 | 1461.22 |
| 3 | 9 | 7311.37 | 131.07 | 23.35 | 561.12 | 210.11 | -1647.59 |
| 3 | 10 | -7343.56 | 53.92 | -23.35 | -377.56 | -315.17 | 1786.44 |
| 4 | 10 | 7343.53 | -53.92 | 23.35 | 377.56 | 315.17 | -1786.44 |
| 4 | 11 | -7398.69 | 137.12 | -28.28 | -46.91 | -328.88 | 983.41 |
| 5 | 11 | 7398.76 | -137.12 | 28.28 | 46.91 | 328.88 | -983.41 |
| 5 | 12 | -7402.44 | 156.22 | -33.23 | 85.99 | -467.28 | 338.15 |
| 6 | 12 | 7402.40 | -156.22 | 33.23 | -85.99 | 467.28 | -338.15 |
| 6 | 13 | -7340.37 | 72.92 | -38.14 | 218.98 | -627.86 | -204.95 |
| 7 | 13 | 7317.69 | -72.92 | 38.14 | -218.98 | 627.86 | 201.91 |
| 7 | 14 | -7348.65 | 277.36 | -43.01 | 352.07 | -810.46 | -686.85 |
| 8 | 14 | 7348.61 | -277.36 | 43.01 | -352.07 | 810.46 | 686.85 |
| 8 | 15 | -10578.40 | 897.39 | -47.86 | 373.96 | -1014.93 | -4565.94 |
| 9 | 15 | 13888.45 | 862.56 | 28.68 | 152.11 | -688.46 | 3796.72 |
| 9 | 23 | -11054.41 | -698.10 | -26.34 | -79.76 | 317.46 | -273.82 |
| 10 | 23 | 11054.41 | 698.10 | 26.34 | 79.76 | -317.46 | 273.82 |
| 10 | 24 | -11119.41 | -221.13 | -26.34 | -179.84 | 209.52 | 1681.00 |
| 11 | 24 | 11675.28 | 221.13 | 26.34 | 179.84 | -209.52 | -2085.14 |
| 11 | 25 | -11110.31 | -49.90 | -28.18 | -44.72 | -257.70 | 1953.78 |
| 12 | 25 | 11110.35 | 49.90 | 28.18 | 44.72 | 257.70 | -1953.78 |
| 12 | 26 | -11208.09 | -102.14 | -33.08 | -91.23 | -387.07 | 2245.57 |
| 13 | 26 | 11208.08 | 102.14 | 33.08 | 91.23 | 387.07 | -2245.57 |
| 13 | 27 | -11179.81 | 11.95 | -38.01 | -42.10 | -538.57 | 2605.88 |
| 14 | 27 | 11179.81 | -11.95 | 38.01 | 42.10 | 538.57 | -2605.88 |
| 14 | 28 | -11155.29 | 173.33 | -42.97 | 6.97 | -712.31 | 2222.89 |
| 15 | 28 | 11155.29 | -173.33 | 42.97 | -6.97 | 712.31 | -2222.89 |
| 15 | 29 | -11162.88 | 201.32 | -47.94 | 55.98 | -908.38 | 1341.25 |
| 16 | 29 | 11162.85 | -201.32 | 47.94 | -55.98 | 908.38 | -1341.25 |
| 16 | 30 | -10523.28 | 116.36 | -52.94 | 104.92 | -1126.89 | 831.73 |
| 17 | 30 | 10523.30 | -116.36 | 52.94 | -104.92 | 1126.89 | -831.73 |
| 17 | 31 | -10528.97 | 519.79 | -57.96 | 153.81 | -1367.92 | -195.23 |
| 18 | 31 | 10528.98 | -519.79 | 57.96 | -153.81 | 1367.92 | 195.23 |
| 18 | 32 | -14645.67 | 1416.24 | -62.99 | 91.33 | -1631.59 | -6124.60 |
| 19 | 32 | 14503.31 | 695.58 | 92.02 | 885.06 | -1574.12 | 4397.71 |
| 19 | 40 | -10289.70 | -595.87 | -86.90 | -755.06 | 1182.08 | 93.41 |
| 20 | 40 | 10289.71 | 595.87 | 86.90 | 755.06 | -1182.08 | -93.41 |
| 20 | 41 | -10354.07 | -114.11 | -81.64 | -624.67 | 813.41 | 1570.83 |
| 21 | 41 | 10354.08 | 114.11 | 81.64 | 624.67 | -813.41 | -1570.83 |
| 21 | 42 | -10352.08 | 24.57 | -76.26 | -493.92 | 468.69 | 1561.38 |
| 22 | 42 | 10352.08 | -24.57 | 76.25 | 493.92 | -468.69 | -1561.38 |
| 22 | 43 | -10428.16 | -33.41 | -70.75 | -362.85 | 148.46 | 1498.73 |
| 23 | 43 | 10428.13 | 33.40 | 70.75 | 362.85 | -148.46 | -1498.73 |
| 23 | 44 | -10378.17 | 38.84 | -65.15 | -231.47 | -146.76 | 1638.40 |
| 24 | 44 | 10378.18 | -38.84 | 65.14 | 231.47 | 146.76 | -1638.40 |
| 24 | 45 | -10331.95 | 158.37 | -59.43 | -99.81 | -416.52 | 1223.10 |
| 25 | 45 | 10331.96 | -158.37 | 59.43 | 99.81 | 416.52 | -1223.10 |
| 25 | 46 | -10321.20 | 147.07 | -53.63 | 38.89 | -660.36 | 494.56 |
| 26 | 46 | 10321.20 | -147.07 | 53.63 | -38.89 | 660.37 | -494.55 |
| 26 | 47 | -8982.18 | 28.25 | -47.74 | 192.24 | -877.89 | -204.13 |
| 27 | 47 | 8982.17 | -28.25 | 47.74 | -192.24 | 877.89 | 204.14 |
| 27 | 48 | -8985.50 | 397.82 | -41.76 | 345.83 | -1068.70 | -768.57 |
| 28 | 48 | 8985.51 | -397.82 | 41.76 | -345.83 | 1068.70 | 768.57 |
| 28 | 49 | -13099.82 | 1302.41 | -35.70 | 499.64 | -1232.42 | -6156.56 |
| 29 | 49 | 13171.82 | 612.62 | 52.24 | 705.41 | 405.06 | 5110.97 |
| 29 | 59 | -8962.98 | -553.87 | -46.14 | -684.45 | -617.96 | -898.40 |
| 30 | 59 | 8963.00 | 553.87 | 46.14 | 684.45 | 617.96 | 898.40 |
| 30 | 60 | -9036.76 | -113.06 | -40.02 | -663.45 | -803.36 | 484.69 |
| 31 | 60 | 9036.74 | 113.06 | 40.02 | 663.45 | 803.36 | -484.69 |
| 31 | 61 | -9062.91 | -15.32 | -33.89 | -642.42 | -961.19 | 562.37 |
| 32 | 61 | 9062.91 | 15.32 | 33.89 | 642.42 | 961.19 | -562.37 |
| 32 | 62 | -9147.65 | -96.37 | -27.74 | -573.96 | -1091.40 | 762.89 |
| 33 | 62 | 9147.67 | 96.37 | 27.74 | 573.96 | 1091.40 | -762.89 |
| 33 | 63 | -9128.82 | -18.34 | -24.95 | -397.42 | -269.11 | 1316.52 |
| 34 | 63 | 9128.81 | 18.34 | 24.95 | 397.42 | 269.11 | -1316.52 |
| 34 | 64 | -9092.05 | 127.89 | -24.95 | -213.86 | -370.82 | 1105.04 |
| 35 | 64 | 9092.04 | -127.89 | 24.95 | 213.87 | 370.82 | -1105.04 |
| 35 | 65 | -9064.13 | 120.71 | -30.70 | 32.71 | 559.50 | 363.32 |
| 36 | 65 | 9064.14 | -120.71 | 30.70 | -32.71 | -559.50 | -363.32 |
| 36 | 66 | -9082.43 | 6.95 | -36.90 | 162.08 | 415.86 | 1.83 |
| 37 | 66 | 9082.43 | -6.94 | 36.90 | -162.08 | -415.86 | -1.83 |
| 37 | 67 | -9083.10 | 381.57 | -43.11 | 291.40 | 244.30 | -466.55 |
| 38 | 67 | 9083.09 | -381.57 | 43.11 | -291.40 | -244.29 | 466.55 |
| 38 | 68 | -13194.74 | 1249.22 | -49.34 | 309.39 | 44.75 | -5707.75 |
| 39 | 68 | 9968.78 | 657.49 | 43.00 | -251.67 | 23.53 | 4934.67 |
| 39 | 78 | -6716.77 | -587.12 | -36.78 | 233.98 | -194.57 | -898.17 |
| 40 | 78 | 6716.78 | 587.12 | 36.78 | -233.98 | 194.58 | 898.17 |
| 40 | 79 | -6764.98 | -180.45 | -30.59 | 104.60 | -337.69 | 730.33 |
| 41 | 79 | 6765.01 | 180.45 | 30.59 | -104.60 | 337.70 | -730.33 |
| 41 | 80 | -6746.25 | -57.89 | -26.30 | -29.02 | 481.06 | 1154.99 |
| 42 | 80 | 6746.22 | 57.89 | 26.30 | 29.02 | -481.06 | -1154.99 |
| 42 | 81 | -6811.33 | -53.16 | -26.30 | -212.57 | 373.29 | 1330.35 |
| 43 | 81 | 6811.34 | 53.16 | 26.30 | 212.57 | -373.29 | -1330.35 |
| 43 | 82 | -6810.87 | 44.46 | -29.90 | -349.79 | 1025.52 | 1285.27 |
| 44 | 82 | 6810.83 | -44.46 | 29.90 | 349.79 | -1025.52 | -1285.27 |
| 44 | 83 | -6782.60 | 172.20 | -35.98 | -513.79 | 885.74 | 810.30 |
| 45 | 83 | 6782.62 | -172.20 | 35.98 | 513.79 | -885.74 | -810.30 |
| 45 | 84 | -6779.05 | 161.25 | -42.04 | -582.31 | 718.65 | -10.32 |
| 46 | 84 | 6779.07 | -161.25 | 42.04 | 582.31 | -718.65 | 10.32 |
| 46 | 85 | -6799.47 | 45.32 | -48.06 | -603.05 | 524.38 | -549.74 |
| 47 | 85 | 6799.46 | -45.32 | 48.06 | 603.05 | -524.38 | 549.74 |
| 47 | 86 | -6791.30 | 305.45 | -54.06 | -623.70 | 303.05 | -1039.90 |
| 48 | 86 | 6791.29 | -305.45 | 54.06 | 623.70 | -303.05 | 1039.90 |
| 48 | 87 | -9948.58 | 977.54 | -60.03 | -644.28 | 54.80 | -5134.22 |
| 49 | 87 | 9524.21 | 644.15 | 31.66 | -299.65 | -318.49 | 4759.89 |
| 49 | 97 | -6233.00 | -621.25 | -29.20 | 342.50 | 619.00 | -984.35 |
| 50 | 97 | 6233.00 | 621.25 | 29.20 | -342.50 | -619.00 | 984.35 |
| 50 | 98 | -6276.23 | -200.93 | -29.20 | 158.94 | 498.19 | 764.81 |
| 51 | 98 | 6276.26 | 200.93 | 29.20 | -158.94 | -498.19 | -764.81 |
| 51 | 99 | -6315.15 | -24.61 | -32.66 | -59.79 | 568.12 | 1046.10 |
| 52 | 99 | 6315.15 | 24.61 | 32.66 | 59.79 | -568.12 | -1046.10 |
| 52 | 100 | -6376.33 | -33.54 | -38.43 | -222.88 | 416.61 | 1108.01 |
| 53 | 100 | 6376.31 | 33.54 | 38.43 | 222.88 | -416.61 | -1108.01 |
| 53 | 101 | -6340.41 | 57.80 | -44.13 | -385.81 | 239.31 | 1164.99 |
| 54 | 101 | 6340.40 | -57.80 | 44.13 | 385.81 | -239.31 | -1164.99 |
| 54 | 102 | -6307.34 | 185.55 | -49.77 | -548.57 | 36.46 | 633.93 |
| 55 | 102 | 6307.36 | -185.55 | 49.77 | 548.57 | -36.47 | -633.93 |
| 55 | 103 | -6301.57 | 174.60 | -55.35 | -615.75 | -191.62 | -243.51 |
| 56 | 103 | 6301.56 | -174.60 | 55.35 | 615.75 | 191.62 | 243.51 |
| 56 | 104 | -6322.60 | 58.67 | -60.87 | -635.04 | -444.67 | -837.59 |
| 57 | 104 | 6322.60 | -58.67 | 60.86 | 635.04 | 444.68 | 837.59 |
| 57 | 105 | -6321.59 | 318.80 | -66.31 | -654.14 | -722.38 | -1389.73 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 58 | 105 | 6321.58 | -318.80 | 66.31 | 654.14 | 722.38 | 1389.73 | 90 | 89 | 2106.91 | 76.10 | 84.91 | 0.00 | -1529.18 | 1902.50 |
| 58 | 106 | -9486.03 | 990.89 | -71.68 | -673.03 | -1024.43 | -5546.02 | 90 | 90 | -1987.56 | -76.10 | -82.45 | 0.00 | 691.75 | -1141.50 |
| 59 | 106 | 9405.06 | 783.19 | 62.57 | -106.59 | -983.83 | 5857.06 | 91 | 90 | 1987.57 | 76.10 | 82.45 | 0.00 | -691.75 | 1141.50 |
| 59 | 115 | -6157.91 | -712.83 | -57.23 | 93.90 | 722.75 | -1258.87 | 91 | 91 | -1878.45 | -76.10 | -79.38 | 0.00 | -117.85 | -380.50 |
| 60 | 115 | 6157.90 | 712.83 | 57.23 | -93.90 | -722.75 | 1258.87 | 92 | 91 | 1878.44 | 76.10 | 79.38 | 0.00 | 117.85 | 380.50 |
| 60 | 116 | -6208.34 | -306.16 | -51.90 | -30.41 | 485.68 | 932.05 | 92 | 92 | -1817.44 | -76.10 | -77.67 | 0.00 | -510.51 | 0.00 |
| 61 | 116 | 6208.33 | 306.16 | 51.89 | 30.41 | -485.68 | -932.05 | 93 | 107 | 2224.19 | 80.98 | 122.14 | 0.00 | -1805.45 | 1295.68 |
| 61 | 117 | -6229.12 | -163.66 | -46.56 | -154.73 | 272.62 | 1814.96 | 93 | 108 | -2212.72 | -80.98 | -121.93 | 0.00 | 1683.41 | -1214.70 |
| 62 | 117 | 6229.12 | 163.66 | 46.56 | 154.73 | -272.62 | -1814.96 | 94 | 108 | 2212.72 | 80.98 | 121.93 | 0.00 | -1683.41 | 1214.70 |
| 62 | 118 | -6288.06 | -154.70 | -41.23 | -231.66 | 83.56 | 2487.00 | 94 | 109 | -2103.60 | -80.98 | -119.47 | 0.00 | 475.80 | -404.90 |
| 63 | 118 | 6288.05 | 154.71 | 41.23 | 231.65 | -83.56 | -2487.00 | 95 | 109 | 2103.60 | 80.98 | 119.47 | 0.00 | -475.80 | 404.90 |
| 63 | 119 | -6249.91 | -9.36 | -35.89 | -212.87 | -81.49 | 2965.64 | 95 | 110 | -2042.60 | -80.98 | -117.99 | 0.00 | -117.92 | 0.00 |
| 64 | 119 | 6249.92 | 9.36 | 35.89 | 212.87 | 81.49 | -2965.64 | 96 | 125 | 1921.61 | -82.20 | 79.54 | 0.00 | -792.95 | -1315.20 |
| 64 | 120 | -6214.61 | 172.38 | -30.56 | -194.08 | -222.54 | 2613.25 | 96 | 126 | -1910.14 | 82.20 | -79.33 | 0.00 | 713.51 | 1233.00 |
| 65 | 120 | 6214.60 | -172.39 | 30.56 | 194.08 | 222.54 | -2613.25 | 97 | 126 | 1910.14 | -82.20 | 79.33 | 0.00 | -713.51 | -1233.00 |
| 65 | 121 | -6146.07 | 260.16 | -27.20 | -333.36 | -366.13 | 1935.39 | 97 | 127 | -1801.02 | 82.20 | -76.88 | 0.00 | -68.13 | 411.00 |
| 66 | 121 | 6146.07 | -260.16 | 27.20 | 333.36 | 366.13 | -1935.39 | 98 | 127 | 1801.02 | -82.20 | 76.88 | 0.00 | 68.13 | -411.00 |
| 66 | 122 | -6184.20 | 211.89 | -27.20 | -149.81 | -477.97 | 798.90 | 98 | 128 | -1740.02 | 82.20 | -75.39 | 0.00 | -448.87 | 0.00 |
| 67 | 122 | 6184.19 | -211.89 | 27.20 | 149.81 | 477.97 | -798.91 | 99 | 2 | 337.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 67 | 123 | -6230.78 | 467.61 | -28.92 | -190.18 | -439.05 | -323.83 | 99 | 3 | -337.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 68 | 123 | 6230.79 | -467.61 | 28.92 | 190.18 | 439.05 | 323.83 | 100 | 4 | 241.86 | 0.00 | 29.05 | 0.00 | 0.00 | 0.00 |
| 68 | 124 | -9348.05 | 1143.99 | -34.25 | -169.68 | -572.73 | -5193.93 | 100 | 5 | -241.86 | -16.88 | -29.05 | 0.00 | -49.73 | 28.73 |
| 69 | 124 | 13880.66 | 496.08 | 48.56 | -439.79 | -807.39 | 2903.61 | 101 | 19 | 725.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 69 | 133 | -9693.95 | -139.59 | -43.22 | 419.64 | 609.34 | 393.15 | 101 | 20 | -725.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 70 | 133 | 9693.94 | 139.59 | 43.22 | -419.64 | -609.34 | -393.15 | 102 | 21 | 1021.47 | 0.00 | 73.12 | 0.00 | 0.00 | 0.00 |
| 70 | 134 | -9722.24 | 199.90 | -37.85 | 287.92 | 449.36 | -459.42 | 102 | 22 | -1021.47 | 36.29 | -73.12 | 0.00 | -125.18 | -61.77 |
| 71 | 134 | 9769.17 | -199.90 | 37.85 | -287.92 | -449.36 | 473.63 | 103 | 36 | 810.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 71 | 135 | -9908.92 | -67.99 | -33.23 | -8.97 | 607.56 | -583.71 | 103 | 37 | -810.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 72 | 135 | 9908.93 | 68.00 | 33.23 | 8.97 | -607.56 | 583.72 | 104 | 38 | 539.19 | 0.00 | 142.38 | 0.00 | 0.00 | 0.00 |
| 72 | 136 | -9857.97 | 61.01 | -33.23 | -192.52 | 486.05 | -507.83 | 104 | 39 | -539.19 | -40.54 | -142.38 | 0.00 | -243.75 | 69.00 |
| 73 | 136 | 9857.97 | -61.01 | 33.23 | 192.52 | -486.05 | 507.83 | 105 | 55 | 797.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 73 | 137 | -9771.19 | 207.46 | -33.23 | -376.08 | 364.54 | -1039.91 | 105 | 56 | -797.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 74 | 137 | 9771.19 | -207.46 | 33.23 | 376.08 | -364.54 | 1039.91 | 106 | 57 | 1026.94 | 0.00 | 53.57 | 0.00 | 0.00 | 0.00 |
| 74 | 138 | -9624.27 | 250.77 | -37.11 | -656.45 | 338.20 | -2206.28 | 106 | 58 | -1026.94 | 0.00 | -53.57 | 0.00 | -91.71 | 0.00 |
| 75 | 138 | 8564.61 | -250.77 | 37.11 | 656.45 | -338.20 | 2169.33 | 107 | 74 | 804.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 75 | 139 | -8482.61 | 314.44 | -42.56 | -723.27 | 181.39 | -3306.23 | 107 | 75 | -804.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 76 | 139 | 8482.61 | -314.44 | 42.56 | 723.27 | -181.39 | 3306.23 | 108 | 76 | 1045.19 | 0.00 | 78.27 | 0.00 | 0.00 | 0.00 |
| 76 | 140 | -8414.87 | 416.00 | -48.03 | -742.44 | 0.00 | -4940.65 | 108 | 77 | -1045.19 | 0.00 | -78.27 | 0.00 | -134.00 | 0.00 |
| 77 | 16 | 1995.48 | -72.58 | 75.54 | 0.00 | -359.10 | -747.57 | 109 | 93 | 793.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 77 | 17 | -1937.64 | 72.58 | -74.38 | 0.00 | -38.26 | 362.90 | 109 | 94 | -793.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 78 | 17 | 1937.64 | -72.58 | 74.38 | 0.00 | 38.26 | -362.90 | 110 | 95 | 1019.81 | 0.00 | 77.67 | 0.00 | 0.00 | 0.00 |
| 78 | 18 | -1876.64 | 72.58 | -73.12 | 0.00 | -407.12 | 0.00 | 110 | 96 | -1019.81 | -38.05 | -77.67 | 0.00 | -132.97 | 64.76 |
| 79 | 33 | 1983.77 | 81.08 | 145.50 | 0.00 | -3121.41 | 1019.99 | 111 | 111 | 830.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 79 | 34 | -1901.06 | -81.08 | -143.74 | 0.00 | 2024.97 | -405.40 | 111 | 112 | -830.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 80 | 34 | 1901.06 | 81.08 | 143.74 | 0.00 | -2024.97 | 405.40 | 112 | 113 | 1026.28 | 0.00 | 117.99 | 0.00 | 0.00 | 0.00 |
| 80 | 35 | -1840.06 | -81.08 | -142.38 | 0.00 | 1309.58 | 0.00 | 112 | 114 | -1026.28 | -40.49 | -117.99 | 0.00 | -202.00 | 68.91 |
| 81 | 50 | 2205.82 | 0.00 | 62.46 | 0.00 | -1336.62 | 0.00 | 113 | 129 | 688.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 81 | 51 | -2123.61 | 0.00 | -61.10 | 0.00 | 935.05 | 0.00 | 113 | 130 | -688.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 82 | 51 | 2123.61 | 0.00 | 61.10 | 0.00 | -935.05 | 0.00 | 114 | 131 | 964.44 | 0.00 | 75.39 | 0.00 | 0.00 | 0.00 |
| 82 | 52 | -2004.27 | 0.00 | -58.55 | 0.00 | 336.05 | 0.00 | 114 | 132 | -964.44 | 41.10 | -75.39 | 0.00 | -129.07 | -69.95 |
| 83 | 52 | 2004.27 | 0.00 | 58.55 | 0.00 | -336.05 | 0.00 | 115 | 141 | 357.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 83 | 53 | -1895.15 | 0.00 | -55.33 | 0.00 | -233.69 | 0.00 | 115 | 142 | -357.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 84 | 53 | 1895.15 | 0.00 | 55.33 | 0.00 | 233.69 | 0.00 | 116 | 143 | 224.63 | -408.95 | 47.44 | 0.00 | 0.00 | 0.00 |
| 84 | 54 | -1834.15 | 0.00 | -53.57 | 0.00 | -505.97 | 0.00 | 116 | 144 | -224.63 | 395.38 | -47.44 | 0.00 | -81.22 | -677.02 |
| 85 | 69 | 2170.45 | 0.00 | 87.04 | 0.00 | -1794.92 | 0.00 | 117 | 6 | 652.84 | 33.76 | 29.05 | 0.00 | -747.76 | 33.76 |
| 85 | 70 | -2125.89 | 0.00 | -86.25 | 0.00 | 1493.36 | 0.00 | 117 | 7 | -652.84 | -33.76 | -29.05 | 0.00 | 718.72 | 0.00 |
| 86 | 70 | 2125.89 | 0.00 | 86.25 | 0.00 | -1493.36 | 0.00 | 118 | 145 | 643.52 | -790.76 | 47.44 | 0.00 | -873.06 | -790.76 |
| 86 | 71 | -2006.55 | 0.00 | -83.43 | 0.00 | 644.44 | 0.00 | 118 | 146 | -643.52 | 790.76 | -47.44 | 0.00 | 825.62 | 0.00 |
| 87 | 71 | 2006.55 | 0.00 | 83.43 | 0.00 | -644.43 | 0.00 | 119 | 3 | 0.00 | 485.26 | 16.89 | -28.73 | -0.02 | 0.00 |
| 87 | 72 | -1897.43 | 0.00 | -80.08 | 0.00 | -173.39 | 0.00 | 119 | 1 | 0.00 | -485.26 | -16.89 | 28.73 | -71.74 | 2062.36 |
| 88 | 72 | 1897.43 | 0.00 | 80.08 | 0.00 | 173.39 | 0.00 | 120 | 1 | 0.59 | -285.89 | 16.88 | -28.73 | -71.78 | -1214.01 |
| 88 | 73 | -1836.43 | 0.00 | -78.27 | 0.00 | -569.29 | 0.00 | 120 | 5 | -0.59 | 285.89 | -16.88 | 28.73 | -0.03 | -1.01 |
| 89 | 88 | 2119.40 | 76.10 | 85.12 | 0.00 | -1614.19 | 1978.60 | 121 | 20 | 0.00 | 691.90 | 36.16 | -61.77 | 0.00 | -0.01 |
| 89 | 89 | -2106.91 | -76.10 | -84.91 | 0.00 | 1529.18 | -1902.50 | 121 | 15 | 0.00 | -691.90 | -36.16 | 61.77 | -67.14 | 1280.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 122 | 15 | 5.90 | -578.68 | 36.24 | -61.77 | -67.20 | -1060.45 |
| 122 | 22 | -5.90 | 578.68 | -36.24 | 61.77 | -0.05 | -10.11 |
| 123 | 37 | 0.00 | 1116.01 | 40.59 | -69.00 | -0.23 | 0.00 |
| 123 | 32 | 0.00 | -1116.01 | -40.59 | 69.00 | -75.33 | 2064.63 |
| 124 | 32 | 0.51 | -906.93 | 40.63 | -69.00 | -75.28 | -1676.95 |
| 124 | 39 | -0.51 | 906.93 | -40.63 | 69.00 | -0.38 | -0.86 |
| 125 | 56 | 0.00 | 647.55 | 40.00 | -67.79 | -0.31 | 0.00 |
| 125 | 49 | 0.00 | -647.55 | -40.00 | 67.79 | -73.97 | 1197.98 |
| 126 | 49 | -10.41 | -1044.49 | 40.05 | -67.79 | -73.83 | -1950.12 |
| 126 | 58 | 10.41 | 1044.49 | -40.05 | 67.79 | -0.13 | 17.84 |
| 127 | 75 | 0.01 | 1070.22 | 40.71 | -69.09 | -0.03 | -0.01 |
| 127 | 68 | -0.01 | -1070.22 | -40.71 | 69.09 | -75.15 | 1979.92 |
| 128 | 68 | 0.03 | -1051.47 | 40.90 | -69.08 | -74.98 | -1945.14 |
| 128 | 77 | -0.03 | 1051.47 | -40.90 | 69.08 | 0.10 | -0.05 |
| 129 | 94 | 0.00 | 875.99 | 38.19 | -64.76 | -0.06 | 0.00 |
| 129 | 87 | 0.00 | -875.99 | -38.19 | 64.76 | -70.46 | 1620.57 |
| 130 | 87 | 2.81 | -953.11 | 38.16 | -64.76 | -70.45 | -1758.44 |
| 130 | 96 | -2.81 | 953.11 | -38.16 | 64.76 | -0.08 | -4.81 |
| 131 | 112 | 0.00 | 1044.60 | 40.51 | -68.92 | -0.05 | 0.00 |
| 131 | 106 | 0.00 | -1044.60 | -40.51 | 68.92 | -74.89 | 1932.52 |
| 132 | 106 | 0.18 | -1214.24 | 40.53 | -68.91 | -75.00 | -2246.03 |
| 132 | 114 | -0.18 | 1214.24 | -40.53 | 68.91 | -0.02 | -0.31 |
| 133 | 130 | 0.00 | 1232.02 | 41.12 | -69.95 | -0.01 | 0.00 |
| 133 | 124 | 0.00 | -1232.02 | -41.12 | 69.95 | -76.01 | 2279.23 |
| 134 | 124 | -2.16 | -894.70 | 41.12 | -69.95 | -76.02 | -1658.89 |
| 134 | 132 | 2.16 | 894.70 | -41.12 | 69.95 | 0.07 | 3.69 |
| 135 | 142 | 0.00 | 542.21 | 657.15 | -1125.17 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -542.21 | -657.15 | 1125.17 | -2792.88 | 2304.41 |
| 136 | 140 | 0.28 | -416.57 | 657.14 | -1125.16 | -2792.86 | -1769.96 |
| 136 | 144 | -0.28 | 416.57 | -657.14 | 1125.16 | 0.00 | -0.47 |
| 137 | 2 | 0.00 | -337.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 339.05 | -16.88 | 0.00 | -71.57 | -1440.96 |
| 138 | 7 | -0.41 | 335.70 | 16.88 | 0.00 | -71.57 | 1426.73 |
| 138 | 4 | 0.41 | -337.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -725.88 | 0.01 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 725.40 | -36.28 | 0.00 | -66.79 | -1341.99 |
| 140 | 18 | 0.72 | 726.13 | 36.30 | 0.00 | -66.77 | 1343.34 |
| 140 | 21 | -0.72 | -726.13 | -0.01 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -810.93 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 810.93 | -40.54 | 0.00 | -74.59 | -1500.21 |
| 142 | 35 | -0.30 | 810.36 | 40.53 | 0.00 | -74.60 | 1499.17 |
| 142 | 38 | 0.30 | -810.62 | -0.01 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -797.36 | 0.26 | 0.00 | 0.08 | 0.01 |
| 143 | 54 | 0.00 | 797.36 | -40.09 | 0.00 | -73.07 | -1475.11 |
| 144 | 54 | -0.01 | 797.60 | 39.75 | 0.00 | -73.19 | 1475.58 |
| 144 | 57 | 0.01 | -797.44 | -0.09 | 0.00 | -0.07 | 0.01 |
| 145 | 74 | 0.00 | -804.36 | 0.08 | 0.00 | 0.09 | 0.00 |
| 145 | 73 | 0.00 | 804.78 | -40.54 | 0.00 | -74.77 | -1488.85 |
| 146 | 73 | -0.02 | 804.39 | 40.58 | 0.00 | -74.69 | 1488.13 |
| 146 | 76 | 0.02 | -804.81 | -0.04 | 0.00 | -0.02 | 0.00 |
| 147 | 93 | 0.00 | -794.98 | 0.07 | 0.00 | 0.09 | 0.01 |
| 147 | 92 | 0.00 | 792.90 | -38.00 | 0.00 | -69.95 | -1466.87 |
| 148 | 92 | -0.02 | 794.99 | 38.08 | 0.00 | -70.05 | 1470.73 |
| 148 | 95 | 0.02 | -794.99 | -0.03 | 0.00 | -0.04 | 0.00 |
| 149 | 111 | 0.00 | -826.96 | 0.02 | 0.00 | -0.02 | 0.00 |
| 149 | 110 | 0.00 | 835.37 | -40.48 | 0.00 | -74.45 | -1545.43 |
| 150 | 110 | -0.16 | 826.58 | 40.52 | 0.00 | -74.49 | 1529.17 |
| 150 | 113 | 0.16 | -826.58 | -0.03 | 0.00 | 0.01 | 0.00 |
| 151 | 129 | 0.00 | -707.33 | 0.06 | 0.00 | -0.01 | 0.00 |
| 151 | 128 | 0.00 | 665.04 | -41.05 | 0.00 | -75.65 | -1230.32 |
| 152 | 128 | 0.49 | 707.95 | 41.12 | 0.00 | -75.60 | 1309.71 |
| 152 | 131 | -0.49 | -707.95 | -0.02 | 0.00 | 0.02 | 0.00 |
| 153 | 141 | 0.00 | -416.68 | 670.71 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 416.68 | -657.14 | 0.00 | -2792.99 | -1770.88 |
| 154 | 146 | -0.45 | 508.05 | 657.15 | 0.00 | -2793.02 | 2159.22 |
| 154 | 143 | 0.45 | -508.05 | -670.72 | 0.00 | 0.00 | 0.00 |

## DESPLAZAMIENTOS DE NUDOS

| NUDO | DESP. X | DESP. Y | DESP. Z | GIRO X | GIRO Y | GIRO Z |
|---|---|---|---|---|---|---|
| 1 | 0.266666 | -0.004155 | -0.000021 | 0.000076 | -0.000103 | -0.000323 |
| 2 | 0.000000 | -0.000114 | 0.000012 | -0.000045 | 0.000000 | 0.000000 |
| 3 | 0.267092 | -0.003672 | -0.000021 | 0.000132 | -0.000099 | -0.000331 |
| 4 | 0.000000 | -0.000464 | 0.000014 | 0.000144 | 0.000000 | 0.000000 |
| 5 | 0.266213 | -0.004184 | -0.000023 | -0.000027 | -0.000108 | -0.000329 |
| 7 | 0.000000 | -0.000021 | 0.000012 | 0.000024 | 0.000000 | 0.000000 |
| 8 | 0.263182 | -0.005874 | 0.000467 | 0.000228 | -0.000106 | -0.000296 |
| 9 | 0.259989 | -0.007409 | 0.000950 | 0.000357 | -0.000107 | -0.000184 |
| 10 | 0.256447 | -0.007728 | 0.001429 | 0.000463 | -0.000106 | 0.000043 |
| 11 | 0.252899 | -0.006944 | 0.001901 | 0.000543 | -0.000106 | 0.000219 |
| 12 | 0.249346 | -0.005590 | 0.002369 | 0.000597 | -0.000105 | 0.000296 |
| 13 | 0.245798 | -0.003869 | 0.002834 | 0.000627 | -0.000106 | 0.000225 |
| 14 | 0.242255 | -0.002826 | 0.003302 | 0.000631 | -0.000108 | 0.000196 |
| 15 | 0.243282 | -0.001743 | 0.003779 | 0.000611 | -0.000112 | -0.000093 |
| 17 | 0.000000 | -0.000574 | 0.000850 | 0.000302 | 0.000000 | 0.000000 |
| 18 | 0.000000 | -0.001047 | 0.002804 | 0.000466 | 0.000000 | 0.000000 |
| 19 | 0.000000 | -0.000213 | 0.002804 | 0.000443 | 0.000000 | 0.000000 |
| 20 | 0.243488 | -0.000585 | 0.003779 | 0.000634 | -0.000112 | -0.000093 |
| 21 | 0.000000 | -0.001972 | 0.002805 | 0.000517 | 0.000000 | 0.000000 |
| 22 | 0.243075 | -0.002811 | 0.003778 | 0.000562 | -0.000112 | -0.000093 |
| 23 | 0.096555 | -0.007158 | 0.004291 | 0.000784 | -0.000117 | -0.000383 |
| 24 | 0.094957 | -0.008991 | 0.004824 | 0.000934 | -0.000122 | -0.000274 |
| 25 | 0.093316 | -0.009681 | 0.005380 | 0.001058 | -0.000129 | -0.000082 |
| 26 | 0.091708 | -0.009726 | 0.005964 | 0.001156 | -0.000137 | 0.000036 |
| 27 | 0.090096 | -0.009329 | 0.006585 | 0.001231 | -0.000146 | 0.000158 |
| 28 | 0.088488 | -0.008274 | 0.007250 | 0.001280 | -0.000158 | 0.000266 |
| 29 | 0.086882 | -0.005665 | 0.007969 | 0.001304 | -0.000172 | 0.000202 |
| 30 | 0.085323 | -0.007854 | 0.008753 | 0.001303 | -0.000189 | 0.000150 |
| 31 | 0.083810 | -0.007035 | 0.009616 | 0.001276 | -0.000208 | 0.000212 |
| 32 | 0.082036 | -0.005548 | 0.010572 | 0.001225 | -0.000231 | -0.000033 |
| 34 | 0.000000 | -0.000992 | 0.003596 | 0.000827 | 0.000000 | 0.000000 |
| 35 | 0.000000 | -0.001566 | 0.008477 | 0.001056 | 0.000000 | 0.000000 |
| 36 | 0.000000 | 0.000352 | 0.008477 | 0.001027 | 0.000000 | 0.000000 |
| 37 | 0.082463 | -0.003254 | 0.010572 | 0.001248 | -0.000231 | -0.000033 |
| 38 | 0.000000 | -0.003597 | 0.008484 | 0.001118 | 0.000000 | 0.000000 |
| 39 | 0.081608 | -0.007755 | 0.010565 | 0.001180 | -0.000231 | -0.000033 |
| 40 | 0.080267 | -0.007444 | 0.011721 | 0.001369 | -0.000253 | -0.000392 |
| 41 | 0.078764 | -0.009410 | 0.012952 | 0.001489 | -0.000269 | -0.000311 |
| 42 | 0.077257 | -0.010433 | 0.014239 | 0.001583 | -0.000280 | -0.000165 |
| 43 | 0.077922 | -0.010884 | 0.015559 | 0.001652 | -0.000285 | -0.000048 |
| 44 | 0.076398 | -0.010870 | 0.016890 | 0.001695 | -0.000286 | 0.000085 |
| 45 | 0.074877 | -0.010549 | 0.018212 | 0.001713 | -0.000283 | 0.000218 |
| 46 | 0.073362 | -0.009246 | 0.019506 | 0.001705 | -0.000276 | 0.000301 |
| 47 | 0.071946 | -0.007805 | 0.020756 | 0.001672 | -0.000265 | 0.000323 |
| 48 | 0.075005 | -0.006349 | 0.021946 | 0.001613 | -0.000251 | 0.000360 |
| 49 | 0.073392 | -0.004265 | 0.023065 | 0.001528 | -0.000235 | 0.000079 |
| 51 | 0.000000 | -0.000795 | 0.000739 | 0.000222 | 0.000000 | 0.000000 |
| 52 | 0.000000 | -0.002055 | 0.005034 | 0.000630 | 0.000000 | 0.000000 |
| 53 | 0.000000 | -0.003358 | 0.014157 | 0.001189 | 0.000000 | 0.000000 |
| 54 | 0.000000 | -0.003916 | 0.020543 | 0.001364 | 0.000000 | 0.000000 |
| 55 | 0.000000 | -0.001428 | 0.020543 | 0.001335 | 0.000000 | 0.000000 |
| 56 | 0.073829 | -0.001408 | 0.023065 | 0.001552 | -0.000237 | 0.000087 |
| 57 | 0.000000 | -0.006515 | 0.020543 | 0.001425 | 0.000000 | 0.000000 |
| 58 | 0.072960 | -0.007024 | 0.023065 | 0.001473 | -0.000233 | 0.000087 |
| 59 | 0.071775 | -0.005760 | 0.024102 | 0.001675 | -0.000216 | -0.000321 |
| 60 | 0.070423 | -0.007500 | 0.025046 | 0.001795 | -0.000196 | -0.000277 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 61 | 0.069066 | -0.009604 | 0.025890 | 0.001890 | -0.000173 | -0.000259 |
| 62 | 0.067699 | -0.010566 | 0.026628 | 0.001959 | -0.000150 | -0.000172 |
| 63 | 0.066327 | -0.011175 | 0.027256 | 0.002003 | -0.000127 | -0.000059 |
| 64 | 0.064962 | -0.011109 | 0.027773 | 0.002020 | -0.000103 | 0.000065 |
| 65 | 0.063599 | -0.010537 | 0.028179 | 0.002012 | -0.000079 | 0.000137 |
| 66 | 0.062236 | -0.009840 | 0.028475 | 0.001978 | -0.000056 | 0.000173 |
| 67 | 0.060871 | -0.008934 | 0.028666 | 0.001918 | -0.000034 | 0.000240 |
| 68 | 0.058267 | -0.007313 | 0.028758 | 0.001832 | -0.000014 | -0.000001 |
| 70 | 0.000000 | -0.000420 | 0.000375 | 0.000194 | 0.000000 | 0.000000 |
| 71 | 0.000000 | -0.001678 | 0.005684 | 0.000822 | 0.000000 | 0.000000 |
| 72 | -0.033443 | -0.002999 | 0.017634 | 0.001512 | 0.000000 | 0.002346 |
| 73 | -0.045517 | -0.003564 | 0.025684 | 0.001685 | 0.000000 | 0.002418 |
| 74 | -0.045519 | -0.000485 | 0.025684 | 0.001654 | 0.000002 | 0.002418 |
| 75 | 0.058295 | -0.003893 | 0.028758 | 0.001857 | -0.000016 | 0.000007 |
| 76 | -0.045519 | -0.006755 | 0.025686 | 0.001745 | -0.000002 | 0.002418 |
| 77 | 0.058243 | -0.010640 | 0.028756 | 0.001782 | -0.000012 | 0.000007 |
| 78 | 0.055681 | -0.009073 | 0.028785 | 0.001938 | 0.000006 | -0.000362 |
| 79 | 0.054334 | -0.010904 | 0.028716 | 0.002018 | 0.000027 | -0.000280 |
| 80 | 0.052978 | -0.008961 | 0.028548 | 0.002072 | 0.000048 | -0.000204 |
| 81 | 0.051617 | -0.009516 | 0.028280 | 0.002100 | 0.000069 | -0.000098 |
| 82 | 0.050252 | -0.009754 | 0.027913 | 0.002103 | 0.000090 | 0.000028 |
| 83 | 0.048891 | -0.009268 | 0.027452 | 0.002080 | 0.000110 | 0.000161 |
| 84 | 0.047534 | -0.008241 | 0.026901 | 0.002031 | 0.000128 | 0.000239 |
| 85 | 0.046174 | -0.007070 | 0.026266 | 0.001956 | 0.000145 | 0.000277 |
| 86 | 0.044812 | -0.005691 | 0.025556 | 0.001856 | 0.000159 | 0.000342 |
| 87 | 0.043186 | -0.003614 | 0.024783 | 0.001730 | 0.000171 | 0.000095 |
| 89 | 0.000000 | -0.000121 | 0.000037 | 0.000057 | 0.000000 | 0.000000 |
| 90 | 0.000000 | -0.001373 | 0.003909 | 0.000677 | 0.000000 | 0.000000 |
| 91 | -0.023823 | -0.002667 | 0.014457 | 0.001384 | 0.000000 | 0.001864 |
| 92 | -0.033464 | -0.003225 | 0.021890 | 0.001569 | 0.000000 | 0.001931 |
| 93 | -0.033466 | -0.000357 | 0.021890 | 0.001540 | 0.000002 | 0.001931 |
| 94 | 0.042871 | -0.000384 | 0.024783 | 0.001754 | 0.000170 | 0.000103 |
| 95 | -0.033466 | -0.006203 | 0.021892 | 0.001630 | -0.000002 | 0.001931 |
| 96 | 0.043505 | -0.006750 | 0.024782 | 0.001679 | 0.000173 | 0.000103 |
| 97 | 0.041560 | -0.004946 | 0.023983 | 0.001819 | 0.000182 | -0.000276 |
| 98 | 0.040199 | -0.006415 | 0.023133 | 0.001883 | 0.000191 | -0.000212 |
| 99 | 0.038880 | -0.008193 | 0.022238 | 0.001921 | 0.000200 | -0.000187 |
| 100 | 0.037508 | -0.008813 | 0.021305 | 0.001933 | 0.000207 | -0.000103 |
| 101 | 0.036133 | -0.009116 | 0.020340 | 0.001920 | 0.000212 | -0.000003 |
| 102 | 0.034764 | -0.008829 | 0.019353 | 0.001881 | 0.000215 | 0.000096 |
| 103 | 0.033398 | -0.008173 | 0.018356 | 0.001817 | 0.000215 | 0.000132 |
| 104 | 0.032031 | -0.007576 | 0.017361 | 0.001727 | 0.000212 | 0.000121 |
| 105 | 0.031388 | -0.006986 | 0.016383 | 0.001612 | 0.000206 | 0.000125 |
| 106 | 0.029736 | -0.006023 | 0.015439 | 0.001471 | 0.000196 | -0.000190 |
| 108 | 0.000000 | -0.000130 | 0.000076 | 0.000103 | 0.000000 | 0.000000 |
| 109 | -0.005125 | -0.001485 | 0.006763 | 0.001105 | 0.000000 | 0.000762 |
| 110 | -0.009277 | -0.002067 | 0.012944 | 0.001313 | 0.000000 | 0.000833 |
| 111 | -0.009279 | 0.000323 | 0.012944 | 0.001282 | 0.000002 | 0.000833 |
| 112 | 0.029376 | -0.003270 | 0.015439 | 0.001497 | 0.000194 | -0.000182 |
| 113 | -0.009279 | -0.004573 | 0.012949 | 0.001375 | -0.000002 | 0.000833 |
| 114 | 0.030100 | -0.008684 | 0.015434 | 0.001424 | 0.000198 | -0.000182 |
| 115 | 0.027386 | -0.008807 | 0.014614 | 0.001521 | 0.000185 | -0.000605 |
| 116 | 0.026012 | -0.011859 | 0.013826 | 0.001545 | 0.000178 | -0.000548 |
| 117 | 0.024632 | -0.013997 | 0.013061 | 0.001543 | 0.000173 | -0.000391 |
| 118 | 0.023242 | -0.015429 | 0.012307 | 0.001516 | 0.000171 | -0.000226 |
| 119 | 0.021568 | -0.015790 | 0.011555 | 0.001465 | 0.000171 | -0.000002 |
| 120 | 0.042858 | -0.015769 | 0.010796 | 0.001387 | 0.000172 | 0.000328 |
| 121 | 0.035875 | -0.012407 | 0.010023 | 0.001285 | 0.000175 | 0.000541 |
| 122 | 0.032502 | -0.009549 | 0.009232 | 0.001157 | 0.000179 | 0.000669 |
| 123 | 0.029127 | -0.006202 | 0.008419 | 0.001004 | 0.000183 | 0.000742 |
| 124 | 0.025552 | -0.002394 | 0.007581 | 0.000826 | 0.000188 | 0.000470 |
| 126 | 0.000000 | -0.000111 | 0.000030 | 0.000030 | 0.000000 | 0.000000 |
| 127 | 0.005202 | -0.001213 | 0.003108 | 0.000551 | 0.000000 | -0.000773 |
| 128 | 0.009417 | -0.001685 | 0.006243 | 0.000695 | 0.000000 | -0.000846 |
| 129 | 0.009419 | -0.000429 | 0.006243 | 0.000670 | -0.000002 | -0.000846 |
| 130 | 0.025202 | -0.000836 | 0.007581 | 0.000850 | 0.000190 | 0.000462 |
| 131 | 0.009419 | -0.003033 | 0.006244 | 0.000745 | 0.000002 | -0.000846 |
| 132 | 0.025898 | -0.003861 | 0.007580 | 0.000777 | 0.000186 | 0.000462 |
| 133 | 0.022198 | -0.002138 | 0.006728 | 0.000822 | 0.000193 | 0.000044 |
| 134 | 0.018851 | -0.002203 | 0.005847 | 0.000793 | 0.000199 | -0.000065 |
| 135 | 0.015492 | -0.002857 | 0.004937 | 0.000739 | 0.000205 | -0.000158 |
| 136 | 0.012132 | -0.003741 | 0.003998 | 0.000659 | 0.000210 | -0.000147 |
| 137 | 0.008780 | -0.004287 | 0.003031 | 0.000554 | 0.000215 | -0.000074 |
| 138 | 0.005438 | -0.004404 | 0.002041 | 0.000423 | 0.000219 | -0.000010 |
| 139 | 0.002226 | -0.004268 | 0.001031 | 0.000267 | 0.000222 | 0.000007 |
| 140 | -0.000926 | -0.004119 | 0.000013 | 0.000085 | 0.000208 | -0.000123 |
| 141 | -0.000868 | -0.000099 | 0.000014 | -0.000041 | 0.000204 | 0.000000 |
| 142 | -0.001514 | -0.003617 | 0.000013 | 0.000135 | 0.000103 | 0.000079 |
| 143 | 0.000867 | -0.000508 | 0.000019 | 0.000157 | 0.000204 | 0.000000 |
| 144 | 0.000125 | -0.004215 | 0.000009 | -0.000015 | 0.000310 | 0.000147 |
| 146 | 0.000000 | -0.000022 | 0.000014 | 0.000028 | 0.000204 | 0.000000 |

HIPOTESIS 206

FUER Z MIN envolvente (ELS)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 9145.38 | 541.65 | -29.78 | -667.65 | 0.00 | 1628.93 |
| 1 | 8 | -9175.64 | -321.35 | 24.70 | 649.60 | 122.57 | 253.98 |
| 2 | 8 | 9175.65 | 321.35 | -24.70 | -649.60 | -122.57 | -253.98 |
| 2 | 9 | -9199.63 | -165.67 | 24.07 | 559.81 | 216.59 | 1514.42 |
| 3 | 9 | 9572.87 | 165.67 | -24.07 | -559.81 | -216.59 | -1756.46 |
| 3 | 10 | -9614.67 | 37.16 | 24.07 | 376.25 | 324.88 | 2000.50 |
| 4 | 10 | 9614.68 | -37.16 | -24.07 | -376.25 | -324.88 | -2000.50 |
| 4 | 11 | -9686.32 | 110.74 | 29.01 | 45.57 | 342.02 | 1258.44 |
| 5 | 11 | 9686.30 | -110.74 | -29.01 | -45.57 | -342.02 | -1258.44 |
| 5 | 12 | -9691.08 | 102.21 | 33.96 | -87.33 | 483.70 | 798.47 |
| 6 | 12 | 9691.08 | -102.21 | -33.96 | 87.33 | -483.70 | -798.47 |
| 6 | 13 | -9610.53 | -39.31 | 38.87 | -220.32 | 647.57 | 621.17 |
| 7 | 13 | 9581.11 | 39.31 | -38.87 | 220.32 | -647.57 | -625.12 |
| 7 | 14 | -9621.32 | 192.87 | 43.74 | -353.41 | 833.46 | 673.34 |
| 8 | 14 | 9621.33 | -192.87 | -43.74 | 353.41 | -833.46 | -673.34 |
| 8 | 15 | -13815.86 | 977.32 | 48.59 | -375.30 | 1041.21 | -3558.40 |
| 9 | 15 | 10505.92 | 808.37 | -28.01 | -154.08 | 660.55 | 4557.23 |
| 9 | 23 | -8315.74 | -670.08 | 25.64 | 81.78 | -292.65 | -1308.06 |
| 10 | 23 | 8315.70 | 670.08 | -25.64 | -81.78 | 292.65 | 1308.06 |
| 10 | 24 | -8357.78 | -281.25 | 25.64 | 181.86 | -187.83 | 730.95 |
| 11 | 24 | 8785.77 | 281.25 | -25.64 | -181.86 | 187.83 | -1042.14 |
| 11 | 25 | -8347.55 | -118.56 | 27.50 | 46.69 | 276.50 | 1327.61 |
| 12 | 25 | 8347.67 | 118.56 | -27.50 | -46.69 | -276.50 | -1327.61 |
| 12 | 26 | -8416.56 | -134.81 | 32.41 | 93.21 | 402.83 | 1853.80 |
| 13 | 26 | 8416.51 | 134.81 | -32.41 | -93.20 | -402.83 | -1853.80 |
| 13 | 27 | -8388.37 | -14.67 | 37.34 | 44.07 | 551.29 | 2299.99 |
| 14 | 27 | 8388.33 | 14.67 | -37.34 | -44.07 | -551.29 | -2299.99 |
| 14 | 28 | -8363.08 | 141.88 | 42.29 | -5.00 | 721.99 | 2028.54 |
| 15 | 28 | 8363.17 | -141.88 | -42.29 | 5.00 | -721.99 | -2028.54 |
| 15 | 29 | -8362.64 | 195.73 | 47.27 | -54.01 | 915.03 | 1227.84 |
| 16 | 29 | 8362.58 | -195.73 | -47.27 | 54.01 | -915.03 | -1227.84 |
| 16 | 30 | -7863.73 | 162.59 | 52.26 | -102.95 | 1130.50 | 568.37 |
| 17 | 30 | 7863.78 | -162.60 | -52.26 | 102.95 | -1130.50 | -568.36 |
| 17 | 31 | -7861.77 | 505.52 | 57.28 | -151.84 | 1368.50 | -634.84 |
| 18 | 31 | 7861.74 | -505.53 | -57.28 | 151.84 | -1368.50 | 634.84 |
| 18 | 32 | -11025.22 | 1218.42 | 62.32 | -89.36 | 1629.13 | -5741.29 |
| 19 | 32 | 11167.57 | 663.06 | -91.93 | -885.09 | 1571.72 | 4500.89 |
| 19 | 40 | -7923.08 | -563.62 | 86.81 | 755.09 | -1180.10 | -520.13 |
| 20 | 40 | 7923.06 | 563.62 | -86.81 | -755.09 | 1180.10 | 520.13 |
| 20 | 41 | -7972.61 | -170.01 | 81.55 | 624.70 | -811.84 | 1038.10 |
| 21 | 41 | 7972.64 | 170.01 | -81.55 | -624.70 | 811.84 | -1038.10 |
| 21 | 42 | -7971.10 | -40.55 | 76.16 | 493.95 | -467.53 | 1349.45 |
| 22 | 42 | 7971.12 | 40.56 | -76.16 | -493.95 | 467.53 | -1349.45 |
| 22 | 43 | -8029.70 | -62.53 | 70.66 | 362.88 | -147.72 | 1517.86 |
| 23 | 43 | 8029.64 | 62.53 | -70.66 | -362.88 | 147.72 | -1517.86 |
| 23 | 44 | -7991.18 | 15.76 | 65.05 | 231.50 | 147.09 | 1740.06 |
| 24 | 44 | 7991.21 | -15.76 | -65.05 | -231.50 | -147.09 | -1740.06 |
| 24 | 45 | -7955.61 | 130.46 | 59.34 | 99.84 | 416.43 | 1432.96 |
| 25 | 45 | 7955.64 | -130.46 | -59.34 | -99.84 | -416.44 | -1432.96 |
| 25 | 46 | -7947.35 | 145.01 | 53.54 | -38.86 | 659.86 | 782.21 |
| 26 | 46 | 7947.31 | -145.01 | -53.54 | 38.86 | -659.87 | -782.21 |
| 26 | 47 | -6916.27 | 78.02 | 47.64 | -192.21 | 876.97 | 46.14 |
| 27 | 47 | 6916.28 | -78.02 | -47.65 | 192.21 | -876.98 | -46.14 |
| 27 | 48 | -6918.85 | 387.09 | 41.67 | -345.80 | 1067.37 | -696.81 |
| 28 | 48 | 6918.82 | -387.09 | -41.67 | 345.80 | -1067.37 | 696.81 |
| 28 | 49 | -10086.84 | 1108.12 | 35.61 | -499.61 | 1230.68 | -5264.16 |
| 29 | 49 | 10014.86 | 577.00 | -52.23 | -705.50 | -403.22 | 5052.12 |
| 29 | 59 | -6767.68 | -518.51 | 46.12 | 684.54 | 616.06 | -1375.80 |
| 30 | 59 | 6767.72 | 518.51 | -46.13 | -684.54 | -616.06 | 1375.80 |
| 30 | 60 | -6818.14 | -165.85 | 40.01 | 663.54 | 801.39 | 62.22 |
| 31 | 60 | 6818.09 | 165.85 | -40.01 | -663.54 | -801.40 | -62.22 |
| 31 | 61 | -6831.87 | -77.34 | 33.87 | 642.51 | 959.17 | 435.49 |
| 32 | 61 | 6831.90 | 77.34 | -33.87 | -642.51 | -959.17 | -435.49 |
| 32 | 62 | -6890.77 | -122.39 | 27.73 | 574.05 | 1089.31 | 840.63 |
| 33 | 62 | 6890.81 | 122.39 | -27.73 | -574.05 | -1089.31 | -840.63 |
| 33 | 63 | -6830.10 | -39.06 | 24.94 | 397.54 | 266.55 | 1450.63 |
| 34 | 63 | 6830.05 | 39.06 | -24.94 | -397.54 | -266.55 | -1450.63 |
| 34 | 64 | -6793.78 | 102.34 | 24.94 | 213.98 | 368.19 | 1321.07 |
| 35 | 64 | 6793.80 | -102.34 | -24.94 | -213.98 | -368.19 | -1321.07 |
| 35 | 65 | -6807.35 | 121.73 | 30.69 | -32.63 | -561.77 | 629.90 |
| 36 | 65 | 6807.32 | -121.73 | -30.69 | 32.63 | 561.77 | -629.90 |
| 36 | 66 | -6815.03 | 59.80 | 36.89 | -161.99 | -418.19 | 152.95 |
| 37 | 66 | 6815.06 | -59.80 | -36.89 | 161.99 | 418.19 | -152.95 |
| 37 | 67 | -6809.20 | 373.93 | 43.10 | -291.32 | -246.69 | -521.79 |
| 38 | 67 | 6809.21 | -373.93 | -43.10 | 291.32 | 246.69 | 521.79 |
| 38 | 68 | -9968.81 | 1058.02 | 49.32 | -309.31 | -47.20 | -4970.20 |
| 39 | 68 | 13194.75 | 731.32 | -43.03 | 251.76 | -21.04 | 5833.44 |
| 39 | 78 | -8979.64 | -660.68 | 36.81 | -234.07 | 192.23 | -1087.58 |
| 40 | 78 | 8979.62 | 660.68 | -36.82 | 234.07 | -192.24 | 1087.58 |
| 40 | 79 | -9050.48 | -165.88 | 30.62 | -104.69 | 335.50 | 658.91 |
| 41 | 79 | 9050.49 | 165.88 | -30.63 | 104.69 | -335.51 | -658.91 |
| 41 | 80 | -9102.68 | -33.46 | 26.33 | 28.90 | -483.51 | 962.36 |
| 42 | 80 | 9102.69 | 33.46 | -26.33 | -28.90 | 483.51 | -962.36 |
| 42 | 81 | -9197.59 | -64.73 | 26.33 | 212.45 | -375.59 | 1104.88 |
| 43 | 81 | 9197.58 | 64.73 | -26.33 | -212.45 | 375.60 | -1104.89 |
| 43 | 82 | -9134.90 | 26.24 | 29.93 | 349.70 | -1027.27 | 1174.17 |
| 44 | 82 | 9134.91 | -26.24 | -29.93 | -349.70 | 1027.27 | -1174.18 |
| 44 | 83 | -9106.51 | 158.81 | 36.02 | 513.70 | -887.34 | 788.75 |
| 45 | 83 | 9106.51 | -158.81 | -36.01 | -513.70 | 887.34 | -788.75 |
| 45 | 84 | -9110.14 | 122.01 | 42.07 | 582.22 | -720.10 | 88.29 |
| 46 | 84 | 9110.14 | -122.01 | -42.07 | -582.22 | 720.10 | -88.29 |
| 46 | 85 | -9144.91 | -45.75 | 48.10 | 602.96 | -525.68 | -165.53 |
| 47 | 85 | 9144.91 | 45.75 | -48.10 | -602.96 | 525.67 | 165.53 |
| 47 | 86 | -9142.59 | 274.88 | 54.09 | 623.62 | -304.20 | -277.97 |
| 48 | 86 | 9142.58 | -274.88 | -54.09 | -623.61 | 304.20 | 277.97 |
| 48 | 87 | -13251.23 | 1130.52 | 60.06 | 644.19 | -55.80 | -4993.74 |
| 49 | 87 | 13675.60 | 714.86 | -31.73 | 299.74 | 319.85 | 5269.88 |
| 49 | 97 | -9494.40 | -690.60 | 29.27 | -342.62 | -620.47 | -798.09 |
| 50 | 97 | 9494.40 | 690.60 | -29.27 | 342.62 | 620.47 | 798.09 |
| 50 | 98 | -9560.90 | -182.14 | 29.27 | -159.06 | -499.33 | 1053.08 |
| 51 | 98 | 9560.90 | 182.14 | -29.27 | 159.06 | 499.33 | -1053.08 |
| 51 | 99 | -9532.79 | 2.31 | 32.74 | 59.69 | -568.49 | 1198.52 |
| 52 | 99 | 9532.80 | -2.31 | -32.74 | -59.69 | 568.49 | -1198.52 |
| 52 | 100 | -9620.53 | -42.62 | 38.50 | 222.79 | -416.65 | 1214.39 |
| 53 | 100 | 9620.52 | 42.62 | -38.50 | -222.79 | 416.65 | -1214.39 |
| 53 | 101 | -9582.17 | 42.68 | 44.20 | 385.72 | -239.02 | 1373.85 |
| 54 | 101 | 9582.17 | -42.68 | -44.20 | -385.72 | 239.02 | -1373.85 |
| 54 | 102 | -9547.50 | 175.25 | 49.85 | 548.47 | -35.85 | 919.60 |
| 55 | 102 | 9547.50 | -175.26 | -49.84 | -548.47 | 35.85 | -919.60 |
| 55 | 103 | -9548.25 | 138.45 | 55.42 | 615.65 | 192.57 | 149.38 |
| 56 | 103 | 9548.25 | -138.45 | -55.42 | -615.65 | -192.57 | -149.38 |
| 56 | 104 | -9583.86 | -29.31 | 60.94 | 634.95 | 445.95 | -171.42 |
| 57 | 104 | 9583.86 | 29.31 | -60.94 | -634.95 | -445.95 | 171.42 |
| 57 | 105 | -9590.82 | 291.32 | 66.38 | 654.04 | 723.99 | -360.33 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 58 | 105 | 9590.83 | -291.32 | -66.38 | -654.04 | -723.99 | 360.33 | 90 | 89 | 2370.46 | -76.10 | -85.03 | 0.00 | 1531.93 | -1902.50 |
| 58 | 106 | -13708.77 | 1146.96 | 71.75 | 672.94 | 1026.36 | -5152.56 | 90 | 90 | -2251.12 | 76.10 | 82.57 | 0.00 | -693.31 | 1141.50 |
| 59 | 106 | 13789.74 | 892.68 | -62.98 | 108.65 | 983.03 | 6752.67 | 91 | 90 | 2251.12 | -76.10 | -82.57 | 0.00 | 693.31 | -1141.50 |
| 59 | 115 | -9580.93 | -822.05 | 57.65 | -95.96 | -720.08 | -1285.86 | 91 | 91 | -2142.00 | 76.10 | 79.50 | 0.00 | 117.48 | 380.50 |
| 60 | 115 | 9580.94 | 822.05 | -57.65 | 95.96 | 720.08 | 1285.86 | 92 | 91 | 2142.00 | -76.10 | -79.50 | 0.00 | -117.48 | -380.50 |
| 60 | 116 | -9654.71 | -327.24 | 52.31 | 28.35 | -481.13 | 1182.52 | 92 | 92 | -2081.00 | 76.10 | 77.79 | 0.00 | 510.73 | 0.00 |
| 61 | 116 | 9654.71 | 327.24 | -52.31 | -28.35 | 481.13 | -1182.52 | 93 | 107 | 2537.09 | -80.98 | -122.64 | 0.00 | 1811.47 | -1295.68 |
| 61 | 117 | -9689.98 | -175.50 | 46.98 | 152.66 | -266.20 | 2102.18 | 93 | 108 | -2525.62 | 80.98 | 122.43 | 0.00 | -1688.93 | 1214.70 |
| 62 | 117 | 9689.98 | 175.50 | -46.98 | -152.66 | 266.20 | -2102.18 | 94 | 108 | 2525.62 | -80.98 | -122.43 | 0.00 | 1688.93 | -1214.70 |
| 62 | 118 | -9774.79 | -202.55 | 41.64 | 229.59 | -75.27 | 2901.99 | 94 | 109 | -2416.50 | 80.98 | 119.97 | 0.00 | -476.32 | 404.90 |
| 63 | 118 | 9774.79 | 202.55 | -41.64 | -229.59 | 75.27 | -2901.99 | 95 | 109 | 2416.50 | -80.98 | -119.97 | 0.00 | 476.32 | -404.90 |
| 63 | 119 | -9733.53 | -63.25 | 36.31 | 210.80 | 91.66 | 3656.93 | 95 | 110 | -2355.50 | 80.98 | 118.49 | 0.00 | 119.90 | 0.00 |
| 64 | 119 | 9733.53 | 63.25 | -36.31 | -210.80 | -91.66 | -3656.92 | 96 | 125 | 1928.92 | 82.20 | -78.52 | 0.00 | 779.00 | 1315.20 |
| 64 | 120 | -9695.96 | 123.32 | 30.97 | 192.02 | 234.57 | 3555.16 | 96 | 126 | -1917.45 | -82.20 | 78.31 | 0.00 | -700.58 | -1233.00 |
| 65 | 120 | 9695.96 | -123.32 | -30.97 | -192.02 | -234.57 | -3555.16 | 97 | 126 | 1917.45 | 82.20 | -78.31 | 0.00 | 700.58 | 1233.00 |
| 65 | 121 | -9733.15 | 184.94 | 27.62 | 331.29 | 379.42 | 3182.50 | 97 | 127 | -1808.33 | -82.20 | 75.85 | 0.00 | 70.82 | -411.00 |
| 66 | 121 | 9733.15 | -184.94 | -27.62 | -331.29 | -379.42 | -3182.50 | 98 | 127 | 1808.33 | 82.20 | -75.85 | 0.00 | -70.82 | 411.00 |
| 66 | 122 | -9793.00 | 84.84 | 27.62 | 147.73 | 493.16 | 2497.27 | 98 | 128 | -1747.33 | -82.20 | 74.37 | 0.00 | 446.44 | 0.00 |
| 67 | 122 | 9793.00 | -84.84 | -27.62 | -147.73 | -493.16 | -2497.27 | 99 | 2 | 337.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 67 | 123 | -9741.79 | 401.40 | 29.33 | 188.12 | 456.71 | 1885.17 | 99 | 3 | -337.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 68 | 123 | 9741.79 | -401.40 | -29.33 | -188.12 | -456.71 | -1885.17 | 100 | 4 | 479.07 | 0.00 | -29.78 | 0.00 | 0.00 | 0.00 |
| 68 | 124 | -13798.46 | 1259.02 | 34.67 | 167.62 | 592.25 | -3445.39 | 100 | 5 | -479.07 | 16.88 | 29.78 | 0.00 | 50.98 | -28.73 |
| 69 | 124 | 9265.84 | 597.84 | -47.97 | 437.83 | 786.16 | 4363.96 | 101 | 19 | 725.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 69 | 133 | -6035.70 | -307.37 | 42.63 | -417.68 | -590.77 | -896.56 | 101 | 20 | -725.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 70 | 133 | 6035.70 | 307.37 | -42.63 | 417.68 | 590.77 | 896.56 | 102 | 21 | 859.30 | 0.00 | -71.79 | 0.00 | 0.00 | 0.00 |
| 70 | 134 | -6061.63 | -20.30 | 37.26 | -285.96 | -433.44 | -703.95 | 102 | 22 | -859.30 | -36.29 | 71.79 | 0.00 | 122.91 | 61.77 |
| 71 | 134 | 6097.76 | 20.30 | -37.26 | 285.96 | 433.44 | 714.89 | 103 | 36 | 810.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 71 | 135 | -6114.41 | -211.22 | 32.65 | 10.90 | -594.38 | 4.01 | 103 | 37 | -810.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 72 | 135 | 6114.42 | 211.22 | -32.65 | -10.90 | 594.38 | -4.01 | 104 | 38 | 1386.61 | 0.00 | -143.01 | 0.00 | 0.00 | 0.00 |
| 72 | 136 | -6080.36 | -83.08 | 32.65 | 194.45 | -475.50 | 721.72 | 104 | 39 | -1386.61 | 40.54 | 143.01 | 0.00 | 244.83 | -69.00 |
| 73 | 136 | 6080.35 | 83.08 | -32.65 | -194.45 | 475.50 | -721.72 | 105 | 55 | 797.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 73 | 137 | -6018.71 | 58.49 | 32.65 | 378.01 | -356.63 | 841.67 | 105 | 56 | -797.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 74 | 137 | 6018.71 | -58.49 | -32.65 | -378.01 | 356.63 | -841.67 | 106 | 57 | 889.20 | 0.00 | -53.66 | 0.00 | 0.00 | 0.00 |
| 74 | 138 | -6002.76 | 121.51 | 36.52 | 658.41 | -332.90 | 192.28 | 106 | 58 | -889.20 | 0.00 | 53.66 | 0.00 | 91.86 | 0.00 |
| 75 | 138 | 5186.82 | -121.51 | -36.52 | -658.41 | 332.90 | -220.73 | 107 | 74 | 804.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 75 | 139 | -5127.82 | 187.93 | 41.97 | 725.23 | -178.74 | -370.55 | 107 | 75 | -804.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 76 | 139 | 5127.82 | -187.93 | -41.97 | -725.23 | 178.74 | 370.55 | 108 | 76 | 872.11 | 0.00 | -78.36 | 0.00 | 0.00 | 0.00 |
| 76 | 140 | -5079.80 | 279.37 | 47.44 | 744.40 | 0.00 | -1407.63 | 108 | 77 | -872.11 | 0.00 | 78.36 | 0.00 | 134.15 | 0.00 |
| 77 | 16 | 1987.12 | 72.58 | -74.22 | 0.00 | 575.06 | 747.57 | 109 | 93 | 793.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 77 | 17 | -1929.28 | -72.58 | 73.06 | 0.00 | -184.74 | -362.90 | 109 | 94 | -793.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 78 | 17 | 1929.28 | 72.58 | -73.06 | 0.00 | 184.74 | 362.90 | 110 | 95 | 875.59 | 0.00 | -77.79 | 0.00 | 0.00 | 0.00 |
| 78 | 18 | -1868.28 | -72.58 | 71.79 | 0.00 | 177.48 | 0.00 | 110 | 96 | -875.59 | 38.05 | 77.79 | 0.00 | 133.17 | -64.76 |
| 79 | 33 | 2263.42 | -81.08 | -146.13 | 0.00 | 3128.16 | -1019.99 | 111 | 111 | 830.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 79 | 34 | -2180.70 | 81.08 | 144.37 | 0.00 | -2026.94 | 405.40 | 111 | 112 | -830.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 80 | 34 | 2180.70 | -81.08 | -144.37 | 0.00 | 2026.94 | -405.40 | 112 | 113 | 1118.47 | 0.00 | -118.49 | 0.00 | 0.00 | 0.00 |
| 80 | 35 | -2119.70 | 81.08 | 143.01 | 0.00 | -1308.40 | 0.00 | 112 | 114 | -1118.47 | 40.49 | 118.49 | 0.00 | 202.85 | -68.91 |
| 81 | 50 | 2477.42 | 0.00 | -62.55 | 0.00 | 1339.28 | 0.00 | 113 | 129 | 688.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 81 | 51 | -2395.21 | 0.00 | 61.19 | 0.00 | -937.13 | 0.00 | 113 | 130 | -688.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 82 | 51 | 2395.21 | 0.00 | -61.19 | 0.00 | 937.13 | 0.00 | 114 | 131 | 726.13 | 0.00 | -74.37 | 0.00 | 0.00 | 0.00 |
| 82 | 52 | -2275.87 | 0.00 | 58.64 | 0.00 | -337.22 | 0.00 | 114 | 132 | -726.13 | -41.10 | 74.37 | 0.00 | 127.32 | 69.95 |
| 83 | 52 | 2275.87 | 0.00 | -58.64 | 0.00 | 337.22 | 0.00 | 115 | 141 | 357.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 83 | 53 | -2166.75 | 0.00 | 55.42 | 0.00 | 233.43 | 0.00 | 115 | 142 | -357.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 84 | 53 | 2166.75 | 0.00 | -55.42 | 0.00 | -233.43 | 0.00 | 116 | 143 | 531.61 | 408.95 | -48.03 | 0.00 | 0.00 | 0.00 |
| 84 | 54 | -2105.75 | 0.00 | 53.66 | 0.00 | 506.15 | 0.00 | 116 | 144 | -531.61 | -395.38 | 48.03 | 0.00 | 82.23 | 677.03 |
| 85 | 69 | 2439.79 | 0.00 | -87.13 | 0.00 | 1797.30 | 0.00 | 117 | 6 | 789.05 | -33.76 | -29.78 | 0.00 | 748.41 | -33.76 |
| 85 | 70 | -2395.24 | 0.00 | 86.34 | 0.00 | -1495.43 | 0.00 | 117 | 7 | -789.05 | 33.76 | 29.78 | 0.00 | -718.63 | 0.00 |
| 86 | 70 | 2395.24 | 0.00 | -86.34 | 0.00 | 1495.43 | 0.00 | 118 | 145 | 869.18 | 790.77 | -48.03 | 0.00 | 872.70 | 790.77 |
| 86 | 71 | -2275.90 | 0.00 | 83.51 | 0.00 | -645.61 | 0.00 | 118 | 146 | -869.18 | -790.77 | 48.03 | 0.00 | -824.67 | 0.00 |
| 87 | 71 | 2275.90 | 0.00 | -83.51 | 0.00 | 645.61 | 0.00 | 119 | 3 | 0.00 | 438.17 | -16.93 | 28.73 | -0.01 | 0.00 |
| 87 | 72 | -2166.78 | 0.00 | 80.17 | 0.00 | 173.10 | 0.00 | 119 | 1 | 0.00 | -438.17 | 16.93 | -28.73 | 71.74 | 1862.23 |
| 88 | 72 | 2166.78 | 0.00 | -80.17 | 0.00 | -173.10 | 0.00 | 120 | 1 | 0.47 | -468.77 | -16.94 | 28.73 | 71.72 | -1991.46 |
| 88 | 73 | -2105.78 | 0.00 | 78.36 | 0.00 | 569.45 | 0.00 | 120 | 5 | -0.47 | 468.77 | 16.94 | -28.73 | -0.01 | -0.81 |
| 89 | 88 | 2382.96 | -76.10 | -85.24 | 0.00 | 1617.06 | -1978.60 | 121 | 20 | 0.00 | 590.64 | -36.55 | 61.77 | -0.29 | 0.00 |
| 89 | 89 | -2370.46 | 76.10 | 85.03 | 0.00 | -1531.93 | 1902.50 | 121 | 15 | 0.00 | -590.64 | 36.55 | -61.77 | 66.86 | 1092.67 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 122 | 15 | -0.83 | -1242.83 | -36.48 | 61.77 | 66.78 | -2300.65 |
| 122 | 22 | 0.83 | 1242.83 | 36.48 | -61.77 | -0.32 | 1.42 |
| 123 | 37 | 0.00 | 974.68 | -40.71 | 69.00 | -0.06 | 0.00 |
| 123 | 32 | 0.00 | -974.68 | 40.71 | -69.00 | 74.81 | 1803.16 |
| 124 | 32 | 10.17 | -1025.68 | -40.62 | 69.00 | 74.79 | -1880.09 |
| 124 | 39 | -10.17 | 1025.68 | 40.62 | -69.00 | -0.32 | -17.41 |
| 125 | 56 | 0.01 | 1222.79 | -39.95 | 67.79 | -0.21 | 0.00 |
| 125 | 49 | -0.01 | -1222.79 | 39.95 | -67.79 | 73.51 | 2262.20 |
| 126 | 49 | 18.27 | -730.39 | -39.91 | 67.79 | 73.65 | -1319.90 |
| 126 | 58 | -18.27 | 730.39 | 39.91 | -67.79 | -0.02 | -31.26 |
| 127 | 75 | 0.00 | 954.50 | -40.83 | 69.08 | -0.08 | -0.01 |
| 127 | 68 | 0.00 | -954.50 | 40.83 | -69.08 | 75.03 | 1765.80 |
| 128 | 68 | 0.01 | -1164.88 | -40.69 | 69.08 | 75.12 | -2154.97 |
| 128 | 77 | -0.01 | 1164.88 | 40.69 | -69.08 | 0.02 | -0.01 |
| 129 | 94 | 0.00 | 729.32 | -38.10 | 64.76 | -0.02 | 0.00 |
| 129 | 87 | 0.00 | -729.32 | 38.10 | -64.76 | 70.39 | 1349.23 |
| 130 | 87 | -19.75 | -1383.95 | -38.13 | 64.76 | 70.38 | -2594.15 |
| 130 | 96 | 19.75 | 1383.95 | 38.13 | -64.76 | 0.00 | 33.82 |
| 131 | 112 | 0.00 | 1124.23 | -40.59 | 68.91 | -0.01 | 0.00 |
| 131 | 106 | 0.00 | -1124.23 | 40.59 | -68.91 | 74.98 | 2079.82 |
| 132 | 106 | 1.88 | -1183.75 | -40.58 | 68.91 | 74.85 | -2186.74 |
| 132 | 114 | -1.88 | 1183.75 | 40.58 | -68.91 | 0.04 | -3.21 |
| 133 | 130 | 0.00 | 809.98 | -41.17 | 69.95 | -0.07 | 0.00 |
| 133 | 124 | 0.00 | -809.98 | 41.17 | -69.95 | 76.00 | 1498.47 |
| 134 | 124 | -1.20 | -901.36 | -41.17 | 69.95 | 75.99 | -1669.59 |
| 134 | 132 | 1.20 | 901.36 | 41.17 | -69.95 | -0.02 | 2.05 |
| 135 | 142 | 0.00 | 416.68 | -657.14 | 1125.16 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -416.68 | 657.14 | -1125.16 | 2792.86 | 1770.88 |
| 136 | 140 | 0.46 | -542.03 | -657.15 | 1125.17 | 2792.88 | -2302.82 |
| 136 | 144 | -0.46 | 542.03 | 657.15 | -1125.17 | 0.00 | -0.80 |
| 137 | 2 | 0.00 | -337.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 335.72 | 16.88 | 0.00 | 71.57 | -1426.80 |
| 138 | 7 | -0.41 | 339.03 | -16.88 | 0.00 | 71.57 | 1440.89 |
| 138 | 4 | 0.41 | -337.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -725.40 | -0.01 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 725.88 | 36.28 | 0.00 | 66.79 | -1342.89 |
| 140 | 18 | 0.73 | 725.65 | -36.30 | 0.00 | 66.77 | 1342.45 |
| 140 | 21 | -0.73 | -725.65 | 0.01 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -810.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 810.67 | 40.54 | 0.00 | 74.59 | -1499.73 |
| 142 | 35 | -0.30 | 810.62 | -40.53 | 0.00 | 74.60 | 1499.65 |
| 142 | 38 | 0.30 | -810.36 | 0.01 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -797.54 | -0.26 | 0.00 | -0.08 | 0.01 |
| 143 | 54 | 0.00 | 797.54 | 40.09 | 0.00 | 73.07 | -1475.45 |
| 144 | 54 | -0.01 | 797.46 | -39.75 | 0.00 | 73.19 | 1475.33 |
| 144 | 57 | 0.01 | -797.62 | 0.09 | 0.00 | 0.07 | 0.01 |
| 145 | 74 | 0.00 | -804.68 | -0.08 | 0.00 | -0.09 | 0.00 |
| 145 | 73 | 0.00 | 804.26 | 40.54 | 0.00 | 74.77 | -1487.88 |
| 146 | 73 | -0.02 | 804.71 | -40.58 | 0.00 | 74.69 | 1488.72 |
| 146 | 76 | 0.02 | -804.29 | 0.04 | 0.00 | 0.02 | 0.00 |
| 147 | 93 | 0.00 | -792.70 | -0.07 | 0.00 | -0.09 | 0.01 |
| 147 | 92 | 0.00 | 794.78 | 38.00 | 0.00 | 69.95 | -1470.34 |
| 148 | 92 | -0.03 | 792.72 | -38.08 | 0.00 | 70.05 | 1466.54 |
| 148 | 95 | 0.03 | -792.72 | 0.03 | 0.00 | 0.04 | 0.00 |
| 149 | 111 | 0.00 | -834.54 | -0.02 | 0.00 | 0.02 | 0.00 |
| 149 | 110 | 0.00 | 826.13 | 40.48 | 0.00 | 74.45 | -1528.34 |
| 150 | 110 | -0.19 | 834.07 | -40.52 | 0.00 | 74.49 | 1543.03 |
| 150 | 113 | 0.19 | -834.07 | 0.03 | 0.00 | -0.01 | 0.00 |
| 151 | 129 | 0.00 | -669.32 | -0.06 | 0.00 | 0.01 | 0.00 |
| 151 | 128 | 0.00 | 711.61 | 41.05 | 0.00 | 75.65 | -1316.48 |
| 152 | 128 | 0.58 | 670.06 | -41.12 | 0.00 | 75.60 | 1239.61 |
| 152 | 131 | -0.58 | -670.06 | 0.02 | 0.00 | -0.02 | 0.00 |
| 153 | 141 | 0.00 | -542.21 | -670.72 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 542.21 | 657.15 | 0.00 | 2793.01 | -2304.41 |
| 154 | 146 | -0.29 | 450.55 | -657.14 | 0.00 | 2792.99 | 1914.82 |
| 154 | 143 | 0.29 | -450.55 | 670.71 | 0.00 | 0.00 | 0.00 |

DESPLAZAMIENTOS DE NUDOS

| NUDO | DESP. X | DESP. Y | DESP. Z | GIRO X | GIRO Y | GIRO Z |
|---|---|---|---|---|---|---|
| 1 | 0.113881 | -0.000887 | -0.000285 | -0.000076 | 0.000099 | -0.000315 |
| 2 | 0.000000 | -0.000464 | -0.000012 | -0.000144 | 0.000000 | 0.000000 |
| 3 | 0.113474 | -0.000862 | -0.000285 | 0.000047 | 0.000095 | -0.000307 |
| 4 | 0.000000 | -0.000114 | -0.000014 | 0.000045 | 0.000000 | 0.000000 |
| 5 | 0.113993 | -0.000375 | -0.000284 | -0.000155 | 0.000077 | -0.000398 |
| 7 | 0.000000 | -0.000021 | -0.000012 | -0.000024 | 0.000000 | 0.000000 |
| 8 | 0.112557 | -0.002926 | -0.000747 | -0.000229 | 0.000101 | -0.000402 |
| 9 | 0.113765 | -0.005165 | -0.001211 | -0.000358 | 0.000103 | -0.000364 |
| 10 | 0.112369 | -0.006341 | -0.001670 | -0.000464 | 0.000102 | -0.000175 |
| 11 | 0.110964 | -0.006631 | -0.002124 | -0.000544 | 0.000102 | -0.000033 |
| 12 | 0.109553 | -0.006502 | -0.002574 | -0.000599 | 0.000102 | 0.000028 |
| 13 | 0.108147 | -0.006317 | -0.003023 | -0.000629 | 0.000103 | 0.000039 |
| 14 | 0.106749 | -0.002803 | -0.003477 | -0.000634 | 0.000105 | 0.000113 |
| 15 | 0.099982 | -0.001939 | -0.003941 | -0.000613 | 0.000109 | -0.000105 |
| 17 | 0.000000 | -0.004041 | -0.000859 | -0.000305 | 0.000000 | 0.000000 |
| 18 | 0.000000 | -0.004546 | -0.002827 | -0.000469 | 0.000000 | 0.000000 |
| 19 | 0.000000 | -0.005480 | -0.002827 | -0.000523 | 0.000000 | 0.000000 |
| 20 | 0.099780 | -0.003005 | -0.003941 | -0.000558 | 0.000109 | -0.000105 |
| 21 | 0.000000 | -0.003712 | -0.002829 | -0.000442 | 0.000000 | 0.000000 |
| 22 | 0.100185 | -0.000769 | -0.003940 | -0.000643 | 0.000109 | -0.000105 |
| 23 | 0.241341 | -0.004589 | -0.004443 | -0.000786 | 0.000115 | -0.000577 |
| 24 | 0.237636 | -0.007824 | -0.004968 | -0.000936 | 0.000121 | -0.000599 |
| 25 | 0.233895 | -0.010269 | -0.005518 | -0.001059 | 0.000128 | -0.000423 |
| 26 | 0.230180 | -0.011797 | -0.006098 | -0.001157 | 0.000136 | -0.000213 |
| 27 | 0.226460 | -0.012253 | -0.006716 | -0.001232 | 0.000146 | 0.000048 |
| 28 | 0.222743 | -0.010915 | -0.007380 | -0.001281 | 0.000158 | 0.000302 |
| 29 | 0.219027 | -0.008971 | -0.008097 | -0.001304 | 0.000172 | 0.000448 |
| 30 | 0.215347 | -0.006653 | -0.008881 | -0.001302 | 0.000188 | 0.000478 |
| 31 | 0.211701 | -0.004353 | -0.009744 | -0.001275 | 0.000208 | 0.000401 |
| 32 | 0.207851 | -0.002427 | -0.010700 | -0.001223 | 0.000231 | -0.000106 |
| 34 | 0.000000 | -0.004295 | -0.003588 | -0.000825 | 0.000000 | 0.000000 |
| 35 | 0.000000 | -0.004790 | -0.008462 | -0.001055 | 0.000000 | 0.000000 |
| 36 | 0.000000 | -0.006811 | -0.008462 | -0.001111 | 0.000000 | 0.000000 |
| 37 | 0.207424 | -0.004614 | -0.010700 | -0.001162 | 0.000231 | -0.000106 |
| 38 | 0.000000 | -0.002867 | -0.008469 | -0.001032 | 0.000000 | 0.000000 |
| 39 | 0.208279 | -0.000118 | -0.010693 | -0.001264 | 0.000231 | -0.000106 |
| 40 | 0.204008 | -0.005367 | -0.011849 | -0.001368 | 0.000253 | -0.000691 |
| 41 | 0.200368 | -0.008881 | -0.013080 | -0.001488 | 0.000269 | -0.000725 |
| 42 | 0.196724 | -0.012090 | -0.014368 | -0.001582 | 0.000280 | -0.000606 |
| 43 | 0.190897 | -0.014506 | -0.015688 | -0.001651 | 0.000285 | -0.000407 |
| 44 | 0.187256 | -0.015854 | -0.017020 | -0.001694 | 0.000286 | -0.000137 |
| 45 | 0.183620 | -0.015758 | -0.018342 | -0.001712 | 0.000283 | 0.000147 |
| 46 | 0.179987 | -0.014417 | -0.019636 | -0.001704 | 0.000276 | 0.000355 |
| 47 | 0.176430 | -0.012402 | -0.020886 | -0.001671 | 0.000265 | 0.000441 |
| 48 | 0.168600 | -0.010149 | -0.022077 | -0.001612 | 0.000251 | 0.000404 |
| 49 | 0.164909 | -0.008110 | -0.023196 | -0.001528 | 0.000235 | -0.000041 |
| 51 | 0.000000 | -0.000720 | -0.000738 | -0.000222 | 0.000000 | 0.000000 |
| 52 | 0.000000 | -0.005242 | -0.005031 | -0.000630 | 0.000000 | 0.000000 |
| 53 | 0.000000 | -0.006380 | -0.014150 | -0.001188 | 0.000000 | 0.000000 |
| 54 | 0.000000 | -0.006868 | -0.020532 | -0.001364 | 0.000000 | 0.000000 |
| 55 | 0.000000 | -0.009459 | -0.020532 | -0.001418 | 0.000000 | 0.000000 |
| 56 | 0.164472 | -0.010862 | -0.023196 | -0.001468 | 0.000237 | -0.000049 |
| 57 | 0.000000 | -0.004374 | -0.020533 | -0.001341 | 0.000000 | 0.000000 |
| 58 | 0.165341 | -0.005249 | -0.023196 | -0.001556 | 0.000233 | -0.000049 |
| 59 | 0.161268 | -0.010529 | -0.024233 | -0.001674 | 0.000216 | -0.000544 |
| 60 | 0.157832 | -0.013554 | -0.025178 | -0.001795 | 0.000196 | -0.000540 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 61 | 0.154390 | -0.015755 | -0.026022 | -0.001889 | 0.000173 | -0.000364 |
| 62 | 0.150942 | -0.016964 | -0.026760 | -0.001959 | 0.000150 | -0.000132 |
| 63 | 0.147493 | -0.017005 | -0.027389 | -0.002002 | 0.000127 | 0.000149 |
| 64 | 0.144048 | -0.015605 | -0.027906 | -0.002019 | 0.000103 | 0.000421 |
| 65 | 0.140606 | -0.013063 | -0.028312 | -0.002011 | 0.000079 | 0.000595 |
| 66 | 0.136171 | -0.009994 | -0.028608 | -0.001977 | 0.000056 | 0.000632 |
| 67 | 0.131754 | -0.007010 | -0.028799 | -0.001917 | 0.000035 | 0.000552 |
| 68 | 0.128128 | -0.004407 | -0.028891 | -0.001832 | 0.000014 | 0.000043 |
| 70 | 0.000000 | -0.000420 | -0.000375 | -0.000194 | 0.000000 | 0.000000 |
| 71 | 0.000000 | -0.004916 | -0.005681 | -0.000822 | 0.000000 | 0.000000 |
| 72 | 0.033443 | -0.006065 | -0.017627 | -0.001511 | 0.000000 | -0.002346 |
| 73 | 0.045517 | -0.006558 | -0.025673 | -0.001684 | 0.000000 | -0.002418 |
| 74 | 0.045519 | -0.009741 | -0.025673 | -0.001738 | -0.000002 | -0.002418 |
| 75 | 0.128099 | -0.007723 | -0.028891 | -0.001772 | 0.000016 | 0.000036 |
| 76 | 0.045519 | -0.003473 | -0.025675 | -0.001659 | 0.000002 | -0.002418 |
| 77 | 0.128152 | -0.000977 | -0.028889 | -0.001866 | 0.000012 | 0.000036 |
| 78 | 0.124521 | -0.006616 | -0.028918 | -0.001937 | -0.000006 | -0.000525 |
| 79 | 0.121119 | -0.009699 | -0.028849 | -0.002017 | -0.000027 | -0.000575 |
| 80 | 0.117713 | -0.012168 | -0.028680 | -0.002071 | -0.000048 | -0.000439 |
| 81 | 0.114302 | -0.013797 | -0.028412 | -0.002100 | -0.000069 | -0.000235 |
| 82 | 0.110889 | -0.014774 | -0.028046 | -0.002102 | -0.000090 | 0.000038 |
| 83 | 0.107479 | -0.013883 | -0.027584 | -0.002079 | -0.000110 | 0.000312 |
| 84 | 0.104072 | -0.011826 | -0.027032 | -0.002030 | -0.000128 | 0.000496 |
| 85 | 0.100665 | -0.009216 | -0.026397 | -0.001956 | -0.000145 | 0.000558 |
| 86 | 0.097256 | -0.006517 | -0.025688 | -0.001856 | -0.000159 | 0.000506 |
| 87 | 0.093645 | -0.004057 | -0.024915 | -0.001730 | -0.000171 | 0.000034 |
| 89 | 0.000000 | -0.000121 | -0.000037 | -0.000057 | 0.000000 | 0.000000 |
| 90 | 0.000000 | -0.004638 | -0.003907 | -0.000677 | 0.000000 | 0.000000 |
| 91 | 0.023823 | -0.005775 | -0.014450 | -0.001384 | 0.000000 | -0.001864 |
| 92 | 0.033464 | -0.006263 | -0.021879 | -0.001569 | 0.000000 | -0.001931 |
| 93 | 0.033466 | -0.009232 | -0.021879 | -0.001623 | -0.000002 | -0.001931 |
| 94 | 0.093960 | -0.007183 | -0.024915 | -0.001670 | -0.000170 | 0.000026 |
| 95 | 0.033466 | -0.003389 | -0.021881 | -0.001546 | 0.000002 | -0.001931 |
| 96 | 0.093326 | -0.000818 | -0.024913 | -0.001762 | -0.000173 | 0.000026 |
| 97 | 0.090053 | -0.006211 | -0.024114 | -0.001819 | -0.000182 | -0.000501 |
| 98 | 0.086667 | -0.009112 | -0.023264 | -0.001882 | -0.000191 | -0.000527 |
| 99 | 0.083279 | -0.011319 | -0.022369 | -0.001920 | -0.000200 | -0.000379 |
| 100 | 0.079885 | -0.012653 | -0.021435 | -0.001932 | -0.000207 | -0.000172 |
| 101 | 0.076479 | -0.014968 | -0.020471 | -0.001919 | -0.000212 | 0.000180 |
| 102 | 0.073089 | -0.013461 | -0.019485 | -0.001880 | -0.000215 | 0.000434 |
| 103 | 0.069702 | -0.010902 | -0.018488 | -0.001816 | -0.000215 | 0.000586 |
| 104 | 0.066315 | -0.007966 | -0.017494 | -0.001726 | -0.000212 | 0.000602 |
| 105 | 0.062925 | -0.005169 | -0.016517 | -0.001611 | -0.000206 | 0.000492 |
| 106 | 0.059333 | -0.002902 | -0.015575 | -0.001471 | -0.000195 | -0.000051 |
| 108 | 0.000000 | -0.000130 | -0.000076 | -0.000103 | 0.000000 | 0.000000 |
| 109 | 0.005125 | -0.004708 | -0.006756 | -0.001104 | 0.000000 | -0.000762 |
| 110 | 0.009277 | -0.005207 | -0.012932 | -0.001312 | 0.000000 | -0.000833 |
| 111 | 0.009279 | -0.007703 | -0.012932 | -0.001368 | -0.000002 | -0.000833 |
| 112 | 0.059692 | -0.005547 | -0.015575 | -0.001409 | -0.000193 | -0.000059 |
| 113 | 0.009279 | -0.002810 | -0.012937 | -0.001288 | 0.000002 | -0.000833 |
| 114 | 0.058969 | -0.000135 | -0.015569 | -0.001510 | -0.000197 | -0.000059 |
| 115 | 0.055759 | -0.005632 | -0.014751 | -0.001520 | -0.000185 | -0.000648 |
| 116 | 0.052391 | -0.009331 | -0.013964 | -0.001545 | -0.000177 | -0.000710 |
| 117 | 0.049017 | -0.012432 | -0.013202 | -0.001544 | -0.000172 | -0.000570 |
| 118 | 0.045638 | -0.014638 | -0.012451 | -0.001517 | -0.000170 | -0.000344 |
| 119 | 0.042257 | -0.015640 | -0.011703 | -0.001466 | -0.000170 | -0.000041 |
| 120 | 0.016206 | -0.014499 | -0.010949 | -0.001389 | -0.000171 | 0.000202 |
| 121 | 0.018448 | -0.014403 | -0.010182 | -0.001287 | -0.000174 | 0.000485 |
| 122 | 0.017348 | -0.011920 | -0.009398 | -0.001159 | -0.000177 | 0.000741 |
| 123 | 0.015725 | -0.011306 | -0.008594 | -0.001007 | -0.000181 | 0.000978 |
| 124 | 0.014077 | -0.005852 | -0.007766 | -0.000829 | -0.000186 | 0.000933 |
| 126 | 0.000000 | -0.000107 | -0.000031 | -0.000036 | 0.000000 | 0.000000 |
| 127 | -0.005202 | -0.004630 | -0.003137 | -0.000555 | 0.000000 | 0.000773 |
| 128 | -0.009417 | -0.005101 | -0.006292 | -0.000699 | 0.000000 | 0.000846 |
| 129 | -0.009419 | -0.006456 | -0.006292 | -0.000749 | 0.000002 | 0.000846 |
| 130 | 0.014422 | -0.007324 | -0.007766 | -0.000779 | -0.000188 | 0.000941 |
| 131 | -0.009419 | -0.003838 | -0.006293 | -0.000674 | -0.000002 | 0.000846 |
| 132 | 0.013735 | -0.004285 | -0.007765 | -0.000856 | -0.000184 | 0.000941 |
| 133 | 0.012428 | -0.002839 | -0.006925 | -0.000825 | -0.000190 | 0.000697 |
| 134 | 0.011047 | 0.000455 | -0.006058 | -0.000796 | -0.000196 | 0.000635 |
| 135 | 0.009649 | 0.002967 | -0.005163 | -0.000741 | -0.000201 | 0.000445 |
| 136 | 0.008688 | 0.005012 | -0.004240 | -0.000661 | -0.000207 | 0.000275 |
| 137 | 0.007276 | 0.005878 | -0.003291 | -0.000555 | -0.000212 | 0.000044 |
| 138 | 0.006284 | 0.006114 | -0.002318 | -0.000424 | -0.000216 | -0.000323 |
| 139 | 0.005030 | 0.003846 | -0.001326 | -0.000268 | -0.000218 | -0.000829 |
| 140 | 0.003719 | -0.000980 | -0.000334 | -0.000088 | -0.000201 | -0.001508 |
| 141 | 0.000850 | -0.000507 | -0.000014 | -0.000157 | -0.000200 | 0.000000 |
| 142 | 0.004279 | -0.000966 | -0.000334 | 0.000049 | -0.000097 | -0.001710 |
| 143 | -0.000848 | -0.000098 | -0.000019 | 0.000041 | -0.000200 | 0.000000 |
| 144 | 0.002568 | -0.000370 | -0.000330 | -0.000173 | -0.000306 | -0.001710 |
| 146 | 0.000000 | -0.000022 | -0.000014 | -0.000028 | -0.000200 | 0.000000 |

HIPOTESIS 207

MOME X MAX envolvente (ELS)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 9145.38 | 623.19 | 9.53 | 921.85 | 0.00 | 1628.93 |
| 1 | 8 | -9175.64 | -351.53 | -9.53 | -777.40 | -42.88 | 505.34 |
| 2 | 8 | 9175.65 | 351.53 | 9.53 | 777.40 | 42.88 | -505.34 |
| 2 | 9 | -9199.63 | -126.32 | -7.85 | -629.28 | -116.10 | 1382.13 |
| 3 | 9 | 9572.87 | 126.32 | 7.85 | 629.28 | 116.10 | -1624.17 |
| 3 | 10 | -9614.67 | 57.79 | -2.84 | -478.43 | -140.15 | 1733.25 |
| 4 | 10 | 9614.68 | -57.79 | 2.84 | 478.43 | 140.15 | -1733.25 |
| 4 | 11 | -9686.32 | 113.35 | 9.32 | -348.30 | -12.50 | 1080.32 |
| 5 | 11 | 9686.30 | -113.35 | -9.32 | 348.30 | 12.49 | -1080.32 |
| 5 | 12 | -9691.08 | 107.51 | 18.21 | -301.12 | 129.55 | 958.02 |
| 6 | 12 | 9691.08 | -107.51 | -18.22 | 301.12 | -129.55 | -958.02 |
| 6 | 13 | -9610.53 | 3.12 | 4.39 | -415.78 | 118.53 | 813.03 |
| 7 | 13 | 9581.11 | -3.12 | -4.39 | 415.78 | -118.53 | -816.98 |
| 7 | 14 | -9621.32 | 246.72 | 4.59 | -567.37 | 144.45 | 664.35 |
| 8 | 14 | 9621.33 | -246.72 | -4.59 | 567.37 | -144.45 | -664.35 |
| 8 | 15 | -13815.86 | 1084.29 | 4.79 | -718.96 | 172.32 | -3897.71 |
| 9 | 15 | 10505.92 | 749.06 | 6.48 | 1018.05 | -485.27 | 3742.25 |
| 9 | 23 | -8320.24 | -565.31 | -1.65 | -888.85 | 456.38 | -536.25 |
| 10 | 23 | 8320.20 | 565.31 | 1.65 | 888.85 | -456.38 | 536.25 |
| 10 | 24 | -8366.78 | -171.69 | 3.21 | -759.58 | 449.31 | 1028.50 |
| 11 | 24 | 8794.77 | 171.69 | -3.21 | 759.58 | -449.31 | -1339.69 |
| 11 | 25 | -8347.55 | -62.97 | -6.95 | -648.53 | 530.68 | 549.54 |
| 12 | 25 | 8347.67 | 62.97 | 6.95 | 648.53 | -530.68 | -549.54 |
| 12 | 26 | -8416.56 | -108.02 | -2.05 | -583.57 | 501.96 | 890.36 |
| 13 | 26 | 8416.51 | 108.02 | 2.05 | 583.57 | -501.96 | -890.36 |
| 13 | 27 | -8388.37 | 8.07 | 0.16 | -522.98 | 616.19 | 2534.46 |
| 14 | 27 | 8388.33 | -8.07 | -0.16 | 522.98 | -616.18 | -2534.46 |
| 14 | 28 | -8363.08 | 167.59 | 7.69 | -550.01 | 793.29 | 761.82 |
| 15 | 28 | 8363.17 | -167.59 | -7.69 | 550.01 | -793.29 | -761.82 |
| 15 | 29 | -8362.64 | 156.63 | 12.67 | -587.43 | 830.63 | -35.77 |
| 16 | 29 | 8362.58 | -156.63 | -12.67 | 587.43 | -830.63 | 35.77 |
| 16 | 30 | -7856.53 | 67.45 | -17.61 | -585.05 | 140.94 | -476.80 |
| 17 | 30 | 7856.58 | -67.45 | 17.61 | 585.05 | -140.94 | 476.79 |
| 17 | 31 | -7853.67 | 444.90 | -6.43 | -715.01 | 186.39 | -900.51 |
| 18 | 31 | 7853.64 | -444.90 | 6.43 | 715.01 | -186.39 | 900.51 |
| 18 | 32 | -11016.22 | 1184.65 | -6.43 | -898.56 | 146.87 | -5775.18 |
| 19 | 32 | 14503.31 | 783.66 | 26.44 | 953.36 | -543.01 | 4807.43 |
| 19 | 40 | -10289.70 | -673.56 | -26.44 | -808.91 | 410.81 | 56.66 |
| 20 | 40 | 10289.71 | 673.56 | 26.44 | 808.91 | -410.81 | -56.66 |
| 20 | 41 | -10354.07 | -181.40 | -26.44 | -664.46 | 278.61 | 1860.27 |
| 21 | 41 | 10354.08 | 181.40 | 26.44 | 664.46 | -278.61 | -1860.27 |
| 21 | 42 | -10293.58 | -74.23 | -24.87 | -638.74 | 158.23 | 767.79 |
| 22 | 42 | 10293.58 | 74.23 | 24.87 | 638.74 | -158.23 | -767.79 |
| 22 | 43 | -10365.16 | -150.65 | -24.87 | -574.83 | 35.73 | 1216.66 |
| 23 | 43 | 10365.13 | 150.65 | 24.87 | 574.83 | -35.73 | -1216.66 |
| 23 | 44 | -10310.67 | -14.02 | -22.23 | -504.87 | 109.32 | 3479.31 |
| 24 | 44 | 10310.68 | 14.02 | 22.23 | 504.87 | -109.32 | -3479.31 |
| 24 | 45 | -10259.95 | 171.33 | -17.88 | -561.45 | 232.71 | 1390.31 |
| 25 | 45 | 10259.96 | -171.33 | 17.88 | 561.45 | -232.71 | -1390.31 |
| 25 | 46 | -10244.70 | 139.18 | -17.88 | -625.76 | 141.67 | 604.85 |
| 26 | 46 | 10244.70 | -139.18 | 17.88 | 625.76 | -141.67 | -604.85 |
| 26 | 47 | -8901.18 | -28.42 | -17.88 | -630.44 | 50.62 | 43.42 |
| 27 | 47 | 8901.17 | 28.42 | 17.88 | 630.44 | -50.62 | -43.42 |
| 27 | 48 | -8900.00 | 414.42 | -8.39 | -729.98 | 84.48 | -10.80 |
| 28 | 48 | 8900.01 | -414.42 | 8.39 | 729.98 | -84.48 | 10.80 |
| 28 | 49 | -13009.82 | 1337.72 | -8.39 | -913.54 | 36.13 | -5523.57 |
| 29 | 49 | 12832.74 | 768.25 | 7.02 | 946.83 | 398.87 | 4946.87 |
| 29 | 59 | -8620.30 | -619.89 | -31.79 | -802.97 | -1083.08 | -164.76 |
| 30 | 59 | 8620.32 | 619.89 | 31.79 | 802.97 | 1083.08 | 164.76 |
| 30 | 60 | -8690.47 | -138.13 | -25.67 | -670.16 | -1222.95 | 1416.88 |
| 31 | 60 | 8690.46 | 138.13 | 25.67 | 670.16 | 1222.95 | -1416.88 |
| 31 | 61 | -8609.53 | -60.97 | -20.08 | -647.42 | -61.85 | 356.01 |
| 32 | 61 | 8609.53 | 60.97 | 20.08 | 647.42 | 61.85 | -356.01 |
| 32 | 62 | -8686.17 | -137.39 | -20.08 | -583.51 | -162.78 | 743.82 |
| 33 | 62 | 8686.19 | 137.39 | 20.08 | 583.51 | 162.78 | -743.82 |
| 33 | 63 | -8636.74 | 0.03 | -19.78 | -515.11 | -5.48 | 2950.38 |
| 34 | 63 | 8636.73 | -0.03 | 19.78 | 515.11 | 5.48 | -2950.38 |
| 34 | 64 | -8590.97 | 184.85 | -18.79 | -571.83 | 200.58 | 797.21 |
| 35 | 64 | 8590.96 | -184.85 | 18.79 | 571.83 | -200.58 | -797.21 |
| 35 | 65 | -8578.35 | 152.70 | -18.79 | -636.13 | 105.43 | -48.60 |
| 36 | 65 | 8578.36 | -152.70 | 18.79 | 636.14 | -105.43 | 48.60 |
| 36 | 66 | -8588.55 | -14.90 | -18.79 | -640.82 | 10.28 | -447.30 |
| 37 | 66 | 8588.55 | 14.90 | 18.79 | 640.81 | -10.28 | 447.29 |
| 37 | 67 | -8581.12 | 427.76 | -8.22 | -736.05 | 61.66 | -553.35 |
| 38 | 67 | 8581.11 | -427.76 | 8.22 | 736.05 | -61.66 | 553.35 |
| 38 | 68 | -12684.66 | 1351.06 | -8.22 | -919.61 | 14.11 | -6121.00 |
| 39 | 68 | 9593.52 | 912.84 | 9.07 | 918.07 | -14.05 | 6974.18 |
| 39 | 78 | -6340.61 | -764.02 | -9.07 | -734.52 | -37.35 | -1987.45 |
| 40 | 78 | 6340.62 | 764.02 | 9.07 | 734.52 | 37.35 | 1987.45 |
| 40 | 79 | -6387.92 | -266.33 | -20.23 | -641.62 | 23.97 | -199.44 |
| 41 | 79 | 6387.95 | 266.33 | 20.23 | 641.62 | -23.97 | 199.44 |
| 41 | 80 | -6397.99 | -154.99 | -20.23 | -636.94 | -77.65 | 579.47 |
| 42 | 80 | 6397.96 | 154.99 | 20.23 | 636.94 | 77.65 | -579.47 |
| 42 | 81 | -6463.07 | -172.73 | -20.23 | -573.03 | -179.26 | 1275.76 |
| 43 | 81 | 6463.08 | 172.73 | 20.23 | 573.03 | 179.26 | -1275.76 |
| 43 | 82 | -6431.11 | -6.38 | -21.38 | -513.77 | 2.29 | 3542.36 |
| 44 | 82 | 6431.08 | 6.38 | 21.38 | 513.77 | -2.29 | -3542.36 |
| 44 | 83 | -6401.94 | 196.11 | -21.45 | -582.71 | 161.27 | 1372.31 |
| 45 | 83 | 6401.96 | -196.11 | 21.45 | 582.71 | -161.27 | -1372.31 |
| 45 | 84 | -6397.49 | 212.50 | -21.45 | -647.01 | 54.16 | 374.24 |
| 46 | 84 | 6397.51 | -212.50 | 21.45 | 647.01 | -54.16 | -374.24 |
| 46 | 85 | -6417.01 | 119.40 | -21.45 | -651.69 | -52.94 | -448.78 |
| 47 | 85 | 6417.00 | -119.40 | 21.45 | 651.69 | 52.94 | 448.77 |
| 47 | 86 | -6583.44 | 463.79 | -9.86 | -768.57 | 335.82 | 18.32 |
| 48 | 86 | 6583.43 | -463.79 | 9.86 | 768.57 | -335.82 | -18.32 |
| 48 | 87 | -9564.32 | 1287.01 | -9.67 | -926.43 | -28.86 | -6456.88 |
| 49 | 87 | 9488.21 | 902.57 | 8.83 | 924.30 | 29.05 | 6872.27 |
| 49 | 97 | -6233.00 | -753.74 | -8.83 | -740.74 | -79.35 | -1933.86 |
| 50 | 97 | 6233.00 | 753.74 | 8.83 | 740.74 | 79.35 | 1933.86 |
| 50 | 98 | -6276.23 | -255.99 | -20.07 | -645.46 | -18.17 | -189.28 |
| 51 | 98 | 6276.26 | 255.99 | 20.07 | 645.46 | 18.17 | 189.29 |
| 51 | 99 | -6276.45 | -144.65 | -20.07 | -640.78 | -119.05 | 542.76 |
| 52 | 99 | 6276.45 | 144.65 | 20.07 | 640.78 | 119.05 | -542.76 |
| 52 | 100 | -6336.73 | -162.39 | -20.07 | -576.88 | -219.92 | 1196.49 |
| 53 | 100 | 6336.72 | 162.39 | 20.07 | 576.88 | 219.92 | -1196.49 |
| 53 | 101 | -6299.91 | 4.12 | -23.38 | -513.05 | -81.22 | 3417.95 |
| 54 | 101 | 6299.90 | -4.12 | 23.38 | 513.05 | 81.22 | -3417.95 |
| 54 | 102 | -6265.94 | 206.22 | -24.38 | -580.78 | 13.68 | 1210.27 |
| 55 | 102 | 6265.96 | -206.22 | 24.38 | 580.78 | -13.68 | -1210.27 |
| 55 | 103 | -6259.27 | 222.60 | -24.38 | -645.09 | -106.58 | 169.98 |
| 56 | 103 | 6259.26 | -222.60 | 24.38 | 645.09 | 106.58 | -169.98 |
| 56 | 104 | -6360.40 | 143.82 | -19.39 | -650.62 | -59.32 | 721.47 |
| 57 | 104 | 6360.40 | -143.82 | 19.39 | 650.62 | 59.32 | -721.48 |
| 57 | 105 | -6360.18 | 477.98 | -19.39 | -795.07 | -153.20 | -369.04 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 58 | 105 | 6360.17 | -477.98 | 19.39 | 795.07 | 153.20 | 369.04 |
| 58 | 106 | -9525.40 | 1224.09 | -19.39 | -939.52 | -247.09 | -5396.83 |
| 59 | 106 | 13834.74 | 909.86 | 9.29 | 903.27 | 119.20 | 6735.25 |
| 59 | 115 | -9626.83 | -783.45 | -9.29 | -719.71 | -171.60 | -1335.75 |
| 60 | 115 | 9626.84 | 783.45 | 9.29 | 719.71 | 171.60 | 1335.75 |
| 60 | 116 | -9701.51 | -225.45 | -20.79 | -590.26 | -122.68 | 384.21 |
| 61 | 116 | 9701.51 | 225.45 | 20.79 | 590.26 | 122.68 | -384.21 |
| 61 | 117 | -9689.98 | -100.20 | 8.24 | -595.48 | -387.25 | 986.53 |
| 62 | 117 | 9689.98 | 100.20 | -8.24 | 595.48 | 387.25 | -986.53 |
| 62 | 118 | -9774.79 | -181.25 | 2.91 | -559.40 | -370.62 | 1569.00 |
| 63 | 118 | 9774.79 | 181.25 | -2.91 | 559.40 | 370.62 | -1569.00 |
| 63 | 119 | -9733.53 | -64.29 | -3.11 | -534.25 | -146.10 | 3671.20 |
| 64 | 119 | 9733.53 | 64.30 | 3.11 | 534.25 | 146.10 | -3671.20 |
| 64 | 120 | -9695.96 | 93.20 | -4.21 | -598.41 | 40.51 | 2329.29 |
| 65 | 120 | 9695.96 | -93.21 | 4.21 | 598.41 | -40.51 | -2329.29 |
| 65 | 121 | -9681.85 | 56.40 | -9.55 | -664.90 | 1.10 | 1930.39 |
| 66 | 121 | 9681.85 | -56.40 | 9.55 | 664.90 | -1.09 | -1930.39 |
| 66 | 122 | -9793.00 | -93.03 | -2.07 | -778.57 | 214.84 | 2768.70 |
| 67 | 122 | 9793.00 | 93.03 | 2.07 | 778.57 | -214.85 | -2768.70 |
| 67 | 123 | -9794.89 | 268.55 | -7.41 | -909.17 | 193.52 | 2765.14 |
| 68 | 123 | 9794.89 | -268.55 | 7.40 | 909.17 | -193.53 | -2765.14 |
| 68 | 124 | -13852.46 | 1155.12 | -12.74 | -1039.78 | 148.20 | -2026.11 |
| 69 | 124 | 9481.84 | 694.14 | -3.76 | 734.51 | 29.43 | 4640.95 |
| 69 | 133 | -6255.30 | -299.05 | 19.31 | -599.26 | 60.94 | -740.94 |
| 70 | 133 | 6255.30 | 299.06 | -19.31 | 599.26 | -60.94 | 740.94 |
| 70 | 134 | -6278.89 | -13.75 | 13.74 | -493.26 | 130.72 | -598.73 |
| 71 | 134 | 6315.02 | 13.75 | -13.74 | 493.26 | -130.72 | 609.67 |
| 71 | 135 | -6383.06 | -113.14 | 3.82 | -394.84 | 271.84 | -1301.51 |
| 72 | 135 | 6383.07 | 113.14 | -3.82 | 394.84 | -271.84 | 1301.51 |
| 72 | 136 | -6346.08 | -62.28 | -6.00 | -476.67 | 346.01 | 142.40 |
| 73 | 136 | 6346.08 | 62.28 | 6.01 | 476.67 | -346.01 | -142.40 |
| 73 | 137 | -6281.51 | 52.58 | -11.42 | -607.51 | 296.22 | 223.65 |
| 74 | 137 | 6281.51 | -52.58 | 11.42 | 607.51 | -296.22 | -223.65 |
| 74 | 138 | -6210.66 | 110.61 | -22.55 | -744.38 | 273.20 | 14.18 |
| 75 | 138 | 5394.72 | -110.61 | 22.55 | 744.38 | -273.20 | -42.62 |
| 75 | 139 | -5333.38 | 205.22 | -28.00 | -889.19 | 148.89 | -544.38 |
| 76 | 139 | 5333.38 | -205.21 | 28.00 | 889.19 | -148.89 | 544.38 |
| 76 | 140 | -5283.02 | 337.61 | -33.47 | -1020.18 | 0.00 | -1755.54 |
| 77 | 16 | 1624.12 | 0.00 | 0.73 | 0.00 | -7.02 | 0.00 |
| 77 | 17 | -1566.29 | 0.00 | -0.73 | 0.00 | 3.17 | 0.00 |
| 78 | 17 | 1566.29 | 0.00 | 0.73 | 0.00 | -3.17 | 0.00 |
| 78 | 18 | -1505.29 | 0.00 | -0.73 | 0.00 | -0.46 | 0.00 |
| 79 | 33 | 1818.76 | 0.00 | -0.30 | 0.00 | 3.23 | 0.00 |
| 79 | 34 | -1736.05 | 0.00 | 0.30 | 0.00 | -0.94 | 0.00 |
| 80 | 34 | 1736.05 | 0.00 | -0.30 | 0.00 | 0.94 | 0.00 |
| 80 | 35 | -1675.05 | 0.00 | 0.30 | 0.00 | 0.57 | 0.00 |
| 81 | 50 | 2020.43 | 0.00 | -0.01 | 0.00 | 0.48 | 0.00 |
| 81 | 51 | -1938.21 | 0.00 | 0.01 | 0.00 | -0.41 | 0.00 |
| 82 | 51 | 1938.21 | 0.00 | -0.01 | 0.00 | 0.41 | 0.00 |
| 82 | 52 | -1818.87 | 0.00 | 0.01 | 0.00 | -0.31 | 0.00 |
| 83 | 52 | 1818.87 | 0.00 | -0.01 | 0.00 | 0.31 | 0.00 |
| 83 | 53 | -1709.75 | 0.00 | 0.01 | 0.00 | -0.20 | 0.00 |
| 84 | 53 | 1709.75 | 0.00 | -0.01 | 0.00 | 0.20 | 0.00 |
| 84 | 54 | -1648.75 | 0.00 | 0.01 | 0.00 | -0.15 | 0.00 |
| 85 | 69 | 1996.85 | 0.00 | -0.02 | 0.00 | 0.59 | 0.00 |
| 85 | 70 | -1952.30 | 0.00 | 0.02 | 0.00 | -0.53 | 0.00 |
| 86 | 70 | 1952.30 | 0.00 | -0.02 | 0.00 | 0.53 | 0.00 |
| 86 | 71 | -1832.96 | 0.00 | 0.02 | 0.00 | -0.34 | 0.00 |
| 87 | 71 | 1832.96 | 0.00 | -0.02 | 0.00 | 0.34 | 0.00 |
| 87 | 72 | -1723.84 | 0.00 | 0.02 | 0.00 | -0.15 | 0.00 |
| 88 | 72 | 1723.84 | 0.00 | -0.02 | 0.00 | 0.15 | 0.00 |
| 88 | 73 | -1662.84 | 0.00 | 0.02 | 0.00 | -0.06 | 0.00 |
| 89 | 88 | 1943.41 | 0.00 | -0.03 | 0.00 | 0.71 | 0.00 |
| 89 | 89 | -1930.92 | 0.00 | 0.03 | 0.00 | -0.68 | 0.00 |
| 90 | 89 | 1930.92 | 0.00 | -0.03 | 0.00 | 0.68 | 0.00 |
| 90 | 90 | -1811.58 | 0.00 | 0.03 | 0.00 | -0.42 | 0.00 |
| 91 | 90 | 1811.58 | 0.00 | -0.03 | 0.00 | 0.42 | 0.00 |
| 91 | 91 | -1702.46 | 0.00 | 0.03 | 0.00 | -0.16 | 0.00 |
| 92 | 91 | 1702.46 | 0.00 | -0.03 | 0.00 | 0.16 | 0.00 |
| 92 | 92 | -1641.46 | 0.00 | 0.03 | 0.00 | -0.03 | 0.00 |
| 93 | 107 | 1896.42 | 0.00 | -0.17 | 0.00 | 2.00 | 0.00 |
| 93 | 108 | -1884.95 | 0.00 | 0.17 | 0.00 | -1.82 | 0.00 |
| 94 | 108 | 1884.95 | 0.00 | -0.17 | 0.00 | 1.82 | 0.00 |
| 94 | 109 | -1775.83 | 0.00 | 0.17 | 0.00 | -0.09 | 0.00 |
| 95 | 109 | 1775.83 | 0.00 | -0.17 | 0.00 | 0.09 | 0.00 |
| 95 | 110 | -1714.83 | 0.00 | 0.17 | 0.00 | 0.78 | 0.00 |
| 96 | 125 | 1612.68 | 0.00 | 0.54 | 0.00 | -7.33 | 0.00 |
| 96 | 126 | -1601.21 | 0.00 | -0.54 | 0.00 | 6.79 | 0.00 |
| 97 | 126 | 1601.21 | 0.00 | 0.54 | 0.00 | -6.79 | 0.00 |
| 97 | 127 | -1492.09 | 0.00 | -0.54 | 0.00 | 1.42 | 0.00 |
| 98 | 127 | 1492.09 | 0.00 | 0.54 | 0.00 | -1.42 | 0.00 |
| 98 | 128 | -1431.09 | 0.00 | -0.54 | 0.00 | -1.26 | 0.00 |
| 99 | 2 | 337.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -337.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 337.37 | 0.00 | -0.41 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -337.37 | 0.00 | 0.41 | 0.00 | 0.70 | 0.00 |
| 101 | 19 | 725.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -725.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 725.89 | 0.00 | 0.73 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -725.89 | 0.00 | -0.73 | 0.00 | -1.24 | 0.00 |
| 103 | 36 | 810.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -810.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 810.49 | 0.00 | -0.30 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -810.49 | 0.00 | 0.30 | 0.00 | 0.52 | 0.00 |
| 105 | 55 | 797.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -797.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 797.54 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -797.54 | 0.00 | 0.01 | 0.00 | 0.02 | 0.00 |
| 107 | 74 | 804.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -804.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 804.55 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -804.55 | 0.00 | 0.02 | 0.00 | 0.03 | 0.00 |
| 109 | 93 | 793.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -793.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 793.86 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -793.86 | 0.00 | 0.03 | 0.00 | 0.04 | 0.00 |
| 111 | 111 | 830.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -830.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 830.32 | 0.00 | -0.17 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -830.32 | 0.00 | 0.17 | 0.00 | 0.30 | 0.00 |
| 113 | 129 | 688.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -688.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 689.00 | 0.00 | 0.54 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -689.00 | 0.00 | -0.54 | 0.00 | -0.92 | 0.00 |
| 115 | 141 | 357.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -357.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 357.09 | 0.00 | -0.32 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -357.09 | 0.00 | 0.32 | 0.00 | 0.55 | 0.00 |
| 117 | 6 | 674.75 | 0.00 | -0.41 | 0.00 | 0.34 | 0.00 |
| 117 | 7 | -674.75 | 0.00 | 0.41 | 0.00 | 0.07 | 0.00 |
| 118 | 145 | 714.32 | 0.01 | -0.32 | 0.00 | -0.23 | 0.01 |
| 118 | 146 | -714.32 | -0.01 | 0.32 | 0.00 | 0.55 | 0.00 |
| 119 | 3 | 0.00 | 339.05 | -16.88 | 28.73 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -339.05 | 16.88 | -28.73 | 71.74 | 1440.96 |
| 120 | 1 | 0.41 | -335.70 | -16.89 | 28.73 | 71.72 | -1426.04 |
| 120 | 5 | -0.41 | 335.70 | 16.89 | -28.73 | -0.02 | -0.70 |
| 121 | 20 | 0.00 | 725.40 | -36.43 | 61.77 | 0.00 | -0.01 |
| 121 | 15 | 0.00 | -725.40 | 36.43 | -61.77 | 67.15 | 1341.98 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 122 | 15 | -0.72 | -726.13 | -36.35 | 61.77 | 67.06 | -1344.58 |
| 122 | 22 | 0.72 | 726.13 | 36.35 | -61.77 | -0.04 | 1.23 |
| 123 | 37 | 0.00 | 763.85 | -40.63 | 69.00 | -0.04 | 0.00 |
| 123 | 32 | 0.00 | -763.85 | 40.63 | -69.00 | 74.84 | 1413.10 |
| 124 | 32 | 0.30 | -810.36 | -40.55 | 69.00 | 74.83 | -1498.65 |
| 124 | 39 | -0.30 | 810.36 | 40.55 | -69.00 | -0.29 | -0.51 |
| 125 | 56 | 0.00 | 797.37 | -39.89 | 67.79 | -0.23 | 0.01 |
| 125 | 49 | 0.00 | -797.37 | 39.89 | -67.79 | 73.45 | 1475.16 |
| 126 | 49 | -16.88 | -1169.33 | -39.86 | 67.79 | 73.63 | -2192.14 |
| 126 | 58 | 16.88 | 1169.33 | 39.86 | -67.79 | -0.04 | 28.91 |
| 127 | 75 | 0.00 | 804.74 | -40.54 | 69.08 | -0.07 | -0.01 |
| 127 | 68 | 0.00 | -804.74 | 40.54 | -69.08 | 75.03 | 1488.77 |
| 128 | 68 | 0.02 | -804.36 | -40.36 | 69.08 | 75.16 | -1488.00 |
| 128 | 77 | -0.02 | 804.36 | 40.36 | -69.08 | 0.04 | -0.03 |
| 129 | 94 | 0.00 | 792.80 | -37.96 | 64.76 | -0.10 | 0.00 |
| 129 | 87 | 0.00 | -792.80 | 37.96 | -64.76 | 70.30 | 1466.69 |
| 130 | 87 | 0.02 | -794.89 | -38.00 | 64.76 | 70.27 | -1470.50 |
| 130 | 96 | -0.02 | 794.89 | 38.00 | -64.76 | -0.10 | -0.03 |
| 131 | 112 | 0.00 | 834.94 | -40.56 | 68.91 | -0.01 | 0.00 |
| 131 | 106 | 0.00 | -834.94 | 40.56 | -68.91 | 74.97 | 1544.66 |
| 132 | 106 | 0.15 | -826.17 | -40.55 | 68.91 | 74.83 | -1528.15 |
| 132 | 114 | -0.15 | 826.17 | 40.55 | -68.91 | 0.01 | -0.26 |
| 133 | 130 | 0.00 | 667.18 | -41.09 | 69.95 | 0.00 | 0.00 |
| 133 | 124 | 0.00 | -667.18 | 41.09 | -69.95 | 76.08 | 1234.28 |
| 134 | 124 | -0.48 | -710.08 | -41.09 | 69.95 | 76.06 | -1314.48 |
| 134 | 132 | 0.48 | 710.08 | 41.09 | -69.95 | 0.06 | 0.82 |
| 135 | 142 | 0.00 | 416.68 | -657.14 | 1125.16 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -416.68 | 657.14 | -1125.16 | 2792.86 | 1770.88 |
| 136 | 140 | 0.46 | -542.03 | -657.15 | 1125.17 | 2792.88 | -2302.82 |
| 136 | 144 | -0.46 | 542.03 | 657.15 | -1125.17 | 0.00 | -0.80 |
| 137 | 2 | 0.00 | -337.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 337.38 | 0.00 | 0.00 | 0.00 | -1433.88 |
| 138 | 7 | -0.41 | 337.37 | 0.00 | 0.00 | 0.00 | 1433.81 |
| 138 | 4 | 0.41 | -337.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -725.64 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 725.64 | 0.00 | 0.00 | 0.00 | -1342.44 |
| 140 | 18 | 0.73 | 725.89 | 0.00 | 0.00 | 0.00 | 1342.89 |
| 140 | 21 | -0.73 | -725.89 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -810.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 810.80 | 0.00 | 0.00 | 0.00 | -1499.97 |
| 142 | 35 | -0.30 | 810.49 | 0.00 | 0.00 | 0.00 | 1499.41 |
| 142 | 38 | 0.30 | -810.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -797.45 | 0.00 | 0.00 | 0.00 | 0.01 |
| 143 | 54 | 0.00 | 797.45 | 0.00 | 0.00 | 0.00 | -1475.28 |
| 144 | 54 | -0.01 | 797.53 | 0.00 | 0.00 | 0.00 | 1475.45 |
| 144 | 57 | 0.01 | -797.53 | 0.00 | 0.00 | 0.00 | 0.01 |
| 145 | 74 | 0.00 | -804.52 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 804.52 | 0.00 | 0.00 | 0.00 | -1488.37 |
| 146 | 73 | -0.02 | 804.55 | 0.00 | 0.00 | 0.00 | 1488.43 |
| 146 | 76 | 0.02 | -804.55 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | -793.84 | 0.00 | 0.00 | 0.00 | 0.01 |
| 147 | 92 | 0.00 | 793.84 | 0.00 | 0.00 | 0.00 | -1468.61 |
| 148 | 92 | -0.03 | 793.86 | 0.00 | 0.00 | 0.00 | 1468.63 |
| 148 | 95 | 0.03 | -793.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | -830.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 830.75 | 0.00 | 0.00 | 0.00 | -1536.88 |
| 150 | 110 | -0.17 | 830.32 | 0.00 | 0.00 | 0.00 | 1536.10 |
| 150 | 113 | 0.17 | -830.32 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -688.32 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 688.32 | 0.00 | 0.00 | 0.00 | -1273.40 |
| 152 | 128 | 0.54 | 689.00 | 0.00 | 0.00 | 0.00 | 1274.66 |
| 152 | 131 | -0.54 | -689.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -357.22 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 357.22 | 0.00 | 0.00 | 0.01 | -1518.20 |
| 154 | 146 | -0.32 | 357.09 | 0.00 | 0.00 | -0.01 | 1517.64 |
| 154 | 143 | 0.32 | -357.09 | 0.00 | 0.00 | 0.00 | 0.00 |

## DESPLAZAMIENTOS DE NUDOS

| NUDO | DESP. X | DESP. Y | DESP. Z | GIRO X | GIRO Y | GIRO Z |
|---|---|---|---|---|---|---|
| 1 | 0.108567 | -0.000890 | -0.000058 | 0.000077 | -0.000080 | -0.000439 |
| 2 | 0.000011 | -0.003495 | 0.000012 | -0.000032 | -0.000004 | 0.000000 |
| 3 | 0.115269 | -0.000438 | -0.000092 | 0.000154 | -0.000055 | -0.000687 |
| 4 | -0.000011 | -0.000487 | 0.000011 | 0.000153 | -0.000004 | 0.000000 |
| 5 | 0.266206 | -0.004162 | -0.000024 | -0.000027 | -0.000109 | -0.000261 |
| 7 | 0.000000 | -0.000021 | 0.000012 | 0.000024 | 0.000000 | 0.000000 |
| 8 | 0.267774 | -0.003878 | 0.000329 | 0.000242 | -0.000080 | -0.000575 |
| 9 | 0.264273 | -0.006343 | 0.000693 | 0.000377 | -0.000079 | -0.000392 |
| 10 | 0.260938 | -0.006530 | 0.001390 | 0.000482 | -0.000100 | -0.000086 |
| 11 | 0.257385 | -0.006271 | 0.001836 | 0.000560 | -0.000098 | 0.000122 |
| 12 | 0.253828 | -0.005278 | 0.002269 | 0.000608 | -0.000096 | 0.000231 |
| 13 | 0.250274 | -0.004045 | 0.002689 | 0.000628 | -0.000094 | 0.000246 |
| 14 | 0.249273 | -0.002872 | 0.003297 | 0.000632 | -0.000108 | 0.000203 |
| 15 | 0.245514 | -0.001745 | 0.003776 | 0.000611 | -0.000112 | -0.000093 |
| 17 | 0.000000 | -0.000571 | 0.000849 | 0.000302 | 0.000000 | 0.000000 |
| 18 | 0.000000 | -0.001037 | 0.002802 | 0.000466 | 0.000000 | 0.000000 |
| 19 | 0.000000 | -0.003583 | 0.002800 | 0.000444 | 0.000000 | 0.000000 |
| 20 | 0.245414 | -0.000823 | 0.003766 | 0.000639 | -0.000112 | -0.000113 |
| 21 | 0.000000 | -0.002109 | 0.002803 | 0.000522 | 0.000000 | 0.000000 |
| 22 | 0.098146 | -0.006168 | 0.003774 | 0.000563 | -0.000112 | -0.000142 |
| 23 | 0.241669 | -0.003957 | 0.004287 | 0.000785 | -0.000117 | -0.000473 |
| 24 | 0.237963 | -0.006558 | 0.004819 | 0.000934 | -0.000123 | -0.000468 |
| 25 | 0.234222 | -0.008375 | 0.005376 | 0.001059 | -0.000129 | -0.000310 |
| 26 | 0.230507 | -0.009461 | 0.005961 | 0.001158 | -0.000137 | -0.000149 |
| 27 | 0.226787 | -0.009764 | 0.006583 | 0.001231 | -0.000146 | 0.000046 |
| 28 | 0.223084 | -0.009032 | 0.007247 | 0.001280 | -0.000158 | 0.000236 |
| 29 | 0.086323 | -0.007321 | 0.007960 | 0.001304 | -0.000172 | 0.000301 |
| 30 | 0.084764 | -0.005836 | 0.008744 | 0.001303 | -0.000189 | 0.000318 |
| 31 | 0.083251 | -0.004266 | 0.009607 | 0.001276 | -0.000208 | 0.000325 |
| 32 | 0.081474 | -0.002406 | 0.010562 | 0.001225 | -0.000231 | -0.000059 |
| 34 | 0.000000 | -0.000985 | 0.003595 | 0.000826 | 0.000000 | 0.000000 |
| 35 | 0.000000 | -0.001548 | 0.008476 | 0.001056 | 0.000000 | 0.000000 |
| 36 | 0.000000 | -0.002869 | 0.008475 | 0.001033 | 0.000000 | 0.000000 |
| 37 | 0.082184 | -0.000133 | 0.010562 | 0.001254 | -0.000231 | -0.000046 |
| 38 | 0.000000 | -0.003597 | 0.008484 | 0.001118 | 0.000000 | 0.000000 |
| 39 | 0.081354 | -0.007756 | 0.010564 | 0.001180 | -0.000231 | -0.000059 |
| 40 | 0.079705 | -0.004861 | 0.011711 | 0.001369 | -0.000253 | -0.000545 |
| 41 | 0.078202 | -0.007764 | 0.012942 | 0.001489 | -0.000269 | -0.000519 |
| 42 | 0.076695 | -0.009820 | 0.014230 | 0.001583 | -0.000280 | -0.000374 |
| 43 | 0.077360 | -0.011187 | 0.015550 | 0.001652 | -0.000285 | -0.000218 |
| 44 | 0.075836 | -0.011831 | 0.016881 | 0.001695 | -0.000286 | -0.000024 |
| 45 | 0.074318 | -0.011407 | 0.018203 | 0.001713 | -0.000283 | 0.000179 |
| 46 | 0.072803 | -0.010130 | 0.019497 | 0.001705 | -0.000276 | 0.000312 |
| 47 | 0.071387 | -0.008516 | 0.020747 | 0.001672 | -0.000265 | 0.000358 |
| 48 | 0.070066 | -0.006790 | 0.021937 | 0.001613 | -0.000251 | 0.000367 |
| 49 | 0.068480 | -0.004730 | 0.023056 | 0.001528 | -0.000235 | 0.000001 |
| 51 | 0.000000 | -0.000795 | 0.000738 | 0.000222 | 0.000000 | 0.000000 |
| 52 | 0.000000 | -0.002036 | 0.005034 | 0.000630 | 0.000000 | 0.000000 |
| 53 | 0.000000 | -0.003325 | 0.014156 | 0.001189 | 0.000000 | 0.000000 |
| 54 | 0.000000 | -0.003880 | 0.020542 | 0.001364 | 0.000000 | 0.000000 |
| 55 | 0.000000 | -0.004388 | 0.020541 | 0.001341 | 0.000000 | 0.000000 |
| 56 | 0.068918 | -0.001914 | 0.023056 | 0.001557 | -0.000235 | 0.000001 |
| 57 | 0.000000 | -0.006517 | 0.020543 | 0.001425 | 0.000000 | 0.000000 |
| 58 | 0.068354 | -0.010391 | 0.023064 | 0.001473 | -0.000235 | 0.000004 |
| 59 | 0.066870 | -0.006862 | 0.024093 | 0.001675 | -0.000216 | -0.000466 |
| 60 | 0.065557 | -0.009374 | 0.025037 | 0.001795 | -0.000196 | -0.000429 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 61 | 0.064236 | -0.011004 | 0.025881 | 0.001890 | -0.000173 | -0.000280 |
| 62 | 0.062908 | -0.011947 | 0.026619 | 0.001959 | -0.000150 | -0.000130 |
| 63 | 0.061575 | -0.012205 | 0.027248 | 0.002003 | -0.000127 | 0.000053 |
| 64 | 0.060249 | -0.011463 | 0.027765 | 0.002020 | -0.000103 | 0.000237 |
| 65 | 0.058925 | -0.009972 | 0.028170 | 0.002012 | -0.000079 | 0.000344 |
| 66 | 0.057601 | -0.008261 | 0.028467 | 0.001978 | -0.000056 | 0.000372 |
| 67 | 0.056274 | -0.006469 | 0.028657 | 0.001918 | -0.000034 | 0.000376 |
| 68 | 0.054683 | -0.004384 | 0.028749 | 0.001832 | -0.000013 | -0.000003 |
| 70 | 0.000000 | -0.000420 | 0.000375 | 0.000194 | 0.000000 | 0.000000 |
| 71 | 0.000000 | -0.001670 | 0.005683 | 0.000822 | 0.000000 | 0.000000 |
| 72 | 0.000000 | -0.002970 | 0.017633 | 0.001512 | 0.000000 | 0.000000 |
| 73 | 0.000000 | -0.003529 | 0.025682 | 0.001685 | 0.000000 | 0.000000 |
| 74 | 0.000000 | -0.003481 | 0.025681 | 0.001660 | 0.000000 | 0.000000 |
| 75 | 0.054696 | -0.001000 | 0.028748 | 0.001863 | -0.000013 | -0.000003 |
| 76 | 0.000000 | -0.006754 | 0.025685 | 0.001745 | 0.000000 | 0.000000 |
| 77 | 0.054969 | -0.010639 | 0.028755 | 0.001782 | -0.000013 | -0.000019 |
| 78 | 0.053101 | -0.006572 | 0.028775 | 0.001938 | 0.000007 | -0.000482 |
| 79 | 0.051784 | -0.009184 | 0.028706 | 0.002018 | 0.000027 | -0.000453 |
| 80 | 0.050461 | -0.010936 | 0.028538 | 0.002072 | 0.000049 | -0.000306 |
| 81 | 0.049129 | -0.011998 | 0.028270 | 0.002100 | 0.000070 | -0.000153 |
| 82 | 0.047791 | -0.012351 | 0.027903 | 0.002103 | 0.000091 | 0.000037 |
| 83 | 0.046459 | -0.011664 | 0.027442 | 0.002080 | 0.000110 | 0.000232 |
| 84 | 0.041540 | -0.010122 | 0.026891 | 0.002031 | 0.000128 | 0.000352 |
| 85 | 0.040255 | -0.008338 | 0.026256 | 0.001956 | 0.000145 | 0.000398 |
| 86 | 0.038969 | -0.006389 | 0.025547 | 0.001856 | 0.000159 | 0.000422 |
| 87 | 0.037420 | -0.004045 | 0.024774 | 0.001730 | 0.000171 | 0.000068 |
| 89 | 0.000000 | -0.000122 | 0.000037 | 0.000058 | 0.000000 | 0.000000 |
| 90 | 0.000000 | -0.001360 | 0.003909 | 0.000677 | 0.000000 | 0.000000 |
| 91 | 0.000000 | -0.002646 | 0.014456 | 0.001384 | 0.000000 | 0.000000 |
| 92 | 0.000000 | -0.003199 | 0.021888 | 0.001569 | 0.000000 | 0.000000 |
| 93 | 0.000000 | -0.003392 | 0.021886 | 0.001546 | 0.000000 | 0.000000 |
| 94 | 0.096831 | -0.000854 | 0.024773 | 0.001760 | 0.000171 | 0.000057 |
| 95 | 0.000000 | -0.006212 | 0.021890 | 0.001630 | 0.000000 | 0.000000 |
| 96 | 0.041472 | -0.010146 | 0.024779 | 0.001679 | 0.000172 | 0.000073 |
| 97 | 0.035882 | -0.005840 | 0.023973 | 0.001819 | 0.000182 | -0.000391 |
| 98 | 0.034611 | -0.007995 | 0.023123 | 0.001883 | 0.000191 | -0.000353 |
| 99 | 0.033336 | -0.009278 | 0.022228 | 0.001921 | 0.000200 | -0.000209 |
| 100 | 0.032054 | -0.009910 | 0.021295 | 0.001933 | 0.000207 | -0.000070 |
| 101 | 0.030771 | -0.009921 | 0.020330 | 0.001920 | 0.000212 | 0.000095 |
| 102 | 0.029493 | -0.009029 | 0.019343 | 0.001881 | 0.000215 | 0.000254 |
| 103 | 0.028220 | -0.007510 | 0.018346 | 0.001816 | 0.000215 | 0.000330 |
| 104 | 0.026945 | -0.005927 | 0.017351 | 0.001727 | 0.000212 | 0.000321 |
| 105 | 0.025668 | -0.004451 | 0.016373 | 0.001612 | 0.000206 | 0.000279 |
| 106 | 0.024126 | -0.002904 | 0.015430 | 0.001471 | 0.000196 | -0.000154 |
| 108 | 0.000000 | -0.000130 | 0.000076 | 0.000103 | 0.000000 | 0.000000 |
| 109 | 0.000000 | -0.001459 | 0.006762 | 0.001104 | 0.000000 | 0.000000 |
| 110 | 0.000000 | -0.002030 | 0.012941 | 0.001313 | 0.000000 | 0.000000 |
| 111 | 0.009279 | -0.002813 | 0.012939 | 0.001288 | -0.000002 | -0.000833 |
| 112 | 0.029204 | -0.000196 | 0.015430 | 0.001502 | 0.000194 | -0.000182 |
| 113 | -0.009279 | -0.004571 | 0.012948 | 0.001375 | -0.000002 | 0.000833 |
| 114 | 0.060056 | -0.008635 | 0.015432 | 0.001425 | 0.000194 | -0.000116 |
| 115 | 0.022594 | -0.005919 | 0.014604 | 0.001521 | 0.000185 | -0.000677 |
| 116 | 0.055093 | -0.009918 | 0.013815 | 0.001545 | 0.000178 | -0.000769 |
| 117 | 0.051954 | -0.011340 | 0.013059 | 0.001543 | 0.000173 | -0.000504 |
| 118 | 0.048501 | -0.013283 | 0.012305 | 0.001517 | 0.000171 | -0.000312 |
| 119 | 0.045047 | -0.014233 | 0.011554 | 0.001465 | 0.000171 | -0.000054 |
| 120 | 0.041598 | -0.013799 | 0.010795 | 0.001388 | 0.000172 | 0.000229 |
| 121 | 0.035829 | -0.011277 | 0.010022 | 0.001285 | 0.000175 | 0.000445 |
| 122 | 0.032457 | -0.008845 | 0.009230 | 0.001157 | 0.000179 | 0.000581 |
| 123 | 0.029082 | -0.005877 | 0.008416 | 0.001004 | 0.000184 | 0.000667 |
| 124 | 0.025507 | -0.002379 | 0.007579 | 0.000826 | 0.000188 | 0.000413 |
| 126 | 0.000000 | -0.000105 | 0.000026 | 0.000045 | 0.000000 | 0.000000 |
| 127 | 0.005202 | -0.001202 | 0.003106 | 0.000550 | 0.000000 | -0.000773 |
| 128 | 0.009417 | -0.001669 | 0.006240 | 0.000695 | 0.000000 | -0.000846 |
| 129 | -0.009419 | -0.003639 | 0.006227 | 0.000674 | 0.000002 | 0.000846 |
| 130 | 0.025092 | -0.001140 | 0.007569 | 0.000855 | 0.000190 | 0.000426 |
| 131 | 0.009419 | -0.003245 | 0.006240 | 0.000750 | 0.000002 | -0.000846 |
| 132 | 0.015799 | -0.006992 | 0.007571 | 0.000781 | 0.000191 | 0.000983 |
| 133 | 0.021954 | -0.002061 | 0.006726 | 0.000822 | 0.000193 | 0.000072 |
| 134 | 0.018607 | -0.001924 | 0.005845 | 0.000793 | 0.000199 | -0.000007 |
| 135 | 0.015248 | -0.002250 | 0.004935 | 0.000739 | 0.000205 | -0.000074 |
| 136 | 0.014033 | -0.000150 | 0.003688 | 0.000662 | 0.000191 | 0.000009 |
| 137 | 0.010574 | -0.000073 | 0.002804 | 0.000562 | 0.000197 | 0.000020 |
| 138 | 0.007533 | 0.000626 | 0.001890 | 0.000432 | 0.000202 | -0.000041 |
| 139 | 0.004191 | 0.000345 | 0.000954 | 0.000274 | 0.000205 | -0.000189 |
| 140 | 0.001536 | -0.000891 | -0.000018 | 0.000089 | 0.000207 | -0.000897 |
| 141 | -0.001188 | -0.003460 | 0.000014 | -0.000022 | 0.000313 | 0.000012 |
| 142 | 0.002546 | -0.000487 | -0.000098 | 0.000168 | 0.000204 | -0.001399 |
| 143 | 0.000717 | -0.000529 | 0.000013 | 0.000166 | 0.000205 | -0.000013 |
| 144 | 0.000253 | -0.004194 | 0.000009 | -0.000015 | 0.000313 | 0.000079 |
| 146 | 0.000000 | -0.000022 | 0.000014 | 0.000028 | 0.000207 | 0.000000 |

HIPOTESIS 208

MOME X MIN envolvente (ELS)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 6982.16 | 528.67 | -10.32 | -920.42 | 0.00 | 1152.57 |
| 1 | 8 | -7005.46 | -294.44 | 10.32 | 775.97 | 46.42 | 654.12 |
| 2 | 8 | 7005.55 | 294.44 | -10.32 | -775.97 | -46.42 | -654.12 |
| 2 | 9 | -7024.01 | -91.71 | 8.64 | 627.85 | 123.16 | 1328.87 |
| 3 | 9 | 7311.37 | 91.71 | -8.64 | -627.85 | -123.16 | -1515.24 |
| 3 | 10 | -7343.56 | 74.56 | 3.63 | 476.99 | 150.74 | 1519.09 |
| 4 | 10 | 7343.53 | -74.56 | -3.63 | -476.99 | -150.74 | -1519.09 |
| 4 | 11 | -7398.69 | 139.73 | -8.45 | 346.68 | 28.01 | 805.38 |
| 5 | 11 | 7398.76 | -139.73 | 8.45 | -346.68 | -28.01 | -805.38 |
| 5 | 12 | -7402.44 | 161.54 | -17.22 | 299.19 | -107.17 | 497.22 |
| 6 | 12 | 7402.40 | -161.54 | 17.22 | -299.19 | 107.17 | -497.22 |
| 6 | 13 | -7340.37 | 115.37 | -3.34 | 413.73 | -90.17 | -13.89 |
| 7 | 13 | 7317.69 | -115.37 | 3.34 | -413.73 | 90.17 | 10.85 |
| 7 | 14 | -7348.65 | 331.24 | -3.55 | 565.35 | -111.84 | -696.77 |
| 8 | 14 | 7348.61 | -331.24 | 3.55 | -565.35 | 111.85 | 696.77 |
| 8 | 15 | -10578.40 | 1004.38 | -3.77 | 716.96 | -135.57 | -4906.32 |
| 9 | 15 | 13888.45 | 806.05 | -5.83 | -1019.93 | 458.85 | 2980.61 |
| 9 | 23 | -11049.91 | -596.85 | 1.00 | 890.74 | -432.89 | 498.87 |
| 10 | 23 | 11049.91 | 596.85 | -1.00 | -890.74 | 432.89 | -498.87 |
| 10 | 24 | -11110.41 | -115.09 | -3.86 | 761.47 | -428.75 | 1979.29 |
| 11 | 24 | 11666.28 | 115.09 | 3.86 | -761.47 | 428.75 | -2383.43 |
| 11 | 25 | -11110.31 | 5.67 | 6.15 | 650.89 | -506.90 | 1175.39 |
| 12 | 25 | 11110.35 | -5.67 | -6.15 | -650.89 | 506.90 | -1175.39 |
| 12 | 26 | -11208.09 | -75.37 | 1.24 | 585.92 | -481.80 | 1281.91 |
| 13 | 26 | 11208.08 | 75.37 | -1.24 | -585.92 | 481.80 | -1281.92 |
| 13 | 27 | -11179.81 | 34.66 | -0.77 | 524.77 | -604.59 | 2840.21 |
| 14 | 27 | 11179.81 | -34.66 | 0.77 | -524.77 | 604.59 | -2840.21 |
| 14 | 28 | -11155.29 | 199.01 | -8.31 | 551.86 | -781.97 | 956.10 |
| 15 | 28 | 11155.29 | -199.01 | 8.31 | -551.86 | 781.97 | -956.10 |
| 15 | 29 | -11162.88 | 162.21 | -13.29 | 589.27 | -822.12 | 77.70 |
| 16 | 29 | 11162.85 | -162.21 | 13.29 | -589.27 | 822.12 | -77.70 |
| 16 | 30 | -10530.48 | 21.88 | 16.98 | 586.91 | -135.38 | -213.01 |
| 17 | 30 | 10530.50 | -21.88 | -16.98 | -586.91 | 135.38 | 213.01 |
| 17 | 31 | -10537.07 | 459.84 | 5.76 | 716.96 | -188.32 | -460.38 |
| 18 | 31 | 10537.08 | -459.84 | -5.76 | -716.96 | 188.32 | 460.38 |
| 18 | 32 | -14654.67 | 1383.14 | 5.76 | 900.51 | -151.83 | -6157.78 |
| 19 | 32 | 11167.57 | 704.33 | -26.34 | -953.40 | 540.61 | 4282.56 |
| 19 | 40 | -7923.08 | -594.50 | 26.34 | 808.95 | -408.85 | -139.48 |
| 20 | 40 | 7923.06 | 594.50 | -26.34 | -808.95 | 408.85 | 139.48 |
| 20 | 41 | -7972.61 | -190.48 | 26.34 | 664.50 | -277.10 | 1534.28 |
| 21 | 41 | 7972.64 | 190.48 | -26.34 | -664.50 | 277.10 | -1534.28 |
| 21 | 42 | -8029.60 | -89.01 | 24.85 | 638.61 | -159.82 | 552.40 |
| 22 | 42 | 8029.62 | 89.01 | -24.85 | -638.61 | 159.82 | -552.40 |
| 22 | 43 | -8092.70 | -129.43 | 24.85 | 574.70 | -37.40 | 1021.74 |
| 23 | 43 | 8092.65 | 129.43 | -24.85 | -574.70 | 37.40 | -1021.74 |
| 23 | 44 | -8058.68 | 13.25 | 22.27 | 504.39 | -113.74 | 3156.29 |
| 24 | 44 | 8058.71 | -13.25 | -22.27 | -504.39 | 113.74 | -3156.28 |
| 24 | 45 | -8027.61 | 193.77 | 17.91 | 560.95 | -235.38 | 964.85 |
| 25 | 45 | 8027.64 | -193.77 | -17.91 | -560.95 | 235.38 | -964.84 |
| 25 | 46 | -8023.85 | 187.47 | 17.91 | 625.26 | -144.22 | 46.59 |
| 26 | 46 | 8023.81 | -187.47 | -17.91 | -625.26 | 144.22 | -46.59 |
| 26 | 47 | -6997.27 | 71.70 | 17.91 | 629.94 | -53.06 | -762.81 |
| 27 | 47 | 6997.28 | -71.70 | -17.91 | -629.94 | 53.06 | 762.81 |
| 27 | 48 | -7004.35 | 454.04 | 8.33 | 729.95 | -87.63 | -1206.20 |
| 28 | 48 | 7004.32 | -454.04 | -8.33 | -729.95 | 87.63 | 1206.20 |
| 28 | 49 | -10176.84 | 1193.79 | 8.33 | 913.51 | -39.57 | -6108.93 |
| 29 | 49 | 10353.94 | 696.85 | -6.96 | -947.23 | -398.86 | 4148.00 |
| 29 | 59 | -7110.37 | -548.74 | 31.74 | 803.29 | 1082.79 | -50.11 |
| 30 | 59 | 7110.40 | 548.74 | -31.74 | -803.29 | -1082.80 | 50.11 |
| 30 | 60 | -7164.42 | -155.13 | 25.62 | 670.47 | 1222.44 | 1438.21 |
| 31 | 60 | 7164.37 | 155.13 | -25.62 | -670.47 | -1222.45 | -1438.21 |
| 31 | 61 | -7285.25 | -83.55 | 20.06 | 647.53 | 59.42 | 523.80 |
| 32 | 61 | 7285.28 | 83.55 | -20.06 | -647.53 | -59.41 | -523.80 |
| 32 | 62 | -7352.25 | -123.97 | 20.06 | 583.62 | 160.27 | 967.51 |
| 33 | 62 | 7352.29 | 123.97 | -20.06 | -583.62 | -160.28 | -967.51 |
| 33 | 63 | -7322.18 | 19.49 | 19.76 | 515.07 | 1.86 | 3081.41 |
| 34 | 63 | 7322.13 | -19.49 | -19.76 | -515.07 | -1.85 | -3081.41 |
| 34 | 64 | -7294.86 | 199.48 | 18.79 | 571.68 | -203.12 | 861.24 |
| 35 | 64 | 7294.88 | -199.48 | -18.79 | -571.68 | 203.12 | -861.24 |
| 35 | 65 | -7293.13 | 193.18 | 18.79 | 635.99 | -108.00 | -82.35 |
| 36 | 65 | 7293.10 | -193.18 | -18.79 | -635.99 | 108.00 | 82.35 |
| 36 | 66 | -7308.91 | 77.41 | 18.79 | 640.67 | -12.88 | -745.30 |
| 37 | 66 | 7308.94 | -77.41 | -18.79 | -640.67 | 12.88 | 745.30 |
| 37 | 67 | -7311.18 | 459.58 | 8.15 | 736.38 | -65.55 | -1206.60 |
| 38 | 67 | 7311.19 | -459.58 | -8.15 | -736.38 | 65.55 | 1206.60 |
| 38 | 68 | -10478.89 | 1199.33 | 8.15 | 919.93 | -18.32 | -6130.28 |
| 39 | 68 | 13570.01 | 719.65 | -9.16 | -917.72 | 18.27 | 5277.12 |
| 39 | 78 | -9216.30 | -555.51 | 2.86 | 734.25 | 485.59 | 513.05 |
| 40 | 78 | 9216.28 | 555.51 | -2.86 | -734.25 | -485.59 | -513.05 |
| 40 | 79 | -9427.54 | -75.45 | 20.24 | 641.77 | -26.49 | 336.31 |
| 41 | 79 | 9427.55 | 75.45 | -20.24 | -641.77 | 26.49 | -336.31 |
| 41 | 80 | -9450.94 | -0.24 | 20.24 | 637.09 | 75.18 | 305.41 |
| 42 | 80 | 9450.95 | 0.24 | -20.25 | -637.09 | -75.18 | -305.41 |
| 42 | 81 | -9545.85 | -99.34 | 20.25 | 573.18 | 176.86 | 484.47 |
| 43 | 81 | 9545.84 | 99.34 | -20.24 | -573.18 | -176.85 | -484.48 |
| 43 | 82 | -9514.66 | 15.60 | 21.41 | 513.85 | -5.77 | 2586.44 |
| 44 | 82 | 9514.67 | -15.60 | -21.41 | -513.85 | 5.76 | -2586.44 |
| 44 | 83 | -9487.17 | 177.57 | 21.49 | 582.59 | -163.25 | 430.21 |
| 45 | 83 | 9487.17 | -177.57 | -21.49 | -582.59 | 163.25 | -430.21 |
| 45 | 84 | -9491.71 | 122.74 | 21.49 | 646.89 | -55.98 | -319.26 |
| 46 | 84 | 9491.71 | -122.75 | -21.49 | -646.89 | 55.98 | 319.26 |
| 46 | 85 | -9527.37 | -67.54 | 21.49 | 651.57 | 51.27 | -524.12 |
| 47 | 85 | 9527.37 | 67.54 | -21.49 | -651.57 | -51.28 | 524.12 |
| 47 | 86 | -9350.45 | 288.93 | 9.94 | 768.16 | -335.30 | 841.97 |
| 48 | 86 | 9350.44 | -288.93 | -9.94 | -768.16 | 335.31 | -841.97 |
| 48 | 87 | -13635.50 | 1253.40 | 9.64 | 926.86 | 25.86 | -5498.59 |
| 49 | 87 | 13711.60 | 699.81 | -8.97 | -923.95 | -26.05 | 4646.11 |
| 49 | 97 | -9494.40 | -596.08 | 8.97 | 740.39 | 76.97 | -138.33 |
| 50 | 97 | 9494.40 | 596.08 | -8.97 | -740.39 | -76.98 | 138.33 |
| 50 | 98 | -9560.90 | -55.55 | 20.10 | 645.67 | 17.22 | 788.71 |
| 51 | 98 | 9560.90 | 55.55 | -20.10 | -645.67 | -17.22 | -788.71 |
| 51 | 99 | -9571.49 | 19.67 | 20.10 | 640.99 | 118.23 | 667.83 |
| 52 | 99 | 9571.50 | -19.67 | -20.10 | -640.99 | -118.24 | -667.83 |
| 52 | 100 | -9660.13 | -79.43 | 20.10 | 577.08 | 219.25 | 762.49 |
| 53 | 100 | 9660.12 | 79.43 | -20.10 | -577.08 | -219.25 | -762.49 |
| 53 | 101 | -9622.67 | 35.67 | 23.42 | 513.16 | 79.26 | 2777.48 |
| 54 | 101 | 9622.67 | -35.67 | -23.42 | -513.17 | -79.26 | -2777.49 |
| 54 | 102 | -9588.90 | 197.24 | 24.45 | 580.66 | -13.52 | 541.78 |
| 55 | 102 | 9588.91 | -197.24 | -24.45 | -580.66 | 13.52 | -541.78 |
| 55 | 103 | -9590.55 | 142.41 | 24.45 | 644.97 | 107.07 | -291.96 |
| 56 | 103 | 9590.55 | -142.41 | -24.45 | -644.97 | -107.07 | 291.96 |
| 56 | 104 | -9546.06 | -40.26 | 19.57 | 650.12 | 64.15 | 861.53 |
| 57 | 104 | 9546.06 | 40.26 | -19.57 | -650.12 | -64.15 | -861.53 |
| 57 | 105 | -9552.24 | 309.03 | 19.57 | 794.57 | 158.84 | 646.02 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 58 | 105 | 9552.24 | -309.03 | -19.57 | -794.57 | -158.84 | -646.02 |
| 58 | 106 | -13669.40 | 1193.34 | 19.57 | 939.02 | 253.53 | -4301.81 |
| 59 | 106 | 9360.06 | 797.45 | -9.75 | -901.04 | -117.57 | 5807.39 |
| 59 | 115 | -6112.01 | -671.30 | 9.75 | 717.49 | 172.04 | -1292.88 |
| 60 | 115 | 6112.00 | 671.30 | -9.75 | -717.49 | -172.04 | 1292.89 |
| 60 | 116 | -6161.54 | -201.45 | 21.21 | 588.15 | 129.50 | 133.19 |
| 61 | 116 | 6161.53 | 201.45 | -21.21 | -588.15 | -129.50 | -133.19 |
| 61 | 117 | -6229.12 | -86.27 | -7.83 | 593.40 | 396.06 | 689.59 |
| 62 | 117 | 6229.12 | 86.27 | 7.83 | -593.40 | -396.06 | -689.58 |
| 62 | 118 | -6288.06 | -131.32 | -2.49 | 557.32 | 381.30 | 1134.90 |
| 63 | 118 | 6288.05 | 131.32 | 2.49 | -557.32 | -381.30 | -1134.90 |
| 63 | 119 | -6249.91 | -8.32 | 3.53 | 532.18 | 156.26 | 2951.37 |
| 64 | 119 | 6249.92 | 8.32 | -3.53 | -532.18 | -156.26 | -2951.37 |
| 64 | 120 | -6214.61 | 144.36 | 4.74 | 595.81 | -24.00 | 1349.37 |
| 65 | 120 | 6214.60 | -144.36 | -4.73 | -595.81 | 24.00 | -1349.38 |
| 65 | 121 | -6197.37 | 133.40 | 10.07 | 662.30 | 17.77 | 658.93 |
| 66 | 121 | 6197.37 | -133.40 | -10.07 | -662.30 | -17.77 | -658.93 |
| 66 | 122 | -6184.20 | 42.45 | 2.51 | 776.41 | -198.70 | 1034.43 |
| 67 | 122 | 6184.19 | -42.45 | -2.51 | -776.41 | 198.70 | -1034.43 |
| 67 | 123 | -6177.68 | 343.53 | 7.85 | 907.01 | -175.39 | 481.46 |
| 68 | 123 | 6177.68 | -343.53 | -7.85 | -907.01 | 175.39 | -481.46 |
| 68 | 124 | -9294.04 | 1048.85 | 13.18 | 1037.62 | -128.08 | -3860.01 |
| 69 | 124 | 13664.66 | 614.32 | 4.51 | -737.18 | -56.52 | 3320.42 |
| 69 | 133 | -9474.35 | -153.24 | -20.04 | 601.84 | -37.93 | 494.63 |
| 70 | 133 | 9474.34 | 153.24 | 20.04 | -601.84 | 37.93 | -494.63 |
| 70 | 134 | -9504.98 | 184.48 | -14.48 | 495.87 | -110.77 | -301.21 |
| 71 | 134 | 9551.91 | -184.48 | 14.48 | -495.87 | 110.77 | 315.42 |
| 71 | 135 | -9640.27 | 2.56 | -4.38 | 396.85 | -259.27 | -1690.73 |
| 72 | 135 | 9640.28 | -2.56 | 4.38 | -396.85 | 259.27 | 1690.73 |
| 72 | 136 | -9880.24 | 70.30 | 5.32 | 479.00 | -333.73 | -958.10 |
| 73 | 136 | 9880.24 | -70.30 | -5.32 | -479.00 | 333.73 | 958.10 |
| 73 | 137 | -9800.88 | 190.04 | 10.74 | 609.83 | -287.01 | -1474.67 |
| 74 | 137 | 9800.89 | -190.04 | -10.74 | -609.83 | 287.01 | 1474.67 |
| 74 | 138 | -9416.37 | 217.87 | 21.92 | 746.44 | -267.58 | -1903.12 |
| 75 | 138 | 8356.71 | -217.87 | -21.92 | -746.44 | 267.58 | 1866.18 |
| 75 | 139 | -8277.05 | 309.74 | 27.38 | 891.26 | -146.08 | -2891.51 |
| 76 | 139 | 8277.05 | -309.74 | -27.38 | -891.26 | 146.08 | 2891.51 |
| 76 | 140 | -8211.64 | 452.25 | 32.85 | 1022.25 | 0.00 | -4592.74 |
| 77 | 16 | 1624.12 | 0.00 | 0.73 | 0.00 | -7.02 | 0.00 |
| 77 | 17 | -1566.29 | 0.00 | -0.73 | 0.00 | 3.17 | 0.00 |
| 78 | 17 | 1566.29 | 0.00 | 0.73 | 0.00 | -3.17 | 0.00 |
| 78 | 18 | -1505.29 | 0.00 | -0.73 | 0.00 | -0.46 | 0.00 |
| 79 | 33 | 1818.76 | 0.00 | -0.30 | 0.00 | 3.23 | 0.00 |
| 79 | 34 | -1736.05 | 0.00 | 0.30 | 0.00 | -0.94 | 0.00 |
| 80 | 34 | 1736.05 | 0.00 | -0.30 | 0.00 | 0.94 | 0.00 |
| 80 | 35 | -1675.05 | 0.00 | 0.30 | 0.00 | 0.57 | 0.00 |
| 81 | 50 | 2020.43 | 0.00 | -0.01 | 0.00 | 0.48 | 0.00 |
| 81 | 51 | -1938.21 | 0.00 | 0.01 | 0.00 | -0.41 | 0.00 |
| 82 | 51 | 1938.21 | 0.00 | -0.01 | 0.00 | 0.41 | 0.00 |
| 82 | 52 | -1818.87 | 0.00 | 0.01 | 0.00 | -0.31 | 0.00 |
| 83 | 52 | 1818.87 | 0.00 | -0.01 | 0.00 | 0.31 | 0.00 |
| 83 | 53 | -1709.75 | 0.00 | 0.01 | 0.00 | -0.20 | 0.00 |
| 84 | 53 | 1709.75 | 0.00 | -0.01 | 0.00 | 0.20 | 0.00 |
| 84 | 54 | -1648.75 | 0.00 | 0.01 | 0.00 | -0.15 | 0.00 |
| 85 | 69 | 1996.85 | 0.00 | -0.02 | 0.00 | 0.59 | 0.00 |
| 85 | 70 | -1952.30 | 0.00 | 0.02 | 0.00 | -0.53 | 0.00 |
| 86 | 70 | 1952.30 | 0.00 | -0.02 | 0.00 | 0.53 | 0.00 |
| 86 | 71 | -1832.96 | 0.00 | 0.02 | 0.00 | -0.34 | 0.00 |
| 87 | 71 | 1832.96 | 0.00 | -0.02 | 0.00 | 0.34 | 0.00 |
| 87 | 72 | -1723.84 | 0.00 | 0.02 | 0.00 | -0.15 | 0.00 |
| 88 | 72 | 1723.84 | 0.00 | -0.02 | 0.00 | 0.15 | 0.00 |
| 88 | 73 | -1662.84 | 0.00 | 0.02 | 0.00 | -0.06 | 0.00 |
| 89 | 88 | 1943.41 | 0.00 | -0.03 | 0.00 | 0.71 | 0.00 |
| 89 | 89 | -1930.92 | 0.00 | 0.03 | 0.00 | -0.68 | 0.00 |
| 90 | 89 | 1930.92 | 0.00 | -0.03 | 0.00 | 0.68 | 0.00 |
| 90 | 90 | -1811.58 | 0.00 | 0.03 | 0.00 | -0.42 | 0.00 |
| 91 | 90 | 1811.58 | 0.00 | -0.03 | 0.00 | 0.42 | 0.00 |
| 91 | 91 | -1702.46 | 0.00 | 0.03 | 0.00 | -0.16 | 0.00 |
| 92 | 91 | 1702.46 | 0.00 | -0.03 | 0.00 | 0.16 | 0.00 |
| 92 | 92 | -1641.46 | 0.00 | 0.03 | 0.00 | -0.03 | 0.00 |
| 93 | 107 | 1896.42 | 0.00 | -0.17 | 0.00 | 2.00 | 0.00 |
| 93 | 108 | -1884.95 | 0.00 | 0.17 | 0.00 | -1.82 | 0.00 |
| 94 | 108 | 1884.95 | 0.00 | -0.17 | 0.00 | 1.82 | 0.00 |
| 94 | 109 | -1775.83 | 0.00 | 0.17 | 0.00 | -0.09 | 0.00 |
| 95 | 109 | 1775.83 | 0.00 | -0.17 | 0.00 | 0.09 | 0.00 |
| 95 | 110 | -1714.83 | 0.00 | 0.17 | 0.00 | 0.78 | 0.00 |
| 96 | 125 | 1612.68 | 0.00 | 0.54 | 0.00 | -7.33 | 0.00 |
| 96 | 126 | -1601.21 | 0.00 | -0.54 | 0.00 | 6.79 | 0.00 |
| 97 | 126 | 1601.21 | 0.00 | 0.54 | 0.00 | -6.79 | 0.00 |
| 97 | 127 | -1492.09 | 0.00 | -0.54 | 0.00 | 1.42 | 0.00 |
| 98 | 127 | 1492.09 | 0.00 | 0.54 | 0.00 | -1.42 | 0.00 |
| 98 | 128 | -1431.09 | 0.00 | -0.54 | 0.00 | -1.26 | 0.00 |
| 99 | 2 | 337.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -337.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 337.37 | 0.00 | -0.41 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -337.37 | 0.00 | 0.41 | 0.00 | 0.70 | 0.00 |
| 101 | 19 | 725.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -725.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 725.89 | 0.00 | 0.73 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -725.89 | 0.00 | -0.73 | 0.00 | -1.24 | 0.00 |
| 103 | 36 | 810.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -810.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 810.49 | 0.00 | -0.30 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -810.49 | 0.00 | 0.30 | 0.00 | 0.52 | 0.00 |
| 105 | 55 | 797.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -797.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 797.54 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -797.54 | 0.00 | 0.01 | 0.00 | 0.02 | 0.00 |
| 107 | 74 | 804.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -804.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 804.55 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -804.55 | 0.00 | 0.02 | 0.00 | 0.03 | 0.00 |
| 109 | 93 | 793.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -793.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 793.86 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -793.86 | 0.00 | 0.03 | 0.00 | 0.04 | 0.00 |
| 111 | 111 | 830.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -830.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 830.32 | 0.00 | -0.17 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -830.32 | 0.00 | 0.17 | 0.00 | 0.30 | 0.00 |
| 113 | 129 | 688.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -688.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 689.00 | 0.00 | 0.00 | 0.54 | 0.00 | 0.00 |
| 114 | 132 | -689.00 | 0.00 | -0.54 | 0.00 | -0.92 | 0.00 |
| 115 | 141 | 357.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -357.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 357.09 | 0.00 | -0.32 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -357.09 | 0.00 | 0.32 | 0.00 | 0.55 | 0.00 |
| 117 | 6 | 674.75 | 0.00 | -0.41 | 0.00 | 0.34 | 0.00 |
| 117 | 7 | -674.75 | 0.00 | 0.41 | 0.00 | 0.07 | 0.00 |
| 118 | 145 | 714.32 | 0.01 | -0.32 | 0.00 | -0.23 | 0.01 |
| 118 | 146 | -714.32 | -0.01 | 0.32 | 0.00 | 0.55 | 0.00 |
| 119 | 3 | 0.00 | 335.72 | 16.88 | -28.73 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -335.72 | -16.88 | 28.73 | -71.73 | 1426.80 |
| 120 | 1 | 0.41 | -339.03 | 16.87 | -28.73 | -71.77 | -1440.19 |
| 120 | 5 | -0.41 | 339.03 | -16.87 | 28.73 | -0.02 | -0.71 |
| 121 | 20 | 0.00 | 725.89 | 36.13 | -61.77 | 0.01 | -0.01 |
| 121 | 15 | 0.00 | -725.89 | -36.13 | 61.77 | -67.10 | 1342.88 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 122 | 15 | -0.73 | -725.65 | 36.21 | -61.77 | -67.17 | -1343.71 |
| 122 | 22 | 0.73 | 725.65 | -36.21 | 61.77 | -0.04 | 1.25 |
| 123 | 37 | 0.00 | 810.67 | 40.48 | -69.00 | -0.06 | 0.00 |
| 123 | 32 | 0.00 | -810.67 | -40.48 | 69.00 | -75.18 | 1499.74 |
| 124 | 32 | 0.30 | -810.62 | 40.54 | -69.00 | -75.15 | -1499.12 |
| 124 | 39 | -0.30 | 810.62 | -40.54 | 69.00 | -0.27 | -0.52 |
| 125 | 56 | 0.00 | 797.53 | 39.80 | -67.79 | -0.24 | 0.01 |
| 125 | 49 | 0.00 | -797.53 | -39.80 | 67.79 | -73.91 | 1475.46 |
| 126 | 49 | 0.01 | -797.47 | 39.86 | -67.79 | -73.69 | -1475.29 |
| 126 | 58 | -0.01 | 797.47 | -39.86 | 67.79 | -0.01 | 0.00 |
| 127 | 75 | 0.00 | 804.32 | 40.66 | -69.08 | -0.06 | -0.01 |
| 127 | 68 | 0.00 | -804.32 | -40.66 | 69.08 | -75.17 | 1487.99 |
| 128 | 68 | 0.04 | -1130.45 | 40.84 | -69.09 | -75.02 | -2091.26 |
| 128 | 77 | -0.04 | 1130.45 | -40.84 | 69.09 | 0.08 | -0.05 |
| 129 | 94 | 0.00 | 794.88 | 38.16 | -64.76 | -0.10 | 0.00 |
| 129 | 87 | 0.00 | -794.88 | -38.16 | 64.76 | -70.49 | 1470.53 |
| 130 | 87 | -6.88 | -1153.32 | 38.11 | -64.76 | -70.49 | -2145.44 |
| 130 | 96 | 6.88 | 1153.32 | -38.11 | 64.76 | -0.10 | 11.78 |
| 131 | 112 | 0.00 | 826.54 | 40.40 | -68.91 | -0.01 | 0.00 |
| 131 | 106 | 0.00 | -826.54 | -40.40 | 68.91 | -74.84 | 1529.10 |
| 132 | 106 | -14.19 | -782.31 | 40.43 | -68.92 | -74.97 | -1471.56 |
| 132 | 114 | 14.19 | 782.31 | -40.43 | 68.92 | 0.02 | 24.30 |
| 133 | 130 | 0.00 | 709.47 | 41.11 | -69.95 | -0.01 | 0.00 |
| 133 | 124 | 0.00 | -709.47 | -41.11 | 69.95 | -75.99 | 1312.52 |
| 134 | 124 | -0.59 | -667.93 | 41.11 | -69.95 | -76.03 | -1236.68 |
| 134 | 132 | 0.59 | 667.93 | -41.11 | 69.95 | 0.07 | 1.00 |
| 135 | 142 | 0.00 | 542.21 | 657.15 | -1125.17 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -542.21 | -657.15 | 1125.17 | -2792.88 | 2304.41 |
| 136 | 140 | 0.28 | -416.57 | 657.14 | -1125.16 | -2792.86 | -1769.96 |
| 136 | 144 | -0.28 | 416.57 | -657.14 | 1125.16 | 0.00 | -0.47 |
| 137 | 2 | 0.00 | -337.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 337.38 | 0.00 | 0.00 | 0.00 | -1433.88 |
| 138 | 7 | -0.41 | 337.37 | 0.00 | 0.00 | 0.00 | 1433.81 |
| 138 | 4 | 0.41 | -337.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -725.64 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 725.64 | 0.00 | 0.00 | 0.00 | -1342.44 |
| 140 | 18 | 0.73 | 725.89 | 0.00 | 0.00 | 0.00 | 1342.89 |
| 140 | 21 | -0.73 | -725.89 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -810.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 810.80 | 0.00 | 0.00 | 0.00 | -1499.97 |
| 142 | 35 | -0.30 | 810.49 | 0.00 | 0.00 | 0.00 | 1499.41 |
| 142 | 38 | 0.30 | -810.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -797.45 | 0.00 | 0.00 | 0.00 | 0.01 |
| 143 | 54 | 0.00 | 797.45 | 0.00 | 0.00 | 0.00 | -1475.28 |
| 144 | 54 | -0.01 | 797.53 | 0.00 | 0.00 | 0.00 | 1475.45 |
| 144 | 57 | 0.01 | -797.53 | 0.00 | 0.00 | 0.00 | 0.01 |
| 145 | 74 | 0.00 | -804.52 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 73 | 0.00 | 804.52 | 0.00 | 0.00 | 0.00 | -1488.37 |
| 146 | 73 | -0.02 | 804.55 | 0.00 | 0.00 | 0.00 | 1488.43 |
| 146 | 76 | 0.02 | -804.55 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 93 | 0.00 | -793.84 | 0.00 | 0.00 | 0.00 | 0.01 |
| 147 | 92 | 0.00 | 793.84 | 0.00 | 0.00 | 0.00 | -1468.61 |
| 148 | 92 | -0.03 | 793.86 | 0.00 | 0.00 | 0.00 | 1468.63 |
| 148 | 95 | 0.03 | -793.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.00 | -830.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 110 | 0.00 | 830.75 | 0.00 | 0.00 | 0.00 | -1536.88 |
| 150 | 110 | -0.17 | 830.32 | 0.00 | 0.00 | 0.00 | 1536.10 |
| 150 | 113 | 0.17 | -830.32 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 129 | 0.00 | -688.32 | 0.00 | 0.00 | 0.00 | 0.00 |
| 151 | 128 | 0.00 | 688.32 | 0.00 | 0.00 | 0.00 | -1273.40 |
| 152 | 128 | 0.54 | 689.00 | 0.00 | 0.00 | 0.00 | 1274.66 |
| 152 | 131 | -0.54 | -689.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 141 | 0.00 | -357.22 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 357.22 | 0.00 | 0.00 | 0.01 | -1518.20 |
| 154 | 146 | -0.32 | 357.09 | 0.00 | 0.00 | -0.01 | 1517.64 |
| 154 | 143 | 0.32 | -357.09 | 0.00 | 0.00 | 0.00 | 0.00 |

DESPLAZAMIENTOS DE NUDOS

| NUDO | DESP. X | DESP. Y | DESP. Z | GIRO X | GIRO Y | GIRO Z |
|---|---|---|---|---|---|---|
| 1 | 0.108567 | -0.000895 | -0.000279 | -0.000077 | 0.000076 | -0.000439 |
| 2 | -0.000011 | -0.000487 | -0.000011 | -0.000153 | 0.000004 | 0.000000 |
| 3 | 0.266231 | -0.004184 | -0.000257 | 0.000031 | 0.000104 | -0.000331 |
| 4 | 0.000011 | -0.003495 | -0.000014 | 0.000032 | 0.000004 | 0.000000 |
| 5 | 0.114001 | -0.000373 | -0.000283 | -0.000155 | 0.000079 | -0.000398 |
| 7 | 0.000000 | -0.000021 | -0.000012 | -0.000024 | 0.000000 | 0.000000 |
| 8 | 0.107237 | -0.003653 | -0.000625 | -0.000242 | 0.000075 | -0.000509 |
| 9 | 0.105904 | -0.005893 | -0.000969 | -0.000378 | 0.000074 | -0.000352 |
| 10 | 0.104724 | -0.005924 | -0.001635 | -0.000483 | 0.000096 | -0.000063 |
| 11 | 0.103325 | -0.005603 | -0.002062 | -0.000561 | 0.000094 | 0.000113 |
| 12 | 0.101919 | -0.004744 | -0.002477 | -0.000610 | 0.000092 | 0.000184 |
| 13 | 0.100519 | -0.003834 | -0.002881 | -0.000630 | 0.000090 | 0.000177 |
| 14 | 0.099429 | -0.003023 | -0.003471 | -0.000634 | 0.000106 | 0.000162 |
| 15 | 0.097763 | -0.001937 | -0.003938 | -0.000613 | 0.000110 | -0.000105 |
| 17 | 0.000000 | -0.000631 | -0.000857 | -0.000304 | 0.000000 | 0.000000 |
| 18 | 0.000000 | -0.001147 | -0.002825 | -0.000469 | 0.000000 | 0.000000 |
| 19 | 0.000000 | -0.002114 | -0.002823 | -0.000525 | 0.000000 | 0.000000 |
| 20 | 0.098150 | -0.006169 | -0.003928 | -0.000564 | 0.000110 | -0.000128 |
| 21 | 0.000000 | -0.003575 | -0.002827 | -0.000447 | 0.000000 | 0.000000 |
| 22 | 0.245410 | -0.000819 | -0.003936 | -0.000644 | 0.000110 | -0.000113 |
| 23 | 0.095984 | -0.004292 | -0.004439 | -0.000787 | 0.000115 | -0.000482 |
| 24 | 0.094386 | -0.006845 | -0.004964 | -0.000936 | 0.000121 | -0.000439 |
| 25 | 0.092745 | -0.008396 | -0.005515 | -0.001060 | 0.000128 | -0.000258 |
| 26 | 0.091137 | -0.009236 | -0.006096 | -0.001159 | 0.000136 | -0.000114 |
| 27 | 0.089525 | -0.009434 | -0.006714 | -0.001232 | 0.000146 | 0.000057 |
| 28 | 0.087930 | -0.008705 | -0.007377 | -0.001281 | 0.000158 | 0.000221 |
| 29 | 0.088550 | -0.007332 | -0.008095 | -0.001304 | 0.000172 | 0.000301 |
| 30 | 0.215688 | -0.005765 | -0.008872 | -0.001302 | 0.000188 | 0.000373 |
| 31 | 0.212042 | -0.003942 | -0.009735 | -0.001275 | 0.000208 | 0.000345 |
| 32 | 0.208192 | -0.002155 | -0.010691 | -0.001223 | 0.000231 | -0.000046 |
| 34 | 0.000000 | -0.000882 | -0.003588 | -0.000825 | 0.000000 | 0.000000 |
| 35 | 0.000000 | -0.001384 | -0.008462 | -0.001055 | 0.000000 | 0.000000 |
| 36 | 0.000000 | -0.003590 | -0.008461 | -0.001117 | 0.000000 | 0.000000 |
| 37 | 0.205558 | -0.007747 | -0.010691 | -0.001167 | 0.000231 | -0.000033 |
| 38 | 0.000000 | -0.002867 | -0.008469 | -0.001032 | 0.000000 | 0.000000 |
| 39 | 0.208311 | -0.000130 | -0.010693 | -0.001264 | 0.000231 | -0.000045 |
| 40 | 0.204349 | -0.004415 | -0.011840 | -0.001368 | 0.000253 | -0.000517 |
| 41 | 0.200709 | -0.007281 | -0.013071 | -0.001488 | 0.000269 | -0.000531 |
| 42 | 0.197065 | -0.009505 | -0.014359 | -0.001582 | 0.000280 | -0.000405 |
| 43 | 0.191238 | -0.011029 | -0.015679 | -0.001651 | 0.000285 | -0.000239 |
| 44 | 0.187597 | -0.011720 | -0.017011 | -0.001694 | 0.000286 | -0.000027 |
| 45 | 0.183961 | -0.011274 | -0.018333 | -0.001712 | 0.000283 | 0.000193 |
| 46 | 0.180328 | -0.009889 | -0.019627 | -0.001704 | 0.000276 | 0.000343 |
| 47 | 0.176771 | -0.008070 | -0.020878 | -0.001671 | 0.000265 | 0.000394 |
| 48 | 0.173289 | -0.006163 | -0.022069 | -0.001612 | 0.000251 | 0.000371 |
| 49 | 0.169602 | -0.004245 | -0.023188 | -0.001528 | 0.000235 | -0.000004 |
| 51 | 0.000000 | -0.000795 | -0.000738 | -0.000222 | 0.000000 | 0.000000 |
| 52 | 0.000000 | -0.001839 | -0.005031 | -0.000630 | 0.000000 | 0.000000 |
| 53 | 0.000000 | -0.002995 | -0.014148 | -0.001188 | 0.000000 | 0.000000 |
| 54 | 0.000000 | -0.003490 | -0.020531 | -0.001364 | 0.000000 | 0.000000 |
| 55 | 0.000000 | -0.006517 | -0.020530 | -0.001424 | 0.000000 | 0.000000 |
| 56 | 0.169156 | -0.010372 | -0.023188 | -0.001473 | 0.000235 | -0.000005 |
| 57 | 0.000000 | -0.004374 | -0.020533 | -0.001341 | 0.000000 | 0.000000 |
| 58 | 0.169732 | -0.001917 | -0.023196 | -0.001557 | 0.000235 | -0.000007 |
| 59 | 0.165891 | -0.006257 | -0.024225 | -0.001674 | 0.000216 | -0.000457 |
| 60 | 0.162415 | -0.008808 | -0.025169 | -0.001795 | 0.000196 | -0.000458 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 61 | 0.158935 | -0.010677 | -0.026013 | -0.001889 | 0.000173 | -0.000327 |
| 62 | 0.155448 | -0.011838 | -0.026752 | -0.001959 | 0.000150 | -0.000162 |
| 63 | 0.151960 | -0.012187 | -0.027380 | -0.002002 | 0.000127 | 0.000043 |
| 64 | 0.148476 | -0.011448 | -0.027898 | -0.002019 | 0.000103 | 0.000248 |
| 65 | 0.146999 | -0.009843 | -0.028303 | -0.002011 | 0.000079 | 0.000378 |
| 66 | 0.143500 | -0.007902 | -0.028600 | -0.001977 | 0.000056 | 0.000416 |
| 67 | 0.139999 | -0.005903 | -0.028790 | -0.001917 | 0.000034 | 0.000386 |
| 68 | 0.136295 | -0.003933 | -0.028882 | -0.001832 | 0.000013 | -0.000001 |
| 70 | 0.000000 | -0.000420 | -0.000375 | -0.000194 | 0.000000 | 0.000000 |
| 71 | 0.000000 | -0.001507 | -0.005681 | -0.000822 | 0.000000 | 0.000000 |
| 72 | 0.000000 | -0.002671 | -0.017626 | -0.001511 | 0.000000 | 0.000000 |
| 73 | 0.000000 | -0.003170 | -0.025672 | -0.001684 | 0.000000 | 0.000000 |
| 74 | 0.000000 | -0.006752 | -0.025671 | -0.001744 | 0.000000 | 0.000000 |
| 75 | 0.136318 | -0.010637 | -0.028881 | -0.001778 | 0.000013 | 0.000015 |
| 76 | 0.000000 | -0.003475 | -0.025674 | -0.001659 | 0.000000 | 0.000000 |
| 77 | 0.135999 | -0.001001 | -0.028888 | -0.001866 | 0.000013 | 0.000000 |
| 78 | 0.132597 | -0.005968 | -0.028908 | -0.001937 | -0.000007 | -0.000465 |
| 79 | 0.129103 | -0.008586 | -0.028839 | -0.002017 | -0.000028 | -0.000475 |
| 80 | 0.125604 | -0.010546 | -0.028670 | -0.002071 | -0.000049 | -0.000346 |
| 81 | 0.118371 | -0.011762 | -0.028404 | -0.002100 | -0.000069 | -0.000180 |
| 82 | 0.114907 | -0.012185 | -0.028037 | -0.002102 | -0.000090 | 0.000029 |
| 83 | 0.111447 | -0.011494 | -0.027576 | -0.002079 | -0.000110 | 0.000242 |
| 84 | 0.107989 | -0.009903 | -0.027024 | -0.002030 | -0.000128 | 0.000382 |
| 85 | 0.104531 | -0.007914 | -0.026389 | -0.001956 | -0.000145 | 0.000434 |
| 86 | 0.101071 | -0.005799 | -0.025679 | -0.001856 | -0.000159 | 0.000421 |
| 87 | 0.097409 | -0.003629 | -0.024906 | -0.001730 | -0.000171 | 0.000054 |
| 89 | 0.000000 | -0.000122 | -0.000037 | -0.000058 | 0.000000 | 0.000000 |
| 90 | 0.000000 | -0.001227 | -0.003907 | -0.000677 | 0.000000 | 0.000000 |
| 91 | 0.000000 | -0.002381 | -0.014448 | -0.001383 | 0.000000 | 0.000000 |
| 92 | 0.000000 | -0.002875 | -0.021878 | -0.001569 | 0.000000 | 0.000000 |
| 93 | 0.000000 | -0.006211 | -0.021876 | -0.001629 | 0.000000 | 0.000000 |
| 94 | 0.037800 | -0.010132 | -0.024905 | -0.001675 | -0.000171 | 0.000066 |
| 95 | 0.000000 | -0.003382 | -0.021880 | -0.001546 | 0.000000 | 0.000000 |
| 96 | 0.096832 | -0.000856 | -0.024912 | -0.001762 | -0.000171 | 0.000057 |
| 97 | 0.093756 | -0.005354 | -0.024105 | -0.001819 | -0.000182 | -0.000393 |
| 98 | 0.090309 | -0.007607 | -0.023255 | -0.001882 | -0.000191 | -0.000395 |
| 99 | 0.086858 | -0.009189 | -0.022360 | -0.001920 | -0.000200 | -0.000268 |
| 100 | 0.083403 | -0.010095 | -0.021426 | -0.001932 | -0.000207 | -0.000113 |
| 101 | 0.079946 | -0.010243 | -0.020461 | -0.001919 | -0.000212 | 0.000077 |
| 102 | 0.076494 | -0.009379 | -0.019475 | -0.001880 | -0.000215 | 0.000263 |
| 103 | 0.073046 | -0.007755 | -0.018478 | -0.001816 | -0.000215 | 0.000368 |
| 104 | 0.069596 | -0.005908 | -0.017484 | -0.001726 | -0.000212 | 0.000376 |
| 105 | 0.066145 | -0.004150 | -0.016508 | -0.001611 | -0.000206 | 0.000312 |
| 106 | 0.062491 | -0.002593 | -0.015565 | -0.001471 | -0.000195 | -0.000117 |
| 108 | 0.000000 | -0.000130 | -0.000076 | -0.000103 | 0.000000 | 0.000000 |
| 109 | 0.000000 | -0.001304 | -0.006755 | -0.001104 | 0.000000 | 0.000000 |
| 110 | 0.000000 | -0.001812 | -0.012930 | -0.001312 | 0.000000 | 0.000000 |
| 111 | -0.009279 | -0.004569 | -0.012927 | -0.001374 | 0.000002 | 0.000833 |
| 112 | 0.060059 | -0.008628 | -0.015566 | -0.001415 | -0.000193 | -0.000130 |
| 113 | 0.009279 | -0.002809 | -0.012937 | -0.001288 | 0.000002 | -0.000833 |
| 114 | 0.029205 | -0.000198 | -0.015566 | -0.001511 | -0.000194 | -0.000182 |
| 115 | 0.022903 | -0.005253 | -0.014741 | -0.001520 | -0.000185 | -0.000579 |
| 116 | 0.021329 | -0.009505 | -0.013963 | -0.001545 | -0.000177 | -0.000666 |
| 117 | 0.020056 | -0.012243 | -0.013200 | -0.001544 | -0.000172 | -0.000510 |
| 118 | 0.018776 | -0.014193 | -0.012449 | -0.001518 | -0.000170 | -0.000321 |
| 119 | 0.017493 | -0.015215 | -0.011702 | -0.001466 | -0.000170 | -0.000068 |
| 120 | 0.016218 | -0.014851 | -0.010948 | -0.001389 | -0.000171 | 0.000217 |
| 121 | 0.017271 | -0.014030 | -0.010181 | -0.001287 | -0.000174 | 0.000474 |
| 122 | 0.015925 | -0.011363 | -0.009396 | -0.001160 | -0.000177 | 0.000699 |
| 123 | 0.016228 | -0.007909 | -0.008590 | -0.001007 | -0.000182 | 0.000993 |
| 124 | 0.014560 | -0.002460 | -0.007763 | -0.000829 | -0.000186 | 0.000912 |
| 126 | 0.000000 | -0.000113 | -0.000027 | -0.000045 | 0.000000 | 0.000000 |
| 127 | -0.005202 | -0.001240 | -0.003134 | -0.000554 | 0.000000 | 0.000773 |
| 128 | -0.009417 | -0.001723 | -0.006288 | -0.000699 | 0.000000 | 0.000846 |
| 129 | 0.009419 | -0.003251 | -0.006278 | -0.000753 | -0.000002 | -0.000846 |
| 130 | 0.015783 | -0.006994 | -0.007754 | -0.000784 | -0.000188 | 0.000968 |
| 131 | -0.009419 | -0.003626 | -0.006290 | -0.000679 | -0.000002 | 0.000846 |
| 132 | 0.025097 | -0.001135 | -0.007758 | -0.000860 | -0.000188 | 0.000426 |
| 133 | 0.012892 | 0.000359 | -0.006922 | -0.000825 | -0.000191 | 0.000640 |
| 134 | 0.011490 | 0.003318 | -0.006055 | -0.000796 | -0.000196 | 0.000551 |
| 135 | 0.010072 | 0.005392 | -0.005160 | -0.000741 | -0.000202 | 0.000342 |
| 136 | 0.006825 | 0.003733 | -0.003933 | -0.000664 | -0.000187 | 0.000085 |
| 137 | 0.005499 | 0.003901 | -0.003066 | -0.000563 | -0.000193 | -0.000038 |
| 138 | 0.003777 | 0.002956 | -0.002171 | -0.000433 | -0.000198 | -0.000200 |
| 139 | 0.002652 | 0.001705 | -0.001253 | -0.000274 | -0.000201 | -0.000464 |
| 140 | 0.001537 | -0.000906 | -0.000322 | -0.000089 | -0.000202 | -0.000898 |
| 141 | 0.000691 | -0.000530 | -0.000012 | -0.000166 | -0.000198 | -0.000013 |
| 142 | 0.000250 | -0.004200 | -0.000278 | 0.000021 | -0.000324 | 0.000109 |
| 143 | -0.001175 | -0.003460 | -0.000018 | 0.000022 | -0.000310 | 0.000012 |
| 144 | 0.002565 | -0.000370 | -0.000330 | -0.000173 | -0.000306 | -0.001710 |
| 146 | 0.000000 | -0.000022 | -0.000014 | -0.000028 | -0.000202 | 0.000000 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS 209

MOME Y MAX envolvente (ELS)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 9111.62 | 427.36 | -0.41 | 0.77 | 0.00 | 1571.47 |
| 1 | 8 | -7005.46 | -264.26 | -23.97 | -650.94 | -119.29 | 402.76 |
| 2 | 8 | 7005.55 | 264.26 | 23.97 | 650.94 | 119.29 | -402.76 |
| 2 | 9 | -7024.01 | -113.56 | -18.93 | -585.60 | -215.81 | 1265.36 |
| 3 | 9 | 7311.37 | 113.56 | 18.93 | 585.60 | 215.81 | -1451.72 |
| 3 | 10 | -7343.56 | 53.92 | -23.35 | -377.56 | -315.18 | 1786.44 |
| 4 | 10 | 7343.53 | -53.92 | 23.35 | 377.56 | 315.18 | -1786.44 |
| 4 | 11 | -7398.69 | 146.95 | -23.35 | -194.00 | -420.24 | 1213.55 |
| 5 | 11 | 7398.76 | -146.95 | 23.35 | 194.00 | 420.24 | -1213.55 |
| 5 | 12 | -7402.44 | 179.71 | -23.35 | -10.45 | -525.30 | 493.34 |
| 6 | 12 | 7402.40 | -179.71 | 23.35 | 10.45 | 525.30 | -493.34 |
| 6 | 13 | -7340.37 | 110.06 | -23.35 | 173.11 | -630.36 | -186.16 |
| 7 | 13 | 7317.69 | -110.06 | 23.35 | -173.11 | 630.36 | 183.12 |
| 7 | 14 | -7348.65 | 277.37 | -43.01 | 352.08 | -810.48 | -687.31 |
| 8 | 14 | 7348.61 | -277.37 | 43.01 | -352.08 | 810.48 | 687.31 |
| 8 | 15 | -10578.40 | 897.40 | -47.86 | 373.97 | -1014.95 | -4566.47 |
| 9 | 15 | 10505.92 | 758.93 | -14.57 | 147.53 | 1014.95 | 4442.94 |
| 9 | 23 | -8316.64 | -604.25 | 9.73 | -125.94 | -951.82 | -1112.75 |
| 10 | 23 | 8316.60 | 604.25 | -9.73 | 125.94 | 951.82 | 1112.75 |
| 10 | 24 | -8359.58 | -197.59 | 4.87 | 7.19 | -910.50 | 591.49 |
| 11 | 24 | 8787.57 | 197.59 | -4.87 | -7.19 | 910.50 | -902.68 |
| 11 | 25 | -8347.55 | -55.08 | -0.01 | 140.27 | -891.10 | 990.56 |
| 12 | 25 | 8347.67 | 55.08 | 0.01 | -140.27 | 891.10 | -990.56 |
| 12 | 26 | -8416.56 | -82.69 | -10.87 | 220.42 | -898.43 | 1349.85 |
| 13 | 26 | 8416.51 | 82.69 | 10.87 | -220.42 | 898.43 | -1349.85 |
| 13 | 27 | -8388.37 | 8.65 | -15.80 | 353.36 | -949.97 | 1626.31 |
| 14 | 27 | 8388.33 | -8.65 | 15.80 | -353.36 | 949.97 | -1626.31 |
| 14 | 28 | -8363.08 | 140.95 | -20.76 | 486.26 | -1023.76 | 1234.52 |
| 15 | 28 | 8363.17 | -140.95 | 20.76 | -486.26 | 1023.76 | -1234.51 |
| 15 | 29 | -8413.04 | 118.78 | -34.71 | 337.76 | -1151.08 | 1042.75 |
| 16 | 29 | 8412.98 | -118.78 | 34.71 | -337.76 | 1151.08 | -1042.75 |
| 16 | 30 | -7921.33 | 103.58 | -49.24 | 381.65 | -1341.16 | -8.72 |
| 17 | 30 | 7921.38 | -103.58 | 49.24 | -381.65 | 1341.16 | 8.72 |
| 17 | 31 | -7926.57 | 428.44 | -51.57 | 510.31 | -1568.07 | -979.91 |
| 18 | 31 | 7926.54 | -428.44 | 51.57 | -510.31 | 1568.07 | 979.91 |
| 18 | 32 | -14539.33 | 1173.11 | -56.66 | 531.81 | -1819.95 | -4718.56 |
| 19 | 32 | 14539.31 | 634.98 | -81.50 | 184.77 | 1819.96 | 4718.56 |
| 19 | 40 | -10516.72 | -590.08 | 76.38 | -163.99 | -1473.14 | -413.19 |
| 20 | 40 | 10516.74 | 590.08 | -76.38 | 163.99 | 1473.14 | 413.19 |
| 20 | 41 | -10584.69 | -117.95 | 71.12 | -31.97 | -1149.68 | 1066.21 |
| 21 | 41 | 10584.70 | 117.95 | -71.12 | 31.97 | 1149.68 | -1066.21 |
| 21 | 42 | -10586.30 | 11.11 | 65.71 | 99.71 | -850.29 | 1102.06 |
| 22 | 42 | 10586.30 | -11.11 | -65.71 | -99.71 | 850.29 | -1102.06 |
| 22 | 43 | -10665.98 | -73.83 | 50.42 | 177.14 | -588.87 | 1285.04 |
| 23 | 43 | 10665.95 | 73.83 | -50.42 | -177.14 | 588.88 | -1285.04 |
| 23 | 44 | -10633.10 | -10.86 | 6.96 | 277.45 | -557.05 | 1892.37 |
| 24 | 44 | 10633.10 | 10.86 | -6.96 | -277.45 | 557.04 | -1892.37 |
| 24 | 45 | -10576.98 | 98.92 | -27.04 | 305.50 | -650.32 | 1468.68 |
| 25 | 45 | 10576.98 | -98.92 | 27.04 | -305.50 | 650.32 | -1468.68 |
| 25 | 46 | -10569.82 | 70.75 | -40.13 | 75.41 | -849.32 | 1030.99 |
| 26 | 46 | 10569.82 | -70.75 | 40.13 | -75.41 | 849.32 | -1030.99 |
| 26 | 47 | -9234.40 | -58.23 | -34.24 | 238.89 | -1025.14 | 582.81 |
| 27 | 47 | 9234.39 | 58.23 | 34.24 | -238.89 | 1025.14 | -582.81 |
| 27 | 48 | -9241.33 | 293.72 | -28.26 | 402.60 | -1174.26 | 453.58 |
| 28 | 48 | 9241.33 | -293.72 | 28.26 | -402.60 | 1174.26 | -453.58 |
| 28 | 49 | -13359.24 | 1150.66 | -25.86 | 431.02 | -1306.97 | -4637.13 |
| 29 | 49 | 13438.90 | 645.23 | 21.55 | 567.87 | 1306.96 | 4772.71 |
| 29 | 59 | -9230.06 | -687.70 | -15.98 | -522.62 | -1400.26 | -751.26 |
| 30 | 59 | 9230.08 | 687.70 | 15.98 | 522.62 | 1400.27 | 751.26 |
| 30 | 60 | -9303.84 | -192.89 | -9.87 | -358.52 | -1466.89 | 1112.57 |
| 31 | 60 | 9303.82 | 192.89 | 9.87 | 358.52 | 1466.89 | -1112.57 |
| 31 | 61 | -9329.99 | -36.68 | -3.73 | -194.37 | -1505.95 | 1407.79 |
| 32 | 61 | 9330.00 | 36.68 | 3.73 | 194.37 | 1505.95 | -1407.79 |
| 32 | 62 | -9328.33 | -62.96 | -6.37 | -280.79 | -1550.78 | 1371.33 |
| 33 | 62 | 9328.35 | 62.96 | 6.37 | 280.79 | 1550.78 | -1371.33 |
| 33 | 63 | -9283.40 | 9.28 | -0.51 | -151.95 | -1577.11 | 1642.61 |
| 34 | 63 | 9283.39 | -9.28 | 0.51 | 151.95 | 1577.11 | -1642.61 |
| 34 | 64 | -9242.13 | 139.85 | 5.66 | -18.96 | -1576.10 | 1396.54 |
| 35 | 64 | 9242.12 | -139.85 | -5.67 | 18.96 | 1576.09 | -1396.54 |
| 35 | 65 | -9234.01 | 156.21 | 5.95 | 53.48 | -1548.82 | 778.91 |
| 36 | 65 | 9234.02 | -156.21 | -5.95 | -53.48 | 1548.82 | -778.91 |
| 36 | 66 | -9248.71 | 37.39 | 12.15 | 207.69 | -1518.68 | 262.65 |
| 37 | 66 | 9248.71 | -37.39 | -12.15 | -207.69 | 1518.68 | -262.65 |
| 37 | 67 | -9350.18 | 405.13 | 16.07 | 388.06 | -1464.89 | -89.81 |
| 38 | 67 | 9350.17 | -405.13 | -16.07 | -388.06 | 1464.89 | 89.81 |
| 38 | 68 | -13461.82 | 1277.94 | 21.22 | 418.78 | -1387.32 | -5623.40 |
| 39 | 68 | 13543.01 | 767.87 | 7.37 | 424.46 | 1387.32 | 5761.57 |
| 39 | 78 | -9327.90 | -697.23 | -1.63 | -378.03 | -1416.83 | -851.24 |
| 40 | 78 | 9327.88 | 697.23 | 1.64 | 378.03 | 1416.84 | 851.24 |
| 40 | 79 | -9283.54 | -197.37 | 2.18 | -293.54 | -1427.94 | 932.27 |
| 41 | 79 | 9283.55 | 197.37 | -2.17 | 293.54 | 1427.94 | -932.27 |
| 41 | 80 | -9302.44 | -50.50 | 8.34 | -139.42 | -1414.85 | 1280.34 |
| 42 | 80 | 9302.45 | 50.50 | -8.34 | 139.42 | 1414.84 | -1280.34 |
| 42 | 81 | -9239.85 | -67.83 | 9.15 | -81.32 | -1388.89 | 1397.82 |
| 43 | 81 | 9392.84 | 69.81 | -9.15 | 81.32 | 1388.88 | -1399.64 |
| 43 | 82 | -9357.16 | 9.88 | 15.26 | 51.49 | -1344.55 | 1737.75 |
| 44 | 82 | 9199.67 | -11.85 | -15.26 | -51.49 | 1344.55 | -1735.02 |
| 44 | 83 | -8628.65 | 151.65 | 14.37 | 121.35 | -1284.14 | 1400.43 |
| 45 | 83 | 8628.65 | -151.65 | -14.37 | -121.35 | 1284.14 | -1400.44 |
| 45 | 84 | -8495.49 | 105.22 | 13.80 | 134.31 | -1242.32 | 705.52 |
| 46 | 84 | 8495.49 | -105.22 | -13.80 | -134.31 | 1242.33 | -705.52 |
| 46 | 85 | -8523.05 | -31.02 | 19.82 | 298.15 | -1175.13 | 2.01 |
| 47 | 85 | 8523.05 | 31.02 | -19.82 | -298.15 | 1175.12 | -2.01 |
| 47 | 86 | -6443.04 | 422.41 | 25.21 | 455.22 | -1081.27 | -998.74 |
| 48 | 86 | 6443.03 | -422.41 | -25.22 | -455.22 | 1081.27 | 998.74 |
| 48 | 87 | -9600.32 | 1088.27 | 24.83 | 452.11 | -977.48 | -5504.96 |
| 49 | 87 | 9524.21 | 690.00 | -7.71 | 461.80 | 977.48 | 5375.44 |
| 49 | 97 | -6269.90 | -619.64 | 13.28 | -416.10 | -938.71 | -1194.71 |
| 50 | 97 | 6269.90 | 619.64 | -13.28 | 416.10 | 938.71 | 1194.71 |
| 50 | 98 | -6314.03 | -212.97 | 19.16 | -252.70 | -874.17 | 579.50 |
| 51 | 98 | 6314.06 | 212.97 | -19.16 | 252.70 | 874.17 | -579.50 |
| 51 | 99 | -6315.15 | -66.31 | 21.20 | -89.42 | -783.33 | 1030.88 |
| 52 | 99 | 6315.15 | 66.31 | -21.20 | 89.42 | 783.32 | -1030.88 |
| 52 | 100 | -6376.33 | -67.73 | 26.96 | 73.69 | -666.47 | 1274.91 |
| 53 | 100 | 6376.31 | 67.73 | -26.96 | -73.69 | 666.47 | -1274.91 |
| 53 | 101 | -6340.41 | 22.91 | 12.73 | -162.37 | -590.54 | 1525.02 |
| 54 | 101 | 6340.40 | -22.91 | -12.73 | 162.37 | 590.54 | -1525.03 |
| 54 | 102 | -6265.94 | 167.30 | -11.04 | -118.51 | -610.81 | 1413.67 |
| 55 | 102 | 6265.96 | -167.30 | 11.04 | 118.51 | 610.81 | -1413.68 |
| 55 | 103 | -6259.27 | 183.10 | -21.29 | -3.93 | -660.92 | 428.13 |
| 56 | 103 | 6259.26 | -183.10 | 21.29 | 3.93 | 660.92 | -428.13 |
| 56 | 104 | -6322.60 | 99.04 | -54.54 | 24.07 | -860.23 | -345.08 |
| 57 | 104 | 6322.60 | -99.04 | 54.54 | -24.07 | 860.23 | 345.08 |
| 57 | 105 | -6321.59 | 413.18 | -59.98 | 155.56 | -1109.46 | -1200.46 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 58 | 105 | 6321.58 | -413.18 | 59.98 | -155.56 | 1109.46 | 1200.46 |
| 58 | 106 | -9486.03 | 1098.17 | -65.36 | 175.97 | -1383.05 | -5837.55 |
| 59 | 106 | 9405.06 | 722.37 | -51.35 | 526.13 | 1383.04 | 5699.72 |
| 59 | 115 | -6157.91 | -649.01 | 45.54 | -508.88 | -1156.17 | -1361.45 |
| 60 | 115 | 6157.90 | 649.01 | -45.54 | 508.88 | 1156.17 | 1361.46 |
| 60 | 116 | -6208.34 | -235.68 | 38.85 | -378.49 | -959.98 | 604.72 |
| 61 | 116 | 6208.33 | 235.68 | -38.85 | 378.49 | 959.98 | -604.72 |
| 61 | 117 | -6229.12 | -92.95 | 33.51 | -246.69 | -788.71 | 1175.50 |
| 62 | 117 | 6229.12 | 92.95 | -33.51 | 246.69 | 788.71 | -1175.50 |
| 62 | 118 | -6239.46 | -120.27 | -12.54 | -424.02 | -691.69 | 1845.34 |
| 63 | 118 | 6239.45 | 120.27 | 12.54 | 424.02 | 691.69 | -1845.34 |
| 63 | 119 | -6200.41 | -15.27 | -12.54 | -240.46 | -737.56 | 2258.22 |
| 64 | 119 | 6200.42 | 15.27 | 12.54 | 240.46 | 737.56 | -2258.22 |
| 64 | 120 | -6164.21 | 129.77 | -13.04 | -66.07 | -783.92 | 2053.03 |
| 65 | 120 | 6164.20 | -129.77 | 13.04 | 66.07 | 783.92 | -2053.03 |
| 65 | 121 | -6146.07 | 169.38 | -13.04 | 117.49 | -832.01 | 1345.72 |
| 66 | 121 | 6146.07 | -169.38 | 13.04 | -117.49 | 832.01 | -1345.72 |
| 66 | 122 | -6184.20 | 97.89 | -19.54 | 228.32 | -881.77 | 624.46 |
| 67 | 122 | 6184.19 | -97.89 | 19.54 | -228.32 | 881.77 | -624.46 |
| 67 | 123 | -6177.68 | 425.68 | -19.54 | 411.88 | -959.12 | -254.07 |
| 68 | 123 | 6177.69 | -425.68 | 19.54 | -411.88 | 959.12 | 254.07 |
| 68 | 124 | -9294.05 | 1105.21 | -19.54 | 456.31 | -1036.47 | -4949.41 |
| 69 | 124 | 9211.84 | 654.75 | -23.05 | 391.88 | 1036.47 | 4809.51 |
| 69 | 133 | -5980.80 | -361.15 | 23.05 | -347.85 | -922.19 | -1089.49 |
| 70 | 133 | 5980.80 | 361.15 | -23.05 | 347.85 | 922.19 | 1089.49 |
| 70 | 134 | -6007.31 | -60.42 | 23.05 | -164.29 | -790.45 | -684.57 |
| 71 | 134 | 6043.45 | 60.42 | -23.05 | 164.29 | 790.45 | 695.51 |
| 71 | 135 | -6168.14 | -185.26 | 12.58 | 178.73 | -700.14 | -177.62 |
| 72 | 135 | 6168.15 | 185.27 | -12.58 | -178.73 | 700.14 | 177.62 |
| 72 | 136 | -6133.50 | -70.78 | 17.98 | 340.80 | -608.95 | 452.98 |
| 73 | 136 | 6133.50 | 70.78 | -17.98 | -340.80 | 608.95 | -452.97 |
| 73 | 137 | -6071.27 | 57.15 | 23.40 | 502.92 | -493.43 | 547.47 |
| 74 | 137 | 6071.27 | -57.15 | -23.40 | -502.92 | 493.43 | -547.47 |
| 74 | 138 | -6002.76 | 121.28 | 28.84 | 665.10 | -353.48 | 190.17 |
| 75 | 138 | 5186.82 | -121.28 | -28.84 | -665.10 | 353.48 | -218.62 |
| 75 | 139 | -5127.82 | 187.69 | 34.29 | 731.92 | -189.03 | -371.61 |
| 76 | 139 | 5127.82 | -187.69 | -34.29 | -731.92 | 189.03 | 371.61 |
| 76 | 140 | -7241.60 | 390.78 | 12.31 | 873.14 | 0.00 | -2931.76 |
| 77 | 16 | 1866.97 | 72.58 | -29.15 | 0.00 | 1462.92 | 747.57 |
| 77 | 17 | -1809.07 | -72.58 | 27.52 | 0.00 | -1312.01 | -362.90 |
| 78 | 17 | 1809.07 | 72.58 | -27.52 | 0.00 | 1312.01 | 362.90 |
| 78 | 18 | -1986.84 | 72.58 | -13.68 | 0.00 | -1185.90 | 0.00 |
| 79 | 33 | 2264.54 | -81.08 | -145.68 | 0.00 | 3200.47 | -1019.99 |
| 79 | 34 | -2180.70 | 81.08 | 143.92 | 0.00 | -2102.69 | 405.40 |
| 80 | 34 | 2180.70 | -81.08 | -143.92 | 0.00 | 2102.69 | -405.40 |
| 80 | 35 | -1944.72 | -81.08 | 44.15 | 0.00 | -1411.56 | 0.00 |
| 81 | 50 | 2457.78 | -79.66 | -10.24 | 0.00 | 1523.78 | -2509.29 |
| 81 | 51 | -2375.57 | 79.66 | 8.88 | 0.00 | -1461.63 | 1991.50 |
| 82 | 51 | 2375.57 | -79.66 | -8.88 | 0.00 | 1461.63 | -1991.50 |
| 82 | 52 | -2256.23 | 79.66 | 6.32 | 0.00 | -1384.88 | 1194.89 |
| 83 | 52 | 2256.23 | -79.66 | -6.32 | 0.00 | 1384.88 | -1194.90 |
| 83 | 53 | -2098.95 | 79.66 | 3.08 | 0.00 | -1337.49 | 398.30 |
| 84 | 53 | 2098.95 | -79.66 | -3.08 | 0.00 | 1337.49 | -398.29 |
| 84 | 54 | -2141.52 | 79.66 | -27.61 | 0.00 | -1380.56 | 0.00 |
| 85 | 69 | 2437.39 | -81.18 | -54.73 | 0.00 | 2642.06 | -2312.00 |
| 85 | 70 | -2392.84 | 81.18 | 53.93 | 0.00 | -2452.96 | 2029.50 |
| 86 | 70 | 2392.84 | -81.18 | -53.93 | 0.00 | 2452.96 | -2029.50 |
| 86 | 71 | -2273.75 | 81.18 | 51.09 | 0.00 | -1927.20 | 1217.70 |
| 87 | 71 | 2273.75 | -81.18 | -51.09 | 0.00 | 1927.20 | -1217.70 |
| 87 | 72 | -2117.81 | 81.18 | 47.73 | 0.00 | -1432.73 | 405.90 |
| 88 | 72 | 2117.81 | -81.18 | -47.73 | 0.00 | 1432.73 | -405.89 |
| 88 | 73 | -2161.05 | 81.18 | -6.77 | 0.00 | -1326.35 | 0.00 |
| 89 | 88 | 2379.42 | -76.10 | -46.67 | 0.00 | 2432.94 | -1978.60 |
| 89 | 89 | -2366.92 | 76.10 | 46.46 | 0.00 | -2386.37 | 1902.50 |
| 90 | 89 | 2366.92 | -76.10 | -46.46 | 0.00 | 2386.37 | -1902.50 |
| 90 | 90 | -2247.53 | 76.10 | 44.01 | 0.00 | -1933.43 | 1141.50 |
| 91 | 90 | 2247.53 | -76.10 | -44.01 | 0.00 | 1933.43 | -1141.50 |
| 91 | 91 | -2089.23 | 76.10 | 40.90 | 0.00 | -1508.41 | 380.50 |
| 92 | 91 | 2089.23 | -76.10 | -40.90 | 0.00 | 1508.41 | -380.50 |
| 92 | 92 | -1905.45 | 76.10 | -10.15 | 0.00 | -1374.76 | 0.00 |
| 93 | 107 | 2354.06 | -80.98 | -115.98 | 0.00 | 3125.45 | -1295.68 |
| 93 | 108 | -2342.59 | 80.98 | 115.77 | 0.00 | -3009.57 | 1214.70 |
| 94 | 108 | 2342.59 | -80.98 | -115.77 | 0.00 | 3009.57 | -1214.70 |
| 94 | 109 | -2228.30 | 80.98 | 113.31 | 0.00 | -1863.56 | 404.90 |
| 95 | 109 | 2228.30 | -80.98 | -113.31 | 0.00 | 1863.56 | -404.90 |
| 95 | 110 | -1961.43 | -80.98 | 28.14 | 0.00 | -1350.25 | 0.00 |
| 96 | 125 | 1933.35 | 82.20 | -19.81 | 0.00 | 1343.60 | 1315.20 |
| 96 | 126 | -1921.87 | -82.20 | 19.60 | 0.00 | -1323.90 | -1233.00 |
| 97 | 126 | 1921.87 | 82.20 | -19.60 | 0.00 | 1323.90 | 1233.00 |
| 97 | 127 | -1812.75 | -82.20 | 17.02 | 0.00 | -1139.94 | -411.00 |
| 98 | 127 | 1812.75 | 82.20 | -17.02 | 0.00 | 1139.94 | 411.00 |
| 98 | 128 | -1971.41 | 82.20 | -36.65 | 0.00 | -1113.18 | 0.00 |
| 99 | 2 | 337.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -337.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 337.37 | 0.00 | -0.41 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -241.86 | -16.88 | -29.05 | 0.00 | -49.73 | 28.73 |
| 101 | 19 | 725.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -725.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 725.89 | 0.00 | 0.73 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -1021.33 | 36.29 | -73.12 | 0.00 | -125.18 | -61.77 |
| 103 | 36 | 810.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -810.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 810.49 | 0.00 | -0.30 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -539.19 | -40.54 | -142.38 | 0.00 | -243.75 | 69.00 |
| 105 | 55 | 797.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -704.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 797.54 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -1026.94 | 0.00 | -53.57 | 0.00 | -91.71 | 0.00 |
| 107 | 74 | 804.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -726.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 804.55 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -1042.74 | -40.59 | -78.27 | 0.00 | -134.00 | 69.08 |
| 109 | 93 | 793.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -703.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 793.86 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -1019.81 | -38.05 | -77.67 | 0.00 | -132.97 | 64.76 |
| 111 | 111 | 830.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -749.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 830.32 | 0.00 | -0.17 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -1026.28 | -40.49 | -117.99 | 0.00 | -202.00 | 68.91 |
| 113 | 129 | 688.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -688.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 689.00 | 0.00 | 0.54 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -964.44 | 41.10 | -75.39 | 0.00 | -129.07 | -69.95 |
| 115 | 141 | 357.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -357.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 357.09 | 0.00 | -0.32 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -224.63 | 395.38 | -47.44 | 0.00 | -81.22 | -677.02 |
| 117 | 6 | 836.45 | -33.76 | -19.12 | 0.00 | 952.66 | -33.76 |
| 117 | 7 | -737.93 | 0.00 | 10.63 | 0.00 | -938.26 | 0.00 |
| 118 | 145 | 701.76 | -587.54 | -38.57 | 0.00 | 1123.79 | -587.54 |
| 118 | 146 | -701.76 | 587.54 | 38.27 | 0.00 | -1085.45 | 0.00 |
| 119 | 3 | 0.00 | 411.82 | -0.01 | 0.00 | 0.02 | 0.00 |
| 119 | 1 | 0.00 | -469.20 | -16.85 | 28.73 | -71.77 | 1994.11 |
| 120 | 1 | 1.32 | -410.11 | -16.90 | 28.73 | 71.73 | -1740.70 |
| 120 | 5 | -1.28 | 397.04 | -16.84 | 28.73 | -0.05 | -2.19 |
| 121 | 20 | 0.00 | 873.70 | 36.13 | -61.77 | 0.06 | 0.00 |
| 121 | 15 | 0.00 | -1180.36 | -36.05 | 61.77 | -67.46 | 2183.67 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 122 | 15 | 2.18 | -1086.71 | -36.35 | 61.77 | 67.10 | -2006.70 |
| 122 | 22 | -12.06 | 599.57 | 36.45 | -61.77 | -0.39 | -20.64 |
| 123 | 37 | 0.00 | 625.68 | -40.56 | 69.00 | 0.01 | 0.00 |
| 123 | 32 | 0.00 | -1128.42 | -40.43 | 69.00 | -75.40 | 2087.58 |
| 124 | 32 | -6.35 | -1058.82 | -40.49 | 69.00 | 74.88 | -1969.68 |
| 124 | 39 | -3.01 | 960.62 | 40.59 | -69.00 | -0.48 | -5.15 |
| 125 | 56 | 0.00 | 1155.93 | -39.92 | 67.79 | -0.19 | 0.01 |
| 125 | 49 | 0.00 | -891.89 | -39.98 | 67.79 | -74.01 | 1650.02 |
| 126 | 49 | 18.22 | -731.04 | -39.91 | 67.79 | 73.68 | -1321.21 |
| 126 | 58 | -18.92 | 998.09 | 39.68 | -67.79 | -0.18 | -32.37 |
| 127 | 75 | 0.00 | 634.05 | 40.46 | -69.08 | 0.01 | -0.01 |
| 127 | 68 | 0.00 | -1051.32 | -40.62 | 69.08 | -75.22 | 1944.94 |
| 128 | 68 | 0.03 | -1164.70 | -40.30 | 69.08 | 75.21 | -2154.62 |
| 128 | 77 | -3.31 | 896.45 | 40.67 | -69.08 | -0.01 | -5.65 |
| 129 | 94 | 0.00 | 976.03 | 38.07 | -64.76 | 0.07 | -0.01 |
| 129 | 87 | 0.00 | -952.93 | -38.13 | 64.76 | -70.54 | 1762.91 |
| 130 | 87 | -6.68 | -1109.02 | -38.07 | 64.76 | 70.45 | -2063.15 |
| 130 | 96 | -0.77 | 952.28 | 38.01 | -64.76 | -0.15 | -1.33 |
| 131 | 112 | -0.01 | 1299.94 | -0.09 | 0.00 | 0.01 | -0.01 |
| 131 | 106 | 0.00 | -1032.80 | -40.48 | 68.91 | -74.92 | 1910.70 |
| 132 | 106 | 0.91 | -1111.18 | -40.57 | 68.92 | 74.85 | -2054.13 |
| 132 | 114 | -12.51 | 1102.08 | 40.47 | -68.91 | -0.05 | -21.42 |
| 133 | 130 | 0.00 | 791.35 | -41.09 | 69.95 | 0.02 | 0.00 |
| 133 | 124 | 0.00 | -1257.38 | -41.06 | 69.95 | -76.09 | 2326.15 |
| 134 | 124 | -0.54 | -1232.70 | -41.09 | 69.95 | 76.08 | -2281.43 |
| 134 | 132 | 0.79 | 860.91 | 41.15 | -69.95 | -0.04 | 1.35 |
| 135 | 142 | 0.00 | 333.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -542.21 | -657.15 | 1125.17 | -2792.88 | 2304.41 |
| 136 | 140 | 0.46 | -542.03 | -657.15 | 1125.17 | 2792.88 | -2302.82 |
| 136 | 144 | -0.32 | 357.09 | 0.00 | 0.00 | 0.00 | -0.55 |
| 137 | 2 | 0.00 | -337.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 339.05 | -16.88 | 0.00 | -71.57 | -1440.96 |
| 138 | 7 | -0.41 | 339.03 | -16.88 | 0.00 | 71.57 | 1440.89 |
| 138 | 4 | 0.41 | -337.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -725.88 | 0.01 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 725.40 | -36.28 | 0.00 | -66.79 | -1341.99 |
| 140 | 18 | 0.73 | 725.65 | -36.30 | 0.00 | 66.77 | 1342.45 |
| 140 | 21 | -0.73 | -725.65 | 0.01 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -810.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 810.93 | -40.54 | 0.00 | -74.59 | -1500.21 |
| 142 | 35 | -0.30 | 810.62 | -40.53 | 0.00 | 74.60 | 1499.65 |
| 142 | 38 | 0.30 | -810.36 | 0.01 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -797.36 | 0.26 | 0.00 | 0.08 | 0.01 |
| 143 | 54 | 0.00 | 797.38 | -40.08 | 0.00 | -73.09 | -1475.15 |
| 144 | 54 | -0.01 | 797.44 | -39.74 | 0.00 | 73.22 | 1475.29 |
| 144 | 57 | 0.01 | -797.46 | -0.08 | 0.00 | -0.09 | 0.01 |
| 145 | 74 | 0.00 | -804.26 | 0.05 | 0.00 | 0.11 | 0.00 |
| 145 | 73 | 0.00 | 804.78 | -40.54 | 0.00 | -74.77 | -1488.85 |
| 146 | 73 | -0.02 | 804.71 | -40.58 | 0.00 | 74.69 | 1488.72 |
| 146 | 76 | 0.02 | -804.81 | -0.04 | 0.00 | -0.02 | 0.00 |
| 147 | 93 | 0.00 | -794.98 | 0.07 | 0.00 | 0.09 | 0.01 |
| 147 | 92 | 0.00 | 792.70 | -37.98 | 0.00 | -69.97 | -1466.50 |
| 148 | 92 | -0.03 | 792.92 | -38.05 | 0.00 | 70.07 | 1466.91 |
| 148 | 95 | 0.02 | -794.79 | 0.00 | 0.00 | -0.05 | 0.00 |
| 149 | 111 | 0.00 | -834.54 | -0.02 | 0.00 | 0.02 | 0.00 |
| 149 | 110 | 0.00 | 835.37 | -40.48 | 0.00 | -74.45 | -1545.43 |
| 150 | 110 | -0.19 | 834.07 | -40.52 | 0.00 | 74.49 | 1543.03 |
| 150 | 113 | 0.20 | -834.89 | 0.03 | 0.00 | -0.01 | 0.00 |
| 151 | 129 | 0.00 | -669.32 | -0.06 | 0.00 | 0.01 | 0.00 |
| 151 | 128 | 0.00 | 665.04 | -41.05 | 0.00 | -75.65 | -1230.32 |
| 152 | 128 | 0.58 | 670.06 | -41.12 | 0.00 | 75.60 | 1239.61 |
| 152 | 131 | -0.60 | -665.79 | 0.02 | 0.00 | -0.03 | 0.00 |
| 153 | 141 | 0.00 | -357.22 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 416.68 | -657.14 | 0.00 | -2792.99 | -1770.88 |
| 154 | 146 | -0.28 | 416.57 | -657.14 | 0.00 | 2792.99 | 1770.43 |
| 154 | 143 | 0.32 | -357.09 | 0.00 | 0.00 | 0.00 | 0.00 |

## DESPLAZAMIENTOS DE NUDOS

| NUDO | DESP. X | DESP. Y | DESP. Z | GIRO X | GIRO Y | GIRO Z |
|---|---|---|---|---|---|---|
| 1 | 0.274032 | -0.000740 | -0.000245 | -0.000073 | 0.000104 | -0.000418 |
| 2 | -0.000011 | -0.000242 | 0.000000 | -0.000079 | 0.000004 | 0.000000 |
| 3 | 0.268758 | -0.000748 | -0.000245 | 0.000032 | 0.000108 | -0.000437 |
| 4 | 0.000011 | -0.000239 | 0.000000 | 0.000078 | 0.000004 | 0.000000 |
| 5 | 0.279306 | -0.000265 | -0.000245 | -0.000133 | 0.000108 | -0.000398 |
| 7 | 0.000000 | -0.000017 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 8 | 0.270534 | -0.003239 | -0.000720 | -0.000228 | 0.000104 | -0.000463 |
| 9 | 0.267032 | -0.005248 | -0.001188 | -0.000358 | 0.000103 | -0.000319 |
| 10 | 0.263484 | -0.006158 | -0.001650 | -0.000464 | 0.000102 | -0.000082 |
| 11 | 0.259931 | -0.005925 | -0.002105 | -0.000544 | 0.000102 | 0.000109 |
| 12 | 0.256374 | -0.005031 | -0.002556 | -0.000599 | 0.000102 | 0.000209 |
| 13 | 0.252820 | -0.003925 | -0.003007 | -0.000629 | 0.000103 | 0.000225 |
| 14 | 0.249273 | -0.002873 | -0.003461 | -0.000634 | 0.000106 | 0.000203 |
| 15 | 0.245515 | -0.001747 | -0.003928 | -0.000613 | 0.000110 | -0.000093 |
| 17 | 0.000000 | -0.000501 | -0.000004 | -0.000001 | 0.000000 | 0.000000 |
| 18 | 0.000000 | -0.000907 | -0.000011 | -0.000001 | 0.000000 | 0.000000 |
| 19 | -0.002333 | -0.000949 | -0.000011 | -0.000033 | 0.000002 | 0.000306 |
| 20 | 0.240530 | -0.002819 | -0.003928 | -0.000562 | 0.000111 | -0.000115 |
| 21 | 0.002333 | -0.000945 | -0.000011 | 0.000031 | 0.000002 | -0.000306 |
| 22 | 0.250501 | -0.000581 | -0.003927 | -0.000638 | 0.000111 | -0.000071 |
| 23 | 0.237189 | -0.003955 | -0.004366 | -0.000781 | 0.000115 | -0.000474 |
| 24 | 0.233481 | -0.006625 | -0.004832 | -0.000921 | 0.000122 | -0.000474 |
| 25 | 0.229744 | -0.008374 | -0.005328 | -0.001037 | 0.000129 | -0.000311 |
| 26 | 0.226033 | -0.009462 | -0.005916 | -0.001137 | 0.000138 | -0.000151 |
| 27 | 0.222320 | -0.009766 | -0.006543 | -0.001213 | 0.000148 | 0.000045 |
| 28 | 0.218611 | -0.009037 | -0.007216 | -0.001263 | 0.000160 | 0.000235 |
| 29 | 0.084085 | -0.007330 | -0.007954 | -0.001288 | 0.000175 | 0.000300 |
| 30 | 0.082544 | -0.005846 | -0.008750 | -0.001288 | 0.000192 | 0.000317 |
| 31 | 0.081036 | -0.004276 | -0.009626 | -0.001263 | 0.000211 | 0.000324 |
| 32 | 0.079265 | -0.002406 | -0.010447 | -0.001191 | 0.000234 | -0.000076 |
| 34 | 0.000000 | -0.000798 | 0.000003 | 0.000001 | 0.000000 | 0.000000 |
| 35 | 0.000000 | -0.001249 | 0.000007 | 0.000001 | 0.000000 | 0.000000 |
| 36 | -0.004650 | -0.001292 | 0.000007 | -0.000035 | 0.000002 | 0.000516 |
| 37 | 0.074204 | -0.004534 | -0.010447 | -0.001130 | 0.000236 | -0.000104 |
| 38 | 0.004650 | -0.001294 | 0.000007 | 0.000037 | 0.000002 | -0.000516 |
| 39 | 0.084326 | -0.000156 | -0.010440 | -0.001232 | 0.000236 | -0.000049 |
| 40 | 0.077503 | -0.004871 | -0.011460 | -0.001318 | 0.000256 | -0.000545 |
| 41 | 0.076008 | -0.007774 | -0.012704 | -0.001442 | 0.000273 | -0.000519 |
| 42 | 0.074509 | -0.009829 | -0.014005 | -0.001540 | 0.000283 | -0.000374 |
| 43 | 0.073005 | -0.011193 | -0.015339 | -0.001612 | 0.000289 | -0.000219 |
| 44 | 0.071499 | -0.011836 | -0.016685 | -0.001659 | 0.000290 | -0.000024 |
| 45 | 0.070001 | -0.011410 | -0.018022 | -0.001681 | 0.000287 | 0.000179 |
| 46 | 0.068509 | -0.010131 | -0.019332 | -0.001677 | 0.000280 | 0.000312 |
| 47 | 0.067115 | -0.008517 | -0.020598 | -0.001647 | 0.000269 | 0.000357 |
| 48 | 0.065819 | -0.006790 | -0.021804 | -0.001592 | 0.000255 | 0.000366 |
| 49 | 0.064259 | -0.004711 | -0.022693 | -0.001486 | 0.000239 | -0.000018 |
| 51 | 0.000000 | -0.000657 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 52 | 0.000000 | -0.001674 | 0.000001 | 0.000000 | 0.000000 | 0.000000 |
| 53 | 0.000000 | -0.002718 | 0.000004 | 0.000000 | 0.000000 | 0.000000 |
| 54 | 0.000000 | -0.003163 | 0.000005 | 0.000000 | 0.000000 | 0.000000 |
| 55 | -0.059488 | -0.003206 | 0.000005 | -0.000035 | 0.000002 | 0.002865 |
| 56 | 0.059462 | -0.007387 | -0.022693 | -0.001427 | 0.000241 | -0.000044 |
| 57 | 0.059488 | -0.003207 | 0.000005 | 0.000036 | 0.000002 | -0.002865 |
| 58 | 0.069055 | -0.001925 | -0.022693 | -0.001515 | 0.000241 | 0.000008 |
| 59 | 0.062708 | -0.006864 | -0.023502 | -0.001611 | 0.000221 | -0.000467 |
| 60 | 0.061423 | -0.009378 | -0.024468 | -0.001736 | 0.000201 | -0.000431 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 61 | 0.061093 | -0.010013 | -0.015840 | -0.001053 | 0.000181 | -0.000288 |
| 62 | 0.059610 | -0.004284 | -0.014785 | -0.000765 | 0.000168 | 0.000044 |
| 63 | 0.058307 | -0.004130 | -0.015522 | -0.000820 | 0.000154 | 0.000051 |
| 64 | 0.057010 | -0.003821 | -0.016188 | -0.000870 | 0.000139 | 0.000059 |
| 65 | 0.055718 | -0.003427 | -0.016655 | -0.000899 | 0.000123 | 0.000014 |
| 66 | 0.054426 | -0.003636 | -0.017048 | -0.000926 | 0.000108 | -0.000041 |
| 67 | 0.052678 | -0.006006 | -0.000002 | 0.000102 | 0.000097 | 0.000372 |
| 68 | 0.051126 | -0.004023 | -0.000453 | -0.000020 | 0.000098 | 0.000000 |
| 70 | 0.000000 | -0.000347 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 71 | 0.000000 | -0.001371 | 0.000001 | 0.000000 | 0.000000 | 0.000000 |
| 72 | 0.000000 | -0.002424 | 0.000004 | 0.000000 | 0.000000 | 0.000000 |
| 73 | 0.000000 | -0.002872 | 0.000005 | 0.000000 | 0.000000 | 0.000000 |
| 74 | -0.045519 | -0.002916 | 0.000005 | -0.000035 | 0.000002 | 0.002418 |
| 75 | 0.046978 | -0.004008 | -0.000453 | 0.000021 | 0.000100 | -0.000026 |
| 76 | 0.045519 | -0.002916 | 0.000005 | 0.000036 | 0.000002 | -0.002418 |
| 77 | 0.055273 | -0.003937 | -0.000453 | -0.000060 | 0.000100 | 0.000025 |
| 78 | 0.049865 | -0.003735 | 0.001981 | 0.000172 | 0.000098 | -0.000003 |
| 79 | 0.048589 | -0.004034 | 0.001520 | 0.000124 | 0.000102 | 0.000006 |
| 80 | 0.047674 | -0.004374 | 0.016132 | 0.000902 | 0.000116 | 0.000023 |
| 81 | 0.046382 | -0.004340 | 0.015700 | 0.000885 | 0.000131 | 0.000023 |
| 82 | 0.045085 | -0.004267 | 0.015069 | 0.000845 | 0.000144 | 0.000037 |
| 83 | 0.043794 | -0.004006 | 0.014377 | 0.000801 | 0.000156 | 0.000055 |
| 84 | 0.042521 | -0.009187 | 0.015697 | 0.001114 | 0.000167 | 0.000359 |
| 85 | 0.041231 | -0.007468 | 0.014892 | 0.001002 | 0.000179 | 0.000371 |
| 86 | 0.039940 | -0.005743 | 0.014036 | 0.000886 | 0.000188 | 0.000383 |
| 87 | 0.038386 | -0.003619 | 0.013143 | 0.000766 | 0.000193 | 0.000068 |
| 89 | 0.000000 | -0.000100 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 90 | 0.000000 | -0.001113 | 0.000001 | 0.000000 | 0.000000 | 0.000000 |
| 91 | 0.000000 | -0.002153 | 0.000004 | 0.000000 | 0.000000 | 0.000000 |
| 92 | 0.000000 | -0.002596 | 0.000005 | 0.000000 | 0.000000 | 0.000000 |
| 93 | -0.033466 | -0.002636 | 0.000005 | -0.000035 | 0.000002 | 0.001931 |
| 94 | 0.034569 | -0.002161 | 0.013143 | 0.000802 | 0.000195 | 0.000037 |
| 95 | 0.033466 | -0.002643 | 0.000005 | 0.000035 | 0.000002 | -0.001931 |
| 96 | 0.042202 | -0.004983 | 0.013141 | 0.000728 | 0.000195 | 0.000099 |
| 97 | 0.036992 | -0.003008 | 0.014168 | 0.000902 | 0.000197 | 0.000091 |
| 98 | 0.035714 | -0.002868 | 0.013369 | 0.000875 | 0.000202 | 0.000119 |
| 99 | 0.034433 | -0.002085 | 0.012434 | 0.000830 | 0.000207 | 0.000168 |
| 100 | 0.033662 | -0.009830 | 0.020870 | 0.001896 | 0.000213 | -0.000066 |
| 101 | 0.032349 | -0.009828 | 0.019882 | 0.001879 | 0.000218 | 0.000098 |
| 102 | 0.031042 | -0.008930 | 0.018874 | 0.001836 | 0.000220 | 0.000255 |
| 103 | 0.031257 | -0.007322 | 0.017856 | 0.001768 | 0.000220 | 0.000326 |
| 104 | 0.029920 | -0.005773 | 0.016843 | 0.001674 | 0.000217 | 0.000310 |
| 105 | 0.028579 | -0.004362 | 0.015848 | 0.001556 | 0.000210 | 0.000261 |
| 106 | 0.026973 | -0.002915 | 0.014889 | 0.001411 | 0.000199 | -0.000180 |
| 108 | 0.000000 | -0.000106 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 109 | 0.000000 | -0.001190 | 0.000004 | 0.000000 | 0.000000 | 0.000000 |
| 110 | 0.000000 | -0.001652 | 0.000006 | 0.000000 | 0.000000 | 0.000000 |
| 111 | -0.009279 | -0.001704 | 0.000007 | -0.000036 | 0.000002 | 0.000833 |
| 112 | 0.023764 | -0.000255 | 0.014889 | 0.001442 | 0.000201 | -0.000179 |
| 113 | 0.009279 | -0.001690 | 0.000005 | 0.000037 | 0.000002 | -0.000833 |
| 114 | 0.030182 | -0.005471 | 0.014885 | 0.001360 | 0.000201 | -0.000180 |
| 115 | 0.025375 | -0.006075 | 0.014051 | 0.001443 | 0.000188 | -0.000710 |
| 116 | 0.024041 | -0.009820 | 0.013682 | 0.001531 | 0.000180 | -0.000701 |
| 117 | 0.022699 | -0.012725 | 0.012908 | 0.001529 | 0.000175 | -0.000543 |
| 118 | 0.021349 | -0.014823 | 0.012146 | 0.001500 | 0.000173 | -0.000348 |
| 119 | 0.019995 | -0.015950 | 0.011387 | 0.001447 | 0.000173 | -0.000083 |
| 120 | 0.018647 | -0.015631 | 0.010623 | 0.001368 | 0.000174 | 0.000218 |
| 121 | 0.017302 | -0.013951 | 0.009846 | 0.001264 | 0.000176 | 0.000479 |
| 122 | 0.015954 | -0.011277 | 0.009218 | 0.001157 | 0.000180 | 0.000698 |
| 123 | 0.014602 | -0.007585 | 0.008402 | 0.001003 | 0.000185 | 0.000927 |
| 124 | 0.012988 | -0.002501 | 0.007563 | 0.000825 | 0.000189 | 0.000811 |
| 126 | 0.000000 | -0.000090 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 127 | 0.000000 | -0.001006 | -0.000014 | -0.000002 | 0.000000 | 0.000000 |
| 128 | 0.000000 | -0.001393 | -0.000024 | -0.000002 | 0.000000 | 0.000000 |
| 129 | -0.009419 | -0.001395 | -0.000027 | -0.000032 | 0.000002 | 0.000846 |
| 130 | 0.010533 | -0.000997 | 0.007564 | 0.000852 | 0.000191 | 0.000674 |
| 131 | 0.009419 | -0.001467 | -0.000022 | 0.000030 | 0.000002 | -0.000846 |
| 132 | 0.015444 | -0.003908 | 0.007561 | 0.000775 | 0.000191 | 0.000947 |
| 133 | 0.013403 | 0.000522 | 0.006706 | 0.000821 | 0.000195 | 0.000673 |
| 134 | 0.011981 | 0.003642 | 0.005822 | 0.000792 | 0.000200 | 0.000584 |
| 135 | 0.010542 | 0.005863 | 0.004909 | 0.000738 | 0.000206 | 0.000369 |
| 136 | 0.009101 | 0.007032 | 0.003966 | 0.000658 | 0.000212 | 0.000161 |
| 137 | 0.007668 | 0.007357 | 0.002995 | 0.000553 | 0.000217 | -0.000074 |
| 138 | 0.006247 | 0.006521 | 0.002001 | 0.000423 | 0.000221 | -0.000407 |
| 139 | 0.004992 | 0.003948 | 0.000987 | 0.000267 | 0.000224 | -0.000867 |
| 140 | 0.003748 | -0.000931 | -0.000038 | 0.000086 | 0.000225 | -0.001525 |
| 141 | -0.001254 | -0.000083 | 0.000014 | -0.000036 | 0.000328 | 0.000012 |
| 142 | 0.002498 | -0.000355 | -0.000038 | 0.000161 | 0.000329 | -0.001727 |
| 143 | 0.001258 | -0.000514 | 0.000017 | 0.000160 | 0.000329 | -0.000012 |
| 144 | 0.000703 | -0.000863 | -0.000020 | -0.000029 | 0.000328 | -0.000145 |
| 146 | 0.000008 | -0.000023 | 0.000014 | 0.000027 | 0.000225 | -0.000012 |

HIPOTESIS 210

MOME Y MIN envolvente (ELS)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 9111.62 | 427.36 | -0.41 | 0.77 | 0.00 | 1571.47 |
| 1 | 8 | -9175.64 | -321.41 | 24.70 | 649.60 | 122.57 | 254.24 |
| 2 | 8 | 9175.65 | 321.41 | -24.70 | -649.60 | -122.57 | -254.24 |
| 2 | 9 | -9199.63 | -148.23 | 19.66 | 584.26 | 222.39 | 1319.19 |
| 3 | 9 | 9572.87 | 148.23 | -19.66 | -584.26 | -222.39 | -1561.22 |
| 3 | 10 | -9614.67 | 37.10 | 24.07 | 376.25 | 324.89 | 2001.29 |
| 4 | 10 | 9614.68 | -37.10 | -24.07 | -376.25 | -324.89 | -2001.29 |
| 4 | 11 | -9686.32 | 120.49 | 24.07 | 192.70 | 433.19 | 1489.95 |
| 5 | 11 | 9686.30 | -120.49 | -24.07 | -192.70 | -433.19 | -1489.95 |
| 5 | 12 | -9691.08 | 125.62 | 24.07 | 9.14 | 541.49 | 955.38 |
| 6 | 12 | 9691.08 | -125.62 | -24.07 | -9.14 | -541.49 | -955.38 |
| 6 | 13 | -9610.53 | -2.24 | 24.07 | -174.42 | 649.79 | 642.01 |
| 7 | 13 | 9581.11 | 2.24 | -24.07 | 174.42 | -649.79 | -645.96 |
| 7 | 14 | -9621.32 | 192.81 | 43.74 | -353.41 | 833.48 | 675.18 |
| 8 | 14 | 9621.33 | -192.81 | -43.74 | 353.41 | -833.48 | -675.18 |
| 8 | 15 | -13815.86 | 977.26 | 48.59 | -375.30 | 1041.24 | -3556.29 |
| 9 | 15 | 13888.45 | 812.85 | 15.08 | -149.09 | -1041.24 | 3679.82 |
| 9 | 23 | -11053.51 | -632.72 | -10.25 | 127.50 | 975.78 | -77.22 |
| 10 | 23 | 11053.51 | 632.72 | 10.25 | -127.50 | -975.78 | 77.22 |
| 10 | 24 | -11117.61 | -137.91 | -5.39 | -5.64 | 932.13 | 1541.64 |
| 11 | 24 | 11673.48 | 137.91 | 5.39 | 5.64 | -932.13 | -1945.79 |
| 11 | 25 | -11110.31 | 13.83 | -0.50 | -138.71 | 910.41 | 1615.47 |
| 12 | 25 | 11110.35 | -13.83 | 0.50 | 138.71 | -910.41 | -1615.47 |
| 12 | 26 | -11208.09 | -49.83 | 10.43 | -219.08 | 914.80 | 1739.69 |
| 13 | 26 | 11208.08 | 49.83 | -10.43 | 219.08 | -914.80 | -1739.69 |
| 13 | 27 | -11179.81 | 35.46 | 15.36 | -352.03 | 964.35 | 1929.40 |
| 14 | 27 | 11179.81 | -35.46 | -15.36 | 352.03 | -964.35 | -1929.40 |
| 14 | 28 | -11155.29 | 163.26 | 20.32 | -484.92 | 1036.13 | 1589.60 |
| 15 | 28 | 11155.29 | -163.26 | -20.32 | 484.92 | -1036.13 | -1589.61 |
| 15 | 29 | -11112.48 | 109.37 | 34.23 | -336.36 | 1158.04 | 1363.39 |
| 16 | 29 | 11112.45 | -109.37 | -34.23 | 336.36 | -1158.04 | -1363.39 |
| 16 | 30 | -10465.68 | 27.05 | 48.54 | -379.65 | 1344.76 | 783.02 |
| 17 | 30 | 10465.70 | -27.05 | -48.54 | 379.65 | -1344.76 | -783.02 |
| 17 | 31 | -10464.17 | 390.89 | 50.87 | -508.31 | 1568.54 | 322.88 |
| 18 | 31 | 10464.18 | -390.89 | -50.87 | 508.31 | -1568.54 | -322.88 |
| 18 | 32 | -11131.56 | 1197.97 | 55.97 | -529.80 | 1817.30 | -5918.28 |
| 19 | 32 | 11131.57 | 785.99 | 81.46 | -184.08 | -1817.31 | 5918.28 |
| 19 | 40 | -7696.06 | -689.84 | -76.34 | 163.30 | 1470.67 | -1298.70 |
| 20 | 40 | 7696.04 | 689.84 | 76.34 | -163.30 | -1470.67 | 1298.70 |
| 20 | 41 | -7741.99 | -260.72 | -71.08 | 31.28 | 1147.38 | 740.73 |
| 21 | 41 | 7742.02 | 260.72 | 71.08 | -31.28 | -1147.38 | -740.73 |
| 21 | 42 | -7736.88 | -95.54 | -65.67 | -100.40 | 848.17 | 1373.51 |
| 22 | 42 | 7736.90 | 95.54 | 65.67 | 100.40 | -848.17 | -1373.51 |
| 22 | 43 | -7791.88 | -100.02 | -50.34 | -178.01 | 586.61 | 1867.59 |
| 23 | 43 | 7791.82 | 100.02 | 50.34 | 178.01 | -586.61 | -1867.59 |
| 23 | 44 | -7736.26 | 12.75 | -6.86 | -278.47 | 554.59 | 2441.35 |
| 24 | 44 | 7736.29 | -12.75 | 6.86 | 278.47 | -554.59 | -2441.35 |
| 24 | 45 | -7710.59 | 159.94 | 27.12 | -306.38 | 648.77 | 1866.14 |
| 25 | 45 | 7710.62 | -159.94 | -27.12 | 306.38 | -648.78 | -1866.14 |
| 25 | 46 | -7698.73 | 199.39 | 40.06 | -75.44 | 848.48 | 1071.66 |
| 26 | 46 | 7698.69 | -199.39 | -40.06 | 75.44 | -848.48 | -1071.66 |
| 26 | 47 | -6664.05 | 152.67 | 34.17 | -238.92 | 1023.98 | 161.06 |
| 27 | 47 | 6664.06 | -152.67 | -34.17 | 238.92 | -1023.98 | -161.06 |
| 27 | 48 | -6663.03 | 489.48 | 28.19 | -402.63 | 1172.77 | -986.63 |
| 28 | 48 | 6663.00 | -489.48 | -28.19 | 402.63 | -1172.77 | 986.63 |
| 28 | 49 | -9827.42 | 1193.22 | 25.79 | -430.99 | 1305.00 | -6041.71 |
| 29 | 49 | 9747.78 | 793.37 | -21.59 | -567.31 | -1304.99 | 5906.13 |
| 29 | 59 | -6500.60 | -609.90 | 16.03 | 522.05 | 1398.51 | -930.30 |
| 30 | 59 | 6500.64 | 609.90 | -16.03 | -522.05 | -1398.51 | 930.30 |
| 30 | 60 | -6551.06 | -203.23 | 9.91 | 357.95 | 1465.34 | 797.46 |
| 31 | 60 | 6551.01 | 203.23 | -9.91 | -357.95 | -1465.34 | -797.46 |
| 31 | 61 | -6564.79 | -64.31 | 3.78 | 193.80 | 1504.61 | 1233.56 |
| 32 | 61 | 6564.81 | 64.31 | -3.78 | -193.80 | -1504.61 | -1233.56 |
| 32 | 62 | -6602.09 | -64.84 | 6.35 | 280.76 | 1550.25 | 1256.94 |
| 33 | 62 | 6602.12 | 64.84 | -6.36 | -280.76 | -1550.25 | -1256.94 |
| 33 | 63 | -6563.02 | 12.56 | 0.50 | 151.92 | 1576.53 | 1508.62 |
| 34 | 63 | 6562.97 | -12.56 | -0.50 | -151.92 | -1576.53 | -1508.62 |
| 34 | 64 | -6526.70 | 119.81 | -5.67 | 18.94 | 1575.47 | 1217.62 |
| 35 | 64 | 6526.72 | -119.81 | 5.68 | -18.94 | -1575.47 | -1217.62 |
| 35 | 65 | -6637.47 | 160.30 | -6.00 | -53.12 | 1547.21 | 649.15 |
| 36 | 65 | 6637.44 | -160.30 | 6.00 | 53.12 | -1547.21 | -649.15 |
| 36 | 66 | -6648.75 | 89.71 | -12.20 | -207.34 | 1516.84 | 16.40 |
| 37 | 66 | 6648.78 | -89.71 | 12.20 | 207.34 | -1516.84 | -16.41 |
| 37 | 67 | -6542.12 | 395.15 | -16.12 | -387.86 | 1462.89 | -530.08 |
| 38 | 67 | 6542.13 | -395.15 | 16.12 | 387.86 | -1462.89 | 530.08 |
| 38 | 68 | -9701.73 | 1079.24 | -22.34 | -440.96 | 1384.81 | -5073.99 |
| 39 | 68 | 9620.52 | 665.41 | -3.23 | -374.92 | -1384.82 | 4935.82 |
| 39 | 78 | -6368.51 | -616.88 | 1.72 | 377.48 | 1414.52 | -960.04 |
| 40 | 78 | 6368.52 | 616.88 | -1.72 | -377.48 | -1414.53 | 960.04 |
| 40 | 79 | -6531.92 | -210.00 | -2.11 | 293.18 | 1426.29 | 668.78 |
| 41 | 79 | 6531.95 | 210.00 | 2.10 | -293.18 | -1426.29 | -668.78 |
| 41 | 80 | -6546.49 | -73.45 | -8.27 | 139.06 | 1413.51 | 1123.23 |
| 42 | 80 | 6546.46 | 73.45 | 8.27 | -139.06 | -1413.51 | -1123.23 |
| 42 | 81 | -6463.06 | -70.58 | -9.12 | 81.34 | 1388.60 | 1277.09 |
| 43 | 81 | 6463.08 | 70.58 | 9.12 | -81.34 | -1388.60 | -1277.09 |
| 43 | 82 | -6431.11 | 0.27 | -15.23 | -51.47 | 1344.40 | 1502.05 |
| 44 | 82 | 6588.58 | 1.71 | 15.23 | 51.47 | -1344.40 | -1504.79 |
| 44 | 83 | -7260.46 | 159.54 | -14.38 | -120.93 | 1283.10 | 1988.45 |
| 45 | 83 | 7260.48 | -159.54 | 14.38 | 120.93 | -1283.10 | -1988.45 |
| 45 | 84 | -7393.71 | 186.86 | -13.84 | -133.67 | 1241.35 | 1114.42 |
| 46 | 84 | 7393.73 | -186.86 | 13.84 | 133.67 | -1241.35 | -1114.42 |
| 46 | 85 | -7421.33 | 147.60 | -19.86 | -297.50 | 1173.98 | 300.02 |
| 47 | 85 | 7421.32 | -147.60 | 19.86 | 297.50 | -1173.98 | -300.02 |
| 47 | 86 | -9490.85 | 382.72 | -25.25 | -454.57 | 1079.94 | 371.51 |
| 48 | 86 | 9490.84 | -382.72 | 25.25 | 454.57 | -1079.94 | -371.51 |
| 48 | 87 | -13599.49 | 1232.13 | -24.84 | -451.73 | 976.00 | -4715.11 |
| 49 | 87 | 13675.60 | 714.84 | 7.58 | -461.48 | -976.01 | 4844.64 |
| 49 | 97 | -9457.50 | -644.20 | -13.15 | 415.78 | 937.84 | -175.65 |
| 50 | 97 | 9457.50 | 644.20 | 13.15 | -415.78 | -937.84 | 175.65 |
| 50 | 98 | -9523.10 | -149.39 | -19.02 | 252.38 | 873.90 | 1495.85 |
| 51 | 98 | 9523.10 | 149.39 | 19.02 | -252.38 | -873.90 | -1495.85 |
| 51 | 99 | -9532.79 | -1.06 | -21.07 | 89.11 | 783.66 | 1638.67 |
| 52 | 99 | 9532.80 | 1.06 | 21.07 | -89.11 | -783.66 | -1638.67 |
| 52 | 100 | -9620.53 | -54.25 | -26.83 | -74.01 | 667.42 | 1682.04 |
| 53 | 100 | 9620.52 | 54.25 | 26.83 | 74.01 | -667.41 | -1682.04 |
| 53 | 101 | -9582.17 | 15.41 | -12.76 | 162.96 | 590.98 | 1856.47 |
| 54 | 101 | 9582.17 | -15.41 | 12.76 | -162.96 | -590.98 | -1856.47 |
| 54 | 102 | -9588.90 | 162.13 | 10.97 | 119.26 | 610.56 | 1748.68 |
| 55 | 102 | 9588.90 | -162.13 | -10.97 | -119.26 | -610.56 | -1748.69 |
| 55 | 103 | -9590.55 | 148.49 | 21.27 | 4.46 | 660.91 | 834.60 |
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| 56 | 104 | -9583.86 | 11.50 | 54.54 | -23.64 | 860.81 | 341.61 |
| 57 | 104 | 9583.86 | -11.50 | -54.54 | 23.64 | -860.81 | -341.61 |
| 57 | 105 | -9590.82 | 385.23 | 59.99 | -155.14 | 1110.07 | -148.41 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 58 | 105 | 9590.83 | -385.23 | -59.99 | 155.14 | -1110.07 | 148.41 |
| 58 | 106 | -13708.77 | 1252.87 | 65.36 | -175.54 | 1383.67 | -5411.25 |
| 59 | 106 | 13789.74 | 787.99 | 50.88 | -523.86 | -1383.67 | 5549.08 |
| 59 | 115 | -9580.93 | -720.36 | -45.07 | 506.61 | 1158.89 | -567.13 |
| 60 | 115 | 9580.94 | 720.36 | 45.07 | -506.61 | -1158.89 | 567.13 |
| 60 | 116 | -9654.71 | -232.21 | -38.38 | 376.22 | 964.80 | 1381.21 |
| 61 | 116 | 9654.71 | 232.21 | 38.38 | -376.22 | -964.80 | -1381.21 |
| 61 | 117 | -9689.98 | -88.10 | -33.04 | 244.39 | 795.63 | 1768.08 |
| 62 | 117 | 9689.98 | 88.10 | 33.04 | -244.39 | -795.62 | -1768.08 |
| 62 | 118 | -9823.39 | -159.40 | 12.82 | 422.55 | 703.74 | 2429.00 |
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| 63 | 119 | -9783.03 | -60.44 | 12.82 | 238.99 | 750.85 | 3082.12 |
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| 64 | 120 | -9746.35 | 81.01 | 13.32 | 64.59 | 798.46 | 3018.78 |
| 65 | 120 | 9746.36 | -81.02 | -13.32 | -64.59 | -798.46 | -3018.78 |
| 65 | 121 | -9733.15 | 93.87 | 13.32 | -118.96 | 847.80 | 2591.60 |
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| 66 | 122 | -9793.00 | -29.45 | 19.87 | -230.03 | 899.86 | 2322.96 |
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| 67 | 123 | -9794.89 | 358.84 | 19.87 | -413.58 | 978.70 | 1989.18 |
| 68 | 123 | 9794.89 | -358.84 | -19.87 | 413.58 | -978.70 | -1989.18 |
| 68 | 124 | -13852.46 | 1219.63 | 19.87 | -458.01 | 1057.54 | -3160.74 |
| 69 | 124 | 13934.66 | 547.12 | 23.63 | -393.81 | -1057.54 | 3300.64 |
| 69 | 133 | -9748.85 | -187.51 | -23.63 | 349.78 | 940.62 | 225.55 |
| 70 | 133 | 9748.84 | 187.51 | 23.63 | -349.78 | -940.62 | -225.55 |
| 70 | 134 | -9776.55 | 165.64 | -23.63 | 166.22 | 806.25 | -443.19 |
| 71 | 134 | 9823.48 | -165.64 | 23.63 | -166.22 | -806.25 | 457.40 |
| 71 | 135 | -9855.19 | -47.27 | -13.17 | -176.77 | 713.40 | -719.57 |
| 72 | 135 | 9855.20 | 47.27 | 13.17 | 176.77 | -713.39 | 719.57 |
| 72 | 136 | -9804.82 | 68.08 | -18.57 | -338.84 | 619.56 | -705.16 |
| 73 | 136 | 9804.82 | -68.08 | 18.57 | 338.84 | -619.56 | 705.16 |
| 73 | 137 | -9718.62 | 200.87 | -23.99 | -500.97 | 501.38 | -1237.26 |
| 74 | 137 | 9718.63 | -200.87 | 23.99 | 500.97 | -501.38 | 1237.26 |
| 74 | 138 | -9624.27 | 250.82 | -29.42 | -663.14 | 358.78 | -2205.77 |
| 75 | 138 | 8564.61 | -250.82 | 29.42 | 663.14 | -358.78 | 2168.82 |
| 75 | 139 | -8482.61 | 314.44 | -34.88 | -729.96 | 191.68 | -3306.24 |
| 76 | 139 | 8482.61 | -314.44 | 34.88 | 729.96 | -191.68 | 3306.24 |
| 76 | 140 | -7624.10 | 405.39 | -17.83 | -851.46 | 0.00 | -3586.60 |
| 77 | 16 | 2001.83 | -72.58 | 30.67 | 0.00 | -1477.67 | -747.57 |
| 77 | 17 | -1944.00 | 72.58 | -29.05 | 0.00 | 1318.67 | 362.90 |
| 78 | 17 | 1944.00 | -72.58 | 29.05 | 0.00 | -1318.67 | -362.90 |
| 78 | 18 | -1852.12 | -72.58 | 12.11 | 0.00 | 1184.90 | 0.00 |
| 79 | 33 | 1983.49 | 81.08 | 145.04 | 0.00 | -3193.72 | 1019.99 |
| 79 | 34 | -1901.06 | -81.08 | -143.29 | 0.00 | 2100.72 | -405.40 |
| 80 | 34 | 1901.06 | 81.08 | 143.29 | 0.00 | -2100.72 | 405.40 |
| 80 | 35 | -2225.40 | 81.08 | -43.50 | 0.00 | 1412.78 | 0.00 |
| 81 | 50 | 2185.21 | 79.66 | 10.22 | 0.00 | -1522.76 | 2509.29 |
| 81 | 51 | -2103.28 | -79.66 | -8.86 | 0.00 | 1460.76 | -1991.50 |
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| 82 | 52 | -1983.94 | -79.66 | -6.30 | 0.00 | 1384.23 | -1194.89 |
| 83 | 52 | 1983.94 | 79.66 | 6.30 | 0.00 | -1384.23 | 1194.90 |
| 83 | 53 | -1922.98 | -79.66 | -3.06 | 0.00 | 1337.06 | -398.30 |
| 84 | 53 | 1922.98 | 79.66 | 3.06 | 0.00 | -1337.07 | 398.29 |
| 84 | 54 | -1965.55 | -79.66 | 27.63 | 0.00 | 1380.23 | 0.00 |
| 85 | 69 | 2162.34 | 81.18 | 54.69 | 0.00 | -2640.80 | 2312.00 |
| 85 | 70 | -2117.79 | -81.18 | -53.89 | 0.00 | 2451.84 | -2029.50 |
| 86 | 70 | 2117.79 | 81.18 | 53.89 | 0.00 | -2451.84 | 2029.50 |
| 86 | 71 | -2003.18 | -81.18 | -51.06 | 0.00 | 1926.47 | -1217.70 |
| 87 | 71 | 2003.18 | 81.18 | 51.06 | 0.00 | -1926.47 | 1217.70 |
| 87 | 72 | -1936.88 | -81.18 | -47.69 | 0.00 | 1432.41 | -405.90 |
| 88 | 72 | 1936.88 | 81.18 | 47.69 | 0.00 | -1432.41 | 405.89 |
| 88 | 73 | -1980.06 | -81.18 | 6.81 | 0.00 | 1326.23 | 0.00 |
| 89 | 88 | 2113.45 | 76.10 | 46.62 | 0.00 | -2431.44 | 1978.60 |
| 89 | 89 | -2100.95 | -76.10 | -46.41 | 0.00 | 2384.93 | -1902.50 |
| 90 | 89 | 2100.95 | 76.10 | 46.41 | 0.00 | -2384.93 | 1902.50 |
| 90 | 90 | -1981.61 | -76.10 | -43.95 | 0.00 | 1932.54 | -1141.50 |
| 91 | 90 | 1981.61 | 76.10 | 43.95 | 0.00 | -1932.54 | 1141.50 |
| 91 | 91 | -1919.81 | -76.10 | -40.85 | 0.00 | 1508.08 | -380.50 |
| 92 | 91 | 1919.81 | 76.10 | 40.85 | 0.00 | -1508.08 | 380.50 |
| 92 | 92 | -2188.82 | -76.10 | 10.21 | 0.00 | 1374.71 | 0.00 |
| 93 | 107 | 2039.45 | 80.98 | 115.64 | 0.00 | -3121.52 | 1295.68 |
| 93 | 108 | -2027.97 | -80.98 | -115.43 | 0.00 | 3005.99 | -1214.70 |
| 94 | 108 | 2027.97 | 80.98 | 115.43 | 0.00 | -3005.99 | 1214.70 |
| 94 | 109 | -1919.13 | -80.98 | -112.97 | 0.00 | 1863.40 | -404.90 |
| 95 | 109 | 1919.13 | 80.98 | 112.97 | 0.00 | -1863.40 | 404.90 |
| 95 | 110 | -2278.00 | 80.98 | -27.78 | 0.00 | 1351.82 | 0.00 |
| 96 | 125 | 1927.55 | -82.20 | 20.90 | 0.00 | -1358.44 | -1315.20 |
| 96 | 126 | -1916.07 | 82.20 | -20.69 | 0.00 | 1337.64 | 1233.00 |
| 97 | 126 | 1916.07 | -82.20 | 20.69 | 0.00 | -1337.64 | -1233.00 |
| 97 | 127 | -1828.27 | 82.20 | -18.10 | 0.00 | 1142.80 | 411.00 |
| 98 | 127 | 1828.27 | -82.20 | 18.10 | 0.00 | -1142.80 | -411.00 |
| 98 | 128 | -1934.94 | -82.20 | 35.71 | 0.00 | 1111.07 | 0.00 |
| 99 | 2 | 337.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -337.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 4 | 337.37 | 0.00 | -0.41 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -479.07 | 16.88 | 29.78 | 0.00 | 50.98 | -28.73 |
| 101 | 19 | 725.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -725.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 102 | 21 | 725.89 | 0.00 | 0.73 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -859.30 | -36.29 | 71.79 | 0.00 | 122.91 | 61.77 |
| 103 | 36 | 810.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -810.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 104 | 38 | 810.49 | 0.00 | -0.30 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -1387.17 | 40.54 | 143.01 | 0.00 | 244.83 | -69.00 |
| 105 | 55 | 797.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -1388.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 106 | 57 | 797.54 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -889.20 | 0.00 | 53.66 | 0.00 | 91.86 | 0.00 |
| 107 | 74 | 804.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -1383.51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 108 | 76 | 804.55 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -872.32 | 40.59 | 78.36 | 0.00 | 134.15 | -69.08 |
| 109 | 93 | 793.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -1384.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110 | 95 | 793.86 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -875.14 | 38.05 | 77.79 | 0.00 | 133.18 | -64.76 |
| 111 | 111 | 830.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -1414.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 112 | 113 | 830.32 | 0.00 | -0.17 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -1119.03 | 40.49 | 118.49 | 0.00 | 202.86 | -68.91 |
| 113 | 129 | 688.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -688.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 114 | 131 | 689.00 | 0.00 | 0.54 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -726.13 | -41.10 | 74.37 | 0.00 | 127.32 | 69.95 |
| 115 | 141 | 357.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -357.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 116 | 143 | 357.09 | 0.00 | -0.32 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -531.61 | -395.38 | 48.03 | 0.00 | 82.23 | 677.03 |
| 117 | 6 | 700.45 | 33.76 | 18.34 | 0.00 | -951.97 | 33.76 |
| 117 | 7 | -867.25 | 0.00 | -9.84 | 0.00 | 938.34 | 0.00 |
| 118 | 145 | 905.42 | 587.55 | 37.94 | 0.00 | -1124.16 | 587.55 |
| 118 | 146 | -905.42 | -587.55 | -37.64 | 0.00 | 1086.44 | 0.00 |
| 119 | 3 | 0.00 | 470.45 | -0.03 | 0.00 | -0.03 | 0.00 |
| 119 | 1 | 0.00 | -447.43 | 16.89 | -28.73 | 71.76 | 1901.60 |
| 120 | 1 | 1.30 | -430.98 | 16.84 | -28.73 | -71.79 | -1829.45 |
| 120 | 5 | -0.51 | 485.24 | 16.90 | -28.73 | 0.00 | -0.88 |
| 121 | 20 | 0.00 | 1031.79 | -36.52 | 61.77 | -0.36 | -0.01 |
| 121 | 15 | 0.00 | -1012.41 | 36.44 | -61.77 | 67.19 | 1872.95 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 122 | 15 | -14.14 | -1199.15 | 36.11 | -61.77 | -67.51 | -2242.64 |
| 122 | 22 | -17.62 | 1002.90 | -36.21 | 61.77 | 0.00 | -30.17 |
| 123 | 37 | 0.00 | 1242.55 | 40.43 | -69.00 | -0.31 | 0.00 |
| 123 | 32 | 0.00 | -1172.88 | 40.59 | -69.00 | 74.89 | 2169.82 |
| 124 | 32 | -0.42 | -998.04 | 40.50 | -69.00 | -75.37 | -1847.10 |
| 124 | 39 | -1.27 | 1173.27 | -40.59 | 69.00 | -0.23 | -2.17 |
| 125 | 56 | 0.00 | 618.21 | 39.97 | -67.79 | -0.34 | 0.00 |
| 125 | 49 | -0.01 | -1222.79 | 39.95 | -67.79 | 73.51 | 2262.20 |
| 126 | 49 | -18.19 | -1110.16 | 40.04 | -67.79 | -73.84 | -2084.92 |
| 126 | 58 | -0.02 | 1156.04 | -39.84 | 67.79 | 0.04 | -0.02 |
| 127 | 75 | 0.00 | 1044.19 | -40.58 | 69.08 | -0.12 | 0.00 |
| 127 | 68 | 0.00 | -1038.65 | 40.74 | -69.08 | 75.09 | 1921.50 |
| 128 | 68 | -0.16 | -967.90 | 40.53 | -69.08 | -75.08 | -1790.87 |
| 128 | 77 | -0.01 | 1165.44 | -40.85 | 69.08 | 0.12 | -0.02 |
| 129 | 94 | 0.00 | 614.88 | -38.00 | 64.76 | -0.15 | 0.00 |
| 129 | 87 | 0.00 | -1155.05 | 38.04 | -64.76 | 70.48 | 2136.85 |
| 130 | 87 | -0.03 | -1152.49 | 38.11 | -64.76 | -70.54 | -2132.16 |
| 130 | 96 | 0.15 | 1065.57 | -38.04 | 64.76 | 0.08 | 0.25 |
| 131 | 112 | 0.00 | 1136.39 | 0.00 | 0.00 | -0.07 | 0.00 |
| 131 | 106 | 0.00 | -1218.48 | 40.57 | -68.91 | 75.01 | 2254.19 |
| 132 | 106 | -11.24 | -962.28 | 40.52 | -68.91 | -75.01 | -1799.46 |
| 132 | 114 | -1.91 | 1078.02 | -40.40 | 68.91 | 0.05 | -3.27 |
| 133 | 130 | 0.00 | 1122.00 | 41.04 | -69.95 | -0.09 | 0.00 |
| 133 | 124 | 0.00 | -828.40 | 41.10 | -69.95 | 76.10 | 1532.53 |
| 134 | 124 | -15.77 | -977.94 | 41.04 | -69.95 | -76.11 | -1836.19 |
| 134 | 132 | -1.54 | 897.02 | -41.11 | 69.95 | 0.09 | -2.64 |
| 135 | 142 | 0.00 | 466.95 | -363.37 | 622.09 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -416.68 | 657.14 | -1125.16 | 2792.86 | 1770.88 |
| 136 | 140 | 0.28 | -416.57 | 657.14 | -1125.16 | -2792.86 | -1769.96 |
| 136 | 144 | -0.56 | 438.80 | -357.97 | 612.85 | 0.00 | -0.96 |
| 137 | 2 | 0.00 | -337.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 335.72 | 16.88 | 0.00 | 71.57 | -1426.80 |
| 138 | 7 | -0.41 | 335.70 | 16.88 | 0.00 | -71.57 | 1426.73 |
| 138 | 4 | 0.41 | -337.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -725.40 | -0.01 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 725.88 | 36.28 | 0.00 | 66.79 | -1342.89 |
| 140 | 18 | 0.72 | 726.13 | 36.30 | 0.00 | -66.77 | 1343.34 |
| 140 | 21 | -0.72 | -726.13 | -0.01 | 0.00 | 0.00 | 0.00 |
| 141 | 36 | 0.00 | -810.93 | 0.00 | 0.00 | 0.00 | 0.00 |
| 141 | 35 | 0.00 | 810.67 | 40.54 | 0.00 | 74.59 | -1499.73 |
| 142 | 35 | -0.30 | 810.36 | 40.53 | 0.00 | -74.60 | 1499.17 |
| 142 | 38 | 0.30 | -810.62 | -0.01 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -797.54 | -0.26 | 0.00 | -0.08 | 0.01 |
| 143 | 54 | 0.00 | 797.52 | 40.08 | 0.00 | 73.09 | -1475.41 |
| 144 | 54 | -0.01 | 797.62 | 39.74 | 0.00 | -73.22 | 1475.62 |
| 144 | 57 | 0.01 | -797.60 | 0.08 | 0.00 | 0.09 | 0.01 |
| 145 | 74 | 0.00 | -804.78 | -0.05 | 0.00 | -0.11 | 0.00 |
| 145 | 73 | 0.00 | 804.26 | 40.54 | 0.00 | 74.77 | -1487.88 |
| 146 | 73 | -0.02 | 804.39 | 40.58 | 0.00 | -74.69 | 1488.13 |
| 146 | 76 | 0.02 | -804.29 | 0.04 | 0.00 | 0.02 | 0.00 |
| 147 | 93 | 0.00 | -792.70 | -0.07 | 0.00 | -0.09 | 0.01 |
| 147 | 92 | 0.00 | 794.98 | 37.98 | 0.00 | 69.97 | -1470.71 |
| 148 | 92 | -0.02 | 794.79 | 38.05 | 0.00 | -70.07 | 1470.36 |
| 148 | 95 | 0.03 | -792.92 | 0.00 | 0.00 | 0.05 | 0.00 |
| 149 | 111 | 0.00 | -826.96 | 0.02 | 0.00 | -0.02 | 0.00 |
| 149 | 110 | 0.00 | 826.13 | 40.48 | 0.00 | 74.45 | -1528.34 |
| 150 | 110 | -0.16 | 826.58 | 40.52 | 0.00 | -74.49 | 1529.17 |
| 150 | 113 | 0.15 | -825.76 | -0.03 | 0.00 | 0.01 | 0.00 |
| 151 | 129 | 0.00 | -707.33 | 0.06 | 0.00 | -0.01 | 0.00 |
| 151 | 128 | 0.00 | 711.61 | 41.05 | 0.00 | 75.65 | -1316.48 |
| 152 | 128 | 0.49 | 707.95 | 41.12 | 0.00 | -75.60 | 1309.71 |
| 152 | 131 | -0.48 | -712.21 | -0.02 | 0.00 | 0.03 | 0.00 |
| 153 | 141 | 0.00 | -357.22 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 542.21 | 657.15 | 0.00 | 2793.01 | -2304.41 |
| 154 | 146 | -0.46 | 542.03 | 657.15 | 0.00 | -2793.02 | 2303.62 |
| 154 | 143 | 0.32 | -357.09 | 0.00 | 0.00 | 0.00 | 0.00 |

DESPLAZAMIENTOS DE NUDOS

| NUDO | DESP. X | DESP. Y | DESP. Z | GIRO X | GIRO Y | GIRO Z |
|---|---|---|---|---|---|---|
| 1 | 0.109083 | -0.000841 | -0.000053 | 0.000073 | -0.000109 | -0.000311 |
| 2 | 0.000011 | -0.000239 | 0.000000 | -0.000078 | -0.000004 | 0.000000 |
| 3 | 0.114375 | -0.000338 | -0.000054 | 0.000142 | -0.000113 | -0.000292 |
| 4 | -0.000011 | -0.000242 | 0.000000 | 0.000079 | -0.000004 | 0.000000 |
| 5 | 0.103790 | -0.000821 | -0.000054 | -0.000042 | -0.000113 | -0.000331 |
| 7 | 0.000000 | -0.000017 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 8 | 0.107754 | -0.003006 | 0.000442 | 0.000228 | -0.000108 | -0.000397 |
| 9 | 0.106420 | -0.004790 | 0.000929 | 0.000358 | -0.000107 | -0.000279 |
| 10 | 0.105028 | -0.005543 | 0.001410 | 0.000463 | -0.000106 | -0.000060 |
| 11 | 0.103627 | -0.005249 | 0.001883 | 0.000543 | -0.000106 | 0.000100 |
| 12 | 0.102221 | -0.004490 | 0.002352 | 0.000597 | -0.000106 | 0.000161 |
| 13 | 0.100821 | -0.003709 | 0.002818 | 0.000627 | -0.000106 | 0.000156 |
| 14 | 0.099429 | -0.003021 | 0.003287 | 0.000631 | -0.000109 | 0.000162 |
| 15 | 0.100004 | -0.001937 | 0.003766 | 0.000611 | -0.000112 | -0.000105 |
| 17 | 0.000000 | -0.000501 | -0.000004 | -0.000001 | 0.000000 | 0.000000 |
| 18 | 0.000000 | -0.000907 | -0.000011 | -0.000001 | 0.000000 | 0.000000 |
| 19 | 0.002333 | -0.000949 | -0.000011 | -0.000033 | -0.000002 | -0.000306 |
| 20 | 0.104994 | -0.000773 | 0.003766 | 0.000638 | -0.000114 | -0.000083 |
| 21 | -0.002333 | -0.000944 | -0.000011 | 0.000031 | -0.000002 | 0.000306 |
| 22 | 0.095014 | -0.003001 | 0.003765 | 0.000558 | -0.000114 | -0.000127 |
| 23 | 0.093745 | -0.004287 | 0.004214 | 0.000779 | -0.000117 | -0.000482 |
| 24 | 0.094386 | -0.006911 | 0.004687 | 0.000919 | -0.000123 | -0.000444 |
| 25 | 0.092744 | -0.008391 | 0.005189 | 0.001035 | -0.000131 | -0.000258 |
| 26 | 0.091136 | -0.009230 | 0.005781 | 0.001136 | -0.000139 | -0.000113 |
| 27 | 0.089524 | -0.009427 | 0.006411 | 0.001212 | -0.000149 | 0.000057 |
| 28 | 0.087917 | -0.008697 | 0.007087 | 0.001263 | -0.000161 | 0.000221 |
| 29 | 0.216820 | -0.009382 | 0.007817 | 0.001288 | -0.000175 | 0.000458 |
| 30 | 0.084764 | -0.005837 | 0.008615 | 0.001289 | -0.000192 | 0.000318 |
| 31 | 0.083251 | -0.004266 | 0.009491 | 0.001264 | -0.000211 | 0.000325 |
| 32 | 0.081474 | -0.002395 | 0.010311 | 0.001193 | -0.000234 | -0.000076 |
| 34 | 0.000000 | -0.000798 | 0.000003 | 0.000001 | 0.000000 | 0.000000 |
| 35 | 0.000000 | -0.001249 | 0.000007 | 0.000001 | 0.000000 | 0.000000 |
| 36 | 0.004650 | -0.001292 | 0.000007 | -0.000035 | -0.000002 | -0.000516 |
| 37 | 0.086535 | -0.000154 | 0.010311 | 0.001222 | -0.000236 | -0.000048 |
| 38 | -0.004650 | -0.001295 | 0.000007 | 0.000037 | -0.000002 | 0.000516 |
| 39 | 0.076413 | -0.004537 | 0.010305 | 0.001143 | -0.000236 | -0.000103 |
| 40 | 0.079705 | -0.004861 | 0.011324 | 0.001320 | -0.000256 | -0.000545 |
| 41 | 0.078202 | -0.007765 | 0.012567 | 0.001443 | -0.000273 | -0.000519 |
| 42 | 0.076695 | -0.009820 | 0.013868 | 0.001541 | -0.000283 | -0.000374 |
| 43 | 0.075182 | -0.011186 | 0.015202 | 0.001613 | -0.000289 | -0.000219 |
| 44 | 0.073667 | -0.011831 | 0.016548 | 0.001660 | -0.000290 | -0.000024 |
| 45 | 0.072159 | -0.011406 | 0.017884 | 0.001682 | -0.000287 | 0.000179 |
| 46 | 0.070655 | -0.010129 | 0.019194 | 0.001678 | -0.000280 | 0.000312 |
| 47 | 0.069250 | -0.008515 | 0.020459 | 0.001648 | -0.000269 | 0.000357 |
| 48 | 0.067942 | -0.006790 | 0.021665 | 0.001593 | -0.000255 | 0.000367 |
| 49 | 0.066369 | -0.004710 | 0.022554 | 0.001487 | -0.000239 | -0.000018 |
| 51 | 0.000000 | -0.000657 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 52 | 0.000000 | -0.001674 | 0.000001 | 0.000000 | 0.000000 | 0.000000 |
| 53 | 0.000000 | -0.002718 | 0.000004 | 0.000000 | 0.000000 | 0.000000 |
| 54 | 0.000000 | -0.003163 | 0.000005 | 0.000000 | 0.000000 | 0.000000 |
| 55 | 0.059488 | -0.003206 | 0.000005 | -0.000035 | -0.000002 | -0.002865 |
| 56 | 0.071166 | -0.001924 | 0.022555 | 0.001516 | -0.000241 | 0.000008 |
| 57 | -0.059488 | -0.003207 | 0.000005 | 0.000036 | -0.000002 | 0.002865 |
| 58 | 0.061573 | -0.007388 | 0.022554 | 0.001427 | -0.000241 | -0.000044 |
| 59 | 0.064805 | -0.006863 | 0.023363 | 0.001612 | -0.000221 | -0.000467 |
| 60 | 0.063506 | -0.009376 | 0.024328 | 0.001737 | -0.000201 | -0.000430 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 61 | 0.064405 | -0.010006 | 0.015700 | 0.001053 | -0.000181 | -0.000288 |
| 62 | 0.063146 | -0.004273 | 0.014651 | 0.000765 | -0.000168 | 0.000043 |
| 63 | 0.061817 | -0.004116 | 0.015388 | 0.000820 | -0.000154 | 0.000051 |
| 64 | 0.060494 | -0.003806 | 0.016054 | 0.000870 | -0.000139 | 0.000059 |
| 65 | 0.059174 | -0.003413 | 0.016522 | 0.000898 | -0.000123 | 0.000013 |
| 66 | 0.057853 | -0.003623 | 0.016916 | 0.000926 | -0.000108 | -0.000042 |
| 67 | 0.056925 | -0.006000 | -0.000135 | -0.000101 | -0.000097 | 0.000370 |
| 68 | 0.055334 | -0.004024 | 0.000315 | 0.000020 | -0.000098 | -0.000003 |
| 70 | 0.000000 | -0.000347 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 71 | 0.000000 | -0.001371 | 0.000001 | 0.000000 | 0.000000 | 0.000000 |
| 72 | 0.000000 | -0.002424 | 0.000004 | 0.000000 | 0.000000 | 0.000000 |
| 73 | 0.000000 | -0.002872 | 0.000005 | 0.000000 | 0.000000 | 0.000000 |
| 74 | 0.045519 | -0.002915 | 0.000005 | -0.000035 | -0.000002 | -0.002418 |
| 75 | 0.059481 | -0.003937 | 0.000315 | 0.000061 | -0.000100 | 0.000022 |
| 76 | -0.045519 | -0.002917 | 0.000005 | 0.000036 | -0.000002 | 0.002418 |
| 77 | 0.051186 | -0.004009 | 0.000315 | -0.000021 | -0.000100 | -0.000029 |
| 78 | 0.054033 | -0.003747 | -0.002113 | -0.000172 | -0.000098 | -0.000006 |
| 79 | 0.052716 | -0.004059 | -0.001651 | -0.000124 | -0.000102 | 0.000003 |
| 80 | 0.050942 | -0.004408 | -0.016260 | -0.000902 | -0.000116 | 0.000021 |
| 81 | 0.049614 | -0.004382 | -0.015828 | -0.000885 | -0.000131 | 0.000021 |
| 82 | 0.048282 | -0.004316 | -0.015197 | -0.000845 | -0.000144 | 0.000036 |
| 83 | 0.046953 | -0.004057 | -0.014505 | -0.000800 | -0.000156 | 0.000055 |
| 84 | 0.045641 | -0.009234 | -0.015833 | -0.001114 | -0.000167 | 0.000359 |
| 85 | 0.044312 | -0.007507 | -0.015027 | -0.001002 | -0.000179 | 0.000373 |
| 86 | 0.042981 | -0.005767 | -0.014171 | -0.000885 | -0.000188 | 0.000387 |
| 87 | 0.041385 | -0.003619 | -0.013279 | -0.000765 | -0.000193 | 0.000074 |
| 89 | 0.000000 | -0.000100 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 90 | 0.000000 | -0.001113 | 0.000001 | 0.000000 | 0.000000 | 0.000000 |
| 91 | 0.000000 | -0.002153 | 0.000004 | 0.000000 | 0.000000 | 0.000000 |
| 92 | 0.000000 | -0.002596 | 0.000005 | 0.000000 | 0.000000 | 0.000000 |
| 93 | 0.033466 | -0.002642 | 0.000005 | -0.000035 | -0.000002 | -0.001931 |
| 94 | 0.045202 | -0.004979 | -0.013278 | -0.000724 | -0.000195 | 0.000105 |
| 95 | -0.033466 | -0.002637 | 0.000005 | 0.000035 | -0.000002 | 0.001931 |
| 96 | 0.037569 | -0.002158 | -0.013277 | -0.000806 | -0.000195 | 0.000043 |
| 97 | 0.039949 | -0.002973 | -0.014295 | -0.000902 | -0.000197 | 0.000098 |
| 98 | 0.038627 | -0.002793 | -0.013496 | -0.000875 | -0.000202 | 0.000127 |
| 99 | 0.037302 | -0.001971 | -0.012561 | -0.000830 | -0.000207 | 0.000175 |
| 100 | 0.035271 | -0.009755 | -0.021008 | -0.001895 | -0.000213 | -0.000063 |
| 101 | 0.033929 | -0.009741 | -0.020021 | -0.001878 | -0.000218 | 0.000100 |
| 102 | 0.032592 | -0.008838 | -0.019013 | -0.001835 | -0.000220 | 0.000255 |
| 103 | 0.029739 | -0.007424 | -0.017996 | -0.001767 | -0.000220 | 0.000328 |
| 104 | 0.028433 | -0.005858 | -0.016983 | -0.001674 | -0.000217 | 0.000315 |
| 105 | 0.067601 | -0.004105 | -0.015982 | -0.001555 | -0.000210 | 0.000303 |
| 106 | 0.063914 | -0.002599 | -0.015024 | -0.001411 | -0.000199 | -0.000130 |
| 108 | 0.000000 | -0.000106 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 109 | 0.000000 | -0.001190 | 0.000004 | 0.000000 | 0.000000 | 0.000000 |
| 110 | 0.000000 | -0.001652 | 0.000006 | 0.000000 | 0.000000 | 0.000000 |
| 111 | 0.009279 | -0.001689 | 0.000005 | -0.000036 | -0.000002 | -0.000833 |
| 112 | 0.067122 | -0.005151 | -0.015024 | -0.001355 | -0.000201 | -0.000130 |
| 113 | -0.009279 | -0.001706 | 0.000007 | 0.000037 | -0.000002 | 0.000833 |
| 114 | 0.060705 | 0.000063 | -0.015020 | -0.001446 | -0.000201 | -0.000129 |
| 115 | 0.060234 | -0.005342 | -0.014188 | -0.001443 | -0.000188 | -0.000632 |
| 116 | 0.056758 | -0.008787 | -0.013820 | -0.001532 | -0.000180 | -0.000656 |
| 117 | 0.053276 | -0.011591 | -0.013048 | -0.001529 | -0.000175 | -0.000520 |
| 118 | 0.049788 | -0.013606 | -0.012290 | -0.001502 | -0.000172 | -0.000324 |
| 119 | 0.046298 | -0.014607 | -0.011535 | -0.001449 | -0.000172 | -0.000061 |
| 120 | 0.042813 | -0.014194 | -0.010776 | -0.001370 | -0.000173 | 0.000230 |
| 121 | 0.039331 | -0.012475 | -0.010005 | -0.001267 | -0.000175 | 0.000473 |
| 122 | 0.035848 | -0.009842 | -0.009384 | -0.001159 | -0.000178 | 0.000651 |
| 123 | 0.032361 | -0.006461 | -0.008577 | -0.001007 | -0.000183 | 0.000789 |
| 124 | 0.028673 | -0.002296 | -0.007748 | -0.000828 | -0.000187 | 0.000596 |
| 126 | 0.000000 | -0.000090 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 127 | 0.000000 | -0.001006 | -0.000014 | -0.000002 | 0.000000 | 0.000000 |
| 128 | 0.000000 | -0.001393 | -0.000024 | -0.000002 | 0.000000 | 0.000000 |
| 129 | 0.009419 | -0.001474 | -0.000022 | -0.000033 | -0.000002 | -0.000846 |
| 130 | 0.031124 | -0.003714 | -0.007750 | -0.000781 | -0.000189 | 0.000732 |
| 131 | -0.009419 | -0.001387 | -0.000027 | 0.000027 | -0.000002 | 0.000846 |
| 132 | 0.026222 | -0.000789 | -0.007747 | -0.000854 | -0.000189 | 0.000459 |
| 133 | 0.022978 | -0.001739 | -0.006904 | -0.000824 | -0.000192 | 0.000138 |
| 134 | 0.019590 | -0.001282 | -0.006034 | -0.000795 | -0.000197 | 0.000059 |
| 135 | 0.016191 | -0.001318 | -0.005136 | -0.000740 | -0.000203 | -0.000022 |
| 136 | 0.012789 | -0.001565 | -0.004210 | -0.000660 | -0.000208 | -0.000015 |
| 137 | 0.009395 | -0.001530 | -0.003257 | -0.000554 | -0.000213 | 0.000037 |
| 138 | 0.006010 | -0.001200 | -0.002280 | -0.000424 | -0.000217 | 0.000062 |
| 139 | 0.002754 | -0.000830 | -0.001285 | -0.000267 | -0.000220 | 0.000024 |
| 140 | -0.000494 | -0.000741 | -0.000278 | -0.000086 | -0.000221 | -0.000148 |
| 141 | 0.001239 | -0.000475 | -0.000014 | -0.000147 | -0.000324 | -0.000012 |
| 142 | 0.000010 | -0.000784 | -0.000277 | 0.000022 | -0.000325 | 0.000251 |
| 143 | -0.001239 | -0.000043 | -0.000017 | 0.000023 | -0.000325 | 0.000012 |
| 144 | 0.001839 | -0.000275 | -0.000291 | -0.000153 | -0.000324 | -0.001331 |
| 146 | -0.000005 | -0.000018 | -0.000014 | -0.000027 | -0.000221 | 0.000008 |

HIPOTESIS 211

MOME Z MAX envolvente (ELS)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 9145.38 | 852.68 | -1.14 | 24.84 | 0.00 | 1628.93 |
| 1 | 8 | -9175.64 | -87.18 | 0.61 | 1.46 | 2.73 | -852.21 |
| 2 | 8 | 9175.65 | 87.18 | -0.61 | -1.46 | -2.73 | 852.21 |
| 2 | 9 | -9199.63 | 44.80 | 0.61 | 1.46 | 5.46 | -775.31 |
| 3 | 9 | 9572.87 | -44.80 | -0.61 | -1.46 | -5.46 | 533.28 |
| 3 | 10 | -9614.67 | 156.66 | 0.61 | 1.46 | 8.20 | -1031.68 |
| 4 | 10 | 9614.68 | -156.66 | -0.61 | -1.46 | -8.20 | 1031.68 |
| 4 | 11 | -9618.80 | 155.75 | 0.60 | 1.48 | 10.81 | -1881.40 |
| 5 | 11 | 9618.78 | -155.75 | -0.60 | -1.48 | -10.81 | 1881.40 |
| 5 | 12 | -9623.56 | 97.91 | 0.17 | -0.32 | 3.78 | -2437.96 |
| 6 | 12 | 9623.56 | -97.91 | -0.17 | 0.32 | -3.78 | 2437.95 |
| 6 | 13 | -9543.01 | -42.74 | 0.19 | -0.36 | 5.20 | -2448.46 |
| 7 | 13 | 9513.59 | 42.74 | -0.19 | 0.36 | -5.20 | 2444.51 |
| 7 | 14 | -7348.65 | 284.71 | 0.15 | -0.28 | 4.73 | -3000.95 |
| 8 | 14 | 7348.61 | -284.71 | -0.15 | 0.28 | -4.73 | 3000.95 |
| 8 | 15 | -10578.40 | 1343.86 | 0.31 | -0.53 | 11.11 | -8493.71 |
| 9 | 15 | 10718.60 | 1337.10 | 0.18 | -0.56 | -11.35 | 8492.28 |
| 9 | 23 | -8527.29 | -986.18 | -0.21 | 0.65 | 12.25 | -3105.72 |
| 10 | 23 | 8527.25 | 986.18 | 0.21 | -0.65 | -12.25 | 3105.72 |
| 10 | 24 | -8568.21 | -144.28 | -0.50 | 1.48 | 19.76 | -919.93 |
| 11 | 24 | 8996.20 | 144.28 | 0.50 | -1.48 | -19.76 | 608.74 |
| 11 | 25 | -11082.64 | 119.38 | -0.53 | 1.57 | 18.13 | -1223.18 |
| 12 | 25 | 11082.68 | -119.38 | 0.53 | -1.57 | -18.13 | 1223.18 |
| 12 | 26 | -11171.19 | 14.77 | -0.54 | 1.60 | 15.89 | -1583.33 |
| 13 | 26 | 11171.18 | -14.77 | 0.54 | -1.60 | -15.89 | 1583.32 |
| 13 | 27 | -10921.00 | 58.64 | -0.55 | 1.61 | 12.68 | -1563.48 |
| 14 | 27 | 10921.00 | -58.64 | 0.55 | -1.61 | -12.68 | 1563.48 |
| 14 | 28 | -10887.26 | 123.89 | -0.55 | 1.61 | 10.22 | -1936.67 |
| 15 | 28 | 10887.26 | -123.89 | 0.55 | -1.61 | -10.22 | 1936.67 |
| 15 | 29 | -10964.38 | 59.11 | -0.56 | 1.64 | 7.80 | -2403.70 |
| 16 | 29 | 10964.35 | -59.11 | 0.56 | -1.64 | -7.80 | 2403.70 |
| 16 | 30 | -7937.53 | 88.01 | -0.55 | 1.61 | 5.24 | -2218.86 |
| 17 | 30 | 7937.58 | -88.01 | 0.55 | -1.61 | -5.24 | 2218.86 |
| 17 | 31 | -7944.79 | 796.32 | -0.39 | 1.10 | -2.97 | -3436.69 |
| 18 | 31 | 7944.76 | -796.32 | 0.39 | -1.10 | 2.97 | 3436.69 |
| 18 | 32 | -11117.47 | 1594.41 | -0.39 | 1.10 | -4.72 | -10026.01 |
| 19 | 32 | 11411.24 | 1289.03 | -0.10 | 0.71 | 4.72 | 10029.75 |
| 19 | 40 | -8172.38 | -1024.50 | 0.10 | -0.72 | -4.17 | -3786.08 |
| 20 | 40 | 8172.35 | 1024.50 | -0.10 | 0.72 | 4.17 | 3786.08 |
| 20 | 41 | -8227.53 | -181.97 | 0.04 | 1.87 | -10.82 | -1544.07 |
| 21 | 41 | 8227.56 | 181.97 | -0.04 | -1.87 | 10.82 | 1544.07 |
| 21 | 42 | -10612.62 | 76.87 | 0.00 | -0.09 | -0.17 | -1605.31 |
| 22 | 42 | 10612.62 | -76.87 | 0.00 | 0.09 | 0.17 | 1605.31 |
| 22 | 43 | -10536.83 | -23.43 | 0.00 | -0.08 | -0.13 | -1795.88 |
| 23 | 43 | 10536.80 | 23.43 | 0.00 | 0.08 | 0.12 | 1795.88 |
| 23 | 44 | -10481.22 | 16.42 | -0.02 | 0.01 | 0.02 | -1570.51 |
| 24 | 44 | 10481.23 | -16.42 | 0.02 | -0.01 | -0.02 | 1570.51 |
| 24 | 45 | -10054.54 | 87.89 | -0.02 | 0.01 | -0.06 | -1778.82 |
| 25 | 45 | 10054.54 | -87.89 | 0.02 | -0.01 | 0.07 | 1778.82 |
| 25 | 46 | -10038.16 | 27.27 | -0.02 | 0.03 | -0.13 | -2084.28 |
| 26 | 46 | 10038.15 | -27.27 | 0.02 | -0.03 | 0.12 | 2084.28 |
| 26 | 47 | -6627.60 | 56.94 | -0.03 | 0.06 | -0.15 | -2199.46 |
| 27 | 47 | 6627.61 | -56.94 | 0.03 | -0.06 | 0.16 | 2199.47 |
| 27 | 48 | -6624.56 | 794.78 | -0.10 | 0.30 | -1.43 | -3369.56 |
| 28 | 48 | 6624.52 | -794.78 | 0.10 | -0.30 | 1.43 | 3369.56 |
| 28 | 49 | -9786.92 | 1592.87 | -0.10 | 0.30 | -1.90 | -9934.92 |
| 29 | 49 | 10241.44 | 1276.09 | -0.03 | 0.51 | 1.93 | 9932.67 |
| 29 | 59 | -6992.24 | -1011.72 | 0.04 | -0.54 | -1.79 | -3734.29 |
| 30 | 59 | 6992.28 | 1011.72 | -0.04 | 0.54 | 1.79 | 3734.29 |
| 30 | 60 | -7040.67 | -167.66 | 0.00 | -0.13 | -0.30 | -1566.35 |
| 31 | 60 | 7040.62 | 167.66 | 0.00 | 0.13 | 0.30 | 1566.35 |
| 31 | 61 | -9376.57 | 82.91 | 0.00 | -0.13 | -0.36 | -1701.21 |
| 32 | 61 | 9376.57 | -82.91 | 0.00 | 0.13 | 0.36 | 1701.21 |
| 32 | 62 | -9463.33 | -21.90 | 0.00 | -0.12 | -0.36 | -1920.72 |
| 33 | 62 | 9463.35 | 21.90 | 0.00 | 0.12 | 0.36 | 1920.71 |
| 33 | 63 | -9424.03 | 17.88 | -0.02 | -0.03 | -0.38 | -1723.06 |
| 34 | 63 | 9424.01 | -17.88 | 0.02 | 0.03 | 0.38 | 1723.06 |
| 34 | 64 | -8854.22 | 89.03 | -0.01 | -0.03 | -0.42 | -1959.25 |
| 35 | 64 | 8854.21 | -89.03 | 0.02 | 0.03 | 0.42 | 1959.25 |
| 35 | 65 | -8851.72 | 28.35 | -0.02 | -0.02 | -0.50 | -2289.46 |
| 36 | 65 | 8851.74 | -28.35 | 0.02 | 0.02 | 0.50 | 2289.46 |
| 36 | 66 | -6806.25 | 54.62 | -0.02 | -0.01 | -0.55 | -2222.70 |
| 37 | 66 | 6806.28 | -54.62 | 0.02 | 0.01 | 0.54 | 2222.70 |
| 37 | 67 | -6809.64 | 804.24 | -0.06 | 0.49 | -2.07 | -3454.32 |
| 38 | 67 | 6809.66 | -804.24 | 0.06 | -0.49 | 2.06 | 3454.32 |
| 38 | 68 | -9978.48 | 1682.12 | -0.05 | 0.46 | -2.35 | -10078.56 |
| 39 | 68 | 10593.79 | 1207.79 | -0.08 | 0.51 | 2.38 | 10084.60 |
| 39 | 78 | -7351.01 | -1023.30 | 0.08 | -0.51 | -2.04 | -3852.86 |
| 40 | 78 | 7351.02 | 1023.30 | -0.08 | 0.51 | 2.04 | 3852.86 |
| 40 | 79 | -7048.44 | -179.78 | 0.03 | -0.02 | -0.36 | -1649.04 |
| 41 | 79 | 7048.47 | 179.78 | -0.03 | 0.02 | 0.36 | 1649.04 |
| 41 | 80 | -9116.81 | 78.93 | 0.03 | 0.00 | -0.25 | -1715.69 |
| 42 | 80 | 9116.83 | -78.93 | -0.03 | 0.00 | 0.25 | 1715.69 |
| 42 | 81 | -9201.60 | -25.87 | 0.03 | 0.01 | -0.12 | -1899.91 |
| 43 | 81 | 9201.59 | 25.87 | -0.03 | -0.01 | 0.12 | 1899.90 |
| 43 | 82 | -8463.76 | -1.15 | 0.03 | 0.00 | 0.02 | -1673.46 |
| 44 | 82 | 8463.77 | 1.15 | -0.03 | 0.00 | -0.02 | 1673.45 |
| 44 | 83 | -8426.15 | 86.00 | 0.01 | 0.10 | 0.08 | -1878.23 |
| 45 | 83 | 8426.15 | -86.00 | -0.01 | -0.10 | -0.09 | 1878.23 |
| 45 | 84 | -8420.56 | 25.32 | 0.01 | 0.12 | 0.12 | -2178.43 |
| 46 | 84 | 8420.56 | -25.32 | -0.01 | -0.12 | -0.12 | 2178.43 |
| 46 | 85 | -6374.26 | 54.94 | 0.01 | 0.13 | 0.17 | -2099.69 |
| 47 | 85 | 6374.25 | -54.94 | -0.01 | -0.12 | -0.17 | 2099.69 |
| 47 | 86 | -6364.06 | 803.25 | -0.04 | 0.57 | -1.87 | -3314.72 |
| 48 | 86 | 6364.05 | -803.25 | 0.04 | -0.57 | 1.87 | 3314.72 |
| 48 | 87 | -9519.32 | 1681.17 | -0.04 | 0.54 | -2.06 | -9917.97 |
| 49 | 87 | 10291.93 | 1183.81 | -0.16 | 0.61 | 2.04 | 9888.16 |
| 49 | 97 | -7035.60 | -999.33 | 0.16 | -0.61 | -1.32 | -3746.40 |
| 50 | 97 | 7035.59 | 999.33 | -0.16 | 0.61 | 1.32 | 3746.40 |
| 50 | 98 | -7550.21 | -170.96 | 0.04 | -0.10 | 0.09 | -1626.56 |
| 51 | 98 | 7550.23 | 170.96 | -0.04 | 0.10 | -0.09 | 1626.56 |
| 51 | 99 | -9619.87 | 89.90 | 0.04 | -0.07 | 0.28 | -1772.10 |
| 52 | 99 | 9619.87 | -89.90 | -0.04 | 0.07 | -0.27 | 1772.09 |
| 52 | 100 | -9709.63 | -14.84 | 0.04 | -0.05 | 0.46 | -2020.83 |
| 53 | 100 | 9709.62 | 14.84 | -0.04 | 0.05 | -0.46 | 2020.83 |
| 53 | 101 | -9673.30 | 3.14 | 0.04 | -0.05 | 0.63 | -1851.28 |
| 54 | 101 | 9673.29 | -3.14 | -0.04 | 0.05 | -0.63 | 1851.28 |
| 54 | 102 | -9640.65 | 90.31 | 0.02 | 0.05 | 0.57 | -2089.37 |
| 55 | 102 | 9640.66 | -90.31 | -0.02 | -0.05 | -0.57 | 2089.37 |
| 55 | 103 | -9643.43 | 29.65 | 0.02 | 0.07 | 0.62 | -2425.11 |
| 56 | 103 | 9643.43 | -29.65 | -0.01 | -0.07 | -0.62 | 2425.11 |
| 56 | 104 | -7614.12 | 57.59 | 0.01 | 0.07 | 0.68 | -2319.40 |
| 57 | 104 | 7614.12 | -57.59 | -0.01 | -0.07 | -0.68 | 2319.40 |
| 57 | 105 | -6773.62 | 809.63 | -0.09 | 0.63 | -2.57 | -3599.86 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 58 | 105 | 6773.61 | -809.63 | 0.09 | -0.63 | 2.58 | 3599.86 |
| 58 | 106 | -9947.28 | 1687.65 | -0.08 | 0.60 | -2.91 | -10257.50 |
| 59 | 106 | 10877.00 | 1235.13 | -0.30 | 1.43 | 2.69 | 10377.82 |
| 59 | 115 | -7639.06 | -1050.65 | 0.30 | -1.43 | -1.33 | -4027.00 |
| 60 | 115 | 7639.06 | 1050.65 | -0.30 | 1.43 | 1.33 | 4027.00 |
| 60 | 116 | -7113.72 | -237.45 | 0.35 | -1.74 | 6.16 | -1685.81 |
| 61 | 116 | 7113.71 | 237.45 | -0.35 | 1.74 | -6.16 | 1685.81 |
| 61 | 117 | -8190.37 | 32.40 | 0.32 | -1.59 | 7.10 | -1470.52 |
| 62 | 117 | 8190.37 | -32.40 | -0.32 | 1.59 | -7.10 | 1470.52 |
| 62 | 118 | -8265.96 | -72.13 | 0.31 | -1.56 | 8.45 | -1444.81 |
| 63 | 118 | 8265.96 | 72.13 | -0.31 | 1.56 | -8.45 | 1444.81 |
| 63 | 119 | -8215.48 | -54.15 | 0.31 | -1.56 | 9.84 | -1000.20 |
| 64 | 119 | 8215.48 | 54.15 | -0.31 | 1.56 | -9.84 | 1000.20 |
| 64 | 120 | -8168.68 | 31.15 | 0.30 | -1.53 | 11.83 | -928.40 |
| 65 | 120 | 8168.68 | -31.15 | -0.30 | 1.53 | -11.83 | 928.40 |
| 65 | 121 | -8145.35 | -29.34 | 0.29 | -1.50 | 13.07 | -979.15 |
| 66 | 121 | 8145.34 | 29.34 | -0.29 | 1.50 | -13.07 | 979.15 |
| 66 | 122 | -6118.95 | 12.66 | 0.27 | -1.37 | 13.66 | -857.55 |
| 67 | 122 | 6118.94 | -12.66 | -0.27 | 1.37 | -13.65 | 857.55 |
| 67 | 123 | -6111.31 | 761.52 | 0.09 | -0.54 | 8.54 | -1997.43 |
| 68 | 123 | 6111.31 | -761.52 | -0.09 | 0.54 | -8.54 | 1997.43 |
| 68 | 124 | -9226.54 | 1633.99 | 0.08 | -0.46 | 7.62 | -8494.24 |
| 69 | 124 | 9144.34 | 1053.06 | 0.21 | -0.63 | -7.61 | 8354.33 |
| 69 | 133 | -5912.18 | -323.67 | -0.09 | 0.30 | 2.82 | -3227.41 |
| 70 | 133 | 5912.17 | 323.67 | 0.09 | -0.30 | -2.82 | 3227.41 |
| 70 | 134 | -9853.73 | 219.08 | -0.23 | 0.79 | 6.14 | -3491.67 |
| 71 | 134 | 9900.66 | -219.08 | 0.23 | -0.79 | -6.14 | 3505.88 |
| 71 | 135 | -9994.65 | -27.35 | -0.21 | 0.73 | 4.74 | -3998.31 |
| 72 | 135 | 9994.65 | 27.35 | 0.21 | -0.73 | -4.74 | 3998.31 |
| 72 | 136 | -9902.52 | 43.93 | -0.09 | -3.24 | 29.13 | -3951.78 |
| 73 | 136 | 9902.52 | -43.93 | 0.09 | 3.24 | -29.13 | 3951.78 |
| 73 | 137 | -9830.59 | 99.41 | -0.09 | -3.24 | 21.85 | -4175.92 |
| 74 | 137 | 9830.59 | -99.41 | 0.09 | 3.24 | -21.85 | 4175.92 |
| 74 | 138 | -9750.49 | 72.05 | -0.09 | -3.24 | 14.56 | -4488.58 |
| 75 | 138 | 8690.83 | -72.05 | 0.09 | 3.24 | -14.56 | 4451.64 |
| 75 | 139 | -8623.10 | 94.42 | -0.09 | -3.24 | 7.28 | -4639.05 |
| 76 | 139 | 8623.10 | -94.42 | 0.09 | 3.24 | -7.28 | 4639.05 |
| 76 | 140 | -8938.39 | 563.11 | -0.45 | 1.53 | 0.00 | -5836.93 |
| 77 | 16 | 1624.61 | 83.38 | 0.72 | 0.00 | -6.96 | 809.79 |
| 77 | 17 | -1566.77 | -78.80 | -0.72 | 0.00 | 3.14 | -380.14 |
| 78 | 17 | 1566.77 | 78.80 | 0.72 | 0.00 | -3.14 | 380.14 |
| 78 | 18 | -1505.29 | 0.00 | -0.73 | 0.00 | -0.46 | 0.00 |
| 79 | 33 | 1818.49 | 94.66 | -0.30 | 0.00 | 3.20 | 1115.39 |
| 79 | 34 | -1735.78 | -87.76 | 0.30 | 0.00 | -0.93 | -423.79 |
| 80 | 34 | 1735.78 | 87.76 | -0.30 | 0.00 | 0.93 | 423.79 |
| 80 | 35 | -1675.05 | 0.00 | 0.30 | 0.00 | 0.57 | 0.00 |
| 81 | 50 | 2020.56 | 118.57 | -0.01 | 0.00 | 0.47 | 3182.69 |
| 81 | 51 | -1938.35 | -112.02 | 0.01 | 0.00 | -0.40 | -2433.68 |
| 82 | 51 | 1938.35 | 112.02 | -0.01 | 0.00 | 0.40 | 2433.68 |
| 82 | 52 | -1819.01 | -100.87 | 0.01 | 0.00 | -0.30 | -1366.52 |
| 83 | 52 | 1819.01 | 100.87 | -0.01 | 0.00 | 0.30 | 1366.52 |
| 83 | 53 | -1709.89 | -88.18 | 0.01 | 0.00 | -0.20 | -421.43 |
| 84 | 53 | 1709.89 | 88.18 | -0.01 | 0.00 | 0.20 | 421.42 |
| 84 | 54 | -1648.60 | 79.66 | 0.01 | 0.00 | -0.15 | 0.00 |
| 85 | 69 | 1996.48 | 119.35 | -0.02 | 0.00 | 0.57 | 2897.69 |
| 85 | 70 | -1951.93 | -115.48 | 0.02 | 0.00 | -0.51 | -2489.06 |
| 86 | 70 | 1951.93 | 115.48 | -0.02 | 0.00 | 0.51 | 2489.06 |
| 86 | 71 | -1832.59 | -103.11 | 0.02 | 0.00 | -0.33 | -1394.33 |
| 87 | 71 | 1832.59 | 103.11 | -0.02 | 0.00 | 0.33 | 1394.33 |
| 87 | 72 | -1723.47 | -89.91 | 0.02 | 0.00 | -0.15 | -429.59 |
| 88 | 72 | 1723.47 | 89.91 | -0.02 | 0.00 | 0.15 | 429.59 |
| 88 | 73 | -1662.42 | -81.18 | 0.02 | 0.00 | -0.06 | 0.00 |
| 89 | 88 | 1945.29 | 108.21 | -0.02 | 0.00 | 0.67 | 2435.70 |
| 89 | 89 | -1932.79 | -107.23 | 0.02 | 0.00 | -0.65 | -2327.99 |
| 90 | 89 | 1932.79 | 107.23 | -0.02 | 0.00 | 0.65 | 2327.99 |
| 90 | 90 | -1813.45 | -96.47 | 0.02 | 0.00 | -0.40 | -1307.44 |
| 91 | 90 | 1813.45 | 96.47 | -0.02 | 0.00 | 0.40 | 1307.44 |
| 91 | 91 | -1704.33 | -84.38 | 0.02 | 0.00 | -0.15 | -403.00 |
| 92 | 91 | 1704.33 | 84.38 | -0.02 | 0.00 | 0.15 | 403.00 |
| 92 | 92 | -1641.46 | 0.00 | 0.03 | 0.00 | -0.03 | 0.00 |
| 93 | 107 | 1888.89 | 98.74 | -0.16 | 0.00 | 1.78 | 1454.18 |
| 93 | 108 | -1877.41 | -97.81 | 0.16 | 0.00 | -1.63 | -1355.90 |
| 94 | 108 | 1877.41 | 97.81 | -0.16 | 0.00 | 1.63 | 1355.90 |
| 94 | 109 | -1768.29 | -88.20 | 0.16 | 0.00 | -0.07 | -424.65 |
| 95 | 109 | 1768.29 | 88.20 | -0.16 | 0.00 | 0.07 | 424.65 |
| 95 | 110 | -1714.83 | 0.00 | 0.17 | 0.00 | 0.78 | 0.00 |
| 96 | 125 | 1650.63 | 99.96 | 0.49 | 0.00 | -6.69 | 1473.70 |
| 96 | 126 | -1639.16 | -99.03 | -0.49 | 0.00 | 6.20 | -1374.20 |
| 97 | 126 | 1639.16 | 99.03 | 0.49 | 0.00 | -6.20 | 1374.20 |
| 97 | 127 | -1530.04 | -89.42 | -0.49 | 0.00 | 1.30 | -430.75 |
| 98 | 127 | 1530.04 | 89.42 | 0.49 | 0.00 | -1.30 | 430.75 |
| 98 | 128 | -1431.09 | 0.00 | -0.54 | 0.00 | -1.26 | 0.00 |
| 99 | 2 | 337.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -339.05 | 16.88 | 0.00 | 0.00 | 0.00 | -28.73 |
| 100 | 4 | 337.37 | 0.00 | -0.41 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -339.03 | 16.88 | 0.41 | 0.00 | 0.71 | -28.73 |
| 101 | 19 | 725.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -725.40 | 36.29 | 0.00 | 0.00 | 0.00 | -61.77 |
| 102 | 21 | 725.89 | 0.00 | 0.73 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -725.65 | 36.29 | -0.73 | 0.00 | -1.25 | -61.77 |
| 103 | 36 | 810.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -810.93 | 40.54 | 0.00 | 0.00 | 0.00 | -69.00 |
| 104 | 38 | 810.49 | 0.00 | -0.30 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -810.62 | 40.54 | 0.30 | 0.00 | 0.52 | -69.00 |
| 105 | 55 | 797.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -797.38 | 39.83 | 0.00 | 0.00 | 0.00 | -67.79 |
| 106 | 57 | 797.54 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -797.46 | 39.83 | 0.01 | 0.00 | 0.02 | -67.79 |
| 107 | 74 | 804.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -804.73 | 40.59 | 0.00 | 0.00 | 0.00 | -69.08 |
| 108 | 76 | 804.55 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -804.77 | 40.59 | 0.02 | 0.00 | 0.03 | -69.08 |
| 109 | 93 | 793.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -792.80 | 38.05 | 0.00 | 0.00 | 0.00 | -64.76 |
| 110 | 95 | 793.86 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -792.82 | 38.05 | 0.03 | 0.00 | 0.05 | -64.76 |
| 111 | 111 | 830.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -834.95 | 40.49 | 0.00 | 0.00 | 0.00 | -68.91 |
| 112 | 113 | 830.32 | 0.00 | -0.17 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -834.48 | 40.49 | 0.19 | 0.00 | 0.33 | -68.91 |
| 113 | 129 | 688.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -667.18 | 41.10 | 0.00 | 0.00 | 0.00 | -69.95 |
| 114 | 131 | 689.00 | 0.00 | 0.54 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -667.93 | 41.10 | -0.59 | 0.00 | -1.01 | -69.95 |
| 115 | 141 | 357.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -416.68 | 657.14 | 0.00 | 0.00 | 0.00 | -1125.16 |
| 116 | 143 | 357.09 | 0.00 | -0.32 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -416.57 | 657.14 | 0.28 | 0.00 | 0.47 | -1125.16 |
| 117 | 6 | 671.42 | 33.76 | -0.41 | 0.00 | 0.34 | 33.76 |
| 117 | 7 | -674.75 | 0.00 | 0.41 | 0.00 | 0.07 | 0.00 |
| 118 | 145 | 1084.24 | 1314.30 | -0.46 | 0.00 | -0.33 | 1314.30 |
| 118 | 146 | -714.32 | -0.01 | 0.32 | 0.00 | 0.55 | 0.00 |
| 119 | 3 | 0.00 | 335.89 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -222.84 | -16.84 | 28.73 | -71.75 | 947.09 |
| 120 | 1 | -12.49 | -222.87 | -16.93 | 28.73 | 71.71 | -968.57 |
| 120 | 5 | -29.78 | 479.07 | -16.87 | 28.73 | -0.02 | -50.98 |
| 121 | 20 | 0.00 | 1108.32 | -0.14 | 0.00 | 0.02 | 0.00 |
| 121 | 15 | 0.00 | -467.92 | 36.44 | -61.77 | 67.15 | 865.62 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 122 | 15 | -24.37 | -482.51 | 36.21 | -61.77 | -67.17 | -934.35 |
| 122 | 22 | -71.79 | 859.30 | 36.44 | -61.77 | -0.35 | -122.91 |
| 123 | 37 | 0.00 | 1383.96 | -0.05 | 0.00 | -0.24 | 0.02 |
| 123 | 32 | -0.01 | -518.22 | -40.50 | 69.00 | -75.36 | 958.66 |
| 124 | 32 | 79.05 | -661.12 | -40.53 | 69.00 | 74.66 | -1087.72 |
| 124 | 39 | -143.02 | 1387.16 | -40.55 | 69.00 | -0.27 | -244.83 |
| 125 | 56 | -0.01 | 921.89 | 0.11 | 0.00 | -0.28 | 0.02 |
| 125 | 49 | 0.00 | -517.65 | 39.88 | -67.79 | 73.44 | 957.68 |
| 126 | 49 | -1.32 | -520.60 | 39.85 | -67.79 | -73.69 | -965.30 |
| 126 | 58 | -53.65 | 889.21 | 0.00 | 0.00 | -0.03 | -91.85 |
| 127 | 75 | -0.01 | 1260.87 | -0.18 | 0.00 | -0.05 | 0.02 |
| 127 | 68 | 0.00 | -556.48 | -40.42 | 69.08 | -75.16 | 1029.46 |
| 128 | 68 | -0.03 | -572.64 | -40.63 | 69.08 | 75.15 | -1059.41 |
| 128 | 77 | -78.36 | 872.34 | -40.84 | 69.08 | 0.08 | -134.14 |
| 129 | 94 | -0.01 | 1097.21 | 0.11 | 0.00 | -0.11 | 0.02 |
| 129 | 87 | 0.01 | -517.73 | 37.96 | -64.76 | 70.30 | 957.73 |
| 130 | 87 | 10.20 | -554.19 | 38.12 | -64.76 | -70.49 | -1007.77 |
| 130 | 96 | -77.77 | 875.14 | -38.11 | 64.76 | -0.10 | -133.16 |
| 131 | 112 | 0.00 | 1435.07 | -0.01 | 0.00 | -0.05 | 0.02 |
| 131 | 106 | 0.00 | -548.11 | -40.48 | 68.91 | -74.89 | 1014.01 |
| 132 | 106 | 67.39 | -667.78 | -40.48 | 68.91 | 74.81 | -1119.99 |
| 132 | 114 | -118.49 | 1119.04 | -40.43 | 68.91 | 0.02 | -202.86 |
| 133 | 130 | 0.00 | 937.39 | 0.01 | 0.00 | -0.01 | 0.01 |
| 133 | 124 | 0.00 | -429.96 | 41.10 | -69.95 | 76.08 | 795.38 |
| 134 | 124 | 5.04 | -462.81 | 41.11 | -69.95 | -76.03 | -847.56 |
| 134 | 132 | -74.37 | 726.12 | 41.15 | -69.95 | -0.01 | -127.33 |
| 135 | 142 | 0.00 | 355.73 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -199.13 | 446.77 | -765.00 | 1898.76 | 846.31 |
| 136 | 140 | -28.53 | -199.08 | 446.77 | -765.00 | -1898.76 | -894.93 |
| 136 | 144 | -48.03 | 531.61 | 395.38 | -677.03 | 0.00 | -82.23 |
| 137 | 2 | 0.00 | -337.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 578.72 | -16.88 | 0.00 | -71.57 | -2459.54 |
| 138 | 7 | -1.76 | 578.68 | -16.88 | 0.00 | 71.57 | 2459.41 |
| 138 | 4 | 0.41 | -337.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -945.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 18 | 0.00 | 1389.43 | 36.28 | 0.00 | 66.79 | -2570.46 |
| 140 | 18 | 2.53 | 1389.58 | 36.30 | 0.00 | -66.77 | 2570.72 |
| 140 | 21 | 11.61 | -1061.68 | 0.00 | 0.00 | 0.00 | -0.01 |
| 141 | 36 | 0.00 | -991.16 | 0.00 | 0.00 | 0.00 | 0.03 |
| 141 | 35 | 0.00 | 1519.22 | -40.54 | 0.00 | -74.59 | -2810.55 |
| 142 | 35 | -13.71 | 1518.75 | -40.53 | 0.00 | 74.60 | 2809.68 |
| 142 | 38 | -97.89 | -982.40 | 0.00 | 0.00 | 0.00 | -0.01 |
| 143 | 55 | 0.01 | -1321.07 | 0.00 | 0.00 | 0.00 | 0.02 |
| 143 | 54 | 0.00 | 1496.16 | 40.08 | 0.00 | 73.08 | -2767.88 |
| 144 | 54 | 35.76 | 1496.01 | 39.75 | 0.00 | -73.21 | 2767.63 |
| 144 | 57 | -6.82 | -881.31 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145 | 74 | 0.01 | -1170.32 | 0.00 | 0.00 | 0.00 | 0.01 |
| 145 | 73 | 0.00 | 1494.64 | -40.53 | 0.00 | -74.76 | -2765.06 |
| 146 | 73 | 20.69 | 1494.44 | -40.57 | 0.00 | 74.68 | 2764.70 |
| 146 | 76 | 46.39 | -1183.38 | 0.00 | 0.00 | 0.00 | -0.02 |
| 147 | 93 | 0.00 | -901.89 | 0.00 | 0.00 | 0.00 | 0.02 |
| 147 | 92 | 0.00 | 1495.09 | 37.99 | 0.00 | 69.96 | -2765.91 |
| 148 | 92 | 24.83 | 1494.85 | 38.06 | 0.00 | -70.06 | 2765.44 |
| 148 | 95 | 0.08 | -1034.21 | 0.00 | 0.00 | 0.00 | -0.01 |
| 149 | 111 | 0.00 | -1099.03 | 0.00 | 0.00 | 0.00 | 0.01 |
| 149 | 110 | 0.00 | 1532.62 | -40.47 | 0.00 | -74.45 | -2835.33 |
| 150 | 110 | -2.81 | 1531.93 | -40.52 | 0.00 | 74.49 | 2834.04 |
| 150 | 113 | 5.90 | -985.48 | 0.00 | 0.00 | 0.00 | -0.01 |
| 151 | 129 | 0.00 | -1227.67 | 0.00 | 0.00 | 0.00 | 0.01 |
| 151 | 128 | 0.00 | 1390.93 | 41.05 | 0.00 | 75.65 | -2573.22 |
| 152 | 128 | 3.31 | 1391.28 | 41.12 | 0.00 | -75.60 | 2573.87 |
| 152 | 131 | -5.78 | -1056.74 | 0.00 | 0.00 | 0.00 | -0.01 |
| 153 | 141 | 0.00 | -357.22 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 623.81 | 485.02 | 0.00 | 2061.48 | -2651.19 |
| 154 | 146 | -1.66 | 623.56 | 485.02 | 0.00 | -2061.48 | 2650.14 |
| 154 | 143 | 0.32 | -357.09 | 0.00 | 0.00 | 0.00 | 0.00 |

DESPLAZAMIENTOS DE NUDOS

| NUDO | DESP. X | DESP. Y | DESP. Z | GIRO X | GIRO Y | GIRO Z |
|---|---|---|---|---|---|---|
| 1 | 0.117327 | -0.003997 | -0.000110 | 0.000000 | 0.000000 | 0.001007 |
| 2 | -0.000011 | -0.000242 | 0.000000 | -0.000079 | 0.000004 | 0.000000 |
| 3 | 0.117338 | -0.003817 | -0.000110 | 0.000064 | -0.000004 | 0.001015 |
| 4 | -0.000011 | -0.000242 | 0.000000 | 0.000079 | -0.000004 | 0.000000 |
| 5 | 0.117339 | -0.003815 | -0.000110 | -0.000064 | 0.000004 | 0.001015 |
| 7 | 0.000000 | -0.000018 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 8 | 0.115948 | -0.000274 | -0.000110 | -0.000001 | 0.000000 | 0.000764 |
| 9 | 0.100630 | 0.002508 | -0.000103 | 0.000000 | -0.000001 | 0.000596 |
| 10 | 0.099242 | 0.005039 | -0.000099 | 0.000000 | -0.000001 | 0.000462 |
| 11 | 0.251009 | -0.011135 | -0.000144 | 0.000000 | -0.000002 | 0.000380 |
| 12 | 0.250195 | -0.020698 | -0.000137 | -0.000001 | -0.000003 | 0.000835 |
| 13 | 0.256217 | -0.015844 | -0.000123 | -0.000002 | -0.000003 | 0.001234 |
| 14 | 0.252665 | -0.009335 | -0.000111 | -0.000002 | -0.000002 | 0.001439 |
| 15 | 0.106811 | -0.001862 | -0.000091 | -0.000002 | -0.000002 | 0.001147 |
| 17 | -0.000878 | -0.000500 | -0.000004 | -0.000001 | 0.000000 | 0.000258 |
| 18 | -0.002489 | -0.000907 | -0.000011 | -0.000001 | 0.000000 | 0.000324 |
| 19 | -0.002491 | -0.000949 | -0.000011 | -0.000033 | 0.000002 | 0.000324 |
| 20 | 0.106816 | -0.001817 | -0.000091 | 0.000038 | -0.000004 | 0.001155 |
| 21 | -0.002491 | -0.000944 | -0.000011 | 0.000031 | -0.000002 | 0.000324 |
| 22 | 0.106809 | -0.001809 | -0.000091 | -0.000042 | 0.000000 | 0.001155 |
| 23 | 0.105019 | -0.001582 | -0.000083 | -0.000002 | -0.000002 | 0.000793 |
| 24 | 0.098655 | 0.001522 | -0.000076 | -0.000001 | -0.000001 | 0.000698 |
| 25 | 0.092279 | 0.004480 | -0.000070 | -0.000001 | -0.000001 | 0.000654 |
| 26 | 0.090966 | 0.006247 | -0.000066 | -0.000001 | -0.000001 | 0.000470 |
| 27 | 0.089057 | -0.019244 | -0.000088 | 0.000000 | 0.000000 | 0.000352 |
| 28 | 0.217343 | -0.034150 | -0.000082 | 0.000000 | 0.000000 | 0.000876 |
| 29 | 0.213690 | -0.029688 | -0.000081 | 0.000000 | 0.000000 | 0.001482 |
| 30 | 0.219328 | -0.021809 | -0.000081 | 0.000000 | 0.000000 | 0.001881 |
| 31 | 0.215666 | -0.012339 | -0.000081 | 0.000000 | 0.000000 | 0.002019 |
| 32 | 0.212107 | -0.002395 | -0.000073 | 0.000000 | 0.000000 | 0.001520 |
| 34 | -0.002258 | -0.000798 | 0.000003 | 0.000001 | 0.000000 | 0.000477 |
| 35 | -0.004999 | -0.001249 | 0.000007 | 0.000001 | 0.000000 | 0.000551 |
| 36 | -0.005001 | -0.001292 | 0.000007 | -0.000035 | 0.000002 | 0.000551 |
| 37 | 0.212110 | -0.002340 | -0.000073 | 0.000045 | -0.000002 | 0.001528 |
| 38 | -0.005001 | -0.001295 | 0.000007 | 0.000037 | -0.000002 | 0.000551 |
| 39 | 0.212110 | -0.002341 | -0.000073 | -0.000044 | 0.000002 | 0.001528 |
| 40 | 0.086103 | -0.001037 | -0.000071 | 0.000000 | 0.000000 | 0.000948 |
| 41 | 0.084563 | 0.002531 | -0.000071 | 0.000000 | 0.000000 | 0.000749 |
| 42 | 0.073929 | 0.005004 | -0.000069 | 0.000000 | 0.000000 | 0.000587 |
| 43 | 0.072149 | 0.006712 | -0.000069 | 0.000000 | 0.000000 | 0.000361 |
| 44 | 0.070654 | -0.021038 | -0.000063 | 0.000001 | 0.000000 | 0.000283 |
| 45 | 0.183049 | -0.037974 | -0.000075 | 0.000001 | 0.000000 | 0.000875 |
| 46 | 0.179183 | -0.033407 | -0.000075 | 0.000001 | 0.000000 | 0.001538 |
| 47 | 0.184485 | -0.025151 | -0.000075 | 0.000001 | 0.000000 | 0.001963 |
| 48 | 0.180961 | -0.015310 | -0.000075 | 0.000001 | 0.000000 | 0.002105 |
| 49 | 0.074615 | -0.004741 | -0.000067 | 0.000000 | 0.000000 | 0.001624 |
| 51 | -0.004351 | -0.000657 | 0.000000 | 0.000000 | 0.000000 | 0.001225 |
| 52 | -0.024386 | -0.001674 | 0.000001 | 0.000000 | 0.000000 | 0.002598 |
| 53 | -0.054890 | -0.002718 | 0.000004 | 0.000000 | 0.000000 | 0.003324 |
| 54 | -0.071865 | -0.003163 | 0.000005 | 0.000000 | 0.000000 | 0.003397 |
| 55 | -0.071867 | -0.003206 | 0.000005 | -0.000035 | 0.000002 | 0.003397 |
| 56 | 0.074617 | -0.004686 | -0.000067 | 0.000045 | -0.000002 | 0.001632 |
| 57 | -0.071867 | -0.003207 | 0.000005 | 0.000036 | -0.000002 | 0.003397 |
| 58 | 0.074617 | -0.004687 | -0.000067 | -0.000044 | 0.000002 | 0.001632 |
| 59 | 0.072994 | -0.002832 | -0.000067 | 0.000000 | 0.000000 | 0.001065 |
| 60 | 0.071638 | 0.001262 | -0.000068 | 0.000000 | 0.000000 | 0.000861 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 61 | 0.061812 | 0.004311 | -0.000067 | 0.000000 | 0.000000 | 0.000687 |
| 62 | 0.060800 | 0.006490 | -0.000068 | 0.000000 | 0.000000 | 0.000445 |
| 63 | 0.059178 | -0.024365 | -0.000087 | 0.000000 | 0.000000 | 0.000367 |
| 64 | 0.145302 | -0.039165 | -0.000078 | 0.000000 | 0.000000 | 0.000965 |
| 65 | 0.142074 | -0.033769 | -0.000078 | 0.000000 | 0.000000 | 0.001610 |
| 66 | 0.144130 | -0.025223 | -0.000078 | 0.000000 | 0.000000 | 0.002021 |
| 67 | 0.140609 | -0.015126 | -0.000077 | 0.000000 | 0.000000 | 0.002151 |
| 68 | 0.134168 | -0.004862 | -0.000077 | 0.000000 | 0.000000 | 0.001638 |
| 70 | -0.001210 | -0.000347 | 0.000000 | 0.000000 | 0.000000 | 0.000619 |
| 71 | -0.015364 | -0.001371 | 0.000001 | 0.000000 | 0.000000 | 0.002022 |
| 72 | -0.040201 | -0.002425 | 0.000004 | 0.000000 | 0.000000 | 0.002763 |
| 73 | -0.054376 | -0.002873 | 0.000005 | 0.000000 | 0.000000 | 0.002837 |
| 74 | -0.054378 | -0.002916 | 0.000005 | -0.000035 | 0.000002 | 0.002837 |
| 75 | 0.134170 | -0.004800 | -0.000077 | 0.000050 | -0.000002 | 0.001646 |
| 76 | -0.054378 | -0.002917 | 0.000005 | 0.000036 | -0.000002 | 0.002837 |
| 77 | 0.134170 | -0.004801 | -0.000077 | -0.000050 | 0.000002 | 0.001646 |
| 78 | 0.051588 | -0.002510 | -0.000068 | 0.000000 | 0.000000 | 0.001055 |
| 79 | 0.046405 | 0.001439 | -0.000068 | 0.000000 | 0.000000 | 0.000839 |
| 80 | 0.041286 | 0.004450 | -0.000068 | 0.000000 | 0.000000 | 0.000662 |
| 81 | 0.040054 | 0.006523 | -0.000068 | 0.000000 | 0.000000 | 0.000421 |
| 82 | 0.040879 | -0.024585 | -0.000080 | 0.000001 | 0.000000 | 0.000353 |
| 83 | 0.112815 | -0.038680 | -0.000079 | 0.000000 | 0.000000 | 0.000960 |
| 84 | 0.109391 | -0.033745 | -0.000080 | 0.000000 | 0.000000 | 0.001615 |
| 85 | 0.113044 | -0.025206 | -0.000079 | 0.000000 | 0.000000 | 0.002043 |
| 86 | 0.109477 | -0.014980 | -0.000079 | 0.000000 | 0.000000 | 0.002191 |
| 87 | 0.046015 | -0.007887 | -0.000078 | 0.000000 | 0.000000 | 0.001710 |
| 89 | -0.000110 | -0.000100 | 0.000000 | 0.000000 | 0.000000 | 0.000163 |
| 90 | -0.009187 | -0.001112 | 0.000001 | 0.000000 | 0.000000 | 0.001476 |
| 91 | -0.028279 | -0.002151 | 0.000004 | 0.000000 | 0.000000 | 0.002171 |
| 92 | -0.039474 | -0.002593 | 0.000005 | 0.000000 | 0.000000 | 0.002241 |
| 93 | -0.039476 | -0.002636 | 0.000005 | -0.000035 | 0.000002 | 0.002241 |
| 94 | 0.046017 | -0.007825 | -0.000078 | 0.000050 | -0.000002 | 0.001717 |
| 95 | -0.039476 | -0.002637 | 0.000005 | 0.000035 | -0.000002 | 0.002241 |
| 96 | 0.046017 | -0.007827 | -0.000078 | -0.000049 | 0.000002 | 0.001717 |
| 97 | 0.044663 | -0.001781 | -0.000070 | 0.000000 | 0.000000 | 0.001148 |
| 98 | 0.043269 | 0.002685 | -0.000070 | 0.000000 | 0.000000 | 0.000940 |
| 99 | 0.041997 | 0.006189 | -0.000070 | 0.000000 | 0.000000 | 0.000750 |
| 100 | 0.034168 | 0.008248 | -0.000072 | 0.000000 | 0.000000 | 0.000489 |
| 101 | 0.032291 | -0.023206 | -0.000093 | 0.000000 | 0.000000 | 0.000418 |
| 102 | 0.074750 | -0.035824 | -0.000075 | 0.000000 | 0.000000 | 0.000987 |
| 103 | 0.067844 | -0.031039 | -0.000077 | 0.000000 | 0.000000 | 0.001596 |
| 104 | 0.064464 | -0.022477 | -0.000077 | 0.000000 | 0.000000 | 0.001961 |
| 105 | 0.061083 | -0.012774 | -0.000078 | 0.000000 | 0.000000 | 0.002024 |
| 106 | 0.057852 | -0.006333 | -0.000070 | 0.000000 | 0.000000 | 0.001432 |
| 108 | -0.000080 | -0.000107 | 0.000000 | 0.000000 | 0.000000 | 0.000108 |
| 109 | -0.005662 | -0.001195 | 0.000004 | 0.000001 | 0.000000 | 0.000833 |
| 110 | -0.010184 | -0.001659 | 0.000007 | 0.000000 | 0.000000 | 0.000907 |
| 111 | -0.010186 | -0.001704 | 0.000007 | -0.000036 | 0.000002 | 0.000907 |
| 112 | 0.057849 | -0.006275 | -0.000070 | 0.000046 | 0.000002 | 0.001424 |
| 113 | -0.010186 | -0.001705 | 0.000007 | 0.000037 | -0.000002 | 0.000907 |
| 114 | 0.057850 | -0.006277 | -0.000070 | -0.000046 | -0.000002 | 0.001424 |
| 115 | 0.018346 | -0.002276 | -0.000071 | 0.000000 | 0.000000 | 0.000778 |
| 116 | 0.017162 | 0.000410 | -0.000072 | 0.000000 | 0.000000 | 0.000554 |
| 117 | 0.015625 | 0.001962 | -0.000073 | -0.000001 | 0.000001 | 0.000381 |
| 118 | 0.014447 | 0.002490 | -0.000075 | -0.000001 | 0.000001 | 0.000190 |
| 119 | 0.041507 | -0.028547 | -0.000086 | -0.000001 | 0.000001 | 0.000247 |
| 120 | 0.043203 | -0.038665 | -0.000087 | 0.000000 | 0.000000 | 0.000948 |
| 121 | 0.044509 | -0.035389 | -0.000089 | -0.000001 | 0.000000 | 0.001678 |
| 122 | 0.040905 | -0.026157 | -0.000091 | -0.000001 | 0.000001 | 0.002210 |
| 123 | 0.037296 | -0.014951 | -0.000094 | -0.000001 | 0.000001 | 0.002475 |
| 124 | 0.016812 | -0.006260 | -0.000099 | -0.000001 | 0.000001 | 0.002269 |
| 126 | -0.000081 | -0.000088 | 0.000000 | 0.000000 | 0.000000 | 0.000109 |
| 127 | -0.005740 | -0.000981 | -0.000015 | -0.000002 | 0.000000 | 0.000845 |
| 128 | -0.010324 | -0.001358 | -0.000027 | -0.000002 | 0.000000 | 0.000919 |
| 129 | -0.010326 | -0.001399 | -0.000027 | -0.000032 | 0.000002 | 0.000919 |
| 130 | 0.016813 | -0.006208 | -0.000099 | 0.000043 | -0.000001 | 0.002277 |
| 131 | -0.010326 | -0.001391 | -0.000027 | 0.000028 | -0.000002 | 0.000919 |
| 132 | 0.016816 | -0.006203 | -0.000099 | -0.000046 | 0.000003 | 0.002277 |
| 133 | 0.015423 | 0.002795 | -0.000093 | -0.000001 | 0.000001 | 0.001813 |
| 134 | 0.013990 | 0.010584 | -0.000098 | -0.000001 | 0.000001 | 0.001438 |
| 135 | 0.012497 | 0.015762 | -0.000174 | -0.000005 | -0.000001 | 0.000881 |
| 136 | 0.009951 | 0.009460 | -0.000170 | -0.000005 | -0.000001 | 0.000401 |
| 137 | 0.005768 | -0.019994 | -0.000171 | -0.000001 | 0.000003 | 0.000639 |
| 138 | 0.002413 | -0.015729 | -0.000185 | -0.000001 | 0.000003 | 0.001189 |
| 139 | -0.000789 | -0.009061 | -0.000199 | 0.000000 | 0.000003 | 0.001558 |
| 140 | -0.003982 | -0.001123 | -0.000212 | 0.000000 | 0.000003 | 0.001605 |
| 141 | -0.000455 | -0.000336 | 0.000000 | -0.000110 | 0.000155 | 0.000017 |
| 142 | -0.003673 | -0.000771 | -0.000212 | 0.000124 | -0.000110 | 0.001824 |
| 143 | -0.000437 | -0.000336 | 0.000000 | 0.000110 | -0.000151 | 0.000017 |
| 144 | -0.003649 | -0.000771 | -0.000212 | -0.000124 | 0.000116 | 0.001824 |
| 146 | -0.000011 | -0.000024 | 0.000000 | 0.000000 | 0.000002 | 0.000017 |

HIPOTESIS 212

MOME Z MIN envolvente (ELS)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 6982.16 | 364.97 | -0.34 | 0.64 | 0.00 | 1152.57 |
| 1 | 8 | -7005.46 | -574.28 | 0.74 | -1.38 | 3.32 | 2126.31 |
| 2 | 8 | 7005.55 | 574.28 | -0.74 | 1.38 | -3.32 | -2126.31 |
| 2 | 9 | -7024.01 | -295.48 | 0.74 | -1.38 | 6.64 | 4069.04 |
| 3 | 9 | 7311.37 | 295.48 | -0.74 | 1.38 | -6.64 | -4255.41 |
| 3 | 10 | -7343.56 | -33.97 | 0.72 | -1.35 | 9.75 | 4961.04 |
| 4 | 10 | 7343.53 | 33.97 | -0.72 | 1.35 | -9.75 | -4961.04 |
| 4 | 11 | -7466.21 | 130.71 | 0.73 | -1.37 | 13.12 | 4612.72 |
| 5 | 11 | 7466.28 | -130.71 | -0.73 | 1.37 | -13.12 | -4612.72 |
| 5 | 12 | -7469.96 | 241.78 | 0.73 | -1.37 | 16.40 | 3789.39 |
| 6 | 12 | 7469.92 | -241.78 | -0.73 | 1.37 | -16.40 | -3789.39 |
| 6 | 13 | -7407.90 | 179.83 | 0.69 | -1.29 | 18.64 | 2662.95 |
| 7 | 13 | 7385.21 | -179.83 | -0.69 | 1.29 | -18.64 | -2665.99 |
| 7 | 14 | -9621.32 | 244.35 | 0.74 | -1.40 | 23.20 | 2327.30 |
| 8 | 14 | 9621.33 | -244.35 | -0.74 | 1.40 | -23.20 | -2327.30 |
| 8 | 15 | -13815.86 | 629.94 | 0.12 | -2.93 | 4.33 | -408.15 |
| 9 | 15 | 13675.77 | 418.90 | 2.46 | -2.17 | -4.09 | 409.59 |
| 9 | 23 | -10832.73 | -273.97 | -2.46 | 2.17 | 3.60 | 1464.35 |
| 10 | 23 | 10832.73 | 273.97 | 2.46 | -2.17 | -3.60 | -1464.35 |
| 10 | 24 | -10888.73 | -233.09 | -2.17 | 1.32 | -5.96 | 3035.33 |
| 11 | 24 | 11444.60 | 233.09 | 2.17 | -1.32 | 5.96 | -3439.47 |
| 11 | 25 | -8375.23 | -249.17 | -0.14 | 0.43 | 4.72 | 4177.44 |
| 12 | 25 | 8375.34 | 249.17 | 0.14 | -0.43 | -4.72 | -4177.44 |
| 12 | 26 | -8453.46 | -183.33 | -0.15 | 0.44 | 4.05 | 5069.06 |
| 13 | 26 | 8453.41 | 183.34 | 0.15 | -0.44 | -4.05 | -5069.06 |
| 13 | 27 | -8647.18 | -5.71 | -0.15 | 0.45 | 3.52 | 5593.94 |
| 14 | 27 | 8647.14 | 5.71 | 0.15 | -0.45 | -3.52 | -5593.94 |
| 14 | 28 | -8631.11 | 214.02 | -0.15 | 0.45 | 2.83 | 5136.43 |
| 15 | 28 | 8631.20 | -214.02 | 0.15 | -0.45 | -2.83 | -5136.43 |
| 15 | 29 | -8561.14 | 318.26 | -0.16 | 0.47 | 2.10 | 3906.17 |
| 16 | 29 | 8561.08 | -318.26 | 0.16 | -0.47 | -2.10 | -3906.17 |
| 16 | 30 | -10449.48 | 138.34 | -0.17 | 0.50 | 1.45 | 2714.99 |
| 17 | 30 | 10449.50 | -138.34 | 0.17 | -0.50 | -1.45 | -2714.99 |
| 17 | 31 | -10537.07 | 74.34 | 1.70 | 0.05 | 3.08 | 2055.37 |
| 18 | 31 | 10537.08 | -74.34 | -1.70 | -0.05 | -3.08 | -2055.37 |
| 18 | 32 | -14654.67 | 906.67 | 1.70 | 0.05 | 0.16 | -1702.61 |
| 19 | 32 | 14360.90 | 326.70 | -2.27 | 0.39 | -0.16 | 1698.86 |
| 19 | 40 | -10151.78 | -346.78 | 2.29 | -0.66 | 1.07 | 1346.29 |
| 20 | 40 | 10151.80 | 346.78 | -2.29 | 0.66 | -1.07 | -1346.30 |
| 20 | 41 | -10099.15 | -311.06 | -0.02 | -0.31 | 0.28 | 3243.55 |
| 21 | 41 | 10099.16 | 311.06 | 0.02 | 0.31 | -0.28 | -3243.55 |
| 21 | 42 | -7710.55 | -251.01 | -0.02 | -0.31 | 0.26 | 4432.59 |
| 22 | 42 | 7710.58 | 251.01 | 0.01 | 0.31 | -0.26 | -4432.58 |
| 22 | 43 | -7921.03 | -189.53 | -0.02 | -0.29 | 0.23 | 5356.01 |
| 23 | 43 | 7920.98 | 189.53 | 0.02 | 0.29 | -0.23 | -5356.01 |
| 23 | 44 | -7888.13 | -6.20 | -0.02 | -0.29 | 0.15 | 5903.38 |
| 24 | 44 | 7888.16 | 6.20 | 0.02 | 0.29 | -0.15 | -5903.38 |
| 24 | 45 | -8233.03 | 207.31 | -0.02 | -0.29 | 0.05 | 5474.80 |
| 25 | 45 | 8233.06 | -207.31 | 0.02 | 0.29 | -0.05 | -5474.80 |
| 25 | 46 | -8230.40 | 307.23 | -0.02 | -0.28 | -0.03 | 4275.47 |
| 26 | 46 | 8230.36 | -307.23 | 0.02 | 0.28 | 0.03 | -4275.47 |
| 26 | 47 | -9270.85 | 125.31 | -0.02 | -0.32 | -0.26 | 2686.72 |
| 27 | 47 | 9270.84 | -125.31 | 0.02 | 0.32 | 0.27 | -2686.72 |
| 27 | 48 | -9258.43 | 54.14 | 2.39 | -1.04 | -0.44 | 2086.89 |
| 28 | 48 | 9258.43 | -54.14 | -2.39 | 1.04 | 0.44 | -2086.89 |
| 28 | 49 | -13377.24 | 836.32 | 2.46 | -1.19 | -0.07 | -1576.03 |
| 29 | 49 | 12922.74 | 367.98 | -2.39 | 0.09 | 0.05 | 1578.28 |
| 29 | 59 | -8714.80 | -332.54 | 2.39 | -0.09 | 0.13 | 1587.44 |
| 30 | 59 | 8714.82 | 332.54 | -2.39 | 0.09 | -0.13 | -1587.44 |
| 30 | 60 | -8814.23 | -303.84 | 0.00 | 0.03 | -0.50 | 3420.91 |
| 31 | 60 | 8814.21 | 303.84 | 0.00 | -0.03 | 0.50 | -3420.91 |
| 31 | 61 | -6518.21 | -235.52 | 0.00 | 0.03 | -0.45 | 4574.93 |
| 32 | 61 | 6518.24 | 235.52 | 0.00 | -0.03 | 0.45 | -4574.93 |
| 32 | 62 | -6575.09 | -169.56 | 0.00 | 0.04 | -0.45 | 5427.50 |
| 33 | 62 | 6575.13 | 169.57 | 0.00 | -0.04 | 0.45 | -5427.50 |
| 33 | 63 | -6534.89 | 13.76 | 0.00 | 0.04 | -0.47 | 5903.95 |
| 34 | 63 | 6534.85 | -13.76 | 0.00 | -0.04 | 0.47 | -5903.95 |
| 34 | 64 | -7031.61 | 227.59 | 0.00 | 0.05 | -0.52 | 5404.39 |
| 35 | 64 | 7031.63 | -227.58 | 0.00 | -0.05 | 0.52 | -5404.39 |
| 35 | 65 | -7019.76 | 327.52 | -0.01 | 0.06 | -0.55 | 4134.37 |
| 36 | 65 | 7019.73 | -327.52 | 0.01 | -0.06 | 0.56 | -4134.37 |
| 36 | 66 | -9091.21 | 150.21 | 0.00 | 0.06 | -0.61 | 2663.26 |
| 37 | 66 | 9091.21 | -150.21 | 0.01 | -0.06 | 0.61 | -2663.26 |
| 37 | 67 | -9115.28 | 59.51 | 2.40 | -0.54 | 1.73 | 2051.35 |
| 38 | 67 | 9115.27 | -59.51 | -2.40 | 0.54 | -1.73 | -2051.35 |
| 38 | 68 | -13218.82 | 891.84 | 2.40 | -0.54 | 1.97 | -1654.47 |
| 39 | 68 | 12603.49 | 326.27 | -2.35 | 0.23 | -2.01 | 1648.43 |
| 39 | 78 | -8380.28 | -341.16 | -2.40 | 0.84 | -0.83 | 1537.45 |
| 40 | 78 | 8380.26 | 341.16 | 2.40 | -0.84 | 0.83 | -1537.45 |
| 40 | 79 | -8767.02 | -304.61 | 0.01 | -0.04 | -0.61 | 3414.35 |
| 41 | 79 | 8767.03 | 304.61 | -0.01 | 0.04 | 0.61 | -3414.35 |
| 41 | 80 | -6732.11 | -244.42 | 0.01 | -0.05 | -0.54 | 4572.97 |
| 42 | 80 | 6732.08 | 244.42 | -0.01 | 0.05 | 0.54 | -4572.97 |
| 42 | 81 | -6807.32 | -178.46 | 0.01 | -0.04 | -0.47 | 5443.93 |
| 43 | 81 | 6807.33 | 178.46 | -0.01 | 0.04 | 0.47 | -5443.93 |
| 43 | 82 | -7482.00 | -1.89 | 0.01 | -0.03 | -0.43 | 5946.10 |
| 44 | 82 | 7481.97 | 1.89 | -0.01 | 0.03 | 0.43 | -5946.10 |
| 44 | 83 | -7462.96 | 217.84 | 0.01 | -0.03 | -0.38 | 5469.11 |
| 45 | 83 | 7462.98 | -217.84 | -0.01 | 0.03 | 0.38 | -5469.12 |
| 45 | 84 | -7468.63 | 317.79 | 0.01 | -0.02 | -0.35 | 4220.39 |
| 46 | 84 | 7468.66 | -317.79 | -0.01 | 0.02 | 0.35 | -4220.39 |
| 46 | 85 | -9570.12 | 137.10 | 0.01 | -0.02 | -0.30 | 2780.61 |
| 47 | 85 | 9570.12 | -137.10 | -0.01 | 0.02 | 0.30 | -2780.62 |
| 47 | 86 | -9525.95 | 57.00 | -2.37 | 0.38 | -2.04 | 2213.45 |
| 48 | 86 | 9525.94 | -57.00 | 2.37 | -0.38 | 2.03 | -2213.45 |
| 48 | 87 | -13635.50 | 889.33 | -2.37 | 0.38 | -2.14 | -1467.81 |
| 49 | 87 | 12862.88 | 307.70 | 2.43 | -2.15 | 2.17 | 1497.62 |
| 49 | 97 | -8645.68 | -322.33 | -2.35 | 1.88 | -2.41 | 1620.77 |
| 50 | 97 | 8645.68 | 322.33 | 2.35 | -1.88 | 2.41 | -1620.77 |
| 50 | 98 | -8286.93 | -280.69 | 0.06 | 0.00 | 0.88 | 3436.14 |
| 51 | 98 | 8286.93 | 280.69 | -0.06 | 0.00 | -0.88 | -3436.14 |
| 51 | 99 | -6228.08 | -222.65 | 0.06 | -0.03 | 1.17 | 4525.59 |
| 52 | 99 | 6228.07 | 222.66 | -0.06 | 0.03 | -1.17 | -4525.60 |
| 52 | 100 | -6287.23 | -156.71 | 0.06 | -0.02 | 1.44 | 5322.87 |
| 53 | 100 | 6287.21 | 156.71 | -0.06 | 0.02 | -1.44 | -5322.87 |
| 53 | 101 | -6249.29 | 26.61 | 0.06 | -0.02 | 1.70 | 5743.56 |
| 54 | 101 | 6249.28 | -26.61 | -0.06 | 0.02 | -1.70 | -5743.56 |
| 54 | 102 | -6214.19 | 246.34 | 0.06 | -0.02 | 1.97 | 5162.30 |
| 55 | 102 | 6214.21 | -246.34 | -0.06 | 0.02 | -1.97 | -5162.30 |
| 55 | 103 | -6206.39 | 346.29 | 0.06 | 0.00 | 2.18 | 3808.61 |
| 56 | 103 | 6206.38 | -346.29 | -0.05 | 0.00 | -2.18 | -3808.61 |
| 56 | 104 | -8292.34 | 167.61 | 0.06 | 0.00 | 2.43 | 2206.51 |
| 57 | 104 | 8292.34 | -167.61 | -0.06 | 0.00 | -2.43 | -2206.51 |
| 57 | 105 | -9193.92 | 76.83 | -2.26 | 1.44 | 0.96 | 1511.06 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 58 | 105 | 9193.93 | -76.83 | 2.26 | -1.44 | -0.96 | -1511.06 |
| 58 | 106 | -13303.77 | 853.09 | -2.25 | 1.25 | -0.48 | -2076.72 |
| 59 | 106 | 12374.06 | 409.84 | 1.38 | -0.26 | 0.70 | 1956.39 |
| 59 | 115 | -8157.15 | -374.40 | -1.38 | 0.26 | 3.66 | 1381.73 |
| 60 | 115 | 8157.15 | 374.40 | 1.38 | -0.26 | -3.66 | -1381.73 |
| 60 | 116 | -8749.33 | -326.44 | 0.12 | -0.60 | 1.81 | 3396.25 |
| 61 | 116 | 8749.33 | 326.44 | -0.12 | 0.60 | -1.81 | -3396.24 |
| 61 | 117 | -7728.72 | -277.40 | 0.15 | -0.75 | 2.97 | 4615.29 |
| 62 | 117 | 7728.73 | 277.40 | -0.15 | 0.75 | -2.97 | -4615.28 |
| 62 | 118 | -7796.89 | -211.54 | 0.15 | -0.74 | 3.69 | 5637.81 |
| 63 | 118 | 7796.88 | 211.54 | -0.15 | 0.74 | -3.69 | -5637.81 |
| 63 | 119 | -7767.96 | -28.22 | 0.15 | -0.74 | 4.35 | 6283.17 |
| 64 | 119 | 7767.97 | 28.22 | -0.15 | 0.74 | -4.35 | -6283.17 |
| 64 | 120 | -7741.89 | 191.51 | 0.15 | -0.74 | 5.02 | 5926.58 |
| 65 | 120 | 7741.88 | -191.51 | -0.15 | 0.74 | -5.02 | -5926.58 |
| 65 | 121 | -7733.88 | 291.31 | 0.14 | -0.73 | 5.70 | 4804.83 |
| 66 | 121 | 7733.88 | -291.31 | -0.14 | 0.73 | -5.70 | -4804.82 |
| 66 | 122 | -9793.00 | 31.43 | 1.72 | -1.94 | -19.29 | 3773.73 |
| 67 | 122 | 9793.01 | -31.42 | -1.72 | 1.94 | 19.29 | -3773.73 |
| 67 | 123 | -9794.89 | -47.03 | 1.88 | -2.72 | -15.00 | 3644.53 |
| 68 | 123 | 9794.89 | 47.03 | -1.88 | 2.72 | 15.00 | -3644.53 |
| 68 | 124 | -13852.46 | 775.28 | 1.88 | -2.72 | -17.11 | 433.97 |
| 69 | 124 | 13934.66 | 135.12 | 0.57 | -5.66 | 17.11 | -294.06 |
| 69 | 133 | -9817.47 | -182.31 | -0.59 | 2.03 | 18.60 | 2056.13 |
| 70 | 133 | 9817.47 | 182.31 | 0.59 | -2.03 | -18.60 | -2056.13 |
| 70 | 134 | -5930.14 | -143.10 | -0.45 | 1.53 | 12.27 | 2122.15 |
| 71 | 134 | 5966.27 | 143.10 | 0.45 | -1.53 | -12.27 | -2111.21 |
| 71 | 135 | -6028.69 | -286.41 | -0.48 | 1.62 | 10.82 | 3315.78 |
| 72 | 135 | 6028.69 | 286.41 | 0.48 | -1.62 | -10.82 | -3315.78 |
| 72 | 136 | -5986.08 | -79.95 | -0.48 | 1.62 | 8.65 | 4200.41 |
| 73 | 136 | 5986.08 | 79.94 | 0.48 | -1.62 | -8.66 | -4200.41 |
| 73 | 137 | -5915.88 | 139.95 | -0.48 | 1.62 | 6.49 | 4134.82 |
| 74 | 137 | 5915.89 | -139.95 | 0.48 | -1.62 | -6.49 | -4134.82 |
| 74 | 138 | -5839.41 | 294.28 | -0.49 | 1.65 | 4.42 | 3207.78 |
| 75 | 138 | 5023.47 | -294.28 | 0.49 | -1.65 | -4.42 | -3236.23 |
| 75 | 139 | -4956.51 | 488.68 | -0.49 | 1.65 | 2.21 | 1612.37 |
| 76 | 139 | 4956.51 | -488.68 | 0.49 | -1.65 | -2.21 | -1612.37 |
| 76 | 140 | -4556.27 | 537.06 | -0.29 | 0.98 | 0.00 | -511.35 |
| 77 | 16 | 1623.64 | -83.38 | 0.73 | 0.00 | -7.08 | -809.79 |
| 77 | 17 | -1565.81 | 78.80 | -0.73 | 0.00 | 3.20 | 380.14 |
| 78 | 17 | 1565.81 | -78.80 | 0.73 | 0.00 | -3.20 | -380.14 |
| 78 | 18 | -1505.29 | 0.00 | -0.73 | 0.00 | -0.46 | 0.00 |
| 79 | 33 | 1819.03 | -94.66 | -0.30 | 0.00 | 3.26 | -1115.39 |
| 79 | 34 | -1736.31 | 87.76 | 0.30 | 0.00 | -0.95 | 423.79 |
| 80 | 34 | 1736.31 | -87.76 | -0.30 | 0.00 | 0.95 | -423.79 |
| 80 | 35 | -1675.05 | 0.00 | 0.30 | 0.00 | 0.57 | 0.00 |
| 81 | 50 | 2020.29 | -118.57 | -0.01 | 0.00 | 0.49 | -3182.69 |
| 81 | 51 | -1938.08 | 112.02 | 0.01 | 0.00 | -0.42 | 2433.68 |
| 82 | 51 | 1938.08 | -112.02 | -0.01 | 0.00 | 0.42 | -2433.68 |
| 82 | 52 | -1818.74 | 100.87 | 0.01 | 0.00 | -0.31 | 1366.52 |
| 83 | 52 | 1818.74 | -100.87 | -0.01 | 0.00 | 0.31 | -1366.52 |
| 83 | 53 | -1709.62 | 88.18 | 0.01 | 0.00 | -0.21 | 421.43 |
| 84 | 53 | 1709.62 | -88.18 | -0.01 | 0.00 | 0.21 | -421.42 |
| 84 | 54 | -1648.91 | -79.66 | 0.01 | 0.00 | -0.15 | 0.00 |
| 85 | 69 | 1997.22 | -119.35 | -0.02 | 0.00 | 0.62 | -2897.69 |
| 85 | 70 | -1952.67 | 115.48 | 0.02 | 0.00 | -0.55 | 2489.06 |
| 86 | 70 | 1952.67 | -115.48 | -0.02 | 0.00 | 0.55 | -2489.06 |
| 86 | 71 | -1833.33 | 103.11 | 0.02 | 0.00 | -0.35 | 1394.33 |
| 87 | 71 | 1833.33 | -103.11 | -0.02 | 0.00 | 0.35 | -1394.33 |
| 87 | 72 | -1724.21 | 89.91 | 0.02 | 0.00 | -0.16 | 429.59 |
| 88 | 72 | 1724.21 | -89.91 | -0.02 | 0.00 | 0.16 | -429.59 |
| 88 | 73 | -1663.26 | 81.18 | 0.02 | 0.00 | -0.06 | 0.00 |
| 89 | 88 | 1941.54 | -108.21 | -0.03 | 0.00 | 0.75 | -2435.70 |
| 89 | 89 | -1929.05 | 107.23 | 0.03 | 0.00 | -0.72 | 2327.99 |
| 90 | 89 | 1929.05 | -107.23 | -0.03 | 0.00 | 0.72 | -2327.99 |
| 90 | 90 | -1809.71 | 96.47 | 0.03 | 0.00 | -0.45 | 1307.44 |
| 91 | 90 | 1809.71 | -96.47 | -0.03 | 0.00 | 0.45 | -1307.44 |
| 91 | 91 | -1700.59 | 84.38 | 0.03 | 0.00 | -0.18 | 403.00 |
| 92 | 91 | 1700.59 | -84.38 | -0.03 | 0.00 | 0.18 | -403.00 |
| 92 | 92 | -1641.46 | 0.00 | 0.03 | 0.00 | -0.03 | 0.00 |
| 93 | 107 | 1903.96 | -98.74 | -0.19 | 0.00 | 2.21 | -1454.18 |
| 93 | 108 | -1892.48 | 97.81 | 0.19 | 0.00 | -2.02 | 1355.90 |
| 94 | 108 | 1892.48 | -97.81 | -0.19 | 0.00 | 2.02 | -1355.90 |
| 94 | 109 | -1783.36 | 88.20 | 0.19 | 0.00 | -0.10 | 424.65 |
| 95 | 109 | 1783.36 | -88.20 | -0.19 | 0.00 | 0.10 | -424.65 |
| 95 | 110 | -1714.83 | 0.00 | 0.17 | 0.00 | 0.78 | 0.00 |
| 96 | 125 | 1574.73 | -99.96 | 0.58 | 0.00 | -7.97 | -1473.70 |
| 96 | 126 | -1563.26 | 99.03 | -0.58 | 0.00 | 7.38 | 1374.20 |
| 97 | 126 | 1563.26 | -99.03 | 0.58 | 0.00 | -7.38 | -1374.20 |
| 97 | 127 | -1454.14 | 89.42 | -0.58 | 0.00 | 1.55 | 430.75 |
| 98 | 127 | 1454.14 | -89.42 | 0.58 | 0.00 | -1.55 | -430.75 |
| 98 | 128 | -1431.09 | 0.00 | -0.54 | 0.00 | -1.26 | 0.00 |
| 99 | 2 | 337.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 99 | 3 | -335.72 | -16.88 | 0.00 | 0.00 | 0.00 | 28.73 |
| 100 | 4 | 337.37 | 0.00 | -0.41 | 0.00 | 0.00 | 0.00 |
| 100 | 5 | -335.70 | -16.88 | 0.41 | 0.00 | 0.70 | 28.73 |
| 101 | 19 | 725.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 101 | 20 | -725.88 | -36.29 | 0.00 | 0.00 | 0.00 | 61.77 |
| 102 | 21 | 725.89 | 0.00 | 0.73 | 0.00 | 0.00 | 0.00 |
| 102 | 22 | -726.13 | -36.29 | -0.72 | 0.00 | -1.23 | 61.77 |
| 103 | 36 | 810.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 103 | 37 | -810.67 | -40.54 | 0.00 | 0.00 | 0.00 | 69.00 |
| 104 | 38 | 810.49 | 0.00 | -0.30 | 0.00 | 0.00 | 0.00 |
| 104 | 39 | -810.36 | -40.54 | 0.30 | 0.00 | 0.51 | 69.00 |
| 105 | 55 | 797.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105 | 56 | -797.54 | -39.83 | 0.00 | 0.00 | 0.00 | 67.79 |
| 106 | 57 | 797.54 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| 106 | 58 | -797.62 | -39.83 | 0.01 | 0.00 | 0.02 | 67.79 |
| 107 | 74 | 804.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 107 | 75 | -804.31 | -40.59 | 0.00 | 0.00 | 0.00 | 69.08 |
| 108 | 76 | 804.55 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 |
| 108 | 77 | -804.34 | -40.59 | 0.02 | 0.00 | 0.03 | 69.08 |
| 109 | 93 | 793.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 109 | 94 | -794.88 | -38.05 | 0.00 | 0.00 | 0.00 | 64.76 |
| 110 | 95 | 793.86 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 |
| 110 | 96 | -794.89 | -38.05 | 0.02 | 0.00 | 0.04 | 64.76 |
| 111 | 111 | 830.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 111 | 112 | -826.54 | -40.49 | 0.00 | 0.00 | 0.00 | 68.91 |
| 112 | 113 | 830.32 | 0.00 | -0.17 | 0.00 | 0.00 | 0.00 |
| 112 | 114 | -826.17 | -40.49 | 0.15 | 0.00 | 0.26 | 68.91 |
| 113 | 129 | 688.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 113 | 130 | -709.47 | -41.10 | 0.00 | 0.00 | 0.00 | 69.95 |
| 114 | 131 | 689.00 | 0.00 | 0.54 | 0.00 | 0.00 | 0.00 |
| 114 | 132 | -710.08 | -41.10 | -0.48 | 0.00 | -0.83 | 69.95 |
| 115 | 141 | 357.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115 | 142 | -542.21 | -657.15 | 0.00 | 0.00 | 0.00 | 1125.17 |
| 116 | 143 | 357.09 | 0.00 | -0.32 | 0.00 | 0.00 | 0.00 |
| 116 | 144 | -542.03 | -657.15 | 0.46 | 0.00 | 0.80 | 1125.17 |
| 117 | 6 | 678.08 | -33.76 | -0.41 | 0.00 | 0.34 | -33.76 |
| 117 | 7 | -674.75 | 0.00 | 0.41 | 0.00 | 0.07 | 0.00 |
| 118 | 145 | 901.21 | -1314.29 | -0.29 | 0.00 | -0.19 | -1314.29 |
| 118 | 146 | -714.32 | -0.01 | 0.32 | 0.00 | 0.55 | 0.00 |
| 119 | 3 | 0.00 | 337.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 119 | 1 | 0.00 | -578.72 | 16.88 | -28.73 | 71.74 | 2459.54 |
| 120 | 1 | 1.36 | -578.64 | 16.87 | -28.73 | -71.77 | -2456.90 |
| 120 | 5 | 29.05 | 241.86 | 16.93 | -28.73 | -0.03 | 49.73 |
| 121 | 20 | 0.00 | 1233.38 | -0.24 | 0.00 | -0.31 | -0.02 |
| 121 | 15 | 0.00 | -1389.43 | -36.05 | 61.77 | -67.42 | 2570.45 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 122 | 15 | -29.54 | -1379.80 | -36.46 | 61.77 | 66.76 | -2603.22 |
| 122 | 22 | 73.12 | 1021.33 | -36.20 | 61.77 | -0.04 | 125.18 |
| 123 | 37 | 0.00 | 1051.79 | -0.08 | 0.00 | -0.05 | -0.01 |
| 123 | 32 | 0.00 | -1519.23 | 40.62 | -69.00 | 74.84 | 2810.59 |
| 124 | 32 | 8.99 | -1515.22 | 40.54 | -69.00 | -75.16 | -2787.77 |
| 124 | 39 | 142.38 | 539.20 | 40.54 | -69.00 | -0.44 | 243.76 |
| 125 | 56 | 0.01 | 1277.09 | -0.04 | 0.00 | -0.24 | -0.02 |
| 125 | 49 | 0.00 | -1496.16 | -39.95 | 67.79 | -73.95 | 2767.94 |
| 126 | 49 | -35.75 | -1496.03 | -39.70 | 67.79 | 73.53 | -2828.87 |
| 126 | 58 | 53.56 | 1026.95 | -0.15 | 0.00 | -0.12 | 91.73 |
| 127 | 75 | 0.00 | 1191.21 | 0.06 | 0.00 | -0.07 | -0.02 |
| 127 | 68 | 0.00 | -1494.65 | 40.54 | -69.08 | 75.03 | 2765.10 |
| 128 | 68 | -20.69 | -1494.45 | 40.84 | -69.08 | -75.03 | -2800.15 |
| 128 | 77 | 78.28 | 1042.74 | 40.63 | -69.08 | 0.03 | 134.00 |
| 129 | 94 | 0.00 | 1002.50 | -0.01 | 0.00 | 0.03 | -0.01 |
| 129 | 87 | 0.01 | -1495.09 | -38.05 | 64.76 | -70.36 | 2765.94 |
| 130 | 87 | -24.84 | -1494.84 | -38.11 | 64.76 | 70.41 | -2808.01 |
| 130 | 96 | 77.65 | 1027.26 | 38.09 | -64.76 | 0.03 | 132.96 |
| 131 | 112 | 0.00 | 899.69 | -0.08 | 0.00 | -0.01 | -0.01 |
| 131 | 106 | 0.00 | -1532.62 | 40.56 | -68.91 | 74.98 | 2835.37 |
| 132 | 106 | 2.06 | -1531.48 | 40.43 | -68.91 | -74.97 | -2829.71 |
| 132 | 114 | 117.99 | 1026.30 | 40.48 | -68.91 | -0.03 | 201.99 |
| 133 | 130 | 0.00 | 1249.76 | -0.05 | 0.00 | -0.06 | -0.02 |
| 133 | 124 | 0.01 | -1390.92 | -41.05 | 69.95 | -76.06 | 2573.22 |
| 134 | 124 | -36.39 | -1367.40 | -41.15 | 69.95 | 76.00 | -2591.99 |
| 134 | 132 | 75.40 | 964.45 | -41.11 | 69.95 | 0.06 | 129.07 |
| 135 | 142 | 0.00 | 357.22 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135 | 140 | 0.00 | -623.81 | -485.02 | 830.49 | -2061.35 | 2651.19 |
| 136 | 140 | 1.53 | -623.54 | -485.02 | 830.49 | 2061.35 | -2647.45 |
| 136 | 144 | 47.44 | 224.63 | -395.38 | 677.02 | 0.00 | 81.22 |
| 137 | 2 | 0.00 | -337.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 137 | 7 | 0.00 | 222.84 | 16.88 | 0.00 | 71.57 | -947.09 |
| 138 | 7 | 12.69 | 222.83 | 16.88 | 0.00 | -71.57 | 947.03 |
| 138 | 4 | 0.41 | -337.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 139 | 19 | 0.00 | -1279.20 | 0.00 | 0.00 | 0.00 | -0.01 |
| 139 | 18 | 0.00 | 467.91 | -36.28 | 0.00 | -66.79 | -865.64 |
| 140 | 18 | 40.54 | 468.22 | -36.30 | 0.00 | 66.77 | 866.21 |
| 140 | 21 | -0.07 | -938.79 | 0.00 | 0.00 | 0.00 | 0.01 |
| 141 | 36 | 0.00 | -1033.82 | 0.00 | 0.00 | 0.00 | -0.01 |
| 141 | 35 | 0.00 | 518.19 | 40.54 | 0.00 | 74.59 | -958.70 |
| 142 | 35 | 141.90 | 517.93 | 40.53 | 0.00 | -74.60 | 958.19 |
| 142 | 38 | 96.19 | -1352.31 | 0.00 | 0.00 | 0.00 | 0.00 |
| 143 | 55 | 0.00 | -838.29 | 0.00 | 0.00 | 0.00 | -0.01 |
| 143 | 54 | 0.00 | 517.68 | -40.08 | 0.00 | -73.08 | -957.72 |
| 144 | 54 | 12.33 | 517.89 | -39.75 | 0.00 | 73.21 | 958.13 |
| 144 | 57 | -18.62 | -1372.85 | 0.00 | 0.00 | 0.00 | 0.02 |
| 145 | 74 | 0.01 | -1063.02 | 0.00 | 0.00 | 0.00 | -0.01 |
| 145 | 73 | 0.00 | 556.47 | 40.53 | 0.00 | 74.76 | -1029.51 |
| 146 | 73 | 51.37 | 556.63 | 40.57 | 0.00 | -74.68 | 1029.79 |
| 146 | 76 | -40.74 | -1229.04 | 0.00 | 0.00 | 0.00 | 0.01 |
| 147 | 93 | 0.00 | -973.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| 147 | 92 | 0.00 | 517.72 | -37.99 | 0.00 | -69.96 | -957.80 |
| 148 | 92 | 46.70 | 517.88 | -38.06 | 0.00 | 70.06 | 958.10 |
| 148 | 95 | -0.03 | -1152.44 | 0.00 | 0.00 | 0.00 | 0.00 |
| 149 | 111 | 0.01 | -1410.20 | 0.00 | 0.00 | 0.00 | -0.01 |
| 149 | 110 | 0.00 | 548.12 | 40.47 | 0.00 | 74.45 | -1014.05 |
| 150 | 110 | 111.51 | 547.88 | 40.52 | 0.00 | -74.49 | 1013.58 |
| 150 | 113 | -12.11 | -1069.03 | 0.00 | 0.00 | 0.00 | 0.01 |
| 151 | 129 | 0.00 | -1108.85 | 0.00 | 0.00 | 0.00 | -0.01 |
| 151 | 128 | 0.00 | 429.95 | -41.05 | 0.00 | -75.65 | -795.42 |
| 152 | 128 | 30.51 | 430.82 | -41.12 | 0.00 | 75.60 | 797.01 |
| 152 | 131 | 0.57 | -1273.36 | 0.00 | 0.00 | 0.00 | 0.01 |
| 153 | 141 | 0.00 | -357.22 | 0.00 | 0.00 | 0.00 | 0.00 |
| 153 | 146 | 0.00 | 199.13 | -446.77 | 0.00 | -1898.90 | -846.31 |
| 154 | 146 | 28.64 | 199.06 | -446.77 | 0.00 | 1898.90 | 846.02 |
| 154 | 143 | 0.32 | -357.09 | 0.00 | 0.00 | 0.00 | 0.00 |

DESPLAZAMIENTOS DE NUDOS

| NUDO | DESP. X | DESP. Y | DESP. Z | GIRO X | GIRO Y | GIRO Z |
|---|---|---|---|---|---|---|
| 1 | 0.270621 | -0.001142 | -0.000216 | 0.000000 | -0.000004 | -0.001931 |
| 2 | 0.000011 | -0.000239 | 0.000000 | -0.000078 | -0.000004 | 0.000000 |
| 3 | 0.270625 | -0.000785 | -0.000216 | 0.000126 | 0.000000 | -0.001938 |
| 4 | 0.000011 | -0.000239 | 0.000000 | 0.000078 | 0.000004 | 0.000000 |
| 5 | 0.270594 | -0.000785 | -0.000216 | -0.000126 | -0.000008 | -0.001938 |
| 7 | 0.000000 | -0.000017 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 8 | 0.267128 | -0.010628 | -0.000199 | 0.000000 | -0.000004 | -0.001844 |
| 9 | 0.270448 | -0.018372 | -0.000183 | -0.000001 | -0.000004 | -0.001367 |
| 10 | 0.266894 | -0.023049 | -0.000166 | -0.000001 | -0.000003 | -0.000673 |
| 11 | 0.109564 | -0.003228 | -0.000090 | -0.000001 | -0.000002 | -0.000151 |
| 12 | 0.108153 | 0.005188 | -0.000088 | 0.000000 | -0.000001 | -0.000347 |
| 13 | 0.097168 | 0.002893 | -0.000084 | -0.000001 | -0.000001 | -0.000685 |
| 14 | 0.093707 | -0.000762 | -0.000083 | -0.000001 | -0.000001 | -0.000968 |
| 15 | 0.234137 | -0.005690 | -0.000090 | -0.000001 | -0.000001 | -0.001436 |
| 17 | 0.000878 | -0.000501 | -0.000004 | -0.000001 | 0.000000 | -0.000258 |
| 18 | 0.002489 | -0.000907 | -0.000011 | -0.000001 | 0.000000 | -0.000324 |
| 19 | 0.002491 | -0.000949 | -0.000011 | -0.000033 | -0.000002 | -0.000324 |
| 20 | 0.234136 | -0.005632 | -0.000090 | 0.000048 | 0.000001 | -0.001443 |
| 21 | 0.002491 | -0.000945 | -0.000011 | 0.000031 | 0.000002 | -0.000324 |
| 22 | 0.234133 | -0.005629 | -0.000090 | -0.000049 | -0.000002 | -0.001443 |
| 23 | 0.230306 | -0.011676 | -0.000086 | -0.000001 | 0.000000 | -0.002034 |
| 24 | 0.231363 | -0.021607 | -0.000086 | 0.000000 | 0.000000 | -0.001952 |
| 25 | 0.232360 | -0.029770 | -0.000084 | 0.000000 | 0.000000 | -0.001492 |
| 26 | 0.228360 | -0.034076 | -0.000083 | 0.000000 | 0.000000 | -0.000870 |
| 27 | 0.224940 | -0.024764 | -0.000079 | 0.000000 | -0.000001 | -0.000244 |
| 28 | 0.091297 | 0.007106 | -0.000062 | 0.000000 | 0.000000 | -0.000260 |
| 29 | 0.089668 | 0.006287 | -0.000062 | 0.000000 | 0.000000 | -0.000551 |
| 30 | 0.078787 | 0.003863 | -0.000063 | 0.000000 | 0.000000 | -0.000864 |
| 31 | 0.077062 | -0.000681 | -0.000063 | 0.000001 | 0.000000 | -0.001112 |
| 32 | 0.075000 | -0.006117 | -0.000072 | 0.000001 | 0.000000 | -0.001617 |
| 34 | 0.002258 | -0.000797 | 0.000003 | 0.000001 | 0.000000 | -0.000477 |
| 35 | 0.004999 | -0.001249 | 0.000007 | 0.000001 | 0.000000 | -0.000551 |
| 36 | 0.005001 | -0.001292 | 0.000007 | -0.000035 | -0.000002 | -0.000551 |
| 37 | 0.074997 | -0.006052 | -0.000072 | 0.000052 | 0.000002 | -0.001625 |
| 38 | 0.005001 | -0.001294 | 0.000007 | 0.000037 | 0.000002 | -0.000551 |
| 39 | 0.074997 | -0.006056 | -0.000072 | -0.000050 | -0.000002 | -0.001625 |
| 40 | 0.195431 | -0.012978 | -0.000073 | 0.000001 | 0.000000 | -0.002233 |
| 41 | 0.191835 | -0.023782 | -0.000074 | 0.000001 | 0.000000 | -0.002113 |
| 42 | 0.197324 | -0.032542 | -0.000074 | 0.000001 | 0.000000 | -0.001634 |
| 43 | 0.193636 | -0.037492 | -0.000074 | 0.000001 | 0.000000 | -0.000969 |
| 44 | 0.190261 | -0.027457 | -0.000098 | 0.000000 | 0.000000 | -0.000361 |
| 45 | 0.072928 | 0.006747 | -0.000071 | 0.000000 | 0.000000 | -0.000379 |
| 46 | 0.071451 | 0.004981 | -0.000071 | 0.000000 | 0.000000 | -0.000637 |
| 47 | 0.061217 | 0.001994 | -0.000070 | 0.000000 | 0.000000 | -0.000916 |
| 48 | 0.060150 | -0.002813 | -0.000070 | 0.000000 | 0.000000 | -0.001154 |
| 49 | 0.161236 | -0.008644 | -0.000079 | 0.000000 | 0.000000 | -0.001637 |
| 51 | 0.004351 | -0.000657 | 0.000000 | 0.000000 | 0.000000 | -0.001225 |
| 52 | 0.024386 | -0.001674 | 0.000001 | 0.000000 | 0.000000 | -0.002598 |
| 53 | 0.054890 | -0.002719 | 0.000004 | 0.000000 | 0.000000 | -0.003324 |
| 54 | 0.071865 | -0.003163 | 0.000005 | 0.000000 | 0.000000 | -0.003397 |
| 55 | 0.071867 | -0.003206 | 0.000005 | -0.000035 | -0.000002 | -0.003397 |
| 56 | 0.161234 | -0.008582 | -0.000079 | 0.000050 | 0.000002 | -0.001644 |
| 57 | 0.071867 | -0.003207 | 0.000005 | 0.000036 | 0.000002 | -0.003397 |
| 58 | 0.161234 | -0.008583 | -0.000079 | -0.000049 | -0.000002 | -0.001644 |
| 59 | 0.157613 | -0.015534 | -0.000079 | 0.000000 | 0.000000 | -0.002217 |
| 60 | 0.154194 | -0.026162 | -0.000079 | 0.000000 | 0.000000 | -0.002061 |

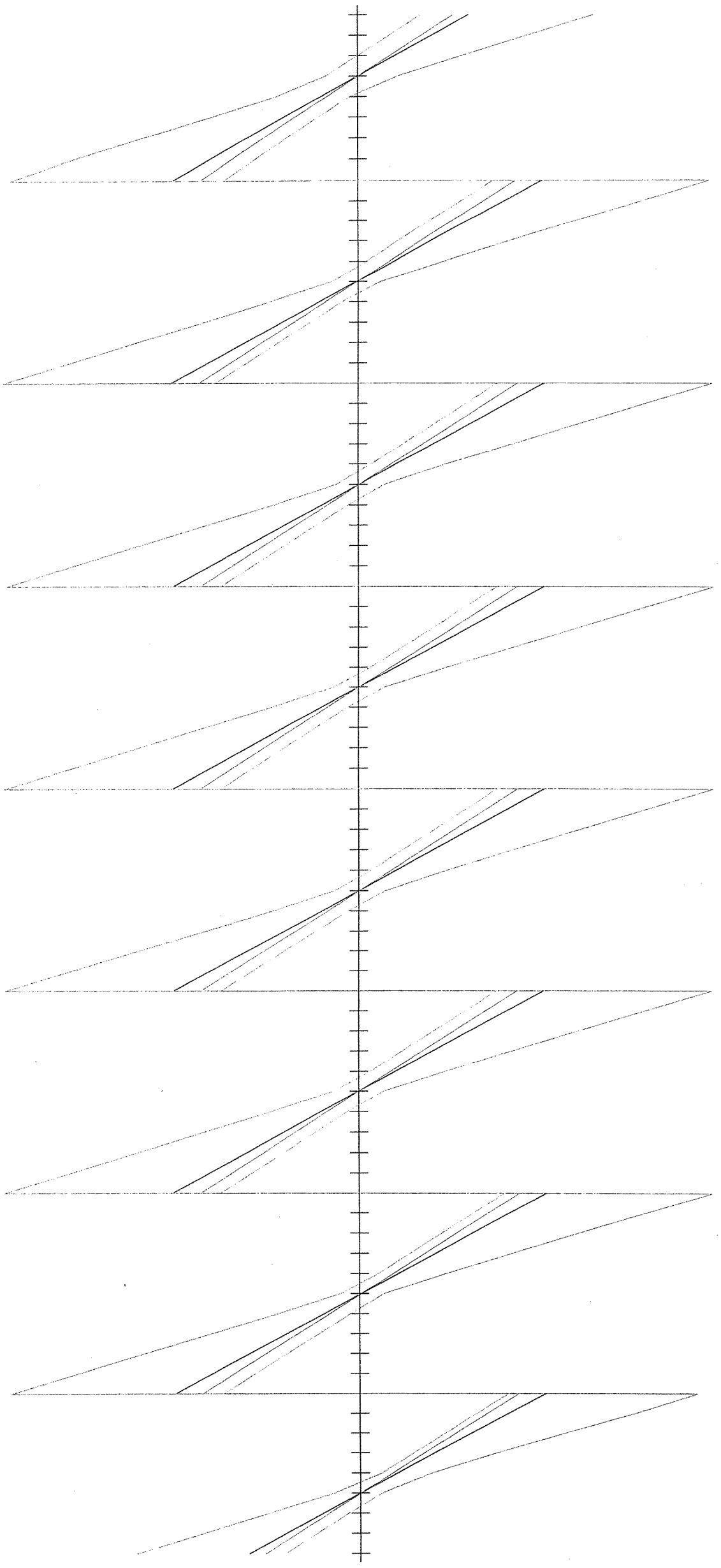
| | | | | | | |
|---|---|---|---|---|---|---|
| 61 | 0.159242 | -0.034625 | -0.000078 | 0.000000 | 0.000000 | -0.001556 |
| 62 | 0.155454 | -0.039554 | -0.000078 | 0.000000 | 0.000000 | -0.000877 |
| 63 | 0.152261 | -0.024635 | -0.000069 | 0.000001 | 0.000000 | -0.000266 |
| 64 | 0.061324 | 0.006976 | -0.000068 | 0.000000 | 0.000000 | -0.000336 |
| 65 | 0.059787 | 0.005352 | -0.000069 | 0.000000 | 0.000000 | -0.000623 |
| 66 | 0.052871 | 0.002413 | -0.000070 | 0.000000 | 0.000000 | -0.000920 |
| 67 | 0.051602 | -0.002416 | -0.000070 | 0.000000 | 0.000000 | -0.001161 |
| 68 | 0.052501 | -0.004409 | -0.000070 | 0.000000 | 0.000000 | -0.001639 |
| 70 | 0.001210 | -0.000347 | 0.000000 | 0.000000 | 0.000000 | -0.000619 |
| 71 | 0.015364 | -0.001371 | 0.000001 | 0.000000 | 0.000000 | -0.002022 |
| 72 | 0.040201 | -0.002424 | 0.000003 | 0.000000 | 0.000000 | -0.002763 |
| 73 | 0.054376 | -0.002872 | 0.000005 | 0.000000 | 0.000000 | -0.002837 |
| 74 | 0.054378 | -0.002915 | 0.000005 | -0.000035 | -0.000002 | -0.002837 |
| 75 | 0.052499 | -0.004352 | -0.000070 | 0.000045 | 0.000002 | -0.001647 |
| 76 | 0.054378 | -0.002916 | 0.000005 | 0.000036 | 0.000002 | -0.002837 |
| 77 | 0.052499 | -0.004354 | -0.000070 | -0.000045 | -0.000002 | -0.001647 |
| 78 | 0.130126 | -0.015165 | -0.000079 | 0.000000 | 0.000000 | -0.002225 |
| 79 | 0.130540 | -0.025791 | -0.000079 | 0.000000 | 0.000000 | -0.002075 |
| 80 | 0.130848 | -0.034432 | -0.000079 | 0.000000 | 0.000000 | -0.001576 |
| 81 | 0.127285 | -0.039472 | -0.000079 | 0.000000 | 0.000000 | -0.000895 |
| 82 | 0.121698 | -0.024392 | -0.000078 | 0.000000 | 0.000000 | -0.000285 |
| 83 | 0.045045 | 0.006771 | -0.000066 | 0.000000 | 0.000000 | -0.000345 |
| 84 | 0.043597 | 0.005141 | -0.000066 | 0.000000 | 0.000000 | -0.000616 |
| 85 | 0.035120 | 0.002324 | -0.000067 | 0.000000 | 0.000000 | -0.000895 |
| 86 | 0.033891 | -0.002346 | -0.000067 | 0.000000 | 0.000000 | -0.001113 |
| 87 | 0.092090 | -0.004066 | -0.000068 | 0.000000 | 0.000000 | -0.001573 |
| 89 | 0.000110 | -0.000100 | 0.000000 | 0.000000 | 0.000000 | -0.000163 |
| 90 | 0.009187 | -0.001114 | 0.000001 | 0.000000 | 0.000000 | -0.001476 |
| 91 | 0.028279 | -0.002155 | 0.000003 | 0.000000 | 0.000000 | -0.002171 |
| 92 | 0.039474 | -0.002599 | 0.000005 | 0.000000 | 0.000000 | -0.002241 |
| 93 | 0.039476 | -0.002641 | 0.000005 | -0.000035 | -0.000002 | -0.002241 |
| 94 | 0.092088 | -0.004011 | -0.000068 | 0.000045 | 0.000002 | -0.001580 |
| 95 | 0.039476 | -0.002642 | 0.000005 | 0.000035 | 0.000002 | -0.002241 |
| 96 | 0.092088 | -0.004012 | -0.000068 | -0.000044 | -0.000002 | -0.001580 |
| 97 | 0.088197 | -0.014425 | -0.000076 | 0.000000 | 0.000000 | -0.002138 |
| 98 | 0.084818 | -0.024672 | -0.000075 | 0.000000 | 0.000000 | -0.001977 |
| 99 | 0.081436 | -0.032880 | -0.000075 | 0.000000 | 0.000000 | -0.001469 |
| 100 | 0.084475 | -0.036603 | -0.000074 | 0.000000 | 0.000000 | -0.000794 |
| 101 | 0.081382 | -0.021666 | -0.000068 | 0.000001 | 0.000000 | -0.000225 |
| 102 | 0.033780 | 0.009069 | -0.000070 | 0.000000 | 0.000000 | -0.000324 |
| 103 | 0.036297 | 0.007740 | -0.000069 | 0.000000 | 0.000000 | -0.000639 |
| 104 | 0.035018 | 0.004537 | -0.000072 | 0.000000 | 0.000000 | -0.000966 |
| 105 | 0.033607 | -0.000552 | -0.000072 | 0.000000 | 0.000000 | -0.001232 |
| 106 | 0.031578 | -0.003220 | -0.000081 | 0.000000 | 0.000000 | -0.001740 |
| 108 | 0.000080 | -0.000106 | 0.000000 | 0.000000 | 0.000000 | -0.000108 |
| 109 | 0.005662 | -0.001185 | 0.000003 | 0.000000 | 0.000000 | -0.000833 |
| 110 | 0.010184 | -0.001645 | 0.000005 | 0.000000 | 0.000000 | -0.000907 |
| 111 | 0.010186 | -0.001690 | 0.000005 | -0.000036 | -0.000002 | -0.000907 |
| 112 | 0.031580 | -0.003157 | -0.000081 | 0.000051 | -0.000002 | -0.001732 |
| 113 | 0.010186 | -0.001691 | 0.000005 | 0.000037 | 0.000002 | -0.000907 |
| 114 | 0.031580 | -0.003158 | -0.000081 | -0.000051 | 0.000002 | -0.001732 |
| 115 | 0.065838 | -0.013984 | -0.000082 | 0.000000 | 0.000000 | -0.002345 |
| 116 | 0.062247 | -0.025319 | -0.000083 | 0.000000 | 0.000000 | -0.002222 |
| 117 | 0.058648 | -0.034707 | -0.000083 | 0.000000 | 0.000000 | -0.001716 |
| 118 | 0.055020 | -0.039931 | -0.000084 | 0.000000 | 0.000000 | -0.001011 |
| 119 | 0.023723 | -0.026748 | -0.000094 | -0.000001 | 0.000000 | -0.000392 |
| 120 | 0.016696 | 0.000511 | -0.000082 | -0.000002 | 0.000001 | -0.000364 |
| 121 | 0.010913 | 0.000676 | -0.000086 | -0.000002 | 0.000001 | -0.000467 |
| 122 | 0.009376 | -0.001504 | -0.000093 | -0.000002 | 0.000001 | -0.000537 |
| 123 | 0.008184 | -0.004089 | -0.000100 | -0.000002 | 0.000002 | -0.000510 |
| 124 | 0.023406 | -0.002588 | -0.000106 | -0.000002 | 0.000002 | -0.000826 |
| 126 | 0.000081 | -0.000093 | 0.000000 | 0.000000 | 0.000000 | -0.000109 |
| 127 | 0.005740 | -0.001031 | -0.000013 | -0.000002 | 0.000000 | -0.000845 |
| 128 | 0.010324 | -0.001428 | -0.000022 | -0.000002 | 0.000000 | -0.000919 |
| 129 | 0.010326 | -0.001470 | -0.000022 | -0.000033 | -0.000002 | -0.000919 |
| 130 | 0.023400 | -0.002542 | -0.000106 | 0.000038 | 0.000004 | -0.000834 |
| 131 | 0.010326 | -0.001463 | -0.000022 | 0.000030 | 0.000002 | -0.000919 |
| 132 | 0.023407 | -0.002533 | -0.000106 | -0.000043 | 0.000000 | -0.000834 |
| 133 | 0.019554 | -0.008681 | -0.000126 | -0.000002 | 0.000002 | -0.001173 |
| 134 | 0.016217 | -0.014058 | -0.000136 | -0.000002 | 0.000002 | -0.001030 |
| 135 | 0.012873 | -0.018284 | -0.000148 | -0.000002 | 0.000003 | -0.000708 |
| 136 | 0.011084 | -0.008443 | -0.000147 | -0.000001 | 0.000002 | -0.000305 |
| 137 | 0.010080 | 0.018231 | -0.000113 | 0.000000 | 0.000001 | -0.000593 |
| 138 | 0.008648 | 0.014096 | -0.000119 | 0.000000 | 0.000001 | -0.001294 |
| 139 | 0.007364 | 0.006761 | -0.000105 | 0.000001 | 0.000005 | -0.002048 |
| 140 | 0.006112 | -0.004096 | -0.000128 | 0.000000 | 0.000005 | -0.002868 |
| 141 | 0.000434 | -0.000387 | 0.000000 | -0.000127 | -0.000151 | -0.000017 |
| 142 | 0.005779 | -0.003884 | -0.000128 | 0.000075 | 0.000115 | -0.003081 |
| 143 | 0.000458 | -0.000386 | 0.000000 | 0.000126 | 0.000156 | -0.000017 |
| 144 | 0.005821 | -0.003885 | -0.000128 | -0.000075 | -0.000105 | -0.003081 |
| 146 | 0.000011 | -0.000028 | 0.000000 | 0.000000 | 0.000003 | -0.000017 |

# 1.2. CÁLCULO DEL TABLERO

# LEYES GRÁFICAS DE ESFUERZOS

proc Viaducto de Can Torres  proyecto modificado (servicio)

| | | |
|---|---|---|
| carga permanente (t=0)(sup) | F. Y | 200.0 |
| carga permanente (t=0)(inf) | F. Y | 200.0 |
| FLEX Y MAX envolvente (ELS) | F. Y | 200.0 |
| FLEX Y MIN envolvente (ELS) | F. Y | 200.0 |



proc Viaducto de Can Torres  proyecto modificado (servicio)

carga permanente (t=0)(sup)

carga permanente (t=0)(inf)

MOME X Max envolvente (ELS)

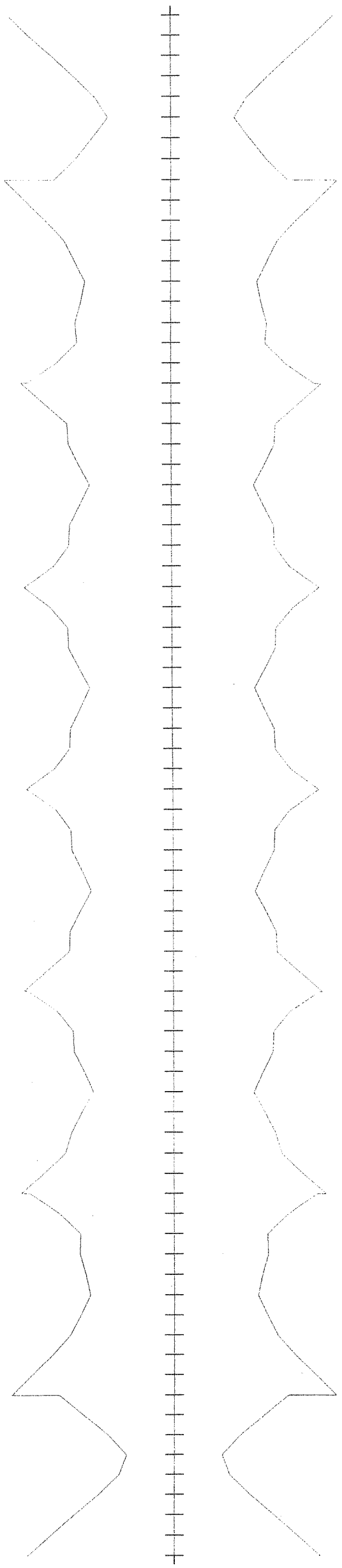
MOME X MIN envolvente (ELS)

M. X 300.0

M. X 300.0

M. X 300.0

M. X 300.0



proc Viaducto de Can Torres  proyecto modificado (servicio)

carga permanente (t=0)(sup)

carga permanente (t=0)(inf)

M□M□ Y MAX envolvente (ELS)

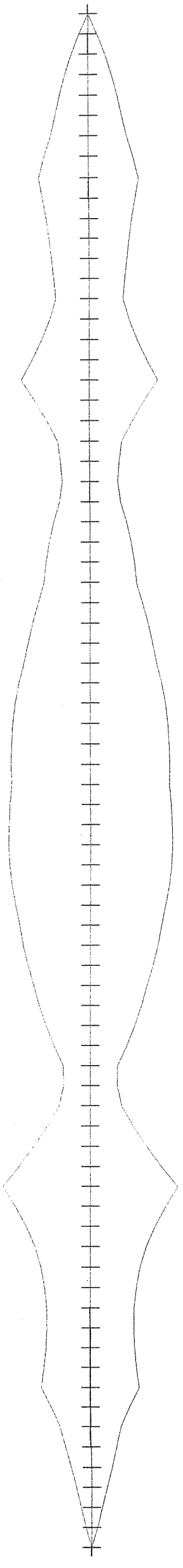
M□M□ Y MIN envolvente (ELS)

M. Y 1000.0

M. Y 1000.0

M. Y 1000.0

M. Y 1000.0



proc Viaducto de Can Torres  proyecto modificado (servicio)

carga permanente (t=0)(sup)

carga permanente (t=0)(inf)

M. Z MAX envolvente (ELS)

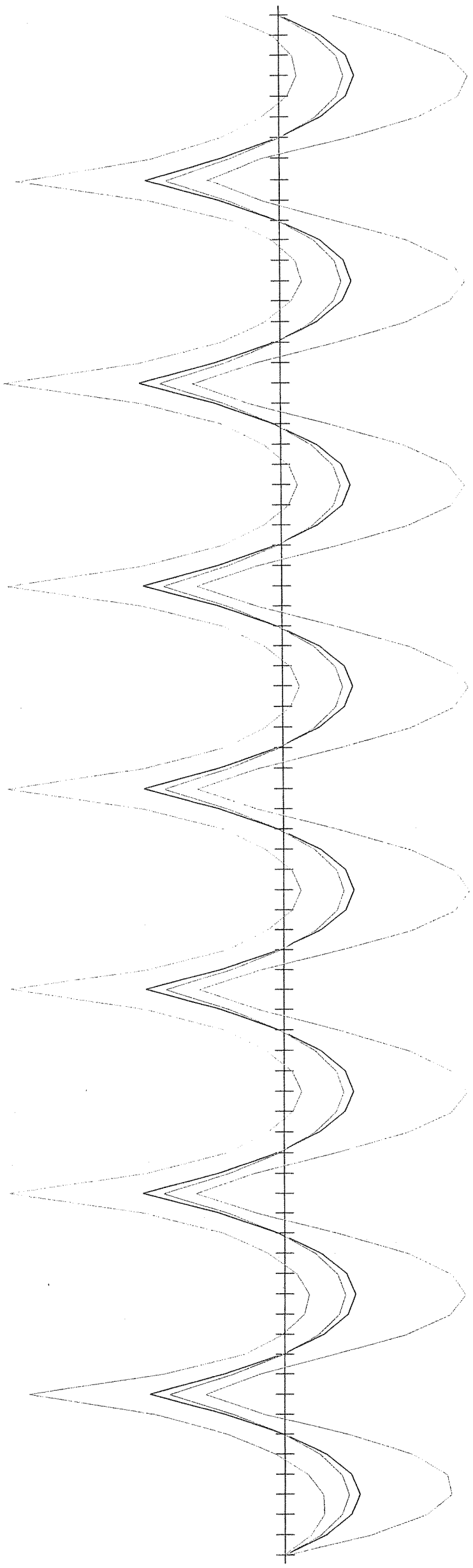
M. Z MIN envolvente (ELS)

M. Z 2000.0

M. Z 2000.0

M. Z 2000.0

M. Z 2000.0

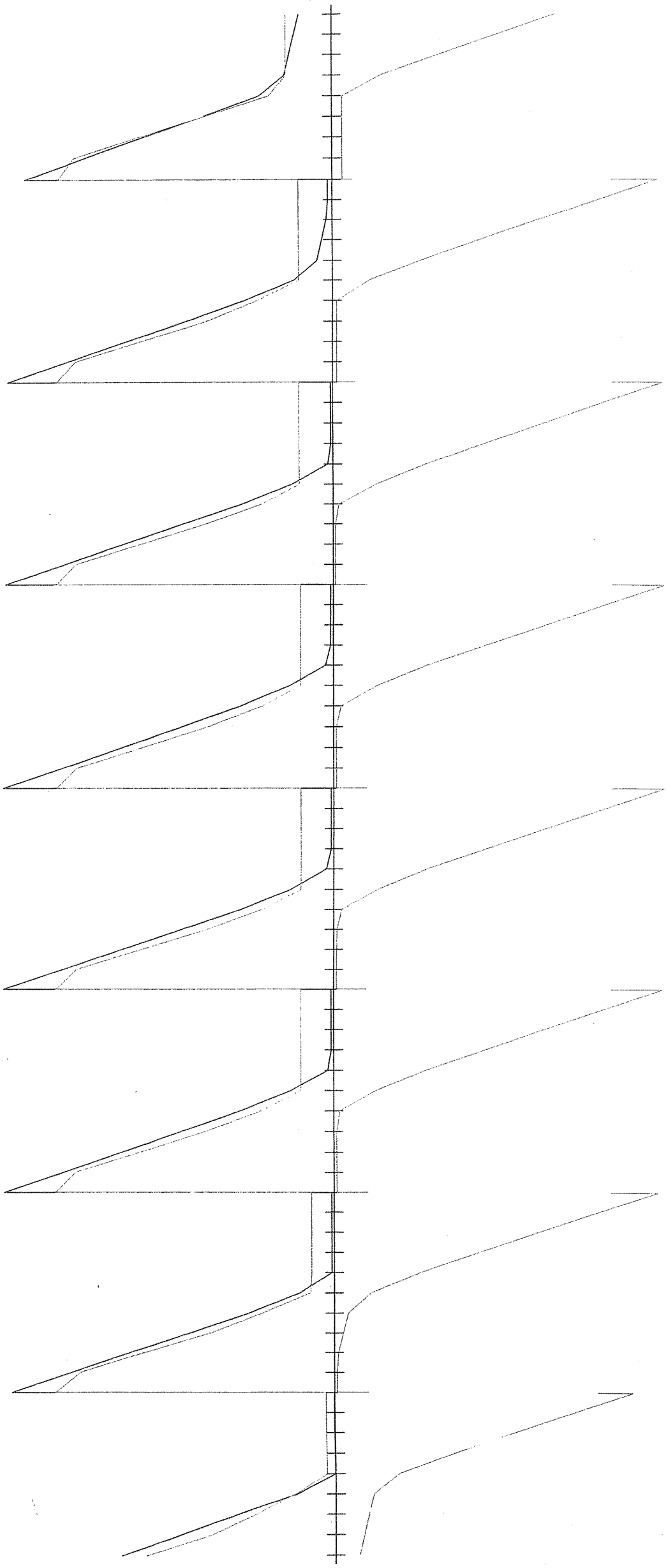


proc Viaducto de Can Torres  proyecto modificado (servicio)

FUER Y MAX sobrecarga + fr. + fc (ipf-75)  F. Y  100.0

FUER Y MIN sobrecarga + fr. + fc (ipf-75)  F. Y  100.0

FUER Y MAX sobrecarga + fr. + fc (ec-1)  F. Y  100.0

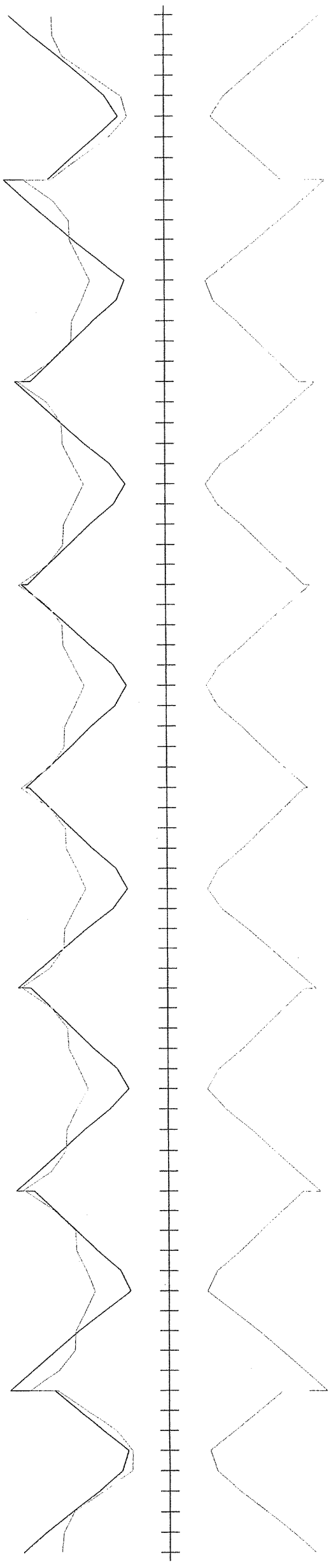


proc Viaducto de Can Torres  proyecto modificado (servicio)

MOME X MAX sobrecarga + fr. + fc (ipf-75)  M. X  300.0

MOME X MIN sobrecarga + fr. + fc (ipf-75)  M. X  300.0

MOME X MAX sobrecarga + fr. + fc (ec-1)  M. X  300.0



proc Viaducto de Can Torres  proyecto modificado (servicio)

MOME Y MAX sobrecarga + fr. + fc (ipf-75)

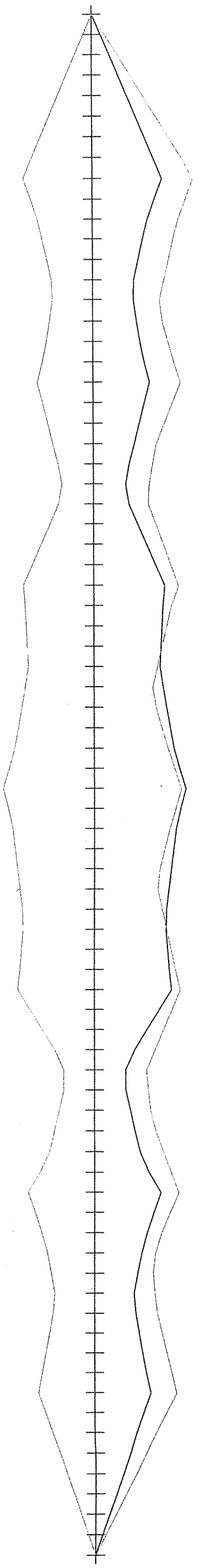
MOME Y MIN sobrecarga + fr. + fc (ipf-75)

MOME Y MAX sobrecarga + fr. + fc (ec-1)

M. Y 500.0

M. Y 500.0

M. Y 500.0



proc Viaducto de Can Torres  proyecto modificado (servicio)

MOME Z MAX sobrecarga + fr. + fc (ipf-75)

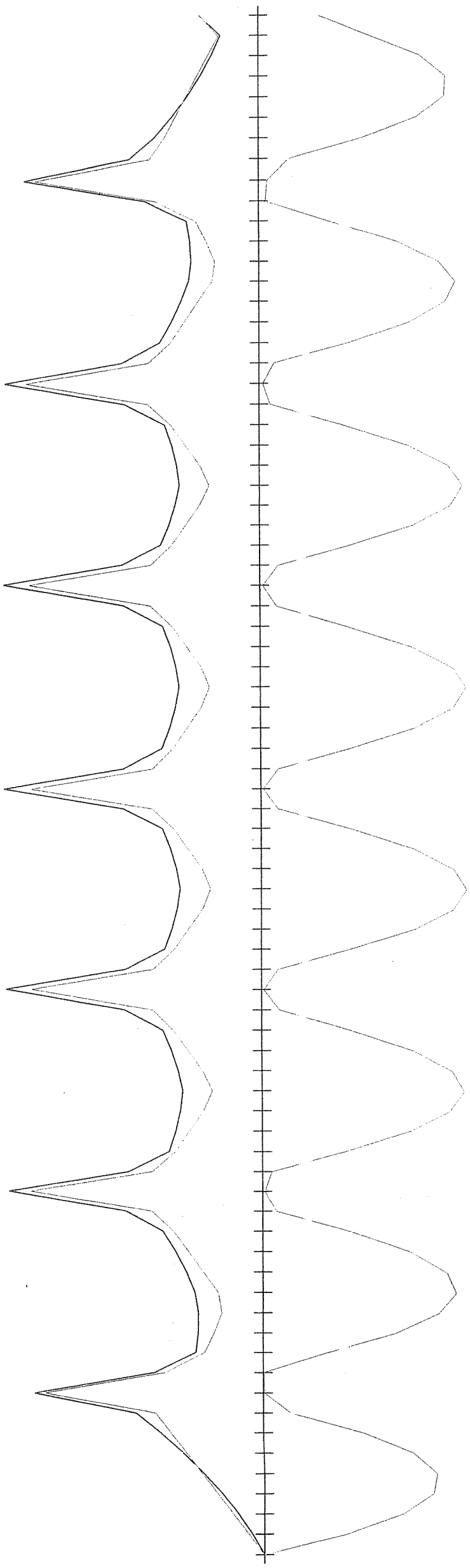
MOME Z MIN sobrecarga + fr. + fc (ipf-75)

MOME Z MAX sobrecarga + fr. + fc (ec-1)

M. Z 1000.0

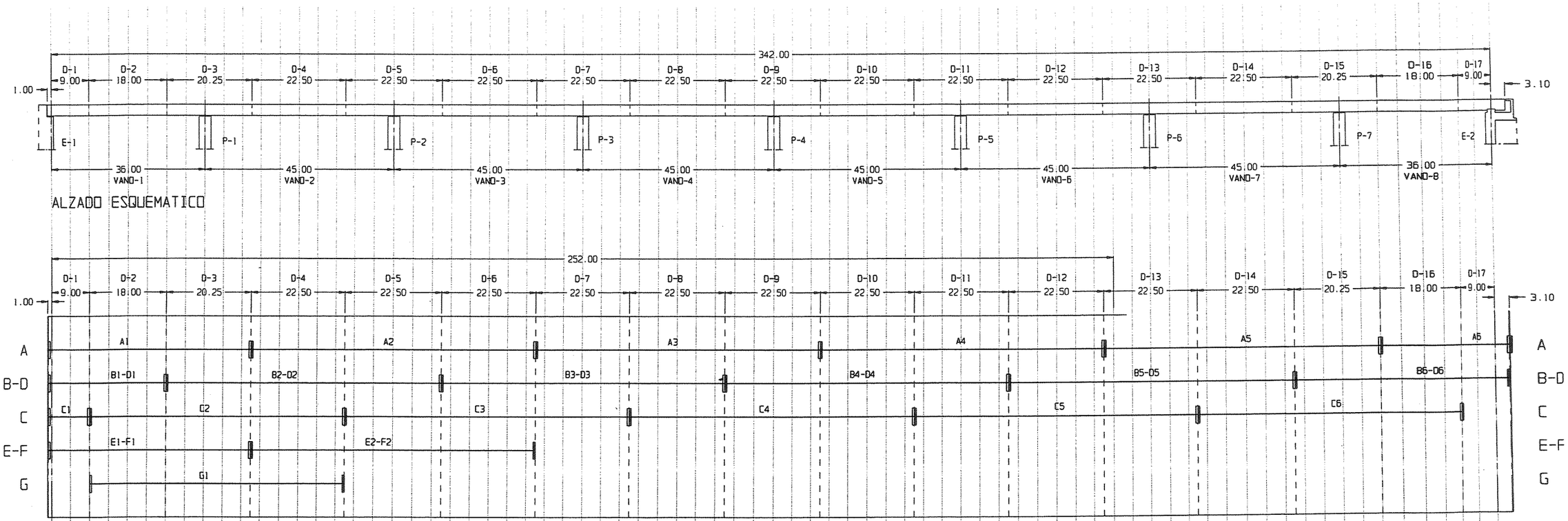
M. Z 1000.0

M. Z 1000.0

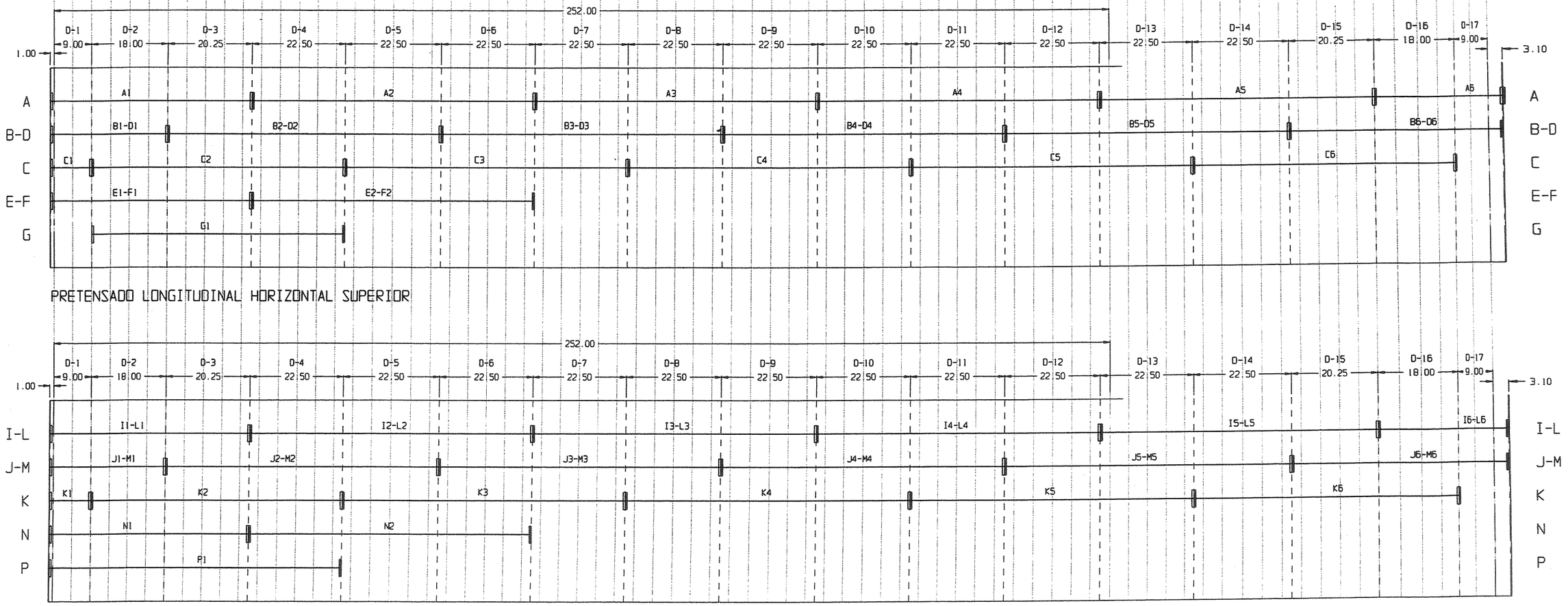


# CÁLCULO DE LA ARMADURA ACTIVA

# CABLES DE PRETENSADO DE PROCESO



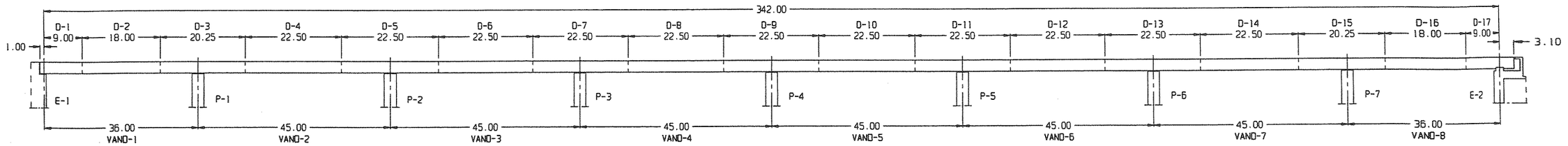

ALZADO ESQUEMATICO



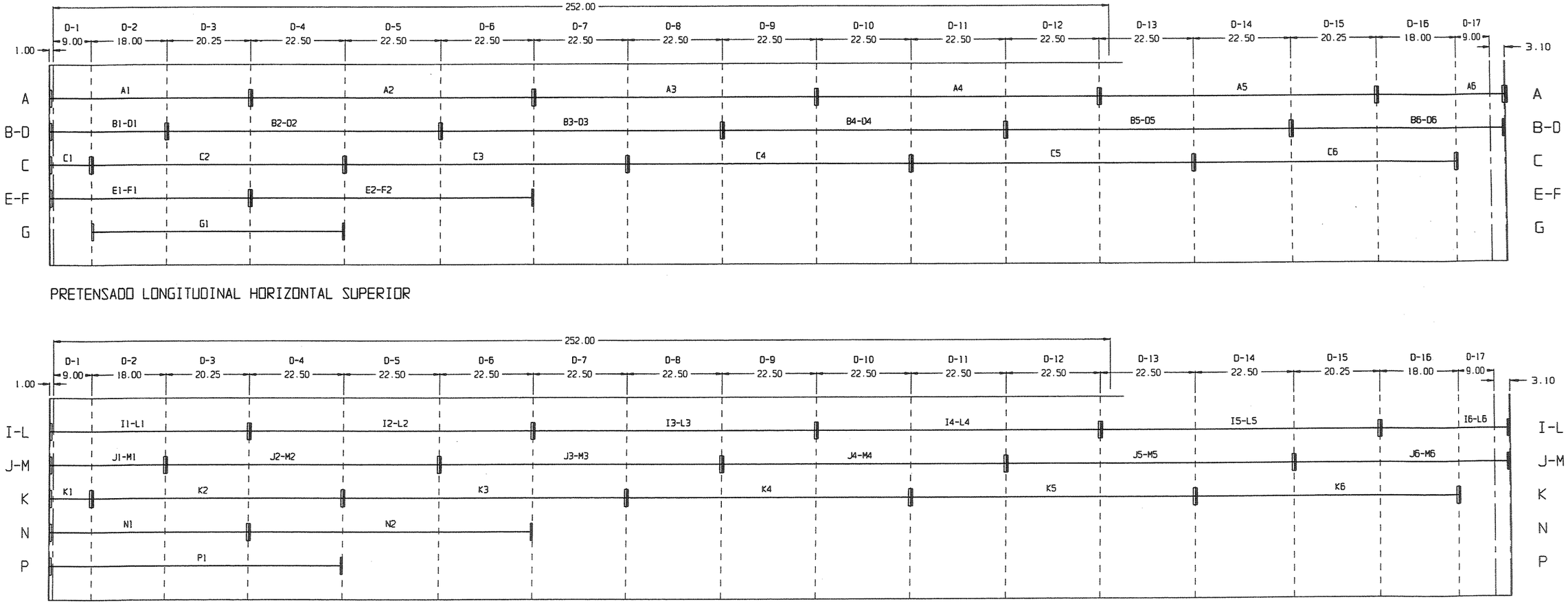

PRETENSADO LONGITUDINAL HORIZONTAL SUPERIOR




PRETENSADO LONGITUDINAL HORIZONTAL INFERIOR

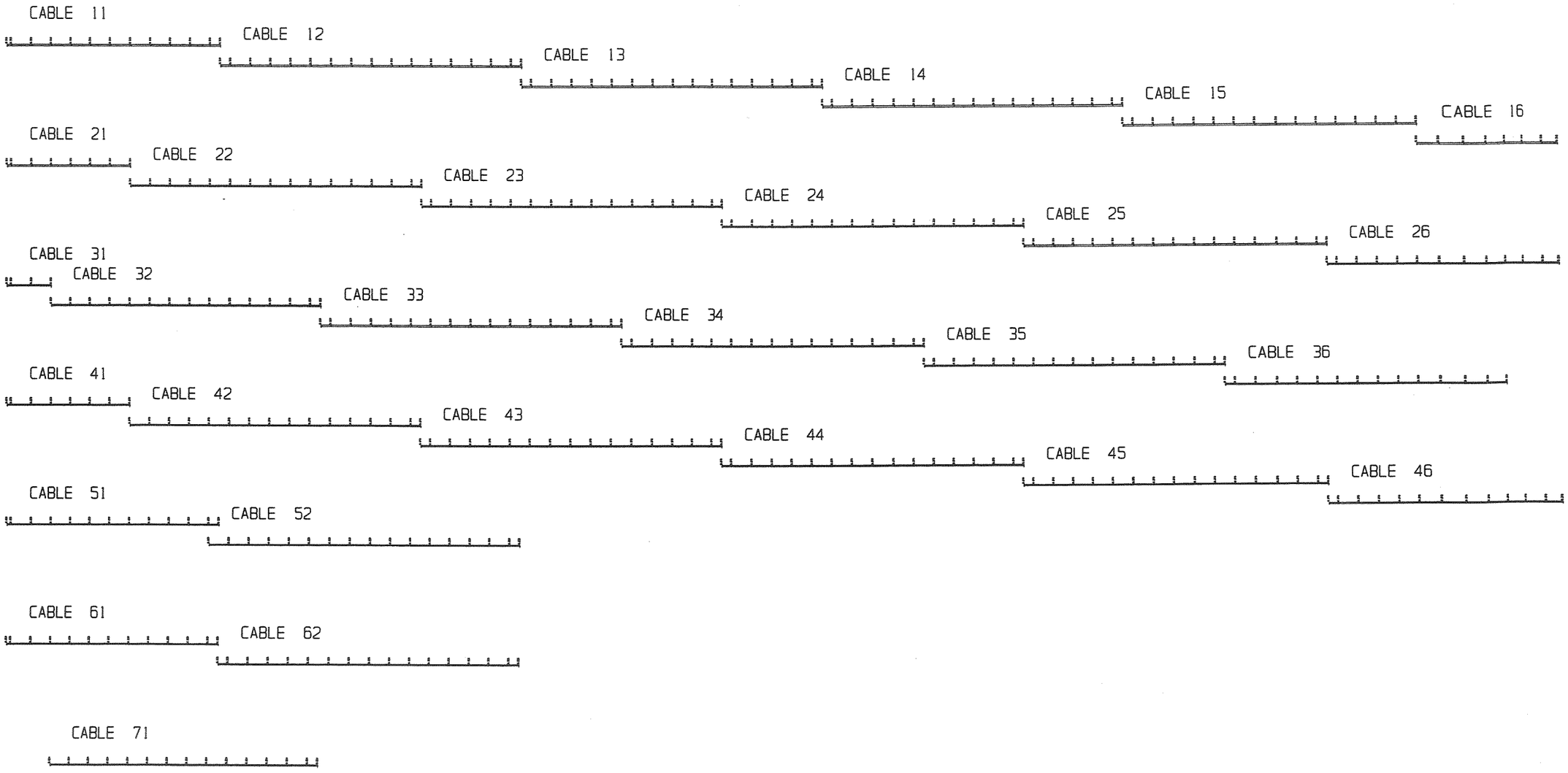


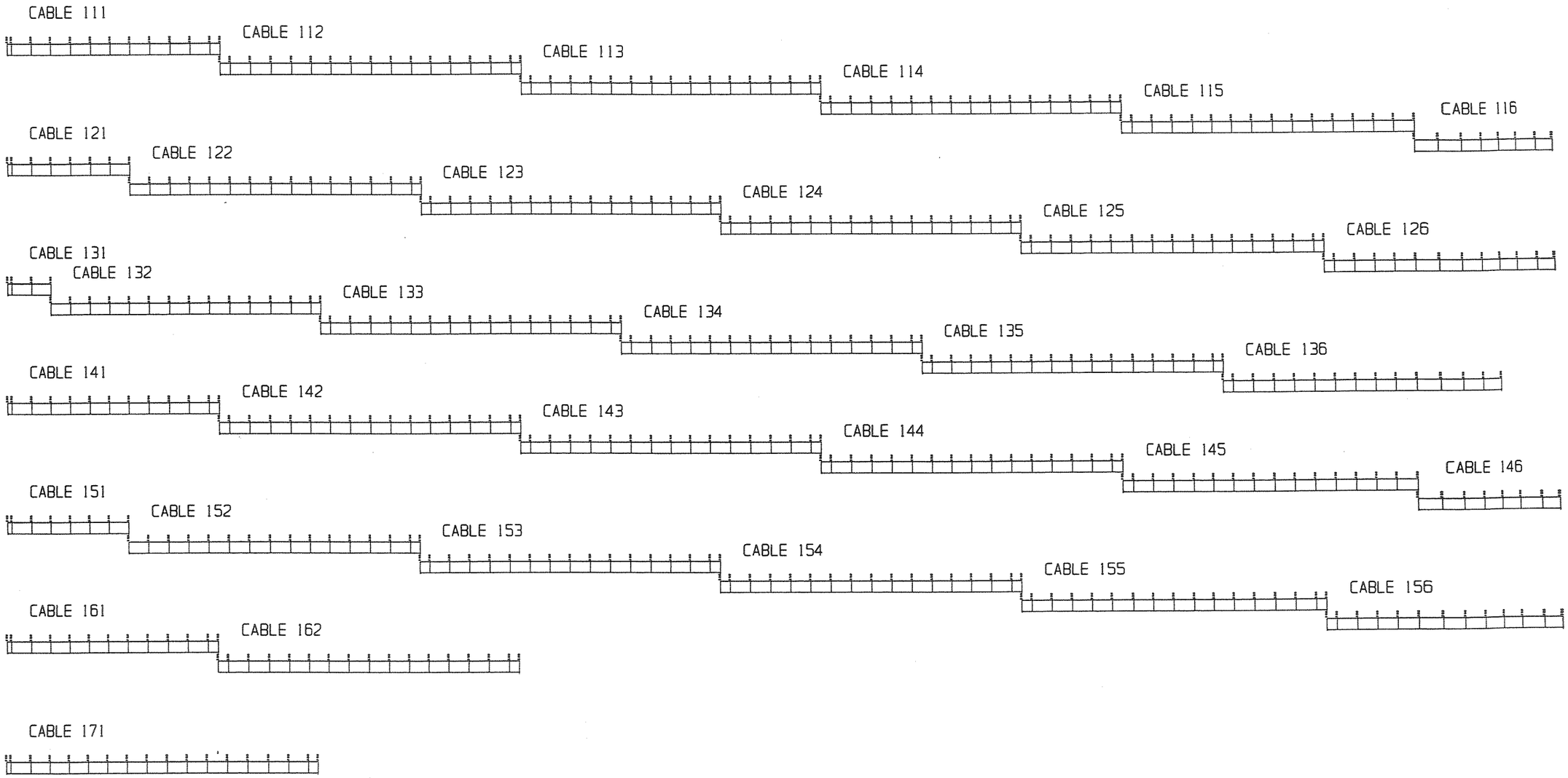

ALZADO ESQUEMATICO




PRETENSADO LONGITUDINAL HORIZONTAL SUPERIOR

PRETENSADO LONGITUDINAL HORIZONTAL INFERIOR


CABLE 11
CABLE 12
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CABLE 155
CABLE 156
CABLE 161
CABLE 162
CABLE 171

PRETENSADO DE PROCESO

| CABLE | LONGITUD (M.) | ALARGAMIENTO (M.) | TESADO (T.) | ANCLADO (T.) | AREA (M2) |
|---|---|---|---|---|---|
| 11 | 48.250 | 0.324 | 486.00 | 486.00 | 0.003600 |
| 12 | 67.500 | 0.448 | 486.00 | 486.00 | 0.003600 |
| 13 | 67.500 | 0.448 | 486.00 | 486.00 | 0.003600 |
| 14 | 67.500 | 0.448 | 486.00 | 486.00 | 0.003600 |
| 15 | 65.250 | 0.433 | 486.00 | 486.00 | 0.003600 |
| 16 | 30.100 | 0.183 | 486.00 | 486.00 | 0.003600 |
| 21 | 28.000 | 0.191 | 385.00 | 385.00 | 0.002850 |
| 22 | 65.250 | 0.434 | 385.00 | 385.00 | 0.002850 |
| 23 | 67.500 | 0.448 | 385.00 | 385.00 | 0.002850 |
| 24 | 67.500 | 0.448 | 385.00 | 385.00 | 0.002850 |
| 25 | 67.500 | 0.448 | 385.00 | 385.00 | 0.002850 |
| 26 | 50.350 | 0.316 | 385.00 | 385.00 | 0.002850 |
| 31 | 10.000 | 0.068 | 385.00 | 385.00 | 0.002850 |
| 32 | 60.750 | 0.405 | 385.00 | 385.00 | 0.002850 |
| 33 | 67.500 | 0.448 | 385.00 | 385.00 | 0.002850 |
| 34 | 67.500 | 0.448 | 385.00 | 385.00 | 0.002850 |
| 35 | 67.500 | 0.448 | 385.00 | 385.00 | 0.002850 |
| 36 | 60.750 | 0.405 | 385.00 | 385.00 | 0.002850 |
| 41 | 28.000 | 0.190 | 243.00 | 243.00 | 0.001800 |
| 42 | 65.250 | 0.433 | 243.00 | 243.00 | 0.001800 |
| 43 | 67.500 | 0.448 | 243.00 | 243.00 | 0.001800 |
| 44 | 67.500 | 0.448 | 243.00 | 243.00 | 0.001800 |
| 45 | 67.500 | 0.448 | 243.00 | 243.00 | 0.001800 |
| 46 | 50.350 | 0.316 | 243.00 | 243.00 | 0.001800 |
| 51 | 48.250 | 0.324 | 304.00 | 304.00 | 0.002250 |
| 52 | 69.750 | 0.462 | 304.00 | 304.00 | 0.002250 |
| 61 | 48.250 | 0.324 | 243.00 | 243.00 | 0.001800 |
| 62 | 67.500 | 0.448 | 243.00 | 243.00 | 0.001800 |
| 71 | 60.750 | 0.404 | 182.00 | 182.00 | 0.001350 |
| 111 | 48.250 | 0.324 | 182.00 | 182.00 | 0.001350 |
| 112 | 67.500 | 0.447 | 182.00 | 182.00 | 0.001350 |
| 113 | 67.500 | 0.447 | 182.00 | 182.00 | 0.001350 |
| 114 | 67.500 | 0.447 | 182.00 | 182.00 | 0.001350 |
| 115 | 65.250 | 0.433 | 182.00 | 182.00 | 0.001350 |
| 116 | 30.100 | 0.183 | 182.00 | 182.00 | 0.001350 |
| 121 | 28.000 | 0.190 | 182.00 | 182.00 | 0.001350 |
| 122 | 65.250 | 0.433 | 182.00 | 182.00 | 0.001350 |
| 123 | 67.500 | 0.447 | 182.00 | 182.00 | 0.001350 |
| 124 | 67.500 | 0.447 | 182.00 | 182.00 | 0.001350 |
| 125 | 67.500 | 0.447 | 182.00 | 182.00 | 0.001350 |
| 126 | 50.350 | 0.316 | 182.00 | 182.00 | 0.001350 |
| 131 | 10.000 | 0.068 | 182.00 | 182.00 | 0.001350 |
| 132 | 60.750 | 0.404 | 182.00 | 182.00 | 0.001350 |
| 133 | 67.500 | 0.447 | 182.00 | 182.00 | 0.001350 |
| 134 | 67.500 | 0.447 | 182.00 | 182.00 | 0.001350 |
| 135 | 67.500 | 0.447 | 182.00 | 182.00 | 0.001350 |
| 136 | 60.750 | 0.404 | 182.00 | 182.00 | 0.001350 |
| 141 | 48.250 | 0.324 | 182.00 | 182.00 | 0.001350 |
| 142 | 67.500 | 0.447 | 182.00 | 182.00 | 0.001350 |
| 143 | 67.500 | 0.447 | 182.00 | 182.00 | 0.001350 |
| 144 | 67.500 | 0.447 | 182.00 | 182.00 | 0.001350 |
| 145 | 65.250 | 0.433 | 182.00 | 182.00 | 0.001350 |
| 146 | 30.100 | 0.183 | 182.00 | 182.00 | 0.001350 |
| 151 | 28.000 | 0.190 | 182.00 | 182.00 | 0.001350 |
| 152 | 65.250 | 0.433 | 182.00 | 182.00 | 0.001350 |
| 153 | 67.500 | 0.447 | 182.00 | 182.00 | 0.001350 |
| 154 | 67.500 | 0.447 | 182.00 | 182.00 | 0.001350 |
| 155 | 67.500 | 0.447 | 182.00 | 182.00 | 0.001350 |
| 156 | 50.350 | 0.316 | 182.00 | 182.00 | 0.001350 |
| 161 | 48.250 | 0.324 | 182.00 | 182.00 | 0.001350 |
| 162 | 67.500 | 0.447 | 182.00 | 182.00 | 0.001350 |
| 171 | 70.750 | 0.468 | 182.00 | 182.00 | 0.001350 |

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CABLE 11 BARRAS 1 A 11 TESADO DCH. AREA 0.003600

FUERZA DE TESADO 486.00
FUERZA DE ANCLAJE 486.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 48.250 ALARGAMIENTO = 0.3239
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 0.000 | 0.345 | 457.417 | 0.0000 |
| 2 | 4.500 | 0.345 | 460.065 | 0.0000 |
| 3 | 9.000 | 0.345 | 462.729 | 0.0000 |
| 4 | 13.500 | 0.345 | 465.408 | 0.0000 |
| 5 | 18.000 | 0.345 | 468.102 | 0.0000 |
| 6 | 22.500 | 0.345 | 468.888 | 0.0000 |
| 7 | 27.000 | 0.345 | 466.189 | 0.0000 |
| 8 | 31.500 | 0.345 | 463.506 | 0.0000 |
| 9 | 36.000 | 0.345 | 460.838 | 0.0000 |
| 10 | 40.500 | 0.345 | 458.185 | 0.0000 |
| 11 | 45.000 | 0.345 | 455.548 | 0.0000 |
| 12 | 47.250 | 0.345 | 454.235 | 0.0000 |

CABLE 12 BARRAS 11 A 26 TESADO DCH. AREA 0.003600

FUERZA DE TESADO 486.00
FUERZA DE ANCLAJE 486.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4476
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 47.250 | 0.345 | 445.688 | 0.0000 |
| 2 | 49.500 | 0.345 | 446.976 | 0.0000 |
| 3 | 54.000 | 0.345 | 449.564 | 0.0000 |
| 4 | 58.500 | 0.345 | 452.166 | 0.0000 |
| 5 | 63.000 | 0.345 | 454.784 | 0.0000 |
| 6 | 67.500 | 0.345 | 457.417 | 0.0000 |
| 7 | 72.000 | 0.345 | 460.065 | 0.0000 |
| 8 | 76.500 | 0.345 | 462.729 | 0.0000 |
| 9 | 81.000 | 0.345 | 465.408 | 0.0000 |
| 10 | 85.500 | 0.345 | 468.102 | 0.0000 |
| 11 | 90.000 | 0.345 | 468.888 | 0.0000 |
| 12 | 94.500 | 0.345 | 466.189 | 0.0000 |
| 13 | 99.000 | 0.345 | 463.506 | 0.0000 |
| 14 | 103.500 | 0.345 | 460.838 | 0.0000 |
| 15 | 108.000 | 0.345 | 458.185 | 0.0000 |
| 16 | 112.500 | 0.345 | 455.548 | 0.0000 |
| 17 | 114.750 | 0.345 | 454.235 | 0.0000 |

CABLE 13 BARRAS 26 A 41 TESADO DCH. AREA 0.003600

FUERZA DE TESADO 486.00
FUERZA DE ANCLAJE 486.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4476
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 114.750 | 0.345 | 445.688 | 0.0000 |
| 2 | 117.000 | 0.345 | 446.976 | 0.0000 |
| 3 | 121.500 | 0.345 | 449.564 | 0.0000 |
| 4 | 126.000 | 0.345 | 452.166 | 0.0000 |
| 5 | 130.500 | 0.345 | 454.784 | 0.0000 |
| 6 | 135.000 | 0.345 | 457.417 | 0.0000 |
| 7 | 139.500 | 0.345 | 460.065 | 0.0000 |
| 8 | 144.000 | 0.345 | 462.729 | 0.0000 |
| 9 | 148.500 | 0.345 | 465.408 | 0.0000 |
| 10 | 153.000 | 0.345 | 468.102 | 0.0000 |
| 11 | 157.500 | 0.345 | 468.888 | 0.0000 |
| 12 | 162.000 | 0.345 | 466.189 | 0.0000 |
| 13 | 166.500 | 0.345 | 463.506 | 0.0000 |
| 14 | 171.000 | 0.345 | 460.838 | 0.0000 |
| 15 | 175.500 | 0.345 | 458.185 | 0.0000 |
| 16 | 180.000 | 0.345 | 455.548 | 0.0000 |
| 17 | 182.250 | 0.345 | 454.235 | 0.0000 |

CABLE 14 BARRAS 41 A 56 TESADO DCH. AREA 0.003600

FUERZA DE TESADO 486.00
FUERZA DE ANCLAJE 486.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4476
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 182.250 | 0.345 | 445.688 | 0.0000 |
| 2 | 184.500 | 0.345 | 446.976 | 0.0000 |
| 3 | 189.000 | 0.345 | 449.564 | 0.0000 |
| 4 | 193.500 | 0.345 | 452.166 | 0.0000 |
| 5 | 198.000 | 0.345 | 454.784 | 0.0000 |
| 6 | 202.500 | 0.345 | 457.417 | 0.0000 |
| 7 | 207.000 | 0.345 | 460.065 | 0.0000 |

| | | | | |
|---|---|---|---|---|
| 8 | 211.500 | 0.345 | 462.729 | 0.0000 |
| 9 | 216.000 | 0.345 | 465.408 | 0.0000 |
| 10 | 220.500 | 0.345 | 468.102 | 0.0000 |
| 11 | 225.000 | 0.345 | 468.888 | 0.0000 |
| 12 | 229.500 | 0.345 | 466.189 | 0.0000 |
| 13 | 234.000 | 0.345 | 463.506 | 0.0000 |
| 14 | 238.500 | 0.345 | 460.838 | 0.0000 |
| 15 | 243.000 | 0.345 | 458.185 | 0.0000 |
| 16 | 247.500 | 0.345 | 455.548 | 0.0000 |
| 17 | 249.750 | 0.345 | 454.235 | 0.0000 |

CABLE 15 BARRAS 56 A 70 TESADO DCH. AREA 0.003600

FUERZA DE TESADO 486.00
FUERZA DE ANCLAJE 486.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 65.250 ALARGAMIENTO = 0.4333
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 249.750 | 0.345 | 446.976 | 0.0000 |
| 2 | 252.000 | 0.345 | 448.268 | 0.0000 |
| 3 | 256.500 | 0.345 | 450.863 | 0.0000 |
| 4 | 261.000 | 0.345 | 453.473 | 0.0000 |
| 5 | 265.500 | 0.345 | 456.099 | 0.0000 |
| 6 | 270.000 | 0.345 | 458.739 | 0.0000 |
| 7 | 274.500 | 0.345 | 461.395 | 0.0000 |
| 8 | 279.000 | 0.345 | 464.066 | 0.0000 |
| 9 | 283.500 | 0.345 | 466.753 | 0.0000 |
| 10 | 288.000 | 0.345 | 469.455 | 0.0000 |
| 11 | 292.500 | 0.345 | 467.484 | 0.0000 |
| 12 | 297.000 | 0.345 | 464.793 | 0.0000 |
| 13 | 301.500 | 0.345 | 462.118 | 0.0000 |
| 14 | 306.000 | 0.345 | 459.458 | 0.0000 |
| 15 | 310.500 | 0.345 | 456.813 | 0.0000 |
| 16 | 315.000 | 0.345 | 454.184 | 0.0000 |

CABLE 16 BARRAS 71 A 76 TESADO DCH. AREA 0.003600

FUERZA DE TESADO 486.00
FUERZA DE ANCLAJE 486.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 30.100 ALARGAMIENTO = 0.1830
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 315.000 | 0.345 | 467.592 | 0.0000 |
| 2 | 319.500 | 0.345 | 465.567 | 0.0000 |
| 3 | 324.000 | 0.345 | 462.887 | 0.0000 |
| 4 | 328.500 | 0.345 | 460.223 | 0.0000 |
| 5 | 333.000 | 0.345 | 457.574 | 0.0000 |
| 6 | 337.500 | 0.345 | 454.940 | 0.0000 |
| 7 | 342.000 | 0.345 | 452.321 | 0.0000 |

CABLE 21 BARRAS 1 A 6 TESADO DCH. AREA 0.002850

FUERZA DE TESADO 385.00
FUERZA DE ANCLAJE 385.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 28.000 ALARGAMIENTO = 0.1905
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 0.000 | 0.311 | 371.893 | 0.0000 |
| 2 | 4.500 | 0.311 | 370.341 | 0.0000 |
| 3 | 9.000 | 0.311 | 368.209 | 0.0000 |
| 4 | 13.500 | 0.311 | 366.090 | 0.0000 |
| 5 | 18.000 | 0.311 | 363.983 | 0.0000 |
| 6 | 22.500 | 0.311 | 361.888 | 0.0000 |
| 7 | 27.000 | 0.311 | 359.805 | 0.0000 |

CABLE 22 BARRAS 7 A 21 TESADO DCH. AREA 0.002850

FUERZA DE TESADO 385.00
FUERZA DE ANCLAJE 385.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 65.250 ALARGAMIENTO = 0.4336
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 27.000 | 0.311 | 354.086 | 0.0000 |
| 2 | 31.500 | 0.311 | 356.136 | 0.0000 |
| 3 | 36.000 | 0.311 | 358.198 | 0.0000 |
| 4 | 40.500 | 0.311 | 360.271 | 0.0000 |
| 5 | 45.000 | 0.311 | 362.357 | 0.0000 |
| 6 | 49.500 | 0.311 | 364.455 | 0.0000 |
| 7 | 54.000 | 0.311 | 366.565 | 0.0000 |
| 8 | 58.500 | 0.311 | 368.687 | 0.0000 |
| 9 | 63.000 | 0.311 | 370.822 | 0.0000 |
| 10 | 67.500 | 0.311 | 371.452 | 0.0000 |
| 11 | 72.000 | 0.311 | 369.314 | 0.0000 |
| 12 | 76.500 | 0.311 | 367.188 | 0.0000 |
| 13 | 81.000 | 0.311 | 365.075 | 0.0000 |
| 14 | 85.500 | 0.311 | 362.973 | 0.0000 |
| 15 | 90.000 | 0.311 | 360.884 | 0.0000 |
| 16 | 92.250 | 0.311 | 359.844 | 0.0000 |

CABLE 23 BARRAS 21 A 36 TESADO DCH. AREA 0.002850

FUERZA DE TESADO 385.00
FUERZA DE ANCLAJE 385.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4479
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 92.250 | 0.311 | 353.065 | 0.0000 |
| 2 | 94.500 | 0.311 | 354.086 | 0.0000 |
| 3 | 99.000 | 0.311 | 356.136 | 0.0000 |
| 4 | 103.500 | 0.311 | 358.198 | 0.0000 |
| 5 | 108.000 | 0.311 | 360.271 | 0.0000 |
| 6 | 112.500 | 0.311 | 362.357 | 0.0000 |
| 7 | 117.000 | 0.311 | 364.455 | 0.0000 |
| 8 | 121.500 | 0.311 | 366.565 | 0.0000 |
| 9 | 126.000 | 0.311 | 368.687 | 0.0000 |
| 10 | 130.500 | 0.311 | 370.822 | 0.0000 |
| 11 | 135.000 | 0.311 | 371.452 | 0.0000 |
| 12 | 139.500 | 0.311 | 369.314 | 0.0000 |
| 13 | 144.000 | 0.311 | 367.188 | 0.0000 |
| 14 | 148.500 | 0.311 | 365.075 | 0.0000 |
| 15 | 153.000 | 0.311 | 362.973 | 0.0000 |
| 16 | 157.500 | 0.311 | 360.884 | 0.0000 |
| 17 | 159.750 | 0.311 | 359.844 | 0.0000 |

CABLE 24 BARRAS 36 A 51 TESADO DCH. AREA 0.002850

FUERZA DE TESADO 385.00
FUERZA DE ANCLAJE 385.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4479
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 159.750 | 0.311 | 353.065 | 0.0000 |
| 2 | 162.000 | 0.311 | 354.086 | 0.0000 |
| 3 | 166.500 | 0.311 | 356.136 | 0.0000 |
| 4 | 171.000 | 0.311 | 358.198 | 0.0000 |
| 5 | 175.500 | 0.311 | 360.271 | 0.0000 |
| 6 | 180.000 | 0.311 | 362.357 | 0.0000 |
| 7 | 184.500 | 0.311 | 364.455 | 0.0000 |
| 8 | 189.000 | 0.311 | 366.565 | 0.0000 |
| 9 | 193.500 | 0.311 | 368.687 | 0.0000 |
| 10 | 198.000 | 0.311 | 370.822 | 0.0000 |
| 11 | 202.500 | 0.311 | 371.452 | 0.0000 |
| 12 | 207.000 | 0.311 | 369.314 | 0.0000 |
| 13 | 211.500 | 0.311 | 367.188 | 0.0000 |
| 14 | 216.000 | 0.311 | 365.075 | 0.0000 |
| 15 | 220.500 | 0.311 | 362.973 | 0.0000 |
| 16 | 225.000 | 0.311 | 360.884 | 0.0000 |
| 17 | 227.250 | 0.311 | 359.844 | 0.0000 |

CABLE 25 BARRAS 51 A 66 TESADO DCH. AREA 0.002850

FUERZA DE TESADO 385.00
FUERZA DE ANCLAJE 385.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4479
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 227.250 | 0.311 | 353.065 | 0.0000 |
| 2 | 229.500 | 0.311 | 354.086 | 0.0000 |
| 3 | 234.000 | 0.311 | 356.136 | 0.0000 |
| 4 | 238.500 | 0.311 | 358.198 | 0.0000 |
| 5 | 243.000 | 0.311 | 360.271 | 0.0000 |
| 6 | 247.500 | 0.311 | 362.357 | 0.0000 |
| 7 | 252.000 | 0.311 | 364.455 | 0.0000 |
| 8 | 256.500 | 0.311 | 366.565 | 0.0000 |
| 9 | 261.000 | 0.311 | 368.687 | 0.0000 |
| 10 | 265.500 | 0.311 | 370.822 | 0.0000 |
| 11 | 270.000 | 0.311 | 371.452 | 0.0000 |
| 12 | 274.500 | 0.311 | 369.314 | 0.0000 |
| 13 | 279.000 | 0.311 | 367.188 | 0.0000 |
| 14 | 283.500 | 0.311 | 365.075 | 0.0000 |
| 15 | 288.000 | 0.311 | 362.973 | 0.0000 |
| 16 | 292.500 | 0.311 | 360.884 | 0.0000 |
| 17 | 294.750 | 0.311 | 359.844 | 0.0000 |

CABLE 26 BARRAS 66 A 76 TESADO DCH. AREA 0.002850

FUERZA DE TESADO 385.00
FUERZA DE ANCLAJE 385.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 50.350 ALARGAMIENTO = 0.3163
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 294.750 | 0.311 | 360.919 | 0.0000 |
| 2 | 297.000 | 0.311 | 361.962 | 0.0000 |
| 3 | 301.500 | 0.311 | 364.058 | 0.0000 |
| 4 | 306.000 | 0.311 | 366.165 | 0.0000 |
| 5 | 310.500 | 0.311 | 368.285 | 0.0000 |

| | | | | |
|---|---|---|---|---|
| 6 | 315.000 | 0.311 | 370.417 | 0.0000 |
| 7 | 319.500 | 0.311 | 368.817 | 0.0000 |
| 8 | 324.000 | 0.311 | 366.694 | 0.0000 |
| 9 | 328.500 | 0.311 | 364.583 | 0.0000 |
| 10 | 333.000 | 0.311 | 362.485 | 0.0000 |
| 11 | 337.500 | 0.311 | 360.398 | 0.0000 |
| 12 | 342.000 | 0.311 | 358.324 | 0.0000 |

CABLE 31 BARRAS 1 A 2 TESADO DCH. AREA 0.002850

FUERZA DE TESADO 385.00
FUERZA DE ANCLAJE 385.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 10.000 ALARGAMIENTO = 0.0682
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 0.000 | 0.300 | 347.736 | 0.0000 |
| 2 | 4.500 | 0.300 | 345.734 | 0.0000 |
| 3 | 9.000 | 0.300 | 343.744 | 0.0000 |

CABLE 32 BARRAS 3 A 16 TESADO DCH. AREA 0.002850

FUERZA DE TESADO 385.00
FUERZA DE ANCLAJE 385.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 60.750 ALARGAMIENTO = 0.4049
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 9.000 | 0.300 | 356.136 | 0.0000 |
| 2 | 13.500 | 0.300 | 358.198 | 0.0000 |
| 3 | 18.000 | 0.300 | 360.271 | 0.0000 |
| 4 | 22.500 | 0.300 | 362.357 | 0.0000 |
| 5 | 27.000 | 0.300 | 364.455 | 0.0000 |
| 6 | 31.500 | 0.300 | 366.565 | 0.0000 |
| 7 | 36.000 | 0.300 | 368.687 | 0.0000 |
| 8 | 40.500 | 0.300 | 370.822 | 0.0000 |
| 9 | 45.000 | 0.300 | 371.452 | 0.0000 |
| 10 | 49.500 | 0.300 | 369.314 | 0.0000 |
| 11 | 54.000 | 0.300 | 367.188 | 0.0000 |
| 12 | 58.500 | 0.300 | 365.075 | 0.0000 |
| 13 | 63.000 | 0.300 | 362.973 | 0.0000 |
| 14 | 67.500 | 0.300 | 360.884 | 0.0000 |
| 15 | 69.750 | 0.300 | 359.844 | 0.0000 |

CABLE 33 BARRAS 16 A 31 TESADO DCH. AREA 0.002850

FUERZA DE TESADO 385.00
FUERZA DE ANCLAJE 385.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4479
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 69.750 | 0.300 | 353.065 | 0.0000 |
| 2 | 72.000 | 0.300 | 354.086 | 0.0000 |
| 3 | 76.500 | 0.300 | 356.136 | 0.0000 |
| 4 | 81.000 | 0.300 | 358.198 | 0.0000 |
| 5 | 85.500 | 0.300 | 360.271 | 0.0000 |
| 6 | 90.000 | 0.300 | 362.357 | 0.0000 |
| 7 | 94.500 | 0.300 | 364.455 | 0.0000 |
| 8 | 99.000 | 0.300 | 366.565 | 0.0000 |
| 9 | 103.500 | 0.300 | 368.687 | 0.0000 |
| 10 | 108.000 | 0.300 | 370.822 | 0.0000 |
| 11 | 112.500 | 0.300 | 371.452 | 0.0000 |
| 12 | 117.000 | 0.300 | 369.314 | 0.0000 |
| 13 | 121.500 | 0.300 | 367.188 | 0.0000 |
| 14 | 126.000 | 0.300 | 365.075 | 0.0000 |
| 15 | 130.500 | 0.300 | 362.973 | 0.0000 |
| 16 | 135.000 | 0.300 | 360.884 | 0.0000 |
| 17 | 137.250 | 0.300 | 359.844 | 0.0000 |

CABLE 34 BARRAS 31 A 46 TESADO DCH. AREA 0.002850

FUERZA DE TESADO 385.00
FUERZA DE ANCLAJE 385.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4479
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 137.250 | 0.300 | 353.065 | 0.0000 |
| 2 | 139.500 | 0.300 | 354.086 | 0.0000 |
| 3 | 144.000 | 0.300 | 356.136 | 0.0000 |
| 4 | 148.500 | 0.300 | 358.198 | 0.0000 |
| 5 | 153.000 | 0.300 | 360.271 | 0.0000 |
| 6 | 157.500 | 0.300 | 362.357 | 0.0000 |
| 7 | 162.000 | 0.300 | 364.455 | 0.0000 |
| 8 | 166.500 | 0.300 | 366.565 | 0.0000 |
| 9 | 171.000 | 0.300 | 368.687 | 0.0000 |
| 10 | 175.500 | 0.300 | 370.822 | 0.0000 |
| 11 | 180.000 | 0.300 | 371.452 | 0.0000 |
| 12 | 184.500 | 0.300 | 369.314 | 0.0000 |
| 13 | 189.000 | 0.300 | 367.188 | 0.0000 |
| 14 | 193.500 | 0.300 | 365.075 | 0.0000 |

| | | | | |
|---|---|---|---|---|
| 15 | 198.000 | 0.300 | 362.973 | 0.0000 |
| 16 | 202.500 | 0.300 | 360.884 | 0.0000 |
| 17 | 204.750 | 0.300 | 359.844 | 0.0000 |

CABLE 35 BARRAS 46 A 61 TESADO DCH. AREA 0.002850

FUERZA DE TESADO 385.00
FUERZA DE ANCLAJE 385.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4479
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 204.750 | 0.300 | 353.065 | 0.0000 |
| 2 | 207.000 | 0.300 | 354.086 | 0.0000 |
| 3 | 211.500 | 0.300 | 356.136 | 0.0000 |
| 4 | 216.000 | 0.300 | 358.198 | 0.0000 |
| 5 | 220.500 | 0.300 | 360.271 | 0.0000 |
| 6 | 225.000 | 0.300 | 362.357 | 0.0000 |
| 7 | 229.500 | 0.300 | 364.455 | 0.0000 |
| 8 | 234.000 | 0.300 | 366.565 | 0.0000 |
| 9 | 238.500 | 0.300 | 368.687 | 0.0000 |
| 10 | 243.000 | 0.300 | 370.822 | 0.0000 |
| 11 | 247.500 | 0.300 | 371.452 | 0.0000 |
| 12 | 252.000 | 0.300 | 369.314 | 0.0000 |
| 13 | 256.500 | 0.300 | 367.188 | 0.0000 |
| 14 | 261.000 | 0.300 | 365.075 | 0.0000 |
| 15 | 265.500 | 0.300 | 362.973 | 0.0000 |
| 16 | 270.000 | 0.300 | 360.884 | 0.0000 |
| 17 | 272.250 | 0.300 | 359.844 | 0.0000 |

CABLE 36 BARRAS 61 A 74 TESADO DCH. AREA 0.002850

FUERZA DE TESADO 385.00
FUERZA DE ANCLAJE 385.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 60.750 ALARGAMIENTO = 0.4049
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 272.250 | 0.300 | 356.136 | 0.0000 |
| 2 | 274.500 | 0.300 | 357.165 | 0.0000 |
| 3 | 279.000 | 0.300 | 359.233 | 0.0000 |
| 4 | 283.500 | 0.300 | 361.313 | 0.0000 |
| 5 | 288.000 | 0.300 | 363.405 | 0.0000 |
| 6 | 292.500 | 0.300 | 365.508 | 0.0000 |
| 7 | 297.000 | 0.300 | 367.624 | 0.0000 |
| 8 | 301.500 | 0.300 | 369.753 | 0.0000 |
| 9 | 306.000 | 0.300 | 371.893 | 0.0000 |
| 10 | 310.500 | 0.300 | 370.341 | 0.0000 |
| 11 | 315.000 | 0.300 | 368.209 | 0.0000 |
| 12 | 319.500 | 0.300 | 366.090 | 0.0000 |
| 13 | 324.000 | 0.300 | 363.983 | 0.0000 |
| 14 | 328.500 | 0.300 | 361.888 | 0.0000 |
| 15 | 333.000 | 0.300 | 359.805 | 0.0000 |

CABLE 41 BARRAS 1 A 6 TESADO DCH. AREA 0.001800

FUERZA DE TESADO 243.00
FUERZA DE ANCLAJE 243.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 28.000 ALARGAMIENTO = 0.1904
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 0.000 | 0.275 | 234.728 | 0.0000 |
| 2 | 4.500 | 0.275 | 233.742 | 0.0000 |
| 3 | 9.000 | 0.275 | 232.397 | 0.0000 |
| 4 | 13.500 | 0.275 | 231.059 | 0.0000 |
| 5 | 18.000 | 0.275 | 229.729 | 0.0000 |
| 6 | 22.500 | 0.275 | 228.407 | 0.0000 |
| 7 | 27.000 | 0.275 | 227.092 | 0.0000 |

CABLE 42 BARRAS 7 A 21 TESADO DCH. AREA 0.001800

FUERZA DE TESADO 243.00
FUERZA DE ANCLAJE 243.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 65.250 ALARGAMIENTO = 0.4333
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 27.000 | 0.275 | 223.488 | 0.0000 |
| 2 | 31.500 | 0.275 | 224.782 | 0.0000 |
| 3 | 36.000 | 0.275 | 226.083 | 0.0000 |
| 4 | 40.500 | 0.275 | 227.392 | 0.0000 |
| 5 | 45.000 | 0.275 | 228.709 | 0.0000 |
| 6 | 49.500 | 0.275 | 230.033 | 0.0000 |
| 7 | 54.000 | 0.275 | 231.364 | 0.0000 |
| 8 | 58.500 | 0.275 | 232.704 | 0.0000 |
| 9 | 63.000 | 0.275 | 234.051 | 0.0000 |
| 10 | 67.500 | 0.275 | 234.444 | 0.0000 |
| 11 | 72.000 | 0.275 | 233.095 | 0.0000 |
| 12 | 76.500 | 0.275 | 231.753 | 0.0000 |
| 13 | 81.000 | 0.275 | 230.419 | 0.0000 |
| 14 | 85.500 | 0.275 | 229.093 | 0.0000 |

| | | | | |
|---|---|---|---|---|
| 15 | 90.000 | 0.275 | 227.774 | 0.0000 |
| 16 | 92.250 | 0.275 | 227.117 | 0.0000 |

CABLE 43 BARRAS 21 A 36 TESADO DCH. AREA 0.001800

FUERZA DE TESADO 243.00
FUERZA DE ANCLAJE 243.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4476
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 92.250 | 0.275 | 222.844 | 0.0000 |
| 2 | 94.500 | 0.275 | 223.488 | 0.0000 |
| 3 | 99.000 | 0.275 | 224.782 | 0.0000 |
| 4 | 103.500 | 0.275 | 226.083 | 0.0000 |
| 5 | 108.000 | 0.275 | 227.392 | 0.0000 |
| 6 | 112.500 | 0.275 | 228.709 | 0.0000 |
| 7 | 117.000 | 0.275 | 230.033 | 0.0000 |
| 8 | 121.500 | 0.275 | 231.364 | 0.0000 |
| 9 | 126.000 | 0.275 | 232.704 | 0.0000 |
| 10 | 130.500 | 0.275 | 234.051 | 0.0000 |
| 11 | 135.000 | 0.275 | 234.444 | 0.0000 |
| 12 | 139.500 | 0.275 | 233.095 | 0.0000 |
| 13 | 144.000 | 0.275 | 231.753 | 0.0000 |
| 14 | 148.500 | 0.275 | 230.419 | 0.0000 |
| 15 | 153.000 | 0.275 | 229.093 | 0.0000 |
| 16 | 157.500 | 0.275 | 227.774 | 0.0000 |
| 17 | 159.750 | 0.275 | 227.117 | 0.0000 |

CABLE 44 BARRAS 36 A 51 TESADO DCH. AREA 0.001800

FUERZA DE TESADO 243.00
FUERZA DE ANCLAJE 243.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4476
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 159.750 | 0.275 | 222.844 | 0.0000 |
| 2 | 162.000 | 0.275 | 223.488 | 0.0000 |
| 3 | 166.500 | 0.275 | 224.782 | 0.0000 |
| 4 | 171.000 | 0.275 | 226.083 | 0.0000 |
| 5 | 175.500 | 0.275 | 227.392 | 0.0000 |
| 6 | 180.000 | 0.275 | 228.709 | 0.0000 |
| 7 | 184.500 | 0.275 | 230.033 | 0.0000 |
| 8 | 189.000 | 0.275 | 231.364 | 0.0000 |
| 9 | 193.500 | 0.275 | 232.704 | 0.0000 |
| 10 | 198.000 | 0.275 | 234.051 | 0.0000 |
| 11 | 202.500 | 0.275 | 234.444 | 0.0000 |
| 12 | 207.000 | 0.275 | 233.095 | 0.0000 |
| 13 | 211.500 | 0.275 | 231.753 | 0.0000 |
| 14 | 216.000 | 0.275 | 230.419 | 0.0000 |
| 15 | 220.500 | 0.275 | 229.093 | 0.0000 |
| 16 | 225.000 | 0.275 | 227.774 | 0.0000 |
| 17 | 227.250 | 0.275 | 227.117 | 0.0000 |

CABLE 45 BARRAS 51 A 66 TESADO DCH. AREA 0.001800

FUERZA DE TESADO 243.00
FUERZA DE ANCLAJE 243.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4476
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 227.250 | 0.275 | 222.844 | 0.0000 |
| 2 | 229.500 | 0.275 | 223.488 | 0.0000 |
| 3 | 234.000 | 0.275 | 224.782 | 0.0000 |
| 4 | 238.500 | 0.275 | 226.083 | 0.0000 |
| 5 | 243.000 | 0.275 | 227.392 | 0.0000 |
| 6 | 247.500 | 0.275 | 228.709 | 0.0000 |
| 7 | 252.000 | 0.275 | 230.033 | 0.0000 |
| 8 | 256.500 | 0.275 | 231.364 | 0.0000 |
| 9 | 261.000 | 0.275 | 232.704 | 0.0000 |
| 10 | 265.500 | 0.275 | 234.051 | 0.0000 |
| 11 | 270.000 | 0.275 | 234.444 | 0.0000 |
| 12 | 274.500 | 0.275 | 233.095 | 0.0000 |
| 13 | 279.000 | 0.275 | 231.753 | 0.0000 |
| 14 | 283.500 | 0.275 | 230.419 | 0.0000 |
| 15 | 288.000 | 0.275 | 229.093 | 0.0000 |
| 16 | 292.500 | 0.275 | 227.774 | 0.0000 |
| 17 | 294.750 | 0.275 | 227.117 | 0.0000 |

CABLE 46 BARRAS 66 A 76 TESADO DCH. AREA 0.001800

FUERZA DE TESADO 243.00
FUERZA DE ANCLAJE 243.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 50.350 ALARGAMIENTO = 0.3161
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 294.750 | 0.275 | 227.801 | 0.0000 |
| 2 | 297.000 | 0.275 | 228.459 | 0.0000 |
| 3 | 301.500 | 0.275 | 229.782 | 0.0000 |

| | | | | |
|---|---|---|---|---|
| 4 | 306.000 | 0.275 | 231.112 | 0.0000 |
| 5 | 310.500 | 0.275 | 232.450 | 0.0000 |
| 6 | 315.000 | 0.275 | 233.796 | 0.0000 |
| 7 | 319.500 | 0.275 | 232.780 | 0.0000 |
| 8 | 324.000 | 0.275 | 231.440 | 0.0000 |
| 9 | 328.500 | 0.275 | 230.108 | 0.0000 |
| 10 | 333.000 | 0.275 | 228.784 | 0.0000 |
| 11 | 337.500 | 0.275 | 227.467 | 0.0000 |
| 12 | 342.000 | 0.275 | 226.157 | 0.0000 |

CABLE 51 BARRAS 1 A 11 TESADO DCH. AREA 0.002250

FUERZA DE TESADO 304.00
FUERZA DE ANCLAJE 304.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 48.250 ALARGAMIENTO = 0.3242
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 0.000 | 0.260 | 286.121 | 0.0000 |
| 2 | 4.500 | 0.260 | 287.777 | 0.0000 |
| 3 | 9.000 | 0.260 | 289.443 | 0.0000 |
| 4 | 13.500 | 0.260 | 291.119 | 0.0000 |
| 5 | 18.000 | 0.260 | 292.805 | 0.0000 |
| 6 | 22.500 | 0.260 | 293.304 | 0.0000 |
| 7 | 27.000 | 0.260 | 291.616 | 0.0000 |
| 8 | 31.500 | 0.260 | 289.938 | 0.0000 |
| 9 | 36.000 | 0.260 | 288.269 | 0.0000 |
| 10 | 40.500 | 0.260 | 286.609 | 0.0000 |
| 11 | 45.000 | 0.260 | 284.960 | 0.0000 |
| 12 | 47.250 | 0.260 | 284.138 | 0.0000 |

CABLE 52 BARRAS 11 A 26 TESADO DCH. AREA 0.002250

FUERZA DE TESADO 304.00
FUERZA DE ANCLAJE 304.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 69.750 ALARGAMIENTO = 0.4623
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 45.000 | 0.260 | 277.981 | 0.0000 |
| 2 | 49.500 | 0.260 | 279.590 | 0.0000 |
| 3 | 54.000 | 0.260 | 281.209 | 0.0000 |
| 4 | 58.500 | 0.260 | 282.837 | 0.0000 |
| 5 | 63.000 | 0.260 | 284.474 | 0.0000 |
| 6 | 67.500 | 0.260 | 286.121 | 0.0000 |
| 7 | 72.000 | 0.260 | 287.777 | 0.0000 |
| 8 | 76.500 | 0.260 | 289.443 | 0.0000 |
| 9 | 81.000 | 0.260 | 291.119 | 0.0000 |
| 10 | 85.500 | 0.260 | 292.805 | 0.0000 |
| 11 | 90.000 | 0.260 | 293.304 | 0.0000 |
| 12 | 94.500 | 0.260 | 291.616 | 0.0000 |
| 13 | 99.000 | 0.260 | 289.938 | 0.0000 |
| 14 | 103.500 | 0.260 | 288.269 | 0.0000 |
| 15 | 108.000 | 0.260 | 286.609 | 0.0000 |
| 16 | 112.500 | 0.260 | 284.960 | 0.0000 |
| 17 | 114.750 | 0.260 | 284.138 | 0.0000 |

CABLE 61 BARRAS 1 A 11 TESADO DCH. AREA 0.001800

FUERZA DE TESADO 243.00
FUERZA DE ANCLAJE 243.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 48.250 ALARGAMIENTO = 0.3239
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 0.000 | 0.235 | 228.709 | 0.0000 |
| 2 | 4.500 | 0.235 | 230.033 | 0.0000 |
| 3 | 9.000 | 0.235 | 231.364 | 0.0000 |
| 4 | 13.500 | 0.235 | 232.704 | 0.0000 |
| 5 | 18.000 | 0.235 | 234.051 | 0.0000 |
| 6 | 22.500 | 0.235 | 234.444 | 0.0000 |
| 7 | 27.000 | 0.235 | 233.095 | 0.0000 |
| 8 | 31.500 | 0.235 | 231.753 | 0.0000 |
| 9 | 36.000 | 0.235 | 230.419 | 0.0000 |
| 10 | 40.500 | 0.235 | 229.093 | 0.0000 |
| 11 | 45.000 | 0.235 | 227.774 | 0.0000 |
| 12 | 47.250 | 0.235 | 227.117 | 0.0000 |

CABLE 62 BARRAS 11 A 26 TESADO DCH. AREA 0.001800

FUERZA DE TESADO 243.00
FUERZA DE ANCLAJE 243.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4476
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 47.250 | 0.235 | 222.844 | 0.0000 |
| 2 | 49.500 | 0.235 | 223.488 | 0.0000 |
| 3 | 54.000 | 0.235 | 224.782 | 0.0000 |
| 4 | 58.500 | 0.235 | 226.083 | 0.0000 |
| 5 | 63.000 | 0.235 | 227.392 | 0.0000 |
| 6 | 67.500 | 0.235 | 228.709 | 0.0000 |

| | | | | |
|---|---|---|---|---|
| 7 | 72.000 | 0.235 | 230.033 | 0.0000 |
| 8 | 76.500 | 0.235 | 231.364 | 0.0000 |
| 9 | 81.000 | 0.235 | 232.704 | 0.0000 |
| 10 | 85.500 | 0.235 | 234.051 | 0.0000 |
| 11 | 90.000 | 0.235 | 234.444 | 0.0000 |
| 12 | 94.500 | 0.235 | 233.095 | 0.0000 |
| 13 | 99.000 | 0.235 | 231.753 | 0.0000 |
| 14 | 103.500 | 0.235 | 230.419 | 0.0000 |
| 15 | 108.000 | 0.235 | 229.093 | 0.0000 |
| 16 | 112.500 | 0.235 | 227.774 | 0.0000 |
| 17 | 114.750 | 0.235 | 227.117 | 0.0000 |

CABLE 71 BARRAS 3 A 16 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 60.750 ALARGAMIENTO = 0.4041
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 9.000 | 0.264 | 168.355 | 0.0000 |
| 2 | 13.500 | 0.264 | 169.330 | 0.0000 |
| 3 | 18.000 | 0.264 | 170.310 | 0.0000 |
| 4 | 22.500 | 0.264 | 171.296 | 0.0000 |
| 5 | 27.000 | 0.264 | 172.288 | 0.0000 |
| 6 | 31.500 | 0.264 | 173.285 | 0.0000 |
| 7 | 36.000 | 0.264 | 174.288 | 0.0000 |
| 8 | 40.500 | 0.264 | 175.297 | 0.0000 |
| 9 | 45.000 | 0.264 | 175.584 | 0.0000 |
| 10 | 49.500 | 0.264 | 174.573 | 0.0000 |
| 11 | 54.000 | 0.264 | 173.568 | 0.0000 |
| 12 | 58.500 | 0.264 | 172.569 | 0.0000 |
| 13 | 63.000 | 0.264 | 171.576 | 0.0000 |
| 14 | 67.500 | 0.264 | 170.588 | 0.0000 |
| 15 | 69.750 | 0.264 | 170.096 | 0.0000 |

CABLE 111 BARRAS 1 A 11 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 48.250 ALARGAMIENTO = 0.3235
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 0.000 | 2.549 | 171.296 | 0.0000 |
| 2 | 4.500 | 2.549 | 172.288 | 0.0000 |
| 3 | 9.000 | 2.549 | 173.285 | 0.0000 |
| 4 | 13.500 | 2.549 | 174.288 | 0.0000 |
| 5 | 18.000 | 2.549 | 175.297 | 0.0000 |
| 6 | 22.500 | 2.549 | 175.584 | 0.0000 |
| 7 | 27.000 | 2.549 | 174.573 | 0.0000 |
| 8 | 31.500 | 2.549 | 173.568 | 0.0000 |
| 9 | 36.000 | 2.549 | 172.569 | 0.0000 |
| 10 | 40.500 | 2.549 | 171.576 | 0.0000 |
| 11 | 45.000 | 2.549 | 170.588 | 0.0000 |
| 12 | 47.250 | 2.549 | 170.096 | 0.0000 |

CABLE 112 BARRAS 11 A 26 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4470
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 47.250 | 2.549 | 166.904 | 0.0000 |
| 2 | 49.500 | 2.549 | 167.386 | 0.0000 |
| 3 | 54.000 | 2.549 | 168.355 | 0.0000 |
| 4 | 58.500 | 2.549 | 169.330 | 0.0000 |
| 5 | 63.000 | 2.549 | 170.310 | 0.0000 |
| 6 | 67.500 | 2.549 | 171.296 | 0.0000 |
| 7 | 72.000 | 2.549 | 172.288 | 0.0000 |
| 8 | 76.500 | 2.549 | 173.285 | 0.0000 |
| 9 | 81.000 | 2.549 | 174.288 | 0.0000 |
| 10 | 85.500 | 2.549 | 175.297 | 0.0000 |
| 11 | 90.000 | 2.549 | 175.584 | 0.0000 |
| 12 | 94.500 | 2.549 | 174.573 | 0.0000 |
| 13 | 99.000 | 2.549 | 173.568 | 0.0000 |
| 14 | 103.500 | 2.549 | 172.569 | 0.0000 |
| 15 | 108.000 | 2.549 | 171.576 | 0.0000 |
| 16 | 112.500 | 2.549 | 170.588 | 0.0000 |
| 17 | 114.750 | 2.549 | 170.096 | 0.0000 |

CABLE 113 BARRAS 26 A 41 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4470
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 114.750 | 2.549 | 166.904 | 0.0000 |

| | | | | |
|---|---|---|---|---|
| 2 | 117.000 | 2.549 | 167.386 | 0.0000 |
| 3 | 121.500 | 2.549 | 168.355 | 0.0000 |
| 4 | 126.000 | 2.549 | 169.330 | 0.0000 |
| 5 | 130.500 | 2.549 | 170.310 | 0.0000 |
| 6 | 135.000 | 2.549 | 171.296 | 0.0000 |
| 7 | 139.500 | 2.549 | 172.288 | 0.0000 |
| 8 | 144.000 | 2.549 | 173.285 | 0.0000 |
| 9 | 148.500 | 2.549 | 174.288 | 0.0000 |
| 10 | 153.000 | 2.549 | 175.297 | 0.0000 |
| 11 | 157.500 | 2.549 | 175.584 | 0.0000 |
| 12 | 162.000 | 2.549 | 174.573 | 0.0000 |
| 13 | 166.500 | 2.549 | 173.568 | 0.0000 |
| 14 | 171.000 | 2.549 | 172.569 | 0.0000 |
| 15 | 175.500 | 2.549 | 171.576 | 0.0000 |
| 16 | 180.000 | 2.549 | 170.588 | 0.0000 |
| 17 | 182.250 | 2.549 | 170.096 | 0.0000 |

CABLE 114 BARRAS 41 A 56 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4470
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 182.250 | 2.549 | 166.904 | 0.0000 |
| 2 | 184.500 | 2.549 | 167.386 | 0.0000 |
| 3 | 189.000 | 2.549 | 168.355 | 0.0000 |
| 4 | 193.500 | 2.549 | 169.330 | 0.0000 |
| 5 | 198.000 | 2.549 | 170.310 | 0.0000 |
| 6 | 202.500 | 2.549 | 171.296 | 0.0000 |
| 7 | 207.000 | 2.549 | 172.288 | 0.0000 |
| 8 | 211.500 | 2.549 | 173.285 | 0.0000 |
| 9 | 216.000 | 2.549 | 174.288 | 0.0000 |
| 10 | 220.500 | 2.549 | 175.297 | 0.0000 |
| 11 | 225.000 | 2.549 | 175.584 | 0.0000 |
| 12 | 229.500 | 2.549 | 174.573 | 0.0000 |
| 13 | 234.000 | 2.549 | 173.568 | 0.0000 |
| 14 | 238.500 | 2.549 | 172.569 | 0.0000 |
| 15 | 243.000 | 2.549 | 171.576 | 0.0000 |
| 16 | 247.500 | 2.549 | 170.588 | 0.0000 |
| 17 | 249.750 | 2.549 | 170.096 | 0.0000 |

CABLE 115 BARRAS 56 A 70 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 65.250 ALARGAMIENTO = 0.4327
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 249.750 | 2.549 | 167.386 | 0.0000 |
| 2 | 252.000 | 2.549 | 167.870 | 0.0000 |
| 3 | 256.500 | 2.549 | 168.842 | 0.0000 |
| 4 | 261.000 | 2.549 | 169.819 | 0.0000 |
| 5 | 265.500 | 2.549 | 170.802 | 0.0000 |
| 6 | 270.000 | 2.549 | 171.791 | 0.0000 |
| 7 | 274.500 | 2.549 | 172.786 | 0.0000 |
| 8 | 279.000 | 2.549 | 173.786 | 0.0000 |
| 9 | 283.500 | 2.549 | 174.792 | 0.0000 |
| 10 | 288.000 | 2.549 | 175.804 | 0.0000 |
| 11 | 292.500 | 2.549 | 175.057 | 0.0000 |
| 12 | 297.000 | 2.549 | 174.050 | 0.0000 |
| 13 | 301.500 | 2.549 | 173.048 | 0.0000 |
| 14 | 306.000 | 2.549 | 172.052 | 0.0000 |
| 15 | 310.500 | 2.549 | 171.061 | 0.0000 |
| 16 | 315.000 | 2.549 | 170.077 | 0.0000 |

CABLE 116 BARRAS 71 A 76 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 30.100 ALARGAMIENTO = 0.1827
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 315.000 | 2.549 | 175.106 | 0.0000 |
| 2 | 319.500 | 2.549 | 174.339 | 0.0000 |
| 3 | 324.000 | 2.549 | 173.336 | 0.0000 |
| 4 | 328.500 | 2.549 | 172.338 | 0.0000 |
| 5 | 333.000 | 2.549 | 171.346 | 0.0000 |
| 6 | 337.500 | 2.549 | 170.360 | 0.0000 |
| 7 | 342.000 | 2.549 | 169.379 | 0.0000 |

CABLE 121 BARRAS 1 A 6 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 28.000 ALARGAMIENTO = 0.1901
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| 1 | 0.000 | 2.549 | 175.804 | 0.0000 |
| 2 | 4.500 | 2.549 | 175.057 | 0.0000 |
| 3 | 9.000 | 2.549 | 174.050 | 0.0000 |
| 4 | 13.500 | 2.549 | 173.048 | 0.0000 |
| 5 | 18.000 | 2.549 | 172.052 | 0.0000 |
| 6 | 22.500 | 2.549 | 171.061 | 0.0000 |
| 7 | 27.000 | 2.549 | 170.077 | 0.0000 |

CABLE 122 BARRAS 7 A 21 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 65.250 ALARGAMIENTO = 0.4327
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 27.000 | 2.549 | 167.386 | 0.0000 |
| 2 | 31.500 | 2.549 | 168.355 | 0.0000 |
| 3 | 36.000 | 2.549 | 169.330 | 0.0000 |
| 4 | 40.500 | 2.549 | 170.310 | 0.0000 |
| 5 | 45.000 | 2.549 | 171.296 | 0.0000 |
| 6 | 49.500 | 2.549 | 172.288 | 0.0000 |
| 7 | 54.000 | 2.549 | 173.285 | 0.0000 |
| 8 | 58.500 | 2.549 | 174.288 | 0.0000 |
| 9 | 63.000 | 2.549 | 175.297 | 0.0000 |
| 10 | 67.500 | 2.549 | 175.584 | 0.0000 |
| 11 | 72.000 | 2.549 | 174.573 | 0.0000 |
| 12 | 76.500 | 2.549 | 173.568 | 0.0000 |
| 13 | 81.000 | 2.549 | 172.569 | 0.0000 |
| 14 | 85.500 | 2.549 | 171.576 | 0.0000 |
| 15 | 90.000 | 2.549 | 170.588 | 0.0000 |
| 16 | 92.250 | 2.549 | 170.096 | 0.0000 |

CABLE 123 BARRAS 21 A 36 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4470
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 92.250 | 2.549 | 166.904 | 0.0000 |
| 2 | 94.500 | 2.549 | 167.386 | 0.0000 |
| 3 | 99.000 | 2.549 | 168.355 | 0.0000 |
| 4 | 103.500 | 2.549 | 169.330 | 0.0000 |
| 5 | 108.000 | 2.549 | 170.310 | 0.0000 |
| 6 | 112.500 | 2.549 | 171.296 | 0.0000 |
| 7 | 117.000 | 2.549 | 172.288 | 0.0000 |
| 8 | 121.500 | 2.549 | 173.285 | 0.0000 |
| 9 | 126.000 | 2.549 | 174.288 | 0.0000 |
| 10 | 130.500 | 2.549 | 175.297 | 0.0000 |
| 11 | 135.000 | 2.549 | 175.584 | 0.0000 |
| 12 | 139.500 | 2.549 | 174.573 | 0.0000 |
| 13 | 144.000 | 2.549 | 173.568 | 0.0000 |
| 14 | 148.500 | 2.549 | 172.569 | 0.0000 |
| 15 | 153.000 | 2.549 | 171.576 | 0.0000 |
| 16 | 157.500 | 2.549 | 170.588 | 0.0000 |
| 17 | 159.750 | 2.549 | 170.096 | 0.0000 |

CABLE 124 BARRAS 36 A 51 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4470
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 159.750 | 2.549 | 166.904 | 0.0000 |
| 2 | 162.000 | 2.549 | 167.386 | 0.0000 |
| 3 | 166.500 | 2.549 | 168.355 | 0.0000 |
| 4 | 171.000 | 2.549 | 169.330 | 0.0000 |
| 5 | 175.500 | 2.549 | 170.310 | 0.0000 |
| 6 | 180.000 | 2.549 | 171.296 | 0.0000 |
| 7 | 184.500 | 2.549 | 172.288 | 0.0000 |
| 8 | 189.000 | 2.549 | 173.285 | 0.0000 |
| 9 | 193.500 | 2.549 | 174.288 | 0.0000 |
| 10 | 198.000 | 2.549 | 175.297 | 0.0000 |
| 11 | 202.500 | 2.549 | 175.584 | 0.0000 |
| 12 | 207.000 | 2.549 | 174.573 | 0.0000 |
| 13 | 211.500 | 2.549 | 173.568 | 0.0000 |
| 14 | 216.000 | 2.549 | 172.569 | 0.0000 |
| 15 | 220.500 | 2.549 | 171.576 | 0.0000 |
| 16 | 225.000 | 2.549 | 170.588 | 0.0000 |
| 17 | 227.250 | 2.549 | 170.096 | 0.0000 |

CABLE 125 BARRAS 51 A 66 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4470
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| 1 | 227.250 | 2.549 | 166.904 | 0.0000 |
| 2 | 229.500 | 2.549 | 167.386 | 0.0000 |
| 3 | 234.000 | 2.549 | 168.355 | 0.0000 |
| 4 | 238.500 | 2.549 | 169.330 | 0.0000 |
| 5 | 243.000 | 2.549 | 170.310 | 0.0000 |
| 6 | 247.500 | 2.549 | 171.296 | 0.0000 |
| 7 | 252.000 | 2.549 | 172.288 | 0.0000 |
| 8 | 256.500 | 2.549 | 173.285 | 0.0000 |
| 9 | 261.000 | 2.549 | 174.288 | 0.0000 |
| 10 | 265.500 | 2.549 | 175.297 | 0.0000 |
| 11 | 270.000 | 2.549 | 175.584 | 0.0000 |
| 12 | 274.500 | 2.549 | 174.573 | 0.0000 |
| 13 | 279.000 | 2.549 | 173.568 | 0.0000 |
| 14 | 283.500 | 2.549 | 172.569 | 0.0000 |
| 15 | 288.000 | 2.549 | 171.576 | 0.0000 |
| 16 | 292.500 | 2.549 | 170.588 | 0.0000 |
| 17 | 294.750 | 2.549 | 170.096 | 0.0000 |

CABLE 126 BARRAS 66 A 76 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 50.350 ALARGAMIENTO = 0.3157
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 294.750 | 2.549 | 170.616 | 0.0000 |
| 2 | 297.000 | 2.549 | 171.109 | 0.0000 |
| 3 | 301.500 | 2.549 | 172.100 | 0.0000 |
| 4 | 306.000 | 2.549 | 173.096 | 0.0000 |
| 5 | 310.500 | 2.549 | 174.098 | 0.0000 |
| 6 | 315.000 | 2.549 | 175.106 | 0.0000 |
| 7 | 319.500 | 2.549 | 174.337 | 0.0000 |
| 8 | 324.000 | 2.549 | 173.333 | 0.0000 |
| 9 | 328.500 | 2.549 | 172.336 | 0.0000 |
| 10 | 333.000 | 2.549 | 171.344 | 0.0000 |
| 11 | 337.500 | 2.549 | 170.357 | 0.0000 |
| 12 | 342.000 | 2.549 | 169.377 | 0.0000 |

CABLE 131 BARRAS 1 A 2 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 10.000 ALARGAMIENTO = 0.0681
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 0.000 | 2.549 | 164.349 | 0.0000 |
| 2 | 4.500 | 2.549 | 163.403 | 0.0000 |
| 3 | 9.000 | 2.549 | 162.462 | 0.0000 |

CABLE 132 BARRAS 3 A 16 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 60.750 ALARGAMIENTO = 0.4041
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 9.000 | 2.549 | 168.355 | 0.0000 |
| 2 | 13.500 | 2.549 | 169.330 | 0.0000 |
| 3 | 18.000 | 2.549 | 170.310 | 0.0000 |
| 4 | 22.500 | 2.549 | 171.296 | 0.0000 |
| 5 | 27.000 | 2.549 | 172.288 | 0.0000 |
| 6 | 31.500 | 2.549 | 173.285 | 0.0000 |
| 7 | 36.000 | 2.549 | 174.288 | 0.0000 |
| 8 | 40.500 | 2.549 | 175.297 | 0.0000 |
| 9 | 45.000 | 2.549 | 175.584 | 0.0000 |
| 10 | 49.500 | 2.549 | 174.573 | 0.0000 |
| 11 | 54.000 | 2.549 | 173.568 | 0.0000 |
| 12 | 58.500 | 2.549 | 172.569 | 0.0000 |
| 13 | 63.000 | 2.549 | 171.576 | 0.0000 |
| 14 | 67.500 | 2.549 | 170.588 | 0.0000 |
| 15 | 69.750 | 2.549 | 170.096 | 0.0000 |

CABLE 133 BARRAS 16 A 31 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4470
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 69.750 | 2.549 | 166.904 | 0.0000 |
| 2 | 72.000 | 2.549 | 167.386 | 0.0000 |
| 3 | 76.500 | 2.549 | 168.355 | 0.0000 |
| 4 | 81.000 | 2.549 | 169.330 | 0.0000 |
| 5 | 85.500 | 2.549 | 170.310 | 0.0000 |
| 6 | 90.000 | 2.549 | 171.296 | 0.0000 |
| 7 | 94.500 | 2.549 | 172.288 | 0.0000 |
| 8 | 99.000 | 2.549 | 173.285 | 0.0000 |

| | | | | |
|---|---|---|---|---|
| 9 | 103.500 | 2.549 | 174.288 | 0.0000 |
| 10 | 108.000 | 2.549 | 175.297 | 0.0000 |
| 11 | 112.500 | 2.549 | 175.584 | 0.0000 |
| 12 | 117.000 | 2.549 | 174.573 | 0.0000 |
| 13 | 121.500 | 2.549 | 173.568 | 0.0000 |
| 14 | 126.000 | 2.549 | 172.569 | 0.0000 |
| 15 | 130.500 | 2.549 | 171.576 | 0.0000 |
| 16 | 135.000 | 2.549 | 170.588 | 0.0000 |
| 17 | 137.250 | 2.549 | 170.096 | 0.0000 |

CABLE 134 BARRAS 31 A 46 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4470
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 137.250 | 2.549 | 166.904 | 0.0000 |
| 2 | 139.500 | 2.549 | 167.386 | 0.0000 |
| 3 | 144.000 | 2.549 | 168.355 | 0.0000 |
| 4 | 148.500 | 2.549 | 169.330 | 0.0000 |
| 5 | 153.000 | 2.549 | 170.310 | 0.0000 |
| 6 | 157.500 | 2.549 | 171.296 | 0.0000 |
| 7 | 162.000 | 2.549 | 172.288 | 0.0000 |
| 8 | 166.500 | 2.549 | 173.285 | 0.0000 |
| 9 | 171.000 | 2.549 | 174.288 | 0.0000 |
| 10 | 175.500 | 2.549 | 175.297 | 0.0000 |
| 11 | 180.000 | 2.549 | 175.584 | 0.0000 |
| 12 | 184.500 | 2.549 | 174.573 | 0.0000 |
| 13 | 189.000 | 2.549 | 173.568 | 0.0000 |
| 14 | 193.500 | 2.549 | 172.569 | 0.0000 |
| 15 | 198.000 | 2.549 | 171.576 | 0.0000 |
| 16 | 202.500 | 2.549 | 170.588 | 0.0000 |
| 17 | 204.750 | 2.549 | 170.096 | 0.0000 |

CABLE 135 BARRAS 46 A 61 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4470
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 204.750 | 2.549 | 166.904 | 0.0000 |
| 2 | 207.000 | 2.549 | 167.386 | 0.0000 |
| 3 | 211.500 | 2.549 | 168.355 | 0.0000 |
| 4 | 216.000 | 2.549 | 169.330 | 0.0000 |
| 5 | 220.500 | 2.549 | 170.310 | 0.0000 |
| 6 | 225.000 | 2.549 | 171.296 | 0.0000 |
| 7 | 229.500 | 2.549 | 172.288 | 0.0000 |
| 8 | 234.000 | 2.549 | 173.285 | 0.0000 |
| 9 | 238.500 | 2.549 | 174.288 | 0.0000 |
| 10 | 243.000 | 2.549 | 175.297 | 0.0000 |
| 11 | 247.500 | 2.549 | 175.584 | 0.0000 |
| 12 | 252.000 | 2.549 | 174.573 | 0.0000 |
| 13 | 256.500 | 2.549 | 173.568 | 0.0000 |
| 14 | 261.000 | 2.549 | 172.569 | 0.0000 |
| 15 | 265.500 | 2.549 | 171.576 | 0.0000 |
| 16 | 270.000 | 2.549 | 170.588 | 0.0000 |
| 17 | 272.250 | 2.549 | 170.096 | 0.0000 |

CABLE 136 BARRAS 61 A 74 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 60.750 ALARGAMIENTO = 0.4041
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 272.250 | 2.549 | 168.355 | 0.0000 |
| 2 | 274.500 | 2.549 | 168.842 | 0.0000 |
| 3 | 279.000 | 2.549 | 169.819 | 0.0000 |
| 4 | 283.500 | 2.549 | 170.802 | 0.0000 |
| 5 | 288.000 | 2.549 | 171.791 | 0.0000 |
| 6 | 292.500 | 2.549 | 172.786 | 0.0000 |
| 7 | 297.000 | 2.549 | 173.786 | 0.0000 |
| 8 | 301.500 | 2.549 | 174.792 | 0.0000 |
| 9 | 306.000 | 2.549 | 175.804 | 0.0000 |
| 10 | 310.500 | 2.549 | 175.057 | 0.0000 |
| 11 | 315.000 | 2.549 | 174.050 | 0.0000 |
| 12 | 319.500 | 2.549 | 173.048 | 0.0000 |
| 13 | 324.000 | 2.549 | 172.052 | 0.0000 |
| 14 | 328.500 | 2.549 | 171.061 | 0.0000 |
| 15 | 333.000 | 2.549 | 170.077 | 0.0000 |

CABLE 141 BARRAS 1 A 11 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 48.250 ALARGAMIENTO = 0.3235
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 0.000 | 2.549 | 171.296 | 0.0000 |
| 2 | 4.500 | 2.549 | 172.288 | 0.0000 |
| 3 | 9.000 | 2.549 | 173.285 | 0.0000 |
| 4 | 13.500 | 2.549 | 174.288 | 0.0000 |
| 5 | 18.000 | 2.549 | 175.297 | 0.0000 |
| 6 | 22.500 | 2.549 | 175.584 | 0.0000 |
| 7 | 27.000 | 2.549 | 174.573 | 0.0000 |
| 8 | 31.500 | 2.549 | 173.568 | 0.0000 |
| 9 | 36.000 | 2.549 | 172.569 | 0.0000 |
| 10 | 40.500 | 2.549 | 171.576 | 0.0000 |
| 11 | 45.000 | 2.549 | 170.588 | 0.0000 |
| 12 | 47.250 | 2.549 | 170.096 | 0.0000 |

CABLE 142 BARRAS 11 A 26 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4470
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 47.250 | 2.549 | 166.904 | 0.0000 |
| 2 | 49.500 | 2.549 | 167.386 | 0.0000 |
| 3 | 54.000 | 2.549 | 168.355 | 0.0000 |
| 4 | 58.500 | 2.549 | 169.330 | 0.0000 |
| 5 | 63.000 | 2.549 | 170.310 | 0.0000 |
| 6 | 67.500 | 2.549 | 171.296 | 0.0000 |
| 7 | 72.000 | 2.549 | 172.288 | 0.0000 |
| 8 | 76.500 | 2.549 | 173.285 | 0.0000 |
| 9 | 81.000 | 2.549 | 174.288 | 0.0000 |
| 10 | 85.500 | 2.549 | 175.297 | 0.0000 |
| 11 | 90.000 | 2.549 | 175.584 | 0.0000 |
| 12 | 94.500 | 2.549 | 174.573 | 0.0000 |
| 13 | 99.000 | 2.549 | 173.568 | 0.0000 |
| 14 | 103.500 | 2.549 | 172.569 | 0.0000 |
| 15 | 108.000 | 2.549 | 171.576 | 0.0000 |
| 16 | 112.500 | 2.549 | 170.588 | 0.0000 |
| 17 | 114.750 | 2.549 | 170.096 | 0.0000 |

CABLE 143 BARRAS 26 A 41 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4470
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 114.750 | 2.549 | 166.904 | 0.0000 |
| 2 | 117.000 | 2.549 | 167.386 | 0.0000 |
| 3 | 121.500 | 2.549 | 168.355 | 0.0000 |
| 4 | 126.000 | 2.549 | 169.330 | 0.0000 |
| 5 | 130.500 | 2.549 | 170.310 | 0.0000 |
| 6 | 135.000 | 2.549 | 171.296 | 0.0000 |
| 7 | 139.500 | 2.549 | 172.288 | 0.0000 |
| 8 | 144.000 | 2.549 | 173.285 | 0.0000 |
| 9 | 148.500 | 2.549 | 174.288 | 0.0000 |
| 10 | 153.000 | 2.549 | 175.297 | 0.0000 |
| 11 | 157.500 | 2.549 | 175.584 | 0.0000 |
| 12 | 162.000 | 2.549 | 174.573 | 0.0000 |
| 13 | 166.500 | 2.549 | 173.568 | 0.0000 |
| 14 | 171.000 | 2.549 | 172.569 | 0.0000 |
| 15 | 175.500 | 2.549 | 171.576 | 0.0000 |
| 16 | 180.000 | 2.549 | 170.588 | 0.0000 |
| 17 | 182.250 | 2.549 | 170.096 | 0.0000 |

CABLE 144 BARRAS 41 A 56 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4470
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 182.250 | 2.549 | 166.904 | 0.0000 |
| 2 | 184.500 | 2.549 | 167.386 | 0.0000 |
| 3 | 189.000 | 2.549 | 168.355 | 0.0000 |
| 4 | 193.500 | 2.549 | 169.330 | 0.0000 |
| 5 | 198.000 | 2.549 | 170.310 | 0.0000 |
| 6 | 202.500 | 2.549 | 171.296 | 0.0000 |
| 7 | 207.000 | 2.549 | 172.288 | 0.0000 |
| 8 | 211.500 | 2.549 | 173.285 | 0.0000 |
| 9 | 216.000 | 2.549 | 174.288 | 0.0000 |
| 10 | 220.500 | 2.549 | 175.297 | 0.0000 |
| 11 | 225.000 | 2.549 | 175.584 | 0.0000 |
| 12 | 229.500 | 2.549 | 174.573 | 0.0000 |
| 13 | 234.000 | 2.549 | 173.568 | 0.0000 |
| 14 | 238.500 | 2.549 | 172.569 | 0.0000 |
| 15 | 243.000 | 2.549 | 171.576 | 0.0000 |
| 16 | 247.500 | 2.549 | 170.588 | 0.0000 |
| 17 | 249.750 | 2.549 | 170.096 | 0.0000 |

CABLE 145 BARRAS 56 A 70 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999

(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 65.250 ALARGAMIENTO = 0.4327
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 249.750 | 2.549 | 167.386 | 0.0000 |
| 2 | 252.000 | 2.549 | 167.870 | 0.0000 |
| 3 | 256.500 | 2.549 | 168.842 | 0.0000 |
| 4 | 261.000 | 2.549 | 169.819 | 0.0000 |
| 5 | 265.500 | 2.549 | 170.802 | 0.0000 |
| 6 | 270.000 | 2.549 | 171.791 | 0.0000 |
| 7 | 274.500 | 2.549 | 172.786 | 0.0000 |
| 8 | 279.000 | 2.549 | 173.786 | 0.0000 |
| 9 | 283.500 | 2.549 | 174.792 | 0.0000 |
| 10 | 288.000 | 2.549 | 175.804 | 0.0000 |
| 11 | 292.500 | 2.549 | 175.057 | 0.0000 |
| 12 | 297.000 | 2.549 | 174.050 | 0.0000 |
| 13 | 301.500 | 2.549 | 173.048 | 0.0000 |
| 14 | 306.000 | 2.549 | 172.052 | 0.0000 |
| 15 | 310.500 | 2.549 | 171.061 | 0.0000 |
| 16 | 315.000 | 2.549 | 170.077 | 0.0000 |

CABLE 146 BARRAS 71 A 76 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 30.100 ALARGAMIENTO = 0.1827
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 315.000 | 2.549 | 175.106 | 0.0000 |
| 2 | 319.500 | 2.549 | 174.339 | 0.0000 |
| 3 | 324.000 | 2.549 | 173.336 | 0.0000 |
| 4 | 328.500 | 2.549 | 172.338 | 0.0000 |
| 5 | 333.000 | 2.549 | 171.346 | 0.0000 |
| 6 | 337.500 | 2.549 | 170.360 | 0.0000 |
| 7 | 342.000 | 2.549 | 169.379 | 0.0000 |

CABLE 151 BARRAS 1 A 6 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 28.000 ALARGAMIENTO = 0.1901
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 0.000 | 2.549 | 175.804 | 0.0000 |
| 2 | 4.500 | 2.549 | 175.057 | 0.0000 |
| 3 | 9.000 | 2.549 | 174.050 | 0.0000 |
| 4 | 13.500 | 2.549 | 173.048 | 0.0000 |
| 5 | 18.000 | 2.549 | 172.052 | 0.0000 |
| 6 | 22.500 | 2.549 | 171.061 | 0.0000 |
| 7 | 27.000 | 2.549 | 170.077 | 0.0000 |

CABLE 152 BARRAS 7 A 21 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 65.250 ALARGAMIENTO = 0.4327
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 27.000 | 2.549 | 167.386 | 0.0000 |
| 2 | 31.500 | 2.549 | 168.355 | 0.0000 |
| 3 | 36.000 | 2.549 | 169.330 | 0.0000 |
| 4 | 40.500 | 2.549 | 170.310 | 0.0000 |
| 5 | 45.000 | 2.549 | 171.296 | 0.0000 |
| 6 | 49.500 | 2.549 | 172.288 | 0.0000 |
| 7 | 54.000 | 2.549 | 173.285 | 0.0000 |
| 8 | 58.500 | 2.549 | 174.288 | 0.0000 |
| 9 | 63.000 | 2.549 | 175.297 | 0.0000 |
| 10 | 67.500 | 2.549 | 175.584 | 0.0000 |
| 11 | 72.000 | 2.549 | 174.573 | 0.0000 |
| 12 | 76.500 | 2.549 | 173.568 | 0.0000 |
| 13 | 81.000 | 2.549 | 172.569 | 0.0000 |
| 14 | 85.500 | 2.549 | 171.576 | 0.0000 |
| 15 | 90.000 | 2.549 | 170.588 | 0.0000 |
| 16 | 92.250 | 2.549 | 170.096 | 0.0000 |

CABLE 153 BARRAS 21 A 36 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4470
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 92.250 | 2.549 | 166.904 | 0.0000 |

| | | | | |
|---|---|---|---|---|
| 2 | 94.500 | 2.549 | 167.386 | 0.0000 |
| 3 | 99.000 | 2.549 | 168.355 | 0.0000 |
| 4 | 103.500 | 2.549 | 169.330 | 0.0000 |
| 5 | 108.000 | 2.549 | 170.310 | 0.0000 |
| 6 | 112.500 | 2.549 | 171.296 | 0.0000 |
| 7 | 117.000 | 2.549 | 172.288 | 0.0000 |
| 8 | 121.500 | 2.549 | 173.285 | 0.0000 |
| 9 | 126.000 | 2.549 | 174.288 | 0.0000 |
| 10 | 130.500 | 2.549 | 175.297 | 0.0000 |
| 11 | 135.000 | 2.549 | 175.584 | 0.0000 |
| 12 | 139.500 | 2.549 | 174.573 | 0.0000 |
| 13 | 144.000 | 2.549 | 173.568 | 0.0000 |
| 14 | 148.500 | 2.549 | 172.569 | 0.0000 |
| 15 | 153.000 | 2.549 | 171.576 | 0.0000 |
| 16 | 157.500 | 2.549 | 170.588 | 0.0000 |
| 17 | 159.750 | 2.549 | 170.096 | 0.0000 |

CABLE 154 BARRAS 36 A 51 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4470
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 159.750 | 2.549 | 166.904 | 0.0000 |
| 2 | 162.000 | 2.549 | 167.386 | 0.0000 |
| 3 | 166.500 | 2.549 | 168.355 | 0.0000 |
| 4 | 171.000 | 2.549 | 169.330 | 0.0000 |
| 5 | 175.500 | 2.549 | 170.310 | 0.0000 |
| 6 | 180.000 | 2.549 | 171.296 | 0.0000 |
| 7 | 184.500 | 2.549 | 172.288 | 0.0000 |
| 8 | 189.000 | 2.549 | 173.285 | 0.0000 |
| 9 | 193.500 | 2.549 | 174.288 | 0.0000 |
| 10 | 198.000 | 2.549 | 175.297 | 0.0000 |
| 11 | 202.500 | 2.549 | 175.584 | 0.0000 |
| 12 | 207.000 | 2.549 | 174.573 | 0.0000 |
| 13 | 211.500 | 2.549 | 173.568 | 0.0000 |
| 14 | 216.000 | 2.549 | 172.569 | 0.0000 |
| 15 | 220.500 | 2.549 | 171.576 | 0.0000 |
| 16 | 225.000 | 2.549 | 170.588 | 0.0000 |
| 17 | 227.250 | 2.549 | 170.096 | 0.0000 |

CABLE 155 BARRAS 51 A 66 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4470
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 227.250 | 2.549 | 166.904 | 0.0000 |
| 2 | 229.500 | 2.549 | 167.386 | 0.0000 |
| 3 | 234.000 | 2.549 | 168.355 | 0.0000 |
| 4 | 238.500 | 2.549 | 169.330 | 0.0000 |
| 5 | 243.000 | 2.549 | 170.310 | 0.0000 |
| 6 | 247.500 | 2.549 | 171.296 | 0.0000 |
| 7 | 252.000 | 2.549 | 172.288 | 0.0000 |
| 8 | 256.500 | 2.549 | 173.285 | 0.0000 |
| 9 | 261.000 | 2.549 | 174.288 | 0.0000 |
| 10 | 265.500 | 2.549 | 175.297 | 0.0000 |
| 11 | 270.000 | 2.549 | 175.584 | 0.0000 |
| 12 | 274.500 | 2.549 | 174.573 | 0.0000 |
| 13 | 279.000 | 2.549 | 173.568 | 0.0000 |
| 14 | 283.500 | 2.549 | 172.569 | 0.0000 |
| 15 | 288.000 | 2.549 | 171.576 | 0.0000 |
| 16 | 292.500 | 2.549 | 170.588 | 0.0000 |
| 17 | 294.750 | 2.549 | 170.096 | 0.0000 |

CABLE 156 BARRAS 66 A 76 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 50.350 ALARGAMIENTO = 0.3157
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 294.750 | 2.549 | 170.616 | 0.0000 |
| 2 | 297.000 | 2.549 | 171.109 | 0.0000 |
| 3 | 301.500 | 2.549 | 172.100 | 0.0000 |
| 4 | 306.000 | 2.549 | 173.096 | 0.0000 |
| 5 | 310.500 | 2.549 | 174.098 | 0.0000 |
| 6 | 315.000 | 2.549 | 175.106 | 0.0000 |
| 7 | 319.500 | 2.549 | 174.337 | 0.0000 |
| 8 | 324.000 | 2.549 | 173.333 | 0.0000 |
| 9 | 328.500 | 2.549 | 172.336 | 0.0000 |
| 10 | 333.000 | 2.549 | 171.344 | 0.0000 |
| 11 | 337.500 | 2.549 | 170.357 | 0.0000 |
| 12 | 342.000 | 2.549 | 169.377 | 0.0000 |

CABLE 161 BARRAS 1 A 11 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 48.250 ALARGAMIENTO = 0.3235
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 0.000 | 2.549 | 171.296 | 0.0000 |
| 2 | 4.500 | 2.549 | 172.288 | 0.0000 |
| 3 | 9.000 | 2.549 | 173.285 | 0.0000 |
| 4 | 13.500 | 2.549 | 174.288 | 0.0000 |
| 5 | 18.000 | 2.549 | 175.297 | 0.0000 |
| 6 | 22.500 | 2.549 | 175.584 | 0.0000 |
| 7 | 27.000 | 2.549 | 174.573 | 0.0000 |
| 8 | 31.500 | 2.549 | 173.568 | 0.0000 |
| 9 | 36.000 | 2.549 | 172.569 | 0.0000 |
| 10 | 40.500 | 2.549 | 171.576 | 0.0000 |
| 11 | 45.000 | 2.549 | 170.588 | 0.0000 |
| 12 | 47.250 | 2.549 | 170.096 | 0.0000 |

CABLE 162 BARRAS 11 A 26 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 67.500 ALARGAMIENTO = 0.4470
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 47.250 | 2.549 | 166.904 | 0.0000 |
| 2 | 49.500 | 2.549 | 167.386 | 0.0000 |
| 3 | 54.000 | 2.549 | 168.355 | 0.0000 |
| 4 | 58.500 | 2.549 | 169.330 | 0.0000 |
| 5 | 63.000 | 2.549 | 170.310 | 0.0000 |
| 6 | 67.500 | 2.549 | 171.296 | 0.0000 |
| 7 | 72.000 | 2.549 | 172.288 | 0.0000 |
| 8 | 76.500 | 2.549 | 173.285 | 0.0000 |
| 9 | 81.000 | 2.549 | 174.288 | 0.0000 |
| 10 | 85.500 | 2.549 | 175.297 | 0.0000 |
| 11 | 90.000 | 2.549 | 175.584 | 0.0000 |
| 12 | 94.500 | 2.549 | 174.573 | 0.0000 |
| 13 | 99.000 | 2.549 | 173.568 | 0.0000 |
| 14 | 103.500 | 2.549 | 172.569 | 0.0000 |
| 15 | 108.000 | 2.549 | 171.576 | 0.0000 |
| 16 | 112.500 | 2.549 | 170.588 | 0.0000 |
| 17 | 114.750 | 2.549 | 170.096 | 0.0000 |

CABLE 171 BARRAS 1 A 16 TESADO DCH. AREA 0.001350

FUERZA DE TESADO 182.00
FUERZA DE ANCLAJE 182.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 0.9999
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 70.750 ALARGAMIENTO = 0.4676
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 0.000 | 2.549 | 166.423 | 0.0000 |
| 2 | 4.500 | 2.549 | 167.386 | 0.0000 |
| 3 | 9.000 | 2.549 | 168.355 | 0.0000 |
| 4 | 13.500 | 2.549 | 169.330 | 0.0000 |
| 5 | 18.000 | 2.549 | 170.310 | 0.0000 |
| 6 | 22.500 | 2.549 | 171.296 | 0.0000 |
| 7 | 27.000 | 2.549 | 172.288 | 0.0000 |
| 8 | 31.500 | 2.549 | 173.285 | 0.0000 |
| 9 | 36.000 | 2.549 | 174.288 | 0.0000 |
| 10 | 40.500 | 2.549 | 175.297 | 0.0000 |
| 11 | 45.000 | 2.549 | 175.584 | 0.0000 |
| 12 | 49.500 | 2.549 | 174.573 | 0.0000 |
| 13 | 54.000 | 2.549 | 173.568 | 0.0000 |
| 14 | 58.500 | 2.549 | 172.569 | 0.0000 |
| 15 | 63.000 | 2.549 | 171.576 | 0.0000 |
| 16 | 67.500 | 2.549 | 170.588 | 0.0000 |
| 17 | 69.750 | 2.549 | 170.096 | 0.0000 |

DATOS DE PRETENSADO PARA EL PROGRAMA SICAL
==========

hipo 82 Pretensado de proceso
pretensado plano x y

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| * cable | 11 unidades | 2 | | | | | |
| 1 | 914.74 | 920.04 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 2 | 920.04 | 925.36 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 3 | 925.36 | 930.72 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 4 | 930.72 | 936.11 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 5 | 936.11 | 937.68 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 6 | 937.68 | 932.28 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 7 | 932.28 | 926.92 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 8 | 926.92 | 921.58 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 9 | 921.58 | 916.28 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 10 | 916.28 | 911.00 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 11 | 911.00 | 908.38 | 0.000 | 2.250 | 0.6420 | 0.6420 | 0.6420 |
| * cable | 12 unidades | 2 | | | | | |
| 11 | 891.29 | 893.86 | 2.250 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 12 | 893.86 | 899.04 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 13 | 899.04 | 904.24 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 14 | 904.24 | 909.48 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 15 | 909.48 | 914.74 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 16 | 914.74 | 920.04 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 17 | 920.04 | 925.36 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 18 | 925.36 | 930.72 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 19 | 930.72 | 936.11 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 20 | 936.11 | 937.68 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 21 | 937.68 | 932.28 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 22 | 932.28 | 926.92 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 23 | 926.92 | 921.58 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 24 | 921.58 | 916.28 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 25 | 916.28 | 911.00 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 26 | 911.00 | 908.38 | 0.000 | 2.250 | 0.6420 | 0.6420 | 0.6420 |
| * cable | 13 unidades | 2 | | | | | |
| 26 | 891.29 | 893.86 | 2.250 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 27 | 893.86 | 899.04 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 28 | 899.04 | 904.24 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 29 | 904.24 | 909.48 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 30 | 909.48 | 914.74 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 31 | 914.74 | 920.04 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 32 | 920.04 | 925.36 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 33 | 925.36 | 930.72 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 34 | 930.72 | 936.11 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 35 | 936.11 | 937.68 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 36 | 937.68 | 932.28 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 37 | 932.28 | 926.92 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 38 | 926.92 | 921.58 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 39 | 921.58 | 916.28 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 40 | 916.28 | 911.00 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 41 | 911.00 | 908.38 | 0.000 | 2.250 | 0.6420 | 0.6420 | 0.6420 |
| * cable | 14 unidades | 2 | | | | | |
| 41 | 891.29 | 893.86 | 2.250 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 42 | 893.86 | 899.04 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 43 | 899.04 | 904.24 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 44 | 904.24 | 909.48 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 45 | 909.48 | 914.74 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 46 | 914.74 | 920.04 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 47 | 920.04 | 925.36 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 48 | 925.36 | 930.72 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 49 | 930.72 | 936.11 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 50 | 936.11 | 937.68 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 51 | 937.68 | 932.28 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 52 | 932.28 | 926.92 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 53 | 926.92 | 921.58 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 54 | 921.58 | 916.28 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 55 | 916.28 | 911.00 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 56 | 911.00 | 908.38 | 0.000 | 2.250 | 0.6420 | 0.6420 | 0.6420 |
| * cable | 15 unidades | 2 | | | | | |
| 56 | 893.86 | 896.45 | 2.250 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 57 | 896.45 | 901.64 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 58 | 901.64 | 906.86 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 59 | 906.86 | 912.11 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 60 | 912.11 | 917.39 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 61 | 917.39 | 922.70 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 62 | 922.70 | 928.04 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 63 | 928.04 | 933.41 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 64 | 933.41 | 938.82 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 65 | 938.82 | 934.88 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 66 | 934.88 | 929.49 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 67 | 929.49 | 924.14 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 68 | 924.14 | 918.82 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 69 | 918.82 | 913.54 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 70 | 913.54 | 908.28 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| * cable | 16 unidades | 2 | | | | | |
| 71 | 935.09 | 931.04 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 72 | 931.04 | 925.68 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 73 | 925.68 | 920.35 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 74 | 920.35 | 915.06 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 75 | 915.06 | 909.79 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| 76 | 909.79 | 904.55 | 0.000 | 0.000 | 0.6420 | 0.6420 | 0.6420 |
| * cable | 21 unidades | 2 | | | | | |
| 1 | 743.71 | 740.61 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 2 | 740.61 | 736.35 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 3 | 736.35 | 732.11 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 4 | 732.11 | 727.89 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 5 | 727.89 | 723.70 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 6 | 723.70 | 719.54 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| * cable | 22 unidades | 2 | | | | | |
| 7 | 708.10 | 712.20 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 8 | 712.20 | 716.32 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 9 | 716.32 | 720.47 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 10 | 720.47 | 724.64 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 11 | 724.64 | 728.84 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 12 | 728.84 | 733.06 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 13 | 733.06 | 737.30 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 14 | 737.30 | 741.57 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 15 | 741.57 | 742.83 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 16 | 742.83 | 738.55 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 17 | 738.55 | 734.30 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 18 | 734.30 | 730.08 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 19 | 730.08 | 725.87 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 20 | 725.87 | 721.70 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 21 | 721.70 | 719.62 | 0.000 | 2.250 | 0.6760 | 0.6760 | 0.6760 |
| * cable | 23 unidades | 2 | | | | | |
| 21 | 706.06 | 708.10 | 2.250 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 22 | 708.10 | 712.20 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 23 | 712.20 | 716.32 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 24 | 716.32 | 720.47 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 25 | 720.47 | 724.64 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 26 | 724.64 | 728.84 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 27 | 728.84 | 733.06 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 28 | 733.06 | 737.30 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 29 | 737.30 | 741.57 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 30 | 741.57 | 742.83 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 31 | 742.83 | 738.55 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 32 | 738.55 | 734.30 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 33 | 734.30 | 730.08 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 34 | 730.08 | 725.87 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 35 | 725.87 | 721.70 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 36 | 721.70 | 719.62 | 0.000 | 2.250 | 0.6760 | 0.6760 | 0.6760 |
| * cable | 24 unidades | 2 | | | | | |
| 36 | 706.06 | 708.10 | 2.250 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 37 | 708.10 | 712.20 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 38 | 712.20 | 716.32 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 39 | 716.32 | 720.47 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 40 | 720.47 | 724.64 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 41 | 724.64 | 728.84 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 42 | 728.84 | 733.06 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 43 | 733.06 | 737.30 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 44 | 737.30 | 741.57 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 45 | 741.57 | 742.83 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 46 | 742.83 | 738.55 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 47 | 738.55 | 734.30 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 48 | 734.30 | 730.08 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 49 | 730.08 | 725.87 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 50 | 725.87 | 721.70 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 51 | 721.70 | 719.62 | 0.000 | 2.250 | 0.6760 | 0.6760 | 0.6760 |
| * cable | 25 unidades | 2 | | | | | |
| 51 | 706.06 | 708.10 | 2.250 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 52 | 708.10 | 712.20 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 53 | 712.20 | 716.32 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 54 | 716.32 | 720.47 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 55 | 720.47 | 724.64 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 56 | 724.64 | 728.84 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 57 | 728.84 | 733.06 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 58 | 733.06 | 737.30 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 59 | 737.30 | 741.57 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 60 | 741.57 | 742.83 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 61 | 742.83 | 738.55 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 62 | 738.55 | 734.30 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 63 | 734.30 | 730.08 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 64 | 730.08 | 725.87 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 65 | 725.87 | 721.70 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 66 | 721.70 | 719.62 | 0.000 | 2.250 | 0.6760 | 0.6760 | 0.6760 |
| * cable | 26 unidades | 2 | | | | | |
| 66 | 721.77 | 723.85 | 2.250 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 67 | 723.85 | 728.04 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 68 | 728.04 | 732.26 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 69 | 732.26 | 736.50 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 70 | 736.50 | 740.76 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 71 | 740.76 | 737.56 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 72 | 737.56 | 733.31 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 73 | 733.31 | 729.09 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 74 | 729.09 | 724.90 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 75 | 724.90 | 720.72 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| 76 | 720.72 | 716.58 | 0.000 | 0.000 | 0.6760 | 0.6760 | 0.6760 |
| * cable | 31 unidades | 2 | | | | | |
| 1 | 695.40 | 691.40 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 2 | 691.40 | 687.42 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| * cable | 32 unidades | 2 | | | | | |
| 3 | 712.20 | 716.32 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 4 | 716.32 | 720.47 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 5 | 720.47 | 724.64 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 6 | 724.64 | 728.84 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 7 | 728.84 | 733.06 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 8 | 733.06 | 737.30 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 9 | 737.30 | 741.57 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 10 | 741.57 | 742.83 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 11 | 742.83 | 738.55 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 12 | 738.55 | 734.30 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 13 | 734.30 | 730.08 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 14 | 730.08 | 725.87 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 15 | 725.87 | 721.70 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 16 | 721.70 | 719.62 | 0.000 | 2.250 | 0.6870 | 0.6870 | 0.6870 |
| * cable | 33 unidades | 2 | | | | | |
| 16 | 706.06 | 708.10 | 2.250 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 17 | 708.10 | 712.20 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 18 | 712.20 | 716.32 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 19 | 716.32 | 720.47 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 20 | 720.47 | 724.64 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 21 | 724.64 | 728.84 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 22 | 728.84 | 733.06 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 23 | 733.06 | 737.30 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 24 | 737.30 | 741.57 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 25 | 741.57 | 742.83 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 26 | 742.83 | 738.55 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 27 | 738.55 | 734.30 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 28 | 734.30 | 730.08 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 29 | 730.08 | 725.87 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 30 | 725.87 | 721.70 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 31 | 721.70 | 719.62 | 0.000 | 2.250 | 0.6870 | 0.6870 | 0.6870 |
| * cable | 34 unidades | 2 | | | | | |
| 31 | 706.06 | 708.10 | 2.250 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 32 | 708.10 | 712.20 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 33 | 712.20 | 716.32 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 34 | 716.32 | 720.47 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 35 | 720.47 | 724.64 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 36 | 724.64 | 728.84 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 37 | 728.84 | 733.06 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 38 | 733.06 | 737.30 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 39 | 737.30 | 741.57 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 40 | 741.57 | 742.83 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 41 | 742.83 | 738.55 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 42 | 738.55 | 734.30 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 43 | 734.30 | 730.08 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 44 | 730.08 | 725.87 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 45 | 725.87 | 721.70 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 46 | 721.70 | 719.62 | 0.000 | 2.250 | 0.6870 | 0.6870 | 0.6870 |
| * cable | 35 unidades | 2 | | | | | |
| 46 | 706.06 | 708.10 | 2.250 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 47 | 708.10 | 712.20 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 48 | 712.20 | 716.32 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 49 | 716.32 | 720.47 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 50 | 720.47 | 724.64 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 51 | 724.64 | 728.84 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 52 | 728.84 | 733.06 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 53 | 733.06 | 737.30 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 54 | 737.30 | 741.57 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 55 | 741.57 | 742.83 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 56 | 742.83 | 738.55 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 57 | 738.55 | 734.30 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 58 | 734.30 | 730.08 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 59 | 730.08 | 725.87 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 60 | 725.87 | 721.70 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 61 | 721.70 | 719.62 | 0.000 | 2.250 | 0.6870 | 0.6870 | 0.6870 |
| * cable | 36 unidades | 2 | | | | | |
| 61 | 712.20 | 714.26 | 2.250 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 62 | 714.26 | 718.39 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 63 | 718.39 | 722.55 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 64 | 722.55 | 726.74 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 65 | 726.74 | 730.94 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 66 | 730.94 | 735.18 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 67 | 735.18 | 739.43 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 68 | 739.43 | 743.71 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 69 | 743.71 | 740.61 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |

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|---|---|---|---|---|---|---|---|
| 70 | 740.61 | 736.35 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 71 | 736.35 | 732.11 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 72 | 732.11 | 727.89 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 73 | 727.89 | 723.70 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| 74 | 723.70 | 719.54 | 0.000 | 0.000 | 0.6870 | 0.6870 | 0.6870 |
| * cable | 41 unidades | 2 | | | | | |
| 1 | 469.41 | 467.44 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 2 | 467.44 | 464.75 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 3 | 464.75 | 462.07 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 4 | 462.07 | 459.41 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 5 | 459.41 | 456.77 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 6 | 456.77 | 454.14 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| * cable | 42 unidades | 2 | | | | | |
| 7 | 446.93 | 449.52 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 8 | 449.52 | 452.12 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 9 | 452.12 | 454.74 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 10 | 454.74 | 457.37 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 11 | 457.37 | 460.02 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 12 | 460.02 | 462.68 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 13 | 462.68 | 465.36 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 14 | 465.36 | 468.06 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 15 | 468.06 | 468.84 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 16 | 468.84 | 466.14 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 17 | 466.14 | 463.46 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 18 | 463.46 | 460.79 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 19 | 460.79 | 458.14 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 20 | 458.14 | 455.50 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 21 | 455.50 | 454.19 | 0.000 | 2.250 | 0.7120 | 0.7120 | 0.7120 |
| * cable | 43 unidades | 2 | | | | | |
| 21 | 445.64 | 446.93 | 2.250 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 22 | 446.93 | 449.52 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 23 | 449.52 | 452.12 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 24 | 452.12 | 454.74 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 25 | 454.74 | 457.37 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 26 | 457.37 | 460.02 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 27 | 460.02 | 462.68 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 28 | 462.68 | 465.36 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 29 | 465.36 | 468.06 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 30 | 468.06 | 468.84 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 31 | 468.84 | 466.14 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 32 | 466.14 | 463.46 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 33 | 463.46 | 460.79 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 34 | 460.79 | 458.14 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 35 | 458.14 | 455.50 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 36 | 455.50 | 454.19 | 0.000 | 2.250 | 0.7120 | 0.7120 | 0.7120 |
| * cable | 44 unidades | 2 | | | | | |
| 36 | 445.64 | 446.93 | 2.250 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 37 | 446.93 | 449.52 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 38 | 449.52 | 452.12 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 39 | 452.12 | 454.74 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 40 | 454.74 | 457.37 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 41 | 457.37 | 460.02 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 42 | 460.02 | 462.68 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 43 | 462.68 | 465.36 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 44 | 465.36 | 468.06 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 45 | 468.06 | 468.84 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 46 | 468.84 | 466.14 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 47 | 466.14 | 463.46 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 48 | 463.46 | 460.79 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 49 | 460.79 | 458.14 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 50 | 458.14 | 455.50 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 51 | 455.50 | 454.19 | 0.000 | 2.250 | 0.7120 | 0.7120 | 0.7120 |
| * cable | 45 unidades | 2 | | | | | |
| 51 | 445.64 | 446.93 | 2.250 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 52 | 446.93 | 449.52 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 53 | 449.52 | 452.12 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 54 | 452.12 | 454.74 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 55 | 454.74 | 457.37 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 56 | 457.37 | 460.02 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 57 | 460.02 | 462.68 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 58 | 462.68 | 465.36 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 59 | 465.36 | 468.06 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 60 | 468.06 | 468.84 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 61 | 468.84 | 466.14 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 62 | 466.14 | 463.46 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 63 | 463.46 | 460.79 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 64 | 460.79 | 458.14 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 65 | 458.14 | 455.50 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 66 | 455.50 | 454.19 | 0.000 | 2.250 | 0.7120 | 0.7120 | 0.7120 |
| * cable | 46 unidades | 2 | | | | | |
| 66 | 455.56 | 456.87 | 2.250 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 67 | 456.87 | 459.52 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 68 | 459.52 | 462.18 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 69 | 462.18 | 464.85 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 70 | 464.85 | 467.55 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 71 | 467.55 | 465.51 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 72 | 465.51 | 462.83 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 73 | 462.83 | 460.17 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 74 | 460.17 | 457.52 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 75 | 457.52 | 454.89 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| 76 | 454.89 | 452.27 | 0.000 | 0.000 | 0.7120 | 0.7120 | 0.7120 |
| * cable | 51 unidades | 2 | | | | | |
| 1 | 572.18 | 575.50 | 0.000 | 0.000 | 0.7270 | 0.7270 | 0.7270 |
| 2 | 575.50 | 578.83 | 0.000 | 0.000 | 0.7270 | 0.7270 | 0.7270 |
| 3 | 578.83 | 582.18 | 0.000 | 0.000 | 0.7270 | 0.7270 | 0.7270 |
| 4 | 582.18 | 585.55 | 0.000 | 0.000 | 0.7270 | 0.7270 | 0.7270 |
| 5 | 585.55 | 586.55 | 0.000 | 0.000 | 0.7270 | 0.7270 | 0.7270 |
| 6 | 586.55 | 583.17 | 0.000 | 0.000 | 0.7270 | 0.7270 | 0.7270 |
| 7 | 583.17 | 579.82 | 0.000 | 0.000 | 0.7270 | 0.7270 | 0.7270 |
| 8 | 579.82 | 576.48 | 0.000 | 0.000 | 0.7270 | 0.7270 | 0.7270 |
| 9 | 576.48 | 573.16 | 0.000 | 0.000 | 0.7270 | 0.7270 | 0.7270 |
| 10 | 573.16 | 569.86 | 0.000 | 0.000 | 0.7270 | 0.7270 | 0.7270 |
| 11 | 569.86 | 568.22 | 0.000 | 2.250 | 0.7270 | 0.7270 | 0.7270 |
| * cable | 52 unidades | 2 | | | | | |
| 11 | 555.91 | 559.12 | 0.000 | 0.000 | 0.7270 | 0.7270 | 0.7270 |
| 12 | 559.12 | 562.36 | 0.000 | 0.000 | 0.7270 | 0.7270 | 0.7270 |
| 13 | 562.36 | 565.62 | 0.000 | 0.000 | 0.7270 | 0.7270 | 0.7270 |
| 14 | 565.62 | 568.89 | 0.000 | 0.000 | 0.7270 | 0.7270 | 0.7270 |
| 15 | 568.89 | 572.18 | 0.000 | 0.000 | 0.7270 | 0.7270 | 0.7270 |
| 16 | 572.18 | 575.50 | 0.000 | 0.000 | 0.7270 | 0.7270 | 0.7270 |
| 17 | 575.50 | 578.83 | 0.000 | 0.000 | 0.7270 | 0.7270 | 0.7270 |
| 18 | 578.83 | 582.18 | 0.000 | 0.000 | 0.7270 | 0.7270 | 0.7270 |
| 19 | 582.18 | 585.55 | 0.000 | 0.000 | 0.7270 | 0.7270 | 0.7270 |
| 20 | 585.55 | 586.55 | 0.000 | 0.000 | 0.7270 | 0.7270 | 0.7270 |
| 21 | 586.55 | 583.17 | 0.000 | 0.000 | 0.7270 | 0.7270 | 0.7270 |
| 22 | 583.17 | 579.82 | 0.000 | 0.000 | 0.7270 | 0.7270 | 0.7270 |
| 23 | 579.82 | 576.48 | 0.000 | 0.000 | 0.7270 | 0.7270 | 0.7270 |
| 24 | 576.48 | 573.16 | 0.000 | 0.000 | 0.7270 | 0.7270 | 0.7270 |
| 25 | 573.16 | 569.86 | 0.000 | 0.000 | 0.7270 | 0.7270 | 0.7270 |
| 26 | 569.86 | 568.22 | 0.000 | 2.250 | 0.7270 | 0.7270 | 0.7270 |
| * cable | 61 unidades | 2 | | | | | |
| 1 | 457.37 | 460.02 | 0.000 | 0.000 | 0.7520 | 0.7520 | 0.7520 |
| 2 | 460.02 | 462.68 | 0.000 | 0.000 | 0.7520 | 0.7520 | 0.7520 |
| 3 | 462.68 | 465.36 | 0.000 | 0.000 | 0.7520 | 0.7520 | 0.7520 |
| 4 | 465.36 | 468.06 | 0.000 | 0.000 | 0.7520 | 0.7520 | 0.7520 |
| 5 | 468.06 | 468.84 | 0.000 | 0.000 | 0.7520 | 0.7520 | 0.7520 |
| 6 | 468.84 | 466.14 | 0.000 | 0.000 | 0.7520 | 0.7520 | 0.7520 |
| 7 | 466.14 | 463.46 | 0.000 | 0.000 | 0.7520 | 0.7520 | 0.7520 |

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|---|---|---|---|---|---|---|---|
| 8 | 463.46 | 460.79 | 0.000 | 0.000 | 0.7520 | 0.7520 | 0.7520 |
| 9 | 460.79 | 458.14 | 0.000 | 0.000 | 0.7520 | 0.7520 | 0.7520 |
| 10 | 458.14 | 455.50 | 0.000 | 0.000 | 0.7520 | 0.7520 | 0.7520 |
| 11 | 455.50 | 454.19 | 0.000 | 2.250 | 0.7520 | 0.7520 | 0.7520 |
| * cable 62 unidades 2 | | | | | | | |
| 11 | 445.64 | 446.93 | 2.250 | 0.000 | 0.7520 | 0.7520 | 0.7520 |
| 12 | 446.93 | 449.52 | 0.000 | 0.000 | 0.7520 | 0.7520 | 0.7520 |
| 13 | 449.52 | 452.12 | 0.000 | 0.000 | 0.7520 | 0.7520 | 0.7520 |
| 14 | 452.12 | 454.74 | 0.000 | 0.000 | 0.7520 | 0.7520 | 0.7520 |
| 15 | 454.74 | 457.37 | 0.000 | 0.000 | 0.7520 | 0.7520 | 0.7520 |
| 16 | 457.37 | 460.02 | 0.000 | 0.000 | 0.7520 | 0.7520 | 0.7520 |
| 17 | 460.02 | 462.68 | 0.000 | 0.000 | 0.7520 | 0.7520 | 0.7520 |
| 18 | 462.68 | 465.36 | 0.000 | 0.000 | 0.7520 | 0.7520 | 0.7520 |
| 19 | 465.36 | 468.06 | 0.000 | 0.000 | 0.7520 | 0.7520 | 0.7520 |
| 20 | 468.06 | 468.84 | 0.000 | 0.000 | 0.7520 | 0.7520 | 0.7520 |
| 21 | 468.84 | 466.14 | 0.000 | 0.000 | 0.7520 | 0.7520 | 0.7520 |
| 22 | 466.14 | 463.46 | 0.000 | 0.000 | 0.7520 | 0.7520 | 0.7520 |
| 23 | 463.46 | 460.79 | 0.000 | 0.000 | 0.7520 | 0.7520 | 0.7520 |
| 24 | 460.79 | 458.14 | 0.000 | 0.000 | 0.7520 | 0.7520 | 0.7520 |
| 25 | 458.14 | 455.50 | 0.000 | 0.000 | 0.7520 | 0.7520 | 0.7520 |
| 26 | 455.50 | 454.19 | 0.000 | 2.250 | 0.7520 | 0.7520 | 0.7520 |
| * cable 71 unidades 2 | | | | | | | |
| 3 | 336.68 | 338.63 | 0.000 | 0.000 | 0.7230 | 0.7230 | 0.7230 |
| 4 | 338.63 | 340.59 | 0.000 | 0.000 | 0.7230 | 0.7230 | 0.7230 |
| 5 | 340.59 | 342.56 | 0.000 | 0.000 | 0.7230 | 0.7230 | 0.7230 |
| 6 | 342.56 | 344.54 | 0.000 | 0.000 | 0.7230 | 0.7230 | 0.7230 |
| 7 | 344.54 | 346.54 | 0.000 | 0.000 | 0.7230 | 0.7230 | 0.7230 |
| 8 | 346.54 | 348.54 | 0.000 | 0.000 | 0.7230 | 0.7230 | 0.7230 |
| 9 | 348.54 | 350.56 | 0.000 | 0.000 | 0.7230 | 0.7230 | 0.7230 |
| 10 | 350.56 | 351.13 | 0.000 | 0.000 | 0.7230 | 0.7230 | 0.7230 |
| 11 | 351.13 | 349.11 | 0.000 | 0.000 | 0.7230 | 0.7230 | 0.7230 |
| 12 | 349.11 | 347.10 | 0.000 | 0.000 | 0.7230 | 0.7230 | 0.7230 |
| 13 | 347.10 | 345.10 | 0.000 | 0.000 | 0.7230 | 0.7230 | 0.7230 |
| 14 | 345.10 | 343.12 | 0.000 | 0.000 | 0.7230 | 0.7230 | 0.7230 |
| 15 | 343.12 | 341.14 | 0.000 | 0.000 | 0.7230 | 0.7230 | 0.7230 |
| 16 | 341.14 | 340.16 | 0.000 | 2.250 | 0.7230 | 0.7230 | 0.7230 |
| * cable 111 unidades 2 | | | | | | | |
| 1 | 342.56 | 344.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 2 | 344.54 | 346.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 3 | 346.54 | 348.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 4 | 348.54 | 350.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 5 | 350.56 | 351.13 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 6 | 351.13 | 349.11 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 7 | 349.11 | 347.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 8 | 347.10 | 345.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 9 | 345.10 | 343.12 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 10 | 343.12 | 341.14 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 11 | 341.14 | 340.16 | 0.000 | 2.250 | -1.5620 | -1.5620 | -1.5620 |
| * cable 112 unidades 2 | | | | | | | |
| 11 | 333.77 | 334.74 | 2.250 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 12 | 334.74 | 336.68 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 13 | 336.68 | 338.63 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 14 | 338.63 | 340.59 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 15 | 340.59 | 342.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 16 | 342.56 | 344.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 17 | 344.54 | 346.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 18 | 346.54 | 348.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 19 | 348.54 | 350.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 20 | 350.56 | 351.13 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 21 | 351.13 | 349.11 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 22 | 349.11 | 347.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 23 | 347.10 | 345.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 24 | 345.10 | 343.12 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 25 | 343.12 | 341.14 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 26 | 341.14 | 340.16 | 0.000 | 2.250 | -1.5620 | -1.5620 | -1.5620 |
| * cable 113 unidades 2 | | | | | | | |
| 26 | 333.77 | 334.74 | 2.250 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 27 | 334.74 | 336.68 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 28 | 336.68 | 338.63 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 29 | 338.63 | 340.59 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 30 | 340.59 | 342.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 31 | 342.56 | 344.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 32 | 344.54 | 346.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 33 | 346.54 | 348.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 34 | 348.54 | 350.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 35 | 350.56 | 351.13 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 36 | 351.13 | 349.11 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 37 | 349.11 | 347.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 38 | 347.10 | 345.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 39 | 345.10 | 343.12 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 40 | 343.12 | 341.14 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 41 | 341.14 | 340.16 | 0.000 | 2.250 | -1.5620 | -1.5620 | -1.5620 |
| * cable 114 unidades 2 | | | | | | | |
| 41 | 333.77 | 334.74 | 2.250 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 42 | 334.74 | 336.68 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 43 | 336.68 | 338.63 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 44 | 338.63 | 340.59 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 45 | 340.59 | 342.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 46 | 342.56 | 344.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 47 | 344.54 | 346.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 48 | 346.54 | 348.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 49 | 348.54 | 350.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 50 | 350.56 | 351.13 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 51 | 351.13 | 349.11 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 52 | 349.11 | 347.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 53 | 347.10 | 345.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 54 | 345.10 | 343.12 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 55 | 343.12 | 341.14 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 56 | 341.14 | 340.16 | 0.000 | 2.250 | -1.5620 | -1.5620 | -1.5620 |
| * cable 115 unidades 2 | | | | | | | |
| 56 | 334.74 | 335.71 | 2.250 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 57 | 335.71 | 337.65 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 58 | 337.65 | 339.60 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 59 | 339.60 | 341.57 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 60 | 341.57 | 343.55 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 61 | 343.55 | 345.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 62 | 345.54 | 347.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 63 | 347.54 | 349.55 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 64 | 349.55 | 351.57 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 65 | 351.57 | 350.08 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 66 | 350.08 | 348.06 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 67 | 348.06 | 346.06 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 68 | 346.06 | 344.07 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 69 | 344.07 | 342.09 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 70 | 342.09 | 340.12 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| * cable 116 unidades 2 | | | | | | | |
| 71 | 350.18 | 348.64 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 72 | 348.64 | 346.64 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 73 | 346.64 | 344.64 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 74 | 344.64 | 342.66 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 75 | 342.66 | 340.69 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 76 | 340.69 | 338.72 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| * cable 121 unidades 2 | | | | | | | |
| 1 | 351.57 | 350.08 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 2 | 350.08 | 348.06 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 3 | 348.06 | 346.06 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 4 | 346.06 | 344.07 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 5 | 344.07 | 342.09 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 6 | 342.09 | 340.12 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| * cable 122 unidades 2 | | | | | | | |
| 7 | 334.74 | 336.68 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 8 | 336.68 | 338.63 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 9 | 338.63 | 340.59 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 10 | 340.59 | 342.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 11 | 342.56 | 344.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 12 | 344.54 | 346.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 13 | 346.54 | 348.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 14 | 348.54 | 350.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 15 | 350.56 | 351.13 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 16 | 351.13 | 349.11 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 17 | 349.11 | 347.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 18 | 347.10 | 345.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 19 | 345.10 | 343.12 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 20 | 343.12 | 341.14 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 21 | 341.14 | 340.16 | 0.000 | 2.250 | -1.5620 | -1.5620 | -1.5620 |
| * cable 123 unidades 2 | | | | | | | |
| 21 | 333.77 | 334.74 | 2.250 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 22 | 334.74 | 336.68 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 23 | 336.68 | 338.63 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 24 | 338.63 | 340.59 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 25 | 340.59 | 342.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 26 | 342.56 | 344.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 27 | 344.54 | 346.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 28 | 346.54 | 348.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 29 | 348.54 | 350.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 30 | 350.56 | 351.13 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 31 | 351.13 | 349.11 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 32 | 349.11 | 347.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 33 | 347.10 | 345.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 34 | 345.10 | 343.12 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 35 | 343.12 | 341.14 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 36 | 341.14 | 340.16 | 0.000 | 2.250 | -1.5620 | -1.5620 | -1.5620 |
| * cable 124 unidades 2 | | | | | | | |
| 36 | 333.77 | 334.74 | 2.250 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 37 | 334.74 | 336.68 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 38 | 336.68 | 338.63 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 39 | 338.63 | 340.59 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 40 | 340.59 | 342.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 41 | 342.56 | 344.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 42 | 344.54 | 346.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 43 | 346.54 | 348.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 44 | 348.54 | 350.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 45 | 350.56 | 351.13 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 46 | 351.13 | 349.11 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 47 | 349.11 | 347.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 48 | 347.10 | 345.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 49 | 345.10 | 343.12 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 50 | 343.12 | 341.14 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 51 | 341.14 | 340.16 | 0.000 | 2.250 | -1.5620 | -1.5620 | -1.5620 |
| * cable 125 unidades 2 | | | | | | | |
| 51 | 333.77 | 334.74 | 2.250 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 52 | 334.74 | 336.68 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 53 | 336.68 | 338.63 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 54 | 338.63 | 340.59 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 55 | 340.59 | 342.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 56 | 342.56 | 344.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 57 | 344.54 | 346.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 58 | 346.54 | 348.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 59 | 348.54 | 350.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 60 | 350.56 | 351.13 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 61 | 351.13 | 349.11 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 62 | 349.11 | 347.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 63 | 347.10 | 345.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 64 | 345.10 | 343.12 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 65 | 343.12 | 341.14 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 66 | 341.14 | 340.16 | 0.000 | 2.250 | -1.5620 | -1.5620 | -1.5620 |
| * cable 126 unidades 2 | | | | | | | |
| 66 | 341.20 | 342.18 | 2.250 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 67 | 342.18 | 344.17 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 68 | 344.17 | 346.16 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 69 | 346.16 | 348.16 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 70 | 348.16 | 350.18 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 71 | 350.18 | 348.64 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 72 | 348.64 | 346.63 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 73 | 346.63 | 344.64 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 74 | 344.64 | 342.65 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 75 | 342.65 | 340.68 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 76 | 340.68 | 338.72 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| * cable 131 unidades 2 | | | | | | | |
| 1 | 328.66 | 326.77 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 2 | 326.77 | 324.89 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| * cable 132 unidades 2 | | | | | | | |
| 3 | 336.68 | 338.63 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 4 | 338.63 | 340.59 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 5 | 340.59 | 342.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 6 | 342.56 | 344.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 7 | 344.54 | 346.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 8 | 346.54 | 348.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 9 | 348.54 | 350.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 10 | 350.56 | 351.13 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 11 | 351.13 | 349.11 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 12 | 349.11 | 347.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 13 | 347.10 | 345.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 14 | 345.10 | 343.12 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 15 | 343.12 | 341.14 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 16 | 341.14 | 340.16 | 0.000 | 2.250 | -1.5620 | -1.5620 | -1.5620 |
| * cable 133 unidades 2 | | | | | | | |
| 16 | 333.77 | 334.74 | 2.250 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 17 | 334.74 | 336.68 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 18 | 336.68 | 338.63 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 19 | 338.63 | 340.59 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 20 | 340.59 | 342.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 21 | 342.56 | 344.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 22 | 344.54 | 346.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 23 | 346.54 | 348.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 24 | 348.54 | 350.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 25 | 350.56 | 351.13 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 26 | 351.13 | 349.11 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 27 | 349.11 | 347.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 28 | 347.10 | 345.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 29 | 345.10 | 343.12 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 30 | 343.12 | 341.14 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 31 | 341.14 | 340.16 | 0.000 | 2.250 | -1.5620 | -1.5620 | -1.5620 |
| * cable 134 unidades 2 | | | | | | | |
| 31 | 333.77 | 334.74 | 2.250 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 32 | 334.74 | 336.68 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 33 | 336.68 | 338.63 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 34 | 338.63 | 340.59 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 35 | 340.59 | 342.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 36 | 342.56 | 344.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 37 | 344.54 | 346.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 38 | 346.54 | 348.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 39 | 348.54 | 350.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 40 | 350.56 | 351.13 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 41 | 351.13 | 349.11 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 42 | 349.11 | 347.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 43 | 347.10 | 345.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 44 | 345.10 | 343.12 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 45 | 343.12 | 341.14 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 46 | 341.14 | 340.16 | 0.000 | 2.250 | -1.5620 | -1.5620 | -1.5620 |
| * cable 135 unidades 2 | | | | | | | |
| 46 | 333.77 | 334.74 | 2.250 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 47 | 334.74 | 336.68 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 48 | 336.68 | 338.63 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 49 | 338.63 | 340.59 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 50 | 340.59 | 342.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 51 | 342.56 | 344.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 52 | 344.54 | 346.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 53 | 346.54 | 348.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 54 | 348.54 | 350.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 55 | 350.56 | 351.13 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 56 | 351.13 | 349.11 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 57 | 349.11 | 347.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 58 | 347.10 | 345.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 59 | 345.10 | 343.12 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 60 | 343.12 | 341.14 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 61 | 341.14 | 340.16 | 0.000 | 2.250 | -1.5620 | -1.5620 | -1.5620 |
| * cable 136 unidades 2 | | | | | | | |
| 61 | 336.68 | 337.65 | 2.250 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 62 | 337.65 | 339.60 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 63 | 339.60 | 341.57 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 64 | 341.57 | 343.55 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 65 | 343.55 | 345.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 66 | 345.54 | 347.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 67 | 347.54 | 349.55 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 68 | 349.55 | 351.57 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 69 | 351.57 | 350.08 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 70 | 350.08 | 348.06 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 71 | 348.06 | 346.06 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 72 | 346.06 | 344.07 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 73 | 344.07 | 342.09 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 74 | 342.09 | 340.12 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| * cable 141 unidades 2 | | | | | | | |
| 1 | 342.56 | 344.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 2 | 344.54 | 346.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 3 | 346.54 | 348.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 4 | 348.54 | 350.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 5 | 350.56 | 351.13 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 6 | 351.13 | 349.11 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 7 | 349.11 | 347.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 8 | 347.10 | 345.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 9 | 345.10 | 343.12 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 10 | 343.12 | 341.14 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 11 | 341.14 | 340.16 | 0.000 | 2.250 | -1.5620 | -1.5620 | -1.5620 |
| * cable 142 unidades 2 | | | | | | | |
| 11 | 333.77 | 334.74 | 2.250 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 12 | 334.74 | 336.68 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 13 | 336.68 | 338.63 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 14 | 338.63 | 340.59 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 15 | 340.59 | 342.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 16 | 342.56 | 344.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 17 | 344.54 | 346.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 18 | 346.54 | 348.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 19 | 348.54 | 350.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 20 | 350.56 | 351.13 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 21 | 351.13 | 349.11 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 22 | 349.11 | 347.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 23 | 347.10 | 345.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 24 | 345.10 | 343.12 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 25 | 343.12 | 341.14 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 26 | 341.14 | 340.16 | 0.000 | 2.250 | -1.5620 | -1.5620 | -1.5620 |
| * cable 143 unidades 2 | | | | | | | |
| 26 | 333.77 | 334.74 | 2.250 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 27 | 334.74 | 336.68 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 28 | 336.68 | 338.63 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 29 | 338.63 | 340.59 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 30 | 340.59 | 342.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 31 | 342.56 | 344.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 32 | 344.54 | 346.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 33 | 346.54 | 348.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 34 | 348.54 | 350.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 35 | 350.56 | 351.13 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 36 | 351.13 | 349.11 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 37 | 349.11 | 347.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 38 | 347.10 | 345.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 39 | 345.10 | 343.12 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 40 | 343.12 | 341.14 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 41 | 341.14 | 340.16 | 0.000 | 2.250 | -1.5620 | -1.5620 | -1.5620 |
| * cable 144 unidades 2 | | | | | | | |
| 41 | 333.77 | 334.74 | 2.250 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 42 | 334.74 | 336.68 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 43 | 336.68 | 338.63 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 44 | 338.63 | 340.59 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 45 | 340.59 | 342.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 46 | 342.56 | 344.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 47 | 344.54 | 346.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 48 | 346.54 | 348.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 49 | 348.54 | 350.56 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 50 | 350.56 | 351.13 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 51 | 351.13 | 349.11 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 52 | 349.11 | 347.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 53 | 347.10 | 345.10 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 54 | 345.10 | 343.12 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 55 | 343.12 | 341.14 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 56 | 341.14 | 340.16 | 0.000 | 2.250 | -1.5620 | -1.5620 | -1.5620 |
| * cable 145 unidades 2 | | | | | | | |
| 56 | 334.74 | 335.71 | 2.250 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 57 | 335.71 | 337.65 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 58 | 337.65 | 339.60 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 59 | 339.60 | 341.57 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 60 | 341.57 | 343.55 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 61 | 343.55 | 345.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 62 | 345.54 | 347.54 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 63 | 347.54 | 349.55 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 64 | 349.55 | 351.57 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 65 | 351.57 | 350.08 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 66 | 350.08 | 348.06 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 67 | 348.06 | 346.06 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 68 | 346.06 | 344.07 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 69 | 344.07 | 342.09 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 70 | 342.09 | 340.12 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| * cable 146 unidades 2 | | | | | | | |
| 71 | 350.18 | 348.64 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 72 | 348.64 | 346.64 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 73 | 346.64 | 344.64 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 74 | 344.64 | 342.66 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 75 | 342.66 | 340.69 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 76 | 340.69 | 338.72 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| * cable 151 unidades 2 | | | | | | | |
| 1 | 351.57 | 350.08 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 2 | 350.08 | 348.06 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 3 | 348.06 | 346.06 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 4 | 346.06 | 344.07 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |
| 5 | 344.07 | 342.09 | 0.000 | 0.000 | -1.5620 | -1.5620 | -1.5620 |

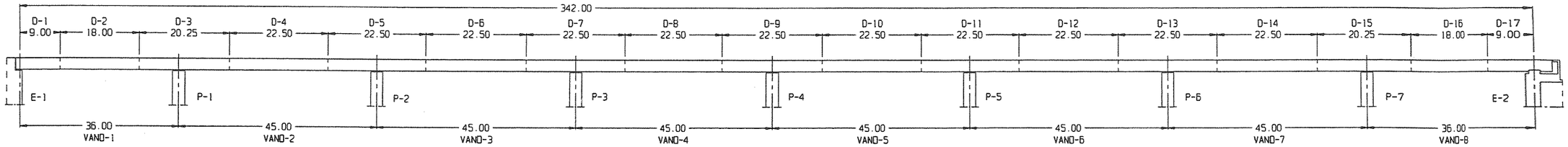
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   6    342.09    340.12     0.000     0.000   -1.5620   -1.5620   -1.5620
* cable 152 unidades  2
   7    334.74    336.68     0.000     0.000   -1.5620   -1.5620   -1.5620
   8    336.68    338.63     0.000     0.000   -1.5620   -1.5620   -1.5620
   9    338.63    340.59     0.000     0.000   -1.5620   -1.5620   -1.5620
  10    340.59    342.56     0.000     0.000   -1.5620   -1.5620   -1.5620
  11    342.56    344.54     0.000     0.000   -1.5620   -1.5620   -1.5620
  12    344.54    346.54     0.000     0.000   -1.5620   -1.5620   -1.5620
  13    346.54    348.54     0.000     0.000   -1.5620   -1.5620   -1.5620
  14    348.54    350.56     0.000     0.000   -1.5620   -1.5620   -1.5620
  15    350.56    351.13     0.000     0.000   -1.5620   -1.5620   -1.5620
  16    351.13    349.11     0.000     0.000   -1.5620   -1.5620   -1.5620
  17    349.11    347.10     0.000     0.000   -1.5620   -1.5620   -1.5620
  18    347.10    345.10     0.000     0.000   -1.5620   -1.5620   -1.5620
  19    345.10    343.12     0.000     0.000   -1.5620   -1.5620   -1.5620
  20    343.12    341.14     0.000     0.000   -1.5620   -1.5620   -1.5620
  21    341.14    340.16     0.000     2.250   -1.5620   -1.5620   -1.5620
* cable 153 unidades  2
  21    333.77    334.74     2.250     0.000   -1.5620   -1.5620   -1.5620
  22    334.74    336.68     0.000     0.000   -1.5620   -1.5620   -1.5620
  23    336.68    338.63     0.000     0.000   -1.5620   -1.5620   -1.5620
  24    338.63    340.59     0.000     0.000   -1.5620   -1.5620   -1.5620
  25    340.59    342.56     0.000     0.000   -1.5620   -1.5620   -1.5620
  26    342.56    344.54     0.000     0.000   -1.5620   -1.5620   -1.5620
  27    344.54    346.54     0.000     0.000   -1.5620   -1.5620   -1.5620
  28    346.54    348.54     0.000     0.000   -1.5620   -1.5620   -1.5620
  29    348.54    350.56     0.000     0.000   -1.5620   -1.5620   -1.5620
  30    350.56    351.13     0.000     0.000   -1.5620   -1.5620   -1.5620
  31    351.13    349.11     0.000     0.000   -1.5620   -1.5620   -1.5620
  32    349.11    347.10     0.000     0.000   -1.5620   -1.5620   -1.5620
  33    347.10    345.10     0.000     0.000   -1.5620   -1.5620   -1.5620
  34    345.10    343.12     0.000     0.000   -1.5620   -1.5620   -1.5620
  35    343.12    341.14     0.000     0.000   -1.5620   -1.5620   -1.5620
  36    341.14    340.16     0.000     2.250   -1.5620   -1.5620   -1.5620
* cable 154 unidades  2
  36    333.77    334.74     2.250     0.000   -1.5620   -1.5620   -1.5620
  37    334.74    336.68     0.000     0.000   -1.5620   -1.5620   -1.5620
  38    336.68    338.63     0.000     0.000   -1.5620   -1.5620   -1.5620
  39    338.63    340.59     0.000     0.000   -1.5620   -1.5620   -1.5620
  40    340.59    342.56     0.000     0.000   -1.5620   -1.5620   -1.5620
  41    342.56    344.54     0.000     0.000   -1.5620   -1.5620   -1.5620
  42    344.54    346.54     0.000     0.000   -1.5620   -1.5620   -1.5620
  43    346.54    348.54     0.000     0.000   -1.5620   -1.5620   -1.5620
  44    348.54    350.56     0.000     0.000   -1.5620   -1.5620   -1.5620
  45    350.56    351.13     0.000     0.000   -1.5620   -1.5620   -1.5620
  46    351.13    349.11     0.000     0.000   -1.5620   -1.5620   -1.5620
  47    349.11    347.10     0.000     0.000   -1.5620   -1.5620   -1.5620
  48    347.10    345.10     0.000     0.000   -1.5620   -1.5620   -1.5620
  49    345.10    343.12     0.000     0.000   -1.5620   -1.5620   -1.5620
  50    343.12    341.14     0.000     0.000   -1.5620   -1.5620   -1.5620
  51    341.14    340.16     0.000     2.250   -1.5620   -1.5620   -1.5620
* cable 155 unidades  2
  51    333.77    334.74     2.250     0.000   -1.5620   -1.5620   -1.5620
  52    334.74    336.68     0.000     0.000   -1.5620   -1.5620   -1.5620
  53    336.68    338.63     0.000     0.000   -1.5620   -1.5620   -1.5620
  54    338.63    340.59     0.000     0.000   -1.5620   -1.5620   -1.5620
  55    340.59    342.56     0.000     0.000   -1.5620   -1.5620   -1.5620
  56    342.56    344.54     0.000     0.000   -1.5620   -1.5620   -1.5620
  57    344.54    346.54     0.000     0.000   -1.5620   -1.5620   -1.5620
  58    346.54    348.54     0.000     0.000   -1.5620   -1.5620   -1.5620
  59    348.54    350.56     0.000     0.000   -1.5620   -1.5620   -1.5620
  60    350.56    351.13     0.000     0.000   -1.5620   -1.5620   -1.5620
  61    351.13    349.11     0.000     0.000   -1.5620   -1.5620   -1.5620
  62    349.11    347.10     0.000     0.000   -1.5620   -1.5620   -1.5620
  63    347.10    345.10     0.000     0.000   -1.5620   -1.5620   -1.5620
  64    345.10    343.12     0.000     0.000   -1.5620   -1.5620   -1.5620
  65    343.12    341.14     0.000     0.000   -1.5620   -1.5620   -1.5620
  66    341.14    340.16     0.000     2.250   -1.5620   -1.5620   -1.5620
* cable 156 unidades  2
  66    341.20    342.18     2.250     0.000   -1.5620   -1.5620   -1.5620
  67    342.18    344.17     0.000     0.000   -1.5620   -1.5620   -1.5620
  68    344.17    346.16     0.000     0.000   -1.5620   -1.5620   -1.5620
  69    346.16    348.16     0.000     0.000   -1.5620   -1.5620   -1.5620
  70    348.16    350.18     0.000     0.000   -1.5620   -1.5620   -1.5620
  71    350.18    348.64     0.000     0.000   -1.5620   -1.5620   -1.5620
  72    348.64    346.63     0.000     0.000   -1.5620   -1.5620   -1.5620
  73    346.63    344.64     0.000     0.000   -1.5620   -1.5620   -1.5620
  74    344.64    342.65     0.000     0.000   -1.5620   -1.5620   -1.5620
  75    342.65    340.68     0.000     0.000   -1.5620   -1.5620   -1.5620
  76    340.68    338.72     0.000     0.000   -1.5620   -1.5620   -1.5620
* cable 161 unidades  2
   1    342.56    344.54     0.000     0.000   -1.5620   -1.5620   -1.5620
   2    344.54    346.54     0.000     0.000   -1.5620   -1.5620   -1.5620
   3    346.54    348.54     0.000     0.000   -1.5620   -1.5620   -1.5620
   4    348.54    350.56     0.000     0.000   -1.5620   -1.5620   -1.5620
   5    350.56    351.13     0.000     0.000   -1.5620   -1.5620   -1.5620
   6    351.13    349.11     0.000     0.000   -1.5620   -1.5620   -1.5620
   7    349.11    347.10     0.000     0.000   -1.5620   -1.5620   -1.5620
   8    347.10    345.10     0.000     0.000   -1.5620   -1.5620   -1.5620
   9    345.10    343.12     0.000     0.000   -1.5620   -1.5620   -1.5620
  10    343.12    341.14     0.000     0.000   -1.5620   -1.5620   -1.5620
  11    341.14    340.16     0.000     2.250   -1.5620   -1.5620   -1.5620
* cable 162 unidades  2
  11    333.77    334.74     2.250     0.000   -1.5620   -1.5620   -1.5620
  12    334.74    336.68     0.000     0.000   -1.5620   -1.5620   -1.5620
  13    336.68    338.63     0.000     0.000   -1.5620   -1.5620   -1.5620
  14    338.63    340.59     0.000     0.000   -1.5620   -1.5620   -1.5620
  15    340.59    342.56     0.000     0.000   -1.5620   -1.5620   -1.5620
  16    342.56    344.54     0.000     0.000   -1.5620   -1.5620   -1.5620
  17    344.54    346.54     0.000     0.000   -1.5620   -1.5620   -1.5620
  18    346.54    348.54     0.000     0.000   -1.5620   -1.5620   -1.5620
  19    348.54    350.56     0.000     0.000   -1.5620   -1.5620   -1.5620
  20    350.56    351.13     0.000     0.000   -1.5620   -1.5620   -1.5620
  21    351.13    349.11     0.000     0.000   -1.5620   -1.5620   -1.5620
  22    349.11    347.10     0.000     0.000   -1.5620   -1.5620   -1.5620
  23    347.10    345.10     0.000     0.000   -1.5620   -1.5620   -1.5620
  24    345.10    343.12     0.000     0.000   -1.5620   -1.5620   -1.5620
  25    343.12    341.14     0.000     0.000   -1.5620   -1.5620   -1.5620
  26    341.14    340.16     0.000     2.250   -1.5620   -1.5620   -1.5620
* cable 171 unidades  2
   1    332.81    334.74     0.000     0.000   -1.5620   -1.5620   -1.5620
   2    334.74    336.68     0.000     0.000   -1.5620   -1.5620   -1.5620
   3    336.68    338.63     0.000     0.000   -1.5620   -1.5620   -1.5620
   4    338.63    340.59     0.000     0.000   -1.5620   -1.5620   -1.5620
   5    340.59    342.56     0.000     0.000   -1.5620   -1.5620   -1.5620
   6    342.56    344.54     0.000     0.000   -1.5620   -1.5620   -1.5620
   7    344.54    346.54     0.000     0.000   -1.5620   -1.5620   -1.5620
   8    346.54    348.54     0.000     0.000   -1.5620   -1.5620   -1.5620
   9    348.54    350.56     0.000     0.000   -1.5620   -1.5620   -1.5620
  10    350.56    351.13     0.000     0.000   -1.5620   -1.5620   -1.5620
  11    351.13    349.11     0.000     0.000   -1.5620   -1.5620   -1.5620
  12    349.11    347.10     0.000     0.000   -1.5620   -1.5620   -1.5620
  13    347.10    345.10     0.000     0.000   -1.5620   -1.5620   -1.5620
  14    345.10    343.12     0.000     0.000   -1.5620   -1.5620   -1.5620
  15    343.12    341.14     0.000     0.000   -1.5620   -1.5620   -1.5620
  16    341.14    340.16     0.000     2.250   -1.5620   -1.5620   -1.5620
```

ESFUERZOS ISOSTATICOS FINALES

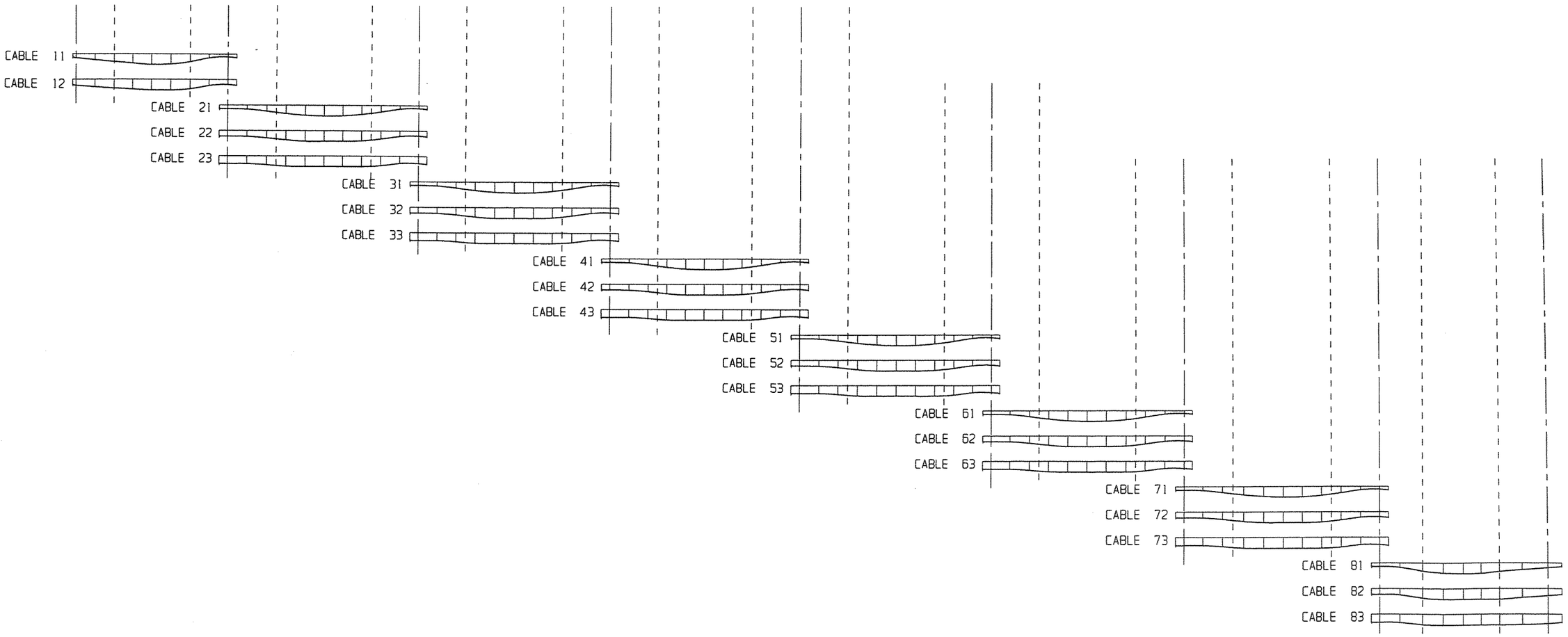
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| NUDO | AXIL | MOMENTO | E=M/N | ANGULO | CORTANTE |
|---|---|---|---|---|---|
| 1 | 6245.12 | -1074.87 | -0.172 | 0.000 | 0.00 |
| 8 | 6250.29 | -1078.01 | -0.172 | 0.000 | 0.00 |
| 9 | 7638.25 | -874.02 | -0.114 | 0.000 | 0.00 |
| 10 | 6642.39 | -840.67 | -0.127 | 0.000 | 0.00 |
| 11 | 6659.07 | -842.57 | -0.127 | 0.000 | 0.00 |
| 12 | 6663.43 | -843.32 | -0.127 | 0.000 | 0.00 |
| 13 | 8469.82 | -1091.05 | -0.129 | 0.000 | 0.00 |
| 14 | 6619.24 | -840.08 | -0.127 | 0.000 | 0.00 |
| 15 | 6622.79 | -841.93 | -0.127 | 0.000 | 0.00 |
| 23 | 6626.56 | -843.80 | -0.127 | 0.000 | 0.00 |
| 24 | 7179.06 | -440.15 | -0.061 | 0.000 | 0.00 |
| 25 | 6567.96 | -839.10 | -0.128 | 0.000 | 0.00 |
| 26 | 6585.37 | -840.14 | -0.128 | 0.000 | 0.00 |
| 27 | 6602.99 | -841.20 | -0.127 | 0.000 | 0.00 |
| 28 | 6620.83 | -842.30 | -0.127 | 0.000 | 0.00 |
| 29 | 6631.03 | -842.29 | -0.127 | 0.000 | 0.00 |
| 30 | 5934.94 | -555.40 | -0.094 | 0.000 | 0.00 |
| 31 | 5947.33 | -555.62 | -0.093 | 0.000 | 0.00 |
| 32 | 5959.91 | -555.86 | -0.093 | 0.000 | 0.00 |
| 40 | 5972.70 | -556.11 | -0.093 | 0.000 | 0.00 |
| 41 | 5973.15 | -555.21 | -0.093 | 0.000 | 0.00 |
| 42 | 5926.82 | -549.20 | -0.093 | 0.000 | 0.00 |
| 43 | 5926.16 | -549.34 | -0.093 | 0.000 | 0.00 |
| 44 | 5925.70 | -549.50 | -0.093 | 0.000 | 0.00 |
| 45 | 5925.44 | -549.68 | -0.093 | 0.000 | 0.00 |
| 46 | 5920.89 | -549.69 | -0.093 | 0.000 | 0.00 |
| 47 | 4528.94 | -765.91 | -0.169 | 0.000 | 0.00 |
| 48 | 4542.61 | -769.90 | -0.169 | 0.000 | 0.00 |
| 49 | 4556.42 | -773.93 | -0.170 | 0.000 | 0.00 |
| 59 | 4570.38 | -777.97 | -0.170 | 0.000 | 0.00 |
| 60 | 4576.63 | -780.91 | -0.171 | 0.000 | 0.00 |
| 61 | 4554.88 | -781.54 | -0.172 | 0.000 | 0.00 |
| 62 | 4559.28 | -783.07 | -0.172 | 0.000 | 0.00 |
| 63 | 4563.83 | -784.63 | -0.172 | 0.000 | 0.00 |
| 64 | 4568.53 | -786.21 | -0.172 | 0.000 | 0.00 |
| 65 | 4566.63 | -785.74 | -0.172 | 0.000 | 0.00 |
| 66 | 4528.39 | -778.39 | -0.172 | 0.000 | 0.00 |
| 67 | 4535.79 | -777.22 | -0.171 | 0.000 | 0.00 |
| 68 | 4543.33 | -776.07 | -0.171 | 0.000 | 0.00 |
| 78 | 4551.02 | -774.94 | -0.170 | 0.000 | 0.00 |
| 79 | 4554.38 | -773.65 | -0.170 | 0.000 | 0.00 |
| 80 | 4528.94 | -765.91 | -0.169 | 0.000 | 0.00 |
| 81 | 4542.61 | -769.90 | -0.169 | 0.000 | 0.00 |
| 82 | 4556.42 | -773.93 | -0.170 | 0.000 | 0.00 |
| 83 | 4570.38 | -777.97 | -0.170 | 0.000 | 0.00 |
| 84 | 4576.63 | -780.91 | -0.171 | 0.000 | 0.00 |
| 85 | 4554.88 | -781.54 | -0.172 | 0.000 | 0.00 |
| 86 | 4559.28 | -783.07 | -0.172 | 0.000 | 0.00 |
| 87 | 4563.83 | -784.63 | -0.172 | 0.000 | 0.00 |
| 97 | 4568.53 | -786.21 | -0.172 | 0.000 | 0.00 |
| 98 | 4566.63 | -785.74 | -0.172 | 0.000 | 0.00 |
| 99 | 4528.39 | -778.39 | -0.172 | 0.000 | 0.00 |
| 100 | 4535.79 | -777.22 | -0.171 | 0.000 | 0.00 |
| 101 | 4543.33 | -776.07 | -0.171 | 0.000 | 0.00 |
| 102 | 4551.02 | -774.94 | -0.170 | 0.000 | 0.00 |
| 103 | 4554.38 | -773.65 | -0.170 | 0.000 | 0.00 |
| 104 | 4533.46 | -767.27 | -0.169 | 0.000 | 0.00 |
| 105 | 4547.15 | -771.28 | -0.170 | 0.000 | 0.00 |
| 106 | 4560.99 | -775.31 | -0.170 | 0.000 | 0.00 |
| 115 | 4574.98 | -779.36 | -0.170 | 0.000 | 0.00 |
| 116 | 4581.26 | -782.31 | -0.171 | 0.000 | 0.00 |
| 117 | 4568.60 | -783.27 | -0.171 | 0.000 | 0.00 |
| 118 | 4573.08 | -784.80 | -0.172 | 0.000 | 0.00 |
| 119 | 4577.71 | -786.37 | -0.172 | 0.000 | 0.00 |
| 120 | 4582.49 | -787.96 | -0.172 | 0.000 | 0.00 |
| 121 | 4571.00 | -784.57 | -0.172 | 0.000 | 0.00 |
| 122 | 4573.43 | -782.77 | -0.171 | 0.000 | 0.00 |
| 123 | 4581.14 | -781.64 | -0.171 | 0.000 | 0.00 |
| 124 | 4589.00 | -780.53 | -0.170 | 0.000 | 0.00 |
| 133 | 4586.08 | -779.03 | -0.170 | 0.000 | 0.00 |
| 134 | 6217.03 | -1271.16 | -0.204 | 0.000 | 0.00 |
| 135 | 4606.85 | -788.14 | -0.171 | 0.000 | 0.00 |
| 136 | 4580.33 | -783.60 | -0.171 | 0.000 | 0.00 |
| 137 | 4553.97 | -779.09 | -0.171 | 0.000 | 0.00 |
| 138 | 4527.75 | -774.60 | -0.171 | 0.000 | 0.00 |
| 139 | 3448.13 | -733.41 | -0.213 | 0.000 | 0.00 |
| 140 | 3428.29 | -729.19 | -0.213 | 0.000 | 0.00 |

# CABLES DE PRETENSADO DE SERVICIO




ALZADO ESQUEMATICO



| CABLE | LONGITUD (M.) | ALARGAMIENTO (M.) | TESADO (T.) | ANCLADO (T.) | AREA (M2) |
|---|---|---|---|---|---|
| 11 | 39.219 | 0.279 (0.259 + 0.020) | 800.00 | 750.00 | 0.005550 |
| 12 | 39.131 | 0.280 (0.262 + 0.018) | 800.00 | 750.00 | 0.005550 |
| 21 | 49.197 | 0.345 (0.324 + 0.021) | 800.00 | 750.00 | 0.005550 |
| 22 | 49.125 | 0.346 (0.326 + 0.020) | 800.00 | 750.00 | 0.005550 |
| 23 | 49.068 | 0.347 (0.330 + 0.017) | 800.00 | 750.00 | 0.005550 |
| 31 | 49.197 | 0.345 (0.324 + 0.021) | 800.00 | 750.00 | 0.005550 |
| 32 | 49.125 | 0.346 (0.326 + 0.020) | 800.00 | 750.00 | 0.005550 |
| 33 | 49.068 | 0.347 (0.330 + 0.017) | 800.00 | 750.00 | 0.005550 |
| 41 | 49.197 | 0.345 (0.324 + 0.021) | 800.00 | 750.00 | 0.005550 |
| 42 | 49.125 | 0.346 (0.326 + 0.020) | 800.00 | 750.00 | 0.005550 |
| 43 | 49.068 | 0.347 (0.330 + 0.017) | 800.00 | 750.00 | 0.005550 |
| 51 | 49.197 | 0.345 (0.324 + 0.021) | 800.00 | 750.00 | 0.005550 |
| 52 | 49.125 | 0.346 (0.326 + 0.020) | 800.00 | 750.00 | 0.005550 |
| 53 | 49.068 | 0.347 (0.330 + 0.017) | 800.00 | 750.00 | 0.005550 |
| 61 | 49.197 | 0.345 (0.324 + 0.021) | 800.00 | 750.00 | 0.005550 |
| 62 | 49.125 | 0.346 (0.326 + 0.020) | 800.00 | 750.00 | 0.005550 |
| 63 | 49.068 | 0.347 (0.330 + 0.017) | 800.00 | 750.00 | 0.005550 |
| 71 | 49.197 | 0.345 (0.324 + 0.021) | 800.00 | 750.00 | 0.005550 |
| 72 | 49.125 | 0.346 (0.326 + 0.020) | 800.00 | 750.00 | 0.005550 |
| 73 | 49.068 | 0.347 (0.330 + 0.017) | 800.00 | 750.00 | 0.005550 |
| 81 | 41.287 | 0.276 (0.265 + 0.011) | 800.00 | 750.00 | 0.005550 |
| 82 | 41.227 | 0.272 (0.263 + 0.008) | 800.00 | 750.00 | 0.005550 |
| 83 | 41.150 | 0.276 (0.266 + 0.010) | 800.00 | 750.00 | 0.005550 |



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CABLE 11 BARRAS 1 A 9 TESADO I.D. AREA 0.005550

FUERZA DE TESADO 800.00
FUERZA DE ANCLAJE 750.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 1.0000
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 39.222 ALARGAMIENTO = 0.2793
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

TIRANDO PRIMERO A LA IZQ. ALARG. IZQ.= 0.2720 ALARG. DCHA.= 0.0073
TIRANDO PRIMERO DE LA DCHA. ALARG. DCHA.= 0.2586 ALARG. IZQ.= 0.0207
ESTOS ALARGAMIENTOS ESTAN CALCULADOS ANTES DE ANCLAR

LA PENETRACION AL ANCLAR (IZDA.) ES = 0.0094
LA PENETRACION AL ANCLAR (DCHA.) ES = 0.0027
INCLUYENDO UNA PENETRACION DE CUNAS DE 0.0060

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 0.000 | 0.910 | 717.730 | 4.0490 |
| 2 | 4.500 | 1.320 | 726.342 | 5.6798 |
| 3 | 9.000 | 1.750 | 731.795 | 5.2213 |
| 4 | 13.500 | 2.160 | 736.606 | 5.4275 |
| 5 | 18.000 | 2.514 | 749.780 | 2.1706 |
| 6 | 22.500 | 2.420 | 741.776 | -4.1915 |
| 7 | 27.000 | 1.840 | 741.145 | -10.9841 |
| 8 | 31.500 | 0.904 | 750.566 * | -9.1466 |
| 9 | 36.000 | 0.667 | 724.885 | 3.2126 |
| 10 | 38.000 | 0.844 | 715.733 | 5.9763 |

CABLE 12 BARRAS 1 A 9 TESADO I.D. AREA 0.005550

FUERZA DE TESADO 800.00
FUERZA DE ANCLAJE 750.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 1.0000
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS ESFUERZOS DE PRETENSADO)

LONGITUD = 39.131 ALARGAMIENTO = 0.2800
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

TIRANDO PRIMERO A LA IZQ. ALARG. IZQ.= 0.2745 ALARG. DCHA.= 0.0054
TIRANDO PRIMERO DE LA DCHA. ALARG. DCHA.= 0.2614 ALARG. IZQ.= 0.0186
ESTOS ALARGAMIENTOS ESTAN CALCULADOS ANTES DE ANCLAR

LA PENETRACION AL ANCLAR (IZDA.) ES = 0.0101
LA PENETRACION AL ANCLAR (DCHA.) ES = 0.0026
INCLUYENDO UNA PENETRACION DE CUNAS DE 0.0060

| X | Y | FUERZA | ANGULO |
|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| 1 | 0.000 | 1.410 | 718.430 | 3.1892 |
| 2 | 4.500 | 1.700 | 724.802 | 4.0205 |
| 3 | 9.000 | 2.030 | 729.952 | 4.3730 |
| 4 | 13.500 | 2.350 | 737.159 | 3.2716 |
| 5 | 18.000 | 2.514 | 747.614 | 1.0051 |
| 6 | 22.500 | 2.514 | 757.278 * | -1.0317 |
| 7 | 27.000 | 2.224 | 745.247 | -7.9048 |
| 8 | 31.500 | 1.425 | 751.753 * | -8.6766 |
| 9 | 36.000 | 1.180 | 726.829 | 3.0487 |
| 10 | 38.000 | 1.356 | 717.120 | 6.0151 |

CABLE 21 BARRAS 8 A 19 TESADO I.D. AREA 0.005550

FUERZA DE TESADO 800.00
FUERZA DE ANCLAJE 750.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 1.0000
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 49.197 ALARGAMIENTO = 0.3450
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

TIRANDO PRIMERO A LA IZQ. ALARG. IZQ.= 0.3336 ALARG. DCHA.= 0.0113
TIRANDO PRIMERO DE LA DCHA. ALARG. DCHA.= 0.3239 ALARG. IZQ.= 0.0211
ESTOS ALARGAMIENTOS ESTAN CALCULADOS ANTES DE ANCLAR

LA PENETRACION AL ANCLAR (IZDA.) ES = 0.0086
LA PENETRACION AL ANCLAR (DCHA.) ES = 0.0038
INCLUYENDO UNA PENETRACION DE CUNAS DE 0.0060

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 34.000 | 0.844 | 704.539 | 0.0153 |
| 2 | 36.000 | 0.844 | 706.468 | -0.0305 |
| 3 | 40.500 | 0.926 | 719.266 | 3.2925 |
| 4 | 45.000 | 1.380 | 734.102 | 7.2801 |
| 5 | 49.500 | 1.950 | 740.469 | 6.5115 |
| 6 | 54.000 | 2.350 | 748.663 | 3.5683 |
| 7 | 58.500 | 2.514 | 736.599 | 0.7117 |
| 8 | 63.000 | 2.450 | 723.527 | -2.5985 |
| 9 | 67.500 | 2.100 | 734.063 | -6.1013 |
| 10 | 72.000 | 1.500 | 746.542 | -9.1117 |
| 11 | 76.500 | 0.807 | 743.385 | -6.4794 |
| 12 | 81.000 | 0.667 | 712.832 | 3.3957 |
| 13 | 83.000 | 0.844 | 704.539 | 5.8854 |

CABLE 22 BARRAS 8 A 19 TESADO I.D. AREA 0.005550

FUERZA DE TESADO 800.00
FUERZA DE ANCLAJE 750.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 1.0000
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 49.125 ALARGAMIENTO = 0.3462
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

TIRANDO PRIMERO A LA IZQ. ALARG. IZQ.= 0.3366 ALARG. DCHA.= 0.0096
TIRANDO PRIMERO DE LA DCHA. ALARG. DCHA.= 0.3262 ALARG. IZQ.= 0.0200
ESTOS ALARGAMIENTOS ESTAN CALCULADOS ANTES DE ANCLAR

LA PENETRACION AL ANCLAR (IZDA.) ES = 0.0088
LA PENETRACION AL ANCLAR (DCHA.) ES = 0.0036
INCLUYENDO UNA PENETRACION DE CUNAS DE 0.0060

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 34.000 | 1.356 | 709.541 | 0.0365 |
| 2 | 36.000 | 1.356 | 711.649 | -0.0730 |
| 3 | 40.500 | 1.400 | 721.420 | 2.0723 |
| 4 | 45.000 | 1.720 | 735.226 | 5.6654 |
| 5 | 49.500 | 2.200 | 739.681 | 5.7296 |
| 6 | 54.000 | 2.514 | 751.649 * | 1.6492 |
| 7 | 58.500 | 2.514 | 741.857 | -0.3536 |
| 8 | 63.000 | 2.514 | 737.266 | -0.2352 |
| 9 | 67.500 | 2.380 | 734.706 | -3.8182 |
| 10 | 72.000 | 1.900 | 750.047 * | -7.8723 |
| 11 | 76.500 | 1.300 | 746.493 | -5.7211 |
| 12 | 81.000 | 1.180 | 717.853 | 3.3772 |
| 13 | 83.000 | 1.356 | 709.541 | 5.8521 |

CABLE 23 BARRAS 8 A 19 TESADO I.D. AREA 0.005550

FUERZA DE TESADO 800.00
FUERZA DE ANCLAJE 750.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 1.0000
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 49.068 ALARGAMIENTO = 0.3470
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

TIRANDO PRIMERO A LA IZQ. ALARG. IZQ.= 0.3386 ALARG. DCHA.= 0.0083
TIRANDO PRIMERO DE LA DCHA. ALARG. DCHA.= 0.3300 ALARG. IZQ.= 0.0170
ESTOS ALARGAMIENTOS ESTAN CALCULADOS ANTES DE ANCLAR

LA PENETRACION AL ANCLAR (IZDA.) ES = 0.0089
LA PENETRACION AL ANCLAR (DCHA.) ES = 0.0043
INCLUYENDO UNA PENETRACION DE CUNAS DE 0.0060

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 34.000 | 1.869 | 709.367 | 0.1040 |
| 2 | 36.000 | 1.869 | 712.003 | -0.2080 |
| 3 | 40.500 | 1.869 | 719.614 | 1.1180 |
| 4 | 45.000 | 2.100 | 732.946 | 4.5496 |
| 5 | 49.500 | 2.450 | 741.848 | 2.8356 |
| 6 | 54.000 | 2.514 | 752.438 * | -0.0970 |
| 7 | 58.500 | 2.514 | 747.854 | -0.0051 |
| 8 | 63.000 | 2.514 | 743.216 | 0.1174 |
| 9 | 67.500 | 2.500 | 737.284 | -0.9993 |
| 10 | 72.000 | 2.250 | 750.877 * | -6.1797 |
| 11 | 76.500 | 1.700 | 742.573 | -4.7323 |
| 12 | 81.000 | 1.695 | 715.120 | 3.9705 |
| 13 | 83.000 | 1.869 | 709.367 | 5.4720 |

CABLE 31 BARRAS 18 A 29 TESADO I.D. AREA 0.005550

FUERZA DE TESADO 800.00
FUERZA DE ANCLAJE 750.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 1.0000
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 49.197 ALARGAMIENTO = 0.3450
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

TIRANDO PRIMERO A LA IZQ. ALARG. IZQ.= 0.3336 ALARG. DCHA.= 0.0113
TIRANDO PRIMERO DE LA DCHA. ALARG. DCHA.= 0.3239 ALARG. IZQ.= 0.0211
ESTOS ALARGAMIENTOS ESTAN CALCULADOS ANTES DE ANCLAR

LA PENETRACION AL ANCLAR (IZDA.) ES = 0.0086
LA PENETRACION AL ANCLAR (DCHA.) ES = 0.0038
INCLUYENDO UNA PENETRACION DE CUNAS DE 0.0060

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 79.000 | 0.844 | 704.539 | 0.0153 |
| 2 | 81.000 | 0.844 | 706.468 | -0.0305 |
| 3 | 85.500 | 0.926 | 719.266 | 3.2925 |
| 4 | 90.000 | 1.380 | 734.102 | 7.2801 |
| 5 | 94.500 | 1.950 | 740.469 | 6.5115 |
| 6 | 99.000 | 2.350 | 748.663 | 3.5683 |
| 7 | 103.500 | 2.514 | 736.599 | 0.7117 |
| 8 | 108.000 | 2.450 | 723.527 | -2.5985 |
| 9 | 112.500 | 2.100 | 734.063 | -6.1013 |
| 10 | 117.000 | 1.500 | 746.542 | -9.1117 |
| 11 | 121.500 | 0.807 | 743.385 | -6.4794 |
| 12 | 126.000 | 0.667 | 712.832 | 3.3957 |
| 13 | 128.000 | 0.844 | 704.539 | 5.8854 |

CABLE 32 BARRAS 18 A 29 TESADO I.D. AREA 0.005550

FUERZA DE TESADO 800.00
FUERZA DE ANCLAJE 750.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 1.0000
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 49.125 ALARGAMIENTO = 0.3462
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

TIRANDO PRIMERO A LA IZQ. ALARG. IZQ.= 0.3366 ALARG. DCHA.= 0.0096
TIRANDO PRIMERO DE LA DCHA. ALARG. DCHA.= 0.3262 ALARG. IZQ.= 0.0200
ESTOS ALARGAMIENTOS ESTAN CALCULADOS ANTES DE ANCLAR

LA PENETRACION AL ANCLAR (IZDA.) ES = 0.0088
LA PENETRACION AL ANCLAR (DCHA.) ES = 0.0036
INCLUYENDO UNA PENETRACION DE CUNAS DE 0.0060

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 79.000 | 1.356 | 709.541 | 0.0365 |
| 2 | 81.000 | 1.356 | 711.649 | -0.0730 |
| 3 | 85.500 | 1.400 | 721.420 | 2.0723 |
| 4 | 90.000 | 1.720 | 735.226 | 5.6654 |
| 5 | 94.500 | 2.200 | 739.681 | 5.7296 |
| 6 | 99.000 | 2.514 | 751.649 * | 1.6492 |
| 7 | 103.500 | 2.514 | 741.857 | -0.3536 |
| 8 | 108.000 | 2.514 | 737.266 | -0.2352 |
| 9 | 112.500 | 2.380 | 734.706 | -3.8182 |
| 10 | 117.000 | 1.900 | 750.047 * | -7.8723 |
| 11 | 121.500 | 1.300 | 746.493 | -5.7211 |
| 12 | 126.000 | 1.180 | 717.853 | 3.3772 |
| 13 | 128.000 | 1.356 | 709.541 | 5.8521 |

CABLE 33 BARRAS 18 A 29 TESADO I.D. AREA 0.005550

FUERZA DE TESADO 800.00
FUERZA DE ANCLAJE 750.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 1.0000
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 49.068 ALARGAMIENTO = 0.3470
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

TIRANDO PRIMERO A LA IZQ. ALARG. IZQ.= 0.3386 ALARG. DCHA.= 0.0083
TIRANDO PRIMERO DE LA DCHA. ALARG. DCHA.= 0.3300 ALARG. IZQ.= 0.0170
ESTOS ALARGAMIENTOS ESTAN CALCULADOS ANTES DE ANCLAR

LA PENETRACION AL ANCLAR (IZDA.) ES = 0.0089
LA PENETRACION AL ANCLAR (DCHA.) ES = 0.0043
INCLUYENDO UNA PENETRACION DE CUNAS DE 0.0060

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 79.000 | 1.869 | 709.367 | 0.1040 |
| 2 | 81.000 | 1.869 | 712.003 | -0.2080 |
| 3 | 85.500 | 1.869 | 719.614 | 1.1180 |
| 4 | 90.000 | 2.100 | 732.946 | 4.5496 |
| 5 | 94.500 | 2.450 | 741.848 | 2.8356 |
| 6 | 99.000 | 2.514 | 752.438 * | -0.0970 |
| 7 | 103.500 | 2.514 | 747.854 | -0.0051 |
| 8 | 108.000 | 2.514 | 743.216 | 0.1174 |
| 9 | 112.500 | 2.500 | 737.284 | -0.9993 |
| 10 | 117.000 | 2.250 | 750.877 * | -6.1797 |
| 11 | 121.500 | 1.700 | 742.573 | -4.7323 |
| 12 | 126.000 | 1.695 | 715.120 | 3.9705 |
| 13 | 128.000 | 1.869 | 709.367 | 5.4720 |

CABLE 41 BARRAS 28 A 39 TESADO I.D. AREA 0.005550

FUERZA DE TESADO 800.00
FUERZA DE ANCLAJE 750.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 1.0000
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 49.197 ALARGAMIENTO = 0.3450
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

TIRANDO PRIMERO A LA IZQ. ALARG. IZQ.= 0.3336 ALARG. DCHA.= 0.0113
TIRANDO PRIMERO DE LA DCHA. ALARG. DCHA.= 0.3239 ALARG. IZQ.= 0.0211
ESTOS ALARGAMIENTOS ESTAN CALCULADOS ANTES DE ANCLAR

LA PENETRACION AL ANCLAR (IZDA.) ES = 0.0086
LA PENETRACION AL ANCLAR (DCHA.) ES = 0.0038
INCLUYENDO UNA PENETRACION DE CUNAS DE 0.0060

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 124.000 | 0.844 | 704.539 | 0.0153 |
| 2 | 126.000 | 0.844 | 706.468 | -0.0305 |
| 3 | 130.500 | 0.926 | 719.266 | 3.2925 |
| 4 | 135.000 | 1.380 | 734.102 | 7.2801 |
| 5 | 139.500 | 1.950 | 740.469 | 6.5115 |
| 6 | 144.000 | 2.350 | 748.663 | 3.5683 |
| 7 | 148.500 | 2.514 | 736.599 | 0.7117 |
| 8 | 153.000 | 2.450 | 723.527 | -2.5985 |
| 9 | 157.500 | 2.100 | 734.063 | -6.1013 |
| 10 | 162.000 | 1.500 | 746.542 | -9.1117 |
| 11 | 166.500 | 0.807 | 743.385 | -6.4794 |
| 12 | 171.000 | 0.667 | 712.832 | 3.3957 |
| 13 | 173.000 | 0.844 | 704.539 | 5.8854 |

CABLE 42 BARRAS 28 A 39 TESADO I.D. AREA 0.005550

FUERZA DE TESADO 800.00
FUERZA DE ANCLAJE 750.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 1.0000
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 49.125 ALARGAMIENTO = 0.3462
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

TIRANDO PRIMERO A LA IZQ. ALARG. IZQ.= 0.3366 ALARG. DCHA.= 0.0096
TIRANDO PRIMERO DE LA DCHA. ALARG. DCHA.= 0.3262 ALARG. IZQ.= 0.0200
ESTOS ALARGAMIENTOS ESTAN CALCULADOS ANTES DE ANCLAR

LA PENETRACION AL ANCLAR (IZDA.) ES = 0.0088
LA PENETRACION AL ANCLAR (DCHA.) ES = 0.0036
INCLUYENDO UNA PENETRACION DE CUNAS DE 0.0060

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 124.000 | 1.356 | 709.541 | 0.0365 |
| 2 | 126.000 | 1.356 | 711.649 | -0.0730 |
| 3 | 130.500 | 1.400 | 721.420 | 2.0723 |
| 4 | 135.000 | 1.720 | 735.226 | 5.6654 |
| 5 | 139.500 | 2.200 | 739.681 | 5.7296 |
| 6 | 144.000 | 2.514 | 751.649 * | 1.6492 |
| 7 | 148.500 | 2.514 | 741.857 | -0.3536 |
| 8 | 153.000 | 2.514 | 737.266 | -0.2352 |
| 9 | 157.500 | 2.380 | 734.706 | -3.8182 |
| 10 | 162.000 | 1.900 | 750.047 * | -7.8723 |
| 11 | 166.500 | 1.300 | 746.493 | -5.7211 |
| 12 | 171.000 | 1.180 | 717.853 | 3.3772 |
| 13 | 173.000 | 1.356 | 709.541 | 5.8521 |

CABLE 43 BARRAS 28 A 39 TESADO I.D. AREA 0.005550

FUERZA DE TESADO 800.00
FUERZA DE ANCLAJE 750.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 1.0000
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 49.068 ALARGAMIENTO = 0.3470
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

TIRANDO PRIMERO A LA IZQ. ALARG. IZQ.= 0.3386 ALARG. DCHA.= 0.0083
TIRANDO PRIMERO DE LA DCHA. ALARG. DCHA.= 0.3300 ALARG. IZQ.= 0.0170
ESTOS ALARGAMIENTOS ESTAN CALCULADOS ANTES DE ANCLAR

LA PENETRACION AL ANCLAR (IZDA.) ES = 0.0089
LA PENETRACION AL ANCLAR (DCHA.) ES = 0.0043
INCLUYENDO UNA PENETRACION DE CUNAS DE 0.0060

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 124.000 | 1.869 | 709.367 | 0.1040 |
| 2 | 126.000 | 1.869 | 712.003 | -0.2080 |
| 3 | 130.500 | 1.869 | 719.614 | 1.1180 |
| 4 | 135.000 | 2.100 | 732.946 | 4.5496 |
| 5 | 139.500 | 2.450 | 741.848 | 2.8356 |
| 6 | 144.000 | 2.514 | 752.438 * | -0.0970 |
| 7 | 148.500 | 2.514 | 747.854 | -0.0051 |
| 8 | 153.000 | 2.514 | 743.216 | 0.1174 |
| 9 | 157.500 | 2.500 | 737.284 | -0.9993 |
| 10 | 162.000 | 2.250 | 750.877 * | -6.1797 |
| 11 | 166.500 | 1.700 | 742.573 | -4.7323 |
| 12 | 171.000 | 1.695 | 715.120 | 3.9705 |
| 13 | 173.000 | 1.869 | 709.367 | 5.4720 |

CABLE 51 BARRAS 38 A 49 TESADO I.D. AREA 0.005550

FUERZA DE TESADO 800.00
FUERZA DE ANCLAJE 750.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 1.0000
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 49.197 ALARGAMIENTO = 0.3450
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

TIRANDO PRIMERO A LA IZQ. ALARG. IZQ.= 0.3336 ALARG. DCHA.= 0.0113
TIRANDO PRIMERO DE LA DCHA. ALARG. DCHA.= 0.3239 ALARG. IZQ.= 0.0211
ESTOS ALARGAMIENTOS ESTAN CALCULADOS ANTES DE ANCLAR

LA PENETRACION AL ANCLAR (IZDA.) ES = 0.0086
LA PENETRACION AL ANCLAR (DCHA.) ES = 0.0038
INCLUYENDO UNA PENETRACION DE CUNAS DE 0.0060

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 169.000 | 0.844 | 704.539 | 0.0153 |
| 2 | 171.000 | 0.844 | 706.468 | -0.0305 |
| 3 | 175.500 | 0.926 | 719.266 | 3.2925 |
| 4 | 180.000 | 1.380 | 734.102 | 7.2801 |
| 5 | 184.500 | 1.950 | 740.469 | 6.5115 |
| 6 | 189.000 | 2.350 | 748.663 | 3.5683 |
| 7 | 193.500 | 2.514 | 736.599 | 0.7117 |

| | | | | |
|---|---|---|---|---|
| 8 | 198.000 | 2.450 | 723.527 | -2.5985 |
| 9 | 202.500 | 2.100 | 734.063 | -6.1013 |
| 10 | 207.000 | 1.500 | 746.542 | -9.1117 |
| 11 | 211.500 | 0.807 | 743.385 | -6.4794 |
| 12 | 216.000 | 0.667 | 712.832 | 3.3957 |
| 13 | 218.000 | 0.844 | 704.539 | 5.8854 |

CABLE 52 BARRAS 38 A 49 TESADO I.D. AREA 0.005550

FUERZA DE TESADO 800.00
FUERZA DE ANCLAJE 750.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 1.0000
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 49.125 ALARGAMIENTO = 0.3462
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

TIRANDO PRIMERO A LA IZQ. ALARG. IZQ.= 0.3366 ALARG. DCHA.= 0.0096
TIRANDO PRIMERO DE LA DCHA. ALARG. DCHA.= 0.3262 ALARG. IZQ.= 0.0200
ESTOS ALARGAMIENTOS ESTAN CALCULADOS ANTES DE ANCLAR

LA PENETRACION AL ANCLAR (IZDA.) ES = 0.0088
LA PENETRACION AL ANCLAR (DCHA.) ES = 0.0036
INCLUYENDO UNA PENETRACION DE CUNAS DE 0.0060

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 169.000 | 1.356 | 709.541 | 0.0365 |
| 2 | 171.000 | 1.356 | 711.649 | -0.0730 |
| 3 | 175.500 | 1.400 | 721.420 | 2.0723 |
| 4 | 180.000 | 1.720 | 735.226 | 5.6654 |
| 5 | 184.500 | 2.200 | 739.681 | 5.7296 |
| 6 | 189.000 | 2.514 | 751.649 * | 1.6492 |
| 7 | 193.500 | 2.514 | 741.857 | -0.3536 |
| 8 | 198.000 | 2.514 | 737.266 | -0.2352 |
| 9 | 202.500 | 2.380 | 734.706 | -3.8182 |
| 10 | 207.000 | 1.900 | 750.047 * | -7.8723 |
| 11 | 211.500 | 1.300 | 746.493 | -5.7211 |
| 12 | 216.000 | 1.180 | 717.853 | 3.3772 |
| 13 | 218.000 | 1.356 | 709.541 | 5.8521 |

CABLE 53 BARRAS 38 A 49 TESADO I.D. AREA 0.005550

FUERZA DE TESADO 800.00
FUERZA DE ANCLAJE 750.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 1.0000
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 49.068 ALARGAMIENTO = 0.3470
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

TIRANDO PRIMERO A LA IZQ. ALARG. IZQ.= 0.3386 ALARG. DCHA.= 0.0083
TIRANDO PRIMERO DE LA DCHA. ALARG. DCHA.= 0.3300 ALARG. IZQ.= 0.0170
ESTOS ALARGAMIENTOS ESTAN CALCULADOS ANTES DE ANCLAR

LA PENETRACION AL ANCLAR (IZDA.) ES = 0.0089

LA PENETRACION AL ANCLAR (DCHA.) ES = 0.0043
INCLUYENDO UNA PENETRACION DE CUNAS DE 0.0060

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 169.000 | 1.869 | 709.367 | 0.1040 |
| 2 | 171.000 | 1.869 | 712.003 | -0.2080 |
| 3 | 175.500 | 1.869 | 719.614 | 1.1180 |
| 4 | 180.000 | 2.100 | 732.946 | 4.5496 |
| 5 | 184.500 | 2.450 | 741.848 | 2.8356 |
| 6 | 189.000 | 2.514 | 752.438 * | -0.0970 |
| 7 | 193.500 | 2.514 | 747.854 | -0.0051 |
| 8 | 198.000 | 2.514 | 743.216 | 0.1174 |
| 9 | 202.500 | 2.500 | 737.284 | -0.9993 |
| 10 | 207.000 | 2.250 | 750.877 * | -6.1797 |
| 11 | 211.500 | 1.700 | 742.573 | -4.7323 |
| 12 | 216.000 | 1.695 | 715.120 | 3.9705 |
| 13 | 218.000 | 1.869 | 709.367 | 5.4720 |

CABLE 61 BARRAS 48 A 59 TESADO I.D. AREA 0.005550

FUERZA DE TESADO 800.00
FUERZA DE ANCLAJE 750.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 1.0000
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 49.197 ALARGAMIENTO = 0.3450
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

TIRANDO PRIMERO A LA IZQ. ALARG. IZQ.= 0.3336 ALARG. DCHA.= 0.0113
TIRANDO PRIMERO DE LA DCHA. ALARG. DCHA.= 0.3239 ALARG. IZQ.= 0.0211
ESTOS ALARGAMIENTOS ESTAN CALCULADOS ANTES DE ANCLAR

LA PENETRACION AL ANCLAR (IZDA.) ES = 0.0086
LA PENETRACION AL ANCLAR (DCHA.) ES = 0.0038
INCLUYENDO UNA PENETRACION DE CUNAS DE 0.0060

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 214.000 | 0.844 | 704.539 | 0.0153 |
| 2 | 216.000 | 0.844 | 706.468 | -0.0305 |
| 3 | 220.500 | 0.926 | 719.266 | 3.2925 |
| 4 | 225.000 | 1.380 | 734.102 | 7.2801 |
| 5 | 229.500 | 1.950 | 740.469 | 6.5115 |
| 6 | 234.000 | 2.350 | 748.663 | 3.5683 |
| 7 | 238.500 | 2.514 | 736.599 | 0.7117 |
| 8 | 243.000 | 2.450 | 723.527 | -2.5985 |
| 9 | 247.500 | 2.100 | 734.063 | -6.1013 |
| 10 | 252.000 | 1.500 | 746.542 | -9.1117 |
| 11 | 256.500 | 0.807 | 743.385 | -6.4794 |
| 12 | 261.000 | 0.667 | 712.832 | 3.3957 |
| 13 | 263.000 | 0.844 | 704.539 | 5.8854 |

CABLE 62 BARRAS 48 A 59 TESADO I.D. AREA 0.005550

FUERZA DE TESADO 800.00
FUERZA DE ANCLAJE 750.00

COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 1.0000
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 49.125 ALARGAMIENTO = 0.3462
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

TIRANDO PRIMERO A LA IZQ. ALARG. IZQ.= 0.3366 ALARG. DCHA.= 0.0096
TIRANDO PRIMERO DE LA DCHA. ALARG. DCHA.= 0.3262 ALARG. IZQ.= 0.0200
ESTOS ALARGAMIENTOS ESTAN CALCULADOS ANTES DE ANCLAR

LA PENETRACION AL ANCLAR (IZDA.) ES = 0.0088
LA PENETRACION AL ANCLAR (DCHA.) ES = 0.0036
INCLUYENDO UNA PENETRACION DE CUNAS DE 0.0060

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 214.000 | 1.356 | 709.541 | 0.0365 |
| 2 | 216.000 | 1.356 | 711.649 | -0.0730 |
| 3 | 220.500 | 1.400 | 721.420 | 2.0723 |
| 4 | 225.000 | 1.720 | 735.226 | 5.6654 |
| 5 | 229.500 | 2.200 | 739.681 | 5.7296 |
| 6 | 234.000 | 2.514 | 751.649 * | 1.6492 |
| 7 | 238.500 | 2.514 | 741.857 | -0.3536 |
| 8 | 243.000 | 2.514 | 737.266 | -0.2352 |
| 9 | 247.500 | 2.380 | 734.706 | -3.8182 |
| 10 | 252.000 | 1.900 | 750.047 * | -7.8723 |
| 11 | 256.500 | 1.300 | 746.493 | -5.7211 |
| 12 | 261.000 | 1.180 | 717.853 | 3.3772 |
| 13 | 263.000 | 1.356 | 709.541 | 5.8521 |

CABLE 63 BARRAS 48 A 59 TESADO I.D. AREA 0.005550

FUERZA DE TESADO 800.00
FUERZA DE ANCLAJE 750.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 1.0000
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 49.068 ALARGAMIENTO = 0.3470
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

TIRANDO PRIMERO A LA IZQ. ALARG. IZQ.= 0.3386 ALARG. DCHA.= 0.0083
TIRANDO PRIMERO DE LA DCHA. ALARG. DCHA.= 0.3300 ALARG. IZQ.= 0.0170
ESTOS ALARGAMIENTOS ESTAN CALCULADOS ANTES DE ANCLAR

LA PENETRACION AL ANCLAR (IZDA.) ES = 0.0089
LA PENETRACION AL ANCLAR (DCHA.) ES = 0.0043
INCLUYENDO UNA PENETRACION DE CUNAS DE 0.0060

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 214.000 | 1.869 | 709.367 | 0.1040 |
| 2 | 216.000 | 1.869 | 712.003 | -0.2080 |
| 3 | 220.500 | 1.869 | 719.614 | 1.1180 |
| 4 | 225.000 | 2.100 | 732.946 | 4.5496 |
| 5 | 229.500 | 2.450 | 741.848 | 2.8356 |
| 6 | 234.000 | 2.514 | 752.438 * | -0.0970 |
| 7 | 238.500 | 2.514 | 747.854 | -0.0051 |
| 8 | 243.000 | 2.514 | 743.216 | 0.1174 |
| 9 | 247.500 | 2.500 | 737.284 | -0.9993 |
| 10 | 252.000 | 2.250 | 750.877 * | -6.1797 |
| 11 | 256.500 | 1.700 | 742.573 | -4.7323 |
| 12 | 261.000 | 1.695 | 715.120 | 3.9705 |
| 13 | 263.000 | 1.869 | 709.367 | 5.4720 |

CABLE 71 BARRAS 58 A 69 TESADO I.D. AREA 0.005550

FUERZA DE TESADO 800.00
FUERZA DE ANCLAJE 750.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 1.0000
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 49.197 ALARGAMIENTO = 0.3450
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

TIRANDO PRIMERO A LA IZQ. ALARG. IZQ.= 0.3336 ALARG. DCHA.= 0.0113
TIRANDO PRIMERO DE LA DCHA. ALARG. DCHA.= 0.3239 ALARG. IZQ.= 0.0211
ESTOS ALARGAMIENTOS ESTAN CALCULADOS ANTES DE ANCLAR

LA PENETRACION AL ANCLAR (IZDA.) ES = 0.0086
LA PENETRACION AL ANCLAR (DCHA.) ES = 0.0038
INCLUYENDO UNA PENETRACION DE CUNAS DE 0.0060

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 259.000 | 0.844 | 704.539 | 0.0153 |
| 2 | 261.000 | 0.844 | 706.468 | -0.0305 |
| 3 | 265.500 | 0.926 | 719.266 | 3.2925 |
| 4 | 270.000 | 1.380 | 734.102 | 7.2801 |
| 5 | 274.500 | 1.950 | 740.469 | 6.5115 |
| 6 | 279.000 | 2.350 | 748.663 | 3.5683 |
| 7 | 283.500 | 2.514 | 736.599 | 0.7117 |
| 8 | 288.000 | 2.450 | 723.527 | -2.5985 |
| 9 | 292.500 | 2.100 | 734.063 | -6.1013 |
| 10 | 297.000 | 1.500 | 746.542 | -9.1117 |
| 11 | 301.500 | 0.807 | 743.385 | -6.4794 |
| 12 | 306.000 | 0.667 | 712.832 | 3.3957 |
| 13 | 308.000 | 0.844 | 704.539 | 5.8854 |

CABLE 72 BARRAS 58 A 69 TESADO I.D. AREA 0.005550

FUERZA DE TESADO 800.00
FUERZA DE ANCLAJE 750.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 1.0000
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 49.125 ALARGAMIENTO = 0.3462
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

TIRANDO PRIMERO A LA IZQ. ALARG. IZQ.= 0.3366 ALARG. DCHA.= 0.0096
TIRANDO PRIMERO DE LA DCHA. ALARG. DCHA.= 0.3262 ALARG. IZQ.= 0.0200
ESTOS ALARGAMIENTOS ESTAN CALCULADOS ANTES DE ANCLAR

LA PENETRACION AL ANCLAR (IZDA.) ES = 0.0088
LA PENETRACION AL ANCLAR (DCHA.) ES = 0.0036
INCLUYENDO UNA PENETRACION DE CUNAS DE 0.0060

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 259.000 | 1.356 | 709.541 | 0.0365 |
| 2 | 261.000 | 1.356 | 711.649 | -0.0730 |
| 3 | 265.500 | 1.400 | 721.420 | 2.0723 |
| 4 | 270.000 | 1.720 | 735.226 | 5.6654 |
| 5 | 274.500 | 2.200 | 739.681 | 5.7296 |
| 6 | 279.000 | 2.514 | 751.649 * | 1.6492 |
| 7 | 283.500 | 2.514 | 741.857 | -0.3536 |
| 8 | 288.000 | 2.514 | 737.266 | -0.2352 |
| 9 | 292.500 | 2.380 | 734.706 | -3.8182 |
| 10 | 297.000 | 1.900 | 750.047 * | -7.8723 |
| 11 | 301.500 | 1.300 | 746.493 | -5.7211 |
| 12 | 306.000 | 1.180 | 717.853 | 3.3772 |
| 13 | 308.000 | 1.356 | 709.541 | 5.8521 |

CABLE 73 BARRAS 58 A 69 TESADO I.D. AREA 0.005550

FUERZA DE TESADO 800.00
FUERZA DE ANCLAJE 750.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 1.0000
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 49.068 ALARGAMIENTO = 0.3470
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

TIRANDO PRIMERO A LA IZQ. ALARG. IZQ.= 0.3386 ALARG. DCHA.= 0.0083
TIRANDO PRIMERO DE LA DCHA. ALARG. DCHA.= 0.3300 ALARG. IZQ.= 0.0170
ESTOS ALARGAMIENTOS ESTAN CALCULADOS ANTES DE ANCLAR

LA PENETRACION AL ANCLAR (IZDA.) ES = 0.0089
LA PENETRACION AL ANCLAR (DCHA.) ES = 0.0043
INCLUYENDO UNA PENETRACION DE CUNAS DE 0.0060

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 259.000 | 1.869 | 709.367 | 0.1040 |
| 2 | 261.000 | 1.869 | 712.003 | -0.2080 |
| 3 | 265.500 | 1.869 | 719.614 | 1.1180 |
| 4 | 270.000 | 2.100 | 732.946 | 4.5496 |
| 5 | 274.500 | 2.450 | 741.848 | 2.8356 |
| 6 | 279.000 | 2.514 | 752.438 * | -0.0970 |
| 7 | 283.500 | 2.514 | 747.854 | -0.0051 |
| 8 | 288.000 | 2.514 | 743.216 | 0.1174 |
| 9 | 292.500 | 2.500 | 737.284 | -0.9993 |
| 10 | 297.000 | 2.250 | 750.877 * | -6.1797 |
| 11 | 301.500 | 1.700 | 742.573 | -4.7323 |
| 12 | 306.000 | 1.695 | 715.120 | 3.9705 |
| 13 | 308.000 | 1.869 | 709.367 | 5.4720 |

CABLE 81 BARRAS 68 A 76 TESADO I.D. AREA 0.005550

FUERZA DE TESADO 800.00
FUERZA DE ANCLAJE 750.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 1.0000
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS

ESFUERZOS DE PRETENSADO)

LONGITUD = 41.287 ALARGAMIENTO = 0.2762
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

TIRANDO PRIMERO A LA IZQ. ALARG. IZQ.= 0.2596 ALARG. DCHA.= 0.0166
TIRANDO PRIMERO DE LA DCHA. ALARG. DCHA.= 0.2651 ALARG. IZQ.= 0.0111
ESTOS ALARGAMIENTOS ESTAN CALCULADOS ANTES DE ANCLAR

LA PENETRACION AL ANCLAR (IZDA.) ES = 0.0093
LA PENETRACION AL ANCLAR (DCHA.) ES = 0.0155
INCLUYENDO UNA PENETRACION DE CUNAS DE 0.0060

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 304.000 | 0.844 | 689.868 | 0.0093 |
| 2 | 306.000 | 0.844 | 691.711 | -0.0187 |
| 3 | 310.500 | 1.037 | 714.976 | 7.4305 |
| 4 | 315.000 | 1.881 | 725.055 | 9.6473 |
| 5 | 319.500 | 2.340 | 737.372 | 3.3368 |
| 6 | 324.000 | 2.514 | 729.145 | 1.0768 |
| 7 | 328.500 | 2.452 | 713.237 | -3.3664 |
| 8 | 333.000 | 2.032 | 702.341 | -5.9850 |
| 9 | 337.500 | 1.590 | 697.067 | -5.5111 |
| 10 | 342.000 | 1.148 | 692.737 | -5.6287 |

CABLE 82 BARRAS 68 A 76 TESADO I.D. AREA 0.005550

FUERZA DE TESADO 800.00
FUERZA DE ANCLAJE 750.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 1.0000
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 41.227 ALARGAMIENTO = 0.2716
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

TIRANDO PRIMERO A LA IZQ. ALARG. IZQ.= 0.2601 ALARG. DCHA.= 0.0115
TIRANDO PRIMERO DE LA DCHA. ALARG. DCHA.= 0.2632 ALARG. IZQ.= 0.0084
ESTOS ALARGAMIENTOS ESTAN CALCULADOS ANTES DE ANCLAR

LA PENETRACION AL ANCLAR (IZDA.) ES = 0.0082
LA PENETRACION AL ANCLAR (DCHA.) ES = 0.0111
INCLUYENDO UNA PENETRACION DE CUNAS DE 0.0060

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 304.000 | 1.356 | 690.400 | 0.1752 |
| 2 | 306.000 | 1.356 | 693.508 | -0.3504 |
| 3 | 310.500 | 1.467 | 714.213 | 6.1002 |
| 4 | 315.000 | 2.203 | 723.832 | 8.1545 |
| 5 | 319.500 | 2.514 | 740.998 | 1.0289 |
| 6 | 324.000 | 2.514 | 732.759 | -0.4467 |
| 7 | 328.500 | 2.514 | 725.333 | 0.7576 |
| 8 | 333.000 | 2.514 | 712.384 | -2.5822 |
| 9 | 337.500 | 2.103 | 699.199 | -6.0978 |
| 10 | 342.000 | 1.661 | 693.627 | -5.4976 |

CABLE 83 BARRAS 68 A 76 TESADO I.D. AREA 0.005550

FUERZA DE TESADO 800.00
FUERZA DE ANCLAJE 750.00
COEFICIENTE DE REDUCCION DE TENSION POR PERDIDAS ELASTICAS 1.0000
(NO ESTA APLICADO EN ESTE LISTADO PERO SI QUE LO ESTA EN LOS
ESFUERZOS DE PRETENSADO)

LONGITUD = 41.150 ALARGAMIENTO = 0.2756
(ESTE ALARGAMIENTO ES EL RESULTANTE ANTES DE ANCLAR EL CABLE)

TIRANDO PRIMERO A LA IZQ. ALARG. IZQ.= 0.2659 ALARG. DCHA.= 0.0096
TIRANDO PRIMERO DE LA DCHA. ALARG. DCHA.= 0.2655 ALARG. IZQ.= 0.0101
ESTOS ALARGAMIENTOS ESTAN CALCULADOS ANTES DE ANCLAR

LA PENETRACION AL ANCLAR (IZDA.) ES = 0.0081
LA PENETRACION AL ANCLAR (DCHA.) ES = 0.0084
INCLUYENDO UNA PENETRACION DE CUNAS DE 0.0060

| | X | Y | FUERZA | ANGULO |
|---|---|---|---|---|
| 1 | 304.000 | 1.869 | 714.049 | 0.1762 |
| 2 | 306.000 | 1.869 | 717.272 | -0.3525 |
| 3 | 310.500 | 1.924 | 732.997 | 3.9890 |
| 4 | 315.000 | 2.400 | 739.034 | 4.6431 |
| 5 | 319.500 | 2.514 | 745.940 | -0.0723 |
| 6 | 324.000 | 2.514 | 750.430 * | -0.0098 |
| 7 | 328.500 | 2.514 | 746.163 | 0.1114 |
| 8 | 333.000 | 2.514 | 740.382 | -0.4360 |
| 9 | 337.500 | 2.420 | 732.026 | -1.9573 |
| 10 | 342.000 | 2.174 | 720.504 | -4.7083 |

DATOS DE PRETENSADO PARA EL PROGRAMA SICAL
==========

hipo 81 Pretensado de servicio (t=0)
pretensado plano x y

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| * cable 11 unidades 2 | | | | | | | |
| 1 | 1435.46 | 1452.68 | 0.000 | 0.000 | 0.0770 | -0.3330 | -0.1119 |
| 2 | 1452.68 | 1463.59 | 0.000 | 0.000 | -0.3330 | -0.7630 | -0.5525 |
| 3 | 1463.59 | 1473.21 | 0.000 | 0.000 | -0.7630 | -1.1730 | -0.9660 |
| 4 | 1473.21 | 1499.56 | 0.000 | 0.000 | -1.1730 | -1.5270 | -1.3821 |
| 5 | 1499.56 | 1483.55 | 0.000 | 0.000 | -1.5270 | -1.4330 | -1.5425 |
| 6 | 1483.55 | 1482.29 | 0.000 | 0.000 | -1.4330 | -0.8530 | -1.2110 |
| 7 | 1482.29 | 1501.13 | 0.000 | 0.000 | -0.8530 | 0.0830 | -0.3664 |
| 8 | 1501.13 | 1449.77 | 0.000 | 0.000 | 0.0830 | 0.3200 | 0.3236 |
| 9 | 1449.77 | 1431.47 | 0.000 | 2.000 | 0.3200 | 0.1430 | 0.2436 |
| * cable 12 unidades 2 | | | | | | | |
| 1 | 1436.86 | 1449.60 | 0.000 | 0.000 | -0.4230 | -0.7130 | -0.5598 |
| 2 | 1449.60 | 1459.90 | 0.000 | 0.000 | -0.7130 | -1.0430 | -0.8745 |
| 3 | 1459.90 | 1474.32 | 0.000 | 0.000 | -1.0430 | -1.3630 | -1.2139 |
| 4 | 1474.32 | 1495.23 | 0.000 | 0.000 | -1.3630 | -1.5270 | -1.4673 |
| 5 | 1495.23 | 1514.56 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5470 |
| 6 | 1514.56 | 1490.49 | 0.000 | 0.000 | -1.5270 | -1.2370 | -1.4500 |
| 7 | 1490.49 | 1503.51 | 0.000 | 0.000 | -1.2370 | -0.4380 | -0.8452 |
| 8 | 1503.51 | 1453.66 | 0.000 | 0.000 | -0.4380 | -0.1930 | -0.1997 |
| 9 | 1453.66 | 1434.24 | 0.000 | 2.000 | -0.1930 | -0.3690 | -0.2680 |
| * cable 21 unidades 2 | | | | | | | |
| 8 | 1409.08 | 1412.94 | 2.500 | 0.000 | 0.1430 | 0.1430 | 0.1428 |
| 9 | 1412.94 | 1438.53 | 0.000 | 0.000 | 0.1430 | 0.0610 | 0.1347 |
| 10 | 1438.53 | 1468.20 | 0.000 | 0.000 | 0.0610 | -0.3930 | -0.1265 |
| 11 | 1468.20 | 1480.94 | 0.000 | 0.000 | -0.3930 | -0.9630 | -0.6857 |
| 12 | 1480.94 | 1497.33 | 0.000 | 0.000 | -0.9630 | -1.3630 | -1.1921 |
| 13 | 1497.33 | 1473.20 | 0.000 | 0.000 | -1.3630 | -1.5270 | -1.4731 |
| 14 | 1473.20 | 1447.05 | 0.000 | 0.000 | -1.5270 | -1.4630 | -1.5275 |
| 15 | 1447.05 | 1468.13 | 0.000 | 0.000 | -1.4630 | -1.1130 | -1.3226 |
| 16 | 1468.13 | 1493.08 | 0.000 | 0.000 | -1.1130 | -0.5130 | -0.8431 |
| 17 | 1493.08 | 1486.77 | 0.000 | 0.000 | -0.5130 | 0.1800 | -0.1402 |
| 18 | 1486.77 | 1425.66 | 0.000 | 0.000 | 0.1800 | 0.3200 | 0.3473 |
| 19 | 1425.66 | 1409.08 | 0.000 | 2.000 | 0.3200 | 0.1430 | 0.2424 |
| * cable 22 unidades 2 | | | | | | | |
| 8 | 1419.08 | 1423.30 | 2.500 | 0.000 | -0.3690 | -0.3690 | -0.3695 |
| 9 | 1423.30 | 1442.84 | 0.000 | 0.000 | -0.3690 | -0.4130 | -0.3699 |
| 10 | 1442.84 | 1470.45 | 0.000 | 0.000 | -0.4130 | -0.7330 | -0.5376 |
| 11 | 1470.45 | 1479.36 | 0.000 | 0.000 | -0.7330 | -1.2130 | -0.9724 |
| 12 | 1479.36 | 1503.30 | 0.000 | 0.000 | -1.2130 | -1.5270 | -1.4102 |
| 13 | 1503.30 | 1483.71 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5467 |
| 14 | 1483.71 | 1474.53 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5258 |
| 15 | 1474.53 | 1469.41 | 0.000 | 0.000 | -1.5270 | -1.3930 | -1.4952 |
| 16 | 1469.41 | 1500.09 | 0.000 | 0.000 | -1.3930 | -0.9130 | -1.1932 |
| 17 | 1500.09 | 1492.99 | 0.000 | 0.000 | -0.9130 | -0.3130 | -0.5916 |
| 18 | 1492.99 | 1435.71 | 0.000 | 0.000 | -0.3130 | -0.1930 | -0.1635 |
| 19 | 1435.71 | 1419.08 | 0.000 | 2.000 | -0.1930 | -0.3690 | -0.2701 |
| * cable 23 unidades 2 | | | | | | | |
| 8 | 1418.73 | 1424.01 | 2.500 | 0.000 | -0.8820 | -0.8820 | -0.8834 |
| 9 | 1424.01 | 1439.23 | 0.000 | 0.000 | -0.8820 | -0.8820 | -0.8690 |
| 10 | 1439.23 | 1465.89 | 0.000 | 0.000 | -0.8820 | -1.1130 | -0.9637 |
| 11 | 1465.89 | 1483.70 | 0.000 | 0.000 | -1.1130 | -1.4630 | -1.3049 |
| 12 | 1483.70 | 1504.88 | 0.000 | 0.000 | -1.4630 | -1.5270 | -1.5238 |
| 13 | 1504.88 | 1495.71 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5261 |
| 14 | 1495.71 | 1486.43 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5258 |
| 15 | 1486.43 | 1474.57 | 0.000 | 0.000 | -1.5270 | -1.5130 | -1.5310 |
| 16 | 1474.57 | 1501.75 | 0.000 | 0.000 | -1.5130 | -1.2630 | -1.4391 |
| 17 | 1501.75 | 1485.15 | 0.000 | 0.000 | -1.2630 | -0.7130 | -0.9737 |
| 18 | 1485.15 | 1430.24 | 0.000 | 0.000 | -0.7130 | -0.7080 | -0.6249 |
| 19 | 1430.24 | 1418.73 | 0.000 | 2.000 | -0.7080 | -0.8820 | -0.7884 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| * cable | 31 unidades | 2 | | | | | |
| 18 | 1409.08 | 1412.94 | 2.500 | 0.000 | 0.1430 | 0.1430 | 0.1428 |
| 19 | 1412.94 | 1438.53 | 0.000 | 0.000 | 0.1430 | 0.0610 | 0.1347 |
| 20 | 1438.53 | 1468.20 | 0.000 | 0.000 | 0.0610 | -0.3930 | -0.1265 |
| 21 | 1468.20 | 1480.94 | 0.000 | 0.000 | -0.3930 | -0.9630 | -0.6857 |
| 22 | 1480.94 | 1497.33 | 0.000 | 0.000 | -0.9630 | -1.3630 | -1.1921 |
| 23 | 1497.33 | 1473.20 | 0.000 | 0.000 | -1.3630 | -1.5270 | -1.4731 |
| 24 | 1473.20 | 1447.05 | 0.000 | 0.000 | -1.5270 | -1.4630 | -1.5275 |
| 25 | 1447.05 | 1468.13 | 0.000 | 0.000 | -1.4630 | -1.1130 | -1.3226 |
| 26 | 1468.13 | 1493.08 | 0.000 | 0.000 | -1.1130 | -0.5130 | -0.8431 |
| 27 | 1493.08 | 1486.77 | 0.000 | 0.000 | -0.5130 | 0.1800 | -0.1402 |
| 28 | 1486.77 | 1425.66 | 0.000 | 0.000 | 0.1800 | 0.3200 | 0.3473 |
| 29 | 1425.66 | 1409.08 | 0.000 | 2.000 | 0.3200 | 0.1430 | 0.2424 |
| * cable | 32 unidades | 2 | | | | | |
| 18 | 1419.08 | 1423.30 | 2.500 | 0.000 | -0.3690 | -0.3690 | -0.3695 |
| 19 | 1423.30 | 1442.84 | 0.000 | 0.000 | -0.3690 | -0.4130 | -0.3699 |
| 20 | 1442.84 | 1470.45 | 0.000 | 0.000 | -0.4130 | -0.7330 | -0.5376 |
| 21 | 1470.45 | 1479.36 | 0.000 | 0.000 | -0.7330 | -1.2130 | -0.9724 |
| 22 | 1479.36 | 1503.30 | 0.000 | 0.000 | -1.2130 | -1.5270 | -1.4102 |
| 23 | 1503.30 | 1483.71 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5467 |
| 24 | 1483.71 | 1474.53 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5258 |
| 25 | 1474.53 | 1469.41 | 0.000 | 0.000 | -1.5270 | -1.3930 | -1.4952 |
| 26 | 1469.41 | 1500.09 | 0.000 | 0.000 | -1.3930 | -0.9130 | -1.1932 |
| 27 | 1500.09 | 1492.99 | 0.000 | 0.000 | -0.9130 | -0.3130 | -0.5916 |
| 28 | 1492.99 | 1435.71 | 0.000 | 0.000 | -0.3130 | -0.1930 | -0.1635 |
| 29 | 1435.71 | 1419.08 | 0.000 | 2.000 | -0.1930 | -0.3690 | -0.2701 |
| * cable | 33 unidades | 2 | | | | | |
| 18 | 1418.73 | 1424.01 | 2.500 | 0.000 | -0.8820 | -0.8820 | -0.8834 |
| 19 | 1424.01 | 1439.23 | 0.000 | 0.000 | -0.8820 | -0.8820 | -0.8690 |
| 20 | 1439.23 | 1465.89 | 0.000 | 0.000 | -0.8820 | -1.1130 | -0.9637 |
| 21 | 1465.89 | 1483.70 | 0.000 | 0.000 | -1.1130 | -1.4630 | -1.3049 |
| 22 | 1483.70 | 1504.88 | 0.000 | 0.000 | -1.4630 | -1.5270 | -1.5238 |
| 23 | 1504.88 | 1495.71 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5261 |
| 24 | 1495.71 | 1486.43 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5258 |
| 25 | 1486.43 | 1474.57 | 0.000 | 0.000 | -1.5270 | -1.5130 | -1.5310 |
| 26 | 1474.57 | 1501.75 | 0.000 | 0.000 | -1.5130 | -1.2630 | -1.4391 |
| 27 | 1501.75 | 1485.15 | 0.000 | 0.000 | -1.2630 | -0.7130 | -0.9737 |
| 28 | 1485.15 | 1430.24 | 0.000 | 0.000 | -0.7130 | -0.7080 | -0.6249 |
| 29 | 1430.24 | 1418.73 | 0.000 | 2.000 | -0.7080 | -0.8820 | -0.7884 |
| * cable | 41 unidades | 2 | | | | | |
| 28 | 1409.08 | 1412.94 | 2.500 | 0.000 | 0.1430 | 0.1430 | 0.1428 |
| 29 | 1412.94 | 1438.53 | 0.000 | 0.000 | 0.1430 | 0.0610 | 0.1347 |
| 30 | 1438.53 | 1468.20 | 0.000 | 0.000 | 0.0610 | -0.3930 | -0.1265 |
| 31 | 1468.20 | 1480.94 | 0.000 | 0.000 | -0.3930 | -0.9630 | -0.6857 |
| 32 | 1480.94 | 1497.33 | 0.000 | 0.000 | -0.9630 | -1.3630 | -1.1921 |
| 33 | 1497.33 | 1473.20 | 0.000 | 0.000 | -1.3630 | -1.5270 | -1.4731 |
| 34 | 1473.20 | 1447.05 | 0.000 | 0.000 | -1.5270 | -1.4630 | -1.5275 |
| 35 | 1447.05 | 1468.13 | 0.000 | 0.000 | -1.4630 | -1.1130 | -1.3226 |
| 36 | 1468.13 | 1493.08 | 0.000 | 0.000 | -1.1130 | -0.5130 | -0.8431 |
| 37 | 1493.08 | 1486.77 | 0.000 | 0.000 | -0.5130 | 0.1800 | -0.1402 |
| 38 | 1486.77 | 1425.66 | 0.000 | 0.000 | 0.1800 | 0.3200 | 0.3473 |
| 39 | 1425.66 | 1409.08 | 0.000 | 2.000 | 0.3200 | 0.1430 | 0.2424 |
| * cable | 42 unidades | 2 | | | | | |
| 28 | 1419.08 | 1423.30 | 2.500 | 0.000 | -0.3690 | -0.3690 | -0.3695 |
| 29 | 1423.30 | 1442.84 | 0.000 | 0.000 | -0.3690 | -0.4130 | -0.3699 |
| 30 | 1442.84 | 1470.45 | 0.000 | 0.000 | -0.4130 | -0.7330 | -0.5376 |
| 31 | 1470.45 | 1479.36 | 0.000 | 0.000 | -0.7330 | -1.2130 | -0.9724 |
| 32 | 1479.36 | 1503.30 | 0.000 | 0.000 | -1.2130 | -1.5270 | -1.4102 |
| 33 | 1503.30 | 1483.71 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5467 |
| 34 | 1483.71 | 1474.53 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5258 |
| 35 | 1474.53 | 1469.41 | 0.000 | 0.000 | -1.5270 | -1.3930 | -1.4952 |
| 36 | 1469.41 | 1500.09 | 0.000 | 0.000 | -1.3930 | -0.9130 | -1.1932 |
| 37 | 1500.09 | 1492.99 | 0.000 | 0.000 | -0.9130 | -0.3130 | -0.5916 |
| 38 | 1492.99 | 1435.71 | 0.000 | 0.000 | -0.3130 | -0.1930 | -0.1635 |
| 39 | 1435.71 | 1419.08 | 0.000 | 2.000 | -0.1930 | -0.3690 | -0.2701 |
| * cable | 43 unidades | 2 | | | | | |
| 28 | 1418.73 | 1424.01 | 2.500 | 0.000 | -0.8820 | -0.8820 | -0.8834 |
| 29 | 1424.01 | 1439.23 | 0.000 | 0.000 | -0.8820 | -0.8820 | -0.8690 |
| 30 | 1439.23 | 1465.89 | 0.000 | 0.000 | -0.8820 | -1.1130 | -0.9637 |
| 31 | 1465.89 | 1483.70 | 0.000 | 0.000 | -1.1130 | -1.4630 | -1.3049 |
| 32 | 1483.70 | 1504.88 | 0.000 | 0.000 | -1.4630 | -1.5270 | -1.5238 |
| 33 | 1504.88 | 1495.71 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5261 |
| 34 | 1495.71 | 1486.43 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5258 |
| 35 | 1486.43 | 1474.57 | 0.000 | 0.000 | -1.5270 | -1.5130 | -1.5310 |
| 36 | 1474.57 | 1501.75 | 0.000 | 0.000 | -1.5130 | -1.2630 | -1.4391 |
| 37 | 1501.75 | 1485.15 | 0.000 | 0.000 | -1.2630 | -0.7130 | -0.9737 |
| 38 | 1485.15 | 1430.24 | 0.000 | 0.000 | -0.7130 | -0.7080 | -0.6249 |
| 39 | 1430.24 | 1418.73 | 0.000 | 2.000 | -0.7080 | -0.8820 | -0.7884 |
| * cable | 51 unidades | 2 | | | | | |
| 38 | 1409.08 | 1412.94 | 2.500 | 0.000 | 0.1430 | 0.1430 | 0.1428 |
| 39 | 1412.94 | 1438.53 | 0.000 | 0.000 | 0.1430 | 0.0610 | 0.1347 |
| 40 | 1438.53 | 1468.20 | 0.000 | 0.000 | 0.0610 | -0.3930 | -0.1265 |
| 41 | 1468.20 | 1480.94 | 0.000 | 0.000 | -0.3930 | -0.9630 | -0.6857 |
| 42 | 1480.94 | 1497.33 | 0.000 | 0.000 | -0.9630 | -1.3630 | -1.1921 |
| 43 | 1497.33 | 1473.20 | 0.000 | 0.000 | -1.3630 | -1.5270 | -1.4731 |
| 44 | 1473.20 | 1447.05 | 0.000 | 0.000 | -1.5270 | -1.4630 | -1.5275 |
| 45 | 1447.05 | 1468.13 | 0.000 | 0.000 | -1.4630 | -1.1130 | -1.3226 |
| 46 | 1468.13 | 1493.08 | 0.000 | 0.000 | -1.1130 | -0.5130 | -0.8431 |
| 47 | 1493.08 | 1486.77 | 0.000 | 0.000 | -0.5130 | 0.1800 | -0.1402 |
| 48 | 1486.77 | 1425.66 | 0.000 | 0.000 | 0.1800 | 0.3200 | 0.3473 |
| 49 | 1425.66 | 1409.08 | 0.000 | 2.000 | 0.3200 | 0.1430 | 0.2424 |
| * cable | 52 unidades | 2 | | | | | |
| 38 | 1419.08 | 1423.30 | 2.500 | 0.000 | -0.3690 | -0.3690 | -0.3695 |
| 39 | 1423.30 | 1442.84 | 0.000 | 0.000 | -0.3690 | -0.4130 | -0.3699 |
| 40 | 1442.84 | 1470.45 | 0.000 | 0.000 | -0.4130 | -0.7330 | -0.5376 |
| 41 | 1470.45 | 1479.36 | 0.000 | 0.000 | -0.7330 | -1.2130 | -0.9724 |
| 42 | 1479.36 | 1503.30 | 0.000 | 0.000 | -1.2130 | -1.5270 | -1.4102 |
| 43 | 1503.30 | 1483.71 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5467 |
| 44 | 1483.71 | 1474.53 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5258 |
| 45 | 1474.53 | 1469.41 | 0.000 | 0.000 | -1.5270 | -1.3930 | -1.4952 |
| 46 | 1469.41 | 1500.09 | 0.000 | 0.000 | -1.3930 | -0.9130 | -1.1932 |
| 47 | 1500.09 | 1492.99 | 0.000 | 0.000 | -0.9130 | -0.3130 | -0.5916 |
| 48 | 1492.99 | 1435.71 | 0.000 | 0.000 | -0.3130 | -0.1930 | -0.1635 |
| 49 | 1435.71 | 1419.08 | 0.000 | 2.000 | -0.1930 | -0.3690 | -0.2701 |
| * cable | 53 unidades | 2 | | | | | |
| 38 | 1418.73 | 1424.01 | 2.500 | 0.000 | -0.8820 | -0.8820 | -0.8834 |
| 39 | 1424.01 | 1439.23 | 0.000 | 0.000 | -0.8820 | -0.8820 | -0.8690 |
| 40 | 1439.23 | 1465.89 | 0.000 | 0.000 | -0.8820 | -1.1130 | -0.9637 |
| 41 | 1465.89 | 1483.70 | 0.000 | 0.000 | -1.1130 | -1.4630 | -1.3049 |
| 42 | 1483.70 | 1504.88 | 0.000 | 0.000 | -1.4630 | -1.5270 | -1.5238 |
| 43 | 1504.88 | 1495.71 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5261 |
| 44 | 1495.71 | 1486.43 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5258 |
| 45 | 1486.43 | 1474.57 | 0.000 | 0.000 | -1.5270 | -1.5130 | -1.5310 |
| 46 | 1474.57 | 1501.75 | 0.000 | 0.000 | -1.5130 | -1.2630 | -1.4391 |
| 47 | 1501.75 | 1485.15 | 0.000 | 0.000 | -1.2630 | -0.7130 | -0.9737 |
| 48 | 1485.15 | 1430.24 | 0.000 | 0.000 | -0.7130 | -0.7080 | -0.6249 |
| 49 | 1430.24 | 1418.73 | 0.000 | 2.000 | -0.7080 | -0.8820 | -0.7884 |
| * cable | 61 unidades | 2 | | | | | |
| 48 | 1409.08 | 1412.94 | 2.500 | 0.000 | 0.1430 | 0.1430 | 0.1428 |
| 49 | 1412.94 | 1438.53 | 0.000 | 0.000 | 0.1430 | 0.0610 | 0.1347 |
| 50 | 1438.53 | 1468.20 | 0.000 | 0.000 | 0.0610 | -0.3930 | -0.1265 |
| 51 | 1468.20 | 1480.94 | 0.000 | 0.000 | -0.3930 | -0.9630 | -0.6857 |
| 52 | 1480.94 | 1497.33 | 0.000 | 0.000 | -0.9630 | -1.3630 | -1.1921 |
| 53 | 1497.33 | 1473.20 | 0.000 | 0.000 | -1.3630 | -1.5270 | -1.4731 |
| 54 | 1473.20 | 1447.05 | 0.000 | 0.000 | -1.5270 | -1.4630 | -1.5275 |
| 55 | 1447.05 | 1468.13 | 0.000 | 0.000 | -1.4630 | -1.1130 | -1.3226 |
| 56 | 1468.13 | 1493.08 | 0.000 | 0.000 | -1.1130 | -0.5130 | -0.8431 |
| 57 | 1493.08 | 1486.77 | 0.000 | 0.000 | -0.5130 | 0.1800 | -0.1402 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 58 | 1486.77 | 1425.66 | 0.000 | 0.000 | 0.1800 | 0.3200 | 0.3473 |
| 59 | 1425.66 | 1409.08 | 0.000 | 2.000 | 0.3200 | 0.1430 | 0.2424 |
| * cable 62 unidades 2 | | | | | | | |
| 48 | 1419.08 | 1423.30 | 2.500 | 0.000 | -0.3690 | -0.3690 | -0.3695 |
| 49 | 1423.30 | 1442.84 | 0.000 | 0.000 | -0.3690 | -0.4130 | -0.3699 |
| 50 | 1442.84 | 1470.45 | 0.000 | 0.000 | -0.4130 | -0.7330 | -0.5376 |
| 51 | 1470.45 | 1479.36 | 0.000 | 0.000 | -0.7330 | -1.2130 | -0.9724 |
| 52 | 1479.36 | 1503.30 | 0.000 | 0.000 | -1.2130 | -1.5270 | -1.4102 |
| 53 | 1503.30 | 1483.71 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5467 |
| 54 | 1483.71 | 1474.53 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5258 |
| 55 | 1474.53 | 1469.41 | 0.000 | 0.000 | -1.5270 | -1.3930 | -1.4952 |
| 56 | 1469.41 | 1500.09 | 0.000 | 0.000 | -1.3930 | -0.9130 | -1.1932 |
| 57 | 1500.09 | 1492.99 | 0.000 | 0.000 | -0.9130 | -0.3130 | -0.5916 |
| 58 | 1492.99 | 1435.71 | 0.000 | 0.000 | -0.3130 | -0.1930 | -0.1635 |
| 59 | 1435.71 | 1419.08 | 0.000 | 2.000 | -0.1930 | -0.3690 | -0.2701 |
| * cable 63 unidades 2 | | | | | | | |
| 48 | 1418.73 | 1424.01 | 2.500 | 0.000 | -0.8820 | -0.8820 | -0.8834 |
| 49 | 1424.01 | 1439.23 | 0.000 | 0.000 | -0.8820 | -0.8820 | -0.8690 |
| 50 | 1439.23 | 1465.89 | 0.000 | 0.000 | -0.8820 | -1.1130 | -0.9637 |
| 51 | 1465.89 | 1483.70 | 0.000 | 0.000 | -1.1130 | -1.4630 | -1.3049 |
| 52 | 1483.70 | 1504.88 | 0.000 | 0.000 | -1.4630 | -1.5270 | -1.5238 |
| 53 | 1504.88 | 1495.71 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5261 |
| 54 | 1495.71 | 1486.43 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5258 |
| 55 | 1486.43 | 1474.57 | 0.000 | 0.000 | -1.5270 | -1.5130 | -1.5310 |
| 56 | 1474.57 | 1501.75 | 0.000 | 0.000 | -1.5130 | -1.2630 | -1.4391 |
| 57 | 1501.75 | 1485.15 | 0.000 | 0.000 | -1.2630 | -0.7130 | -0.9737 |
| 58 | 1485.15 | 1430.24 | 0.000 | 0.000 | -0.7130 | -0.7080 | -0.6249 |
| 59 | 1430.24 | 1418.73 | 0.000 | 2.000 | -0.7080 | -0.8820 | -0.7884 |
| * cable 71 unidades 2 | | | | | | | |
| 58 | 1409.08 | 1412.94 | 2.500 | 0.000 | 0.1430 | 0.1430 | 0.1428 |
| 59 | 1412.94 | 1438.53 | 0.000 | 0.000 | 0.1430 | 0.0610 | 0.1347 |
| 60 | 1438.53 | 1468.20 | 0.000 | 0.000 | 0.0610 | -0.3930 | -0.1265 |
| 61 | 1468.20 | 1480.94 | 0.000 | 0.000 | -0.3930 | -0.9630 | -0.6857 |
| 62 | 1480.94 | 1497.33 | 0.000 | 0.000 | -0.9630 | -1.3630 | -1.1921 |
| 63 | 1497.33 | 1473.20 | 0.000 | 0.000 | -1.3630 | -1.5270 | -1.4731 |
| 64 | 1473.20 | 1447.05 | 0.000 | 0.000 | -1.5270 | -1.4630 | -1.5275 |
| 65 | 1447.05 | 1468.13 | 0.000 | 0.000 | -1.4630 | -1.1130 | -1.3226 |
| 66 | 1468.13 | 1493.08 | 0.000 | 0.000 | -1.1130 | -0.5130 | -0.8431 |
| 67 | 1493.08 | 1486.77 | 0.000 | 0.000 | -0.5130 | 0.1800 | -0.1402 |
| 68 | 1486.77 | 1425.66 | 0.000 | 0.000 | 0.1800 | 0.3200 | 0.3473 |
| 69 | 1425.66 | 1409.08 | 0.000 | 2.000 | 0.3200 | 0.1430 | 0.2424 |
| * cable 72 unidades 2 | | | | | | | |
| 58 | 1419.08 | 1423.30 | 2.500 | 0.000 | -0.3690 | -0.3690 | -0.3695 |
| 59 | 1423.30 | 1442.84 | 0.000 | 0.000 | -0.3690 | -0.4130 | -0.3699 |
| 60 | 1442.84 | 1470.45 | 0.000 | 0.000 | -0.4130 | -0.7330 | -0.5376 |
| 61 | 1470.45 | 1479.36 | 0.000 | 0.000 | -0.7330 | -1.2130 | -0.9724 |
| 62 | 1479.36 | 1503.30 | 0.000 | 0.000 | -1.2130 | -1.5270 | -1.4102 |
| 63 | 1503.30 | 1483.71 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5467 |
| 64 | 1483.71 | 1474.53 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5258 |
| 65 | 1474.53 | 1469.41 | 0.000 | 0.000 | -1.5270 | -1.3930 | -1.4952 |
| 66 | 1469.41 | 1500.09 | 0.000 | 0.000 | -1.3930 | -0.9130 | -1.1932 |
| 67 | 1500.09 | 1492.99 | 0.000 | 0.000 | -0.9130 | -0.3130 | -0.5916 |
| 68 | 1492.99 | 1435.71 | 0.000 | 0.000 | -0.3130 | -0.1930 | -0.1635 |
| 69 | 1435.71 | 1419.08 | 0.000 | 2.000 | -0.1930 | -0.3690 | -0.2701 |
| * cable 73 unidades 2 | | | | | | | |
| 58 | 1418.73 | 1424.01 | 2.500 | 0.000 | -0.8820 | -0.8820 | -0.8834 |
| 59 | 1424.01 | 1439.23 | 0.000 | 0.000 | -0.8820 | -0.8820 | -0.8690 |
| 60 | 1439.23 | 1465.89 | 0.000 | 0.000 | -0.8820 | -1.1130 | -0.9637 |
| 61 | 1465.89 | 1483.70 | 0.000 | 0.000 | -1.1130 | -1.4630 | -1.3049 |
| 62 | 1483.70 | 1504.88 | 0.000 | 0.000 | -1.4630 | -1.5270 | -1.5238 |
| 63 | 1504.88 | 1495.71 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5261 |
| 64 | 1495.71 | 1486.43 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5258 |
| 65 | 1486.43 | 1474.57 | 0.000 | 0.000 | -1.5270 | -1.5130 | -1.5310 |
| 66 | 1474.57 | 1501.75 | 0.000 | 0.000 | -1.5130 | -1.2630 | -1.4391 |
| 67 | 1501.75 | 1485.15 | 0.000 | 0.000 | -1.2630 | -0.7130 | -0.9737 |
| 68 | 1485.15 | 1430.24 | 0.000 | 0.000 | -0.7130 | -0.7080 | -0.6249 |
| 69 | 1430.24 | 1418.73 | 0.000 | 2.000 | -0.7080 | -0.8820 | -0.7884 |
| * cable 81 unidades 2 | | | | | | | |
| 68 | 1379.74 | 1383.42 | 2.500 | 0.000 | 0.1430 | 0.1430 | 0.1429 |
| 69 | 1383.42 | 1429.95 | 0.000 | 0.000 | 0.1430 | -0.0500 | 0.1200 |
| 70 | 1429.95 | 1450.11 | 0.000 | 0.000 | -0.0500 | -0.8940 | -0.4497 |
| 71 | 1450.11 | 1474.74 | 0.000 | 0.000 | -0.8940 | -1.3530 | -1.1863 |
| 72 | 1474.74 | 1458.29 | 0.000 | 0.000 | -1.3530 | -1.5270 | -1.4622 |
| 73 | 1458.29 | 1426.47 | 0.000 | 0.000 | -1.5270 | -1.4650 | -1.5397 |
| 74 | 1426.47 | 1404.68 | 0.000 | 0.000 | -1.4650 | -1.0450 | -1.2809 |
| 75 | 1404.68 | 1394.13 | 0.000 | 0.000 | -1.0450 | -0.6030 | -0.8193 |
| 76 | 1394.13 | 1385.47 | 0.000 | 0.000 | -0.6030 | -0.1610 | -0.3832 |
| * cable 82 unidades 2 | | | | | | | |
| 68 | 1380.80 | 1387.02 | 2.500 | 0.000 | -0.3690 | -0.3690 | -0.3713 |
| 69 | 1387.02 | 1428.43 | 0.000 | 0.000 | -0.3690 | -0.4800 | -0.3609 |
| 70 | 1428.43 | 1447.66 | 0.000 | 0.000 | -0.4800 | -1.2160 | -0.8275 |
| 71 | 1447.66 | 1482.00 | 0.000 | 0.000 | -1.2160 | -1.5270 | -1.4420 |
| 72 | 1482.00 | 1465.52 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5415 |
| 73 | 1465.52 | 1450.67 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5152 |
| 74 | 1450.67 | 1424.77 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5598 |
| 75 | 1424.77 | 1398.40 | 0.000 | 0.000 | -1.5270 | -1.1160 | -1.3562 |
| 76 | 1398.40 | 1387.25 | 0.000 | 0.000 | -1.1160 | -0.6740 | -0.8890 |
| * cable 83 unidades 2 | | | | | | | |
| 68 | 1428.10 | 1434.54 | 2.500 | 0.000 | -0.8820 | -0.8820 | -0.8843 |
| 69 | 1434.54 | 1465.99 | 0.000 | 0.000 | -0.8820 | -0.9370 | -0.8668 |
| 70 | 1465.99 | 1478.07 | 0.000 | 0.000 | -0.9370 | -1.4130 | -1.1685 |
| 71 | 1478.07 | 1491.88 | 0.000 | 0.000 | -1.4130 | -1.5270 | -1.5164 |
| 72 | 1491.88 | 1500.86 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5264 |
| 73 | 1500.86 | 1492.33 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5258 |
| 74 | 1492.33 | 1480.76 | 0.000 | 0.000 | -1.5270 | -1.5270 | -1.5324 |
| 75 | 1480.76 | 1464.05 | 0.000 | 0.000 | -1.5270 | -1.4330 | -1.4949 |
| 76 | 1464.05 | 1441.01 | 0.000 | 0.000 | -1.4330 | -1.1870 | -1.3371 |

ESFUERZOS ISOSTATICOS FINALES

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| NUDO | AXIL | MOMENTO | E=M/N | ANGULO | CORTANTE |
|---|---|---|---|---|---|
| 1 | 2872.32 | -497.26 | -0.173 | 3.619 | -181.29 |
| 8 | 2902.29 | -1517.31 | -0.523 | 4.851 | -245.41 |
| 9 | 2923.49 | -2639.40 | -0.903 | 4.798 | -244.51 |
| 10 | 2947.53 | -3737.57 | -1.268 | 4.349 | -223.48 |
| 11 | 2994.79 | -4573.04 | -1.527 | 1.589 | -83.02 |
| 12 | 2998.11 | -4438.66 | -1.480 | -2.595 | 135.70 |
| 13 | 2972.78 | -3108.13 | -1.046 | -9.440 | 487.42 |
| 14 | 3004.64 | -533.94 | -0.178 | -8.911 | 465.44 |
| 15 | 7163.67 | -1395.75 | -0.195 | 1.207 | -150.82 |
| 23 | 4320.60 | -1777.54 | -0.411 | 2.161 | -162.88 |
| 24 | 4404.55 | -3286.38 | -0.746 | 5.832 | -447.49 |
| 25 | 4444.00 | -5391.26 | -1.213 | 5.024 | -389.03 |
| 26 | 4505.50 | -6634.34 | -1.472 | 1.704 | -133.91 |
| 27 | 4452.62 | -6799.15 | -1.527 | 0.116 | -9.01 |
| 28 | 4408.02 | -6638.43 | -1.506 | -0.892 | 68.61 |
| 29 | 4412.11 | -5911.94 | -1.340 | -3.636 | 279.61 |
| 30 | 4494.93 | -4032.25 | -0.897 | -7.719 | 603.57 |
| 31 | 4464.90 | -1258.59 | -0.282 | -5.645 | 439.13 |
| 32 | 8551.85 | -2412.61 | -0.282 | 1.745 | -260.32 |
| 40 | 4320.60 | -1777.54 | -0.411 | 2.161 | -162.88 |
| 41 | 4404.55 | -3286.38 | -0.746 | 5.832 | -447.49 |
| 42 | 4444.00 | -5391.26 | -1.213 | 5.024 | -389.03 |
| 43 | 4505.50 | -6634.34 | -1.472 | 1.704 | -133.91 |
| 44 | 4452.62 | -6799.15 | -1.527 | 0.116 | -9.01 |
| 45 | 4408.02 | -6638.43 | -1.506 | -0.892 | 68.61 |
| 46 | 4412.11 | -5911.94 | -1.340 | -3.636 | 279.61 |
| 47 | 4494.93 | -4032.25 | -0.897 | -7.719 | 603.57 |
| 48 | 4464.90 | -1258.59 | -0.282 | -5.645 | 439.13 |
| 49 | 8551.85 | -2412.61 | -0.282 | 1.745 | -260.32 |
| 59 | 4320.60 | -1777.54 | -0.411 | 2.161 | -162.88 |
| 60 | 4404.55 | -3286.38 | -0.746 | 5.832 | -447.49 |
| 61 | 4444.00 | -5391.26 | -1.213 | 5.024 | -389.03 |
| 62 | 4505.50 | -6634.34 | -1.472 | 1.704 | -133.91 |
| 63 | 4452.62 | -6799.15 | -1.527 | 0.116 | -9.01 |
| 64 | 4408.02 | -6638.43 | -1.506 | -0.892 | 68.61 |
| 65 | 4412.11 | -5911.94 | -1.340 | -3.636 | 279.61 |
| 66 | 4494.93 | -4032.25 | -0.897 | -7.719 | 603.57 |
| 67 | 4464.90 | -1258.59 | -0.282 | -5.645 | 439.13 |
| 68 | 8551.85 | -2412.61 | -0.282 | 1.745 | -260.32 |
| 78 | 4320.60 | -1777.54 | -0.411 | 2.161 | -162.88 |
| 79 | 4404.55 | -3286.38 | -0.746 | 5.832 | -447.49 |
| 80 | 4444.00 | -5391.26 | -1.213 | 5.024 | -389.03 |
| 81 | 4505.50 | -6634.34 | -1.472 | 1.704 | -133.91 |
| 82 | 4452.62 | -6799.15 | -1.527 | 0.116 | -9.01 |
| 83 | 4408.02 | -6638.43 | -1.506 | -0.892 | 68.61 |
| 84 | 4412.11 | -5911.94 | -1.340 | -3.636 | 279.61 |
| 85 | 4494.93 | -4032.25 | -0.897 | -7.719 | 603.57 |
| 86 | 4464.90 | -1258.59 | -0.282 | -5.645 | 439.13 |
| 87 | 8551.85 | -2412.61 | -0.282 | 1.745 | -260.32 |
| 97 | 4320.60 | -1777.54 | -0.411 | 2.161 | -162.88 |
| 98 | 4404.55 | -3286.38 | -0.746 | 5.832 | -447.49 |
| 99 | 4444.00 | -5391.26 | -1.213 | 5.024 | -389.03 |
| 100 | 4505.50 | -6634.34 | -1.472 | 1.704 | -133.91 |
| 101 | 4452.62 | -6799.15 | -1.527 | 0.116 | -9.01 |
| 102 | 4408.02 | -6638.43 | -1.506 | -0.892 | 68.61 |
| 103 | 4412.11 | -5911.94 | -1.340 | -3.636 | 279.61 |
| 104 | 4494.93 | -4032.25 | -0.897 | -7.719 | 603.57 |
| 105 | 4464.90 | -1258.59 | -0.282 | -5.645 | 439.13 |
| 106 | 8551.85 | -2412.61 | -0.282 | 1.745 | -260.32 |
| 115 | 4320.60 | -1777.54 | -0.411 | 2.161 | -162.88 |
| 116 | 4404.55 | -3286.38 | -0.746 | 5.832 | -447.49 |
| 117 | 4444.00 | -5391.26 | -1.213 | 5.024 | -389.03 |
| 118 | 4505.50 | -6634.34 | -1.472 | 1.704 | -133.91 |
| 119 | 4452.62 | -6799.15 | -1.527 | 0.116 | -9.01 |
| 120 | 4408.02 | -6638.43 | -1.506 | -0.892 | 68.61 |
| 121 | 4412.11 | -5911.94 | -1.340 | -3.636 | 279.61 |
| 122 | 4494.93 | -4032.25 | -0.897 | -7.719 | 603.57 |
| 123 | 4464.90 | -1258.59 | -0.282 | -5.645 | 439.13 |
| 124 | 8496.59 | -2412.74 | -0.284 | 1.689 | -250.29 |
| 133 | 4324.37 | -2130.78 | -0.493 | 5.824 | -438.70 |
| 134 | 4375.84 | -5145.27 | -1.176 | 7.463 | -568.00 |
| 135 | 4448.62 | -6536.44 | -1.469 | 1.425 | -110.57 |
| 136 | 4424.67 | -6756.47 | -1.527 | 0.204 | -15.72 |
| 137 | 4369.47 | -6583.73 | -1.507 | -0.809 | 61.68 |
| 138 | 4310.21 | -5904.64 | -1.370 | -2.954 | 221.92 |
| 139 | 4256.58 | -4499.26 | -1.057 | -4.482 | 332.44 |
| 140 | 4213.74 | -2868.55 | -0.681 | -5.271 | 387.08 |

# CÁLCULO DE TENSIONES

NOTA:

Con posterioridad al listado de teorías se modificó

- La altura de la pila 1 y 2 debido a un cambio en la cota de la roca

- Trazado de la capa 11 y 12 del pretensado de servicio para dejar espacio las barras de pretensado de unión muro – tablero

Se han realizado las comprobaciones oportunas, pero no se han listado de nuevo teorías ni anejos ya que la variación era mínima.

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dato 76 2 1.15 1.50 1.00 0 0
 1 a  7 7.920 75.24 7.49 1.0000 1.7000 1.0000 1.7000 7.00 7.00 2.50 2.50
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fin
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proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS  91

pp + pret proc

| | | ESFUERZOS EN BARRAS | | | | | | TENSIONES | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | MOM. Y | MOM. Z | SIGMA 1 | SIGMA2 | SIGMA3 | SIGMA4 |
| 1 | 1 | 6245.114 | 299.315 | -0.197 | 0.372 | 0.000 | 1074.872 | 64.50 | 64.50 | 103.25 | 103.25 |
| 1 | 8 | -6250.290 | -209.315 | 0.197 | -0.372 | 0.888 | 66.414 | 79.80 | 79.81 | 77.41 | 77.41 |
| 2 | 8 | 6250.309 | 209.316 | -0.197 | 0.372 | -0.888 | -66.414 | 79.80 | 79.81 | 77.41 | 77.41 |
| 2 | 9 | -6252.708 | -119.316 | 0.197 | -0.372 | 1.776 | 803.006 | 89.65 | 89.69 | 60.72 | 60.73 |
| 3 | 9 | 6625.944 | 119.315 | -0.197 | 0.372 | -1.776 | -1045.039 | 97.60 | 97.63 | 59.94 | 59.95 |
| 3 | 10 | -6642.400 | -29.315 | 0.197 | -0.372 | 2.665 | 1377.589 | 102.24 | 102.29 | 52.59 | 52.61 |
| 4 | 10 | 6642.376 | 29.315 | -0.197 | 0.372 | -2.665 | -1377.590 | 102.24 | 102.29 | 52.59 | 52.61 |
| 4 | 11 | -6659.053 | 60.685 | 0.197 | -0.372 | 3.553 | 1305.112 | 101.47 | 101.54 | 54.45 | 54.47 |
| 5 | 11 | 6659.064 | -60.684 | -0.197 | 0.372 | -3.553 | -1305.112 | 101.47 | 101.54 | 54.45 | 54.47 |
| 5 | 12 | -6663.430 | 150.684 | 0.197 | -0.372 | 4.441 | 828.778 | 95.16 | 95.24 | 65.31 | 65.34 |
| 6 | 12 | 6663.432 | -150.685 | -0.197 | 0.372 | -4.441 | -828.778 | 95.16 | 95.24 | 65.31 | 65.34 |
| 6 | 13 | -6645.308 | 240.685 | 0.197 | -0.372 | 5.329 | -50.696 | 83.18 | 83.28 | 85.04 | 85.07 |
| 7 | 13 | 6615.900 | -240.685 | -0.197 | 0.372 | -5.329 | 46.749 | 82.86 | 82.96 | 84.58 | 84.61 |
| 7 | 14 | -6619.231 | 330.685 | 0.197 | -0.372 | 6.217 | -1334.148 | 65.71 | 65.82 | 113.84 | 113.88 |
| 8 | 14 | 6619.240 | -330.685 | -0.197 | 0.372 | -6.217 | 1334.148 | 65.71 | 65.82 | 113.84 | 113.88 |
| 8 | 15 | -6622.792 | 420.685 | 0.197 | -0.372 | 7.105 | -3026.574 | 23.14 | 23.26 | 117.87 | 117.91 |
| 9 | 15 | 6622.774 | 433.559 | 0.153 | -0.451 | -7.105 | 3026.574 | 23.14 | 23.26 | 117.87 | 117.91 |
| 9 | 23 | -6626.546 | -343.559 | -0.153 | 0.451 | 6.419 | -1279.932 | 66.52 | 66.64 | 112.70 | 112.74 |
| 10 | 23 | 6626.565 | 343.559 | 0.153 | -0.451 | -6.419 | 1279.932 | 66.52 | 66.64 | 112.70 | 112.74 |
| 10 | 24 | -6623.156 | -253.559 | -0.153 | 0.451 | 5.732 | 63.099 | 84.41 | 84.52 | 82.17 | 82.21 |
| 11 | 24 | 7179.043 | 253.559 | 0.153 | -0.451 | -5.732 | -467.243 | 96.83 | 96.94 | 80.02 | 80.06 |
| 11 | 25 | -6567.947 | -163.559 | -0.153 | 0.451 | 5.046 | 1006.807 | 96.32 | 96.42 | 60.06 | 60.09 |
| 12 | 25 | 6567.946 | 163.559 | 0.153 | -0.451 | -5.046 | -1006.808 | 96.32 | 96.42 | 60.06 | 60.09 |
| 12 | 26 | -6585.352 | -73.559 | -0.153 | 0.451 | 4.359 | 1539.286 | 103.66 | 103.74 | 48.20 | 48.23 |
| 13 | 26 | 6585.359 | 73.559 | 0.153 | -0.451 | -4.359 | -1539.286 | 103.66 | 103.74 | 48.20 | 48.23 |
| 13 | 27 | -6602.984 | 16.441 | -0.153 | 0.451 | 3.673 | 1666.736 | 105.59 | 105.66 | 45.53 | 45.55 |
| 14 | 27 | 6603.007 | -16.441 | 0.153 | -0.451 | -3.673 | -1666.736 | 105.59 | 105.66 | 45.53 | 45.55 |
| 14 | 28 | -6620.852 | 106.441 | -0.153 | 0.451 | 2.986 | 1389.158 | 102.12 | 102.17 | 52.06 | 52.08 |
| 15 | 28 | 6620.828 | -106.441 | 0.153 | -0.451 | -2.986 | -1389.158 | 102.12 | 102.17 | 52.06 | 52.08 |
| 15 | 29 | -6631.023 | 196.441 | -0.153 | 0.451 | 2.300 | 707.685 | 93.15 | 93.19 | 67.66 | 67.67 |
| 16 | 29 | 6631.021 | -196.441 | 0.153 | -0.451 | -2.300 | -707.684 | 93.15 | 93.19 | 67.66 | 67.67 |
| 16 | 30 | -5934.926 | 286.441 | -0.153 | 0.451 | 1.613 | -91.910 | 73.69 | 73.72 | 77.02 | 77.03 |
| 17 | 30 | 5934.934 | -286.441 | 0.153 | -0.451 | -1.613 | 91.910 | 73.69 | 73.72 | 77.02 | 77.03 |
| 17 | 31 | -5947.323 | 376.441 | -0.153 | 0.451 | 0.927 | -1583.615 | 53.94 | 53.96 | 111.03 | 111.04 |
| 18 | 31 | 5947.331 | -376.441 | 0.153 | -0.451 | -0.927 | 1583.614 | 53.94 | 53.96 | 111.03 | 111.04 |
| 18 | 32 | -5959.918 | 466.441 | -0.153 | 0.451 | 0.240 | -3480.337 | 11.23 | 11.24 | 120.12 | 120.12 |
| 19 | 32 | 5959.915 | 457.277 | 0.007 | 0.072 | -0.240 | 3480.337 | 11.23 | 11.24 | 120.12 | 120.12 |
| 19 | 40 | -5972.701 | -367.277 | -0.007 | -0.072 | 0.210 | -1625.347 | 53.71 | 53.71 | 112.30 | 112.30 |
| 20 | 40 | 5972.696 | 367.277 | 0.007 | 0.072 | -0.210 | 1625.347 | 53.71 | 53.71 | 112.30 | 112.30 |
| 20 | 41 | -5973.148 | -277.277 | -0.007 | -0.072 | 0.179 | -174.202 | 73.09 | 73.09 | 79.37 | 79.37 |
| 21 | 41 | 5973.138 | 277.277 | 0.007 | 0.072 | -0.179 | 174.202 | 73.09 | 73.09 | 79.37 | 79.37 |
| 21 | 42 | -5926.808 | -187.277 | -0.007 | -0.072 | 0.148 | 877.062 | 86.54 | 86.54 | 54.93 | 54.93 |
| 22 | 42 | 5926.829 | 187.277 | 0.007 | 0.072 | -0.148 | -877.062 | 86.54 | 86.54 | 54.93 | 54.93 |
| 22 | 43 | -5926.170 | -97.277 | -0.007 | -0.072 | 0.118 | 1517.165 | 95.08 | 95.08 | 40.39 | 40.39 |
| 23 | 43 | 5926.165 | 97.277 | 0.007 | 0.072 | -0.118 | -1517.166 | 95.08 | 95.08 | 40.39 | 40.39 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 23 | 44 | -5925.705 | -7.277 | -0.007 | -0.072 | 0.087 | 1752.248 | 98.21 | 98.21 | 35.05 | 35.05 |
| 24 | 44 | 5925.702 | 7.277 | 0.007 | 0.072 | -0.087 | -1752.248 | 98.21 | 98.21 | 35.05 | 35.05 |
| 24 | 45 | -5925.439 | 82.723 | -0.007 | -0.072 | 0.056 | 1582.314 | 95.94 | 95.94 | 38.90 | 38.90 |
| 25 | 45 | 5925.434 | -82.723 | 0.007 | 0.072 | -0.056 | -1582.314 | 95.94 | 95.94 | 38.90 | 38.90 |
| 25 | 46 | -5920.880 | 172.723 | -0.007 | -0.072 | 0.026 | 1007.553 | 88.21 | 88.21 | 51.89 | 51.89 |
| 26 | 46 | 5920.888 | -172.724 | 0.007 | 0.072 | -0.026 | -1007.553 | 88.21 | 88.21 | 51.89 | 51.89 |
| 26 | 47 | -4528.945 | 262.724 | -0.007 | -0.072 | -0.005 | -188.419 | 54.67 | 54.67 | 61.46 | 61.46 |
| 27 | 47 | 4528.946 | -262.723 | 0.007 | 0.072 | 0.005 | 188.419 | 54.67 | 54.67 | 61.46 | 61.46 |
| 27 | 48 | -4542.608 | 352.723 | -0.007 | -0.072 | -0.036 | -1577.171 | 36.30 | 36.30 | 93.15 | 93.15 |
| 28 | 48 | 4542.603 | -352.723 | 0.007 | 0.072 | 0.036 | 1577.170 | 36.30 | 36.30 | 93.15 | 93.15 |
| 28 | 49 | -4556.416 | 442.723 | -0.007 | -0.072 | -0.067 | -3370.947 | -0.46 | -0.46 | 105.00 | 105.00 |
| 29 | 49 | 4556.415 | 450.130 | 0.001 | 0.008 | 0.067 | 3370.947 | -0.46 | -0.46 | 105.00 | 105.00 |
| 29 | 59 | -4570.379 | -360.130 | -0.001 | -0.008 | -0.072 | -1551.910 | 36.99 | 36.99 | 92.93 | 92.93 |
| 30 | 59 | 4570.392 | 360.130 | 0.001 | 0.008 | 0.072 | 1551.910 | 36.99 | 36.99 | 92.93 | 92.93 |
| 30 | 60 | -4576.640 | -270.130 | -0.001 | -0.008 | -0.077 | -136.766 | 55.96 | 55.96 | 60.89 | 60.89 |
| 31 | 60 | 4576.634 | 270.129 | 0.001 | 0.008 | 0.077 | 136.766 | 55.96 | 55.96 | 60.89 | 60.89 |
| 31 | 61 | -4554.880 | -180.129 | -0.001 | -0.008 | -0.082 | 875.687 | 69.20 | 69.20 | 37.64 | 37.64 |
| 32 | 61 | 4554.886 | 180.130 | 0.001 | 0.008 | 0.082 | -875.687 | 69.20 | 69.20 | 37.64 | 37.64 |
| 32 | 62 | -4559.285 | -90.130 | -0.001 | -0.008 | -0.087 | 1482.242 | 77.36 | 77.36 | 23.92 | 23.92 |
| 33 | 62 | 4559.287 | 90.129 | 0.001 | 0.008 | 0.087 | -1482.244 | 77.36 | 77.36 | 23.92 | 23.92 |
| 33 | 63 | -4563.839 | -0.129 | -0.001 | -0.008 | -0.093 | 1683.771 | 80.11 | 80.10 | 19.41 | 19.41 |
| 34 | 63 | 4563.833 | 0.130 | 0.001 | 0.008 | 0.093 | -1683.770 | 80.11 | 80.10 | 19.41 | 19.41 |
| 34 | 64 | -4568.536 | 89.870 | -0.001 | -0.008 | -0.098 | 1480.274 | 77.45 | 77.45 | 24.09 | 24.09 |
| 35 | 64 | 4568.532 | -89.870 | 0.001 | 0.008 | 0.098 | -1480.274 | 77.45 | 77.45 | 24.09 | 24.09 |
| 35 | 65 | -4566.626 | 179.870 | -0.001 | -0.008 | -0.103 | 873.832 | 69.33 | 69.33 | 37.83 | 37.83 |
| 36 | 65 | 4566.631 | -179.870 | 0.001 | 0.008 | 0.103 | -873.832 | 69.33 | 69.33 | 37.83 | 37.83 |
| 36 | 66 | -4528.396 | 269.870 | -0.001 | -0.008 | -0.108 | -130.740 | 55.43 | 55.43 | 60.14 | 60.14 |
| 37 | 66 | 4528.395 | -269.870 | 0.001 | 0.008 | 0.108 | 130.740 | 55.43 | 55.43 | 60.14 | 60.14 |
| 37 | 67 | -4535.786 | 359.870 | -0.001 | -0.008 | -0.113 | -1546.481 | 36.62 | 36.62 | 92.37 | 92.37 |
| 38 | 67 | 4535.783 | -359.870 | 0.001 | 0.008 | 0.113 | 1546.482 | 36.62 | 36.62 | 92.37 | 92.37 |
| 38 | 68 | -4543.326 | 449.870 | -0.001 | -0.008 | -0.119 | -3367.249 | -0.54 | -0.54 | 104.81 | 104.81 |
| 39 | 68 | 4543.322 | 450.493 | -0.006 | -0.010 | 0.119 | 3367.249 | -0.54 | -0.54 | 104.81 | 104.81 |
| 39 | 78 | -4551.016 | -360.493 | 0.006 | 0.010 | -0.093 | -1541.407 | 36.88 | 36.88 | 92.45 | 92.45 |
| 40 | 78 | 4551.021 | 360.493 | -0.006 | -0.010 | 0.093 | 1541.406 | 36.88 | 36.88 | 92.45 | 92.45 |
| 40 | 79 | -4554.378 | -270.493 | 0.006 | 0.010 | -0.068 | -120.398 | 55.90 | 55.90 | 60.24 | 60.24 |
| 41 | 79 | 4554.377 | 270.493 | -0.006 | -0.010 | 0.068 | 120.397 | 55.90 | 55.90 | 60.24 | 60.24 |
| 41 | 80 | -4528.940 | -180.493 | 0.006 | 0.010 | -0.042 | 902.067 | 69.23 | 69.23 | 36.71 | 36.71 |
| 42 | 80 | 4528.938 | 180.493 | -0.006 | -0.010 | 0.042 | -902.066 | 69.23 | 69.23 | 36.71 | 36.71 |
| 42 | 81 | -4542.600 | -90.493 | 0.006 | 0.010 | -0.017 | 1507.789 | 77.49 | 77.49 | 23.13 | 23.13 |
| 43 | 81 | 4542.610 | 90.493 | -0.006 | -0.010 | 0.017 | -1507.790 | 77.49 | 77.49 | 23.13 | 23.13 |
| 43 | 82 | -4556.423 | -0.493 | 0.006 | 0.010 | 0.009 | 1708.484 | 80.34 | 80.34 | 18.75 | 18.75 |
| 44 | 82 | 4556.421 | 0.493 | -0.006 | -0.010 | -0.009 | -1708.485 | 80.34 | 80.34 | 18.75 | 18.75 |
| 44 | 83 | -4570.386 | 89.507 | 0.006 | 0.010 | 0.034 | 1504.157 | 77.79 | 77.79 | 23.57 | 23.57 |
| 45 | 83 | 4570.383 | -89.507 | -0.006 | -0.010 | -0.034 | -1504.155 | 77.79 | 77.79 | 23.57 | 23.57 |
| 45 | 84 | -4576.631 | 179.507 | 0.006 | 0.010 | 0.060 | 895.933 | 69.75 | 69.75 | 37.45 | 37.45 |
| 46 | 84 | 4576.640 | -179.507 | -0.006 | -0.010 | -0.060 | -895.933 | 69.75 | 69.75 | 37.45 | 37.45 |
| 46 | 85 | -4554.887 | 269.507 | 0.006 | 0.010 | 0.085 | -114.981 | 55.98 | 55.98 | 60.12 | 60.12 |
| 47 | 85 | 4554.876 | -269.507 | -0.006 | -0.010 | -0.085 | 114.980 | 55.98 | 55.98 | 60.12 | 60.12 |
| 47 | 86 | -4559.275 | 359.507 | 0.006 | 0.010 | 0.111 | -1531.792 | 37.11 | 37.12 | 92.33 | 92.33 |
| 48 | 86 | 4559.277 | -359.507 | -0.006 | -0.010 | -0.111 | 1531.792 | 37.11 | 37.12 | 92.33 | 92.33 |
| 48 | 87 | -4563.829 | 449.507 | 0.006 | 0.010 | 0.136 | -3353.628 | -0.17 | -0.17 | 104.75 | 104.75 |
| 49 | 87 | 4563.830 | 447.308 | -0.021 | 0.028 | -0.136 | 3353.629 | -0.17 | -0.17 | 104.75 | 104.75 |
| 49 | 97 | -4568.533 | -357.308 | 0.021 | -0.028 | 0.230 | -1544.824 | 37.06 | 37.06 | 92.75 | 92.75 |
| 50 | 97 | 4568.537 | 357.308 | -0.021 | 0.028 | -0.230 | 1544.824 | 37.06 | 37.06 | 92.75 | 92.75 |
| 50 | 98 | -4566.631 | -267.308 | 0.021 | -0.028 | 0.323 | -138.963 | 55.80 | 55.81 | 60.81 | 60.81 |
| 51 | 98 | 4566.627 | 267.308 | -0.021 | 0.028 | -0.323 | 138.964 | 55.80 | 55.81 | 60.81 | 60.81 |
| 51 | 99 | -4528.393 | -177.308 | 0.021 | -0.028 | 0.416 | 868.769 | 68.77 | 68.78 | 37.46 | 37.46 |
| 52 | 99 | 4528.391 | 177.308 | -0.021 | 0.028 | -0.416 | -868.769 | 68.77 | 68.78 | 37.46 | 37.46 |
| 52 | 100 | -4535.783 | -87.308 | 0.021 | -0.028 | 0.510 | 1465.330 | 76.83 | 76.84 | 24.01 | 24.01 |
| 53 | 100 | 4535.788 | 87.308 | -0.021 | 0.028 | -0.510 | -1465.329 | 76.83 | 76.84 | 24.01 | 24.01 |
| 53 | 101 | -4543.331 | 2.692 | 0.021 | -0.028 | 0.603 | 1656.865 | 79.48 | 79.49 | 19.76 | 19.76 |
| 54 | 101 | 4543.326 | -2.692 | -0.021 | 0.028 | -0.603 | -1656.864 | 79.48 | 79.49 | 19.76 | 19.76 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 54 | 102 | -4551.020 | 92.692 | 0.021 | -0.028 | 0.696 | 1443.375 | 76.73 | 76.74 | 24.70 | 24.70 |
| 55 | 102 | 4551.024 | -92.692 | -0.021 | 0.028 | -0.696 | -1443.374 | 76.73 | 76.74 | 24.70 | 24.70 |
| 55 | 103 | -4554.381 | 182.692 | 0.021 | -0.028 | 0.790 | 825.051 | 68.51 | 68.53 | 38.78 | 38.78 |
| 56 | 103 | 4554.380 | -182.692 | -0.021 | 0.028 | -0.790 | -825.050 | 68.51 | 68.53 | 38.78 | 38.78 |
| 56 | 104 | -4533.462 | 272.692 | 0.021 | -0.028 | 0.883 | -193.184 | 54.65 | 54.67 | 61.62 | 61.63 |
| 57 | 104 | 4533.466 | -272.692 | -0.021 | 0.028 | -0.883 | 193.183 | 54.65 | 54.67 | 61.62 | 61.63 |
| 57 | 105 | -4547.154 | 362.692 | 0.021 | -0.028 | 0.977 | -1626.802 | 35.68 | 35.70 | 94.33 | 94.34 |
| 58 | 105 | 4547.149 | -362.692 | -0.021 | 0.028 | -0.977 | 1626.802 | 35.68 | 35.70 | 94.33 | 94.34 |
| 58 | 106 | -4560.989 | 452.692 | 0.021 | -0.028 | 1.070 | -3465.447 | -1.63 | -1.62 | 106.79 | 106.80 |
| 59 | 106 | 4560.990 | 458.892 | -0.080 | 0.411 | -1.070 | 3465.447 | -1.63 | -1.62 | 106.79 | 106.80 |
| 59 | 115 | -4574.981 | -368.892 | 0.080 | -0.411 | 1.431 | -1606.987 | 36.30 | 36.32 | 94.23 | 94.24 |
| 60 | 115 | 4574.983 | 368.892 | -0.080 | 0.411 | -1.431 | 1606.987 | 36.30 | 36.32 | 94.23 | 94.24 |
| 60 | 116 | -4581.258 | -278.892 | 0.080 | -0.411 | 1.793 | -152.420 | 55.79 | 55.83 | 61.30 | 61.31 |
| 61 | 116 | 4581.261 | 278.892 | -0.080 | 0.411 | -1.793 | 152.420 | 55.79 | 55.83 | 61.30 | 61.31 |
| 61 | 117 | -4568.604 | -188.892 | 0.080 | -0.411 | 2.154 | 899.140 | 69.67 | 69.71 | 37.27 | 37.28 |
| 62 | 117 | 4568.602 | 188.893 | -0.080 | 0.411 | -2.154 | -899.139 | 69.67 | 69.71 | 37.27 | 37.28 |
| 62 | 118 | -4573.081 | -98.893 | 0.080 | -0.411 | 2.516 | 1545.117 | 78.35 | 78.39 | 22.66 | 22.68 |
| 63 | 118 | 4573.081 | 98.892 | -0.080 | 0.411 | -2.516 | -1545.115 | 78.35 | 78.39 | 22.66 | 22.68 |
| 63 | 119 | -4577.712 | -8.892 | 0.080 | -0.411 | 2.877 | 1786.066 | 81.62 | 81.67 | 17.25 | 17.27 |
| 64 | 119 | 4577.712 | 8.892 | -0.080 | 0.411 | -2.877 | -1786.064 | 81.62 | 81.67 | 17.25 | 17.27 |
| 64 | 120 | -4582.497 | 81.108 | 0.080 | -0.411 | 3.239 | 1621.989 | 79.49 | 79.55 | 21.03 | 21.06 |
| 65 | 120 | 4582.494 | -81.108 | -0.080 | 0.411 | -3.239 | -1621.989 | 79.49 | 79.55 | 21.03 | 21.06 |
| 65 | 121 | -4570.997 | 171.108 | 0.080 | -0.411 | 3.600 | 1057.892 | 71.81 | 71.87 | 33.69 | 33.72 |
| 66 | 121 | 4570.997 | -171.108 | -0.080 | 0.411 | -3.600 | -1057.891 | 71.81 | 71.87 | 33.69 | 33.72 |
| 66 | 122 | -4573.429 | 261.108 | 0.080 | -0.411 | 3.961 | 87.205 | 58.87 | 58.95 | 55.75 | 55.78 |
| 67 | 122 | 4573.431 | -261.108 | -0.080 | 0.411 | -3.961 | -87.204 | 58.87 | 58.95 | 55.75 | 55.78 |
| 67 | 123 | -4581.140 | 351.108 | 0.080 | -0.411 | 4.323 | -1289.148 | 40.59 | 40.67 | 87.09 | 87.12 |
| 68 | 123 | 4581.139 | -351.108 | -0.080 | 0.411 | -4.323 | 1289.148 | 40.59 | 40.67 | 87.09 | 87.12 |
| 68 | 124 | -4589.000 | 441.108 | 0.080 | -0.411 | 4.684 | -3070.527 | 3.63 | 3.71 | 99.72 | 99.75 |
| 69 | 124 | 4588.999 | 423.611 | 0.130 | -0.436 | -4.684 | 3070.527 | 3.63 | 3.71 | 99.72 | 99.75 |
| 69 | 133 | -4586.074 | -333.611 | -0.130 | 0.436 | 4.099 | -1365.276 | 39.64 | 39.72 | 88.88 | 88.91 |
| 70 | 133 | 4586.077 | 333.611 | 0.130 | -0.436 | -4.099 | 1365.275 | 39.64 | 39.72 | 88.88 | 88.91 |
| 70 | 134 | -4581.588 | -243.611 | -0.130 | 0.436 | 3.513 | -65.030 | 56.95 | 57.01 | 59.31 | 59.34 |
| 71 | 134 | 4628.517 | 243.611 | 0.130 | -0.436 | -3.513 | 79.238 | 57.35 | 57.42 | 60.23 | 60.25 |
| 71 | 135 | -4606.847 | -153.611 | -0.130 | 0.436 | 2.928 | 818.120 | 69.06 | 69.12 | 39.59 | 39.61 |
| 72 | 135 | 4606.847 | 153.611 | 0.130 | -0.436 | -2.928 | -818.120 | 69.06 | 69.12 | 39.59 | 39.61 |
| 72 | 136 | -4580.331 | -63.611 | -0.130 | 0.436 | 2.342 | 1311.405 | 75.32 | 75.36 | 28.06 | 28.08 |
| 73 | 136 | 4580.331 | 63.611 | 0.130 | -0.436 | -2.342 | -1311.405 | 75.32 | 75.36 | 28.06 | 28.08 |
| 73 | 137 | -4553.966 | 26.389 | -0.130 | 0.436 | 1.757 | 1399.664 | 76.17 | 76.20 | 25.73 | 25.74 |
| 74 | 137 | 4553.965 | -26.389 | 0.130 | -0.436 | -1.757 | -1399.665 | 76.17 | 76.20 | 25.73 | 25.74 |
| 74 | 138 | -4527.752 | 116.389 | -0.130 | 0.436 | 1.171 | 1082.897 | 71.62 | 71.64 | 32.59 | 32.59 |
| 75 | 138 | 3468.096 | -116.389 | 0.130 | -0.436 | -1.171 | -1119.843 | 58.73 | 58.75 | 18.37 | 18.38 |
| 75 | 139 | -3448.133 | 206.389 | -0.130 | 0.436 | 0.586 | 397.837 | 48.84 | 48.85 | 34.51 | 34.51 |
| 76 | 139 | 3448.134 | -206.389 | 0.130 | -0.436 | -0.586 | -397.837 | 48.84 | 48.85 | 34.51 | 34.51 |
| 76 | 140 | -3428.286 | 296.389 | -0.130 | 0.436 | 0.000 | -729.193 | 33.55 | 33.55 | 59.84 | 59.84 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS  92

pp + pret total(t=0)

ESFUERZOS EN BARRAS

TENSIONES

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | MOM. Y | MOM. Z | SIGMA 1 | SIGMA2 | SIGMA3 | SIGMA4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 9107.699 | 174.337 | -0.339 | 0.640 | 0.000 | 1629.232 | 93.24 | 93.24 | 151.97 | 151.97 |
| 1 | 8 | -9138.729 | -58.461 | 0.339 | -0.640 | 1.526 | -1195.326 | 99.41 | 99.44 | 142.51 | 142.52 |
| 2 | 8 | 9138.754 | 58.461 | -0.339 | 0.640 | -1.526 | 1195.325 | 99.42 | 99.44 | 142.51 | 142.52 |
| 2 | 9 | -9175.427 | -25.661 | 0.339 | -0.640 | 3.052 | -1021.381 | 102.19 | 102.24 | 139.02 | 139.04 |
| 3 | 9 | 9548.640 | 25.662 | -0.339 | 0.640 | -3.052 | 779.348 | 110.13 | 110.19 | 138.24 | 138.26 |
| 3 | 10 | -9585.761 | 59.132 | 0.339 | -0.640 | 4.577 | -854.780 | 109.58 | 109.66 | 140.42 | 140.45 |
| 4 | 10 | 9585.745 | -59.133 | -0.339 | 0.640 | -4.577 | 854.780 | 109.58 | 109.66 | 140.42 | 140.45 |
| 4 | 11 | -9653.753 | 19.924 | 0.339 | -0.640 | 6.103 | -1228.367 | 105.43 | 105.55 | 149.75 | 149.79 |
| 5 | 11 | 9653.771 | -19.923 | -0.339 | 0.640 | -6.103 | 1228.367 | 105.43 | 105.55 | 149.75 | 149.79 |
| 5 | 12 | -9657.204 | -98.734 | 0.339 | -0.640 | 7.629 | -987.851 | 108.67 | 108.82 | 144.33 | 144.38 |
| 6 | 12 | 9657.192 | 98.733 | -0.339 | 0.640 | -7.629 | 987.851 | 108.67 | 108.82 | 144.33 | 144.38 |
| 6 | 13 | -9581.063 | -349.045 | 0.339 | -0.640 | 9.155 | -62.627 | 120.05 | 120.22 | 122.36 | 122.42 |
| 7 | 13 | 9551.673 | 349.046 | -0.339 | 0.640 | -9.155 | 58.680 | 119.73 | 119.90 | 121.90 | 121.96 |
| 7 | 14 | -9586.503 | -251.026 | 0.339 | -0.640 | 10.681 | 1706.809 | 143.73 | 143.93 | 82.27 | 82.34 |
| 8 | 14 | 9586.495 | 251.026 | -0.339 | 0.640 | -10.681 | -1706.808 | 143.73 | 143.93 | 82.27 | 82.34 |
| 8 | 15 | -13782.135 | 458.771 | 0.339 | -0.640 | 12.207 | -344.951 | 124.07 | 124.27 | 134.92 | 135.00 |
| 9 | 15 | 13782.125 | 290.974 | 0.264 | -0.779 | -12.206 | 344.951 | 124.07 | 124.27 | 134.92 | 135.00 |
| 9 | 23 | -10943.552 | -189.486 | -0.264 | 0.779 | 11.019 | 1061.492 | 152.25 | 152.45 | 114.05 | 114.12 |
| 10 | 23 | 10943.587 | 189.486 | 0.264 | -0.779 | -11.019 | -1061.492 | 152.25 | 152.45 | 114.05 | 114.12 |
| 10 | 24 | -11004.082 | 185.127 | -0.264 | 0.779 | 9.831 | 949.862 | 151.53 | 151.71 | 117.35 | 117.41 |
| 11 | 24 | 11559.959 | -185.127 | 0.264 | -0.779 | -9.831 | -1354.005 | 163.95 | 164.13 | 115.19 | 115.26 |
| 11 | 25 | -10993.186 | 216.668 | -0.264 | 0.779 | 8.643 | -165.927 | 136.51 | 136.67 | 142.54 | 142.60 |
| 12 | 25 | 10993.196 | -216.668 | 0.264 | -0.779 | -8.643 | 165.926 | 136.51 | 136.67 | 142.54 | 142.60 |
| 12 | 26 | -11087.340 | 51.547 | -0.264 | 0.779 | 7.455 | -852.829 | 128.54 | 128.67 | 159.32 | 159.37 |
| 13 | 26 | 11087.326 | -51.547 | 0.264 | -0.779 | -7.455 | 852.830 | 128.54 | 128.67 | 159.32 | 159.37 |
| 13 | 27 | -11055.456 | 16.647 | -0.264 | 0.779 | 6.267 | -855.272 | 128.11 | 128.23 | 158.98 | 159.02 |
| 14 | 27 | 11055.485 | -16.647 | 0.264 | -0.779 | -6.267 | 855.274 | 128.11 | 128.23 | 158.98 | 159.02 |
| 14 | 28 | -11027.367 | 29.028 | -0.264 | 0.779 | 5.080 | -930.540 | 126.76 | 126.86 | 160.34 | 160.37 |
| 15 | 28 | 11027.340 | -29.028 | 0.264 | -0.779 | -5.080 | 930.539 | 126.76 | 126.86 | 160.34 | 160.37 |
| 15 | 29 | -11031.326 | -91.971 | -0.264 | 0.779 | 3.892 | -833.969 | 128.11 | 128.19 | 158.20 | 158.23 |
| 16 | 29 | 11031.328 | 91.971 | 0.264 | -0.779 | -3.892 | 833.969 | 128.11 | 128.19 | 158.20 | 158.23 |
| 16 | 30 | -10388.156 | -325.929 | -0.264 | 0.779 | 2.704 | 305.191 | 135.21 | 135.26 | 124.23 | 124.25 |
| 17 | 30 | 10388.149 | 325.929 | 0.264 | -0.779 | -2.704 | -305.190 | 135.21 | 135.26 | 124.23 | 124.25 |
| 17 | 31 | -10390.218 | -71.494 | -0.264 | 0.779 | 1.516 | 1597.389 | 152.50 | 152.53 | 94.93 | 94.94 |
| 18 | 31 | 10390.230 | 71.494 | 0.264 | -0.779 | -1.516 | -1597.390 | 152.50 | 152.53 | 94.93 | 94.94 |
| 18 | 32 | -14503.320 | 717.954 | -0.264 | 0.779 | 0.328 | -1415.844 | 117.24 | 117.25 | 161.54 | 161.54 |
| 19 | 32 | 14503.332 | 194.859 | 0.013 | 0.120 | -0.328 | 1415.844 | 117.24 | 117.25 | 161.54 | 161.54 |
| 19 | 40 | -10289.716 | -202.299 | -0.013 | -0.120 | 0.272 | 1063.120 | 144.11 | 144.12 | 105.79 | 105.79 |
| 20 | 40 | 10289.703 | 202.299 | 0.013 | 0.120 | -0.272 | -1063.120 | 144.11 | 144.12 | 105.79 | 105.79 |
| 20 | 41 | -10354.059 | 172.314 | -0.013 | -0.120 | 0.216 | 1010.531 | 144.22 | 144.23 | 107.80 | 107.80 |
| 21 | 41 | 10354.041 | -172.315 | 0.013 | 0.120 | -0.216 | -1010.531 | 144.22 | 144.23 | 107.80 | 107.80 |
| 21 | 42 | -10352.033 | 203.856 | -0.013 | -0.120 | 0.159 | -46.774 | 130.08 | 130.08 | 131.77 | 131.77 |
| 22 | 42 | 10352.066 | -203.856 | 0.013 | 0.120 | -0.159 | 46.774 | 130.08 | 130.08 | 131.77 | 131.77 |
| 22 | 43 | -10428.146 | 38.735 | -0.013 | -0.120 | 0.103 | -675.125 | 122.65 | 122.66 | 146.99 | 146.99 |
| 23 | 43 | 10428.150 | -38.734 | 0.013 | 0.120 | -0.103 | 675.124 | 122.65 | 122.66 | 146.99 | 146.99 |
| 23 | 44 | -10378.195 | 3.835 | -0.013 | -0.120 | 0.047 | -619.009 | 122.77 | 122.77 | 145.09 | 145.09 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 24 | 44 | 10378.170 | -3.835 | 0.013 | 0.120 | -0.047 | 619.009 | 122.77 | 122.77 | 145.09 | 145.09 |
| 24 | 45 | -10331.943 | 16.216 | -0.013 | -0.120 | -0.009 | -635.705 | 121.97 | 121.97 | 144.88 | 144.88 |
| 25 | 45 | 10331.936 | -16.215 | 0.013 | 0.120 | 0.009 | 635.704 | 121.97 | 121.97 | 144.88 | 144.88 |
| 25 | 46 | -10321.174 | -104.784 | -0.013 | -0.120 | -0.066 | -481.494 | 123.89 | 123.89 | 141.25 | 141.25 |
| 26 | 46 | 10321.188 | 104.783 | 0.013 | 0.120 | 0.066 | 481.493 | 123.89 | 123.89 | 141.25 | 141.25 |
| 26 | 47 | -8982.166 | -338.741 | -0.013 | -0.120 | -0.122 | 212.214 | 116.25 | 116.24 | 108.59 | 108.59 |
| 27 | 47 | 8982.186 | 338.741 | 0.013 | 0.120 | 0.122 | -212.215 | 116.25 | 116.24 | 108.60 | 108.59 |
| 27 | 48 | -8985.527 | -84.306 | -0.013 | -0.120 | -0.178 | 1558.294 | 134.26 | 134.26 | 78.09 | 78.08 |
| 28 | 48 | 8985.512 | 84.306 | 0.013 | 0.120 | 0.178 | -1558.295 | 134.26 | 134.26 | 78.09 | 78.08 |
| 28 | 49 | -13099.828 | 705.142 | -0.013 | -0.120 | -0.235 | -1401.066 | 104.34 | 104.34 | 148.18 | 148.17 |
| 29 | 49 | 13099.828 | 189.857 | 0.001 | 0.023 | 0.235 | 1401.066 | 104.34 | 104.34 | 148.18 | 148.17 |
| 29 | 59 | -8887.389 | -197.297 | -0.001 | -0.023 | -0.238 | 1051.599 | 126.26 | 126.25 | 88.35 | 88.35 |
| 30 | 59 | 8887.395 | 197.297 | 0.001 | 0.023 | 0.238 | -1051.600 | 126.26 | 126.25 | 88.35 | 88.35 |
| 30 | 60 | -8957.547 | 177.316 | -0.001 | -0.023 | -0.242 | 972.664 | 126.09 | 126.08 | 91.02 | 91.02 |
| 31 | 60 | 8957.549 | -177.316 | 0.001 | 0.023 | 0.242 | -972.665 | 126.09 | 126.08 | 91.02 | 91.02 |
| 31 | 61 | -8980.119 | 208.858 | -0.001 | -0.023 | -0.246 | -113.797 | 111.87 | 111.86 | 115.97 | 115.97 |
| 32 | 61 | 8980.121 | -208.857 | 0.001 | 0.023 | 0.246 | 113.796 | 111.87 | 111.86 | 115.97 | 115.97 |
| 32 | 62 | -9061.259 | 43.736 | -0.001 | -0.023 | -0.250 | -766.042 | 104.18 | 104.18 | 131.80 | 131.80 |
| 33 | 62 | 9061.258 | -43.737 | 0.001 | 0.023 | 0.250 | 766.040 | 104.18 | 104.18 | 131.80 | 131.80 |
| 33 | 63 | -9016.314 | 8.837 | -0.001 | -0.023 | -0.254 | -733.824 | 104.05 | 104.04 | 130.50 | 130.50 |
| 34 | 63 | 9016.316 | -8.836 | 0.001 | 0.023 | 0.254 | 733.827 | 104.05 | 104.04 | 130.50 | 130.50 |
| 34 | 64 | -8975.057 | 21.217 | -0.001 | -0.023 | -0.258 | -774.428 | 102.98 | 102.98 | 130.90 | 130.90 |
| 35 | 64 | 8975.052 | -21.217 | 0.001 | 0.023 | 0.258 | 774.428 | 102.98 | 102.98 | 130.90 | 130.90 |
| 35 | 65 | -8966.937 | -99.782 | -0.001 | -0.023 | -0.262 | -642.244 | 104.65 | 104.64 | 127.80 | 127.79 |
| 36 | 65 | 8966.933 | 99.782 | 0.001 | 0.023 | 0.262 | 642.245 | 104.65 | 104.64 | 127.80 | 127.79 |
| 36 | 66 | -8981.619 | -333.739 | -0.001 | -0.023 | -0.266 | 252.519 | 116.78 | 116.77 | 107.67 | 107.67 |
| 37 | 66 | 8981.623 | 333.740 | 0.001 | 0.023 | 0.266 | -252.519 | 116.78 | 116.77 | 107.67 | 107.67 |
| 37 | 67 | -8978.693 | -79.305 | -0.001 | -0.023 | -0.270 | 1581.265 | 134.48 | 134.48 | 77.48 | 77.48 |
| 38 | 67 | 8978.697 | 79.305 | 0.001 | 0.023 | 0.270 | -1581.263 | 134.48 | 134.48 | 77.48 | 77.48 |
| 38 | 68 | -13086.743 | 710.143 | -0.001 | -0.023 | -0.274 | -1395.434 | 104.29 | 104.29 | 147.95 | 147.95 |
| 39 | 68 | 13086.740 | 192.114 | -0.010 | -0.019 | 0.274 | 1395.434 | 104.29 | 104.29 | 147.95 | 147.95 |
| 39 | 78 | -8868.031 | -199.554 | 0.010 | 0.019 | -0.229 | 1072.558 | 126.29 | 126.29 | 87.63 | 87.63 |
| 40 | 78 | 8868.030 | 199.554 | -0.010 | -0.019 | 0.229 | -1072.559 | 126.29 | 126.29 | 87.63 | 87.63 |
| 40 | 79 | -8935.292 | 175.059 | 0.010 | 0.019 | -0.185 | 1008.010 | 126.28 | 126.28 | 89.94 | 89.94 |
| 41 | 79 | 8935.285 | -175.059 | -0.010 | -0.019 | 0.185 | -1008.011 | 126.28 | 126.28 | 89.94 | 89.94 |
| 41 | 80 | -8954.172 | 206.600 | 0.010 | 0.019 | -0.141 | -59.918 | 112.26 | 112.26 | 114.42 | 114.42 |
| 42 | 80 | 8954.183 | -206.600 | -0.010 | -0.019 | 0.141 | 59.920 | 112.26 | 112.26 | 114.42 | 114.42 |
| 42 | 81 | -9044.583 | 41.479 | 0.010 | 0.019 | -0.096 | -704.474 | 104.79 | 104.79 | 130.19 | 130.19 |
| 43 | 81 | 9044.590 | -41.479 | -0.010 | -0.019 | 0.096 | 704.473 | 104.79 | 104.79 | 130.19 | 130.19 |
| 43 | 82 | -9008.908 | 6.580 | 0.010 | 0.019 | -0.052 | -664.569 | 104.88 | 104.88 | 128.83 | 128.83 |
| 44 | 82 | 9008.900 | -6.579 | -0.010 | -0.019 | 0.052 | 664.569 | 104.88 | 104.88 | 128.83 | 128.83 |
| 44 | 83 | -8976.902 | 18.960 | 0.010 | 0.019 | -0.007 | -697.481 | 104.03 | 104.03 | 129.18 | 129.18 |
| 45 | 83 | 8976.899 | -18.960 | -0.010 | -0.019 | 0.007 | 697.483 | 104.03 | 104.03 | 129.18 | 129.18 |
| 45 | 84 | -8976.938 | -102.039 | 0.010 | 0.019 | 0.037 | -558.559 | 105.89 | 105.89 | 126.02 | 126.02 |
| 46 | 84 | 8976.955 | 102.039 | -0.010 | -0.019 | -0.037 | 558.558 | 105.89 | 105.89 | 126.02 | 126.02 |
| 46 | 85 | -9008.124 | -335.996 | 0.010 | 0.019 | 0.081 | 338.384 | 118.26 | 118.26 | 106.06 | 106.06 |
| 47 | 85 | 9008.104 | 335.996 | -0.010 | -0.019 | -0.081 | -338.385 | 118.26 | 118.26 | 106.06 | 106.06 |
| 47 | 86 | -9002.182 | -81.561 | 0.010 | 0.019 | 0.126 | 1674.582 | 136.02 | 136.02 | 75.66 | 75.66 |
| 48 | 86 | 9002.191 | 81.562 | -0.010 | -0.019 | -0.126 | -1674.581 | 136.02 | 136.02 | 75.66 | 75.66 |
| 48 | 87 | -13107.246 | 707.886 | 0.010 | 0.019 | 0.170 | -1294.664 | 105.77 | 105.77 | 146.27 | 146.27 |
| 49 | 87 | 13107.250 | 178.708 | -0.031 | -0.012 | -0.170 | 1294.664 | 105.77 | 105.77 | 146.27 | 146.27 |
| 49 | 97 | -8885.551 | -186.148 | 0.031 | 0.012 | 0.311 | 1110.296 | 127.01 | 127.02 | 86.99 | 86.99 |
| 50 | 97 | 8885.549 | 186.148 | -0.031 | -0.012 | -0.311 | -1110.296 | 127.01 | 127.02 | 86.99 | 86.99 |
| 50 | 98 | -8947.547 | 188.465 | 0.031 | 0.012 | 0.453 | 984.603 | 126.12 | 126.12 | 90.63 | 90.63 |
| 51 | 98 | 8947.539 | -188.465 | -0.031 | -0.012 | -0.453 | -984.602 | 126.12 | 126.12 | 90.63 | 90.63 |
| 51 | 99 | -8953.627 | 220.006 | 0.031 | 0.012 | 0.594 | -144.054 | 111.12 | 111.13 | 116.32 | 116.32 |
| 52 | 99 | 8953.625 | -220.007 | -0.031 | -0.012 | -0.594 | 144.054 | 111.12 | 111.13 | 116.32 | 116.32 |
| 52 | 100 | -9037.754 | 54.886 | 0.031 | 0.012 | 0.735 | -843.767 | 102.84 | 102.85 | 133.26 | 133.27 |
| 53 | 100 | 9037.758 | -54.886 | -0.031 | -0.012 | -0.735 | 843.767 | 102.84 | 102.85 | 133.26 | 133.27 |
| 53 | 101 | -8995.806 | 19.986 | 0.031 | 0.012 | 0.877 | -859.019 | 102.11 | 102.12 | 133.08 | 133.08 |
| 54 | 101 | 8995.813 | -19.987 | -0.031 | -0.012 | -0.877 | 859.021 | 102.11 | 102.12 | 133.08 | 133.08 |
| 54 | 102 | -8957.543 | 32.367 | 0.031 | 0.012 | 1.018 | -947.088 | 100.45 | 100.47 | 134.59 | 134.60 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 55 | 102 | 8957.541 | -32.366 | -0.031 | -0.012 | -1.018 | 947.090 | 100.45 | 100.47 | 134.59 | 134.60 |
| 55 | 103 | -8954.689 | -88.633 | 0.031 | 0.012 | 1.159 | -864.262 | 101.51 | 101.54 | 132.68 | 132.68 |
| 56 | 103 | 8954.688 | 88.632 | -0.031 | -0.012 | -1.159 | 864.263 | 101.51 | 101.54 | 132.68 | 132.68 |
| 56 | 104 | -8986.693 | -322.590 | 0.031 | 0.012 | 1.301 | -20.635 | 113.18 | 113.20 | 113.93 | 113.94 |
| 57 | 104 | 8986.695 | 322.590 | -0.031 | -0.012 | -1.301 | 20.635 | 113.18 | 113.20 | 113.93 | 113.94 |
| 57 | 105 | -8990.063 | -68.156 | 0.031 | 0.012 | 1.442 | 1252.758 | 130.22 | 130.25 | 85.07 | 85.08 |
| 58 | 105 | 8990.059 | 68.155 | -0.031 | -0.012 | -1.442 | -1252.757 | 130.22 | 130.25 | 85.07 | 85.08 |
| 58 | 106 | -13104.400 | 721.292 | 0.031 | 0.012 | 1.583 | -1779.291 | 99.55 | 99.58 | 155.23 | 155.24 |
| 59 | 106 | 13104.406 | 231.822 | -0.184 | 0.924 | -1.583 | 1779.291 | 99.55 | 99.58 | 155.23 | 155.24 |
| 59 | 115 | -8891.994 | -239.263 | 0.184 | -0.924 | 2.412 | 862.211 | 123.76 | 123.81 | 92.70 | 92.71 |
| 60 | 115 | 8891.993 | 239.263 | -0.184 | 0.924 | -2.412 | -862.211 | 123.76 | 123.81 | 92.70 | 92.71 |
| 60 | 116 | -8962.172 | 135.350 | 0.184 | -0.924 | 3.240 | 972.112 | 126.11 | 126.17 | 91.08 | 91.11 |
| 61 | 116 | 8962.178 | -135.350 | -0.184 | 0.924 | -3.240 | -972.112 | 126.11 | 126.17 | 91.08 | 91.11 |
| 61 | 117 | -8993.844 | 166.892 | 0.184 | -0.924 | 4.069 | 74.171 | 114.51 | 114.59 | 111.86 | 111.89 |
| 62 | 117 | 8993.843 | -166.892 | -0.184 | 0.924 | -4.069 | -74.169 | 114.51 | 114.59 | 111.86 | 111.89 |
| 62 | 118 | -9075.061 | 1.770 | 0.184 | -0.924 | 4.897 | -389.239 | 109.34 | 109.43 | 123.40 | 123.43 |
| 63 | 118 | 9075.061 | -1.771 | -0.184 | 0.924 | -4.897 | 389.240 | 109.34 | 109.43 | 123.40 | 123.43 |
| 63 | 119 | -9030.197 | -33.129 | 0.184 | -0.924 | 5.726 | -168.189 | 111.72 | 111.83 | 117.82 | 117.85 |
| 64 | 119 | 9030.193 | 33.129 | -0.184 | 0.924 | -5.726 | 168.191 | 111.72 | 111.83 | 117.82 | 117.85 |
| 64 | 120 | -8989.014 | -20.749 | 0.184 | -0.924 | 6.554 | -19.960 | 113.17 | 113.29 | 113.93 | 113.97 |
| 65 | 120 | 8989.014 | 20.749 | -0.184 | 0.924 | -6.554 | 19.959 | 113.17 | 113.29 | 113.93 | 113.97 |
| 65 | 121 | -8971.309 | -141.748 | 0.184 | -0.924 | 7.383 | 303.982 | 117.26 | 117.40 | 106.35 | 106.40 |
| 66 | 121 | 8971.311 | 141.747 | -0.184 | 0.924 | -7.383 | -303.982 | 117.26 | 117.40 | 106.35 | 106.40 |
| 66 | 122 | -9026.664 | -375.705 | 0.184 | -0.924 | 8.211 | 1382.044 | 132.35 | 132.50 | 82.58 | 82.63 |
| 67 | 122 | 9026.666 | 375.705 | -0.184 | 0.924 | -8.211 | -1382.043 | 132.35 | 132.50 | 82.58 | 82.63 |
| 67 | 123 | -9024.053 | -121.270 | 0.184 | -0.924 | 9.040 | 2899.589 | 152.57 | 152.74 | 48.10 | 48.16 |
| 68 | 123 | 9024.055 | 121.270 | -0.184 | 0.924 | -9.040 | -2899.589 | 152.57 | 152.74 | 48.10 | 48.16 |
| 68 | 124 | -13077.121 | 658.156 | 0.184 | -0.924 | 9.868 | 111.589 | 123.33 | 123.49 | 119.89 | 119.95 |
| 69 | 124 | 13077.116 | 17.964 | 0.274 | -0.941 | -9.868 | -111.591 | 123.33 | 123.49 | 119.89 | 119.95 |
| 69 | 133 | -8886.803 | 260.446 | -0.274 | 0.941 | 8.635 | 1405.378 | 130.89 | 131.05 | 80.28 | 80.34 |
| 70 | 133 | 8886.805 | -260.446 | 0.274 | -0.941 | -8.635 | -1405.378 | 130.89 | 131.05 | 80.28 | 80.34 |
| 70 | 134 | -8917.439 | 479.744 | -0.274 | 0.941 | 7.401 | -972.783 | 99.54 | 99.68 | 134.65 | 134.70 |
| 71 | 134 | 8964.371 | -479.743 | 0.274 | -0.941 | -7.401 | 986.992 | 99.94 | 100.08 | 135.56 | 135.61 |
| 71 | 135 | -9052.734 | 112.310 | -0.274 | 0.941 | 6.168 | -2219.131 | 84.62 | 84.73 | 164.65 | 164.69 |
| 72 | 135 | 9052.734 | -112.311 | 0.274 | -0.941 | -6.168 | 2219.131 | 84.62 | 84.73 | 164.65 | 164.69 |
| 72 | 136 | -9004.704 | 107.467 | -0.274 | 0.941 | 4.934 | -2648.254 | 78.29 | 78.38 | 173.79 | 173.82 |
| 73 | 136 | 9004.705 | -107.466 | 0.274 | -0.941 | -4.934 | 2648.252 | 78.29 | 78.38 | 173.79 | 173.82 |
| 73 | 137 | -8920.851 | 120.062 | -0.274 | 0.941 | 3.701 | -3083.009 | 71.44 | 71.51 | 182.60 | 182.62 |
| 74 | 137 | 8920.849 | -120.062 | 0.274 | -0.941 | -3.701 | 3083.006 | 71.44 | 71.51 | 182.60 | 182.62 |
| 74 | 138 | -8828.826 | 49.821 | -0.274 | 0.941 | 2.467 | -3413.296 | 65.88 | 65.93 | 188.94 | 188.95 |
| 75 | 138 | 7769.167 | -49.821 | 0.274 | -0.941 | -2.467 | 3376.349 | 52.99 | 53.04 | 174.72 | 174.74 |
| 75 | 139 | -7689.510 | 29.302 | -0.274 | 0.941 | 1.234 | -3388.404 | 51.84 | 51.86 | 173.99 | 174.00 |
| 76 | 139 | 7689.512 | -29.303 | 0.274 | -0.941 | -1.234 | 3388.402 | 51.84 | 51.86 | 173.99 | 174.00 |
| 76 | 140 | -7624.104 | 64.667 | -0.274 | 0.941 | 0.000 | -3586.600 | 48.38 | 48.38 | 177.67 | 177.67 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS  93

cp + pret total (t=0)

ESFUERZOS EN BARRAS

TENSIONES

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | MOM. Y | MOM. Z | SIGMA 1 | SIGMA2 | SIGMA3 | SIGMA4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 9107.699 | 370.568 | -0.410 | 0.772 | 0.000 | 1629.233 | 93.24 | 93.24 | 151.97 | 151.97 |
| 1 | 8 | -9138.729 | -189.127 | 0.410 | -0.772 | 1.845 | -459.807 | 109.23 | 109.27 | 125.82 | 125.83 |
| 2 | 8 | 9138.754 | 189.127 | -0.410 | 0.772 | -1.845 | 459.805 | 109.23 | 109.27 | 125.82 | 125.83 |
| 2 | 9 | -9175.427 | -90.763 | 0.410 | -0.772 | 3.690 | 154.616 | 117.88 | 117.95 | 112.33 | 112.35 |
| 3 | 9 | 9548.640 | 90.763 | -0.410 | 0.772 | -3.690 | -396.649 | 125.83 | 125.89 | 111.55 | 111.57 |
| 3 | 10 | -9585.761 | 59.596 | 0.410 | -0.772 | 5.535 | 466.652 | 127.21 | 127.31 | 110.42 | 110.46 |
| 4 | 10 | 9585.745 | -59.596 | -0.410 | 0.772 | -5.535 | -466.652 | 127.21 | 127.31 | 110.42 | 110.46 |
| 4 | 11 | -9653.753 | 85.952 | 0.410 | -0.772 | 7.379 | -56.542 | 121.07 | 121.20 | 123.15 | 123.20 |
| 5 | 11 | 9653.771 | -85.952 | -0.410 | 0.772 | -7.379 | 56.542 | 121.07 | 121.20 | 123.15 | 123.20 |
| 5 | 12 | -9657.204 | 32.859 | 0.410 | -0.772 | 9.224 | -260.677 | 118.37 | 118.54 | 127.82 | 127.88 |
| 6 | 12 | 9657.192 | -32.860 | -0.410 | 0.772 | -9.224 | 260.678 | 118.37 | 118.54 | 127.82 | 127.88 |
| 6 | 13 | -9581.063 | -151.887 | 0.410 | -0.772 | 11.069 | -75.146 | 119.87 | 120.07 | 122.64 | 122.72 |
| 7 | 13 | 9551.673 | 151.887 | -0.410 | 0.772 | -11.069 | 71.200 | 119.55 | 119.75 | 122.18 | 122.25 |
| 7 | 14 | -9586.503 | 11.698 | 0.410 | -0.772 | 12.914 | 659.554 | 129.73 | 129.97 | 106.03 | 106.11 |
| 8 | 14 | 9586.495 | -11.698 | -0.410 | 0.772 | -12.914 | -659.553 | 129.73 | 129.97 | 106.03 | 106.11 |
| 8 | 15 | -13782.135 | 787.060 | 0.410 | -0.772 | 14.759 | -2721.983 | 93.75 | 93.99 | 178.99 | 179.07 |
| 9 | 15 | 13782.125 | 616.218 | 0.317 | -0.936 | -14.759 | 2721.984 | 93.75 | 93.99 | 178.99 | 179.07 |
| 9 | 23 | -10943.552 | -449.165 | -0.317 | 0.936 | 13.333 | 0.537 | 138.06 | 138.31 | 138.12 | 138.21 |
| 10 | 23 | 10943.587 | 449.165 | 0.317 | -0.936 | -13.333 | -0.537 | 138.06 | 138.31 | 138.12 | 138.21 |
| 10 | 24 | -11004.082 | -8.987 | -0.317 | 0.936 | 11.908 | 909.943 | 150.98 | 151.20 | 118.25 | 118.33 |
| 11 | 24 | 11559.959 | 8.987 | 0.317 | -0.936 | -11.908 | -1314.086 | 163.39 | 163.61 | 116.09 | 116.17 |
| 11 | 25 | -10993.186 | 88.119 | -0.317 | 0.936 | 10.483 | 520.146 | 145.65 | 145.84 | 126.96 | 127.03 |
| 12 | 25 | 10993.196 | -88.119 | 0.317 | -0.936 | -10.483 | -520.148 | 145.65 | 145.85 | 126.96 | 127.03 |
| 12 | 26 | -11087.340 | -11.437 | -0.317 | 0.936 | 9.057 | 264.194 | 143.43 | 143.60 | 133.97 | 134.03 |
| 13 | 26 | 11087.326 | 11.438 | 0.317 | -0.936 | -9.057 | -264.194 | 143.43 | 143.60 | 133.97 | 134.03 |
| 13 | 27 | -11055.456 | 19.228 | -0.317 | 0.936 | 7.632 | 397.659 | 144.83 | 144.97 | 130.54 | 130.59 |
| 14 | 27 | 11055.485 | -19.228 | 0.317 | -0.936 | -7.632 | -397.658 | 144.83 | 144.97 | 130.54 | 130.59 |
| 14 | 28 | -11027.367 | 97.174 | -0.317 | 0.936 | 6.206 | 163.256 | 141.36 | 141.47 | 135.51 | 135.55 |
| 15 | 28 | 11027.340 | -97.174 | 0.317 | -0.936 | -6.206 | -163.257 | 141.36 | 141.47 | 135.51 | 135.55 |
| 15 | 29 | -11031.326 | 41.740 | -0.317 | 0.936 | 4.781 | -194.350 | 136.65 | 136.73 | 143.68 | 143.71 |
| 16 | 29 | 11031.328 | -41.740 | 0.317 | -0.936 | -4.781 | 194.351 | 136.65 | 136.73 | 143.68 | 143.71 |
| 16 | 30 | -10388.156 | -126.653 | -0.317 | 0.936 | 3.356 | 195.588 | 133.74 | 133.81 | 126.71 | 126.74 |
| 17 | 30 | 10388.149 | 126.653 | 0.317 | -0.936 | -3.356 | -195.587 | 133.74 | 133.81 | 126.71 | 126.74 |
| 17 | 31 | -10390.218 | 193.347 | -0.317 | 0.936 | 1.930 | 443.524 | 137.09 | 137.13 | 121.12 | 121.13 |
| 18 | 31 | 10390.230 | -193.347 | 0.317 | -0.936 | -1.930 | -443.524 | 137.09 | 137.13 | 121.12 | 121.13 |
| 18 | 32 | -14503.320 | 1048.360 | -0.317 | 0.936 | 0.505 | -3909.015 | 85.46 | 85.47 | 207.76 | 207.77 |
| 19 | 32 | 14503.332 | 523.863 | 0.017 | 0.137 | -0.505 | 3909.015 | 85.46 | 85.47 | 207.76 | 207.77 |
| 19 | 40 | -10289.716 | -465.738 | -0.017 | -0.137 | 0.430 | -97.054 | 128.62 | 128.63 | 132.12 | 132.12 |
| 20 | 40 | 10289.703 | 465.738 | 0.017 | 0.137 | -0.430 | 97.053 | 128.62 | 128.63 | 132.12 | 132.12 |
| 20 | 41 | -10354.059 | -25.560 | -0.017 | -0.137 | 0.355 | 888.312 | 142.59 | 142.60 | 110.57 | 110.57 |
| 21 | 41 | 10354.041 | 25.559 | 0.017 | 0.137 | -0.355 | -888.312 | 142.59 | 142.60 | 110.57 | 110.57 |
| 21 | 42 | -10352.033 | 71.547 | -0.017 | -0.137 | 0.280 | 573.919 | 138.37 | 138.37 | 117.68 | 117.68 |
| 22 | 42 | 10352.066 | -71.547 | 0.017 | 0.137 | -0.280 | -573.919 | 138.37 | 138.37 | 117.68 | 117.68 |
| 22 | 43 | -10428.146 | -28.009 | -0.017 | -0.137 | 0.205 | 393.437 | 136.92 | 136.92 | 122.74 | 122.74 |
| 23 | 43 | 10428.150 | 28.010 | 0.017 | 0.137 | -0.205 | -393.437 | 136.92 | 136.92 | 122.74 | 122.74 |
| 23 | 44 | -10378.195 | 2.656 | -0.017 | -0.137 | 0.130 | 602.380 | 139.08 | 139.08 | 117.37 | 117.37 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 24 | 44 | 10378.170 | -2.656 | 0.017 | 0.137 | -0.130 | -602.380 | 139.08 | 139.08 | 117.36 | 117.37 |
| 24 | 45 | -10331.943 | 80.601 | -0.017 | -0.137 | 0.055 | 443.468 | 136.37 | 136.38 | 120.39 | 120.39 |
| 25 | 45 | 10331.936 | -80.601 | 0.017 | 0.137 | -0.055 | -443.469 | 136.37 | 136.38 | 120.39 | 120.39 |
| 25 | 46 | -10321.174 | 25.167 | -0.017 | -0.137 | -0.019 | 160.421 | 132.46 | 132.46 | 126.68 | 126.68 |
| 26 | 46 | 10321.188 | -25.168 | 0.017 | 0.137 | 0.019 | -160.421 | 132.46 | 132.46 | 126.68 | 126.68 |
| 26 | 47 | -8982.166 | -143.225 | -0.017 | -0.137 | -0.094 | 121.827 | 115.04 | 115.04 | 110.65 | 110.65 |
| 27 | 47 | 8982.186 | 143.225 | 0.017 | 0.137 | 0.094 | -121.827 | 115.04 | 115.04 | 110.65 | 110.65 |
| 27 | 48 | -8985.527 | 176.775 | -0.017 | -0.137 | -0.169 | 440.563 | 119.34 | 119.33 | 103.45 | 103.45 |
| 28 | 48 | 8985.512 | -176.775 | 0.017 | 0.137 | 0.169 | -440.563 | 119.34 | 119.33 | 103.45 | 103.45 |
| 28 | 49 | -13099.828 | 1031.788 | -0.017 | -0.137 | -0.244 | -3841.184 | 73.24 | 73.24 | 193.42 | 193.41 |
| 29 | 49 | 13099.828 | 517.255 | 0.002 | 0.027 | 0.244 | 3841.183 | 73.24 | 73.24 | 193.42 | 193.41 |
| 29 | 59 | -8887.389 | -459.130 | -0.002 | -0.027 | -0.252 | -62.748 | 111.38 | 111.37 | 113.64 | 113.64 |
| 30 | 59 | 8887.395 | 459.130 | 0.002 | 0.027 | 0.252 | 62.746 | 111.38 | 111.37 | 113.64 | 113.64 |
| 30 | 60 | -8957.547 | -18.952 | -0.002 | -0.027 | -0.259 | 889.046 | 124.97 | 124.97 | 92.92 | 92.92 |
| 31 | 60 | 8957.549 | 18.952 | 0.002 | 0.027 | 0.259 | -889.047 | 124.97 | 124.97 | 92.92 | 92.92 |
| 31 | 61 | -8980.119 | 78.154 | -0.002 | -0.027 | -0.266 | 538.271 | 120.57 | 120.57 | 101.17 | 101.17 |
| 32 | 61 | 8980.121 | -78.154 | 0.002 | 0.027 | 0.266 | -538.273 | 120.57 | 120.57 | 101.17 | 101.17 |
| 32 | 62 | -9061.259 | -21.402 | -0.002 | -0.027 | -0.274 | 326.669 | 118.77 | 118.77 | 107.00 | 106.99 |
| 33 | 62 | 9061.258 | 21.402 | 0.002 | 0.027 | 0.274 | -326.673 | 118.77 | 118.77 | 107.00 | 106.99 |
| 33 | 63 | -9016.314 | 9.264 | -0.002 | -0.027 | -0.281 | 504.487 | 120.58 | 120.58 | 102.39 | 102.39 |
| 34 | 63 | 9016.316 | -9.263 | 0.002 | 0.027 | 0.281 | -504.486 | 120.58 | 120.58 | 102.39 | 102.39 |
| 34 | 64 | -8975.057 | 87.208 | -0.002 | -0.027 | -0.289 | 314.442 | 117.52 | 117.52 | 106.19 | 106.18 |
| 35 | 64 | 8975.052 | -87.209 | 0.002 | 0.027 | 0.289 | -314.442 | 117.52 | 117.52 | 106.19 | 106.18 |
| 35 | 65 | -8966.937 | 31.775 | -0.002 | -0.027 | -0.296 | 2.142 | 113.25 | 113.24 | 113.17 | 113.17 |
| 36 | 65 | 8966.933 | -31.775 | 0.002 | 0.027 | 0.296 | -2.141 | 113.25 | 113.24 | 113.17 | 113.17 |
| 36 | 66 | -8981.619 | -136.617 | -0.002 | -0.027 | -0.304 | 157.377 | 115.51 | 115.50 | 109.83 | 109.83 |
| 37 | 66 | 8981.623 | 136.618 | 0.002 | 0.027 | 0.304 | -157.377 | 115.51 | 115.50 | 109.83 | 109.83 |
| 37 | 67 | -8978.693 | 183.382 | -0.002 | -0.027 | -0.311 | 451.553 | 119.40 | 119.39 | 103.12 | 103.12 |
| 38 | 67 | 8978.697 | -183.382 | 0.002 | 0.027 | 0.311 | -451.552 | 119.40 | 119.39 | 103.12 | 103.12 |
| 38 | 68 | -13086.743 | 1038.395 | -0.002 | -0.027 | -0.318 | -3854.757 | 72.95 | 72.94 | 193.55 | 193.54 |
| 39 | 68 | 13086.740 | 520.193 | -0.012 | -0.021 | 0.318 | 3854.757 | 72.95 | 72.94 | 193.55 | 193.54 |
| 39 | 78 | -8868.031 | -462.068 | 0.012 | 0.021 | -0.264 | -57.929 | 111.20 | 111.19 | 113.29 | 113.28 |
| 40 | 78 | 8868.030 | 462.068 | -0.012 | -0.021 | 0.264 | 57.928 | 111.20 | 111.19 | 113.29 | 113.28 |
| 40 | 79 | -8935.292 | -21.890 | 0.012 | 0.021 | -0.209 | 911.316 | 124.99 | 124.98 | 92.14 | 92.13 |
| 41 | 79 | 8935.285 | 21.890 | -0.012 | -0.021 | 0.209 | -911.317 | 124.99 | 124.98 | 92.14 | 92.13 |
| 41 | 80 | -8954.172 | 75.216 | 0.012 | 0.021 | -0.154 | 582.138 | 120.83 | 120.83 | 99.85 | 99.84 |
| 42 | 80 | 8954.183 | -75.216 | -0.012 | -0.021 | 0.154 | -582.136 | 120.83 | 120.83 | 99.85 | 99.84 |
| 42 | 81 | -9044.583 | -24.341 | 0.012 | 0.021 | -0.099 | 381.290 | 119.29 | 119.29 | 105.55 | 105.54 |
| 43 | 81 | 9044.590 | 24.340 | -0.012 | -0.021 | 0.099 | -381.292 | 119.29 | 119.29 | 105.55 | 105.54 |
| 43 | 82 | -9008.908 | 6.325 | 0.012 | 0.021 | -0.045 | 569.859 | 121.36 | 121.36 | 100.81 | 100.81 |
| 44 | 82 | 9008.900 | -6.325 | -0.012 | -0.021 | 0.045 | -569.859 | 121.36 | 121.36 | 100.81 | 100.81 |
| 44 | 83 | -8976.902 | 84.271 | 0.012 | 0.021 | 0.010 | 390.572 | 118.56 | 118.56 | 104.48 | 104.48 |
| 45 | 83 | 8976.899 | -84.271 | -0.012 | -0.021 | -0.010 | -390.569 | 118.56 | 118.56 | 104.48 | 104.48 |
| 45 | 84 | -8976.938 | 28.837 | 0.012 | 0.021 | 0.065 | 88.072 | 114.52 | 114.52 | 111.35 | 111.35 |
| 46 | 84 | 8976.955 | -28.837 | -0.012 | -0.021 | -0.065 | -88.074 | 114.52 | 114.52 | 111.35 | 111.35 |
| 46 | 85 | -9008.124 | -139.556 | 0.012 | 0.021 | 0.120 | 248.552 | 117.06 | 117.06 | 108.10 | 108.10 |
| 47 | 85 | 9008.104 | 139.555 | -0.012 | -0.021 | -0.120 | -248.554 | 117.06 | 117.06 | 108.10 | 108.10 |
| 47 | 86 | -9002.182 | 180.444 | 0.012 | 0.021 | 0.174 | 553.245 | 121.05 | 121.05 | 101.11 | 101.11 |
| 48 | 86 | 9002.191 | -180.444 | -0.012 | -0.021 | -0.174 | -553.245 | 121.05 | 121.05 | 101.11 | 101.11 |
| 48 | 87 | -13107.246 | 1035.457 | 0.012 | 0.021 | 0.229 | -3742.548 | 74.56 | 74.57 | 191.66 | 191.66 |
| 49 | 87 | 13107.250 | 505.595 | -0.040 | 0.003 | -0.229 | 3742.549 | 74.56 | 74.57 | 191.66 | 191.66 |
| 49 | 97 | -8885.551 | -447.470 | 0.040 | -0.003 | 0.409 | -14.117 | 112.00 | 112.01 | 112.51 | 112.51 |
| 50 | 97 | 8885.549 | 447.470 | -0.040 | 0.003 | -0.409 | 14.117 | 112.00 | 112.01 | 112.51 | 112.51 |
| 50 | 98 | -8947.547 | -7.292 | 0.040 | -0.003 | 0.588 | 888.620 | 124.83 | 124.84 | 92.80 | 92.81 |
| 51 | 98 | 8947.539 | 7.292 | -0.040 | 0.003 | -0.588 | -888.619 | 124.83 | 124.84 | 92.80 | 92.81 |
| 51 | 99 | -8953.627 | 89.814 | 0.040 | -0.003 | 0.768 | 493.350 | 119.63 | 119.64 | 101.85 | 101.86 |
| 52 | 99 | 8953.625 | -89.815 | -0.040 | 0.003 | -0.768 | -493.349 | 119.63 | 119.64 | 101.85 | 101.86 |
| 52 | 100 | -9037.754 | -9.742 | 0.040 | -0.003 | 0.948 | 231.981 | 117.20 | 117.22 | 108.84 | 108.85 |
| 53 | 100 | 9037.758 | 9.742 | -0.040 | 0.003 | -0.948 | -231.980 | 117.20 | 117.22 | 108.84 | 108.85 |
| 53 | 101 | -8995.806 | 20.924 | 0.040 | -0.003 | 1.127 | 360.030 | 118.38 | 118.40 | 105.41 | 105.42 |
| 54 | 101 | 8995.813 | -20.925 | -0.040 | 0.003 | -1.127 | -360.029 | 118.38 | 118.40 | 105.41 | 105.42 |
| 54 | 102 | -8957.543 | 98.870 | 0.040 | -0.003 | 1.307 | 120.220 | 114.69 | 114.72 | 110.37 | 110.38 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 55 | 102 | 8957.541 | -98.869 | -0.040 | 0.003 | -1.307 | -120.217 | 114.69 | 114.72 | 110.37 | 110.38 |
| 55 | 103 | -8954.689 | 43.435 | 0.040 | -0.003 | 1.486 | -243.738 | 109.80 | 109.82 | 118.59 | 118.60 |
| 56 | 103 | 8954.688 | -43.435 | -0.040 | 0.003 | -1.486 | 243.740 | 109.80 | 109.82 | 118.59 | 118.60 |
| 56 | 104 | -8986.693 | -124.957 | 0.040 | -0.003 | 1.666 | -141.937 | 111.56 | 111.59 | 116.68 | 116.70 |
| 57 | 104 | 8986.695 | 124.958 | -0.040 | 0.003 | -1.666 | 141.938 | 111.56 | 111.59 | 116.68 | 116.70 |
| 57 | 105 | -8990.063 | 195.042 | 0.040 | -0.003 | 1.845 | 94.586 | 114.76 | 114.79 | 111.36 | 111.37 |
| 58 | 105 | 8990.059 | -195.042 | -0.040 | 0.003 | -1.845 | -94.585 | 114.76 | 114.79 | 111.36 | 111.37 |
| 58 | 106 | -13104.400 | 1050.055 | 0.040 | -0.003 | 2.025 | -4269.375 | 67.81 | 67.84 | 201.39 | 201.40 |
| 59 | 106 | 13104.406 | 562.330 | -0.214 | 1.075 | -2.025 | 4269.375 | 67.81 | 67.84 | 201.39 | 201.40 |
| 59 | 115 | -8891.994 | -504.205 | 0.214 | -1.075 | 2.986 | -288.111 | 108.40 | 108.45 | 118.80 | 118.82 |
| 60 | 115 | 8891.993 | 504.205 | -0.214 | 1.075 | -2.986 | 288.110 | 108.40 | 108.45 | 118.80 | 118.82 |
| 60 | 116 | -8962.172 | -64.027 | 0.214 | -1.075 | 3.947 | 866.510 | 124.69 | 124.76 | 93.48 | 93.50 |
| 61 | 116 | 8962.178 | 64.027 | -0.214 | 1.075 | -3.947 | -866.510 | 124.69 | 124.76 | 93.48 | 93.50 |
| 61 | 117 | -8993.844 | 33.080 | 0.214 | -1.075 | 4.907 | 718.246 | 123.10 | 123.19 | 97.24 | 97.27 |
| 62 | 117 | 8993.843 | -33.079 | -0.214 | 1.075 | -4.907 | -718.245 | 123.10 | 123.19 | 97.24 | 97.27 |
| 62 | 118 | -9075.061 | -66.477 | 0.214 | -1.075 | 5.868 | 709.471 | 124.00 | 124.11 | 98.46 | 98.50 |
| 63 | 118 | 9075.061 | 66.476 | -0.214 | 1.075 | -5.868 | -709.470 | 124.00 | 124.11 | 98.46 | 98.50 |
| 63 | 119 | -9030.197 | -35.811 | 0.214 | -1.075 | 6.829 | 1090.112 | 128.51 | 128.64 | 89.25 | 89.30 |
| 64 | 119 | 9030.193 | 35.811 | -0.214 | 1.075 | -6.829 | -1090.111 | 128.51 | 128.64 | 89.25 | 89.30 |
| 64 | 120 | -8989.014 | 42.134 | 0.214 | -1.075 | 7.790 | 1102.892 | 128.15 | 128.29 | 88.44 | 88.49 |
| 65 | 120 | 8989.014 | -42.134 | -0.214 | 1.075 | -7.790 | -1102.892 | 128.15 | 128.29 | 88.44 | 88.49 |
| 65 | 121 | -8971.309 | -13.300 | 0.214 | -1.075 | 8.751 | 996.340 | 126.49 | 126.66 | 90.63 | 90.69 |
| 66 | 121 | 8971.311 | 13.300 | -0.214 | 1.075 | -8.751 | -996.339 | 126.49 | 126.66 | 90.63 | 90.69 |
| 66 | 122 | -9026.664 | -181.693 | 0.214 | -1.075 | 9.711 | 1348.865 | 131.89 | 132.07 | 83.33 | 83.39 |
| 67 | 122 | 9026.666 | 181.692 | -0.214 | 1.075 | -9.711 | -1348.865 | 131.89 | 132.07 | 83.33 | 83.39 |
| 67 | 123 | -9024.053 | 138.307 | 0.214 | -1.075 | 10.672 | 1845.832 | 138.48 | 138.68 | 72.01 | 72.08 |
| 68 | 123 | 9024.055 | -138.308 | -0.214 | 1.075 | -10.672 | -1845.832 | 138.48 | 138.68 | 72.01 | 72.08 |
| 68 | 124 | -13077.121 | 983.298 | 0.214 | -1.075 | 11.633 | -2257.789 | 93.12 | 93.30 | 163.81 | 163.88 |
| 69 | 124 | 13077.116 | 346.040 | 0.323 | -1.104 | -11.633 | 2257.788 | 93.12 | 93.30 | 163.81 | 163.88 |
| 69 | 133 | -8886.803 | -2.065 | -0.323 | 1.104 | 10.179 | 364.821 | 116.98 | 117.17 | 103.89 | 103.96 |
| 70 | 133 | 8886.805 | 2.065 | 0.323 | -1.104 | -10.179 | -364.821 | 116.98 | 117.17 | 103.89 | 103.96 |
| 70 | 134 | -8917.439 | 282.798 | -0.323 | 1.104 | 8.725 | -979.561 | 99.43 | 99.60 | 134.80 | 134.86 |
| 71 | 134 | 8964.371 | -282.797 | 0.323 | -1.104 | -8.725 | 993.770 | 99.84 | 100.00 | 135.71 | 135.77 |
| 71 | 135 | -9052.734 | -19.071 | -0.323 | 1.104 | 7.271 | -1487.173 | 94.38 | 94.51 | 148.03 | 148.08 |
| 72 | 135 | 9052.734 | 19.070 | 0.323 | -1.104 | -7.271 | 1487.174 | 94.38 | 94.51 | 148.03 | 148.08 |
| 72 | 136 | -9004.704 | 41.651 | -0.323 | 1.104 | 5.817 | -1472.603 | 93.98 | 94.09 | 147.10 | 147.14 |
| 73 | 136 | 9004.705 | -41.650 | 0.323 | -1.104 | -5.817 | 1472.600 | 93.98 | 94.09 | 147.10 | 147.14 |
| 73 | 137 | -8920.851 | 119.811 | -0.323 | 1.104 | 4.362 | -1758.707 | 89.12 | 89.20 | 152.54 | 152.57 |
| 74 | 137 | 8920.849 | -119.811 | 0.323 | -1.104 | -4.362 | 1758.703 | 89.12 | 89.20 | 152.54 | 152.57 |
| 74 | 138 | -8828.826 | 115.135 | -0.323 | 1.104 | 2.908 | -2235.386 | 81.60 | 81.66 | 162.20 | 162.22 |
| 75 | 138 | 7769.167 | -115.134 | 0.323 | -1.104 | -2.908 | 2198.438 | 68.72 | 68.77 | 147.98 | 148.00 |
| 75 | 139 | -7689.510 | 160.181 | -0.323 | 1.104 | 1.454 | -2651.928 | 61.67 | 61.70 | 157.28 | 157.29 |
| 76 | 139 | 7689.512 | -160.182 | 0.323 | -1.104 | -1.454 | 2651.927 | 61.67 | 61.70 | 157.28 | 157.29 |
| 76 | 140 | -7624.104 | 261.111 | -0.323 | 1.104 | 0.000 | -3586.600 | 48.38 | 48.38 | 177.67 | 177.67 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS  94

cp + pret total (t=inf)

ESFUERZOS EN BARRAS

TENSIONES

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | MOM. Y | MOM. Z | SIGMA 1 | SIGMA2 | SIGMA3 | SIGMA4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 7012.928 | 392.442 | -0.367 | 0.690 | 0.000 | 1254.510 | 71.80 | 71.80 | 117.02 | 117.02 |
| 1 | 8 | -7036.821 | -216.952 | 0.367 | -0.690 | 1.652 | 47.411 | 89.47 | 89.50 | 87.77 | 87.78 |
| 2 | 8 | 7036.840 | 216.952 | -0.367 | 0.690 | -1.652 | -47.413 | 89.47 | 89.50 | 87.77 | 87.78 |
| 2 | 9 | -7065.078 | -105.431 | 0.367 | -0.690 | 3.304 | 760.971 | 99.33 | 99.40 | 71.92 | 71.94 |
| 3 | 9 | 7352.452 | 105.432 | -0.367 | 0.690 | -3.304 | -947.336 | 105.45 | 105.51 | 71.32 | 71.34 |
| 3 | 10 | -7381.036 | 46.125 | 0.367 | -0.690 | 4.956 | 1080.681 | 107.58 | 107.67 | 68.65 | 68.68 |
| 4 | 10 | 7381.023 | -46.125 | -0.367 | 0.690 | -4.956 | -1080.682 | 107.58 | 107.67 | 68.65 | 68.68 |
| 4 | 11 | -7433.390 | 102.199 | 0.367 | -0.690 | 6.608 | 596.256 | 101.76 | 101.88 | 80.30 | 80.34 |
| 5 | 11 | 7433.403 | -102.198 | -0.367 | 0.690 | -6.608 | -596.256 | 101.76 | 101.88 | 80.30 | 80.34 |
| 5 | 12 | -7436.047 | 97.097 | 0.367 | -0.690 | 8.260 | 196.496 | 96.44 | 96.59 | 89.40 | 89.46 |
| 6 | 12 | 7436.038 | -97.098 | -0.367 | 0.690 | -8.260 | -196.495 | 96.44 | 96.59 | 89.40 | 89.46 |
| 6 | 13 | -7377.418 | -9.377 | 0.367 | -0.690 | 9.912 | -64.231 | 92.20 | 92.38 | 94.57 | 94.64 |
| 7 | 13 | 7354.788 | 9.377 | -0.367 | 0.690 | -9.912 | 61.192 | 91.95 | 92.14 | 94.22 | 94.29 |
| 7 | 14 | -7381.607 | 152.363 | 0.367 | -0.690 | 11.564 | -63.108 | 92.25 | 92.47 | 94.60 | 94.67 |
| 8 | 14 | 7381.601 | -152.363 | -0.367 | 0.690 | -11.564 | 63.109 | 92.25 | 92.47 | 94.60 | 94.67 |
| 8 | 15 | -10612.244 | 785.172 | 0.367 | -0.690 | 13.216 | -3392.497 | 55.65 | 55.86 | 161.85 | 161.93 |
| 9 | 15 | 10612.235 | 651.925 | 0.282 | -0.834 | -13.216 | 3392.498 | 55.65 | 55.86 | 161.85 | 161.93 |
| 9 | 23 | -8426.534 | -487.515 | -0.282 | 0.834 | 11.947 | -578.193 | 98.56 | 98.79 | 119.48 | 119.56 |
| 10 | 23 | 8426.562 | 487.515 | 0.282 | -0.834 | -11.947 | 578.193 | 98.57 | 98.79 | 119.48 | 119.56 |
| 10 | 24 | -8473.143 | -112.798 | -0.282 | 0.834 | 10.677 | 679.003 | 115.95 | 116.15 | 91.54 | 91.61 |
| 11 | 24 | 8901.168 | 112.798 | 0.282 | -0.834 | -10.677 | -990.193 | 125.51 | 125.71 | 89.88 | 89.95 |
| 11 | 25 | -8464.753 | -2.246 | -0.282 | 0.834 | 9.408 | 774.804 | 117.14 | 117.31 | 89.26 | 89.32 |
| 12 | 25 | 8464.761 | 2.246 | 0.282 | -0.834 | -9.408 | -774.806 | 117.14 | 117.31 | 89.26 | 89.32 |
| 12 | 26 | -8537.252 | -43.124 | -0.282 | 0.834 | 8.139 | 812.655 | 118.57 | 118.72 | 89.32 | 89.38 |
| 13 | 26 | 8537.241 | 43.125 | 0.282 | -0.834 | -8.139 | -812.655 | 118.57 | 118.72 | 89.32 | 89.38 |
| 13 | 27 | -8512.701 | 16.267 | -0.282 | 0.834 | 6.869 | 989.348 | 120.63 | 120.76 | 85.01 | 85.05 |
| 14 | 27 | 8512.724 | -16.268 | 0.282 | -0.834 | -6.869 | -989.347 | 120.63 | 120.76 | 85.01 | 85.05 |
| 14 | 28 | -8491.072 | 112.066 | -0.282 | 0.834 | 5.600 | 721.772 | 116.79 | 116.90 | 90.81 | 90.85 |
| 15 | 28 | 8491.052 | -112.066 | 0.282 | -0.834 | -5.600 | -721.773 | 116.79 | 116.90 | 90.81 | 90.85 |
| 15 | 29 | -8494.121 | 105.162 | -0.282 | 0.834 | 4.330 | 198.320 | 109.86 | 109.94 | 102.73 | 102.76 |
| 16 | 29 | 8494.123 | -105.162 | 0.282 | -0.834 | -4.330 | -198.319 | 109.86 | 109.94 | 102.73 | 102.76 |
| 16 | 30 | -7998.880 | 11.280 | -0.282 | 0.834 | 3.061 | 89.467 | 102.16 | 102.22 | 98.96 | 98.98 |
| 17 | 30 | 7998.875 | -11.279 | 0.282 | -0.834 | -3.061 | -89.467 | 102.16 | 102.22 | 98.96 | 98.98 |
| 17 | 31 | -8000.468 | 293.459 | -0.282 | 0.834 | 1.792 | -289.738 | 97.13 | 97.16 | 107.59 | 107.60 |
| 18 | 31 | 8000.478 | -293.459 | 0.282 | -0.834 | -1.792 | 289.737 | 97.13 | 97.16 | 107.59 | 107.60 |
| 18 | 32 | -11167.557 | 987.599 | -0.282 | 0.834 | 0.522 | -4372.316 | 48.44 | 48.45 | 185.24 | 185.24 |
| 19 | 32 | 11167.566 | 582.989 | 0.016 | 0.118 | -0.522 | 4372.316 | 48.44 | 48.45 | 185.24 | 185.24 |
| 19 | 40 | -7923.081 | -502.453 | -0.016 | -0.118 | 0.450 | -709.343 | 90.56 | 90.57 | 116.14 | 116.14 |
| 20 | 40 | 7923.071 | 502.453 | 0.016 | 0.118 | -0.450 | 709.343 | 90.56 | 90.57 | 116.14 | 116.14 |
| 20 | 41 | -7972.625 | -127.736 | -0.016 | -0.118 | 0.379 | 616.143 | 108.89 | 108.89 | 86.68 | 86.68 |
| 21 | 41 | 7972.611 | 127.736 | 0.016 | 0.118 | -0.379 | -616.142 | 108.89 | 108.89 | 86.68 | 86.68 |
| 21 | 42 | -7971.065 | -17.184 | -0.016 | -0.118 | 0.307 | 779.804 | 111.05 | 111.06 | 82.94 | 82.95 |
| 22 | 42 | 7971.090 | 17.184 | 0.016 | 0.118 | -0.307 | -779.804 | 111.05 | 111.06 | 82.94 | 82.95 |
| 22 | 43 | -8029.672 | -58.063 | -0.016 | -0.118 | 0.235 | 885.567 | 113.21 | 113.21 | 81.28 | 81.29 |
| 23 | 43 | 8029.676 | 58.063 | 0.016 | 0.118 | -0.235 | -885.568 | 113.21 | 113.21 | 81.28 | 81.29 |
| 23 | 44 | -7991.211 | 1.329 | -0.016 | -0.118 | 0.163 | 1130.177 | 115.99 | 115.99 | 75.25 | 75.25 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 24 | 44 | 7991.190 | -1.330 | 0.016 | 0.118 | -0.163 | -1130.177 | 115.99 | 115.99 | 75.25 | 75.25 |
| 24 | 45 | -7955.597 | 97.128 | -0.016 | -0.118 | 0.092 | 930.530 | 112.87 | 112.87 | 79.33 | 79.33 |
| 25 | 45 | 7955.591 | -97.127 | 0.016 | 0.118 | -0.092 | -930.530 | 112.87 | 112.87 | 79.33 | 79.33 |
| 25 | 46 | -7947.304 | 90.223 | -0.016 | -0.118 | 0.020 | 474.288 | 106.68 | 106.68 | 89.58 | 89.58 |
| 26 | 46 | 7947.314 | -90.224 | 0.016 | 0.118 | -0.020 | -474.288 | 106.68 | 106.68 | 89.58 | 89.58 |
| 26 | 47 | -6916.268 | -3.659 | -0.016 | -0.118 | -0.052 | 45.266 | 87.93 | 87.93 | 86.30 | 86.30 |
| 27 | 47 | 6916.283 | 3.659 | 0.016 | 0.118 | 0.052 | -45.266 | 87.93 | 87.93 | 86.30 | 86.30 |
| 27 | 48 | -6918.855 | 278.521 | -0.016 | -0.118 | -0.124 | -269.623 | 83.76 | 83.76 | 93.48 | 93.48 |
| 28 | 48 | 6918.844 | -278.521 | 0.016 | 0.118 | 0.124 | 269.622 | 83.76 | 83.76 | 93.48 | 93.48 |
| 28 | 49 | -10086.867 | 972.661 | -0.016 | -0.118 | -0.195 | -4287.892 | 39.44 | 39.44 | 173.59 | 173.59 |
| 29 | 49 | 10086.867 | 576.934 | 0.002 | 0.023 | 0.195 | 4287.892 | 39.44 | 39.44 | 173.59 | 173.59 |
| 29 | 59 | -6843.290 | -496.398 | -0.002 | -0.023 | -0.204 | -655.089 | 77.66 | 77.66 | 101.27 | 101.27 |
| 30 | 59 | 6843.293 | 496.398 | 0.002 | 0.023 | 0.204 | 655.087 | 77.66 | 77.66 | 101.27 | 101.27 |
| 30 | 60 | -6897.311 | -121.680 | -0.002 | -0.023 | -0.212 | 640.191 | 95.64 | 95.63 | 72.56 | 72.56 |
| 31 | 60 | 6897.313 | 121.680 | 0.002 | 0.023 | 0.212 | -640.192 | 95.64 | 95.63 | 72.56 | 72.56 |
| 31 | 61 | -6914.691 | -11.128 | -0.002 | -0.023 | -0.220 | 771.482 | 97.61 | 97.60 | 69.80 | 69.80 |
| 32 | 61 | 6914.693 | 11.129 | 0.002 | 0.023 | 0.220 | -771.483 | 97.61 | 97.60 | 69.80 | 69.80 |
| 32 | 62 | -6977.169 | -52.007 | -0.002 | -0.023 | -0.228 | 848.927 | 99.43 | 99.43 | 68.83 | 68.83 |
| 33 | 62 | 6977.168 | 52.007 | 0.002 | 0.023 | 0.228 | -848.930 | 99.43 | 99.43 | 68.83 | 68.83 |
| 33 | 63 | -6942.562 | 7.385 | -0.002 | -0.023 | -0.237 | 1065.215 | 101.88 | 101.88 | 63.48 | 63.48 |
| 34 | 63 | 6942.563 | -7.385 | 0.002 | 0.023 | 0.237 | -1065.214 | 101.88 | 101.88 | 63.48 | 63.48 |
| 34 | 64 | -6910.793 | 103.183 | -0.002 | -0.023 | -0.245 | 837.240 | 98.44 | 98.43 | 68.26 | 68.25 |
| 35 | 64 | 6910.790 | -103.184 | 0.002 | 0.023 | 0.245 | -837.240 | 98.44 | 98.43 | 68.26 | 68.25 |
| 35 | 65 | -6904.541 | 96.279 | -0.002 | -0.023 | -0.253 | 354.117 | 91.91 | 91.90 | 79.14 | 79.14 |
| 36 | 65 | 6904.538 | -96.279 | 0.002 | 0.023 | 0.253 | -354.116 | 91.91 | 91.90 | 79.14 | 79.14 |
| 36 | 66 | -6915.847 | 2.397 | -0.002 | -0.023 | -0.262 | 69.987 | 88.26 | 88.25 | 85.73 | 85.73 |
| 37 | 66 | 6915.850 | -2.397 | 0.002 | 0.023 | 0.262 | -69.987 | 88.26 | 88.25 | 85.73 | 85.73 |
| 37 | 67 | -6913.593 | 284.577 | -0.002 | -0.023 | -0.270 | -268.168 | 83.71 | 83.71 | 93.38 | 93.38 |
| 38 | 67 | 6913.597 | -284.576 | 0.002 | 0.023 | 0.270 | 268.170 | 83.72 | 83.71 | 93.38 | 93.38 |
| 38 | 68 | -10076.792 | 978.716 | -0.002 | -0.023 | -0.278 | -4309.708 | 39.07 | 39.07 | 173.90 | 173.90 |
| 39 | 68 | 10076.790 | 579.584 | -0.011 | -0.018 | 0.278 | 4309.708 | 39.07 | 39.07 | 173.90 | 173.90 |
| 39 | 78 | -6828.384 | -499.048 | 0.011 | 0.018 | -0.228 | -660.995 | 77.39 | 77.39 | 101.22 | 101.22 |
| 40 | 78 | 6828.383 | 499.048 | -0.011 | -0.018 | 0.228 | 660.994 | 77.39 | 77.39 | 101.22 | 101.22 |
| 40 | 79 | -6880.175 | -124.331 | 0.011 | 0.018 | -0.179 | 649.469 | 95.54 | 95.54 | 72.13 | 72.13 |
| 41 | 79 | 6880.169 | 124.331 | -0.011 | -0.018 | 0.179 | -649.471 | 95.54 | 95.54 | 72.13 | 72.13 |
| 41 | 80 | -6894.712 | -13.779 | 0.011 | 0.018 | -0.129 | 799.139 | 97.73 | 97.72 | 68.92 | 68.92 |
| 42 | 80 | 6894.721 | 13.780 | -0.011 | -0.018 | 0.129 | -799.138 | 97.73 | 97.72 | 68.92 | 68.92 |
| 42 | 81 | -6964.329 | -54.658 | 0.011 | 0.018 | -0.079 | 886.613 | 99.77 | 99.77 | 67.81 | 67.81 |
| 43 | 81 | 6964.334 | 54.658 | -0.011 | -0.018 | 0.079 | -886.614 | 99.77 | 99.77 | 67.81 | 67.81 |
| 43 | 82 | -6936.859 | 4.735 | 0.011 | 0.018 | -0.030 | 1112.927 | 102.45 | 102.45 | 62.33 | 62.33 |
| 44 | 82 | 6936.854 | -4.735 | -0.011 | -0.018 | 0.030 | -1112.927 | 102.45 | 102.45 | 62.33 | 62.33 |
| 44 | 83 | -6912.215 | 100.532 | 0.011 | 0.018 | 0.020 | 894.983 | 99.22 | 99.22 | 66.96 | 66.96 |
| 45 | 83 | 6912.212 | -100.532 | -0.011 | -0.018 | -0.020 | -894.980 | 99.22 | 99.22 | 66.96 | 66.96 |
| 45 | 84 | -6912.242 | 93.628 | 0.011 | 0.018 | 0.070 | 421.155 | 92.90 | 92.90 | 77.72 | 77.72 |
| 46 | 84 | 6912.256 | -93.628 | -0.011 | -0.018 | -0.070 | -421.156 | 92.90 | 92.90 | 77.72 | 77.72 |
| 46 | 85 | -6936.255 | -0.254 | 0.011 | 0.018 | 0.119 | 142.811 | 89.48 | 89.49 | 84.34 | 84.34 |
| 47 | 85 | 6936.239 | 0.254 | -0.011 | -0.018 | -0.119 | -142.812 | 89.48 | 89.49 | 84.34 | 84.34 |
| 47 | 86 | -6931.679 | 281.926 | 0.011 | 0.018 | 0.169 | -185.498 | 85.04 | 85.05 | 91.73 | 91.73 |
| 48 | 86 | 6931.688 | -281.926 | -0.011 | -0.018 | -0.169 | 185.499 | 85.04 | 85.05 | 91.73 | 91.73 |
| 48 | 87 | -10092.579 | 976.066 | 0.011 | 0.018 | 0.219 | -4217.192 | 40.39 | 40.40 | 172.33 | 172.33 |
| 49 | 87 | 10092.582 | 567.658 | -0.037 | 0.014 | -0.219 | 4217.192 | 40.39 | 40.40 | 172.33 | 172.33 |
| 49 | 97 | -6841.874 | -487.122 | 0.037 | -0.014 | 0.385 | -624.230 | 78.05 | 78.06 | 100.55 | 100.56 |
| 50 | 97 | 6841.873 | 487.122 | -0.037 | 0.014 | -0.385 | 624.230 | 78.05 | 78.06 | 100.55 | 100.56 |
| 50 | 98 | -6889.611 | -112.405 | 0.037 | -0.014 | 0.552 | 631.937 | 95.42 | 95.43 | 72.65 | 72.65 |
| 51 | 98 | 6889.604 | 112.405 | -0.037 | 0.014 | -0.552 | -631.936 | 95.42 | 95.43 | 72.65 | 72.65 |
| 51 | 99 | -6894.293 | -1.853 | 0.037 | -0.014 | 0.718 | 727.630 | 96.76 | 96.77 | 70.53 | 70.54 |
| 52 | 99 | 6894.291 | 1.853 | -0.037 | 0.014 | -0.718 | -727.630 | 96.76 | 96.77 | 70.53 | 70.54 |
| 52 | 100 | -6959.070 | -42.731 | 0.037 | -0.014 | 0.885 | 765.416 | 98.08 | 98.09 | 70.49 | 70.50 |
| 53 | 100 | 6959.073 | 42.731 | -0.037 | 0.014 | -0.885 | -765.416 | 98.08 | 98.09 | 70.49 | 70.50 |
| 53 | 101 | -6926.771 | 16.661 | 0.037 | -0.014 | 1.051 | 942.045 | 100.03 | 100.05 | 66.07 | 66.08 |
| 54 | 101 | 6926.775 | -16.662 | -0.037 | 0.014 | -1.051 | -942.044 | 100.03 | 100.05 | 66.07 | 66.08 |
| 54 | 102 | -6897.309 | 112.460 | 0.037 | -0.014 | 1.218 | 674.412 | 96.08 | 96.10 | 71.78 | 71.78 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 55 | 102 | 6897.306 | -112.459 | -0.037 | 0.014 | -1.218 | -674.410 | 96.08 | 96.10 | 71.78 | 71.78 |
| 55 | 103 | -6895.110 | 105.555 | 0.037 | -0.014 | 1.385 | 150.175 | 89.05 | 89.08 | 83.65 | 83.66 |
| 56 | 103 | 6895.110 | -105.555 | -0.037 | 0.014 | -1.385 | -150.174 | 89.05 | 89.08 | 83.65 | 83.66 |
| 56 | 104 | -6919.753 | 11.673 | 0.037 | -0.014 | 1.551 | -176.438 | 85.00 | 85.03 | 91.37 | 91.38 |
| 57 | 104 | 6919.755 | -11.672 | -0.037 | 0.014 | -1.551 | 176.438 | 85.00 | 85.03 | 91.37 | 91.38 |
| 57 | 105 | -6922.348 | 293.852 | 0.037 | -0.014 | 1.718 | -560.323 | 79.91 | 79.94 | 100.12 | 100.13 |
| 58 | 105 | 6922.345 | -293.852 | -0.037 | 0.014 | -1.718 | 560.324 | 79.91 | 79.94 | 100.12 | 100.13 |
| 58 | 106 | -10090.389 | 987.992 | 0.037 | -0.014 | 1.884 | -4647.591 | 34.87 | 34.90 | 180.29 | 180.30 |
| 59 | 106 | 10090.393 | 613.413 | -0.186 | 0.937 | -1.884 | 4647.591 | 34.87 | 34.90 | 180.29 | 180.30 |
| 59 | 115 | -6846.836 | -532.877 | 0.186 | -0.937 | 2.720 | -850.636 | 75.07 | 75.12 | 105.75 | 105.77 |
| 60 | 115 | 6846.834 | 532.877 | -0.186 | 0.937 | -2.720 | 850.635 | 75.07 | 75.12 | 105.75 | 105.77 |
| 60 | 116 | -6900.872 | -158.160 | 0.186 | -0.937 | 3.555 | 608.795 | 95.23 | 95.29 | 73.30 | 73.33 |
| 61 | 116 | 6900.877 | 158.160 | -0.186 | 0.937 | -3.555 | -608.794 | 95.23 | 95.29 | 73.30 | 73.33 |
| 61 | 117 | -6925.260 | -47.608 | 0.186 | -0.937 | 4.390 | 903.994 | 99.47 | 99.55 | 66.91 | 66.94 |
| 62 | 117 | 6925.259 | 47.608 | -0.186 | 0.937 | -4.390 | -903.993 | 99.47 | 99.55 | 66.91 | 66.94 |
| 62 | 118 | -6987.796 | -88.487 | 0.186 | -0.937 | 5.226 | 1145.591 | 103.48 | 103.57 | 62.21 | 62.25 |
| 63 | 118 | 6987.796 | 88.486 | -0.186 | 0.937 | -5.226 | -1145.589 | 103.48 | 103.57 | 62.21 | 62.25 |
| 63 | 119 | -6953.251 | -29.094 | 0.186 | -0.937 | 6.061 | 1526.027 | 108.11 | 108.22 | 53.14 | 53.18 |
| 64 | 119 | 6953.248 | 29.094 | -0.186 | 0.937 | -6.061 | -1526.026 | 108.11 | 108.22 | 53.14 | 53.18 |
| 64 | 120 | -6921.541 | 66.704 | 0.186 | -0.937 | 6.897 | 1462.200 | 106.85 | 106.98 | 54.18 | 54.23 |
| 65 | 120 | 6921.541 | -66.704 | -0.186 | 0.937 | -6.897 | -1462.200 | 106.85 | 106.98 | 54.18 | 54.23 |
| 65 | 121 | -6907.907 | 59.799 | 0.186 | -0.937 | 7.732 | 1145.479 | 102.44 | 102.59 | 61.20 | 61.25 |
| 66 | 121 | 6907.909 | -59.799 | -0.186 | 0.937 | -7.732 | -1145.478 | 102.44 | 102.59 | 61.20 | 61.25 |
| 66 | 122 | -6950.531 | -34.083 | 0.186 | -0.937 | 8.567 | 1021.237 | 101.31 | 101.47 | 64.55 | 64.61 |
| 67 | 122 | 6950.532 | 34.083 | -0.186 | 0.937 | -8.567 | -1021.236 | 101.31 | 101.47 | 64.55 | 64.61 |
| 67 | 123 | -6948.521 | 248.097 | 0.186 | -0.937 | 9.403 | 847.204 | 98.96 | 99.13 | 68.47 | 68.54 |
| 68 | 123 | 6948.522 | -248.097 | -0.186 | 0.937 | -9.403 | -847.205 | 98.96 | 99.13 | 68.47 | 68.54 |
| 68 | 124 | -10069.383 | 934.520 | 0.186 | -0.937 | 10.238 | -3030.290 | 55.22 | 55.39 | 150.08 | 150.14 |
| 69 | 124 | 10069.379 | 445.454 | 0.284 | -0.969 | -10.238 | 3030.288 | 55.22 | 55.39 | 150.08 | 150.14 |
| 69 | 133 | -6842.838 | -144.813 | -0.284 | 0.969 | 8.958 | -285.872 | 82.50 | 82.67 | 92.86 | 92.92 |
| 70 | 133 | 6842.840 | 144.813 | 0.284 | -0.969 | -8.958 | 285.872 | 82.50 | 82.67 | 92.86 | 92.92 |
| 70 | 134 | -6866.429 | 110.311 | -0.284 | 0.969 | 7.678 | -757.047 | 76.52 | 76.66 | 103.85 | 103.91 |
| 71 | 134 | 6902.566 | -110.311 | 0.284 | -0.969 | -7.678 | 767.988 | 76.83 | 76.97 | 104.56 | 104.61 |
| 71 | 135 | -6970.605 | -86.348 | -0.284 | 0.969 | 6.399 | -744.920 | 78.01 | 78.13 | 104.90 | 104.94 |
| 72 | 135 | 6970.605 | 86.347 | 0.284 | -0.969 | -6.399 | 744.920 | 78.01 | 78.13 | 104.90 | 104.94 |
| 72 | 136 | -6933.622 | -3.812 | -0.284 | 0.969 | 5.119 | -491.721 | 80.93 | 81.03 | 98.69 | 98.72 |
| 73 | 136 | 6933.623 | 3.812 | 0.284 | -0.969 | -5.119 | 491.720 | 80.93 | 81.03 | 98.69 | 98.72 |
| 73 | 137 | -6869.055 | 92.151 | -0.284 | 0.969 | 3.839 | -631.053 | 78.27 | 78.34 | 101.04 | 101.07 |
| 74 | 137 | 6869.053 | -92.151 | 0.284 | -0.969 | -3.839 | 631.050 | 78.27 | 78.34 | 101.04 | 101.07 |
| 74 | 138 | -6798.196 | 124.331 | -0.284 | 0.969 | 2.560 | -1078.136 | 71.42 | 71.47 | 110.30 | 110.31 |
| 75 | 138 | 5982.258 | -124.330 | 0.284 | -0.969 | -2.560 | 1049.686 | 61.50 | 61.54 | 99.35 | 99.37 |
| 75 | 139 | -5920.922 | 194.796 | -0.284 | 0.969 | 1.280 | -1639.925 | 52.85 | 52.88 | 111.98 | 111.98 |
| 76 | 139 | 5920.924 | -194.797 | 0.284 | -0.969 | -1.280 | 1639.923 | 52.85 | 52.88 | 111.98 | 111.98 |
| 76 | 140 | -5870.561 | 308.292 | -0.284 | 0.969 | 0.000 | -2761.683 | 37.25 | 37.25 | 136.80 | 136.80 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS  95

max mz + pret (t=0)

| | | ESFUERZOS EN BARRAS | | | | | | TENSIONES | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | MOM. Y | MOM. Z | SIGMA 1 | SIGMA2 | SIGMA3 | SIGMA4 |
| 1 | 1 | 9141.461 | 784.537 | -17.201 | -121.425 | 0.000 | 1686.696 | 92.90 | 92.90 | 153.71 | 153.71 |
| 1 | 8 | -9172.490 | -68.643 | 0.540 | 11.434 | 2.429 | -1110.473 | 100.97 | 101.01 | 141.01 | 141.03 |
| 2 | 8 | 9172.515 | 68.643 | -0.540 | -11.434 | -2.429 | 1110.471 | 100.97 | 101.01 | 141.01 | 141.03 |
| 2 | 9 | -9209.188 | 7.041 | 0.540 | 11.434 | 4.858 | -987.200 | 103.05 | 103.14 | 138.67 | 138.70 |
| 3 | 9 | 9582.398 | -7.041 | -0.540 | -11.434 | -4.858 | 745.167 | 111.00 | 111.09 | 137.89 | 137.92 |
| 3 | 10 | -9619.520 | 134.720 | 0.540 | 11.433 | 7.291 | -1064.255 | 107.18 | 107.32 | 145.59 | 145.64 |
| 4 | 10 | 9619.506 | -134.721 | -0.540 | -11.433 | -7.291 | 1064.255 | 107.18 | 107.32 | 145.59 | 145.64 |
| 4 | 11 | -9619.992 | 145.060 | 0.533 | 11.446 | 9.599 | -1879.500 | 96.28 | 96.46 | 164.09 | 164.16 |
| 5 | 11 | 9620.012 | -145.059 | -0.533 | -11.446 | -9.599 | 1879.500 | 96.28 | 96.46 | 164.09 | 164.16 |
| 5 | 12 | -9623.445 | 97.313 | -4.553 | 52.995 | -77.133 | -2367.231 | 90.62 | 89.19 | 175.49 | 174.98 |
| 6 | 12 | 9623.432 | -97.314 | 4.553 | -52.995 | 77.134 | 2367.232 | 90.62 | 89.19 | 175.49 | 174.98 |
| 6 | 13 | -9547.302 | -31.923 | -4.978 | 51.419 | -97.973 | -2447.518 | 88.78 | 86.96 | 176.42 | 175.77 |
| 7 | 13 | 9517.913 | 31.923 | 4.979 | -51.419 | 97.974 | 2443.572 | 88.46 | 86.64 | 175.96 | 175.31 |
| 7 | 14 | -9552.743 | 141.652 | -5.429 | 49.889 | -121.389 | -2275.131 | 91.37 | 89.11 | 172.66 | 171.85 |
| 8 | 14 | 9552.733 | -141.652 | 5.428 | -49.889 | 121.389 | 2275.132 | 91.37 | 89.11 | 172.66 | 171.85 |
| 8 | 15 | -13748.374 | 1346.077 | -18.886 | 24.923 | -31.890 | -7820.355 | 28.83 | 28.31 | 273.33 | 273.15 |
| 9 | 15 | 13888.465 | 1301.206 | -16.073 | -141.407 | 31.647 | 7818.926 | 30.15 | 29.64 | 274.61 | 274.43 |
| 9 | 23 | -11044.267 | -948.074 | 7.700 | 109.819 | 23.847 | -2522.129 | 105.55 | 106.00 | 196.61 | 196.77 |
| 10 | 23 | 11044.302 | 948.074 | -7.700 | -109.819 | -23.847 | 2522.130 | 105.55 | 106.00 | 196.61 | 196.77 |
| 10 | 24 | -11099.172 | -40.712 | -5.944 | 73.934 | -165.963 | -683.015 | 132.57 | 129.48 | 156.19 | 155.09 |
| 11 | 24 | 11655.050 | 40.712 | 5.944 | -73.934 | 165.963 | 278.872 | 144.98 | 141.89 | 154.04 | 152.94 |
| 11 | 25 | -11082.650 | 119.249 | -6.239 | 73.568 | -195.940 | -1214.774 | 125.54 | 121.89 | 168.16 | 166.85 |
| 12 | 25 | 11082.662 | -119.249 | 6.239 | -73.568 | 195.939 | 1214.773 | 125.54 | 121.89 | 168.16 | 166.85 |
| 12 | 26 | -11171.181 | 14.644 | -6.699 | 72.067 | -224.888 | -1574.336 | 122.12 | 117.94 | 177.53 | 176.04 |
| 13 | 26 | 11171.167 | -14.643 | 6.699 | -72.067 | 224.888 | 1574.338 | 122.12 | 117.94 | 177.53 | 176.04 |
| 13 | 27 | -10920.991 | 58.495 | -8.028 | 63.891 | -261.250 | -1553.776 | 119.58 | 114.72 | 174.03 | 172.29 |
| 14 | 27 | 10921.020 | -58.495 | 8.028 | -63.891 | 261.251 | 1553.776 | 119.58 | 114.72 | 174.03 | 172.29 |
| 14 | 28 | -10887.276 | 123.750 | -8.478 | 62.361 | -298.388 | -1926.339 | 114.52 | 108.97 | 182.18 | 180.20 |
| 15 | 28 | 10887.249 | -123.751 | 8.478 | -62.361 | 298.387 | 1926.336 | 114.52 | 108.97 | 182.18 | 180.20 |
| 15 | 29 | -10964.360 | 58.972 | -8.938 | 60.860 | -337.510 | -2392.749 | 109.63 | 103.35 | 193.87 | 191.63 |
| 16 | 29 | 10964.362 | -58.972 | 8.938 | -60.861 | 337.511 | 2392.750 | 109.63 | 103.35 | 193.87 | 191.63 |
| 16 | 30 | -10326.815 | -50.175 | -9.412 | 59.399 | -378.507 | -2100.053 | 105.87 | 98.83 | 179.31 | 176.80 |
| 17 | 30 | 10326.811 | 50.175 | 9.411 | -59.399 | 378.507 | 2100.055 | 105.87 | 98.83 | 179.31 | 176.80 |
| 17 | 31 | -10334.504 | 695.968 | -21.684 | 32.424 | -285.275 | -2690.077 | 97.22 | 91.92 | 192.49 | 190.59 |
| 18 | 31 | 10334.516 | -695.968 | 21.684 | -32.424 | 285.274 | 2690.076 | 97.22 | 91.92 | 192.49 | 190.59 |
| 18 | 32 | -14453.230 | 1654.931 | -26.184 | 16.403 | -392.977 | -9548.286 | 16.32 | 9.92 | 312.99 | 310.71 |
| 19 | 32 | 14747.001 | 1228.772 | -39.335 | -102.681 | 392.980 | 9552.033 | 19.01 | 12.62 | 315.80 | 313.52 |
| 19 | 40 | -10539.010 | -986.675 | 30.418 | 70.045 | -232.220 | -3164.652 | 92.98 | 88.66 | 205.67 | 204.12 |
| 20 | 40 | 10538.997 | 986.676 | -30.417 | -70.044 | 232.219 | 3164.651 | 92.98 | 88.66 | 205.67 | 204.12 |
| 20 | 41 | -10608.978 | -78.960 | 15.643 | 42.137 | -319.218 | -1267.496 | 120.00 | 114.06 | 163.78 | 161.66 |
| 21 | 41 | 10608.960 | 78.959 | -15.642 | -42.137 | 319.219 | 1267.496 | 120.00 | 114.06 | 163.78 | 161.66 |
| 21 | 42 | -10612.577 | 77.886 | 15.179 | 41.207 | -253.118 | -1606.437 | 114.90 | 110.19 | 171.30 | 169.62 |
| 22 | 42 | 10612.610 | -77.885 | -15.179 | -41.207 | 253.119 | 1606.437 | 114.90 | 110.19 | 171.30 | 169.62 |
| 22 | 43 | -10536.816 | -22.411 | 14.726 | 39.693 | -185.780 | -1801.540 | 110.72 | 107.26 | 174.55 | 173.31 |
| 23 | 43 | 10536.820 | 22.411 | -14.726 | -39.693 | 185.779 | 1801.539 | 110.72 | 107.26 | 174.55 | 173.31 |
| 23 | 44 | -10481.240 | 17.475 | 14.393 | 30.315 | -118.962 | -1581.048 | 112.34 | 110.12 | 168.62 | 167.83 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 24 | 44 | 10481.215 | -17.475 | -14.393 | -30.315 | 118.961 | 1581.048 | 112.34 | 110.12 | 168.62 | 167.83 |
| 24 | 45 | -10054.524 | 88.944 | 13.943 | 28.784 | -55.191 | -1794.103 | 103.51 | 102.48 | 167.86 | 167.49 |
| 25 | 45 | 10054.517 | -88.943 | -13.942 | -28.784 | 55.192 | 1794.102 | 103.51 | 102.48 | 167.85 | 167.49 |
| 25 | 46 | -10038.130 | 28.329 | 13.489 | 27.277 | 6.570 | -2104.330 | 98.59 | 98.71 | 174.48 | 174.53 |
| 26 | 46 | 10038.143 | -28.330 | -13.490 | -27.277 | -6.567 | 2104.329 | 98.59 | 98.71 | 174.48 | 174.53 |
| 26 | 47 | -8693.496 | -80.453 | 12.995 | 27.410 | 68.782 | -2150.038 | 80.42 | 81.70 | 158.34 | 158.79 |
| 27 | 47 | 8693.516 | 80.452 | -12.994 | -27.410 | -68.784 | 2150.038 | 80.42 | 81.70 | 158.34 | 158.79 |
| 27 | 48 | -8691.232 | 694.371 | 7.945 | 2.351 | 469.152 | -2695.213 | 69.39 | 78.12 | 169.35 | 172.47 |
| 28 | 48 | 8691.217 | -694.371 | -7.946 | -2.351 | -469.152 | 2695.212 | 69.39 | 78.12 | 169.35 | 172.47 |
| 28 | 49 | -12799.908 | 1653.334 | 3.446 | -13.669 | 494.780 | -9530.042 | -6.09 | 1.95 | 294.65 | 297.53 |
| 29 | 49 | 13254.409 | 1218.293 | -23.705 | -98.270 | -494.745 | 9527.796 | -1.83 | 6.22 | 298.85 | 301.72 |
| 29 | 59 | -9036.345 | -976.304 | 14.971 | 65.423 | 574.008 | -3175.005 | 66.37 | 77.05 | 184.25 | 188.07 |
| 30 | 59 | 9036.350 | 976.304 | -14.970 | -65.423 | -574.009 | 3175.004 | 66.37 | 77.05 | 184.25 | 188.07 |
| 30 | 60 | -9100.877 | -66.651 | 4.603 | 34.388 | 228.123 | -1339.156 | 94.91 | 99.15 | 144.55 | 146.06 |
| 31 | 60 | 9100.879 | 66.651 | -4.604 | -34.387 | -228.121 | 1339.155 | 94.91 | 99.15 | 144.55 | 146.06 |
| 31 | 61 | -9376.574 | 81.346 | 4.154 | 32.864 | 247.818 | -1713.829 | 93.20 | 97.82 | 156.47 | 158.11 |
| 32 | 61 | 9376.576 | -81.345 | -4.153 | -32.864 | -247.814 | 1713.827 | 93.20 | 97.82 | 156.47 | 158.11 |
| 32 | 62 | -9463.339 | -23.468 | 3.701 | 31.349 | 265.501 | -1926.278 | 91.30 | 96.24 | 162.33 | 164.09 |
| 33 | 62 | 9463.338 | 23.467 | -3.701 | -31.349 | -265.495 | 1926.275 | 91.30 | 96.24 | 162.32 | 164.09 |
| 33 | 63 | -9424.020 | 16.304 | 3.612 | 20.651 | 281.650 | -1721.273 | 93.39 | 98.63 | 157.12 | 158.99 |
| 34 | 63 | 9424.021 | -16.303 | -3.611 | -20.651 | -281.649 | 1721.275 | 93.39 | 98.63 | 157.12 | 158.99 |
| 34 | 64 | -8854.227 | 87.458 | 3.161 | 19.114 | 296.915 | -1950.382 | 82.99 | 88.52 | 155.08 | 157.05 |
| 35 | 64 | 8854.222 | -87.458 | -3.162 | -19.114 | -296.919 | 1950.383 | 82.99 | 88.52 | 155.08 | 157.05 |
| 35 | 65 | -8851.731 | 26.776 | 2.711 | 17.600 | 310.128 | -2273.467 | 78.53 | 84.30 | 162.33 | 164.40 |
| 36 | 65 | 8851.728 | -26.776 | -2.710 | -17.600 | -310.129 | 2273.470 | 78.53 | 84.30 | 162.33 | 164.40 |
| 36 | 66 | -8872.039 | -86.119 | 2.260 | 16.069 | 321.299 | -2110.083 | 80.86 | 86.84 | 158.85 | 160.98 |
| 37 | 66 | 8872.043 | 86.119 | -2.260 | -16.069 | -321.299 | 2110.083 | 80.86 | 86.84 | 158.85 | 160.98 |
| 37 | 67 | -8874.738 | 701.088 | -6.003 | -7.519 | 728.516 | -2696.080 | 69.28 | 82.84 | 170.83 | 175.67 |
| 38 | 67 | 8874.742 | -701.088 | 6.004 | 7.519 | -728.514 | 2696.082 | 69.28 | 82.84 | 170.83 | 175.67 |
| 38 | 68 | -12988.413 | 1739.824 | -14.688 | -40.650 | 692.008 | -9576.002 | -6.53 | 4.73 | 296.69 | 300.71 |
| 39 | 68 | 13603.750 | 1146.774 | -8.297 | -49.284 | -691.975 | 9582.032 | -0.86 | 10.39 | 302.54 | 306.56 |
| 39 | 78 | -9390.666 | -984.699 | 3.797 | 33.264 | 719.193 | -3209.469 | 69.03 | 82.41 | 189.02 | 193.80 |
| 40 | 78 | 9390.665 | 984.699 | -3.799 | -33.265 | -719.189 | 3209.468 | 69.03 | 82.41 | 189.02 | 193.80 |
| 40 | 79 | -9103.552 | -72.353 | -3.972 | 5.961 | 307.942 | -1358.427 | 93.94 | 99.67 | 144.75 | 146.80 |
| 41 | 79 | 9103.546 | 72.353 | 3.973 | -5.962 | -307.943 | 1358.427 | 93.94 | 99.67 | 144.75 | 146.80 |
| 41 | 80 | -9116.808 | 80.191 | -4.423 | 4.431 | 289.053 | -1695.107 | 89.79 | 95.17 | 152.62 | 154.55 |
| 42 | 80 | 9116.818 | -80.190 | 4.426 | -4.431 | -289.052 | 1695.108 | 89.79 | 95.17 | 152.62 | 154.55 |
| 42 | 81 | -9201.594 | -24.613 | -4.877 | 2.917 | 268.123 | -1885.049 | 88.52 | 93.51 | 158.08 | 159.86 |
| 43 | 81 | 9201.601 | 24.613 | 4.876 | -2.918 | -268.122 | 1885.047 | 88.52 | 93.51 | 158.08 | 159.86 |
| 43 | 82 | -8463.773 | 0.108 | -5.327 | 1.378 | 245.166 | -1664.276 | 82.36 | 86.93 | 143.83 | 145.45 |
| 44 | 82 | 8463.766 | -0.108 | 5.326 | -1.378 | -245.169 | 1664.274 | 82.36 | 86.93 | 143.82 | 145.45 |
| 44 | 83 | -8426.143 | 87.217 | -5.422 | -8.893 | 220.334 | -1874.835 | 79.31 | 83.41 | 148.21 | 149.68 |
| 45 | 83 | 8426.139 | -87.217 | 5.423 | 8.893 | -220.336 | 1874.837 | 79.31 | 83.41 | 148.21 | 149.68 |
| 45 | 84 | -8420.553 | 26.527 | -5.875 | -10.408 | 194.902 | -2180.484 | 75.39 | 79.02 | 155.16 | 156.46 |
| 46 | 84 | 8420.571 | -26.527 | 5.873 | 10.408 | -194.901 | 2180.483 | 75.40 | 79.02 | 155.16 | 156.46 |
| 46 | 85 | -8446.115 | -83.028 | -6.323 | -11.930 | 167.458 | -2002.148 | 78.35 | 81.47 | 151.53 | 152.64 |
| 47 | 85 | 8446.095 | 83.028 | 6.326 | 11.930 | -167.455 | 2002.147 | 78.35 | 81.47 | 151.53 | 152.64 |
| 47 | 86 | -8434.548 | 703.063 | -17.066 | -37.908 | 479.498 | -2589.662 | 67.46 | 76.38 | 163.68 | 166.87 |
| 48 | 86 | 8434.557 | -703.063 | 17.064 | 37.908 | -479.503 | 2589.662 | 67.46 | 76.38 | 163.68 | 166.87 |
| 48 | 87 | -12533.986 | 1741.878 | -25.836 | -70.961 | 390.211 | -9463.248 | -6.87 | -0.52 | 291.24 | 293.50 |
| 49 | 87 | 13306.610 | 1122.303 | -4.384 | -18.817 | -390.242 | 9433.441 | 0.71 | 7.06 | 297.89 | 300.16 |
| 49 | 97 | -9079.286 | -960.228 | -0.116 | 2.797 | 399.853 | -3153.722 | 68.81 | 76.25 | 184.89 | 187.55 |
| 50 | 97 | 9079.285 | 960.228 | 0.115 | -2.797 | -399.849 | 3153.722 | 68.81 | 76.25 | 184.89 | 187.55 |
| 50 | 98 | -9608.157 | -66.419 | -7.208 | -18.389 | 36.696 | -1385.426 | 102.48 | 103.16 | 152.64 | 152.88 |
| 51 | 98 | 9608.148 | 66.419 | 7.207 | 18.390 | -36.696 | 1385.428 | 102.48 | 103.16 | 152.64 | 152.88 |
| 51 | 99 | -9619.861 | 89.378 | -7.661 | -19.902 | 3.194 | -1783.930 | 97.62 | 97.68 | 161.94 | 161.96 |
| 52 | 99 | 9619.859 | -89.378 | 7.659 | 19.902 | -3.195 | 1783.931 | 97.62 | 97.68 | 161.94 | 161.96 |
| 52 | 100 | -9709.613 | -15.365 | -8.112 | -21.412 | -32.300 | -2030.310 | 95.79 | 95.19 | 168.79 | 168.57 |
| 53 | 100 | 9709.618 | 15.366 | 8.113 | 21.412 | 32.299 | 2030.310 | 95.79 | 95.19 | 168.79 | 168.57 |
| 53 | 101 | -9673.291 | 2.610 | -8.563 | -22.942 | -69.826 | -1858.394 | 97.98 | 96.68 | 164.55 | 164.09 |
| 54 | 101 | 9673.297 | -2.611 | 8.565 | 22.942 | 69.825 | 1858.394 | 97.98 | 96.68 | 164.55 | 164.09 |
| 54 | 102 | -9640.652 | 89.796 | -9.063 | -31.663 | -110.782 | -2093.989 | 94.80 | 92.74 | 169.62 | 168.88 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 55 | 102 | 9640.650 | -89.794 | 9.063 | 31.663 | 110.777 | 2093.991 | 94.80 | 92.74 | 169.62 | 168.88 |
| 55 | 103 | -9643.424 | 29.134 | -9.516 | -33.175 | -152.617 | -2427.428 | 90.77 | 87.93 | 177.36 | 176.35 |
| 56 | 103 | 9643.424 | -29.135 | 9.517 | 33.175 | 152.618 | 2427.430 | 90.77 | 87.93 | 177.36 | 176.35 |
| 56 | 104 | -9681.054 | -79.603 | -9.985 | -34.118 | -193.562 | -2284.897 | 93.53 | 89.93 | 174.74 | 173.45 |
| 57 | 104 | 9681.055 | 79.603 | 9.985 | 34.118 | 193.566 | 2284.898 | 93.53 | 89.93 | 174.74 | 173.45 |
| 57 | 105 | -8841.328 | 710.250 | -22.969 | -58.442 | -24.037 | -2942.383 | 72.57 | 72.13 | 178.50 | 178.34 |
| 58 | 105 | 8841.324 | -710.251 | 22.968 | 58.442 | 24.040 | 2942.384 | 72.57 | 72.13 | 178.50 | 178.34 |
| 58 | 106 | -12961.291 | 1749.141 | -31.736 | -91.736 | -145.439 | -9874.160 | -3.77 | -6.13 | 304.40 | 303.55 |
| 59 | 106 | 13890.996 | 1183.907 | -24.984 | 24.844 | 145.224 | 9994.482 | 3.37 | 1.01 | 315.30 | 314.46 |
| 59 | 115 | -9684.209 | -1021.833 | 20.484 | -40.864 | -42.923 | -3459.996 | 76.48 | 75.68 | 200.95 | 200.66 |
| 60 | 115 | 9684.209 | 1021.833 | -20.484 | 40.863 | 42.922 | 3459.996 | 76.48 | 75.68 | 200.95 | 200.66 |
| 60 | 116 | -9175.013 | -143.182 | 7.835 | -64.337 | -205.236 | -1424.280 | 98.74 | 94.92 | 148.85 | 147.49 |
| 61 | 116 | 9175.019 | 143.181 | -7.835 | 64.337 | 205.237 | 1424.281 | 98.74 | 94.92 | 148.85 | 147.49 |
| 61 | 117 | -8190.378 | 32.528 | 7.327 | -65.581 | -172.122 | -1467.612 | 85.42 | 82.22 | 137.30 | 136.15 |
| 62 | 117 | 8190.377 | -32.527 | -7.328 | 65.581 | 172.123 | 1467.613 | 85.42 | 82.22 | 137.30 | 136.15 |
| 62 | 118 | -8265.970 | -72.002 | 6.871 | -67.079 | -140.236 | -1442.482 | 86.41 | 83.80 | 137.57 | 136.64 |
| 63 | 118 | 8265.972 | 72.001 | -6.871 | 67.078 | 140.235 | 1442.482 | 86.41 | 83.80 | 137.57 | 136.64 |
| 63 | 119 | -8215.483 | -54.026 | 6.421 | -68.608 | -110.329 | -998.436 | 91.43 | 89.37 | 126.76 | 126.03 |
| 64 | 119 | 8215.479 | 54.026 | -6.421 | 68.608 | 110.328 | 998.437 | 91.43 | 89.37 | 126.76 | 126.03 |
| 64 | 120 | -8168.674 | 31.282 | 5.568 | -77.002 | -77.269 | -927.196 | 91.48 | 90.04 | 124.44 | 123.93 |
| 65 | 120 | 8168.674 | -31.281 | -5.568 | 77.002 | 77.270 | 927.195 | 91.48 | 90.04 | 124.44 | 123.93 |
| 65 | 121 | -8145.344 | -29.215 | 5.112 | -78.503 | -53.333 | -978.526 | 90.28 | 89.28 | 125.23 | 124.88 |
| 66 | 121 | 8145.346 | 29.215 | -5.112 | 78.503 | 53.332 | 978.526 | 90.28 | 89.28 | 125.23 | 124.88 |
| 66 | 122 | -8195.074 | -134.813 | 4.836 | -78.758 | -30.158 | -529.871 | 96.68 | 96.12 | 115.60 | 115.40 |
| 67 | 122 | 8195.076 | 134.813 | -4.837 | 78.758 | 30.157 | 529.872 | 96.68 | 96.12 | 115.60 | 115.40 |
| 67 | 123 | -8186.838 | 651.866 | -5.798 | -116.700 | 275.480 | -999.348 | 87.46 | 92.59 | 125.14 | 126.97 |
| 68 | 123 | 8186.840 | -651.866 | 5.798 | 116.701 | -275.478 | 999.348 | 87.46 | 92.59 | 125.14 | 126.97 |
| 68 | 124 | -12234.281 | 1682.906 | -14.132 | -148.557 | 234.973 | -7722.916 | 13.78 | 17.60 | 256.63 | 257.99 |
| 69 | 124 | 12152.076 | 953.681 | -11.473 | 63.668 | -234.973 | 7583.009 | 14.79 | 18.62 | 253.27 | 254.63 |
| 69 | 133 | -7956.138 | -180.958 | 0.997 | -79.695 | 18.201 | -2577.861 | 65.87 | 66.21 | 158.91 | 159.03 |
| 70 | 133 | 7956.140 | 180.958 | -0.997 | 79.695 | -18.201 | 2577.861 | 65.87 | 66.21 | 158.91 | 159.03 |
| 70 | 134 | -9853.729 | 219.048 | 0.448 | -80.877 | 24.357 | -3492.657 | 77.56 | 78.01 | 203.61 | 203.77 |
| 71 | 134 | 9900.661 | -219.047 | -0.448 | 80.877 | -24.358 | 3506.866 | 77.96 | 78.41 | 204.52 | 204.68 |
| 71 | 135 | -9994.649 | -27.384 | 0.015 | -82.463 | 24.979 | -3999.059 | 72.57 | 73.04 | 216.88 | 217.04 |
| 72 | 135 | 9994.649 | 27.384 | -0.015 | 82.463 | -24.979 | 3999.060 | 72.57 | 73.04 | 216.88 | 217.04 |
| 72 | 136 | -9902.520 | 43.902 | -0.896 | -17.134 | 43.669 | -3952.241 | 71.86 | 72.67 | 214.59 | 214.88 |
| 73 | 136 | 9902.521 | -43.901 | 0.896 | 17.134 | -43.669 | 3952.239 | 71.86 | 72.67 | 214.59 | 214.88 |
| 73 | 137 | -9830.591 | 99.382 | -0.896 | -17.134 | 32.752 | -4176.273 | 68.06 | 68.67 | 218.80 | 219.02 |
| 74 | 137 | 9830.589 | -99.383 | 0.896 | 17.134 | -32.752 | 4176.270 | 68.06 | 68.67 | 218.80 | 219.02 |
| 74 | 138 | -9750.491 | 72.027 | -0.896 | -17.134 | 21.833 | -4488.819 | 62.98 | 63.38 | 224.92 | 225.07 |
| 75 | 138 | 8690.832 | -72.026 | 0.896 | 17.134 | -21.833 | 4451.871 | 50.09 | 50.50 | 210.70 | 210.85 |
| 75 | 139 | -8623.100 | 94.392 | -0.896 | -17.134 | 10.917 | -4639.169 | 46.84 | 47.04 | 214.14 | 214.21 |
| 76 | 139 | 8623.102 | -94.393 | 0.896 | 17.134 | -10.916 | 4639.168 | 46.84 | 47.04 | 214.14 | 214.21 |
| 76 | 140 | -8938.395 | 563.069 | -0.448 | 1.530 | 0.000 | -5836.936 | 34.93 | 34.93 | 245.34 | 245.34 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS  96

min mz + pret (t=0)

| | | ESFUERZOS EN BARRAS | | | | | | TENSIONES | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | MOM. Y | MOM. Z | SIGMA 1 | SIGMA2 | SIGMA3 | SIGMA4 |
| 1 | 1 | 9073.938 | 299.357 | -0.382 | 0.720 | 0.000 | 1571.773 | 93.58 | 93.58 | 150.24 | 150.24 |
| 1 | 8 | -9104.967 | -532.124 | 13.271 | 108.409 | 71.665 | 1419.978 | 133.25 | 134.59 | 82.49 | 82.97 |
| 2 | 8 | 9104.994 | 532.124 | -13.271 | -108.409 | -71.665 | -1419.980 | 133.25 | 134.59 | 82.49 | 82.97 |
| 2 | 9 | -9141.667 | -309.830 | 7.961 | 89.329 | 119.435 | 3299.045 | 158.36 | 160.58 | 40.15 | 40.94 |
| 3 | 9 | 9514.881 | 309.829 | -7.961 | -89.329 | -119.435 | -3541.078 | 166.30 | 168.53 | 39.37 | 40.16 |
| 3 | 10 | -9552.002 | -37.343 | 2.018 | 46.018 | 133.906 | 4321.190 | 177.05 | 179.54 | 22.08 | 22.97 |
| 4 | 10 | 9551.984 | 37.343 | -2.018 | -46.018 | -133.905 | -4321.192 | 177.05 | 179.54 | 22.08 | 22.97 |
| 4 | 11 | -9687.514 | 106.280 | -3.285 | 45.375 | 131.160 | 3960.402 | 173.97 | 176.41 | 31.99 | 32.86 |
| 5 | 11 | 9687.529 | -106.279 | 3.285 | -45.375 | -131.161 | -3960.402 | 173.97 | 176.41 | 31.99 | 32.86 |
| 5 | 12 | -9690.963 | 177.117 | -8.595 | 44.745 | 104.428 | 3385.951 | 166.60 | 168.54 | 45.16 | 45.86 |
| 6 | 12 | 9690.953 | -177.117 | 8.596 | -44.745 | -104.428 | -3385.951 | 166.60 | 168.54 | 45.16 | 45.86 |
| 6 | 13 | -9614.823 | 45.665 | -12.956 | 15.307 | 76.962 | 2652.411 | 156.10 | 157.53 | 60.94 | 61.45 |
| 7 | 13 | 9585.433 | -45.666 | 12.956 | -15.307 | -76.962 | -2656.358 | 155.78 | 157.21 | 60.48 | 60.99 |
| 7 | 14 | -9620.262 | 241.194 | -16.400 | -0.912 | -20.481 | 2332.971 | 152.81 | 152.43 | 68.58 | 68.45 |
| 8 | 14 | 9620.257 | -241.194 | 16.400 | 0.912 | 20.481 | -2332.971 | 152.81 | 152.43 | 68.58 | 68.45 |
| 8 | 15 | -13815.896 | 630.317 | -0.781 | 0.918 | -28.126 | -402.616 | 123.98 | 123.52 | 136.43 | 136.26 |
| 9 | 15 | 13675.785 | 418.452 | 2.355 | -13.189 | 28.370 | 404.048 | 122.65 | 122.19 | 135.15 | 134.98 |
| 9 | 23 | -10832.712 | -274.080 | -2.355 | 13.189 | -28.393 | 1471.570 | 156.69 | 156.16 | 103.47 | 103.28 |
| 10 | 23 | 10832.747 | 274.080 | 2.355 | -13.189 | 28.393 | -1471.569 | 156.69 | 156.16 | 103.47 | 103.28 |
| 10 | 24 | -10888.742 | -233.116 | 0.201 | 13.248 | 19.966 | 3043.100 | 177.93 | 178.30 | 68.35 | 68.48 |
| 11 | 24 | 11444.619 | 233.116 | -0.201 | -13.248 | -19.966 | -3447.242 | 190.34 | 190.71 | 66.19 | 66.33 |
| 11 | 25 | -10903.721 | -159.049 | 2.649 | 97.917 | 25.167 | 3929.772 | 189.91 | 190.37 | 48.40 | 48.56 |
| 12 | 25 | 10903.731 | 159.049 | -2.649 | -97.917 | -25.167 | -3929.772 | 189.91 | 190.37 | 48.40 | 48.56 |
| 12 | 26 | -11003.499 | -151.893 | -1.829 | 61.704 | 7.522 | 4528.693 | 199.33 | 199.47 | 36.12 | 36.17 |
| 13 | 26 | 11003.485 | 151.894 | 1.830 | -61.704 | -7.522 | -4528.691 | 199.33 | 199.47 | 36.12 | 36.17 |
| 13 | 27 | -11189.921 | -2.996 | -7.145 | 61.090 | -12.538 | 5011.455 | 208.31 | 208.08 | 27.58 | 27.50 |
| 14 | 27 | 11189.950 | 2.995 | 7.145 | -61.090 | 12.535 | -5011.455 | 208.31 | 208.08 | 27.58 | 27.50 |
| 14 | 28 | -11167.457 | 198.880 | -12.455 | 60.460 | -56.637 | 4588.225 | 202.79 | 201.73 | 37.05 | 36.68 |
| 15 | 28 | 11167.431 | -198.880 | 12.455 | -60.460 | 56.637 | -4588.222 | 202.79 | 201.73 | 37.05 | 36.68 |
| 15 | 29 | -11098.292 | 254.597 | -16.969 | 28.654 | -106.834 | 3524.927 | 188.19 | 186.20 | 60.48 | 59.77 |
| 16 | 29 | 11098.294 | -254.596 | 16.969 | -28.654 | 106.834 | -3524.926 | 188.19 | 186.20 | 60.48 | 59.77 |
| 16 | 30 | -10449.497 | 138.198 | -22.256 | 9.505 | -195.379 | 2726.417 | 170.16 | 166.52 | 70.71 | 69.41 |
| 17 | 30 | 10449.488 | -138.198 | 22.256 | -9.506 | 195.379 | -2726.417 | 170.16 | 166.52 | 70.71 | 69.41 |
| 17 | 31 | -10537.057 | 74.183 | 0.504 | 7.560 | -63.467 | 2067.921 | 161.24 | 160.06 | 86.32 | 85.90 |
| 18 | 31 | 10537.070 | -74.183 | -0.504 | -7.560 | 63.467 | -2067.922 | 161.24 | 160.06 | 86.32 | 85.90 |
| 18 | 32 | -14654.660 | 906.516 | 0.504 | 7.560 | -71.773 | -1689.362 | 115.75 | 114.59 | 168.23 | 167.82 |
| 19 | 32 | 14360.913 | 325.641 | -4.997 | -9.431 | 71.772 | 1685.616 | 113.06 | 111.89 | 165.42 | 165.01 |
| 19 | 40 | -10151.797 | -346.014 | 2.640 | -0.711 | -12.129 | 1352.009 | 146.34 | 146.12 | 97.53 | 97.45 |
| 20 | 40 | 10151.784 | 346.014 | -2.640 | 0.710 | 12.129 | -1352.008 | 146.34 | 146.12 | 97.53 | 97.45 |
| 20 | 41 | -10099.140 | -309.717 | 29.448 | 83.697 | -104.187 | 3247.134 | 171.84 | 169.90 | 54.16 | 53.47 |
| 21 | 41 | 10099.121 | 309.717 | -29.449 | -83.696 | 104.186 | -3247.133 | 171.84 | 169.90 | 54.16 | 53.47 |
| 21 | 42 | -10091.488 | -161.123 | 24.672 | 69.965 | -6.578 | 4226.068 | 183.90 | 183.78 | 31.52 | 31.48 |
| 22 | 42 | 10091.521 | 161.123 | -24.671 | -69.965 | 6.577 | -4226.067 | 183.90 | 183.78 | 31.52 | 31.48 |
| 22 | 43 | -10319.477 | -158.318 | 19.750 | 34.849 | 74.468 | 4858.046 | 194.46 | 195.85 | 19.79 | 20.28 |
| 23 | 43 | 10319.480 | 158.317 | -19.750 | -34.849 | -74.466 | -4858.046 | 194.46 | 195.85 | 19.79 | 20.28 |
| 23 | 44 | -10275.150 | -3.721 | 14.440 | 34.219 | 151.394 | 5364.540 | 199.95 | 202.77 | 7.48 | 8.48 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 24 | 44 | 10275.125 | 3.722 | -14.439 | -34.219 | -151.393 | -5364.540 | 199.95 | 202.77 | 7.47 | 8.48 |
| 24 | 45 | -10609.363 | 191.941 | 9.128 | 33.590 | 204.409 | 4971.492 | 198.43 | 202.23 | 20.44 | 21.80 |
| 25 | 45 | 10609.355 | -191.941 | -9.130 | -33.590 | -204.404 | -4971.492 | 198.43 | 202.23 | 20.44 | 21.80 |
| 25 | 46 | -10604.219 | 243.340 | 5.461 | 0.926 | 264.444 | 3940.081 | 184.04 | 188.96 | 43.59 | 45.34 |
| 26 | 46 | 10604.232 | -243.340 | -5.460 | -0.926 | -264.446 | -3940.082 | 184.04 | 188.96 | 43.59 | 45.34 |
| 26 | 47 | -9270.836 | 126.344 | 0.140 | -17.885 | 277.684 | 2662.304 | 150.02 | 155.18 | 55.71 | 57.55 |
| 27 | 47 | 9270.855 | -126.344 | -0.140 | 17.885 | -277.684 | -2662.306 | 150.02 | 155.18 | 55.71 | 57.55 |
| 27 | 48 | -9258.447 | 54.988 | 2.983 | 5.106 | -19.993 | 2062.067 | 144.62 | 144.24 | 70.16 | 70.03 |
| 28 | 48 | 9258.432 | -54.988 | -2.983 | -5.106 | 19.994 | -2062.068 | 144.62 | 144.24 | 70.16 | 70.03 |
| 28 | 49 | -13377.248 | 837.059 | 2.287 | -6.953 | -5.158 | -1600.551 | 104.43 | 104.34 | 154.48 | 154.45 |
| 29 | 49 | 12922.748 | 369.139 | -2.528 | 1.274 | 5.131 | 1602.797 | 100.16 | 100.08 | 150.28 | 150.25 |
| 29 | 59 | -8714.809 | -333.694 | 2.528 | -1.274 | -4.332 | 1568.134 | 131.01 | 130.93 | 74.46 | 74.43 |
| 30 | 59 | 8714.814 | 333.694 | -2.528 | 1.273 | 4.332 | -1568.135 | 131.01 | 130.93 | 74.46 | 74.43 |
| 30 | 60 | -8814.217 | -305.435 | 18.564 | 79.367 | 440.923 | 3401.017 | 152.60 | 160.80 | 32.63 | 35.56 |
| 31 | 60 | 8814.219 | 305.434 | -18.564 | -79.367 | -440.921 | -3401.017 | 152.60 | 160.80 | 32.63 | 35.56 |
| 31 | 61 | -8583.664 | -147.978 | 13.254 | 60.281 | 512.519 | 4327.666 | 161.39 | 170.93 | 8.45 | 11.86 |
| 32 | 61 | 8583.666 | 147.979 | -13.254 | -60.281 | -512.516 | -4327.666 | 161.39 | 170.93 | 8.45 | 11.86 |
| 32 | 62 | -8659.180 | -140.708 | 8.870 | 25.319 | 525.242 | 4899.072 | 169.85 | 179.63 | -3.61 | -0.12 |
| 33 | 62 | 8659.179 | 140.707 | -8.870 | -25.320 | -525.239 | -4899.077 | 169.85 | 179.63 | -3.61 | -0.12 |
| 33 | 63 | -8608.610 | 13.888 | 3.560 | 24.690 | 553.206 | 5344.914 | 174.91 | 185.20 | -14.46 | -10.78 |
| 34 | 63 | 8608.612 | -13.887 | -3.559 | -24.689 | -553.204 | -5344.913 | 174.91 | 185.20 | -14.46 | -10.78 |
| 34 | 64 | -9095.887 | 209.863 | -1.751 | 24.066 | 557.249 | 4891.151 | 174.97 | 185.33 | 1.98 | 5.68 |
| 35 | 64 | 9095.882 | -209.865 | 1.749 | -24.066 | -557.252 | -4891.152 | 174.97 | 185.33 | 1.98 | 5.68 |
| 35 | 65 | -9082.142 | 261.266 | -5.891 | -8.957 | 578.421 | 3799.872 | 160.02 | 170.79 | 26.51 | 30.35 |
| 36 | 65 | 9082.138 | -261.267 | 5.891 | 8.957 | -578.420 | -3799.869 | 160.02 | 170.79 | 26.51 | 30.35 |
| 36 | 66 | -9091.199 | 148.616 | -11.200 | -28.036 | 539.983 | 2686.454 | 145.63 | 155.68 | 52.02 | 55.61 |
| 37 | 66 | 9091.203 | -148.616 | 11.200 | 28.035 | -539.985 | -2686.451 | 145.63 | 155.68 | 52.02 | 55.61 |
| 37 | 67 | -9115.273 | 58.365 | 2.579 | 3.921 | -2.521 | 2072.844 | 142.79 | 142.74 | 68.05 | 68.04 |
| 38 | 67 | 9115.277 | -58.365 | -2.579 | -3.921 | 2.520 | -2072.842 | 142.79 | 142.74 | 68.05 | 68.04 |
| 38 | 68 | -13218.823 | 890.698 | 2.579 | 3.921 | -1.492 | -1627.848 | 102.57 | 102.55 | 153.49 | 153.49 |
| 39 | 68 | 12603.481 | 325.384 | -3.482 | -7.247 | 1.461 | 1621.817 | 96.91 | 96.89 | 147.64 | 147.63 |
| 39 | 78 | -8380.271 | -340.185 | -2.672 | -2.635 | -1.835 | 1562.647 | 126.69 | 126.66 | 70.35 | 70.34 |
| 40 | 78 | 8380.271 | 340.184 | 2.672 | 2.635 | 1.836 | -1562.648 | 126.69 | 126.66 | 70.35 | 70.34 |
| 40 | 79 | -8767.032 | -306.961 | 9.404 | 51.372 | 521.377 | 3440.306 | 151.78 | 161.48 | 30.88 | 34.34 |
| 41 | 79 | 8767.025 | 306.962 | -9.404 | -51.373 | -521.373 | -3440.305 | 151.78 | 161.48 | 30.88 | 34.34 |
| 41 | 80 | -8791.537 | -154.053 | 4.095 | 32.294 | 551.745 | 4378.246 | 164.33 | 174.59 | 9.80 | 13.46 |
| 42 | 80 | 8791.547 | 154.054 | -4.096 | -32.294 | -551.743 | -4378.246 | 164.33 | 174.59 | 9.80 | 13.46 |
| 42 | 81 | -8887.573 | -146.781 | -0.024 | -1.230 | 523.206 | 4954.657 | 173.50 | 183.23 | -1.98 | 1.50 |
| 43 | 81 | 8887.579 | 146.779 | 0.023 | 1.230 | -523.211 | -4954.657 | 173.50 | 183.23 | -1.98 | 1.50 |
| 43 | 82 | -9554.044 | 1.071 | -5.332 | -1.851 | 511.154 | 5412.937 | 188.15 | 197.66 | -3.92 | -0.53 |
| 44 | 82 | 9554.036 | -1.070 | 5.330 | 1.851 | -511.159 | -5412.936 | 188.14 | 197.66 | -3.92 | -0.53 |
| 44 | 83 | -9527.663 | 202.946 | -10.640 | -2.481 | 475.215 | 4968.460 | 182.21 | 191.05 | 5.95 | 9.11 |
| 45 | 83 | 9527.660 | -202.946 | 10.643 | 2.480 | -475.215 | -4968.458 | 182.21 | 191.05 | 5.95 | 9.11 |
| 45 | 84 | -9533.324 | 254.359 | -15.041 | -36.794 | 452.963 | 3884.933 | 168.02 | 176.45 | 30.69 | 33.70 |
| 46 | 84 | 9533.339 | -254.359 | 15.042 | 36.794 | -452.962 | -3884.932 | 168.02 | 176.45 | 30.69 | 33.70 |
| 46 | 85 | -9570.133 | 138.370 | -20.352 | -55.882 | 373.328 | 2772.810 | 154.38 | 161.33 | 56.66 | 59.14 |
| 47 | 85 | 9570.113 | -138.370 | 20.350 | 55.882 | -373.326 | -2772.810 | 154.38 | 161.33 | 56.66 | 59.14 |
| 47 | 86 | -9525.940 | 57.940 | -2.568 | 3.298 | -12.347 | 2203.272 | 149.81 | 149.58 | 70.31 | 70.23 |
| 48 | 86 | 9525.951 | -57.940 | 2.568 | -3.298 | 12.348 | -2203.271 | 149.81 | 149.58 | 70.31 | 70.23 |
| 48 | 87 | -13635.506 | 890.273 | -2.568 | 3.298 | -13.327 | -1482.236 | 108.41 | 108.20 | 154.72 | 154.64 |
| 49 | 87 | 12862.890 | 308.105 | 1.860 | -9.674 | 13.356 | 1512.041 | 100.83 | 100.61 | 148.06 | 147.98 |
| 49 | 97 | -8645.690 | -322.869 | -2.623 | -4.485 | -25.786 | 1603.872 | 130.82 | 130.34 | 72.85 | 72.67 |
| 50 | 97 | 8645.688 | 322.869 | 2.623 | 4.485 | 25.787 | -1603.872 | 130.82 | 130.34 | 72.85 | 72.67 |
| 50 | 98 | -8286.937 | -281.210 | 5.958 | 24.464 | 253.134 | 3422.182 | 147.97 | 152.68 | 26.12 | 27.80 |
| 51 | 98 | 8286.931 | 281.210 | -5.958 | -24.464 | -253.136 | -3422.181 | 147.97 | 152.68 | 26.12 | 27.80 |
| 51 | 99 | -8287.394 | -131.554 | 0.653 | 5.366 | 268.062 | 4278.557 | 159.27 | 164.26 | 6.64 | 8.42 |
| 52 | 99 | 8287.391 | 131.554 | -0.652 | -5.367 | -268.064 | -4278.557 | 159.27 | 164.26 | 6.64 | 8.42 |
| 52 | 100 | -8365.895 | -124.288 | -3.277 | -27.812 | 233.630 | 4779.235 | 167.26 | 171.61 | -3.62 | -2.07 |
| 53 | 100 | 8365.897 | 124.287 | 3.278 | 27.812 | -233.630 | -4779.234 | 167.26 | 171.61 | -3.62 | -2.07 |
| 53 | 101 | -8318.320 | 30.309 | -8.588 | -28.442 | 206.943 | 5153.893 | 171.91 | 175.76 | -12.64 | -11.26 |
| 54 | 101 | 8318.329 | -30.308 | 8.587 | 28.442 | -206.942 | -5153.891 | 171.91 | 175.76 | -12.64 | -11.26 |
| 54 | 102 | -8274.435 | 232.183 | -13.897 | -29.072 | 156.356 | 4603.002 | 164.48 | 167.39 | -0.52 | 0.52 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 55 | 102 | 8274.432 | -232.183 | 13.897 | 29.072 | -156.359 | -4603.000 | 164.48 | 167.39 | -0.52 | 0.52 |
| 55 | 103 | -8265.955 | 283.608 | -18.578 | -63.369 | 107.012 | 3412.136 | 148.93 | 150.92 | 26.57 | 27.28 |
| 56 | 103 | 8265.953 | -283.609 | 18.578 | 63.368 | -107.013 | -3412.135 | 148.93 | 150.92 | 26.57 | 27.28 |
| 56 | 104 | -8292.333 | 167.102 | -23.899 | -82.379 | 11.709 | 2206.488 | 134.05 | 134.27 | 54.58 | 54.66 |
| 57 | 104 | 8292.337 | -167.102 | 23.899 | 82.379 | -11.710 | -2206.486 | 134.05 | 134.27 | 54.58 | 54.66 |
| 57 | 105 | -9193.921 | 76.441 | -2.510 | 2.347 | -10.999 | 1512.829 | 136.39 | 136.18 | 81.78 | 81.71 |
| 58 | 105 | 9193.918 | -76.441 | 2.510 | -2.347 | 10.999 | -1512.829 | 136.39 | 136.18 | 81.78 | 81.71 |
| 58 | 106 | -13303.760 | 852.584 | -4.390 | -8.898 | -54.886 | -2072.142 | 98.14 | 97.24 | 162.68 | 162.36 |
| 59 | 106 | 12374.065 | 409.717 | 0.604 | 7.362 | 55.101 | 1951.820 | 91.00 | 90.10 | 151.78 | 151.46 |
| 59 | 115 | -8157.154 | -374.272 | -0.604 | -7.362 | -47.245 | 1385.729 | 121.93 | 121.06 | 71.70 | 71.39 |
| 60 | 115 | 8157.152 | 374.272 | 0.604 | 7.362 | 47.245 | -1385.729 | 121.93 | 121.06 | 71.70 | 71.39 |
| 60 | 116 | -8749.331 | -326.313 | 21.979 | -15.439 | -12.151 | 3399.690 | 155.97 | 155.75 | 33.35 | 33.27 |
| 61 | 116 | 8749.337 | 326.313 | -21.979 | 15.439 | 12.150 | -3399.689 | 155.97 | 155.75 | 33.35 | 33.27 |
| 61 | 117 | -9797.310 | -196.569 | 16.726 | -34.805 | 75.945 | 4432.686 | 182.18 | 183.59 | 22.84 | 23.35 |
| 62 | 117 | 9797.309 | 196.569 | -16.727 | 34.805 | -75.944 | -4432.684 | 182.18 | 183.59 | 22.84 | 23.35 |
| 62 | 118 | -9884.151 | -189.391 | 12.133 | -66.218 | 114.558 | 5204.208 | 193.22 | 195.35 | 6.30 | 7.06 |
| 63 | 118 | 9884.149 | 189.390 | -12.133 | 66.217 | -114.557 | -5204.207 | 193.22 | 195.35 | 6.30 | 7.06 |
| 63 | 119 | -9844.911 | -34.795 | 6.823 | -66.847 | 157.210 | 5849.132 | 200.93 | 203.86 | -8.98 | -7.93 |
| 64 | 119 | 9844.907 | 34.795 | -6.824 | 66.848 | -157.211 | -5849.131 | 200.93 | 203.86 | -8.98 | -7.93 |
| 64 | 120 | -9809.353 | 167.080 | 1.514 | -67.478 | 175.967 | 5568.512 | 196.56 | 199.84 | -3.12 | -1.95 |
| 65 | 120 | 9809.353 | -167.080 | -1.513 | 67.478 | -175.965 | -5568.513 | 196.56 | 199.84 | -3.12 | -1.95 |
| 65 | 121 | -9797.273 | 218.355 | -2.661 | -104.040 | 206.297 | 4656.295 | 183.95 | 187.79 | 17.33 | 18.70 |
| 66 | 121 | 9797.275 | -218.354 | 2.661 | 104.040 | -206.297 | -4656.294 | 183.95 | 187.79 | 17.33 | 18.70 |
| 66 | 122 | -9793.004 | 31.526 | -0.249 | -14.792 | 35.243 | 3773.697 | 173.70 | 174.36 | 37.88 | 38.11 |
| 67 | 122 | 9793.006 | -31.526 | 0.249 | 14.792 | -35.242 | -3773.695 | 173.70 | 174.36 | 37.88 | 38.11 |
| 67 | 123 | -9794.893 | -46.938 | 1.378 | -14.333 | -39.479 | 3644.060 | 172.69 | 171.96 | 41.10 | 40.83 |
| 68 | 123 | 9794.895 | 46.938 | -1.378 | 14.333 | 39.478 | -3644.060 | 172.69 | 171.96 | 41.10 | 40.83 |
| 68 | 124 | -13852.461 | 775.373 | 1.378 | -14.333 | -43.854 | 433.061 | 135.10 | 134.38 | 121.32 | 121.06 |
| 69 | 124 | 13934.656 | 135.150 | -0.173 | 1.138 | 43.852 | -293.158 | 134.08 | 133.37 | 124.68 | 124.42 |
| 69 | 133 | -9817.468 | -182.339 | 13.131 | -26.226 | 82.499 | 2055.175 | 150.63 | 152.16 | 77.04 | 77.59 |
| 70 | 133 | 9817.470 | 182.338 | -13.131 | 26.226 | -82.498 | -2055.175 | 150.63 | 152.16 | 77.04 | 77.59 |
| 70 | 134 | -7981.150 | 29.354 | 9.153 | -44.057 | 179.691 | 1898.825 | 124.45 | 127.80 | 57.08 | 58.27 |
| 71 | 134 | 8028.082 | -29.353 | -9.153 | 44.056 | -179.692 | -1884.616 | 124.85 | 128.20 | 57.99 | 59.19 |
| 71 | 135 | -8110.819 | -219.167 | 5.082 | -72.215 | 183.530 | 2572.772 | 135.05 | 138.47 | 43.41 | 44.63 |
| 72 | 135 | 8110.819 | 219.166 | -5.082 | 72.215 | -183.531 | -2572.771 | 135.05 | 138.47 | 43.41 | 44.63 |
| 72 | 136 | -8057.164 | -34.515 | -0.228 | -72.845 | 194.453 | 3218.922 | 142.90 | 146.52 | 28.03 | 29.32 |
| 73 | 136 | 8057.165 | 34.516 | 0.228 | 72.845 | -194.453 | -3218.925 | 142.90 | 146.52 | 28.03 | 29.32 |
| 73 | 137 | -7967.685 | 167.574 | -5.538 | -73.475 | 181.480 | 3006.713 | 139.06 | 142.43 | 31.76 | 32.96 |
| 74 | 137 | 7967.683 | -167.575 | 5.538 | 73.475 | -181.480 | -3006.718 | 139.06 | 142.43 | 31.76 | 32.96 |
| 74 | 138 | -7870.036 | 285.052 | -11.633 | -117.685 | 152.486 | 2050.231 | 125.32 | 128.16 | 52.33 | 53.34 |
| 75 | 138 | 6810.377 | -285.051 | 11.633 | 117.685 | -152.486 | -2087.180 | 112.44 | 115.27 | 38.11 | 39.12 |
| 75 | 139 | -6725.095 | 454.027 | -16.943 | -136.765 | 88.191 | 600.209 | 92.11 | 93.75 | 71.00 | 71.58 |
| 76 | 139 | 6725.097 | -454.028 | 16.943 | 136.765 | -88.191 | -600.211 | 92.11 | 93.75 | 71.00 | 71.58 |
| 76 | 140 | -6309.815 | 489.834 | -0.331 | 1.119 | 0.000 | -1336.269 | 61.83 | 61.83 | 110.00 | 110.00 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS  97

max mz + pret (t=inf)

ESFUERZOS EN BARRAS

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | MOM. Y | MOM. Z |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 7046.690 | 806.411 | -17.158 | -121.507 | 0.000 | 1311.973 |
| 1 | 8 | -7070.583 | -96.468 | 0.497 | 11.515 | 2.236 | -603.255 |
| 2 | 8 | 7070.601 | 96.468 | -0.497 | -11.515 | -2.236 | 603.253 |
| 2 | 9 | -7098.838 | -7.627 | 0.497 | 11.515 | 4.472 | -380.845 |
| 3 | 9 | 7386.211 | 7.628 | -0.497 | -11.515 | -4.473 | 194.480 |
| 3 | 10 | -7414.794 | 121.249 | 0.497 | 11.515 | 6.712 | -450.225 |
| 4 | 10 | 7414.784 | -121.250 | -0.497 | -11.515 | -6.713 | 450.225 |
| 4 | 11 | -7399.629 | 161.307 | 0.490 | 11.528 | 8.828 | -1226.701 |
| 5 | 11 | 7399.645 | -161.306 | -0.490 | -11.528 | -8.828 | 1226.701 |
| 5 | 12 | -7402.288 | 161.551 | -4.596 | 53.077 | -78.097 | -1910.058 |
| 6 | 12 | 7402.277 | -161.552 | 4.596 | -53.077 | 78.098 | 1910.059 |
| 6 | 13 | -7343.657 | 110.587 | -5.021 | 51.501 | -99.130 | -2436.603 |
| 7 | 13 | 7321.029 | -110.587 | 5.022 | -51.501 | 99.131 | 2433.564 |
| 7 | 14 | -7347.848 | 282.317 | -5.472 | 49.971 | -122.739 | -2997.793 |
| 8 | 14 | 7347.839 | -282.317 | 5.471 | -49.971 | 122.739 | 2997.794 |
| 8 | 15 | -10578.483 | 1344.189 | -18.929 | 25.005 | -33.432 | -8490.869 |
| 9 | 15 | 10718.575 | 1336.913 | -16.107 | -141.305 | 33.189 | 8489.439 |
| 9 | 23 | -8527.249 | -986.423 | 7.734 | 109.717 | 22.461 | -3100.859 |
| 10 | 23 | 8527.276 | 986.424 | -7.734 | -109.717 | -22.460 | 3100.860 |
| 10 | 24 | -8568.232 | -144.522 | -5.909 | 73.832 | -167.193 | -913.955 |
| 11 | 24 | 8996.259 | 144.522 | 5.909 | -73.832 | 167.193 | 602.765 |
| 11 | 25 | -8554.218 | 28.884 | -6.204 | 73.467 | -197.015 | -960.116 |
| 12 | 25 | 8554.227 | -28.884 | 6.204 | -73.467 | 197.014 | 960.115 |
| 12 | 26 | -8621.093 | -17.043 | -6.664 | 71.966 | -225.807 | -1025.875 |
| 13 | 26 | 8621.082 | 17.044 | 6.665 | -71.966 | 225.807 | 1025.876 |
| 13 | 27 | -8378.236 | 55.535 | -7.993 | 63.789 | -262.013 | -962.087 |
| 14 | 27 | 8378.258 | -55.535 | 7.993 | -63.789 | 262.014 | 962.087 |
| 14 | 28 | -8350.981 | 138.643 | -8.443 | 62.259 | -298.994 | -1367.823 |
| 15 | 28 | 8350.961 | -138.643 | 8.443 | -62.259 | 298.994 | 1367.820 |
| 15 | 29 | -8427.155 | 122.394 | -8.903 | 60.759 | -337.961 | -2000.079 |
| 16 | 29 | 8427.157 | -122.394 | 8.904 | -60.759 | 337.961 | 2000.079 |
| 16 | 30 | -7937.539 | 87.757 | -9.377 | 59.298 | -378.802 | -2206.174 |
| 17 | 30 | 7937.536 | -87.757 | 9.377 | -59.297 | 378.802 | 2206.176 |
| 17 | 31 | -7944.753 | 796.080 | -21.649 | 32.322 | -285.413 | -3423.338 |
| 18 | 31 | 7944.763 | -796.080 | 21.649 | -32.322 | 285.413 | 3423.337 |
| 18 | 32 | -11117.467 | 1594.170 | -26.149 | 16.302 | -392.960 | -10011.588 |
| 19 | 32 | 11411.235 | 1287.899 | -39.336 | -102.700 | 392.963 | 10015.335 |
| 19 | 40 | -8172.375 | -1023.391 | 30.419 | 70.064 | -232.199 | -3776.941 |
| 20 | 40 | 8172.365 | 1023.391 | -30.417 | -70.064 | 232.199 | 3776.940 |
| 20 | 41 | -8227.544 | -181.136 | 15.644 | 42.157 | -319.195 | -1539.666 |
| 21 | 41 | 8227.530 | 181.136 | -15.643 | -42.157 | 319.196 | 1539.666 |
| 21 | 42 | -8231.609 | -10.845 | 15.179 | 41.227 | -253.092 | -1400.552 |
| 22 | 42 | 8231.635 | 10.846 | -15.180 | -41.227 | 253.092 | 1400.552 |
| 22 | 43 | -8138.341 | -52.464 | 14.727 | 39.713 | -185.750 | -1309.409 |
| 23 | 43 | 8138.346 | 52.464 | -14.726 | -39.713 | 185.749 | 1309.408 |
| 23 | 44 | -8094.256 | 16.149 | 14.394 | 30.334 | -118.929 | -1053.251 |

TENSIONES

| SIGMA 1 | SIGMA2 | SIGMA3 | SIGMA4 |
|---|---|---|---|
| 71.46 | 71.46 | 118.75 | 118.75 |
| 81.20 | 81.24 | 102.96 | 102.97 |
| 81.20 | 81.24 | 102.96 | 102.97 |
| 84.51 | 84.59 | 98.26 | 98.29 |
| 90.62 | 90.71 | 97.66 | 97.69 |
| 87.55 | 87.67 | 103.82 | 103.86 |
| 87.55 | 87.67 | 103.82 | 103.86 |
| 76.97 | 77.13 | 121.24 | 121.30 |
| 76.97 | 77.13 | 121.24 | 121.30 |
| 68.69 | 67.24 | 137.08 | 136.56 |
| 68.69 | 67.24 | 137.08 | 136.56 |
| 61.11 | 59.27 | 148.36 | 147.70 |
| 60.87 | 59.02 | 148.00 | 147.34 |
| 53.89 | 51.61 | 161.22 | 160.41 |
| 53.89 | 51.61 | 161.22 | 160.41 |
| -9.27 | -9.82 | 256.20 | 256.00 |
| -7.95 | -8.49 | 257.48 | 257.28 |
| 66.06 | 66.48 | 177.97 | 178.12 |
| 66.06 | 66.48 | 177.97 | 178.12 |
| 97.54 | 94.43 | 129.48 | 128.37 |
| 107.10 | 103.99 | 127.83 | 126.71 |
| 97.02 | 93.36 | 130.45 | 129.14 |
| 97.02 | 93.36 | 130.45 | 129.14 |
| 97.26 | 93.05 | 132.89 | 131.39 |
| 97.26 | 93.05 | 132.89 | 131.39 |
| 95.38 | 90.50 | 128.49 | 126.75 |
| 95.38 | 90.50 | 128.49 | 126.75 |
| 89.96 | 84.40 | 137.48 | 135.49 |
| 89.96 | 84.40 | 137.48 | 135.49 |
| 82.84 | 76.56 | 152.92 | 150.68 |
| 82.84 | 76.56 | 152.92 | 150.68 |
| 74.29 | 67.24 | 151.55 | 149.04 |
| 74.29 | 67.24 | 151.55 | 149.04 |
| 57.26 | 51.95 | 178.96 | 177.06 |
| 57.26 | 51.95 | 178.96 | 177.06 |
| -20.71 | -27.10 | 290.46 | 288.18 |
| -18.01 | -24.41 | 293.27 | 290.99 |
| 54.92 | 50.60 | 189.68 | 188.14 |
| 54.92 | 50.60 | 189.68 | 188.14 |
| 86.30 | 80.36 | 139.89 | 137.77 |
| 86.30 | 80.36 | 139.89 | 137.77 |
| 87.59 | 82.88 | 136.56 | 134.88 |
| 87.59 | 82.88 | 136.56 | 134.88 |
| 87.00 | 83.55 | 133.09 | 131.86 |
| 87.00 | 83.55 | 133.09 | 131.86 |
| 89.24 | 87.03 | 126.50 | 125.71 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 24 | 44 | 8094.236 | -16.149 | -14.393 | -30.334 | 118.928 | 1053.250 | 89.24 | 87.03 | 126.50 | 125.71 |
| 24 | 45 | -7678.177 | 105.470 | 13.944 | 28.803 | -55.154 | -1307.041 | 80.01 | 78.98 | 126.80 | 126.43 |
| 25 | 45 | 7678.171 | -105.469 | -13.943 | -28.804 | 55.156 | 1307.040 | 80.01 | 78.98 | 126.80 | 126.43 |
| 25 | 46 | -7664.259 | 93.385 | 13.490 | 27.297 | 6.609 | -1790.462 | 72.80 | 72.93 | 137.39 | 137.43 |
| 26 | 46 | 7664.270 | -93.386 | -13.491 | -27.297 | -6.607 | 1790.462 | 72.80 | 72.93 | 137.39 | 137.43 |
| 26 | 47 | -6627.599 | 59.114 | 12.995 | 27.430 | 68.825 | -2226.599 | 53.31 | 54.59 | 133.99 | 134.45 |
| 27 | 47 | 6627.614 | -59.114 | -12.995 | -27.430 | -68.827 | 2226.599 | 53.31 | 54.59 | 133.99 | 134.45 |
| 27 | 48 | -6624.561 | 796.118 | 7.945 | 2.371 | 469.197 | -3405.399 | 33.81 | 42.54 | 159.38 | 162.49 |
| 28 | 48 | 6624.549 | -796.117 | -7.947 | -2.371 | -469.198 | 3405.397 | 33.81 | 42.54 | 159.38 | 162.49 |
| 28 | 49 | -9786.947 | 1594.207 | 3.447 | -13.649 | 494.829 | -9976.750 | -39.90 | -31.84 | 274.83 | 277.70 |
| 29 | 49 | 10241.448 | 1277.972 | -23.705 | -98.273 | -494.794 | 9974.504 | -35.63 | -27.58 | 279.03 | 281.90 |
| 29 | 59 | -6992.245 | -1013.571 | 14.971 | 65.427 | 574.056 | -3767.346 | 32.65 | 43.33 | 171.89 | 175.70 |
| 30 | 59 | 6992.249 | 1013.571 | -14.969 | -65.427 | -574.057 | 3767.345 | 32.65 | 43.33 | 171.89 | 175.70 |
| 30 | 60 | -7040.641 | -169.379 | 4.603 | 34.391 | 228.170 | -1588.012 | 65.57 | 69.82 | 124.18 | 125.70 |
| 31 | 60 | 7040.643 | 169.379 | -4.604 | -34.391 | -228.169 | 1588.011 | 65.57 | 69.82 | 124.18 | 125.70 |
| 31 | 61 | -7311.146 | -7.937 | 4.154 | 32.867 | 247.865 | -1480.618 | 70.24 | 74.85 | 125.09 | 126.74 |
| 32 | 61 | 7311.148 | 7.938 | -4.153 | -32.868 | -247.861 | 1480.616 | 70.24 | 74.85 | 125.09 | 126.74 |
| 32 | 62 | -7379.249 | -54.073 | 3.701 | 31.353 | 265.546 | -1404.020 | 71.96 | 76.90 | 124.16 | 125.92 |
| 33 | 62 | 7379.248 | 54.072 | -3.701 | -31.353 | -265.541 | 1404.017 | 71.96 | 76.90 | 124.16 | 125.92 |
| 33 | 63 | -7350.267 | 14.425 | 3.611 | 20.654 | 281.694 | -1160.545 | 74.69 | 79.93 | 118.21 | 120.08 |
| 34 | 63 | 7350.268 | -14.425 | -3.611 | -20.654 | -281.693 | 1160.546 | 74.69 | 79.93 | 118.21 | 120.08 |
| 34 | 64 | -6789.963 | 103.432 | 3.161 | 19.118 | 296.959 | -1427.585 | 63.91 | 69.43 | 117.15 | 119.12 |
| 35 | 64 | 6789.960 | -103.433 | -3.162 | -19.117 | -296.963 | 1427.586 | 63.91 | 69.43 | 117.15 | 119.12 |
| 35 | 65 | -6789.336 | 91.280 | 2.710 | 17.604 | 310.171 | -1921.492 | 57.18 | 62.96 | 128.31 | 130.37 |
| 36 | 65 | 6789.333 | -91.280 | -2.710 | -17.604 | -310.172 | 1921.495 | 57.18 | 62.96 | 128.31 | 130.37 |
| 36 | 66 | -6806.267 | 52.895 | 2.260 | 16.072 | 321.341 | -2197.474 | 53.61 | 59.59 | 134.75 | 136.88 |
| 37 | 66 | 6806.270 | -52.895 | -2.259 | -16.073 | -321.341 | 2197.474 | 53.61 | 59.59 | 134.75 | 136.88 |
| 37 | 67 | -6809.639 | 802.283 | -6.003 | -7.516 | 728.557 | -3415.802 | 33.60 | 47.15 | 161.09 | 165.93 |
| 38 | 67 | 6809.642 | -802.282 | 6.004 | 7.515 | -728.555 | 3415.803 | 33.60 | 47.15 | 161.09 | 165.93 |
| 38 | 68 | -9978.462 | 1680.146 | -14.688 | -40.646 | 692.048 | -10030.953 | -40.40 | -29.14 | 277.05 | 281.07 |
| 39 | 68 | 10593.800 | 1206.165 | -8.296 | -49.281 | -692.015 | 10036.983 | -34.74 | -23.48 | 282.90 | 286.92 |
| 39 | 78 | -7351.019 | -1021.679 | 3.796 | 33.261 | 719.228 | -3812.534 | 35.22 | 48.61 | 176.96 | 181.74 |
| 40 | 78 | 7351.018 | 1021.679 | -3.798 | -33.261 | -719.224 | 3812.533 | 35.22 | 48.61 | 176.96 | 181.74 |
| 40 | 79 | -7048.435 | -174.794 | -3.973 | 5.958 | 307.972 | -1620.274 | 64.50 | 70.23 | 124.75 | 126.79 |
| 41 | 79 | 7048.429 | 174.794 | 3.974 | -5.958 | -307.973 | 1620.273 | 64.50 | 70.23 | 124.75 | 126.79 |
| 41 | 80 | -7057.347 | -8.805 | -4.425 | 4.428 | 289.078 | -1478.106 | 66.68 | 72.06 | 121.70 | 123.62 |
| 42 | 80 | 7057.356 | 8.805 | 4.427 | -4.428 | -289.077 | 1478.107 | 66.68 | 72.06 | 121.70 | 123.62 |
| 42 | 81 | -7121.340 | -54.930 | -4.878 | 2.914 | 268.143 | -1379.726 | 69.00 | 73.99 | 120.34 | 122.12 |
| 43 | 81 | 7121.345 | 54.930 | 4.877 | -2.914 | -268.142 | 1379.725 | 69.00 | 73.99 | 120.34 | 122.12 |
| 43 | 82 | -6391.725 | -1.483 | -5.328 | 1.375 | 245.181 | -1121.208 | 63.45 | 68.02 | 105.34 | 106.97 |
| 44 | 82 | 6391.718 | 1.483 | 5.327 | -1.374 | -245.184 | 1121.206 | 63.45 | 68.02 | 105.34 | 106.97 |
| 44 | 83 | -6361.455 | 103.478 | -5.423 | -8.897 | 220.344 | -1370.424 | 59.97 | 64.07 | 110.69 | 112.16 |
| 45 | 83 | 6361.452 | -103.479 | 5.425 | 8.897 | -220.346 | 1370.425 | 59.97 | 64.07 | 110.69 | 112.16 |
| 45 | 84 | -6355.857 | 91.319 | -5.876 | -10.412 | 194.906 | -1847.402 | 53.77 | 57.40 | 121.53 | 122.83 |
| 46 | 84 | 6355.872 | -91.319 | 5.874 | 10.412 | -194.906 | 1847.401 | 53.77 | 57.40 | 121.53 | 122.83 |
| 46 | 85 | -6374.247 | 56.273 | -6.324 | -11.933 | 167.458 | -2107.890 | 50.78 | 53.90 | 127.77 | 128.88 |
| 47 | 85 | 6374.230 | -56.274 | 6.327 | 11.933 | -167.454 | 2107.888 | 50.78 | 53.90 | 127.77 | 128.88 |
| 47 | 86 | -6364.045 | 804.545 | -17.067 | -37.911 | 479.492 | -3328.406 | 31.46 | 40.38 | 154.31 | 157.49 |
| 48 | 86 | 6364.053 | -804.544 | 17.065 | 37.912 | -479.497 | 3328.406 | 31.46 | 40.38 | 154.31 | 157.49 |
| 48 | 87 | -9519.319 | 1682.487 | -25.837 | -70.964 | 390.200 | -9937.892 | -41.05 | -34.70 | 271.91 | 274.18 |
| 49 | 87 | 10291.942 | 1184.366 | -4.381 | -18.807 | -390.231 | 9908.085 | -33.46 | -27.11 | 278.57 | 280.84 |
| 49 | 97 | -7035.609 | -999.880 | -0.119 | 2.787 | 399.829 | -3763.835 | 34.86 | 42.30 | 172.93 | 175.59 |
| 50 | 97 | 7035.609 | 999.880 | 0.118 | -2.787 | -399.825 | 3763.835 | 34.86 | 42.30 | 172.93 | 175.59 |
| 50 | 98 | -7550.222 | -171.532 | -7.211 | -18.400 | 36.659 | -1642.109 | 73.07 | 73.75 | 132.48 | 132.72 |
| 51 | 98 | 7550.214 | 171.532 | 7.210 | 18.400 | -36.659 | 1642.110 | 73.07 | 73.75 | 132.48 | 132.72 |
| 51 | 99 | -7560.527 | -2.290 | -7.664 | -19.912 | 3.145 | -1549.650 | 74.74 | 74.80 | 130.62 | 130.64 |
| 52 | 99 | 7560.526 | 2.289 | 7.662 | 19.912 | -3.146 | 1549.650 | 74.74 | 74.80 | 130.62 | 130.64 |
| 52 | 100 | -7630.930 | -48.354 | -8.115 | -21.423 | -32.363 | -1496.875 | 76.67 | 76.06 | 130.43 | 130.22 |
| 53 | 100 | 7630.934 | 48.355 | 8.116 | 21.423 | 32.361 | 1496.875 | 76.67 | 76.06 | 130.43 | 130.22 |
| 53 | 101 | -7604.256 | -1.653 | -8.566 | -22.953 | -69.901 | -1276.379 | 79.62 | 78.32 | 125.22 | 124.75 |
| 54 | 101 | 7604.259 | 1.652 | 8.568 | 22.953 | 69.901 | 1276.379 | 79.62 | 78.32 | 125.22 | 124.75 |
| 54 | 102 | -7580.417 | 103.386 | -9.066 | -31.673 | -110.870 | -1539.797 | 76.19 | 74.12 | 131.03 | 130.29 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 55 | 102 | 7580.416 | -103.384 | 9.066 | 31.673 | 110.866 | 1539.799 | 76.19 | 74.12 | 131.03 | 130.29 |
| 55 | 103 | -7583.845 | 91.253 | -9.519 | -33.185 | -152.718 | -2033.515 | 70.03 | 67.19 | 142.42 | 141.40 |
| 56 | 103 | 7583.845 | -91.254 | 9.519 | 33.185 | 152.719 | 2033.517 | 70.03 | 67.19 | 142.42 | 141.40 |
| 56 | 104 | -7614.113 | 57.027 | -9.988 | -34.128 | -193.677 | -2319.397 | 66.97 | 63.37 | 149.42 | 148.14 |
| 57 | 104 | 7614.114 | -57.027 | 9.988 | 34.128 | 193.680 | 2319.398 | 66.97 | 63.37 | 149.42 | 148.14 |
| 57 | 105 | -6773.613 | 809.060 | -22.972 | -58.453 | -24.164 | -3597.293 | 37.72 | 37.27 | 167.25 | 167.09 |
| 58 | 105 | 6773.610 | -809.060 | 22.971 | 58.453 | 24.167 | 3597.293 | 37.72 | 37.27 | 167.25 | 167.09 |
| 58 | 106 | -9947.279 | 1687.078 | -31.738 | -91.747 | -145.579 | -10252.378 | -36.70 | -39.07 | 283.29 | 282.45 |
| 59 | 106 | 10876.982 | 1234.991 | -24.957 | 24.706 | 145.365 | 10372.699 | -29.57 | -31.93 | 294.20 | 293.35 |
| 59 | 115 | -7639.051 | -1050.505 | 20.457 | -40.726 | -43.189 | -4022.522 | 43.15 | 42.35 | 187.90 | 187.61 |
| 60 | 115 | 7639.050 | 1050.505 | -20.456 | 40.725 | 43.188 | 4022.521 | 43.15 | 42.35 | 187.90 | 187.61 |
| 60 | 116 | -7113.713 | -237.315 | 7.807 | -64.199 | -205.628 | -1681.996 | 69.28 | 65.45 | 128.68 | 127.31 |
| 61 | 116 | 7113.718 | 237.315 | -7.807 | 64.199 | 205.629 | 1681.996 | 69.28 | 65.45 | 128.68 | 127.31 |
| 61 | 117 | -6121.794 | -48.160 | 7.299 | -65.443 | -172.639 | -1281.864 | 61.79 | 58.57 | 106.96 | 105.82 |
| 62 | 117 | 6121.793 | 48.161 | -7.300 | 65.443 | 172.640 | 1281.865 | 61.79 | 58.57 | 106.96 | 105.82 |
| 62 | 118 | -6178.706 | -94.012 | 6.844 | -66.941 | -140.879 | -1006.362 | 65.89 | 63.27 | 101.32 | 100.39 |
| 63 | 118 | 6178.707 | 94.011 | -6.844 | 66.941 | 140.878 | 1006.363 | 65.89 | 63.27 | 101.32 | 100.39 |
| 63 | 119 | -6138.537 | -47.309 | 6.394 | -68.471 | -111.097 | -562.521 | 71.03 | 68.96 | 90.64 | 89.91 |
| 64 | 119 | 6138.534 | 47.309 | -6.393 | 68.471 | 111.096 | 562.522 | 71.03 | 68.96 | 90.64 | 89.91 |
| 64 | 120 | -6101.202 | 55.851 | 5.541 | -76.864 | -78.162 | -567.887 | 70.18 | 68.73 | 90.18 | 89.66 |
| 65 | 120 | 6101.201 | -55.851 | -5.540 | 76.864 | 78.163 | 567.886 | 70.18 | 68.73 | 90.18 | 89.66 |
| 65 | 121 | -6081.942 | 43.885 | 5.084 | -78.365 | -54.352 | -829.387 | 66.22 | 65.21 | 95.80 | 95.44 |
| 66 | 121 | 6081.944 | -43.885 | -5.084 | 78.365 | 54.351 | 829.387 | 66.22 | 65.21 | 95.80 | 95.44 |
| 66 | 122 | -6118.941 | 12.796 | 4.809 | -78.620 | -31.302 | -857.500 | 66.10 | 65.52 | 96.83 | 96.62 |
| 67 | 122 | 6118.942 | -12.796 | -4.809 | 78.620 | 31.301 | 857.501 | 66.10 | 65.52 | 96.83 | 96.62 |
| 67 | 123 | -6111.306 | 761.656 | -5.825 | -116.563 | 274.210 | -1997.976 | 47.94 | 53.04 | 121.60 | 123.42 |
| 68 | 123 | 6111.308 | -761.656 | 5.825 | 116.563 | -274.208 | 1997.976 | 47.94 | 53.04 | 121.60 | 123.42 |
| 68 | 124 | -9226.543 | 1634.127 | -14.160 | -148.419 | 233.578 | -8495.416 | -24.12 | -20.32 | 242.89 | 244.25 |
| 69 | 124 | 9144.339 | 1053.095 | -11.512 | 63.803 | -233.578 | 8355.510 | -23.10 | -19.30 | 239.53 | 240.89 |
| 69 | 133 | -5912.173 | -323.706 | 1.036 | -79.830 | 16.980 | -3228.553 | 31.39 | 31.70 | 147.87 | 147.98 |
| 70 | 133 | 5912.175 | 323.706 | -1.036 | 79.831 | -16.980 | 3228.553 | 31.39 | 31.70 | 147.87 | 147.98 |
| 70 | 134 | -7802.719 | 46.561 | 0.486 | -81.012 | 23.311 | -3270.143 | 54.64 | 55.08 | 172.66 | 172.82 |
| 71 | 134 | 7838.856 | -46.561 | -0.486 | 81.012 | -23.311 | 3281.084 | 54.95 | 55.39 | 173.37 | 173.52 |
| 71 | 135 | -7912.521 | -94.661 | 0.053 | -82.599 | 24.107 | -3256.805 | 56.20 | 56.65 | 173.74 | 173.91 |
| 72 | 135 | 7912.521 | 94.660 | -0.054 | 82.599 | -24.108 | 3256.806 | 56.20 | 56.65 | 173.74 | 173.91 |
| 72 | 136 | -7831.438 | -1.561 | -0.857 | -17.270 | 42.972 | -2971.360 | 58.81 | 59.61 | 166.18 | 166.47 |
| 73 | 136 | 7831.438 | 1.561 | 0.857 | 17.270 | -42.972 | 2971.358 | 58.81 | 59.61 | 166.18 | 166.47 |
| 73 | 137 | -7778.795 | 71.723 | -0.857 | -17.270 | 32.229 | -3048.620 | 57.21 | 57.81 | 167.30 | 167.52 |
| 74 | 137 | 7778.793 | -71.723 | 0.857 | 17.270 | -32.229 | 3048.616 | 57.21 | 57.81 | 167.30 | 167.52 |
| 74 | 138 | -7719.861 | 81.222 | -0.857 | -17.270 | 21.484 | -3331.570 | 52.79 | 53.19 | 173.02 | 173.16 |
| 75 | 138 | 6903.923 | -81.222 | 0.857 | 17.270 | -21.485 | 3303.119 | 42.87 | 43.27 | 162.07 | 162.21 |
| 75 | 139 | -6854.513 | 129.008 | -0.857 | -17.270 | 10.742 | -3627.166 | 38.02 | 38.22 | 168.84 | 168.91 |
| 76 | 139 | 6854.514 | -129.008 | 0.857 | 17.270 | -10.742 | 3627.165 | 38.02 | 38.22 | 168.84 | 168.91 |
| 76 | 140 | -7184.851 | 610.251 | -0.409 | 1.394 | 0.000 | -5012.018 | 23.80 | 23.80 | 204.48 | 204.48 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS  98

min mz + pret (t=inf)

ESFUERZOS EN BARRAS

TENSIONES

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | MOM. Y | MOM. Z | SIGMA 1 | SIGMA2 | SIGMA3 | SIGMA4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 6979.167 | 321.230 | -0.339 | 0.638 | 0.000 | 1197.050 | 72.14 | 72.14 | 115.29 | 115.29 |
| 1 | 8 | -7003.060 | -559.949 | 13.228 | 108.491 | 71.472 | 1927.196 | 113.49 | 114.82 | 44.44 | 44.92 |
| 2 | 8 | 7003.080 | 559.949 | -13.228 | -108.491 | -71.472 | -1927.198 | 113.49 | 114.82 | 44.44 | 44.92 |
| 2 | 9 | -7031.318 | -324.498 | 7.918 | 89.411 | 119.049 | 3905.399 | 139.81 | 142.03 | -0.26 | 0.53 |
| 3 | 9 | 7318.694 | 324.498 | -7.918 | -89.411 | -119.049 | -4091.765 | 145.93 | 148.15 | -0.86 | -0.07 |
| 3 | 10 | -7347.277 | -50.814 | 1.975 | 46.100 | 133.328 | 4935.221 | 157.42 | 159.90 | -19.69 | -18.80 |
| 4 | 10 | 7347.263 | 50.814 | -1.975 | -46.100 | -133.327 | -4935.222 | 157.42 | 159.90 | -19.69 | -18.80 |
| 4 | 11 | -7467.150 | 122.527 | -3.328 | 45.457 | 130.389 | 4613.201 | 154.66 | 157.09 | -10.86 | -9.99 |
| 5 | 11 | 7467.162 | -122.526 | 3.328 | -45.457 | -130.389 | -4613.200 | 154.66 | 157.09 | -10.86 | -9.99 |
| 5 | 12 | -7469.806 | 241.355 | -8.638 | 44.827 | 103.464 | 3843.124 | 144.66 | 146.59 | 6.74 | 7.43 |
| 6 | 12 | 7469.799 | -241.355 | 8.638 | -44.827 | -103.464 | -3843.124 | 144.66 | 146.59 | 6.74 | 7.43 |
| 6 | 13 | -7411.179 | 188.175 | -12.999 | 15.388 | 75.805 | 2663.326 | 128.43 | 129.84 | 32.87 | 33.38 |
| 7 | 13 | 7388.547 | -188.175 | 12.999 | -15.388 | -75.805 | -2666.365 | 128.18 | 129.59 | 32.52 | 33.02 |
| 7 | 14 | -7415.367 | 381.859 | -16.443 | -0.830 | -21.830 | 1610.309 | 115.33 | 114.92 | 57.15 | 57.01 |
| 8 | 14 | 7415.362 | -381.859 | 16.443 | 0.830 | 21.831 | -1610.309 | 115.33 | 114.92 | 57.15 | 57.01 |
| 8 | 15 | -10646.006 | 628.429 | -0.824 | 0.999 | -29.668 | -1073.130 | 85.87 | 85.39 | 119.29 | 119.12 |
| 9 | 15 | 10505.896 | 454.159 | 2.320 | -13.088 | 29.913 | 1074.562 | 84.55 | 84.06 | 118.01 | 117.84 |
| 9 | 23 | -8315.694 | -312.429 | -2.320 | 13.088 | -29.780 | 892.840 | 117.19 | 116.64 | 84.83 | 84.63 |
| 10 | 23 | 8315.722 | 312.429 | 2.320 | -13.087 | 29.780 | -892.839 | 117.19 | 116.64 | 84.83 | 84.63 |
| 10 | 24 | -8357.803 | -336.927 | 0.236 | 13.147 | 18.735 | 2812.160 | 142.90 | 143.25 | 41.64 | 41.76 |
| 11 | 24 | 8785.828 | 336.926 | -0.236 | -13.146 | -18.736 | -3123.350 | 152.46 | 152.81 | 39.98 | 40.10 |
| 11 | 25 | -8375.288 | -249.414 | 2.684 | 97.815 | 24.093 | 4184.430 | 161.39 | 161.84 | 10.69 | 10.85 |
| 12 | 25 | 8375.296 | 249.414 | -2.684 | -97.815 | -24.093 | -4184.430 | 161.39 | 161.84 | 10.69 | 10.86 |
| 12 | 26 | -8453.411 | -183.581 | -1.795 | 61.602 | 6.604 | 5077.154 | 174.46 | 174.58 | -8.52 | -8.48 |
| 13 | 26 | 8453.400 | 183.581 | 1.795 | -61.602 | -6.604 | -5077.152 | 174.46 | 174.58 | -8.52 | -8.48 |
| 13 | 27 | -8647.166 | -5.956 | -7.111 | 60.988 | -13.301 | 5603.144 | 184.11 | 183.87 | -17.95 | -18.04 |
| 14 | 27 | 8647.188 | 5.955 | 7.111 | -60.989 | 13.298 | -5603.145 | 184.11 | 183.87 | -17.95 | -18.04 |
| 14 | 28 | -8631.162 | 213.772 | -12.421 | 60.359 | -57.244 | 5146.741 | 178.23 | 177.16 | -7.65 | -8.03 |
| 15 | 28 | 8631.143 | -213.773 | 12.420 | -60.358 | 57.243 | -5146.738 | 178.23 | 177.16 | -7.65 | -8.03 |
| 15 | 29 | -8561.087 | 318.019 | -16.935 | 28.552 | -107.284 | 3917.598 | 161.40 | 159.40 | 19.53 | 18.82 |
| 16 | 29 | 8561.089 | -318.018 | 16.935 | -28.552 | 107.285 | -3917.596 | 161.40 | 159.40 | 19.53 | 18.82 |
| 16 | 30 | -8060.221 | 276.131 | -22.222 | 9.404 | -195.673 | 2620.296 | 138.57 | 134.93 | 42.95 | 41.65 |
| 17 | 30 | 8060.214 | -276.130 | 22.222 | -9.404 | 195.673 | -2620.296 | 138.57 | 134.93 | 42.95 | 41.65 |
| 17 | 31 | -8147.307 | 174.295 | 0.539 | 7.458 | -63.606 | 1334.659 | 121.28 | 120.10 | 72.79 | 72.37 |
| 18 | 31 | 8147.317 | -174.295 | -0.539 | -7.458 | 63.606 | -1334.661 | 121.28 | 120.10 | 72.79 | 72.37 |
| 18 | 32 | -11318.896 | 845.755 | 0.539 | 7.458 | -71.756 | -2152.664 | 78.73 | 77.56 | 145.71 | 145.29 |
| 19 | 32 | 11025.147 | 384.768 | -4.998 | -9.450 | 71.755 | 2148.918 | 76.04 | 74.87 | 142.90 | 142.48 |
| 19 | 40 | -7785.162 | -382.730 | 2.640 | -0.691 | -12.109 | 739.720 | 108.29 | 108.06 | 81.55 | 81.47 |
| 20 | 40 | 7785.151 | 382.730 | -2.640 | 0.691 | 12.109 | -739.719 | 108.29 | 108.06 | 81.55 | 81.47 |
| 20 | 41 | -7717.706 | -411.894 | 29.448 | 83.716 | -104.164 | 2974.964 | 138.13 | 136.20 | 30.27 | 29.58 |
| 21 | 41 | 7717.692 | 411.893 | -29.449 | -83.716 | 104.162 | -2974.964 | 138.13 | 136.20 | 30.27 | 29.58 |
| 21 | 42 | -7710.521 | -249.854 | 24.673 | 69.985 | -6.551 | 4431.954 | 156.59 | 156.47 | -3.21 | -3.26 |
| 22 | 42 | 7710.546 | 249.854 | -24.672 | -69.984 | 6.551 | -4431.952 | 156.59 | 156.47 | -3.21 | -3.26 |
| 22 | 43 | -7921.002 | -188.371 | 19.751 | 34.868 | 74.497 | 5350.176 | 170.75 | 172.14 | -21.67 | -21.17 |
| 23 | 43 | 7921.006 | 188.370 | -19.751 | -34.868 | -74.496 | -5350.176 | 170.75 | 172.14 | -21.67 | -21.17 |
| 23 | 44 | -7888.166 | -5.048 | 14.441 | 34.238 | 151.427 | 5892.337 | 176.86 | 179.68 | -34.64 | -33.64 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 24 | 44 | 7888.146 | 5.048 | -14.439 | -34.239 | -151.426 | -5892.338 | 176.86 | 179.68 | -34.64 | -33.64 |
| 24 | 45 | -8233.017 | 208.467 | 9.129 | 33.610 | 204.445 | 5458.555 | 174.93 | 178.73 | -20.62 | -19.26 |
| 25 | 45 | 8233.011 | -208.467 | -9.131 | -33.609 | -204.441 | -5458.554 | 174.93 | 178.73 | -20.62 | -19.26 |
| 25 | 46 | -8230.349 | 308.396 | 5.462 | 0.945 | 264.484 | 4253.948 | 158.25 | 163.17 | 6.49 | 8.25 |
| 26 | 46 | 8230.359 | -308.396 | -5.461 | -0.945 | -264.486 | -4253.949 | 158.25 | 163.17 | 6.49 | 8.25 |
| 26 | 47 | -7204.938 | 265.910 | 0.141 | -17.865 | 277.726 | 2585.743 | 122.91 | 128.08 | 31.36 | 33.21 |
| 27 | 47 | 7204.953 | -265.910 | -0.140 | 17.866 | -277.726 | -2585.745 | 122.91 | 128.08 | 31.36 | 33.21 |
| 27 | 48 | -7191.776 | 156.734 | 2.984 | 5.125 | -19.947 | 1351.881 | 109.04 | 108.67 | 60.19 | 60.06 |
| 28 | 48 | 7191.764 | -156.734 | -2.984 | -5.125 | 19.948 | -1351.882 | 109.04 | 108.67 | 60.19 | 60.06 |
| 28 | 49 | -10364.287 | 777.932 | 2.288 | -6.933 | -5.109 | -2047.259 | 70.63 | 70.55 | 134.65 | 134.62 |
| 29 | 49 | 9909.787 | 428.817 | -2.528 | 1.270 | 5.083 | 2049.505 | 66.36 | 66.28 | 130.45 | 130.43 |
| 29 | 59 | -6670.709 | -370.961 | 2.528 | -1.270 | -4.284 | 975.793 | 97.29 | 97.21 | 62.09 | 62.06 |
| 30 | 59 | 6670.713 | 370.961 | -2.528 | 1.270 | 4.284 | -975.794 | 97.29 | 97.21 | 62.09 | 62.06 |
| 30 | 60 | -6753.980 | -408.163 | 18.564 | 79.371 | 440.970 | 3152.162 | 123.26 | 131.47 | 12.27 | 15.20 |
| 31 | 60 | 6753.982 | 408.162 | -18.564 | -79.370 | -440.968 | -3152.161 | 123.26 | 131.47 | 12.27 | 15.20 |
| 31 | 61 | -6518.236 | -237.261 | 13.254 | 60.284 | 512.565 | 4560.876 | 138.43 | 147.96 | -22.92 | -19.51 |
| 32 | 61 | 6518.238 | 237.262 | -13.253 | -60.284 | -512.562 | -4560.876 | 138.43 | 147.96 | -22.92 | -19.51 |
| 32 | 62 | -6575.089 | -171.312 | 8.869 | 25.323 | 525.287 | 5421.330 | 150.51 | 160.29 | -41.77 | -38.28 |
| 33 | 62 | 6575.088 | 171.312 | -8.870 | -25.324 | -525.284 | -5421.334 | 150.51 | 160.29 | -41.77 | -38.28 |
| 33 | 63 | -6534.857 | 12.010 | 3.560 | 24.694 | 553.251 | 5905.642 | 156.21 | 166.51 | -53.37 | -49.69 |
| 34 | 63 | 6534.859 | -12.009 | -3.559 | -24.693 | -553.248 | -5905.642 | 156.21 | 166.51 | -53.37 | -49.69 |
| 34 | 64 | -7031.624 | 225.838 | -1.751 | 24.069 | 557.293 | 5413.948 | 155.88 | 166.25 | -35.95 | -32.25 |
| 35 | 64 | 7031.620 | -225.839 | 1.749 | -24.070 | -557.295 | -5413.949 | 155.88 | 166.25 | -35.95 | -32.25 |
| 35 | 65 | -7019.746 | 325.770 | -5.891 | -8.953 | 578.464 | 4151.847 | 138.68 | 149.45 | -7.52 | -3.68 |
| 36 | 65 | 7019.743 | -325.771 | 5.891 | 8.953 | -578.463 | -4151.844 | 138.68 | 149.45 | -7.52 | -3.68 |
| 36 | 66 | -7025.427 | 287.631 | -11.201 | -28.032 | 540.025 | 2599.063 | 118.38 | 128.43 | 27.92 | 31.51 |
| 37 | 66 | 7025.430 | -287.630 | 11.200 | 28.032 | -540.027 | -2599.061 | 118.38 | 128.43 | 27.92 | 31.51 |
| 37 | 67 | -7050.173 | 159.559 | 2.578 | 3.924 | -2.480 | 1353.122 | 107.11 | 107.06 | 58.31 | 58.30 |
| 38 | 67 | 7050.177 | -159.560 | -2.579 | -3.924 | 2.479 | -1353.121 | 107.11 | 107.06 | 58.31 | 58.30 |
| 38 | 68 | -10208.872 | 831.019 | 2.579 | 3.924 | -1.452 | -2082.799 | 68.70 | 68.67 | 133.85 | 133.84 |
| 39 | 68 | 9593.531 | 384.776 | -3.481 | -7.244 | 1.421 | 2076.768 | 63.03 | 63.01 | 128.00 | 127.99 |
| 39 | 78 | -6340.625 | -377.165 | -2.673 | -2.638 | -1.800 | 959.581 | 92.89 | 92.85 | 58.28 | 58.27 |
| 40 | 78 | 6340.623 | 377.164 | 2.673 | 2.638 | 1.800 | -959.582 | 92.89 | 92.85 | 58.28 | 58.27 |
| 40 | 79 | -6711.915 | -409.402 | 9.403 | 51.369 | 521.407 | 3178.459 | 122.33 | 132.03 | 10.87 | 14.34 |
| 41 | 79 | 6711.909 | 409.403 | -9.403 | -51.370 | -521.403 | -3178.459 | 122.33 | 132.03 | 10.87 | 14.34 |
| 41 | 80 | -6732.077 | -243.049 | 4.094 | 32.290 | 551.770 | 4595.247 | 141.22 | 151.49 | -21.13 | -17.46 |
| 42 | 80 | 6732.085 | 243.049 | -4.094 | -32.291 | -551.768 | -4595.247 | 141.22 | 151.49 | -21.13 | -17.46 |
| 42 | 81 | -6807.319 | -177.099 | -0.025 | -1.233 | 523.226 | 5459.980 | 153.98 | 163.72 | -39.71 | -36.24 |
| 43 | 81 | 6807.324 | 177.097 | 0.025 | 1.234 | -523.230 | -5459.980 | 153.98 | 163.72 | -39.71 | -36.24 |
| 43 | 82 | -7481.995 | -0.520 | -5.333 | -1.854 | 511.169 | 5956.004 | 169.23 | 178.74 | -42.41 | -39.01 |
| 44 | 82 | 7481.989 | 0.520 | 5.331 | 1.854 | -511.174 | -5956.003 | 169.23 | 178.74 | -42.41 | -39.01 |
| 44 | 83 | -7462.976 | 219.207 | -10.641 | -2.484 | 475.224 | 5472.872 | 162.88 | 171.72 | -31.57 | -28.41 |
| 45 | 83 | 7462.973 | -219.208 | 10.644 | 2.484 | -475.224 | -5472.869 | 162.88 | 171.72 | -31.57 | -28.41 |
| 45 | 84 | -7468.628 | 319.150 | -15.042 | -36.797 | 452.967 | 4218.015 | 146.40 | 154.83 | -2.94 | 0.07 |
| 46 | 84 | 7468.640 | -319.150 | 15.043 | 36.797 | -452.966 | -4218.015 | 146.40 | 154.83 | -2.94 | 0.07 |
| 46 | 85 | -7498.265 | 277.671 | -20.353 | -55.885 | 373.328 | 2667.068 | 126.81 | 133.76 | 32.90 | 35.38 |
| 47 | 85 | 7498.249 | -277.672 | 20.352 | 55.885 | -373.326 | -2667.068 | 126.81 | 133.76 | 32.90 | 35.38 |
| 47 | 86 | -7455.438 | 159.422 | -2.569 | 3.295 | -12.353 | 1464.529 | 113.80 | 113.57 | 60.94 | 60.85 |
| 48 | 86 | 7455.447 | -159.422 | 2.569 | -3.295 | 12.353 | -1464.528 | 113.80 | 113.57 | 60.94 | 60.85 |
| 48 | 87 | -10620.839 | 830.882 | -2.569 | 3.295 | -13.338 | -1956.880 | 74.24 | 74.02 | 135.39 | 135.32 |
| 49 | 87 | 9848.222 | 370.168 | 1.863 | -9.663 | 13.366 | 1986.685 | 66.65 | 66.44 | 128.74 | 128.66 |
| 49 | 97 | -6602.013 | -362.521 | -2.626 | -4.495 | -25.810 | 993.759 | 96.87 | 96.39 | 60.89 | 60.72 |
| 50 | 97 | 6602.012 | 362.521 | 2.626 | 4.495 | 25.810 | -993.759 | 96.87 | 96.39 | 60.89 | 60.72 |
| 50 | 98 | -6229.001 | -386.323 | 5.955 | 24.454 | 253.097 | 3165.500 | 118.56 | 123.27 | 5.96 | 7.64 |
| 51 | 98 | 6228.996 | 386.323 | -5.955 | -24.454 | -253.100 | -3165.499 | 118.56 | 123.27 | 5.96 | 7.64 |
| 51 | 99 | -6228.059 | -223.221 | 0.650 | 5.356 | 268.012 | 4512.837 | 136.40 | 141.38 | -24.68 | -22.90 |
| 52 | 99 | 6228.057 | 223.221 | -0.649 | -5.356 | -268.014 | -4512.837 | 136.40 | 141.38 | -24.68 | -22.90 |
| 52 | 100 | -6287.211 | -157.278 | -3.280 | -27.822 | 233.568 | 5312.671 | 148.14 | 152.49 | -41.97 | -40.42 |
| 53 | 100 | 6287.213 | 157.276 | 3.281 | 27.822 | -233.568 | -5312.669 | 148.14 | 152.49 | -41.97 | -40.42 |
| 53 | 101 | -6249.286 | 26.046 | -8.591 | -28.452 | 206.868 | 5735.908 | 153.56 | 157.41 | -51.97 | -50.60 |
| 54 | 101 | 6249.291 | -26.045 | 8.589 | 28.453 | -206.866 | -5735.905 | 153.56 | 157.41 | -51.97 | -50.59 |
| 54 | 102 | -6214.200 | 245.773 | -13.899 | -29.083 | 156.267 | 5157.194 | 145.86 | 148.77 | -39.11 | -38.07 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 55 | 102 | 6214.196 | -245.773 | 13.900 | 29.083 | -156.271 | -5157.192 | 145.86 | 148.77 | -39.11 | -38.07 |
| 55 | 103 | -6206.376 | 345.728 | -18.581 | -63.379 | 106.910 | 3806.049 | 128.18 | 130.17 | -8.38 | -7.67 |
| 56 | 103 | 6206.375 | -345.729 | 18.581 | 63.379 | -106.911 | -3806.048 | 128.18 | 130.17 | -8.38 | -7.67 |
| 56 | 104 | -6225.393 | 303.732 | -23.902 | -82.390 | 11.594 | 2171.988 | 107.49 | 107.71 | 29.27 | 29.34 |
| 57 | 104 | 6225.396 | -303.731 | 23.902 | 82.390 | -11.595 | -2171.986 | 107.49 | 107.71 | 29.27 | 29.34 |
| 57 | 105 | -7126.207 | 175.251 | -2.513 | 2.336 | -11.126 | 857.920 | 101.54 | 101.33 | 70.54 | 70.47 |
| 58 | 105 | 7126.204 | -175.251 | 2.513 | -2.337 | 11.126 | -857.920 | 101.54 | 101.33 | 70.54 | 70.47 |
| 58 | 106 | -10289.748 | 790.521 | -4.393 | -8.909 | -55.027 | -2450.358 | 65.20 | 64.31 | 141.58 | 141.26 |
| 59 | 106 | 9360.052 | 460.800 | 0.632 | 7.224 | 55.242 | 2330.037 | 58.06 | 57.17 | 130.67 | 130.35 |
| 59 | 115 | -6111.996 | -402.944 | -0.632 | -7.224 | -47.511 | 823.203 | 88.60 | 87.72 | 58.65 | 58.33 |
| 60 | 115 | 6111.994 | 402.944 | 0.632 | 7.224 | 47.511 | -823.203 | 88.60 | 87.72 | 58.65 | 58.33 |
| 60 | 116 | -6688.031 | -420.446 | 21.951 | -15.302 | -12.543 | 3141.975 | 126.51 | 126.28 | 13.17 | 13.09 |
| 61 | 116 | 6688.036 | 420.446 | -21.951 | 15.302 | 12.541 | -3141.973 | 126.51 | 126.28 | 13.17 | 13.09 |
| 61 | 117 | -7728.726 | -277.257 | 16.698 | -34.667 | 75.428 | 4618.434 | 158.54 | 159.95 | -7.49 | -6.99 |
| 62 | 117 | 7728.725 | 277.257 | -16.699 | 34.667 | -75.427 | -4618.432 | 158.54 | 159.95 | -7.49 | -6.99 |
| 62 | 118 | -7796.887 | -211.401 | 12.106 | -66.080 | 113.916 | 5640.328 | 172.69 | 174.81 | -29.95 | -29.19 |
| 63 | 118 | 7796.885 | 211.400 | -12.105 | 66.080 | -113.915 | -5640.326 | 172.69 | 174.81 | -29.95 | -29.19 |
| 63 | 119 | -7767.965 | -28.078 | 6.795 | -66.710 | 156.442 | 6285.047 | 180.54 | 183.45 | -45.09 | -44.05 |
| 64 | 119 | 7767.962 | 28.078 | -6.796 | 66.710 | -156.443 | -6285.046 | 180.54 | 183.45 | -45.09 | -44.05 |
| 64 | 120 | -7741.880 | 191.650 | 1.486 | -67.340 | 175.074 | 5927.820 | 175.27 | 178.52 | -37.37 | -36.21 |
| 65 | 120 | 7741.880 | -191.649 | -1.485 | 67.340 | -175.072 | -5927.821 | 175.27 | 178.52 | -37.37 | -36.21 |
| 65 | 121 | -7733.872 | 291.454 | -2.689 | -103.902 | 205.278 | 4805.434 | 159.90 | 163.72 | -12.10 | -10.74 |
| 66 | 121 | 7733.873 | -291.453 | 2.689 | 103.902 | -205.278 | -4805.434 | 159.90 | 163.72 | -12.10 | -10.74 |
| 66 | 122 | -7716.871 | 179.136 | -0.277 | -14.654 | 34.099 | 3446.068 | 143.13 | 143.76 | 19.11 | 19.33 |
| 67 | 122 | 7716.872 | -179.136 | 0.277 | 14.654 | -34.098 | -3446.067 | 143.13 | 143.76 | 19.11 | 19.33 |
| 67 | 123 | -7719.360 | 62.852 | 1.350 | -14.195 | -40.748 | 2645.433 | 133.17 | 132.41 | 37.56 | 37.29 |
| 68 | 123 | 7719.363 | -62.852 | -1.350 | 14.195 | 40.748 | -2645.432 | 133.17 | 132.41 | 37.56 | 37.29 |
| 68 | 124 | -10844.723 | 726.594 | 1.350 | -14.195 | -45.249 | -339.440 | 97.20 | 96.47 | 107.59 | 107.33 |
| 69 | 124 | 10926.919 | 234.563 | -0.212 | 1.274 | 45.248 | 479.343 | 96.19 | 95.45 | 110.95 | 110.69 |
| 69 | 133 | -7773.503 | -325.087 | 13.170 | -26.362 | 81.278 | 1404.482 | 116.15 | 117.66 | 66.00 | 66.54 |
| 70 | 133 | 7773.505 | 325.086 | -13.170 | 26.362 | -81.277 | -1404.482 | 116.15 | 117.66 | 66.00 | 66.54 |
| 70 | 134 | -5930.139 | -143.132 | 9.192 | -44.192 | 178.645 | 2121.339 | 101.54 | 104.86 | 26.13 | 27.32 |
| 71 | 134 | 5966.276 | 143.133 | -9.192 | 44.192 | -178.646 | -2110.398 | 101.85 | 105.17 | 26.84 | 28.03 |
| 71 | 135 | -6028.690 | -286.444 | 5.121 | -72.351 | 182.658 | 3315.025 | 118.68 | 122.08 | 0.27 | 1.49 |
| 72 | 135 | 6028.690 | 286.443 | -5.121 | 72.351 | -182.659 | -3315.025 | 118.68 | 122.08 | 0.27 | 1.49 |
| 72 | 136 | -5986.082 | -79.978 | -0.189 | -72.981 | 193.755 | 4199.803 | 129.85 | 133.46 | -20.38 | -19.10 |
| 73 | 136 | 5986.083 | 79.979 | 0.189 | 72.981 | -193.755 | -4199.806 | 129.85 | 133.46 | -20.38 | -19.10 |
| 73 | 137 | -5915.889 | 139.915 | -5.499 | -73.611 | 180.957 | 4134.367 | 128.21 | 131.58 | -19.74 | -18.54 |
| 74 | 137 | 5915.888 | -139.915 | 5.499 | 73.611 | -180.957 | -4134.371 | 128.21 | 131.58 | -19.74 | -18.54 |
| 74 | 138 | -5839.406 | 294.247 | -11.594 | -117.821 | 152.137 | 3207.481 | 115.14 | 117.97 | 0.42 | 1.44 |
| 75 | 138 | 5023.468 | -294.246 | 11.594 | 117.821 | -152.137 | -3235.931 | 105.22 | 108.05 | -10.52 | -9.51 |
| 75 | 139 | -4956.507 | 488.642 | -16.904 | -136.901 | 88.016 | 1612.213 | 83.29 | 84.93 | 25.70 | 26.28 |
| 76 | 139 | 4956.509 | -488.643 | 16.904 | 136.901 | -88.016 | -1612.215 | 83.29 | 84.93 | 25.70 | 26.28 |
| 76 | 140 | -4556.271 | 537.015 | -0.292 | 0.983 | 0.000 | -511.352 | 50.70 | 50.70 | 69.13 | 69.13 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS  113

max mz + pret(t=0)(frecuente)

ESFUERZOS EN BARRAS

TENSIONES

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | MOM. Y | MOM. Z | SIGMA 1 | SIGMA2 | SIGMA3 | SIGMA4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 9141.461 | 620.282 | -10.486 | -72.544 | 0.000 | 1686.694 | 92.90 | 92.90 | 153.71 | 153.71 |
| 1 | 8 | -9172.490 | -142.486 | 0.498 | 6.535 | 2.240 | -727.152 | 106.09 | 106.13 | 132.31 | 132.33 |
| 2 | 8 | 9172.514 | 142.486 | -0.498 | -6.535 | -2.240 | 727.150 | 106.09 | 106.13 | 132.31 | 132.33 |
| 2 | 9 | -9209.187 | -44.121 | 0.498 | 6.535 | 4.480 | -322.616 | 111.93 | 112.01 | 123.59 | 123.61 |
| 3 | 9 | 9582.398 | 44.122 | -0.498 | -6.535 | -4.480 | 80.582 | 119.87 | 119.96 | 122.80 | 122.83 |
| 3 | 10 | -9619.520 | 106.237 | 0.498 | 6.534 | 6.722 | -220.468 | 118.45 | 118.58 | 126.44 | 126.48 |
| 4 | 10 | 9619.506 | -106.238 | -0.498 | -6.534 | -6.722 | 220.467 | 118.45 | 118.58 | 126.44 | 126.48 |
| 4 | 11 | -9619.992 | 139.257 | 0.491 | 6.547 | 8.841 | -958.571 | 108.58 | 108.75 | 143.19 | 143.25 |
| 5 | 11 | 9620.012 | -139.256 | -0.491 | -6.547 | -8.841 | 958.570 | 108.58 | 108.75 | 143.19 | 143.25 |
| 5 | 12 | -9623.445 | 102.980 | -2.561 | 31.476 | -42.428 | -1443.762 | 102.63 | 101.84 | 154.42 | 154.14 |
| 6 | 12 | 9623.432 | -102.980 | 2.561 | -31.476 | 42.429 | 1443.763 | 102.63 | 101.84 | 154.42 | 154.14 |
| 6 | 13 | -9547.302 | -75.773 | -2.831 | 30.558 | -54.559 | -1587.259 | 99.86 | 98.85 | 156.75 | 156.39 |
| 7 | 13 | 9517.913 | 75.773 | 2.831 | -30.558 | 54.559 | 1583.313 | 99.54 | 98.53 | 156.29 | 155.93 |
| 7 | 14 | -9552.743 | 93.806 | -3.101 | 29.640 | -67.905 | -1208.559 | 105.11 | 103.85 | 148.27 | 147.82 |
| 8 | 14 | 9552.733 | -93.806 | 3.101 | -29.640 | 67.905 | 1208.560 | 105.11 | 103.85 | 148.27 | 147.82 |
| 8 | 15 | -13748.373 | 1126.606 | -11.175 | 14.661 | -13.501 | -5906.921 | 53.07 | 52.85 | 237.80 | 237.72 |
| 9 | 15 | 13888.465 | 1032.996 | -9.523 | -85.203 | 13.257 | 5905.491 | 54.39 | 54.18 | 239.08 | 239.01 |
| 9 | 23 | -11046.517 | -754.296 | 4.499 | 66.250 | 19.495 | -1612.371 | 117.77 | 118.13 | 176.01 | 176.14 |
| 10 | 23 | 11046.552 | 754.296 | -4.499 | -66.250 | -19.495 | 1612.371 | 117.77 | 118.13 | 176.01 | 176.14 |
| 10 | 24 | -11103.672 | -33.807 | -3.687 | 44.719 | -94.935 | -119.106 | 139.49 | 137.72 | 143.22 | 142.59 |
| 11 | 24 | 11659.549 | 33.807 | 3.687 | -44.719 | 94.936 | -285.036 | 151.91 | 150.14 | 141.06 | 140.43 |
| 11 | 25 | -11089.400 | 76.272 | -3.878 | 44.540 | -113.053 | -433.651 | 135.28 | 133.18 | 150.24 | 149.48 |
| 12 | 25 | 11089.412 | -76.273 | 3.878 | -44.540 | 113.052 | 433.649 | 135.28 | 133.18 | 150.24 | 149.48 |
| 12 | 26 | -11180.181 | -9.648 | -4.158 | 43.651 | -130.973 | -645.857 | 133.76 | 131.32 | 156.26 | 155.39 |
| 13 | 26 | 11180.167 | 9.649 | 4.159 | -43.651 | 130.973 | 645.857 | 133.76 | 131.32 | 156.26 | 155.39 |
| 13 | 27 | -10932.240 | 44.815 | -4.954 | 38.739 | -153.464 | -550.815 | 132.11 | 129.25 | 151.05 | 150.03 |
| 14 | 27 | 10932.270 | -44.815 | 4.953 | -38.739 | 153.465 | 550.815 | 132.11 | 129.25 | 151.05 | 150.03 |
| 14 | 28 | -10900.776 | 128.755 | -5.223 | 37.821 | -176.362 | -907.853 | 127.16 | 123.87 | 158.83 | 157.66 |
| 15 | 28 | 10900.749 | -128.755 | 5.223 | -37.821 | 176.362 | 907.851 | 127.16 | 123.87 | 158.83 | 157.66 |
| 15 | 29 | -10948.610 | 84.415 | -5.504 | 36.934 | -200.430 | -1442.796 | 120.84 | 117.11 | 171.65 | 170.32 |
| 16 | 29 | 10948.612 | -84.415 | 5.504 | -36.934 | 200.431 | 1442.797 | 120.84 | 117.11 | 171.65 | 170.32 |
| 16 | 30 | -10308.815 | -74.981 | -5.779 | 36.030 | -225.796 | -1264.725 | 115.38 | 111.18 | 159.62 | 158.12 |
| 17 | 30 | 10308.811 | 74.981 | 5.779 | -36.030 | 225.796 | 1264.726 | 115.38 | 111.18 | 159.62 | 158.12 |
| 17 | 31 | -10314.254 | 500.705 | -13.143 | 19.845 | -170.453 | -1545.598 | 111.18 | 108.01 | 165.88 | 164.74 |
| 18 | 31 | 10314.266 | -500.705 | 13.143 | -19.845 | 170.452 | 1545.598 | 111.18 | 108.01 | 165.88 | 164.74 |
| 18 | 32 | -14430.730 | 1418.088 | -15.843 | 10.233 | -235.670 | -7427.573 | 41.86 | 38.02 | 273.01 | 271.64 |
| 19 | 32 | 14724.501 | 952.886 | -23.597 | -61.537 | 235.672 | 7431.319 | 44.55 | 40.72 | 275.82 | 274.45 |
| 19 | 40 | -10514.260 | -784.378 | 18.246 | 41.956 | -139.236 | -2046.757 | 106.72 | 104.13 | 179.67 | 178.75 |
| 20 | 40 | 10514.247 | 784.378 | -18.246 | -41.956 | 139.236 | 2046.757 | 106.72 | 104.13 | 179.67 | 178.75 |
| 20 | 41 | -10581.978 | -63.297 | 9.381 | 25.213 | -191.452 | -486.969 | 128.89 | 125.33 | 145.30 | 144.03 |
| 21 | 41 | 10581.960 | 63.297 | -9.381 | -25.213 | 191.453 | 486.969 | 128.89 | 125.33 | 145.30 | 144.03 |
| 21 | 42 | -10583.327 | 43.719 | 9.101 | 24.655 | -151.780 | -668.399 | 126.12 | 123.29 | 149.30 | 148.29 |
| 22 | 42 | 10583.360 | -43.718 | -9.101 | -24.656 | 151.780 | 668.399 | 126.12 | 123.29 | 149.30 | 148.29 |
| 22 | 43 | -10568.316 | -39.688 | 8.828 | 23.755 | -111.386 | -747.781 | 124.49 | 122.42 | 150.78 | 150.04 |
| 23 | 43 | 10568.320 | 39.688 | -8.828 | -23.755 | 111.386 | 747.780 | 124.49 | 122.42 | 150.78 | 150.04 |
| 23 | 44 | -10514.990 | 10.118 | 8.628 | 18.128 | -71.329 | -494.857 | 126.82 | 125.49 | 144.23 | 143.76 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 24 | 44 | 10514.965 | -10.118 | -8.628 | -18.128 | 71.328 | 494.856 | 126.82 | 125.49 | 144.23 | 143.76 |
| 24 | 45 | -10090.523 | 100.270 | 8.359 | 17.209 | -33.093 | -720.838 | 118.09 | 117.47 | 143.88 | 143.66 |
| 25 | 45 | 10090.516 | -100.269 | -8.358 | -17.209 | 33.094 | 720.838 | 118.09 | 117.47 | 143.88 | 143.66 |
| 25 | 46 | -10076.379 | 58.340 | 8.085 | 16.314 | 3.942 | -1128.069 | 112.13 | 112.20 | 152.82 | 152.84 |
| 26 | 46 | 10076.393 | -58.341 | -8.085 | -16.314 | -3.941 | 1128.069 | 112.13 | 112.20 | 152.82 | 152.84 |
| 26 | 47 | -8733.996 | -99.484 | 7.788 | 16.407 | 41.238 | -1323.594 | 92.22 | 92.99 | 140.18 | 140.46 |
| 27 | 47 | 8734.016 | 99.484 | -7.788 | -16.407 | -41.240 | 1323.593 | 92.22 | 92.99 | 140.18 | 140.46 |
| 27 | 48 | -8733.982 | 493.410 | 4.758 | 1.372 | 281.420 | -1550.554 | 86.96 | 92.19 | 144.54 | 146.41 |
| 28 | 48 | 8733.967 | -493.410 | -4.759 | -1.372 | -281.421 | 1550.553 | 86.96 | 92.19 | 144.54 | 146.41 |
| 28 | 49 | -12844.908 | 1410.793 | 2.059 | -8.240 | 296.757 | -7391.499 | 23.19 | 28.02 | 256.00 | 257.72 |
| 29 | 49 | 13299.408 | 943.924 | -14.223 | -58.941 | -296.726 | 7389.253 | 27.46 | 32.29 | 260.20 | 261.92 |
| 29 | 59 | -9083.594 | -775.480 | 8.983 | 39.233 | 344.284 | -2038.998 | 84.27 | 90.67 | 159.83 | 162.11 |
| 30 | 59 | 9083.600 | 775.480 | -8.982 | -39.233 | -344.284 | 2038.997 | 84.27 | 90.67 | 159.83 | 162.11 |
| 30 | 60 | -9150.377 | -51.719 | 2.762 | 20.616 | 136.757 | -529.608 | 107.19 | 109.74 | 127.10 | 128.01 |
| 31 | 60 | 9150.379 | 51.719 | -2.762 | -20.616 | -136.756 | 529.607 | 107.19 | 109.74 | 127.10 | 128.01 |
| 31 | 61 | -9324.824 | 48.795 | 2.492 | 19.701 | 148.568 | -740.722 | 106.47 | 109.23 | 134.06 | 135.04 |
| 32 | 61 | 9324.826 | -48.794 | -2.491 | -19.702 | -148.566 | 740.720 | 106.47 | 109.23 | 134.06 | 135.04 |
| 32 | 62 | -9409.339 | -37.335 | 2.220 | 18.799 | 159.178 | -844.734 | 106.05 | 109.01 | 137.45 | 138.51 |
| 33 | 62 | 9409.338 | 37.334 | -2.220 | -18.799 | -159.175 | 844.730 | 106.05 | 109.01 | 137.45 | 138.51 |
| 33 | 63 | -9367.770 | 12.402 | 2.166 | 12.380 | 168.863 | -615.102 | 108.50 | 111.64 | 131.68 | 132.80 |
| 34 | 63 | 9367.771 | -12.401 | -2.166 | -12.380 | -168.863 | 615.102 | 108.50 | 111.64 | 131.68 | 132.80 |
| 34 | 64 | -8795.727 | 102.240 | 1.896 | 11.455 | 178.030 | -864.698 | 97.86 | 101.17 | 130.09 | 131.27 |
| 35 | 64 | 8795.722 | -102.241 | -1.896 | -11.455 | -178.032 | 864.698 | 97.86 | 101.17 | 130.09 | 131.27 |
| 35 | 65 | -8790.981 | 60.243 | 1.625 | 10.553 | 185.952 | -1292.348 | 92.01 | 95.47 | 139.71 | 140.95 |
| 36 | 65 | 8790.978 | -60.242 | -1.625 | -10.553 | -185.953 | 1292.350 | 92.01 | 95.47 | 139.71 | 140.95 |
| 36 | 66 | -8809.039 | -102.156 | 1.355 | 9.635 | 192.656 | -1284.697 | 92.28 | 95.87 | 139.74 | 141.02 |
| 37 | 66 | 8809.043 | 102.156 | -1.355 | -9.635 | -192.656 | 1284.697 | 92.28 | 95.87 | 139.74 | 141.02 |
| 37 | 67 | -8809.488 | 500.052 | -3.603 | -4.512 | 436.980 | -1545.779 | 86.53 | 94.66 | 144.86 | 147.77 |
| 38 | 67 | 8809.492 | -500.051 | 3.604 | 4.512 | -436.979 | 1545.780 | 86.53 | 94.66 | 144.86 | 147.77 |
| 38 | 68 | -12920.913 | 1465.298 | -8.814 | -24.391 | 415.069 | -7423.462 | 22.53 | 29.29 | 256.96 | 259.37 |
| 39 | 68 | 13536.250 | 902.356 | -4.985 | -29.570 | -415.037 | 7429.493 | 28.20 | 34.95 | 262.81 | 265.22 |
| 39 | 78 | -9320.916 | -781.861 | 2.285 | 19.958 | 431.396 | -2059.258 | 86.18 | 94.21 | 162.99 | 165.86 |
| 40 | 78 | 9320.915 | 781.861 | -2.286 | -19.958 | -431.393 | 2059.257 | 86.18 | 94.21 | 162.99 | 165.86 |
| 40 | 79 | -9175.552 | -56.501 | -2.378 | 3.582 | 184.669 | -533.005 | 107.02 | 110.45 | 127.34 | 128.56 |
| 41 | 79 | 9175.545 | 56.501 | 2.378 | -3.582 | -184.670 | 533.004 | 107.02 | 110.45 | 127.34 | 128.56 |
| 41 | 80 | -9191.057 | 46.600 | -2.648 | 2.664 | 173.359 | -713.928 | 104.90 | 108.13 | 131.68 | 132.83 |
| 42 | 80 | 9191.068 | -46.599 | 2.649 | -2.664 | -173.359 | 713.929 | 104.90 | 108.13 | 131.68 | 132.83 |
| 42 | 81 | -9278.094 | -39.520 | -2.921 | 1.763 | 160.825 | -798.743 | 104.99 | 107.98 | 134.74 | 135.81 |
| 43 | 81 | 9278.101 | 39.520 | 2.920 | -1.763 | -160.825 | 798.742 | 104.99 | 107.98 | 134.74 | 135.81 |
| 43 | 82 | -8542.523 | 3.885 | -3.191 | 0.835 | 147.077 | -556.923 | 99.06 | 101.79 | 120.01 | 120.99 |
| 44 | 82 | 8542.515 | -3.885 | 3.191 | -0.835 | -147.078 | 556.922 | 99.06 | 101.79 | 120.01 | 120.99 |
| 44 | 83 | -8507.142 | 100.936 | -3.248 | -5.327 | 132.200 | -791.394 | 95.62 | 98.08 | 124.94 | 125.81 |
| 45 | 83 | 8507.139 | -100.936 | 3.249 | 5.327 | -132.201 | 791.397 | 95.62 | 98.08 | 124.94 | 125.81 |
| 45 | 84 | -8503.803 | 58.930 | -3.521 | -6.230 | 116.956 | -1204.817 | 90.20 | 92.37 | 134.33 | 135.11 |
| 46 | 84 | 8503.821 | -58.931 | 3.519 | 6.230 | -116.956 | 1204.815 | 90.20 | 92.37 | 134.33 | 135.11 |
| 46 | 85 | -8531.615 | -99.893 | -3.790 | -7.141 | 100.497 | -1187.257 | 90.94 | 92.81 | 134.34 | 135.00 |
| 47 | 85 | 8531.595 | 99.893 | 3.792 | 7.141 | -100.495 | 1187.256 | 90.94 | 92.81 | 134.34 | 135.00 |
| 47 | 86 | -8522.297 | 500.230 | -10.236 | -22.727 | 287.731 | -1445.819 | 85.62 | 90.98 | 139.46 | 141.38 |
| 48 | 86 | 8522.307 | -500.230 | 10.235 | 22.728 | -287.734 | 1445.820 | 85.62 | 90.98 | 139.46 | 141.38 |
| 48 | 87 | -12623.986 | 1465.524 | -15.498 | -42.559 | 234.174 | -7316.254 | 22.60 | 26.41 | 252.72 | 254.08 |
| 49 | 87 | 13396.610 | 880.972 | -2.649 | -11.278 | -234.204 | 7286.448 | 30.19 | 34.00 | 259.38 | 260.74 |
| 49 | 97 | -9171.536 | -760.477 | -0.051 | 1.666 | 240.055 | -2003.158 | 86.82 | 91.29 | 160.47 | 162.07 |
| 50 | 97 | 9171.534 | 760.477 | 0.050 | -1.666 | -240.053 | 2003.158 | 86.82 | 91.29 | 160.47 | 162.07 |
| 50 | 98 | -9513.657 | -47.818 | -4.306 | -11.044 | 22.246 | -557.003 | 112.48 | 112.89 | 132.69 | 132.84 |
| 51 | 98 | 9513.648 | 47.818 | 4.305 | 11.044 | -22.246 | 557.004 | 112.48 | 112.89 | 132.69 | 132.84 |
| 51 | 99 | -9523.111 | 58.947 | -4.577 | -11.949 | 2.264 | -805.737 | 109.46 | 109.50 | 138.52 | 138.54 |
| 52 | 99 | 9523.109 | -58.948 | 4.576 | 11.949 | -2.265 | 805.737 | 109.46 | 109.50 | 138.52 | 138.54 |
| 52 | 100 | -9610.613 | -27.111 | -4.848 | -12.848 | -18.947 | -953.224 | 108.80 | 108.44 | 143.04 | 142.92 |
| 53 | 100 | 9610.618 | 27.112 | 4.849 | 12.848 | 18.946 | 953.224 | 108.80 | 108.44 | 143.04 | 142.92 |
| 53 | 101 | -9572.041 | 9.548 | -5.119 | -13.766 | -41.378 | -766.491 | 111.01 | 110.24 | 138.39 | 138.12 |
| 54 | 101 | 9572.047 | -9.549 | 5.120 | 13.766 | 41.378 | 766.492 | 111.01 | 110.24 | 138.39 | 138.12 |
| 54 | 102 | -9537.152 | 106.646 | -5.419 | -18.998 | -65.868 | -1032.646 | 107.24 | 106.02 | 144.08 | 143.64 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 55 | 102 | 9537.150 | -106.644 | 5.419 | 18.998 | 65.865 | 1032.648 | 107.24 | 106.02 | 144.08 | 143.64 |
| 55 | 103 | -9537.674 | 64.668 | -5.692 | -19.898 | -90.899 | -1479.953 | 101.51 | 99.82 | 154.32 | 153.71 |
| 56 | 103 | 9537.674 | -64.669 | 5.692 | 19.898 | 90.899 | 1479.955 | 101.51 | 99.82 | 154.32 | 153.71 |
| 56 | 104 | -9573.054 | -93.814 | -5.976 | -20.456 | -115.468 | -1493.408 | 102.01 | 99.86 | 155.15 | 154.38 |
| 57 | 104 | 9573.055 | 93.815 | 5.976 | 20.456 | 115.470 | 1493.409 | 102.01 | 99.86 | 155.15 | 154.38 |
| 57 | 105 | -8731.078 | 509.519 | -13.768 | -35.056 | -13.764 | -1814.999 | 86.14 | 85.88 | 151.48 | 151.39 |
| 58 | 105 | 8731.074 | -509.520 | 13.768 | 35.056 | 13.766 | 1815.000 | 86.14 | 85.88 | 151.48 | 151.39 |
| 58 | 106 | -12848.791 | 1474.859 | -19.028 | -55.032 | -86.546 | -7743.735 | 21.86 | 20.45 | 263.68 | 263.18 |
| 59 | 106 | 13778.496 | 943.779 | -15.089 | 15.399 | 86.331 | 7864.058 | 29.00 | 27.59 | 274.58 | 274.08 |
| 59 | 115 | -9569.459 | -823.285 | 12.389 | -25.011 | -24.508 | -2312.595 | 90.18 | 89.72 | 173.40 | 173.23 |
| 60 | 115 | 9569.459 | 823.285 | -12.389 | 25.011 | 24.507 | 2312.595 | 90.18 | 89.72 | 173.40 | 173.23 |
| 60 | 116 | -9292.013 | -120.023 | 4.800 | -39.095 | -121.453 | -591.053 | 110.56 | 108.30 | 131.14 | 130.33 |
| 61 | 116 | 9292.019 | 120.023 | -4.799 | 39.095 | 121.454 | 591.053 | 110.56 | 108.30 | 131.14 | 130.34 |
| 61 | 117 | -8309.628 | 5.403 | 4.482 | -39.780 | -101.305 | -510.807 | 99.04 | 97.16 | 116.85 | 116.18 |
| 62 | 117 | 8309.627 | -5.402 | -4.483 | 39.780 | 101.306 | 510.808 | 99.04 | 97.16 | 116.85 | 116.18 |
| 62 | 118 | -8387.470 | -80.443 | 4.206 | -40.666 | -81.820 | -409.648 | 101.19 | 99.67 | 115.47 | 114.93 |
| 63 | 118 | 8387.472 | 80.442 | -4.206 | 40.665 | 81.819 | 409.649 | 101.19 | 99.67 | 115.47 | 114.93 |
| 63 | 119 | -8339.233 | -43.783 | 3.936 | -41.583 | -63.503 | 26.348 | 106.24 | 105.05 | 104.91 | 104.48 |
| 64 | 119 | 8339.229 | 43.783 | -3.935 | 41.583 | 63.502 | -26.348 | 106.24 | 105.05 | 104.91 | 104.48 |
| 64 | 120 | -8294.674 | 52.188 | 3.424 | -46.619 | -43.294 | 30.280 | 105.54 | 104.73 | 104.19 | 103.90 |
| 65 | 120 | 8294.674 | -52.187 | -3.424 | 46.620 | 43.294 | -30.281 | 105.54 | 104.73 | 104.19 | 103.90 |
| 65 | 121 | -8273.594 | 10.375 | 3.148 | -47.509 | -28.604 | -161.161 | 102.58 | 102.05 | 108.22 | 108.03 |
| 66 | 121 | 8273.596 | -10.375 | -3.148 | 47.508 | 28.603 | 161.162 | 102.58 | 102.05 | 108.22 | 108.03 |
| 66 | 122 | -8325.574 | -145.063 | 2.974 | -47.622 | -14.670 | 75.125 | 106.26 | 105.99 | 103.46 | 103.37 |
| 67 | 122 | 8325.576 | 145.063 | -2.974 | 47.622 | 14.669 | -75.125 | 106.26 | 105.99 | 103.46 | 103.37 |
| 67 | 123 | -8319.588 | 454.946 | -3.406 | -70.387 | 169.039 | -46.039 | 102.86 | 106.00 | 105.53 | 106.65 |
| 68 | 123 | 8319.590 | -454.946 | 3.406 | 70.387 | -169.037 | 46.039 | 102.86 | 106.00 | 105.53 | 106.65 |
| 68 | 124 | -12369.281 | 1411.566 | -8.407 | -89.501 | 145.060 | -5759.893 | 40.79 | 43.15 | 221.75 | 222.59 |
| 69 | 124 | 12287.076 | 726.444 | -6.770 | 37.817 | -145.061 | 5619.986 | 41.80 | 44.16 | 218.39 | 219.23 |
| 69 | 133 | -8093.388 | -125.221 | 0.485 | -47.433 | 14.488 | -1496.664 | 82.07 | 82.34 | 136.11 | 136.21 |
| 70 | 133 | 8093.390 | 125.221 | -0.485 | 47.433 | -14.488 | 1496.664 | 82.07 | 82.34 | 136.11 | 136.21 |
| 70 | 134 | -9714.229 | 254.773 | 0.131 | -48.056 | 18.335 | -2613.790 | 87.59 | 87.93 | 181.92 | 182.04 |
| 71 | 134 | 9761.161 | -254.772 | -0.131 | 48.056 | -18.335 | 2627.999 | 87.99 | 88.33 | 182.83 | 182.96 |
| 71 | 135 | -9852.899 | -41.101 | -0.139 | -48.974 | 18.317 | -3014.772 | 83.98 | 84.33 | 192.77 | 192.89 |
| 72 | 135 | 9852.899 | 41.101 | 0.139 | 48.974 | -18.317 | 3014.773 | 83.98 | 84.33 | 192.77 | 192.89 |
| 72 | 136 | -9778.409 | 39.567 | -0.686 | -9.777 | 28.865 | -2934.779 | 84.01 | 84.55 | 189.98 | 190.17 |
| 73 | 136 | 9778.410 | -39.566 | 0.686 | 9.777 | -28.865 | 2934.776 | 84.01 | 84.55 | 189.98 | 190.17 |
| 73 | 137 | -9701.711 | 117.727 | -0.686 | -9.777 | 21.649 | -3198.802 | 79.59 | 79.99 | 195.03 | 195.17 |
| 74 | 137 | 9701.709 | -117.727 | 0.686 | 9.777 | -21.649 | 3198.798 | 79.59 | 79.99 | 195.03 | 195.17 |
| 74 | 138 | -9616.841 | 113.052 | -0.686 | -9.777 | 14.432 | -3653.399 | 72.51 | 72.78 | 204.30 | 204.39 |
| 75 | 138 | 8557.182 | -113.051 | 0.686 | 9.777 | -14.432 | 3616.450 | 59.63 | 59.90 | 190.08 | 190.18 |
| 75 | 139 | -8484.680 | 158.097 | -0.686 | -9.777 | 7.216 | -4047.859 | 53.02 | 53.15 | 198.98 | 199.03 |
| 76 | 139 | 8484.682 | -158.098 | 0.686 | 9.777 | -7.216 | 4047.857 | 53.02 | 53.15 | 198.98 | 199.03 |
| 76 | 140 | -8647.694 | 496.080 | -0.420 | 1.437 | 0.000 | -5339.257 | 37.90 | 37.90 | 230.37 | 230.37 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS  114

min mz + pret(t=0)(frecuente)

| | | ESFUERZOS EN BARRAS | | | | | | TENSIONES | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | MOM. Y | MOM. Z | SIGMA 1 | SIGMA2 | SIGMA3 | SIGMA4 |
| 1 | 1 | 9073.938 | 367.237 | -0.407 | 0.765 | 0.000 | 1571.773 | 93.58 | 93.58 | 150.24 | 150.24 |
| 1 | 8 | -9104.967 | -402.343 | 8.139 | 64.711 | 43.795 | 724.427 | 124.23 | 125.04 | 98.37 | 98.66 |
| 2 | 8 | 9104.994 | 402.343 | -8.139 | -64.711 | -43.795 | -724.429 | 124.23 | 125.04 | 98.37 | 98.67 |
| 2 | 9 | -9141.667 | -229.620 | 4.953 | 53.263 | 73.253 | 2131.016 | 143.20 | 144.56 | 66.81 | 67.30 |
| 3 | 9 | 9514.881 | 229.620 | -4.953 | -53.263 | -73.253 | -2373.049 | 151.14 | 152.50 | 66.03 | 66.52 |
| 3 | 10 | -9552.002 | -5.985 | 1.388 | 27.276 | 82.732 | 2902.497 | 158.59 | 160.13 | 54.45 | 55.00 |
| 4 | 10 | 9551.984 | 5.985 | -1.388 | -27.276 | -82.732 | -2902.499 | 158.59 | 160.13 | 54.45 | 55.00 |
| 4 | 11 | -9687.514 | 88.066 | -1.792 | 26.885 | 81.930 | 2512.135 | 155.09 | 156.62 | 65.03 | 65.57 |
| 5 | 11 | 9687.529 | -88.065 | 1.792 | -26.885 | -81.930 | -2512.135 | 155.09 | 156.62 | 65.03 | 65.57 |
| 5 | 12 | -9690.963 | 109.331 | -4.978 | 26.507 | 66.699 | 2131.184 | 150.19 | 151.43 | 73.77 | 74.21 |
| 6 | 12 | 9690.953 | -109.332 | 4.978 | -26.507 | -66.699 | -2131.183 | 150.19 | 151.43 | 73.77 | 74.21 |
| 6 | 13 | -9614.823 | -2.518 | -7.579 | 8.816 | 51.425 | 1808.047 | 145.06 | 146.02 | 80.19 | 80.53 |
| 7 | 13 | 9585.432 | 2.518 | 7.579 | -8.816 | -51.425 | -1811.994 | 144.74 | 145.70 | 79.73 | 80.07 |
| 7 | 14 | -9620.262 | 193.841 | -9.646 | -0.915 | -6.166 | 1740.878 | 144.77 | 144.65 | 81.98 | 81.93 |
| 8 | 14 | 9620.257 | -193.841 | 9.646 | 0.915 | 6.166 | -1740.877 | 144.77 | 144.65 | 81.98 | 81.93 |
| 8 | 15 | -13815.896 | 751.067 | -0.274 | 0.183 | -9.878 | -1483.711 | 110.05 | 109.89 | 156.42 | 156.36 |
| 9 | 15 | 13675.785 | 558.189 | 1.563 | -8.356 | 10.123 | 1485.144 | 108.72 | 108.56 | 155.14 | 155.08 |
| 9 | 23 | -10834.512 | -391.137 | -1.563 | 8.356 | -10.812 | 971.457 | 149.87 | 149.67 | 114.79 | 114.71 |
| 10 | 23 | 10834.547 | 391.137 | 1.563 | -8.356 | 10.812 | -971.456 | 149.87 | 149.67 | 114.79 | 114.71 |
| 10 | 24 | -10892.342 | -176.879 | -0.030 | 8.392 | 17.527 | 2459.122 | 170.20 | 170.52 | 81.66 | 81.77 |
| 11 | 24 | 11448.219 | 176.880 | 0.029 | -8.392 | -17.527 | -2863.265 | 182.61 | 182.94 | 79.50 | 79.62 |
| 11 | 25 | -10896.971 | -55.250 | 1.453 | 59.152 | 19.559 | 2820.561 | 175.06 | 175.43 | 73.50 | 73.63 |
| 12 | 25 | 10896.981 | 55.250 | -1.453 | -59.152 | -19.559 | -2820.562 | 175.06 | 175.43 | 73.51 | 73.64 |
| 12 | 26 | -10994.499 | -93.835 | -1.230 | 37.413 | 8.302 | 3056.167 | 179.55 | 179.70 | 69.43 | 69.48 |
| 13 | 26 | 10994.485 | 93.836 | 1.230 | -37.413 | -8.303 | -3056.166 | 179.55 | 179.70 | 69.43 | 69.48 |
| 13 | 27 | -11178.671 | 5.490 | -4.422 | 37.051 | -4.280 | 3393.201 | 186.49 | 186.41 | 64.14 | 64.12 |
| 14 | 27 | 11178.701 | -5.491 | 4.422 | -37.051 | 4.278 | -3393.201 | 186.49 | 186.41 | 64.14 | 64.12 |
| 14 | 28 | -11153.957 | 157.794 | -7.608 | 36.673 | -31.344 | 3047.317 | 181.81 | 181.23 | 71.77 | 71.56 |
| 15 | 28 | 11153.931 | -157.794 | 7.607 | -36.673 | 31.344 | -3047.316 | 181.81 | 181.23 | 71.77 | 71.56 |
| 15 | 29 | -11114.042 | 165.958 | -10.311 | 17.576 | -62.087 | 2279.190 | 171.34 | 170.18 | 88.80 | 88.39 |
| 16 | 29 | 11114.044 | -165.958 | 10.311 | -17.576 | 62.088 | -2279.188 | 171.34 | 170.18 | 88.80 | 88.39 |
| 16 | 30 | -10467.497 | 68.920 | -13.492 | 6.114 | -115.667 | 1949.182 | 159.27 | 157.11 | 88.31 | 87.54 |
| 17 | 30 | 10467.488 | -68.920 | 13.492 | -6.114 | 115.667 | -1949.182 | 159.27 | 157.11 | 88.31 | 87.54 |
| 17 | 31 | -10520.857 | 172.119 | 0.164 | 4.947 | -37.145 | 1457.659 | 152.65 | 151.95 | 99.88 | 99.63 |
| 18 | 31 | 10520.870 | -172.119 | -0.164 | -4.947 | 37.145 | -1457.660 | 152.65 | 151.96 | 99.88 | 99.63 |
| 18 | 32 | -14636.659 | 1027.132 | 0.164 | 4.947 | -42.752 | -2794.561 | 101.26 | 100.57 | 188.47 | 188.22 |
| 19 | 32 | 14342.913 | 467.414 | -2.989 | -5.611 | 42.751 | 2790.815 | 98.57 | 97.88 | 185.66 | 185.41 |
| 19 | 40 | -10131.996 | -442.780 | 1.574 | -0.474 | -7.009 | 807.104 | 138.77 | 138.64 | 109.63 | 109.59 |
| 20 | 40 | 10131.983 | 442.780 | -1.574 | 0.474 | 7.009 | -807.104 | 138.77 | 138.64 | 109.63 | 109.59 |
| 20 | 41 | -10126.139 | -231.773 | 17.659 | 50.169 | -62.291 | 2527.651 | 162.18 | 161.02 | 70.69 | 70.28 |
| 21 | 41 | 10126.121 | 231.773 | -17.660 | -50.169 | 62.290 | -2527.651 | 162.18 | 161.02 | 70.69 | 70.28 |
| 21 | 42 | -10120.738 | -64.161 | 14.796 | 41.929 | -3.801 | 2997.001 | 167.84 | 167.77 | 59.78 | 59.75 |
| 22 | 42 | 10120.771 | 64.161 | -14.795 | -41.929 | 3.800 | -2997.000 | 167.84 | 167.77 | 59.78 | 59.75 |
| 22 | 43 | -10287.977 | -105.287 | 11.844 | 20.852 | 44.773 | 3288.323 | 173.38 | 174.22 | 55.12 | 55.41 |
| 23 | 43 | 10287.980 | 105.286 | -11.844 | -20.852 | -44.772 | -3288.323 | 173.39 | 174.22 | 55.12 | 55.41 |
| 23 | 44 | -10241.400 | -0.263 | 8.658 | 20.474 | 90.899 | 3671.710 | 177.49 | 179.18 | 45.67 | 46.28 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 24 | 44 | 10241.375 | 0.263 | -8.657 | -20.474 | -90.898 | -3671.711 | 177.49 | 179.18 | 45.67 | 46.28 |
| 24 | 45 | -10573.363 | 145.828 | 5.470 | 20.097 | 122.672 | 3378.631 | 177.47 | 179.75 | 56.41 | 57.23 |
| 25 | 45 | 10573.355 | -145.827 | -5.471 | -20.097 | -122.669 | -3378.631 | 177.47 | 179.75 | 56.41 | 57.23 |
| 25 | 46 | -10565.969 | 151.489 | 3.271 | 0.489 | 158.651 | 2664.934 | 167.51 | 170.46 | 72.40 | 73.45 |
| 26 | 46 | 10565.982 | -151.490 | -3.271 | -0.489 | -158.652 | -2664.935 | 167.51 | 170.46 | 72.40 | 73.45 |
| 26 | 47 | -9230.336 | 52.741 | 0.079 | -10.811 | 166.562 | 1884.750 | 140.16 | 143.26 | 73.21 | 74.32 |
| 27 | 47 | 9230.355 | -52.741 | -0.079 | 10.811 | -166.562 | -1884.751 | 140.16 | 143.26 | 73.21 | 74.32 |
| 27 | 48 | -9224.247 | 151.536 | 1.785 | 2.984 | -12.067 | 1467.473 | 136.17 | 135.95 | 83.20 | 83.12 |
| 28 | 48 | 9224.232 | -151.535 | -1.785 | -2.984 | 12.068 | -1467.474 | 136.17 | 135.95 | 83.20 | 83.12 |
| 28 | 49 | -13341.248 | 976.391 | 1.367 | -4.251 | -3.190 | -2688.661 | 90.21 | 90.16 | 174.31 | 174.29 |
| 29 | 49 | 12886.748 | 490.206 | -1.515 | 0.766 | 3.163 | 2690.906 | 85.94 | 85.89 | 170.11 | 170.09 |
| 29 | 59 | -8677.009 | -432.082 | 1.515 | -0.766 | -2.690 | 970.602 | 122.54 | 122.49 | 87.54 | 87.52 |
| 30 | 59 | 8677.015 | 432.081 | -1.515 | 0.766 | 2.690 | -970.604 | 122.54 | 122.49 | 87.54 | 87.52 |
| 30 | 60 | -8764.717 | -227.345 | 11.137 | 47.614 | 264.452 | 2637.433 | 143.42 | 148.34 | 49.93 | 51.68 |
| 31 | 60 | 8764.719 | 227.345 | -11.137 | -47.614 | -264.451 | -2637.433 | 143.42 | 148.34 | 49.93 | 51.68 |
| 31 | 61 | -8635.414 | -53.293 | 7.951 | 36.163 | 307.409 | 3051.423 | 146.91 | 152.63 | 38.75 | 40.80 |
| 32 | 61 | 8635.416 | 53.294 | -7.951 | -36.163 | -307.407 | -3051.423 | 146.91 | 152.63 | 38.75 | 40.80 |
| 32 | 62 | -8713.179 | -91.727 | 5.321 | 15.180 | 315.036 | 3292.601 | 151.04 | 156.91 | 34.24 | 36.33 |
| 33 | 62 | 8713.178 | 91.726 | -5.322 | -15.180 | -315.034 | -3292.605 | 151.04 | 156.91 | 34.24 | 36.33 |
| 33 | 63 | -8664.859 | 13.297 | 2.136 | 14.802 | 331.812 | 3625.569 | 154.72 | 160.90 | 26.01 | 28.22 |
| 34 | 63 | 8664.861 | -13.296 | -2.135 | -14.802 | -331.811 | -3625.568 | 154.72 | 160.90 | 26.01 | 28.22 |
| 34 | 64 | -9154.387 | 159.700 | -1.051 | 14.431 | 334.224 | 3282.008 | 156.29 | 162.51 | 39.98 | 42.20 |
| 35 | 64 | 9154.382 | -159.702 | 1.050 | -14.431 | -334.226 | -3282.009 | 156.29 | 162.51 | 39.98 | 42.20 |
| 35 | 65 | -9142.892 | 165.392 | -3.535 | -5.390 | 346.926 | 2518.566 | 145.84 | 152.29 | 57.12 | 59.43 |
| 36 | 65 | 9142.888 | -165.392 | 3.534 | 5.390 | -346.926 | -2518.564 | 145.84 | 152.29 | 57.12 | 59.43 |
| 36 | 66 | -9154.199 | 71.358 | -6.720 | -16.838 | 323.855 | 1911.211 | 138.09 | 144.11 | 71.13 | 73.28 |
| 37 | 66 | 9154.203 | -71.357 | 6.720 | 16.838 | -323.857 | -1911.210 | 138.09 | 144.11 | 71.13 | 73.28 |
| 37 | 67 | -9167.474 | 156.931 | 1.547 | 2.331 | -1.647 | 1472.765 | 135.43 | 135.40 | 82.33 | 82.32 |
| 38 | 67 | 9167.477 | -156.931 | -1.548 | -2.331 | 1.646 | -1472.763 | 135.43 | 135.40 | 82.33 | 82.32 |
| 38 | 68 | -13272.823 | 1011.944 | 1.548 | 2.331 | -1.030 | -2719.311 | 89.16 | 89.14 | 174.23 | 174.23 |
| 39 | 68 | 12657.480 | 465.270 | -2.093 | -4.367 | 0.999 | 2713.280 | 83.50 | 83.48 | 168.38 | 168.37 |
| 39 | 78 | -8436.071 | -437.292 | -1.599 | -1.563 | -1.205 | 964.342 | 119.40 | 119.38 | 84.63 | 84.62 |
| 40 | 78 | 8436.070 | 437.292 | 1.599 | 1.563 | 1.205 | -964.343 | 119.40 | 119.38 | 84.63 | 84.62 |
| 40 | 79 | -8695.032 | -229.561 | 5.647 | 30.836 | 312.745 | 2665.647 | 142.47 | 148.28 | 48.24 | 50.32 |
| 41 | 79 | 8695.025 | 229.561 | -5.647 | -30.836 | -312.743 | -2665.648 | 142.47 | 148.28 | 48.24 | 50.32 |
| 41 | 80 | -8717.287 | -58.097 | 2.461 | 19.388 | 330.990 | 3097.690 | 148.35 | 154.50 | 38.66 | 40.86 |
| 42 | 80 | 8717.297 | 58.097 | -2.461 | -19.388 | -330.988 | -3097.690 | 148.35 | 154.50 | 38.66 | 40.86 |
| 42 | 81 | -8811.072 | -96.533 | -0.010 | -0.732 | 313.889 | 3346.180 | 153.01 | 158.85 | 34.26 | 36.35 |
| 43 | 81 | 8811.079 | 96.532 | 0.009 | 0.733 | -313.892 | -3346.180 | 153.01 | 158.85 | 34.26 | 36.35 |
| 43 | 82 | -9475.294 | 1.746 | -3.194 | -1.101 | 306.679 | 3693.879 | 166.10 | 171.81 | 34.78 | 36.82 |
| 44 | 82 | 9475.286 | -1.746 | 3.193 | 1.101 | -306.682 | -3693.879 | 166.10 | 171.81 | 34.78 | 36.82 |
| 44 | 83 | -9446.663 | 154.049 | -6.379 | -1.479 | 285.139 | 3361.898 | 161.51 | 166.81 | 42.02 | 43.92 |
| 45 | 83 | 9446.660 | -154.049 | 6.380 | 1.479 | -285.139 | -3361.896 | 161.51 | 166.81 | 42.02 | 43.92 |
| 45 | 84 | -9450.074 | 159.750 | -9.019 | -22.073 | 271.820 | 2608.577 | 151.62 | 156.68 | 59.21 | 61.02 |
| 46 | 84 | 9450.089 | -159.750 | 9.019 | 22.073 | -271.819 | -2608.577 | 151.62 | 156.68 | 59.21 | 61.02 |
| 46 | 85 | -9484.633 | 62.140 | -12.204 | -33.528 | 224.079 | 2006.654 | 144.46 | 148.63 | 73.47 | 74.96 |
| 47 | 85 | 9484.613 | -62.141 | 12.203 | 33.528 | -224.078 | -2006.655 | 144.46 | 148.63 | 73.47 | 74.95 |
| 47 | 86 | -9455.741 | 155.023 | -1.534 | 1.979 | -7.290 | 1601.030 | 140.83 | 140.70 | 83.08 | 83.03 |
| 48 | 86 | 9455.751 | -155.022 | 1.534 | -1.979 | 7.290 | -1601.030 | 140.83 | 140.70 | 83.08 | 83.03 |
| 48 | 87 | -13563.506 | 1010.035 | -1.534 | 1.979 | -7.847 | -2575.573 | 93.76 | 93.63 | 174.30 | 174.25 |
| 49 | 87 | 12790.890 | 449.320 | 1.101 | -5.812 | 7.875 | 2605.378 | 86.17 | 86.05 | 167.64 | 167.60 |
| 49 | 97 | -8571.891 | -421.321 | -1.558 | -2.683 | -15.264 | 1004.910 | 121.79 | 121.51 | 85.47 | 85.37 |
| 50 | 97 | 8571.888 | 421.321 | 1.558 | 2.683 | 15.264 | -1004.911 | 121.79 | 121.51 | 85.47 | 85.37 |
| 50 | 98 | -8381.437 | -206.949 | 3.590 | 14.685 | 152.157 | 2645.125 | 139.73 | 142.56 | 45.28 | 46.30 |
| 51 | 98 | 8381.430 | 206.949 | -3.591 | -14.685 | -152.158 | -2645.123 | 139.73 | 142.56 | 45.28 | 46.30 |
| 51 | 99 | -8384.143 | -39.149 | 0.406 | 3.224 | 161.148 | 3003.346 | 144.46 | 147.46 | 37.16 | 38.23 |
| 52 | 99 | 8384.141 | 39.149 | -0.406 | -3.224 | -161.149 | -3003.346 | 144.46 | 147.46 | 37.16 | 38.23 |
| 52 | 100 | -8464.895 | -77.613 | -1.951 | -16.691 | 140.557 | 3184.062 | 148.08 | 150.70 | 34.14 | 35.08 |
| 53 | 100 | 8464.897 | 77.612 | 1.951 | 16.691 | -140.557 | -3184.061 | 148.08 | 150.70 | 34.14 | 35.08 |
| 53 | 101 | -8419.570 | 27.411 | -5.137 | -17.069 | 124.614 | 3456.223 | 151.29 | 153.61 | 27.45 | 28.28 |
| 54 | 101 | 8419.578 | -27.411 | 5.137 | 17.069 | -124.614 | -3456.221 | 151.29 | 153.61 | 27.45 | 28.28 |
| 54 | 102 | -8377.934 | 179.714 | -8.323 | -17.447 | 94.331 | 3025.910 | 145.30 | 147.06 | 36.79 | 37.42 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 55 | 102 | 8377.932 | -179.713 | 8.323 | 17.447 | -94.333 | -3025.908 | 145.30 | 147.06 | 36.79 | 37.42 |
| 55 | 103 | -8371.705 | 185.410 | -11.130 | -38.032 | 64.808 | 2173.505 | 134.12 | 135.33 | 56.16 | 56.59 |
| 56 | 103 | 8371.703 | -185.411 | 11.130 | 38.032 | -64.809 | -2173.504 | 134.12 | 135.33 | 56.16 | 56.59 |
| 56 | 104 | -8400.333 | 87.712 | -14.320 | -49.446 | 7.783 | 1475.331 | 125.69 | 125.83 | 72.55 | 72.61 |
| 57 | 104 | 8400.336 | -87.711 | 14.321 | 49.446 | -7.783 | -1475.329 | 125.69 | 125.83 | 72.55 | 72.61 |
| 57 | 105 | -9282.121 | 173.430 | -1.485 | 1.395 | -5.677 | 959.019 | 130.06 | 129.95 | 95.45 | 95.41 |
| 58 | 105 | 9282.118 | -173.430 | 1.485 | -1.395 | 5.677 | -959.018 | 130.06 | 129.95 | 95.45 | 95.41 |
| 58 | 106 | -13393.760 | 994.729 | -2.613 | -5.353 | -31.915 | -3191.134 | 84.53 | 84.01 | 184.20 | 184.01 |
| 59 | 106 | 12464.065 | 531.938 | 0.280 | 4.835 | 32.130 | 3070.812 | 77.39 | 76.87 | 173.30 | 173.11 |
| 59 | 115 | -8248.953 | -473.813 | -0.280 | -4.835 | -27.046 | 768.896 | 114.67 | 114.17 | 86.79 | 86.61 |
| 60 | 115 | 8248.952 | 473.813 | 0.280 | 4.835 | 27.046 | -768.896 | 114.67 | 114.17 | 86.79 | 86.61 |
| 60 | 116 | -8632.331 | -255.358 | 13.270 | -9.681 | -5.619 | 2622.559 | 144.06 | 143.96 | 49.49 | 49.45 |
| 61 | 116 | 8632.337 | 255.358 | -13.270 | 9.681 | 5.618 | -2622.557 | 144.06 | 143.96 | 49.49 | 49.45 |
| 61 | 117 | -9678.060 | -106.219 | 10.131 | -21.363 | 47.773 | 3177.966 | 164.18 | 165.07 | 49.91 | 50.23 |
| 62 | 117 | 9678.059 | 106.219 | -10.132 | 21.363 | -47.773 | -3177.963 | 164.18 | 165.07 | 49.91 | 50.23 |
| 62 | 118 | -9762.651 | -144.821 | 7.378 | -40.223 | 71.401 | 3647.007 | 171.29 | 172.62 | 40.25 | 40.73 |
| 63 | 118 | 9762.649 | 144.820 | -7.378 | 40.223 | -71.400 | -3647.006 | 171.29 | 172.62 | 40.25 | 40.73 |
| 63 | 119 | -9721.161 | -39.797 | 4.192 | -40.601 | 97.433 | 4206.899 | 178.00 | 179.82 | 26.93 | 27.58 |
| 64 | 119 | 9721.157 | 39.798 | -4.192 | 40.601 | -97.433 | -4206.898 | 178.00 | 179.82 | 26.93 | 27.58 |
| 64 | 120 | -9683.353 | 112.506 | 1.006 | -40.979 | 109.128 | 4064.320 | 175.51 | 177.54 | 29.65 | 30.38 |
| 65 | 120 | 9683.353 | -112.506 | -1.006 | 40.979 | -109.127 | -4064.321 | 175.51 | 177.54 | 29.65 | 30.38 |
| 65 | 121 | -9669.023 | 118.046 | -1.496 | -62.928 | 127.811 | 3507.914 | 167.73 | 170.11 | 42.04 | 42.89 |
| 66 | 121 | 9669.025 | -118.045 | 1.496 | 62.928 | -127.811 | -3507.913 | 167.73 | 170.11 | 42.04 | 42.89 |
| 66 | 122 | -9688.604 | -23.079 | -0.041 | -9.419 | 25.963 | 3147.567 | 164.11 | 164.60 | 50.80 | 50.98 |
| 67 | 122 | 9688.605 | 23.079 | 0.041 | 9.419 | -25.962 | -3147.566 | 164.11 | 164.60 | 50.80 | 50.98 |
| 67 | 123 | -9688.692 | 71.450 | 0.935 | -9.144 | -18.382 | 3099.885 | 163.89 | 163.55 | 52.04 | 51.91 |
| 68 | 123 | 9688.694 | -71.450 | -0.935 | 9.144 | 18.382 | -3099.885 | 163.89 | 163.55 | 52.04 | 51.91 |
| 68 | 124 | -13744.461 | 916.441 | 0.935 | -9.144 | -20.520 | -698.084 | 119.48 | 119.15 | 141.22 | 141.10 |
| 69 | 124 | 13826.656 | 265.835 | 0.057 | 0.130 | 20.519 | 837.987 | 118.47 | 118.13 | 144.58 | 144.46 |
| 69 | 133 | -9680.218 | -142.951 | 7.718 | -15.183 | 54.568 | 1446.131 | 141.02 | 142.04 | 89.22 | 89.58 |
| 70 | 133 | 9680.220 | 142.950 | -7.718 | 15.183 | -54.567 | -1446.131 | 141.02 | 142.04 | 89.22 | 89.58 |
| 70 | 134 | -8120.649 | 85.573 | 5.355 | -25.967 | 111.496 | 1032.884 | 115.29 | 117.36 | 78.72 | 79.46 |
| 71 | 134 | 8167.581 | -85.572 | -5.356 | 25.967 | -111.496 | -1018.674 | 115.69 | 117.76 | 79.63 | 80.38 |
| 71 | 135 | -8252.569 | -143.411 | 2.923 | -42.897 | 112.957 | 1254.887 | 119.90 | 122.00 | 75.34 | 76.09 |
| 72 | 135 | 8252.569 | 143.410 | -2.923 | 42.897 | -112.957 | -1254.886 | 119.90 | 122.00 | 75.34 | 76.09 |
| 72 | 136 | -8201.164 | -8.331 | -0.263 | -43.275 | 118.943 | 1667.677 | 124.71 | 126.92 | 65.30 | 66.09 |
| 73 | 136 | 8201.165 | 8.333 | 0.263 | 43.274 | -118.943 | -1667.679 | 124.71 | 126.92 | 65.30 | 66.09 |
| 73 | 137 | -8113.936 | 144.186 | -3.449 | -43.652 | 110.591 | 1445.183 | 120.71 | 122.77 | 69.28 | 70.01 |
| 74 | 137 | 8113.934 | -144.187 | 3.449 | 43.652 | -110.591 | -1445.187 | 120.71 | 122.77 | 69.28 | 70.01 |
| 74 | 138 | -8018.536 | 212.802 | -7.106 | -70.178 | 92.627 | 699.895 | 109.73 | 111.45 | 85.05 | 85.67 |
| 75 | 138 | 6958.877 | -212.801 | 7.106 | 70.178 | -92.627 | -736.843 | 96.84 | 98.56 | 70.83 | 71.45 |
| 75 | 139 | -6875.845 | 332.206 | -10.292 | -81.626 | 53.482 | -317.462 | 82.08 | 83.08 | 93.84 | 94.20 |
| 76 | 139 | 6875.847 | -332.207 | 10.292 | 81.626 | -53.482 | 317.461 | 82.08 | 83.08 | 93.84 | 94.20 |
| 76 | 140 | -6600.515 | 385.322 | -0.316 | 1.070 | 0.000 | -1833.946 | 58.85 | 58.85 | 124.96 | 124.96 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS  115

max mz + pret(t=inf)(frecuente)

| | | ESFUERZOS EN BARRAS | | | | | | TENSIONES | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | MOM. Y | MOM. Z | SIGMA 1 | SIGMA2 | SIGMA3 | SIGMA4 |
| 1 | 1 | 7046.690 | 642.156 | -10.443 | -72.626 | 0.000 | 1311.971 | 71.46 | 71.46 | 118.75 | 118.75 |
| 1 | 8 | -7070.583 | -170.311 | 0.455 | 6.616 | 2.047 | -219.934 | 86.32 | 86.36 | 94.26 | 94.27 |
| 2 | 8 | 7070.601 | 170.311 | -0.455 | -6.616 | -2.047 | 219.932 | 86.32 | 86.36 | 94.26 | 94.27 |
| 2 | 9 | -7098.838 | -58.790 | 0.455 | 6.616 | 4.094 | 283.739 | 93.38 | 93.46 | 83.18 | 83.21 |
| 3 | 9 | 7386.210 | 58.790 | -0.455 | -6.616 | -4.095 | -470.105 | 99.50 | 99.57 | 82.58 | 82.60 |
| 3 | 10 | -7414.794 | 92.766 | 0.455 | 6.616 | 6.144 | 393.562 | 98.82 | 98.93 | 84.67 | 84.71 |
| 4 | 10 | 7414.784 | -92.767 | -0.455 | -6.616 | -6.144 | -393.563 | 98.82 | 98.93 | 84.67 | 84.71 |
| 4 | 11 | -7399.629 | 155.504 | 0.448 | 6.629 | 8.069 | -305.772 | 89.27 | 89.42 | 100.34 | 100.40 |
| 5 | 11 | 7399.645 | -155.503 | -0.448 | -6.629 | -8.069 | 305.772 | 89.27 | 89.42 | 100.34 | 100.40 |
| 5 | 12 | -7402.288 | 167.218 | -2.604 | 31.558 | -43.392 | -986.589 | 80.69 | 79.89 | 116.00 | 115.71 |
| 6 | 12 | 7402.277 | -167.218 | 2.603 | -31.558 | 43.393 | 986.590 | 80.69 | 79.89 | 116.00 | 115.71 |
| 6 | 13 | -7343.657 | 66.737 | -2.873 | 30.640 | -55.716 | -1576.344 | 72.20 | 71.16 | 128.69 | 128.32 |
| 7 | 13 | 7321.029 | -66.737 | 2.874 | -30.640 | 55.716 | 1573.305 | 71.95 | 70.91 | 128.33 | 127.96 |
| 7 | 14 | -7347.848 | 234.471 | -3.144 | 29.722 | -69.254 | -1931.221 | 67.64 | 66.35 | 136.84 | 136.38 |
| 8 | 14 | 7347.839 | -234.471 | 3.143 | -29.722 | 69.254 | 1931.222 | 67.64 | 66.35 | 136.84 | 136.38 |
| 8 | 15 | -10578.482 | 1124.718 | -11.218 | 14.743 | -15.043 | -6577.435 | 14.96 | 14.72 | 220.67 | 220.58 |
| 9 | 15 | 10718.575 | 1068.703 | -9.557 | -85.101 | 14.800 | 6576.005 | 16.29 | 16.05 | 221.95 | 221.86 |
| 9 | 23 | -8529.499 | -792.645 | 4.534 | 66.148 | 18.108 | -2191.101 | 78.27 | 78.61 | 157.37 | 157.49 |
| 10 | 23 | 8529.526 | 792.645 | -4.534 | -66.148 | -18.108 | 2191.101 | 78.27 | 78.61 | 157.37 | 157.49 |
| 10 | 24 | -8572.732 | -137.618 | -3.653 | 44.617 | -96.166 | -350.046 | 104.46 | 102.67 | 116.51 | 115.87 |
| 11 | 24 | 9000.758 | 137.618 | 3.653 | -44.617 | 96.166 | 38.856 | 114.02 | 112.23 | 114.85 | 114.21 |
| 11 | 25 | -8560.968 | -14.092 | -3.844 | 44.439 | -114.127 | -178.993 | 106.77 | 104.64 | 112.53 | 111.78 |
| 12 | 25 | 8560.977 | 14.092 | 3.844 | -44.439 | 114.127 | 178.991 | 106.77 | 104.64 | 112.53 | 111.78 |
| 12 | 26 | -8630.093 | -41.335 | -4.124 | 43.549 | -131.891 | -97.395 | 108.89 | 106.44 | 111.61 | 110.74 |
| 13 | 26 | 8630.082 | 41.336 | 4.124 | -43.550 | 131.891 | 97.395 | 108.89 | 106.44 | 111.61 | 110.74 |
| 13 | 27 | -8389.485 | 41.855 | -4.919 | 38.637 | -154.227 | 40.874 | 107.91 | 105.04 | 105.51 | 104.49 |
| 14 | 27 | 8389.508 | -41.855 | 4.919 | -38.637 | 154.227 | -40.874 | 107.91 | 105.04 | 105.51 | 104.49 |
| 14 | 28 | -8364.481 | 143.647 | -5.189 | 37.719 | -176.969 | -349.337 | 102.59 | 99.30 | 114.13 | 112.95 |
| 15 | 28 | 8364.461 | -143.647 | 5.189 | -37.719 | 176.969 | 349.335 | 102.59 | 99.30 | 114.13 | 112.95 |
| 15 | 29 | -8411.405 | 147.837 | -5.470 | 36.832 | -200.881 | -1050.126 | 94.05 | 90.32 | 130.71 | 129.37 |
| 16 | 29 | 8411.407 | -147.837 | 5.470 | -36.832 | 200.881 | 1050.127 | 94.05 | 90.32 | 130.71 | 129.37 |
| 16 | 30 | -7919.539 | 62.951 | -5.745 | 35.928 | -226.091 | -1370.845 | 83.80 | 79.59 | 131.86 | 130.36 |
| 17 | 30 | 7919.536 | -62.951 | 5.745 | -35.928 | 226.091 | 1370.847 | 83.80 | 79.59 | 131.86 | 130.36 |
| 17 | 31 | -7924.503 | 600.817 | -13.108 | 19.743 | -170.591 | -2278.860 | 71.22 | 68.04 | 152.35 | 151.21 |
| 18 | 31 | 7924.513 | -600.817 | 13.108 | -19.743 | 170.591 | 2278.859 | 71.22 | 68.04 | 152.35 | 151.21 |
| 18 | 32 | -11094.967 | 1357.327 | -15.808 | 10.131 | -235.653 | -7890.875 | 4.84 | 1.00 | 250.48 | 249.11 |
| 19 | 32 | 11388.735 | 1012.013 | -23.597 | -61.557 | 235.655 | 7894.621 | 7.53 | 3.69 | 253.29 | 251.92 |
| 19 | 40 | -8147.625 | -821.093 | 18.247 | 41.975 | -139.216 | -2659.046 | 68.67 | 66.08 | 163.69 | 162.76 |
| 20 | 40 | 8147.615 | 821.094 | -18.246 | -41.975 | 139.215 | 2659.046 | 68.67 | 66.08 | 163.69 | 162.76 |
| 20 | 41 | -8200.544 | -165.474 | 9.382 | 25.232 | -191.429 | -759.138 | 95.19 | 91.63 | 121.41 | 120.14 |
| 21 | 41 | 8200.530 | 165.473 | -9.381 | -25.232 | 191.429 | 759.138 | 95.19 | 91.63 | 121.41 | 120.14 |
| 21 | 42 | -8202.359 | -45.013 | 9.102 | 24.675 | -151.753 | -462.514 | 98.80 | 95.98 | 114.57 | 113.56 |
| 22 | 42 | 8202.385 | 45.013 | -9.102 | -24.675 | 151.753 | 462.514 | 98.80 | 95.98 | 114.57 | 113.56 |
| 22 | 43 | -8169.841 | -69.741 | 8.829 | 23.774 | -111.356 | -255.650 | 100.78 | 98.71 | 109.33 | 108.59 |
| 23 | 43 | 8169.846 | 69.741 | -8.829 | -23.774 | 111.356 | 255.650 | 100.78 | 98.71 | 109.33 | 108.59 |
| 23 | 44 | -8128.006 | 8.791 | 8.629 | 18.147 | -71.296 | 32.941 | 103.73 | 102.40 | 102.12 | 101.64 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 24 | 44 | 8127.985 | -8.792 | -8.629 | -18.147 | 71.295 | -32.941 | 103.73 | 102.40 | 102.12 | 101.64 |
| 24 | 45 | -7714.177 | 116.796 | 8.359 | 17.228 | -33.057 | -233.776 | 94.59 | 93.97 | 102.82 | 102.60 |
| 25 | 45 | 7714.171 | -116.796 | -8.359 | -17.229 | 33.058 | 233.776 | 94.59 | 93.97 | 102.82 | 102.60 |
| 25 | 46 | -7702.509 | 123.396 | 8.086 | 16.334 | 3.981 | -814.202 | 86.35 | 86.42 | 115.72 | 115.75 |
| 26 | 46 | 7702.520 | -123.397 | -8.086 | -16.334 | -3.980 | 814.201 | 86.35 | 86.42 | 115.72 | 115.75 |
| 26 | 47 | -6668.099 | 40.082 | 7.789 | 16.427 | 41.281 | -1400.155 | 65.12 | 65.88 | 115.84 | 116.11 |
| 27 | 47 | 6668.113 | -40.082 | -7.788 | -16.427 | -41.282 | 1400.154 | 65.12 | 65.88 | 115.84 | 116.11 |
| 27 | 48 | -6667.311 | 595.157 | 4.759 | 1.392 | 281.466 | -2260.739 | 51.38 | 56.62 | 134.56 | 136.43 |
| 28 | 48 | 6667.299 | -595.156 | -4.760 | -1.392 | -281.466 | 2260.738 | 51.38 | 56.62 | 134.56 | 136.43 |
| 28 | 49 | -9831.947 | 1351.666 | 2.060 | -8.220 | 296.806 | -7838.207 | -10.61 | -5.78 | 236.17 | 237.90 |
| 29 | 49 | 10286.447 | 1003.602 | -14.223 | -58.945 | -296.774 | 7835.961 | -6.34 | -1.51 | 240.37 | 242.10 |
| 29 | 59 | -7039.495 | -812.747 | 8.983 | 39.237 | 344.332 | -2631.339 | 50.55 | 56.95 | 147.46 | 149.75 |
| 30 | 59 | 7039.499 | 812.747 | -8.982 | -39.237 | -344.332 | 2631.338 | 50.55 | 56.95 | 147.46 | 149.75 |
| 30 | 60 | -7090.141 | -154.447 | 2.762 | 20.620 | 136.804 | -778.464 | 77.86 | 80.40 | 106.74 | 107.65 |
| 31 | 60 | 7090.143 | 154.447 | -2.762 | -20.620 | -136.803 | 778.463 | 77.86 | 80.40 | 106.74 | 107.65 |
| 31 | 61 | -7259.396 | -40.488 | 2.492 | 19.705 | 148.615 | -507.511 | 83.50 | 86.27 | 102.68 | 103.67 |
| 32 | 61 | 7259.398 | 40.489 | -2.491 | -19.705 | -148.612 | 507.510 | 83.50 | 86.27 | 102.68 | 103.67 |
| 32 | 62 | -7325.249 | -67.940 | 2.220 | 18.802 | 159.223 | -322.476 | 86.70 | 89.67 | 99.28 | 100.34 |
| 33 | 62 | 7325.248 | 67.939 | -2.220 | -18.802 | -159.220 | 322.472 | 86.70 | 89.67 | 99.28 | 100.34 |
| 33 | 63 | -7294.017 | 10.524 | 2.166 | 12.383 | 168.908 | -54.374 | 89.80 | 92.94 | 92.77 | 93.89 |
| 34 | 63 | 7294.018 | -10.523 | -2.166 | -12.383 | -168.907 | 54.374 | 89.80 | 92.94 | 92.77 | 93.89 |
| 34 | 64 | -6731.463 | 118.215 | 1.896 | 11.458 | 178.073 | -341.901 | 78.77 | 82.09 | 92.16 | 93.35 |
| 35 | 64 | 6731.460 | -118.216 | -1.896 | -11.458 | -178.075 | 341.901 | 78.77 | 82.09 | 92.16 | 93.34 |
| 35 | 65 | -6728.586 | 124.747 | 1.625 | 10.557 | 185.995 | -940.373 | 70.67 | 74.13 | 105.68 | 106.92 |
| 36 | 65 | 6728.583 | -124.747 | -1.625 | -10.557 | -185.996 | 940.375 | 70.67 | 74.13 | 105.68 | 106.92 |
| 36 | 66 | -6743.267 | 36.858 | 1.355 | 9.639 | 192.698 | -1372.088 | 65.03 | 68.62 | 115.64 | 116.92 |
| 37 | 66 | 6743.270 | -36.858 | -1.354 | -9.639 | -192.698 | 1372.087 | 65.03 | 68.62 | 115.64 | 116.92 |
| 37 | 67 | -6744.389 | 601.246 | -3.603 | -4.509 | 437.021 | -2265.500 | 50.84 | 58.98 | 135.12 | 138.03 |
| 38 | 67 | 6744.392 | -601.246 | 3.604 | 4.508 | -437.020 | 2265.502 | 50.84 | 58.98 | 135.12 | 138.03 |
| 38 | 68 | -9910.962 | 1405.620 | -8.814 | -24.387 | 415.109 | -7878.413 | -11.34 | -4.59 | 237.31 | 239.72 |
| 39 | 68 | 10526.300 | 961.747 | -4.984 | -29.567 | -415.077 | 7884.444 | -5.68 | 1.07 | 243.16 | 245.58 |
| 39 | 78 | -7281.269 | -818.841 | 2.284 | 19.955 | 431.431 | -2662.323 | 52.38 | 60.40 | 150.93 | 153.80 |
| 40 | 78 | 7281.268 | 818.841 | -2.285 | -19.955 | -431.429 | 2662.323 | 52.38 | 60.40 | 150.93 | 153.80 |
| 40 | 79 | -7120.435 | -158.942 | -2.379 | 3.579 | 184.699 | -794.851 | 77.57 | 81.01 | 107.33 | 108.56 |
| 41 | 79 | 7120.429 | 158.942 | 2.379 | -3.579 | -184.700 | 794.850 | 77.57 | 81.01 | 107.33 | 108.56 |
| 41 | 80 | -7131.597 | -42.396 | -2.649 | 2.661 | 173.384 | -496.927 | 81.80 | 85.02 | 100.75 | 101.90 |
| 42 | 80 | 7131.606 | 42.397 | 2.650 | -2.661 | -173.384 | 496.927 | 81.80 | 85.02 | 100.75 | 101.90 |
| 42 | 81 | -7197.839 | -69.838 | -2.922 | 1.760 | 160.845 | -293.421 | 85.47 | 88.46 | 97.01 | 98.08 |
| 43 | 81 | 7197.845 | 69.837 | 2.921 | -1.760 | -160.845 | 293.419 | 85.47 | 88.46 | 97.01 | 98.08 |
| 43 | 82 | -6470.474 | 2.294 | -3.192 | 0.832 | 147.091 | -13.855 | 80.14 | 82.88 | 81.52 | 82.50 |
| 44 | 82 | 6470.468 | -2.294 | 3.192 | -0.832 | -147.093 | 13.854 | 80.14 | 82.88 | 81.52 | 82.50 |
| 44 | 83 | -6442.455 | 117.198 | -3.249 | -5.331 | 132.210 | -286.983 | 76.28 | 78.74 | 87.42 | 88.30 |
| 45 | 83 | 6442.451 | -117.198 | 3.250 | 5.331 | -132.211 | 286.986 | 76.28 | 78.74 | 87.42 | 88.30 |
| 45 | 84 | -6439.106 | 123.722 | -3.522 | -6.234 | 116.960 | -871.734 | 68.58 | 70.75 | 100.70 | 101.48 |
| 46 | 84 | 6439.122 | -123.722 | 3.521 | 6.234 | -116.960 | 871.733 | 68.58 | 70.75 | 100.70 | 101.48 |
| 46 | 85 | -6459.747 | 39.409 | -3.791 | -7.144 | 100.496 | -1292.999 | 63.36 | 65.23 | 110.58 | 111.24 |
| 47 | 85 | 6459.730 | -39.409 | 3.793 | 7.144 | -100.494 | 1292.997 | 63.36 | 65.23 | 110.58 | 111.24 |
| 47 | 86 | -6451.795 | 601.712 | -10.237 | -22.730 | 287.725 | -2184.563 | 49.62 | 54.97 | 130.09 | 132.00 |
| 48 | 86 | 6451.803 | -601.712 | 10.236 | 22.731 | -287.728 | 2184.563 | 49.62 | 54.97 | 130.09 | 132.00 |
| 48 | 87 | -9609.319 | 1406.133 | -15.499 | -42.562 | 234.163 | -7790.897 | -11.57 | -7.76 | 233.40 | 234.76 |
| 49 | 87 | 10381.942 | 943.035 | -2.646 | -11.268 | -234.194 | 7761.091 | -3.98 | -0.17 | 240.06 | 241.42 |
| 49 | 97 | -7127.858 | -800.129 | -0.054 | 1.656 | 240.031 | -2613.271 | 52.87 | 57.34 | 148.51 | 150.11 |
| 50 | 97 | 7127.859 | 800.129 | 0.053 | -1.656 | -240.029 | 2613.271 | 52.87 | 57.34 | 148.51 | 150.11 |
| 50 | 98 | -7455.722 | -152.930 | -4.309 | -11.055 | 22.209 | -813.685 | 83.07 | 83.48 | 112.53 | 112.68 |
| 51 | 98 | 7455.714 | 152.931 | 4.308 | 11.055 | -22.209 | 813.686 | 83.07 | 83.48 | 112.53 | 112.68 |
| 51 | 99 | -7463.777 | -32.720 | -4.580 | -11.960 | 2.214 | -571.456 | 86.59 | 86.63 | 107.20 | 107.22 |
| 52 | 99 | 7463.776 | 32.720 | 4.578 | 11.960 | -2.215 | 571.457 | 86.59 | 86.63 | 107.20 | 107.22 |
| 52 | 100 | -7531.930 | -60.101 | -4.851 | -12.858 | -19.010 | -419.788 | 89.67 | 89.32 | 104.69 | 104.56 |
| 53 | 100 | 7531.934 | 60.101 | 4.852 | 12.858 | 19.009 | 419.788 | 89.67 | 89.32 | 104.69 | 104.56 |
| 53 | 101 | -7503.006 | 5.285 | -5.122 | -13.776 | -41.454 | -184.476 | 92.66 | 91.89 | 99.06 | 98.78 |
| 54 | 101 | 7503.009 | -5.286 | 5.123 | 13.776 | 41.454 | 184.477 | 92.66 | 91.89 | 99.06 | 98.78 |
| 54 | 102 | -7476.917 | 120.236 | -5.422 | -19.009 | -65.956 | -478.453 | 88.63 | 87.40 | 105.48 | 105.05 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 55 | 102 | 7476.916 | -120.234 | 5.422 | 19.009 | 65.954 | 478.456 | 88.63 | 87.40 | 105.48 | 105.05 |
| 55 | 103 | -7478.095 | 126.787 | -5.695 | -19.908 | -91.000 | -1086.040 | 80.77 | 79.07 | 119.37 | 118.77 |
| 56 | 103 | 7478.095 | -126.788 | 5.695 | 19.909 | 91.001 | 1086.042 | 80.77 | 79.07 | 119.37 | 118.77 |
| 56 | 104 | -7506.113 | 42.816 | -5.979 | -20.466 | -115.583 | -1527.908 | 75.45 | 73.30 | 129.84 | 129.07 |
| 57 | 104 | 7506.114 | -42.815 | 5.979 | 20.466 | 115.585 | 1527.909 | 75.45 | 73.30 | 129.84 | 129.07 |
| 57 | 105 | -6663.363 | 608.329 | -13.771 | -35.066 | -13.892 | -2469.909 | 51.29 | 51.03 | 140.24 | 140.15 |
| 58 | 105 | 6663.360 | -608.329 | 13.771 | 35.066 | 13.894 | 2469.909 | 51.29 | 51.03 | 140.24 | 140.15 |
| 58 | 106 | -9834.779 | 1412.796 | -19.031 | -55.043 | -86.687 | -8121.952 | -11.08 | -12.49 | 242.57 | 242.07 |
| 59 | 106 | 10764.482 | 994.863 | -15.061 | 15.262 | 86.472 | 8242.274 | -3.94 | -5.35 | 253.48 | 252.98 |
| 59 | 115 | -7524.301 | -851.957 | 12.361 | -24.874 | -24.774 | -2875.121 | 56.85 | 56.39 | 160.34 | 160.18 |
| 60 | 115 | 7524.300 | 851.957 | -12.361 | 24.873 | 24.773 | 2875.121 | 56.85 | 56.39 | 160.34 | 160.18 |
| 60 | 116 | -7230.713 | -214.156 | 4.772 | -38.958 | -121.845 | -848.769 | 81.10 | 78.83 | 110.97 | 110.16 |
| 61 | 116 | 7230.718 | 214.156 | -4.771 | 38.958 | 121.845 | 848.769 | 81.10 | 78.83 | 110.97 | 110.16 |
| 61 | 117 | -6241.044 | -75.285 | 4.454 | -39.642 | -101.822 | -325.059 | 75.41 | 73.51 | 86.52 | 85.84 |
| 62 | 117 | 6241.043 | 75.285 | -4.455 | 39.642 | 101.823 | 325.060 | 75.41 | 73.51 | 86.52 | 85.84 |
| 62 | 118 | -6300.206 | -102.453 | 4.178 | -40.528 | -82.462 | 26.472 | 80.67 | 79.13 | 79.22 | 78.67 |
| 63 | 118 | 6300.207 | 102.452 | -4.178 | 40.528 | 82.462 | -26.471 | 80.67 | 79.13 | 79.22 | 78.67 |
| 63 | 119 | -6262.287 | -37.066 | 3.908 | -41.446 | -64.271 | 462.263 | 85.84 | 84.64 | 68.79 | 68.36 |
| 64 | 119 | 6262.284 | 37.066 | -3.907 | 41.446 | 64.270 | -462.262 | 85.84 | 84.64 | 68.79 | 68.36 |
| 64 | 120 | -6227.202 | 76.757 | 3.396 | -46.482 | -44.187 | 389.589 | 84.24 | 83.42 | 69.93 | 69.64 |
| 65 | 120 | 6227.202 | -76.757 | -3.396 | 46.482 | 44.188 | -389.590 | 84.24 | 83.42 | 69.93 | 69.64 |
| 65 | 121 | -6210.193 | 83.475 | 3.120 | -47.371 | -29.623 | -12.022 | 78.53 | 77.98 | 78.78 | 78.59 |
| 66 | 121 | 6210.194 | -83.475 | -3.120 | 47.371 | 29.622 | 12.023 | 78.53 | 77.98 | 78.78 | 78.59 |
| 66 | 122 | -6249.441 | 2.547 | 2.946 | -47.484 | -15.814 | -252.503 | 75.68 | 75.39 | 84.69 | 84.59 |
| 67 | 122 | 6249.442 | -2.547 | -2.947 | 47.484 | 15.813 | 252.504 | 75.68 | 75.39 | 84.69 | 84.59 |
| 67 | 123 | -6244.056 | 564.735 | -3.434 | -70.249 | 167.769 | -1044.666 | 63.33 | 66.45 | 101.99 | 103.11 |
| 68 | 123 | 6244.058 | -564.735 | 3.434 | 70.249 | -167.768 | 1044.666 | 63.33 | 66.45 | 101.99 | 103.11 |
| 68 | 124 | -9361.543 | 1362.787 | -8.435 | -89.363 | 143.665 | -6532.393 | 2.90 | 5.23 | 208.02 | 208.86 |
| 69 | 124 | 9279.339 | 825.858 | -6.809 | 37.953 | -143.666 | 6392.487 | 3.91 | 6.25 | 204.66 | 205.49 |
| 69 | 133 | -6049.423 | -267.969 | 0.524 | -47.569 | 13.267 | -2147.356 | 47.59 | 47.84 | 125.08 | 125.16 |
| 70 | 133 | 6049.425 | 267.969 | -0.524 | 47.569 | -13.267 | 2147.356 | 47.59 | 47.84 | 125.08 | 125.16 |
| 70 | 134 | -7663.219 | 82.287 | 0.170 | -48.192 | 17.289 | -2391.276 | 64.67 | 64.99 | 150.97 | 151.09 |
| 71 | 134 | 7699.356 | -82.286 | -0.170 | 48.192 | -17.289 | 2402.217 | 64.98 | 65.30 | 151.68 | 151.79 |
| 71 | 135 | -7770.771 | -108.378 | -0.100 | -49.110 | 17.445 | -2272.519 | 67.61 | 67.94 | 149.64 | 149.75 |
| 72 | 135 | 7770.771 | 108.378 | 0.100 | 49.110 | -17.445 | 2272.519 | 67.61 | 67.94 | 149.64 | 149.75 |
| 72 | 136 | -7707.327 | -5.896 | -0.647 | -9.912 | 28.168 | -1953.898 | 70.97 | 71.49 | 141.57 | 141.76 |
| 73 | 136 | 7707.328 | 5.896 | 0.647 | 9.912 | -28.168 | 1953.896 | 70.97 | 71.49 | 141.57 | 141.76 |
| 73 | 137 | -7649.915 | 90.067 | -0.647 | -9.912 | 21.126 | -2071.148 | 68.74 | 69.13 | 143.53 | 143.67 |
| 74 | 137 | 7649.913 | -90.068 | 0.647 | 9.912 | -21.126 | 2071.144 | 68.74 | 69.13 | 143.53 | 143.67 |
| 74 | 138 | -7586.211 | 122.247 | -0.647 | -9.913 | 14.083 | -2496.149 | 62.33 | 62.59 | 152.39 | 152.49 |
| 75 | 138 | 6770.273 | -122.247 | 0.647 | 9.913 | -14.083 | 2467.698 | 52.41 | 52.67 | 141.45 | 141.54 |
| 75 | 139 | -6716.092 | 192.712 | -0.647 | -9.913 | 7.042 | -3035.855 | 44.20 | 44.33 | 153.68 | 153.73 |
| 76 | 139 | 6716.094 | -192.713 | 0.647 | 9.913 | -7.041 | 3035.854 | 44.20 | 44.33 | 153.68 | 153.73 |
| 76 | 140 | -6894.150 | 543.262 | -0.381 | 1.301 | 0.000 | -4514.339 | 26.78 | 26.78 | 189.51 | 189.51 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS  116

min mz + pret(t=inf) (frecuente)

| | | ESFUERZOS EN BARRAS | | | | | | TENSIONES | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | MOM. Y | MOM. Z | SIGMA 1 | SIGMA2 | SIGMA3 | SIGMA4 |
| 1 | 1 | 6979.167 | 389.110 | -0.364 | 0.684 | 0.000 | 1197.050 | 72.14 | 72.14 | 115.29 | 115.29 |
| 1 | 8 | -7003.060 | -430.168 | 8.096 | 64.792 | 43.602 | 1231.646 | 104.46 | 105.27 | 60.32 | 60.61 |
| 2 | 8 | 7003.080 | 430.168 | -8.096 | -64.792 | -43.603 | -1231.647 | 104.46 | 105.27 | 60.32 | 60.61 |
| 2 | 9 | -7031.318 | -244.289 | 4.910 | 53.344 | 72.868 | 2737.371 | 124.65 | 126.00 | 26.41 | 26.89 |
| 3 | 9 | 7318.694 | 244.289 | -4.910 | -53.344 | -72.868 | -2923.736 | 130.77 | 132.12 | 25.81 | 26.29 |
| 3 | 10 | -7347.277 | -19.456 | 1.345 | 27.358 | 82.154 | 3516.527 | 138.95 | 140.48 | 12.68 | 13.23 |
| 4 | 10 | 7347.263 | 19.456 | -1.345 | -27.358 | -82.153 | -3516.528 | 138.95 | 140.48 | 12.68 | 13.23 |
| 4 | 11 | -7467.150 | 104.313 | -1.834 | 26.967 | 81.159 | 3164.933 | 135.78 | 137.29 | 22.18 | 22.72 |
| 5 | 11 | 7467.162 | -104.312 | 1.834 | -26.967 | -81.159 | -3164.933 | 135.78 | 137.29 | 22.18 | 22.72 |
| 5 | 12 | -7469.806 | 173.569 | -5.020 | 26.589 | 65.735 | 2588.356 | 128.26 | 129.48 | 35.35 | 35.79 |
| 6 | 12 | 7469.799 | -173.570 | 5.021 | -26.589 | -65.735 | -2588.356 | 128.26 | 129.48 | 35.35 | 35.79 |
| 6 | 13 | -7411.179 | 139.991 | -7.622 | 8.898 | 50.268 | 1818.962 | 117.39 | 118.33 | 52.12 | 52.46 |
| 7 | 13 | 7388.547 | -139.992 | 7.622 | -8.898 | -50.268 | -1822.001 | 117.15 | 118.08 | 51.77 | 52.10 |
| 7 | 14 | -7415.367 | 334.506 | -9.689 | -0.833 | -7.515 | 1018.216 | 107.29 | 107.15 | 70.54 | 70.49 |
| 8 | 14 | 7415.362 | -334.506 | 9.689 | 0.833 | 7.515 | -1018.215 | 107.29 | 107.15 | 70.54 | 70.49 |
| 8 | 15 | -10646.006 | 749.179 | -0.317 | 0.265 | -11.421 | -2154.225 | 71.94 | 71.76 | 139.28 | 139.22 |
| 9 | 15 | 10505.896 | 593.897 | 1.529 | -8.255 | 11.665 | 2155.658 | 70.62 | 70.43 | 138.00 | 137.93 |
| 9 | 23 | -8317.494 | -429.486 | -1.529 | 8.255 | -12.199 | 392.727 | 110.38 | 110.15 | 96.15 | 96.06 |
| 10 | 23 | 8317.521 | 429.486 | 1.529 | -8.255 | 12.199 | -392.726 | 110.38 | 110.15 | 96.15 | 96.07 |
| 10 | 24 | -8361.402 | -280.690 | 0.005 | 8.290 | 16.297 | 2228.183 | 135.17 | 135.47 | 54.95 | 55.05 |
| 11 | 24 | 8789.428 | 280.690 | -0.005 | -8.290 | -16.297 | -2539.373 | 144.73 | 145.03 | 53.29 | 53.40 |
| 11 | 25 | -8368.538 | -145.615 | 1.488 | 59.051 | 18.484 | 3075.219 | 146.55 | 146.89 | 35.80 | 35.93 |
| 12 | 25 | 8368.546 | 145.615 | -1.488 | -59.051 | -18.484 | -3075.220 | 146.55 | 146.89 | 35.80 | 35.93 |
| 12 | 26 | -8444.411 | -125.523 | -1.195 | 37.311 | 7.384 | 3604.628 | 154.68 | 154.82 | 24.78 | 24.83 |
| 13 | 26 | 8444.400 | 125.523 | 1.195 | -37.311 | -7.384 | -3604.627 | 154.68 | 154.82 | 24.78 | 24.83 |
| 13 | 27 | -8635.916 | 2.530 | -4.387 | 36.949 | -5.042 | 3984.890 | 162.29 | 162.20 | 18.61 | 18.58 |
| 14 | 27 | 8635.939 | -2.531 | 4.387 | -36.950 | 5.041 | -3984.890 | 162.29 | 162.20 | 18.61 | 18.58 |
| 14 | 28 | -8617.662 | 172.687 | -7.573 | 36.572 | -31.951 | 3605.833 | 157.25 | 156.65 | 27.07 | 26.86 |
| 15 | 28 | 8617.643 | -172.687 | 7.573 | -36.571 | 31.950 | -3605.832 | 157.25 | 156.65 | 27.07 | 26.86 |
| 15 | 29 | -8576.837 | 229.380 | -10.277 | 17.475 | -62.538 | 2671.860 | 144.55 | 143.38 | 47.86 | 47.44 |
| 16 | 29 | 8576.839 | -229.380 | 10.277 | -17.475 | 62.538 | -2671.859 | 144.55 | 143.38 | 47.86 | 47.44 |
| 16 | 30 | -8078.221 | 206.853 | -13.458 | 6.013 | -115.962 | 1843.061 | 127.68 | 125.53 | 60.55 | 59.78 |
| 17 | 30 | 8078.214 | -206.852 | 13.458 | -6.013 | 115.962 | -1843.061 | 127.68 | 125.53 | 60.55 | 59.78 |
| 17 | 31 | -8131.107 | 272.231 | 0.198 | 4.845 | -37.283 | 724.398 | 112.68 | 111.99 | 86.35 | 86.10 |
| 18 | 31 | 8131.117 | -272.231 | -0.199 | -4.845 | 37.283 | -724.399 | 112.68 | 111.99 | 86.35 | 86.10 |
| 18 | 32 | -11300.896 | 966.371 | 0.199 | 4.845 | -42.735 | -3257.863 | 64.24 | 63.55 | 165.94 | 165.70 |
| 19 | 32 | 11007.147 | 526.541 | -2.989 | -5.631 | 42.734 | 3254.117 | 61.55 | 60.85 | 163.13 | 162.89 |
| 19 | 40 | -7765.362 | -479.495 | 1.575 | -0.454 | -6.988 | 194.815 | 100.71 | 100.58 | 93.65 | 93.60 |
| 20 | 40 | 7765.352 | 479.496 | -1.575 | 0.454 | 6.988 | -194.815 | 100.71 | 100.58 | 93.65 | 93.60 |
| 20 | 41 | -7744.706 | -333.950 | 17.660 | 50.189 | -62.267 | 2255.482 | 128.48 | 127.32 | 46.80 | 46.39 |
| 21 | 41 | 7744.692 | 333.949 | -17.660 | -50.189 | 62.266 | -2255.481 | 128.48 | 127.32 | 46.80 | 46.39 |
| 21 | 42 | -7739.771 | -152.892 | 14.796 | 41.949 | -3.774 | 3202.886 | 140.52 | 140.45 | 25.04 | 25.02 |
| 22 | 42 | 7739.796 | 152.892 | -14.796 | -41.949 | 3.774 | -3202.885 | 140.52 | 140.45 | 25.04 | 25.02 |
| 22 | 43 | -7889.502 | -135.340 | 11.844 | 20.872 | 44.803 | 3780.453 | 149.67 | 150.51 | 13.66 | 13.96 |
| 23 | 43 | 7889.506 | 135.339 | -11.844 | -20.872 | -44.802 | -3780.454 | 149.67 | 150.51 | 13.66 | 13.96 |
| 23 | 44 | -7854.416 | -1.589 | 8.658 | 20.494 | 90.932 | 4199.508 | 154.39 | 156.09 | 3.55 | 4.16 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 24 | 44 | 7854.396 | 1.589 | -8.657 | -20.494 | -90.931 | -4199.509 | 154.39 | 156.09 | 3.55 | 4.16 |
| 24 | 45 | -8197.017 | 162.354 | 5.471 | 20.117 | 122.708 | 3865.693 | 153.97 | 156.25 | 15.35 | 16.17 |
| 25 | 45 | 8197.011 | -162.354 | -5.472 | -20.116 | -122.705 | -3865.692 | 153.97 | 156.25 | 15.35 | 16.17 |
| 25 | 46 | -8192.099 | 216.545 | 3.272 | 0.509 | 158.690 | 2978.802 | 141.73 | 144.68 | 35.30 | 36.35 |
| 26 | 46 | 8192.109 | -216.546 | -3.271 | -0.509 | -158.691 | -2978.803 | 141.73 | 144.68 | 35.30 | 36.35 |
| 26 | 47 | -7164.438 | 192.307 | 0.079 | -10.791 | 166.605 | 1808.189 | 113.05 | 116.15 | 48.87 | 49.97 |
| 27 | 47 | 7164.453 | -192.307 | -0.079 | 10.791 | -166.604 | -1808.190 | 113.05 | 116.15 | 48.87 | 49.97 |
| 27 | 48 | -7157.576 | 253.282 | 1.785 | 3.003 | -12.022 | 757.288 | 100.60 | 100.37 | 73.23 | 73.15 |
| 28 | 48 | 7157.564 | -253.281 | -1.785 | -3.003 | 12.022 | -757.288 | 100.60 | 100.37 | 73.23 | 73.15 |
| 28 | 49 | -10328.287 | 917.264 | 1.368 | -4.232 | -3.141 | -3135.369 | 56.41 | 56.36 | 154.48 | 154.47 |
| 29 | 49 | 9873.787 | 549.885 | -1.515 | 0.762 | 3.115 | 3137.615 | 52.14 | 52.09 | 150.29 | 150.27 |
| 29 | 59 | -6632.909 | -469.349 | 1.515 | -0.762 | -2.642 | 378.261 | 88.82 | 88.77 | 75.17 | 75.15 |
| 30 | 59 | 6632.913 | 469.349 | -1.515 | 0.762 | 2.642 | -378.263 | 88.82 | 88.77 | 75.17 | 75.15 |
| 30 | 60 | -6704.480 | -330.073 | 11.137 | 47.617 | 264.499 | 2388.577 | 114.08 | 119.00 | 29.56 | 31.32 |
| 31 | 60 | 6704.482 | 330.073 | -11.137 | -47.617 | -264.498 | -2388.577 | 114.08 | 119.00 | 29.56 | 31.32 |
| 31 | 61 | -6569.986 | -142.576 | 7.951 | 36.166 | 307.455 | 3284.634 | 123.95 | 129.67 | 7.38 | 9.42 |
| 32 | 61 | 6569.988 | 142.577 | -7.951 | -36.166 | -307.453 | -3284.634 | 123.95 | 129.67 | 7.38 | 9.42 |
| 32 | 62 | -6629.089 | -122.332 | 5.321 | 15.183 | 315.081 | 3814.859 | 131.70 | 137.56 | -3.93 | -1.84 |
| 33 | 62 | 6629.088 | 122.331 | -5.321 | -15.184 | -315.079 | -3814.862 | 131.70 | 137.56 | -3.93 | -1.84 |
| 33 | 63 | -6591.107 | 11.419 | 2.135 | 14.806 | 331.857 | 4186.296 | 136.03 | 142.20 | -12.90 | -10.69 |
| 34 | 63 | 6591.109 | -11.418 | -2.135 | -14.805 | -331.855 | -4186.296 | 136.03 | 142.20 | -12.90 | -10.69 |
| 34 | 64 | -7090.124 | 175.675 | -1.051 | 14.434 | 334.268 | 3804.805 | 137.21 | 143.43 | 2.05 | 4.28 |
| 35 | 64 | 7090.120 | -175.676 | 1.050 | -14.434 | -334.270 | -3804.806 | 137.21 | 143.43 | 2.05 | 4.27 |
| 35 | 65 | -7080.496 | 229.896 | -3.535 | -5.386 | 346.969 | 2870.541 | 124.50 | 130.95 | 23.09 | 25.40 |
| 36 | 65 | 7080.493 | -229.897 | 3.535 | 5.386 | -346.969 | -2870.539 | 124.50 | 130.95 | 23.09 | 25.40 |
| 36 | 66 | -7088.427 | 210.372 | -6.721 | -16.834 | 323.897 | 1823.821 | 110.84 | 116.86 | 47.03 | 49.18 |
| 37 | 66 | 7088.430 | -210.372 | 6.720 | 16.834 | -323.899 | -1823.820 | 110.84 | 116.86 | 47.03 | 49.18 |
| 37 | 67 | -7102.373 | 258.126 | 1.547 | 2.334 | -1.606 | 753.043 | 99.75 | 99.72 | 72.59 | 72.58 |
| 38 | 67 | 7102.376 | -258.126 | -1.547 | -2.334 | 1.605 | -753.042 | 99.75 | 99.72 | 72.59 | 72.58 |
| 38 | 68 | -10262.872 | 952.266 | 1.547 | 2.334 | -0.990 | -3174.262 | 55.28 | 55.27 | 154.59 | 154.58 |
| 39 | 68 | 9647.531 | 524.661 | -2.092 | -4.364 | 0.959 | 3168.231 | 49.62 | 49.60 | 148.74 | 148.73 |
| 39 | 78 | -6396.425 | -474.272 | -1.600 | -1.566 | -1.170 | 361.276 | 85.60 | 85.58 | 72.57 | 72.56 |
| 40 | 78 | 6396.423 | 474.272 | 1.600 | 1.566 | 1.170 | -361.277 | 85.60 | 85.58 | 72.57 | 72.56 |
| 40 | 79 | -6639.915 | -332.002 | 5.646 | 30.833 | 312.775 | 2403.801 | 113.02 | 118.84 | 28.24 | 30.32 |
| 41 | 79 | 6639.909 | 332.002 | -5.646 | -30.833 | -312.773 | -2403.802 | 113.02 | 118.84 | 28.24 | 30.32 |
| 41 | 80 | -6657.827 | -147.092 | 2.460 | 19.385 | 331.015 | 3314.692 | 125.24 | 131.40 | 7.73 | 9.93 |
| 42 | 80 | 6657.835 | 147.093 | -2.460 | -19.385 | -331.013 | -3314.691 | 125.24 | 131.40 | 7.73 | 9.93 |
| 42 | 81 | -6730.819 | -126.851 | -0.011 | -0.736 | 313.909 | 3851.502 | 133.49 | 139.33 | -3.48 | -1.39 |
| 43 | 81 | 6730.824 | 126.850 | 0.010 | 0.736 | -313.912 | -3851.503 | 133.49 | 139.33 | -3.48 | -1.39 |
| 43 | 82 | -7403.245 | 0.155 | -3.195 | -1.104 | 306.694 | 4236.947 | 147.19 | 152.90 | -3.71 | -1.67 |
| 44 | 82 | 7403.239 | -0.155 | 3.194 | 1.104 | -306.697 | -4236.947 | 147.19 | 152.90 | -3.71 | -1.67 |
| 44 | 83 | -7381.976 | 170.311 | -6.380 | -1.482 | 285.149 | 3866.310 | 142.17 | 147.48 | 4.51 | 6.40 |
| 45 | 83 | 7381.973 | -170.311 | 6.381 | 1.482 | -285.149 | -3866.307 | 142.17 | 147.48 | 4.51 | 6.40 |
| 45 | 84 | -7385.378 | 224.541 | -9.020 | -22.076 | 271.825 | 2941.659 | 130.00 | 135.05 | 25.58 | 27.39 |
| 46 | 84 | 7385.390 | -224.541 | 9.020 | 22.076 | -271.824 | -2941.659 | 130.00 | 135.05 | 25.58 | 27.39 |
| 46 | 85 | -7412.765 | 201.442 | -12.205 | -33.532 | 224.079 | 1900.913 | 116.89 | 121.06 | 49.71 | 51.20 |
| 47 | 85 | 7412.749 | -201.443 | 12.205 | 33.532 | -224.077 | -1900.914 | 116.89 | 121.06 | 49.71 | 51.19 |
| 47 | 86 | -7385.238 | 256.504 | -1.535 | 1.976 | -7.295 | 862.287 | 104.83 | 104.69 | 73.70 | 73.65 |
| 48 | 86 | 7385.247 | -256.504 | 1.535 | -1.976 | 7.296 | -862.286 | 104.83 | 104.69 | 73.70 | 73.65 |
| 48 | 87 | -10548.839 | 950.644 | -1.535 | 1.976 | -7.857 | -3050.216 | 59.59 | 59.46 | 154.98 | 154.93 |
| 49 | 87 | 9776.222 | 511.383 | 1.104 | -5.802 | 7.886 | 3080.021 | 52.00 | 51.87 | 148.32 | 148.28 |
| 49 | 97 | -6528.213 | -460.972 | -1.561 | -2.694 | -15.288 | 394.797 | 87.84 | 87.56 | 73.52 | 73.42 |
| 50 | 97 | 6528.212 | 460.972 | 1.561 | 2.694 | 15.288 | -394.798 | 87.84 | 87.56 | 73.52 | 73.42 |
| 50 | 98 | -6323.501 | -312.061 | 3.587 | 14.674 | 152.120 | 2388.442 | 110.32 | 113.15 | 25.13 | 26.14 |
| 51 | 98 | 6323.496 | 312.062 | -3.588 | -14.674 | -152.121 | -2388.441 | 110.32 | 113.15 | 25.13 | 26.14 |
| 51 | 99 | -6324.809 | -130.816 | 0.403 | 3.213 | 161.098 | 3237.626 | 121.59 | 124.58 | 5.84 | 6.91 |
| 52 | 99 | 6324.807 | 130.816 | -0.403 | -3.214 | -161.099 | -3237.626 | 121.59 | 124.58 | 5.84 | 6.91 |
| 52 | 100 | -6386.211 | -110.603 | -1.954 | -16.701 | 140.494 | 3717.497 | 128.96 | 131.57 | -4.21 | -3.27 |
| 53 | 100 | 6386.213 | 110.602 | 1.954 | 16.701 | -140.495 | -3717.497 | 128.96 | 131.57 | -4.21 | -3.27 |
| 53 | 101 | -6350.535 | 23.148 | -5.140 | -17.079 | 124.539 | 4038.238 | 132.94 | 135.26 | -11.89 | -11.06 |
| 54 | 101 | 6350.541 | -23.148 | 5.139 | 17.080 | -124.538 | -4038.235 | 132.94 | 135.26 | -11.89 | -11.06 |
| 54 | 102 | -6317.700 | 193.304 | -8.325 | -17.458 | 94.242 | 3580.103 | 126.69 | 128.44 | -1.80 | -1.18 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 55 | 102 | 6317.696 | -193.303 | 8.326 | 17.458 | -94.245 | -3580.101 | 126.69 | 128.44 | -1.80 | -1.18 |
| 55 | 103 | -6312.126 | 247.530 | -11.133 | -38.043 | 64.707 | 2567.418 | 113.37 | 114.58 | 21.21 | 21.64 |
| 56 | 103 | 6312.125 | -247.530 | 11.133 | 38.043 | -64.707 | -2567.417 | 113.37 | 114.58 | 21.21 | 21.64 |
| 56 | 104 | -6333.393 | 224.342 | -14.323 | -49.457 | 7.668 | 1440.831 | 99.13 | 99.28 | 47.24 | 47.29 |
| 57 | 104 | 6333.396 | -224.341 | 14.324 | 49.457 | -7.669 | -1440.829 | 99.13 | 99.28 | 47.24 | 47.29 |
| 57 | 105 | -7214.407 | 272.240 | -1.488 | 1.384 | -5.805 | 304.110 | 95.21 | 95.10 | 84.21 | 84.17 |
| 58 | 105 | 7214.404 | -272.240 | 1.488 | -1.384 | 5.805 | -304.109 | 95.21 | 95.10 | 84.21 | 84.17 |
| 58 | 106 | -10379.748 | 932.666 | -2.616 | -5.363 | -32.056 | -3569.351 | 51.59 | 51.07 | 163.09 | 162.91 |
| 59 | 106 | 9450.052 | 583.021 | 0.308 | 4.697 | 32.271 | 3449.029 | 44.45 | 43.93 | 152.19 | 152.00 |
| 59 | 115 | -6203.795 | -502.485 | -0.308 | -4.697 | -27.312 | 206.371 | 81.34 | 80.83 | 73.74 | 73.56 |
| 60 | 115 | 6203.794 | 502.485 | 0.308 | 4.697 | 27.312 | -206.371 | 81.34 | 80.83 | 73.74 | 73.56 |
| 60 | 116 | -6571.031 | -349.491 | 13.242 | -9.543 | -6.010 | 2364.843 | 114.60 | 114.48 | 29.31 | 29.27 |
| 61 | 116 | 6571.036 | 349.491 | -13.242 | 9.543 | 6.009 | -2364.842 | 114.60 | 114.49 | 29.31 | 29.27 |
| 61 | 117 | -7609.476 | -186.907 | 10.103 | -21.225 | 47.256 | 3363.714 | 140.55 | 141.43 | 19.58 | 19.89 |
| 62 | 117 | 7609.475 | 186.906 | -10.104 | 21.225 | -47.256 | -3363.711 | 140.55 | 141.43 | 19.58 | 19.89 |
| 62 | 118 | -7675.387 | -166.831 | 7.350 | -40.085 | 70.758 | 4083.127 | 150.77 | 152.08 | 4.00 | 4.47 |
| 63 | 118 | 7675.385 | 166.830 | -7.350 | 40.085 | -70.758 | -4083.125 | 150.77 | 152.08 | 4.00 | 4.47 |
| 63 | 119 | -7644.215 | -33.080 | 4.164 | -40.463 | 96.665 | 4642.814 | 157.61 | 159.40 | -9.18 | -8.54 |
| 64 | 119 | 7644.212 | 33.080 | -4.164 | 40.463 | -96.665 | -4642.813 | 157.61 | 159.40 | -9.18 | -8.54 |
| 64 | 120 | -7615.880 | 137.075 | 0.978 | -40.841 | 108.234 | 4423.629 | 154.21 | 156.23 | -4.60 | -3.88 |
| 65 | 120 | 7615.880 | -137.075 | -0.978 | 40.841 | -108.233 | -4423.629 | 154.21 | 156.23 | -4.60 | -3.88 |
| 65 | 121 | -7605.622 | 191.145 | -1.524 | -62.790 | 126.792 | 3657.053 | 143.68 | 146.04 | 12.61 | 13.45 |
| 66 | 121 | 7605.623 | -191.145 | 1.524 | 62.790 | -126.792 | -3657.052 | 143.68 | 146.04 | 12.61 | 13.45 |
| 66 | 122 | -7612.471 | 124.530 | -0.069 | -9.282 | 24.819 | 2819.938 | 133.54 | 134.00 | 32.03 | 32.20 |
| 67 | 122 | 7612.472 | -124.530 | 0.069 | 9.282 | -24.818 | -2819.938 | 133.54 | 134.00 | 32.03 | 32.20 |
| 67 | 123 | -7613.160 | 181.240 | 0.907 | -9.006 | -19.652 | 2101.258 | 124.36 | 124.00 | 48.50 | 48.37 |
| 68 | 123 | 7613.163 | -181.240 | -0.907 | 9.006 | 19.652 | -2101.258 | 124.36 | 124.00 | 48.50 | 48.37 |
| 68 | 124 | -10736.723 | 867.662 | 0.907 | -9.006 | -21.915 | -1470.585 | 81.59 | 81.23 | 127.48 | 127.36 |
| 69 | 124 | 10818.919 | 365.249 | 0.018 | 0.266 | 21.914 | 1610.488 | 80.57 | 80.22 | 130.84 | 130.72 |
| 69 | 133 | -7636.253 | -285.699 | 7.756 | -15.319 | 53.347 | 795.438 | 106.54 | 107.53 | 78.19 | 78.54 |
| 70 | 133 | 7636.255 | 285.698 | -7.757 | 15.319 | -53.346 | -795.438 | 106.54 | 107.53 | 78.19 | 78.54 |
| 70 | 134 | -6069.639 | -86.914 | 5.394 | -26.103 | 110.450 | 1255.397 | 92.37 | 94.43 | 47.78 | 48.51 |
| 71 | 134 | 6105.776 | 86.915 | -5.394 | 26.103 | -110.450 | -1244.456 | 92.68 | 94.74 | 48.48 | 49.21 |
| 71 | 135 | -6170.440 | -210.688 | 2.962 | -43.032 | 112.085 | 1997.140 | 103.53 | 105.62 | 32.21 | 32.95 |
| 72 | 135 | 6170.440 | 210.687 | -2.962 | 43.032 | -112.085 | -1997.140 | 103.53 | 105.62 | 32.21 | 32.95 |
| 72 | 136 | -6130.082 | -53.794 | -0.224 | -43.410 | 118.245 | 2648.558 | 111.66 | 113.86 | 16.89 | 17.68 |
| 73 | 136 | 6130.083 | 53.795 | 0.224 | 43.410 | -118.245 | -2648.560 | 111.66 | 113.86 | 16.89 | 17.68 |
| 73 | 137 | -6062.140 | 116.527 | -3.410 | -43.788 | 110.068 | 2572.837 | 109.87 | 111.92 | 17.78 | 18.51 |
| 74 | 137 | 6062.138 | -116.527 | 3.410 | 43.788 | -110.068 | -2572.841 | 109.87 | 111.92 | 17.78 | 18.51 |
| 74 | 138 | -5987.906 | 221.998 | -7.067 | -70.314 | 92.278 | 1857.145 | 99.54 | 101.26 | 33.15 | 33.76 |
| 75 | 138 | 5171.968 | -221.997 | 7.067 | 70.314 | -92.278 | -1885.594 | 89.62 | 91.34 | 22.20 | 22.81 |
| 75 | 139 | -5107.257 | 366.821 | -10.253 | -81.762 | 53.308 | 694.541 | 73.26 | 74.25 | 48.54 | 48.90 |
| 76 | 139 | 5107.259 | -366.822 | 10.253 | 81.762 | -53.308 | -694.542 | 73.26 | 74.25 | 48.54 | 48.90 |
| 76 | 140 | -4846.971 | 432.503 | -0.277 | 0.934 | 0.000 | -1009.029 | 47.73 | 47.73 | 84.10 | 84.10 |

# COMPROBACIÓN A ROTURA

HIPOTESIS 321

MOME Z MAX envolvente (ELU)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 8 | 14 | 7336.77 | -567.29 | -0.12 | 0.22 | -3.79 | 5328.54 |
| 8 | 15 | -10566.56 | 1895.42 | 0.36 | -0.60 | 12.90 | -13004.90 |
| 18 | 31 | 7932.85 | -1267.39 | 0.50 | -1.41 | 4.88 | 5961.42 |
| 18 | 32 | -11108.37 | 2171.91 | -0.50 | 1.41 | -7.14 | -14915.03 |
| 28 | 48 | 6505.48 | -1269.26 | 0.15 | -0.50 | 2.09 | 5841.39 |
| 28 | 49 | -9665.06 | 2173.78 | -0.15 | 0.50 | -2.79 | -14776.36 |
| 38 | 67 | 6797.75 | -1281.60 | 0.09 | -0.75 | 2.99 | 5972.91 |
| 38 | 68 | -9969.38 | 2305.80 | -0.08 | 0.69 | -3.42 | -14989.95 |
| 48 | 86 | 6132.48 | -1281.15 | 0.07 | -0.85 | 2.83 | 5801.87 |
| 48 | 87 | -9284.93 | 2305.41 | -0.06 | 0.81 | -3.14 | -14790.96 |
| 58 | 105 | 6762.89 | -1285.89 | 0.14 | -0.94 | 4.26 | 6082.39 |
| 58 | 106 | -9939.38 | 2310.29 | -0.13 | 0.89 | -4.80 | -15130.37 |
| 68 | 123 | 5768.51 | -1232.27 | -0.08 | 0.53 | -10.06 | 4254.09 |
| 68 | 124 | -8880.93 | 2252.22 | 0.06 | -0.41 | 8.42 | -13146.27 |

proc Viaducto de Can Torres  proyecto modificado (servicio)

HIPOTESIS 322

MOME Z MIN envolvente (ELU)

E S F U E R Z O S  E N  B A R R A S

| BARRA | NUDO | AXIL | CORT. Y | CORT. Z | TORSOR | FLECTOR Y | FLECTOR Z |
|---|---|---|---|---|---|---|---|
| 3 | 9 | 7299.56 | 459.64 | -1.00 | 1.88 | -9.01 | -6800.73 |
| 3 | 10 | -7331.75 | -82.63 | 0.98 | -1.83 | 13.21 | 7984.77 |
| 4 | 10 | 7331.70 | 82.63 | -0.98 | 1.83 | -13.21 | -7984.77 |
| 4 | 11 | -7478.02 | 196.13 | 0.99 | -1.85 | 17.77 | 7595.23 |
| 13 | 26 | 8427.44 | 306.03 | 0.14 | -0.41 | -3.80 | -8125.37 |
| 13 | 27 | -8698.46 | -13.99 | -0.14 | 0.43 | 3.35 | 8937.60 |
| 23 | 43 | 7894.75 | 311.15 | 0.02 | 0.39 | -0.34 | -8474.51 |
| 23 | 44 | -7864.72 | -11.42 | -0.02 | -0.39 | 0.24 | 9302.26 |
| 33 | 62 | 6414.16 | 283.05 | 0.00 | -0.07 | 0.59 | -8623.22 |
| 33 | 63 | -6371.11 | 16.69 | 0.00 | 0.07 | -0.62 | 9353.39 |
| 43 | 81 | 6781.07 | 295.37 | -0.01 | 0.06 | 0.67 | -8625.13 |
| 43 | 82 | -7702.34 | -4.74 | 0.01 | -0.05 | -0.62 | 9389.10 |
| 53 | 100 | 6014.94 | 267.57 | -0.08 | 0.03 | -1.96 | -8489.39 |
| 53 | 101 | -5974.20 | 32.16 | 0.08 | -0.03 | 2.31 | 9152.03 |
| 63 | 118 | 8125.62 | 328.37 | -0.16 | 0.78 | -3.92 | -8789.46 |
| 63 | 119 | -8099.52 | -28.63 | 0.16 | -0.78 | 4.63 | 9693.60 |
| 72 | 135 | 5645.86 | 490.61 | 0.64 | -2.14 | -14.35 | -5914.00 |
| 72 | 136 | -5600.44 | -167.74 | -0.64 | 2.14 | 11.48 | 7460.61 |
| 73 | 136 | 5600.44 | 167.74 | 0.64 | -2.14 | -11.48 | -7460.61 |
| 73 | 137 | -5527.43 | 168.57 | -0.64 | 2.14 | 8.61 | 7533.16 |

ESFUERZOS ISOSTATICOS FINALES (Servicio)

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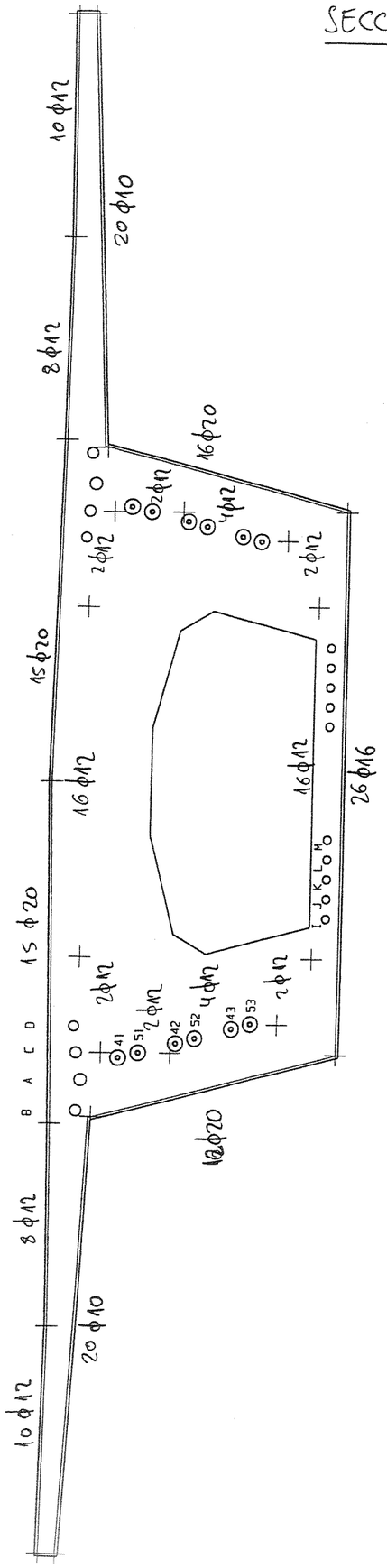
| NUDO | AXIL | MOMENTO | E=M/N | ANGULO | CORTANTE |
|---|---|---|---|---|---|
| 1 | 2872.32 | -497.26 | -0.173 | 3.619 | -181.29 |
| 8 | 2902.29 | -1517.31 | -0.523 | 4.851 | -245.41 |
| 9 | 2923.49 | -2639.40 | -0.903 | 4.798 | -244.51 |
| 10 | 2947.53 | -3737.57 | -1.268 | 4.349 | -223.48 |
| 11 | 2994.79 | -4573.04 | -1.527 | 1.589 | -83.02 |
| 12 | 2998.11 | -4438.66 | -1.480 | -2.595 | 135.70 |
| 13 | 2972.78 | -3108.13 | -1.046 | -9.440 | 487.42 |
| 14 | 3004.64 | -533.94 | -0.178 | -8.911 | 465.44 |
| 15 | 7163.67 | -1395.75 | -0.195 | 1.207 | -150.82 |
| 23 | 4320.60 | -1777.54 | -0.411 | 2.161 | -162.88 |
| 24 | 4404.55 | -3286.38 | -0.746 | 5.832 | -447.49 |
| 25 | 4444.00 | -5391.26 | -1.213 | 5.024 | -389.03 |
| 26 | 4505.50 | -6634.34 | -1.472 | 1.704 | -133.91 |
| 27 | 4452.62 | -6799.15 | -1.527 | 0.116 | -9.01 |
| 28 | 4408.02 | -6638.43 | -1.506 | -0.892 | 68.61 |
| 29 | 4412.11 | -5911.94 | -1.340 | -3.636 | 279.61 |
| 30 | 4494.93 | -4032.25 | -0.897 | -7.719 | 603.57 |
| 31 | 4464.90 | -1258.59 | -0.282 | -5.645 | 439.13 |
| 32 | 8551.85 | -2412.61 | -0.282 | 1.745 | -260.32 |
| 40 | 4320.60 | -1777.54 | -0.411 | 2.161 | -162.88 |
| 41 | 4404.55 | -3286.38 | -0.746 | 5.832 | -447.49 |
| 42 | 4444.00 | -5391.26 | -1.213 | 5.024 | -389.03 |
| 43 | 4505.50 | -6634.34 | -1.472 | 1.704 | -133.91 |
| 44 | 4452.62 | -6799.15 | -1.527 | 0.116 | -9.01 |
| 45 | 4408.02 | -6638.43 | -1.506 | -0.892 | 68.61 |
| 46 | 4412.11 | -5911.94 | -1.340 | -3.636 | 279.61 |
| 47 | 4494.93 | -4032.25 | -0.897 | -7.719 | 603.57 |
| 48 | 4464.90 | -1258.59 | -0.282 | -5.645 | 439.13 |
| 49 | 8551.85 | -2412.61 | -0.282 | 1.745 | -260.32 |
| 59 | 4320.60 | -1777.54 | -0.411 | 2.161 | -162.88 |
| 60 | 4404.55 | -3286.38 | -0.746 | 5.832 | -447.49 |
| 61 | 4444.00 | -5391.26 | -1.213 | 5.024 | -389.03 |
| 62 | 4505.50 | -6634.34 | -1.472 | 1.704 | -133.91 |
| 63 | 4452.62 | -6799.15 | -1.527 | 0.116 | -9.01 |
| 64 | 4408.02 | -6638.43 | -1.506 | -0.892 | 68.61 |
| 65 | 4412.11 | -5911.94 | -1.340 | -3.636 | 279.61 |
| 66 | 4494.93 | -4032.25 | -0.897 | -7.719 | 603.57 |
| 67 | 4464.90 | -1258.59 | -0.282 | -5.645 | 439.13 |
| 68 | 8551.85 | -2412.61 | -0.282 | 1.745 | -260.32 |
| 78 | 4320.60 | -1777.54 | -0.411 | 2.161 | -162.88 |
| 79 | 4404.55 | -3286.38 | -0.746 | 5.832 | -447.49 |
| 80 | 4444.00 | -5391.26 | -1.213 | 5.024 | -389.03 |
| 81 | 4505.50 | -6634.34 | -1.472 | 1.704 | -133.91 |
| 82 | 4452.62 | -6799.15 | -1.527 | 0.116 | -9.01 |
| 83 | 4408.02 | -6638.43 | -1.506 | -0.892 | 68.61 |
| 84 | 4412.11 | -5911.94 | -1.340 | -3.636 | 279.61 |
| 85 | 4494.93 | -4032.25 | -0.897 | -7.719 | 603.57 |
| 86 | 4464.90 | -1258.59 | -0.282 | -5.645 | 439.13 |
| 87 | 8551.85 | -2412.61 | -0.282 | 1.745 | -260.32 |
| 97 | 4320.60 | -1777.54 | -0.411 | 2.161 | -162.88 |
| 98 | 4404.55 | -3286.38 | -0.746 | 5.832 | -447.49 |
| 99 | 4444.00 | -5391.26 | -1.213 | 5.024 | -389.03 |
| 100 | 4505.50 | -6634.34 | -1.472 | 1.704 | -133.91 |
| 101 | 4452.62 | -6799.15 | -1.527 | 0.116 | -9.01 |
| 102 | 4408.02 | -6638.43 | -1.506 | -0.892 | 68.61 |
| 103 | 4412.11 | -5911.94 | -1.340 | -3.636 | 279.61 |
| 104 | 4494.93 | -4032.25 | -0.897 | -7.719 | 603.57 |
| 105 | 4464.90 | -1258.59 | -0.282 | -5.645 | 439.13 |
| 106 | 8551.85 | -2412.61 | -0.282 | 1.745 | -260.32 |
| 115 | 4320.60 | -1777.54 | -0.411 | 2.161 | -162.88 |
| 116 | 4404.55 | -3286.38 | -0.746 | 5.832 | -447.49 |
| 117 | 4444.00 | -5391.26 | -1.213 | 5.024 | -389.03 |
| 118 | 4505.50 | -6634.34 | -1.472 | 1.704 | -133.91 |
| 119 | 4452.62 | -6799.15 | -1.527 | 0.116 | -9.01 |
| 120 | 4408.02 | -6638.43 | -1.506 | -0.892 | 68.61 |
| 121 | 4412.11 | -5911.94 | -1.340 | -3.636 | 279.61 |
| 122 | 4494.93 | -4032.25 | -0.897 | -7.719 | 603.57 |
| 123 | 4464.90 | -1258.59 | -0.282 | -5.645 | 439.13 |
| 124 | 8496.59 | -2412.74 | -0.284 | 1.689 | -250.29 |
| 133 | 4324.37 | -2130.78 | -0.493 | 5.824 | -438.70 |
| 134 | 4375.84 | -5145.27 | -1.176 | 7.463 | -568.00 |
| 135 | 4448.62 | -6536.44 | -1.469 | 1.425 | -110.57 |
| 136 | 4424.67 | -6756.47 | -1.527 | 0.204 | -15.72 |
| 137 | 4369.47 | -6583.73 | -1.507 | -0.809 | 61.68 |
| 138 | 4310.21 | -5904.64 | -1.370 | -2.954 | 221.92 |
| 139 | 4256.58 | -4499.26 | -1.057 | -4.482 | 332.44 |
| 140 | 4213.74 | -2868.55 | -0.681 | -5.271 | 387.08 |

ESFUERZOS ISOSTATICOS FINALES (Proceso).

==========

| NUDO | AXIL | MOMENTO | E=M/N | ANGULO | CORTANTE |
|---|---|---|---|---|---|
| 1 | 6245.12 | -1074.87 | -0.172 | 0.000 | 0.00 |
| 8 | 6250.29 | -1078.01 | -0.172 | 0.000 | 0.00 |
| 9 | 7638.25 | -874.02 | -0.114 | 0.000 | 0.00 |
| 10 | 6642.39 | -840.67 | -0.127 | 0.000 | 0.00 |
| 11 | 6659.07 | -842.57 | -0.127 | 0.000 | 0.00 |
| 12 | 6663.43 | -843.32 | -0.127 | 0.000 | 0.00 |
| 13 | 8469.82 | -1091.05 | -0.129 | 0.000 | 0.00 |
| 14 | 6619.24 | -840.08 | -0.127 | 0.000 | 0.00 |
| 15 | 6622.79 | -841.93 | -0.127 | 0.000 | 0.00 |
| 23 | 6626.56 | -843.80 | -0.127 | 0.000 | 0.00 |
| 24 | 7179.06 | -440.15 | -0.061 | 0.000 | 0.00 |
| 25 | 6567.96 | -839.10 | -0.128 | 0.000 | 0.00 |
| 26 | 6585.37 | -840.14 | -0.128 | 0.000 | 0.00 |
| 27 | 6602.99 | -841.20 | -0.127 | 0.000 | 0.00 |
| 28 | 6620.83 | -842.30 | -0.127 | 0.000 | 0.00 |
| 29 | 6631.03 | -842.29 | -0.127 | 0.000 | 0.00 |
| 30 | 5934.94 | -555.40 | -0.094 | 0.000 | 0.00 |
| 31 | 5947.33 | -555.62 | -0.093 | 0.000 | 0.00 |
| 32 | 5959.91 | -555.86 | -0.093 | 0.000 | 0.00 |
| 40 | 5972.70 | -556.11 | -0.093 | 0.000 | 0.00 |
| 41 | 5973.15 | -555.21 | -0.093 | 0.000 | 0.00 |
| 42 | 5926.82 | -549.20 | -0.093 | 0.000 | 0.00 |
| 43 | 5926.16 | -549.34 | -0.093 | 0.000 | 0.00 |
| 44 | 5925.70 | -549.50 | -0.093 | 0.000 | 0.00 |
| 45 | 5925.44 | -549.68 | -0.093 | 0.000 | 0.00 |
| 46 | 5920.89 | -549.69 | -0.093 | 0.000 | 0.00 |
| 47 | 4528.94 | -765.91 | -0.169 | 0.000 | 0.00 |
| 48 | 4542.61 | -769.90 | -0.169 | 0.000 | 0.00 |
| 49 | 4556.42 | -773.93 | -0.170 | 0.000 | 0.00 |
| 59 | 4570.38 | -777.97 | -0.170 | 0.000 | 0.00 |
| 60 | 4576.63 | -780.91 | -0.171 | 0.000 | 0.00 |
| 61 | 4554.88 | -781.54 | -0.172 | 0.000 | 0.00 |
| 62 | 4559.28 | -783.07 | -0.172 | 0.000 | 0.00 |
| 63 | 4563.83 | -784.63 | -0.172 | 0.000 | 0.00 |
| 64 | 4568.53 | -786.21 | -0.172 | 0.000 | 0.00 |
| 65 | 4566.63 | -785.74 | -0.172 | 0.000 | 0.00 |
| 66 | 4528.39 | -778.39 | -0.172 | 0.000 | 0.00 |
| 67 | 4535.79 | -777.22 | -0.171 | 0.000 | 0.00 |
| 68 | 4543.33 | -776.07 | -0.171 | 0.000 | 0.00 |
| 78 | 4551.02 | -774.94 | -0.170 | 0.000 | 0.00 |
| 79 | 4554.38 | -773.65 | -0.170 | 0.000 | 0.00 |
| 80 | 4528.94 | -765.91 | -0.169 | 0.000 | 0.00 |
| 81 | 4542.61 | -769.90 | -0.169 | 0.000 | 0.00 |
| 82 | 4556.42 | -773.93 | -0.170 | 0.000 | 0.00 |
| 83 | 4570.38 | -777.97 | -0.170 | 0.000 | 0.00 |
| 84 | 4576.63 | -780.91 | -0.171 | 0.000 | 0.00 |
| 85 | 4554.88 | -781.54 | -0.172 | 0.000 | 0.00 |
| 86 | 4559.28 | -783.07 | -0.172 | 0.000 | 0.00 |
| 87 | 4563.83 | -784.63 | -0.172 | 0.000 | 0.00 |
| 97 | 4568.53 | -786.21 | -0.172 | 0.000 | 0.00 |
| 98 | 4566.63 | -785.74 | -0.172 | 0.000 | 0.00 |
| 99 | 4528.39 | -778.39 | -0.172 | 0.000 | 0.00 |
| 100 | 4535.79 | -777.22 | -0.171 | 0.000 | 0.00 |
| 101 | 4543.33 | -776.07 | -0.171 | 0.000 | 0.00 |
| 102 | 4551.02 | -774.94 | -0.170 | 0.000 | 0.00 |
| 103 | 4554.38 | -773.65 | -0.170 | 0.000 | 0.00 |
| 104 | 4533.46 | -767.27 | -0.169 | 0.000 | 0.00 |
| 105 | 4547.15 | -771.28 | -0.170 | 0.000 | 0.00 |
| 106 | 4560.99 | -775.31 | -0.170 | 0.000 | 0.00 |
| 115 | 4574.98 | -779.36 | -0.170 | 0.000 | 0.00 |
| 116 | 4581.26 | -782.31 | -0.171 | 0.000 | 0.00 |
| 117 | 4568.60 | -783.27 | -0.171 | 0.000 | 0.00 |
| 118 | 4573.08 | -784.80 | -0.172 | 0.000 | 0.00 |
| 119 | 4577.71 | -786.37 | -0.172 | 0.000 | 0.00 |
| 120 | 4582.49 | -787.96 | -0.172 | 0.000 | 0.00 |
| 121 | 4571.00 | -784.57 | -0.172 | 0.000 | 0.00 |
| 122 | 4573.43 | -782.77 | -0.171 | 0.000 | 0.00 |
| 123 | 4581.14 | -781.64 | -0.171 | 0.000 | 0.00 |
| 124 | 4589.00 | -780.53 | -0.170 | 0.000 | 0.00 |
| 133 | 4586.08 | -779.03 | -0.170 | 0.000 | 0.00 |
| 134 | 6217.03 | -1271.16 | -0.204 | 0.000 | 0.00 |
| 135 | 4606.85 | -788.14 | -0.171 | 0.000 | 0.00 |
| 136 | 4580.33 | -783.60 | -0.171 | 0.000 | 0.00 |
| 137 | 4553.97 | -779.09 | -0.171 | 0.000 | 0.00 |
| 138 | 4527.75 | -774.60 | -0.171 | 0.000 | 0.00 |
| 139 | 3448.13 | -733.41 | -0.213 | 0.000 | 0.00 |
| 140 | 3428.29 | -729.19 | -0.213 | 0.000 | 0.00 |

## SECCION POR APOYOS (V-45)




CARLOS FERNANDEZ CASADO, S.L.
OFICINA DE PROYECTOS

PROYECTO

HO.
FEC

## COMPROBACION A ROTURA

- Sección por apoyos.

Esfuerzos Mayorados

-

$F_{xd} = -10.040\ T$ $M_{zd} = -15136$

Esfuerzos isostáticos de pretensado (T=0)

De proceso $T_x =$ [illegible] $M_z =$ [illegible]

De servicio $T_x =$ [illegible] $M_z =$ [illegible]

Esfuerzos isostáticos de pretensado (T=∞)

Totales + .....

$F_x = -10028$ $M_z = -24564\ .T$

Esfuerzos hiperestáticos de pretensado

EST HIP = EST TOT - EST ISOS.

Esfuerzos finales

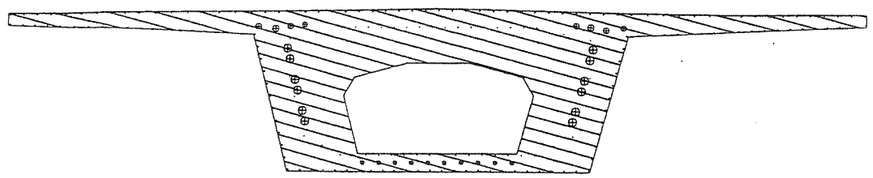
$N = -10040 + 10012 = -28\ T$

$M_z = -15136 + 2456 = -12680\ .T$

Los esfuerzos no coinciden exactamente debido a cambios realizados, pero la variación es mínima

Seccion por apoyos (v-45)

ESCALA 1/100



CARACTERISTICAS DE LA SECCION 1 A 0.000

| | | |
|---|---|---|
| AREA | 13.233459 | |
| CANTO | 2.699000 | 14.000000 |
| C.G. | 1.677329 | 0.000000 |
| V | 1.021671 | 7.000000 |
| VP | 1.677329 | 7.000000 |
| I | 9.143784 | 92.365448 |
| R.G. | 0.831240 | 2.641910 |

Seccion por apoyos (v-45)
secc horm
punt

| | | |
|---|---|---|
| 1 | -4.9500 | 2.6000 |
| 2 | -7.0000 | 2.6000 |
| 3 | 0.0000 | 2.6990 |
| 4 | 4.9500 | 2.6000 |
| 5 | 7.0000 | 2.6000 |
| 6 | 7.0000 | 2.4000 |
| 7 | 3.0890 | 2.2556 |
| 8 | 2.5000 | 0.0000 |
| 9 | -2.5000 | 0.0000 |
| 10 | -3.0890 | 2.2556 |
| 11 | -7.0000 | 2.4000 |
| 12 | -1.3901 | 1.5676 |
| 13 | -0.5000 | 1.8000 |
| 14 | 0.5000 | 1.8000 |
| 15 | 1.3901 | 1.5676 |
| 16 | 1.5688 | 1.2625 |
| 17 | 1.3174 | 0.3000 |
| 18 | -1.3174 | 0.3000 |
| 19 | -1.5688 | 1.2625 |
| 20 | -6.9750 | 2.5750 |
| 21 | -4.9495 | 2.5750 |
| 22 | -3.1280 | 2.6114 |
| 23 | 0.0000 | 2.6740 |
| 24 | 3.1280 | 2.6114 |
| 25 | 4.9495 | 2.5750 |
| 26 | 6.9750 | 2.5750 |
| 27 | -6.9750 | 2.4249 |
| 28 | -3.0616 | 2.2546 |
| 29 | -2.4750 | 2.1844 |
| 30 | -1.6029 | 2.3896 |
| 31 | 1.6029 | 2.3896 |
| 32 | 2.4750 | 2.1844 |
| 33 | 3.0616 | 2.2546 |
| 34 | 6.9750 | 2.4249 |
| 35 | -2.4750 | 1.5644 |
| 36 | 2.4750 | 1.5644 |
| 37 | -2.2129 | 0.5828 |
| 38 | 2.2129 | 0.5828 |
| 39 | -1.6069 | 0.2750 |
| 40 | 1.6069 | 0.2750 |
| 41 | -2.4792 | 0.0250 |
| 42 | 2.4792 | 0.0250 |
| 43 | -3.0074 | 2.3882 |
| 44 | -2.7274 | 2.3538 |
| 45 | -2.4774 | 2.3994 |
| 46 | -2.2374 | 2.4242 |
| 47 | 2.2374 | 2.4242 |
| 48 | 2.4774 | 2.3994 |
| 49 | 2.7274 | 2.3538 |
| 50 | 3.0074 | 2.3882 |
| 51 | -2.5202 | 2.0320 |
| 52 | -2.4740 | 1.8550 |

```
   53      -2.3863       1.5190
   54      -2.3403       1.3430
   55      -2.2518       1.0040
   56      -2.2064       0.8300
   57       2.5202       2.0320
   58       2.4740       1.8550
   59       2.3863       1.5190
   60       2.3403       1.3430
   61       2.2518       1.0040
   62       2.2064       0.8300
   63      -1.2400       0.1500
   64       1.2400       0.1500
horm       1.00    5000.00
   2   1   3   4   5   6   7   8   9  10  11
hp   12  13  14  15  16  17  18  19
arma     51000.
 20 21 10 0.000113
 21 22  8 0.000113
 22 23 15 0.000314
 23 24 15 0.000314
 24 25  8 0.000113
 25 26 10 0.000113
 27 28 20 0.000079
 33 34 20 0.000079
 28 41 12 0.000314
 33 42 12 0.000314
 41 42 26 0.000201
 30 31 16 0.000113
 29 30  3 0.000113
 31 32  3 0.000113
 29 35  3 0.000113
 32 36  3 0.000113
 35 37  4 0.000113
 34 36  4 0.000113
 37 39  3 0.000113
 38 40  3 0.000113
 39 40 16 0.000113
pret    155760.    126000.
  43    0.00285
  44    0.00360
  45    0.00285
  46    0.00225
  47    0.00285
  48    0.00360
  49    0.00285
  50    0.00225
63 64 10 0.00135
  51    0.00555
  52    0.00555
  53    0.00555
  54    0.00555
  55    0.00555
  56    0.00555
  57    0.00555
  58    0.00555
  59    0.00555
  60    0.00555
  61    0.00555
  62    0.00555
calc
```

```
CARACTERISTICAS DE LA SECCION    1   A     0.000
================================================

AREA       13.233459

CANTO          2.6990        14.0000

C.G.           1.6773         0.0000

V              1.0217         7.0000

VP             1.6773         7.0000

I          9.14378357    92.36544800

R.G.           0.8312         2.6419
```

```
CONDICIONES DE AGOTAMIENTO DE LA SECCION

RESISTENCIA DEL HORMIGON        1          5000.
LIMITE ELASTICO DEL ACERO DE ARMAR         51000.
LIMITE ELASTICO DEL ACERO DE PRETENSAR    155760.


ANGULO DE LA FIBRA NEUTRA                0.00 GRADOS
POSICION DE LA FIBRA NEUTRA (X,Y)     0.000   1.692
CURVATURA       0.0020680
DEF. SUP.       0.0021
DEF. INF.      -0.0035

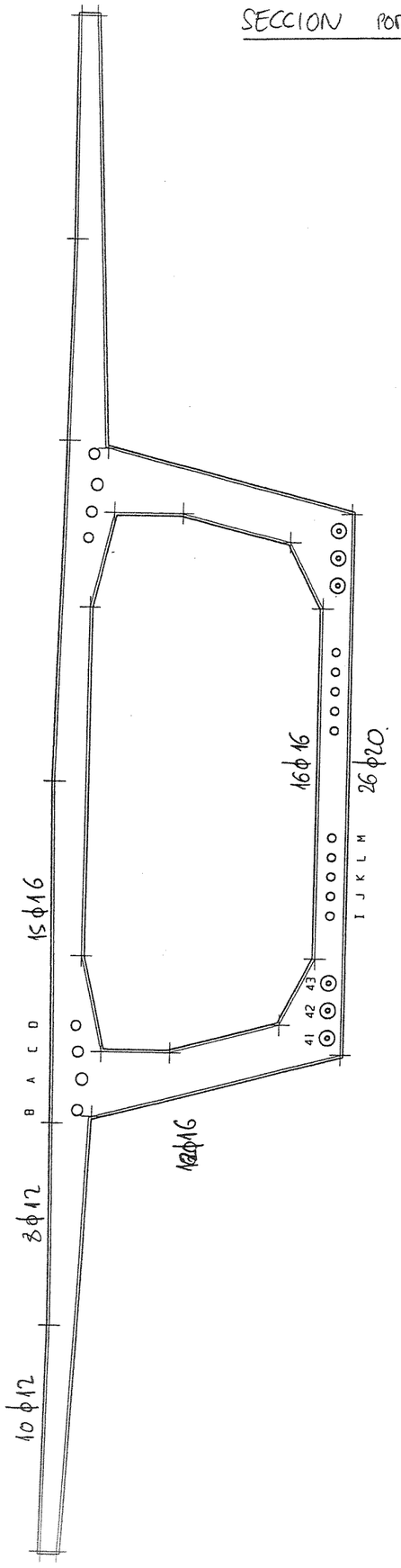
AXIL              -150.2
MOMENTO EJE X      13619.1
MOMENTO EJE Y         23.7


ANGULO DE LA FIBRA NEUTRA              180.00 GRADOS
POSICION DE LA FIBRA NEUTRA (X,Y)     0.000   2.105
CURVATURA       0.0047507
DEF. SUP.      -0.0028
DEF. INF.       0.0100

AXIL              -149.9
MOMENTO EJE X     -15079.4
MOMENTO EJE Y         128.3
```

$$Coef = \frac{13619,1}{12.030} = \ldots$$

SECCION POR C. VANO (V-45)




CARLOS FERNANDEZ CASADO, S.L.
OFICINA DE PROYECTOS

PROYECTO

HOJA

FECH

COMPROBACION A ROTURA

- Sección por centro de vano

Esfuerzos mayorados

$T_x$ = -7785 T  $M_{zd}$ = 9696 m.T

Esfuerzos isostáticos de pretensado. (T=∞)

De proceso: $T_x$ = 4577  $M_z$ = -779

De servicio: $T_x$ = -4452  $M_z$ = -6800

Esfuerzos isostáticos de pretensado (T=∞)

Totales

$T_x$ = -6952 T  $M_z$ = -5836 m.T

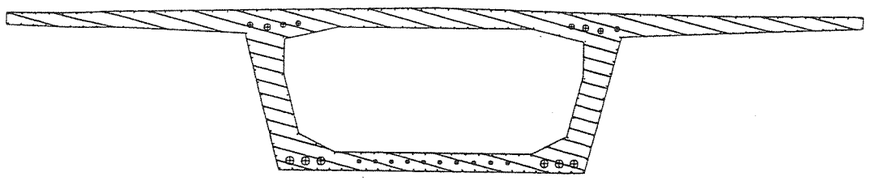
$N_d$ = -7785 + 6952 = -833 T

$M_z$ = 9696 + 5836 = 15532 m.T

Los esfuerzos no coinciden exactamente pero la variación es pequeña

Seccion por centro de vano (v-45)

ESCALA 1/100



CARACTERISTICAS DE LA SECCION 1 A 0.000

| | | |
|---|---|---|
| AREA | 7.995140 | |
| CANTO | 2.699000 | 14.000000 |
| C.G. | 1.713939 | 0.000001 |
| V | 0.985061 | 7.000000 |
| VP | 1.713939 | 7.000000 |
| I | 7.530937 | 78.667831 |
| R.G. | 0.970536 | 3.136791 |



Seccion por centro de vano (v-45)

secc horm

| punt | | |
|---|---|---|
| 1 | -4.9500 | 2.6000 |
| 2 | -7.0000 | 2.6000 |
| 3 | 0.0000 | 2.6990 |
| 4 | 4.9500 | 2.6000 |
| 5 | 7.0000 | 2.6000 |
| 6 | 7.0000 | 2.4000 |
| 7 | 3.0890 | 2.2556 |
| 8 | 2.5000 | 0.0000 |
| 9 | -2.5000 | 0.0000 |
| 10 | -3.0890 | 2.2556 |
| 11 | -7.0000 | 2.4000 |
| 12 | -1.6000 | 2.3646 |
| 13 | 1.6000 | 2.3646 |
| 14 | 2.4500 | 2.1646 |
| 15 | 2.4500 | 1.5896 |
| 16 | 2.1916 | 0.6000 |
| 17 | 1.6000 | 0.3000 |
| 18 | -1.6000 | 0.3000 |
| 19 | -2.1916 | 0.6000 |
| 20 | -2.4500 | 1.5896 |
| 21 | -2.4500 | 2.1646 |
| 22 | -6.9750 | 2.5750 |
| 23 | -4.9495 | 2.5750 |
| 24 | -3.1280 | 2.6114 |
| 25 | 0.0000 | 2.6740 |
| 26 | 3.1280 | 2.6114 |
| 27 | 4.9495 | 2.5750 |
| 28 | 6.9750 | 2.5750 |
| 29 | -6.9750 | 2.4249 |
| 30 | -3.0616 | 2.2546 |
| 31 | -2.4750 | 2.1844 |
| 32 | -1.6029 | 2.3896 |
| 33 | 1.6029 | 2.3896 |
| 34 | 2.4750 | 2.1844 |
| 35 | 3.0616 | 2.2546 |
| 36 | 6.9750 | 2.4249 |
| 37 | -2.4750 | 1.5644 |
| 38 | 2.4750 | 1.5644 |
| 39 | -2.2129 | 0.5828 |
| 40 | 2.2129 | 0.5828 |
| 41 | -1.6069 | 0.2750 |
| 42 | 1.6069 | 0.2750 |
| 43 | -2.4792 | 0.0250 |
| 44 | 2.4792 | 0.0250 |
| 45 | -3.0074 | 2.3882 |
| 46 | -2.7274 | 2.3538 |
| 47 | -2.4774 | 2.3994 |
| 48 | -2.2374 | 2.4242 |
| 49 | 2.2374 | 2.4242 |
| 50 | 2.4774 | 2.3994 |
| 51 | 2.7274 | 2.3538 |
| 52 | 3.0074 | 2.3882 |
| 53 | -2.3241 | 0.1490 |
| 54 | -2.0741 | 0.1490 |
| 55 | -1.8241 | 0.1490 |
| 56 | 1.8241 | 0.1490 |
| 57 | 2.0741 | 0.1490 |
| 58 | 2.3241 | 0.1490 |
| 59 | -1.2100 | 0.1500 |
| 60 | 1.2100 | 0.1500 |

```
horm       1.00   5000.00
   2   1   3   4   5   6   7   8   9  10  11
hp   12  13  14  15  16  17  18  19  20  21
arma     51000.
 22 23 10 0.000113
 23 24  8 0.000113
 24 25 15 0.000201
 25 26 15 0.000201
 26 27  8 0.000113
 27 28 10 0.000113
 29 30 20 0.000079
 35 36 20 0.000079
 30 43 12 0.000201
 35 44 12 0.000201
 43 44 26 0.000314
 32 33 16 0.000113
 31 32  3 0.000113
 33 34  3 0.000113
 31 37  3 0.000113
 34 38  3 0.000113
 37 39  4 0.000113
 38 40  4 0.000113
 39 41  3 0.000113
 40 42  3 0.000113
 41 42 16 0.000201
 pret   155760.   126000.
   45   0.00285
   46   0.00360
   47   0.00285
   48   0.00225
   49   0.00285
   50   0.00360
   51   0.00285
   52   0.00225
 59 60 10 0.00135
   53   0.00555
   54   0.00555
   55   0.00555
   56   0.00555
   57   0.00555
   58   0.00555
 calc
```

CARACTERISTICAS DE LA SECCION 1 A 0.000

| | | |
|---|---|---|
| AREA | 7.995140 | |
| CANTO | 2.6990 | 14.0000 |
| C.G. | 1.7139 | 0.0000 |
| V | 0.9851 | 7.0000 |
| VP | 1.7139 | 7.0000 |
| I | 7.53093719 | 78.66783142 |
| R.G. | 0.9705 | 3.1368 |

CONDICIONES DE AGOTAMIENTO DE LA SECCION

| | |
|---|---|
| RESISTENCIA DEL HORMIGON 1 | 5000. |
| LIMITE ELASTICO DEL ACERO DE ARMAR | 51000. |
| LIMITE ELASTICO DEL ACERO DE PRETENSAR | 155760. |

| | | |
|---|---|---|
| ANGULO DE LA FIBRA NEUTRA | 0.00 GRADOS | |
| POSICION DE LA FIBRA NEUTRA (X,Y) | 0.000 | 1.162 |
| CURVATURA | 0.0030114 | |
| DEF. SUP. | 0.0046 | |
| DEF. INF. | -0.0035 | |
| AXIL | 111.3 | |
| MOMENTO EJE X | 7726.7 | |
| MOMENTO EJE Y | 88.0 | |

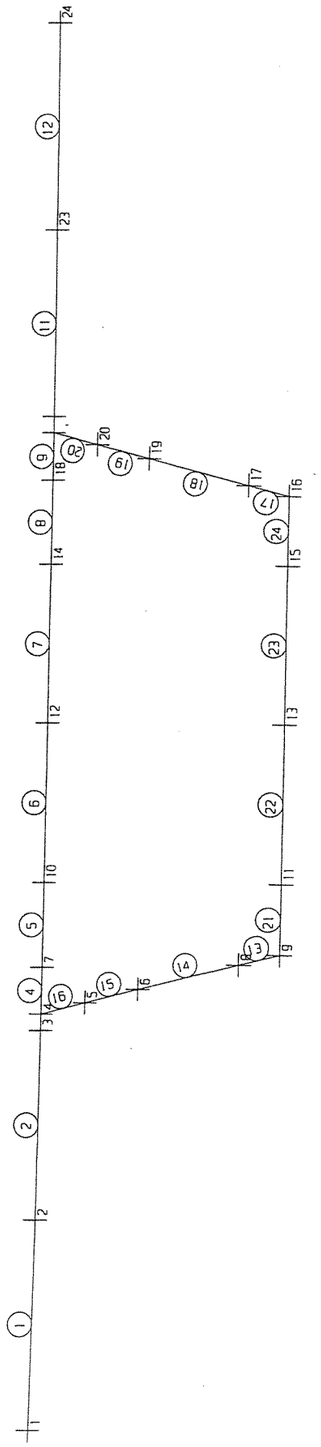
| | | |
|---|---|---|
| ANGULO DE LA FIBRA NEUTRA | 180.00 GRADOS | |
| POSICION DE LA FIBRA NEUTRA (X,Y) | 0.000 | 2.233 |
| CURVATURA | 0.0044777 | |
| DEF. SUP. | -0.0021 | |
| DEF. INF. | 0.0100 | |
| AXIL | 112.3 | |
| MOMENTO EJE X | -16809.2 | |
| MOMENTO EJE Y | 85.2 | |

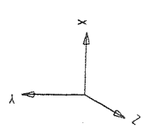
$Coef = \frac{16809}{15531} = 1.08$

# ESTUDIO DE LA FLEXIÓN TRANSVERSAL DEL TABLERO

# MODELO ESTRUCTURAL

estr Flexion transversal (v-45)






**CARLOS FERNANDEZ CASADO, S.L.**
OFICINA DE PROYECTOS

HOJA _____ DE _____

PROYECTO _____ FECHA _____

## CARACTERISTICAS DE BARRAS (V-45)

- Barras 1 y 12

  b = 1,00 ; h = 0,21 ; Ax = 0,21 m² ; Ay = 0,18 m² ; Iz = 0,000077 m⁴

- Barras 2 y 11

  b = 1,00 ; h = 0,32 ; Ax = 0,32 m² ; Ay = 0,27 m² ; Iz = 0,00273 m⁴

- Barras 3 y 4, 9 y 10, 21 y 24, 15 y 19

  b = 1,00 ; h = 0,50 ; Ax = 0,50 m² ; Ay = 0,42 m² ; Iz = 0,01042 m⁴

- Barras 5 y 8

  b = 1,00 ; h = 0,40 ; Ax = 0,40 m² ; Ay = 0,34 m² ; Iz = 0,00533 m⁴

- Barras 6 y 7, 22 y 23

  b = 1,00 ; h = 0,30 ; Ax = 0,30 m² ; Ay = 0,25 m² ; Iz = 0,00225 m⁴

- Barras 13 y 17

  b = 1,00 ; h = 0,70 ; Ax = 0,70 m² ; Ay = 0,59 m² ; Iz = 0,02858 m⁴

- Barras 14 y 18

b = 1,00 ; h = 0,45 ; $A_x = 0,45 m^2$ ; $A_y = 0,38 m^2$ ; $I_z = 0,00759 m^4$

- Barras 16 y 20

b = 1,00 ; h = 1,00 ; $A_x = 1,00 m^2$ ; $A_y = 0,85 m^2$ ; $I_z = 0,08333 m^4$

# HIPÓTESIS DE CARGAS

ACCIONES

- Peso Propio

gravedad

| | | |
|---|---|---|
| 1 a 12 | 0. | -1. |
| 14 a 16 | 0. | -1. |
| 19 a 21 | 0. | -1. |
| 23 a 26 | 0. | -1. |

- Carga Muerta

a/ Balasto

| | | | | |
|---|---|---|---|---|
| 2 | fran y unif | $-1,60 \times 1,06 = -1,696$ | $\rightarrow -0,908$ | |
| 3 | " | $-1,60 \times 0,11 = -0,176$ | $\rightarrow -0,863$ | |
| 4 | " | $-1,60 \times 0,21 = -0,336$ | $\rightarrow -0,785$ | |
| 5 | " | $-1,60 \times 0,36 = -0,576$ | $\rightarrow -0,678$ | |
| 6 | " | $-1,60 \times 0,70 = -1,120$ | $\rightarrow -0,700$ | |
| 7 | " | $-1,60 \times 0,89 = -1,424$ | $\rightarrow -0,890$ | |
| 8 | " | $-1,60 \times 0,41 = -0,656$ | $\rightarrow -0,772$ | |
| 9 | " | $-1,60 \times 0,19 = -0,304$ | $\rightarrow -0,710$ | |
| 10 | " | $-1,60 \times 0,08 = -0,128$ | $\rightarrow -0,627$ | |
| 11 | | $-1,60 \times 0,62 = -0,992$ | $\rightarrow -0,531$ | |

b/ Traviesas + carriles = $0,52 + 0,12 = 0,64$ Tn/m

$\frac{0,64}{3,50} = 0,183$ Tn/m²  $\frac{0,64}{3,53} = 0,181$ Tn/m².

| | | | | | |
|---|---|---|---|---|---|
| 2 | fran y unif | $-0,183 \times (1,03 = -0,188)$ | $-1,03$ | 0. | |
| 3 | " | " $\times (0,20 = -0,037)$ | | | |
| 4 | " | " $\times (0,43 = -0,079)$ | | | |
| 5 | " | " $\times (0,85 = -0,155)$ | | | |
| 6 | " | " $\times (0,98 = -0,179)$ | 0. | 0,98 | |
| 7 | " | $-0,181 \times (1,23 = -0,223)$ | $-1,23$ | 0. | |
| 8 | " | " $\times (0,85 = -0,154)$ | | | |
| 9 | " | " $\times (0,43 = -0,078)$ | | | |
| 10 | " | " $\times (0,20 = -0,036)$ | | | |
| 11 | " | " $\times (0,81 = -0,147)$ | 0. | 0,81 | |



c/ Paseos = 0,385 Tn/m.

| | | | | | |
|---|---|---|---|---|---|
| 1 | fran y unif | $-0,335$ | 0,30 | 1,45 | |
| 12 | " | | 0,60 | 1,75 | |

d/ Cableados = 0,30 Tn/m

| | | | | | |
|---|---|---|---|---|---|
| 1 | fran y unif | $-0,500$ | 1,45 | 2,05 | |
| 12 | " | " | 0.00 | 0,60 | |

e/ Impostas y barandillas = 0,34 Tn/m.

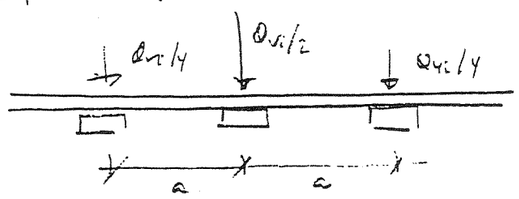
| | | | | | |
|---|---|---|---|---|---|
| 1 | fran y unif | $-1,133$ | 0,00 | 0,30 | |
| 12 | " | " | 1,75 | 2,05 | |

CARGAS CONCENTRADAS EQUIVALENTES

- Al estudiar los efectos locales con un modelo de Sap se pueden introducir los efectos de las cargas puntuales o concentradas en cada dirección equivalente

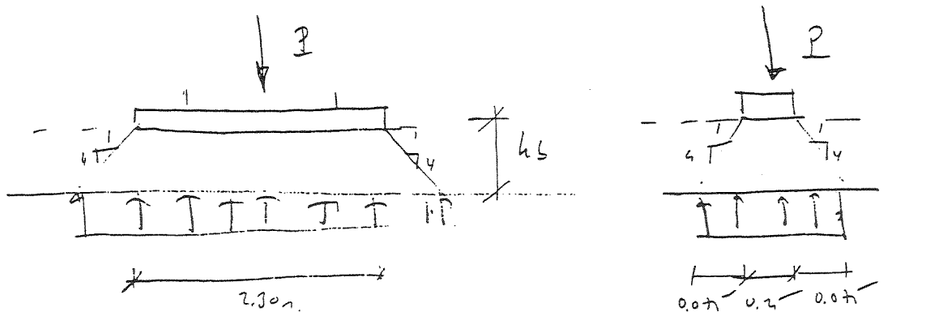
- El reparto de cargas lo entendemos conforme a lo propuesto en el EC-1 ó el IAP-98

* Reparto longitudinal del carril a las traviesas




Consideramos a=0.60m.

* Reparto longitudinal y transversal de las traviesas al balasto




hs=0.30m:



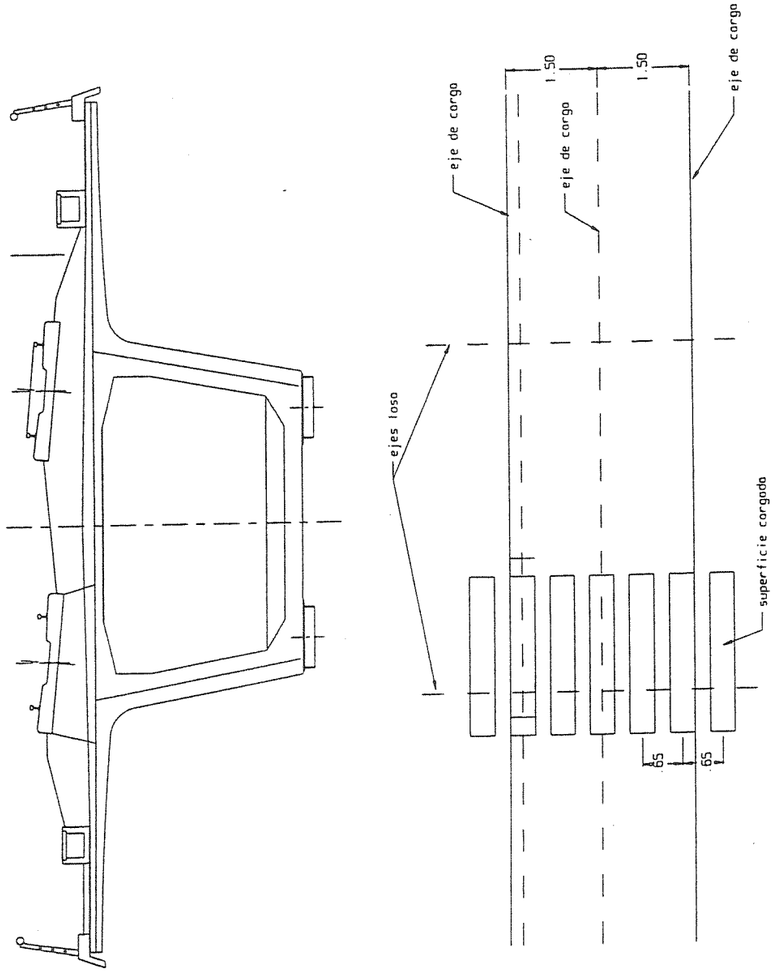
Según fotos adjuntas, las cargas concentradas por traviesa son las siguientes

| MODELO | Carga Inicial | Carga traviesa | Peso (T/m) |
|---|---|---|---|
| IAPF-96 (Ap. A) | 30T | 15.T | 23. |
| EC-1 Ln.71 | 25T | 12.5 | 19.2 |

Por tanto los modelos de cargas concentradas son más desfavorables en lo que a efectos locales se refiere que los comprendidos cargas repartidas:

IAPF.96 12T/m.

EC.1. (SW.2) 15T/m.

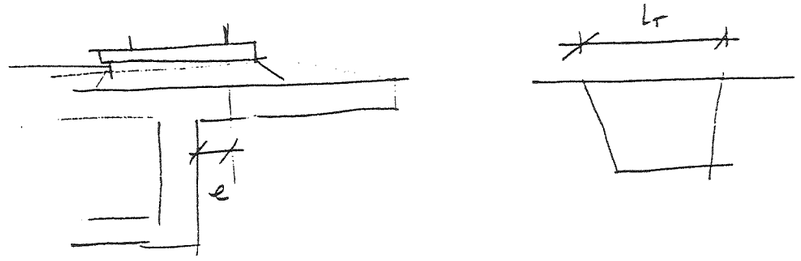



CARLOS FERNANDEZ CASADO, S.L.
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HOJA _____ DE _____

PROYECTO _____ FECHA _____

- CALCULO DE LOS COEFICIENTES DE IMPACTO - EC1.




. De acuerdo - EC1 si $e < 0.50 m \Rightarrow L_\phi = 3 \cdot L_T$

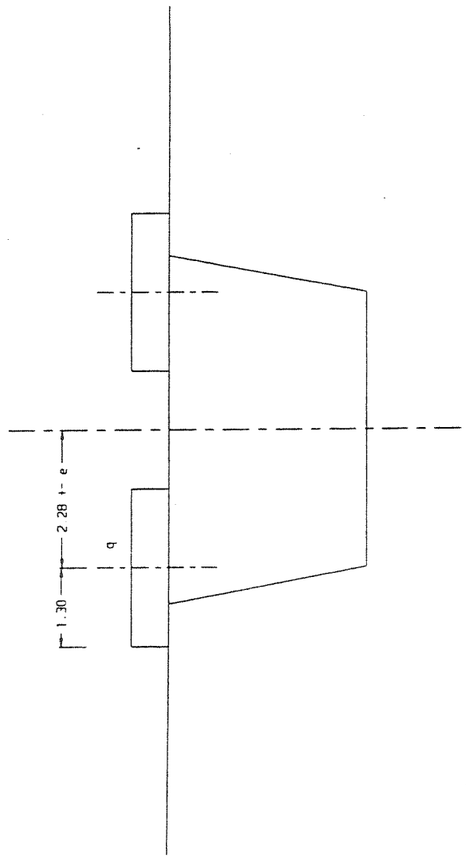
. $L_T = 5.76 m$ $\quad L_\phi = 3 \cdot 5.76 = 17.28 m.$

$$\phi_2 = \frac{1.44}{\sqrt{L_\phi} - 0.2} + 0.82 = \frac{1.44}{\sqrt{17.3} - 0.2} + 0.82 = \underline{1.18}$$

- CALCULO COEFICIENTE DE IMPACTO. IAPF-7

$L \leq 6.0$ $\quad I = 33.15^2 \; V = 66 \Rightarrow i = 1.66$

$V = 200 km/h$






SOBRECARGAS DE USO

a) Cargas verticales

$$q = \pm \frac{P/2}{0.67 \cdot 2.60}$$

| Modelo de carga | P | q (T/m²) |
|---|---|---|
| Perfil tipo-A | 30 | 14.72 |
| HCL - LM 71 | 25 | 8.73 |

- Todas las vigas excepto 2 $e = \pm 0.00$
- Vigas 2 $e = \pm (0.30 + \underline{0.24})$

Sobrecargas en pretiles

| | |
|---|---|
| IPE-270 | 0.40 T/m² |
| EC-1 | 0.50 T/m² |

b) Cargas horizontales

b.1) Fuerza centrífuga

| | | | | |
|---|---|---|---|---|
| IPE-270 | V = 200 km/h | R = 720 | $f_c = 0.043 \cdot q = 0.043 \cdot \frac{14.72}{1.66} =$ | 0.382 T/m |
| HEA-1 | V = 350 km/h | R = 2750 | $f = 0.049$ $q = 0.049 \frac{8.73}{1.18} =$ | 0.[illegible] T/m |
| | | $f = 0.17$ | | |

$f_c = 0.043 \cdot 14.72 = 0.647$ T/m

b.2) Fuerzas Lajas

JF.F. 35 Fl. 35T $q_L = \frac{J}{2.60} = \frac{192\ T/m.}{30} = 0.064$
en 30m (transversales)

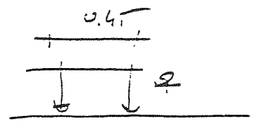
E7.1 Fl. 10T $q_L = \frac{10}{2.60} = \frac{384\ T/m.}{64} = 0.60$
en 64m (transversales)



SOBRECARGAS DE DESCARGA/APOYO

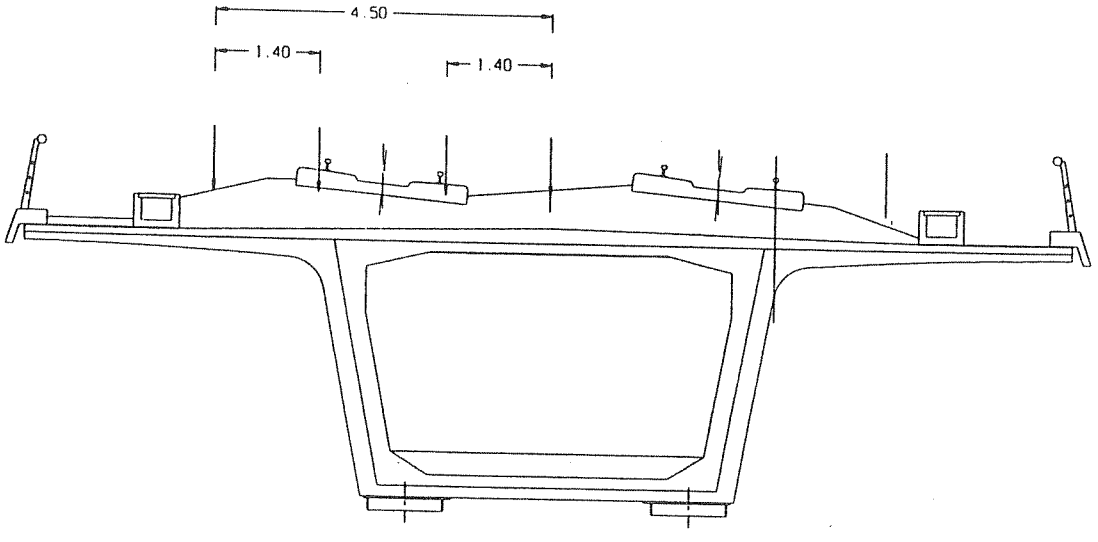
- Hipótesis de Cálculo I $q_{cld} = 5\ T/m.$
- Hipótesis de Cálculo II $q_{cnd} = 8\ T/m.$

Hipótesis I

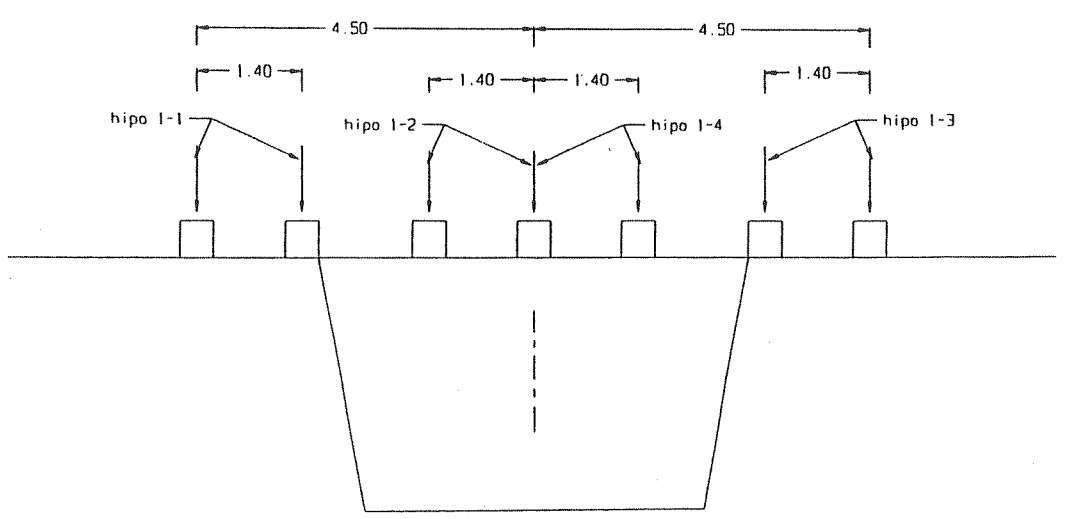



$q = \frac{J}{0.4T} = 11,11\ T/m$

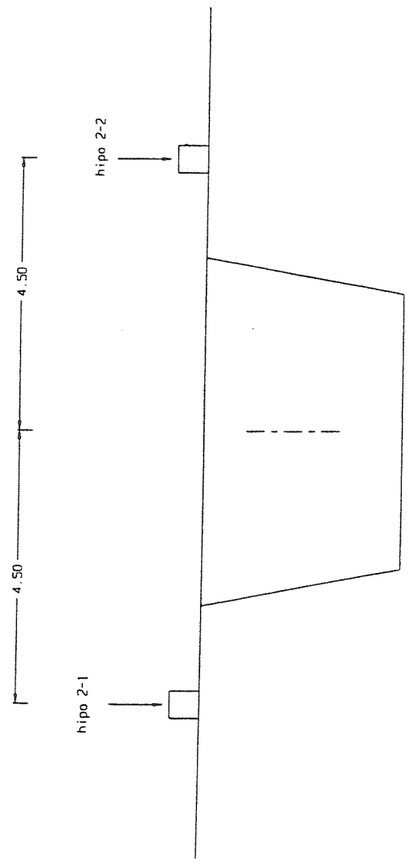
Hipótesis II $q = \frac{8}{0.4T} = 17.78\ T/m.$




hipotesis de descarrilamiento




hipotesis de descarrilamiento - 1




hipotesis de descarrilamiento - 2

**CARLOS FERNANDEZ CASADO, S.L.**
OFICINA DE PROYECTOS

HOJA ___ DE ___

PROYECTO _____ FECHA _____

SOBRECARGA DE VIA

Solicitación JPT-77 1.1

2 fuerzas mayoradas −14.73 1.06 −0.01

Σ = fuerzas mayoradas −14.73

−14.73 . 0.[illegible]

1.2 (Hipótesis 2)

0.82 −0.01

0. 0.09

SOLICITACION JPT-77 1.2

2. fuerzas mayoradas −[illegible] 1.06 −0.01

Σ = fuerzas mayoradas −14.[illegible]

−14.73 0. 1.[illegible]

1.2 (Hipótesis 2)

—

Σ = 3.05

0 0.90

SOLICITACION JPT-77 2.1

7 fuerzas mayoradas −14.73 −0.[illegible] −0.01

Σ = 8.90 −14.73

11 −14.73 0. −1.06

2.1 (Hipótesis 2)

−0.[illegible] −0.01

0 −0.85

INFLUENCIA 2.2

[illegible] −14.[illegible] −0.[illegible] −0.01

Σ = 8.15 −14.[illegible]

11 −14.[illegible] = −1.16

2.2 (Hipótesis 2)

−0.[illegible] −0.01

—

Las hipótesis 2.1 resultan 14.73 y 8.[illegible].

CARLOS FERNANDEZ CASADO, S.L.
OFICINA DE PROYECTOS

PROYECTO _____

HOJA ____ DE ____

FECHA _____

Hipótesis descimlement 1

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1.1 | 6 | -11.11 | 0.00 | 0.68 | 1.3 | 11 | -11.11 | -0.68 -0.00 |
| | 8 | -11.11 | -0.75 | -0.01 | | 11 | -11.11 | 0 0.01 |
| | 5 | -11.11 | | | | 10 | -11.11 | |
| 1.2 | 6 | -11.11 | 0. | 0.47 | 1.4 | 6 | -11.11 | -0.72 -0.01 |
| | 6 | -11.11 | -0.725 | -0.01 | | 7 | -11.11 | 0. 0.72 |
| | 7 | | 0. | 0.72 | | 7 | -11.11 | -0.47 -0.01 |

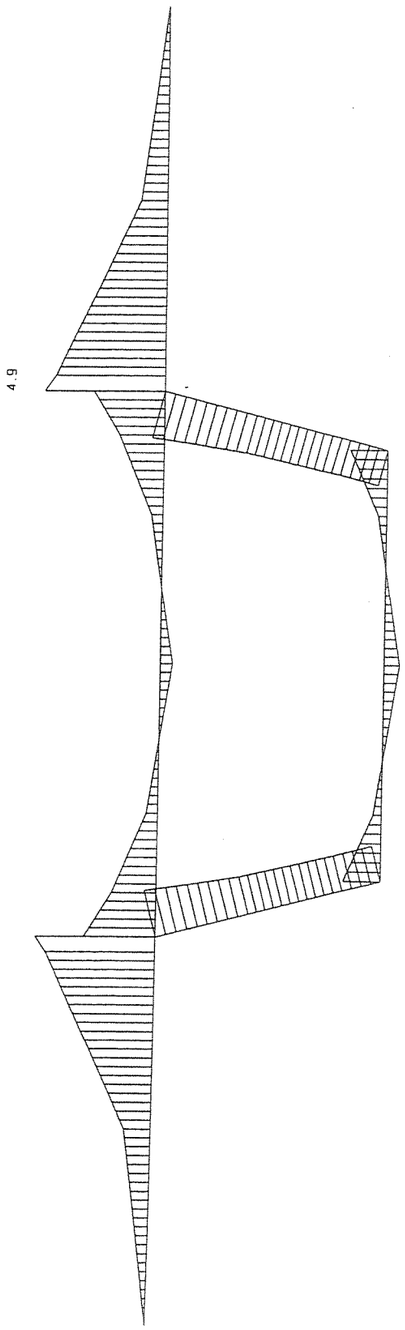
Hipótesis descimlement 2

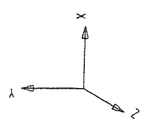
| | | | | |
|---|---|---|---|---|
| n°1 | 9 | -11.11 | 0.00 | 0.68 |
| n°2 | 11 | -11.11 | -0.68 | -0.00 |

# LEYES GRÁFICAS DE ESFUERZOS

proc Flexion transversal (v-45)
hipo 1 Peso Propio

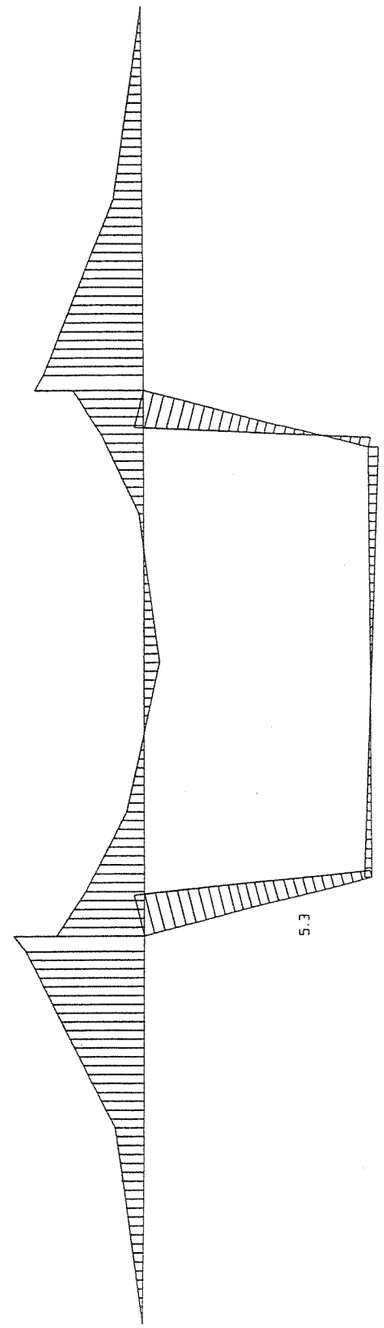
mz 2.5

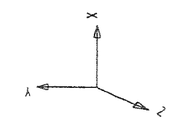


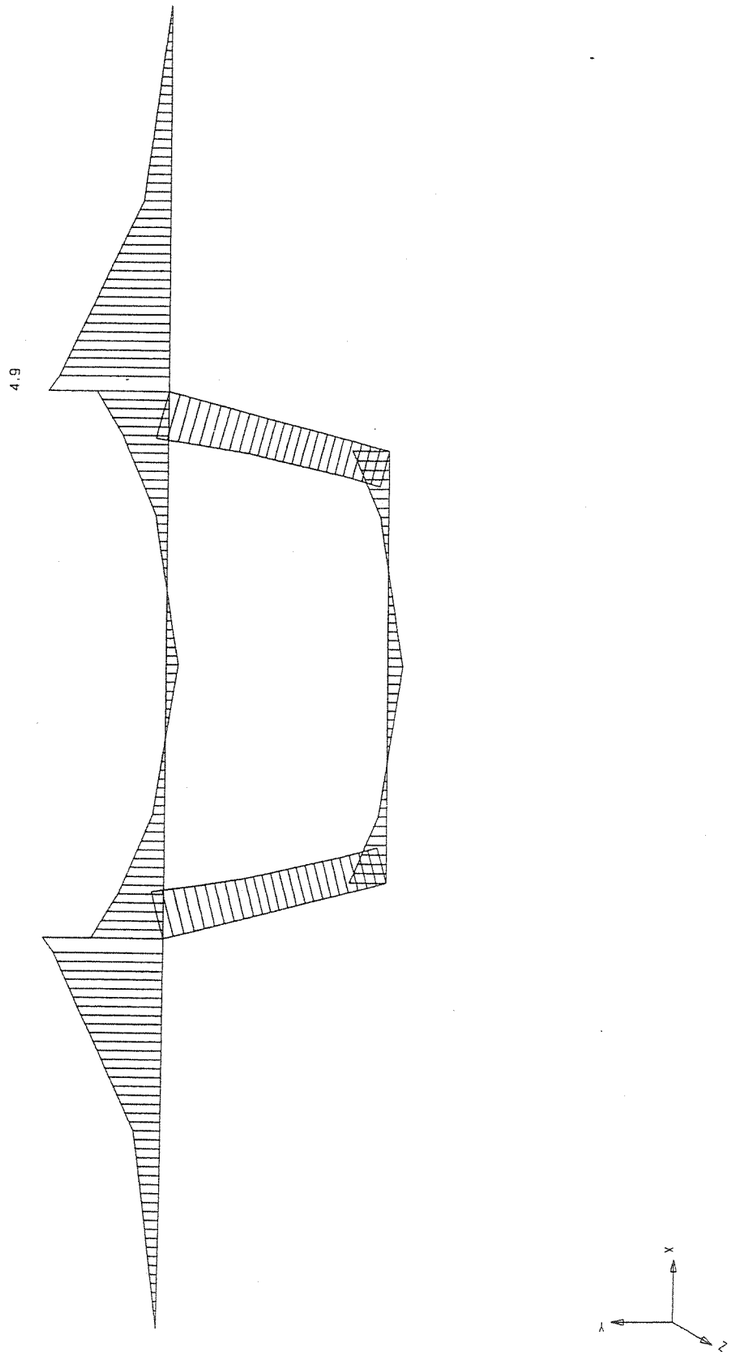

proc Flexion transversal (v-45)
hipo 2 Carga Muerta

mz 2.5

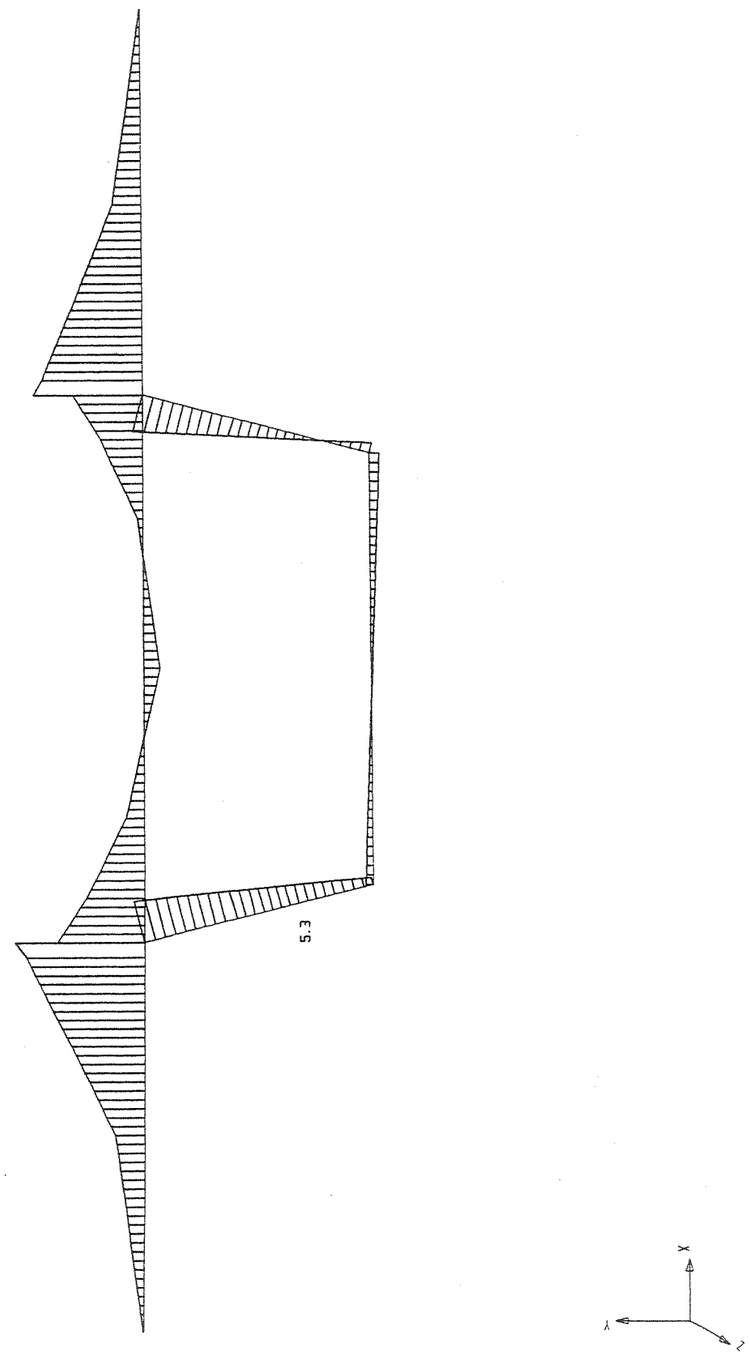


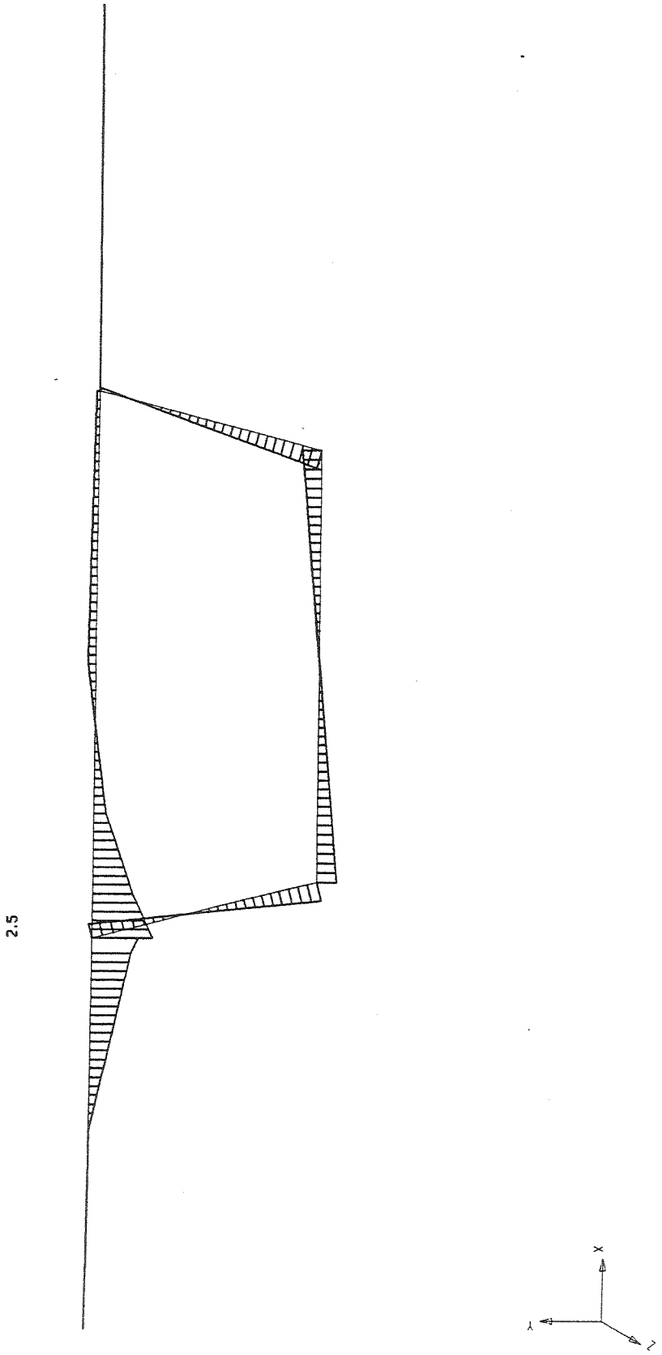
proc Flexion transversal (v-45)
hipo 1 Peso Propio mz 2.5



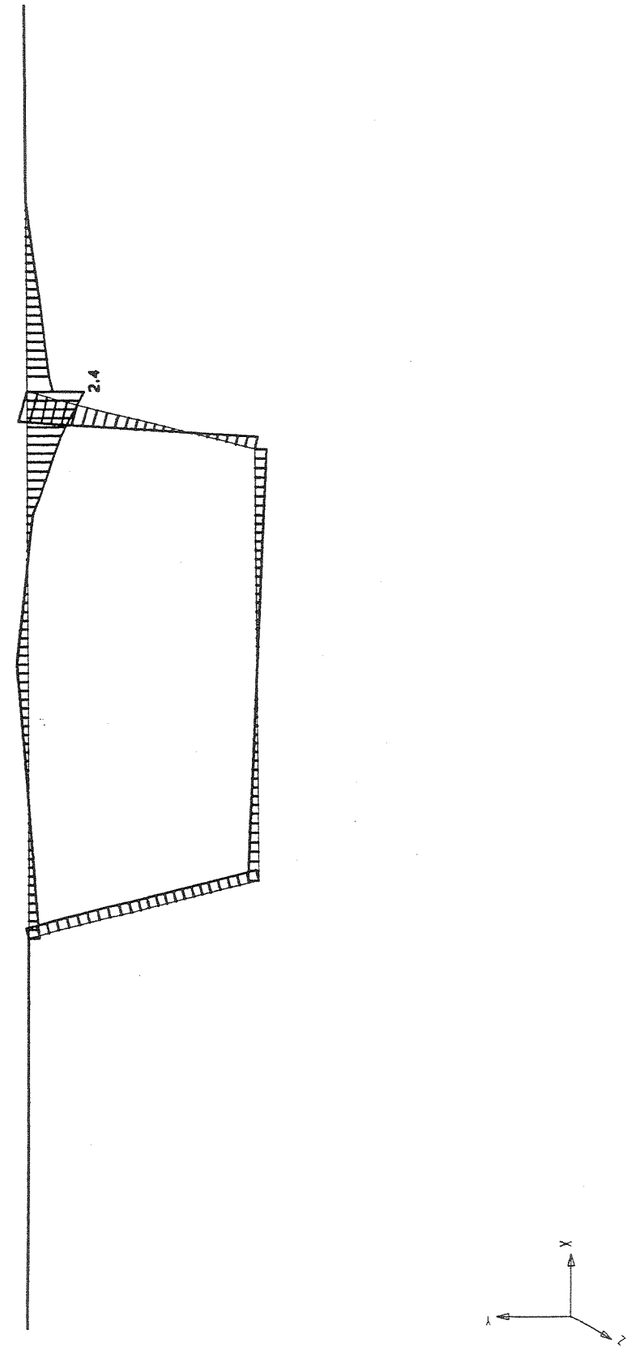

proc Flexion transversal (v-45)
hipo 2 Carga Muerta mz 2.5



proc Flexion transversal (v-45)
hipo 3 Desbalostado-1 mz 2.5

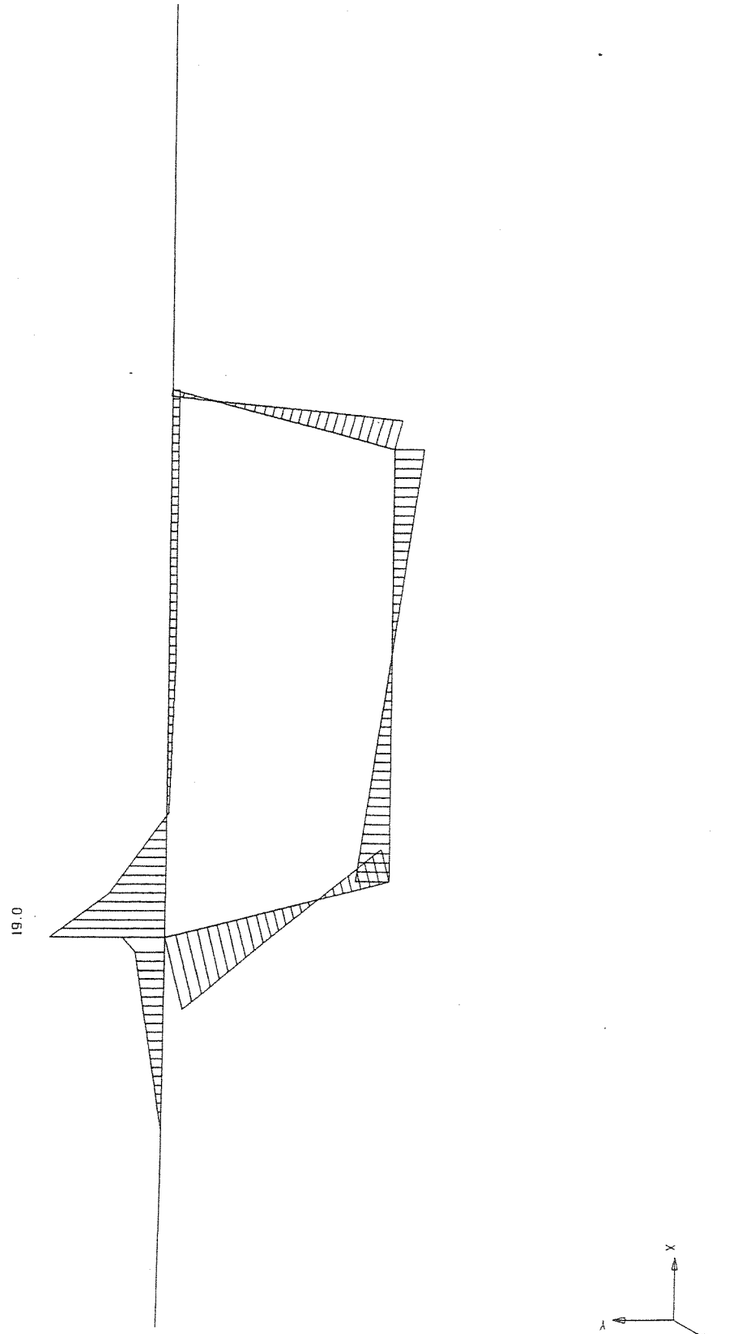



proc Flexion transversal (v-45)
hipo 4 Desbalostado-2 mz 2.5



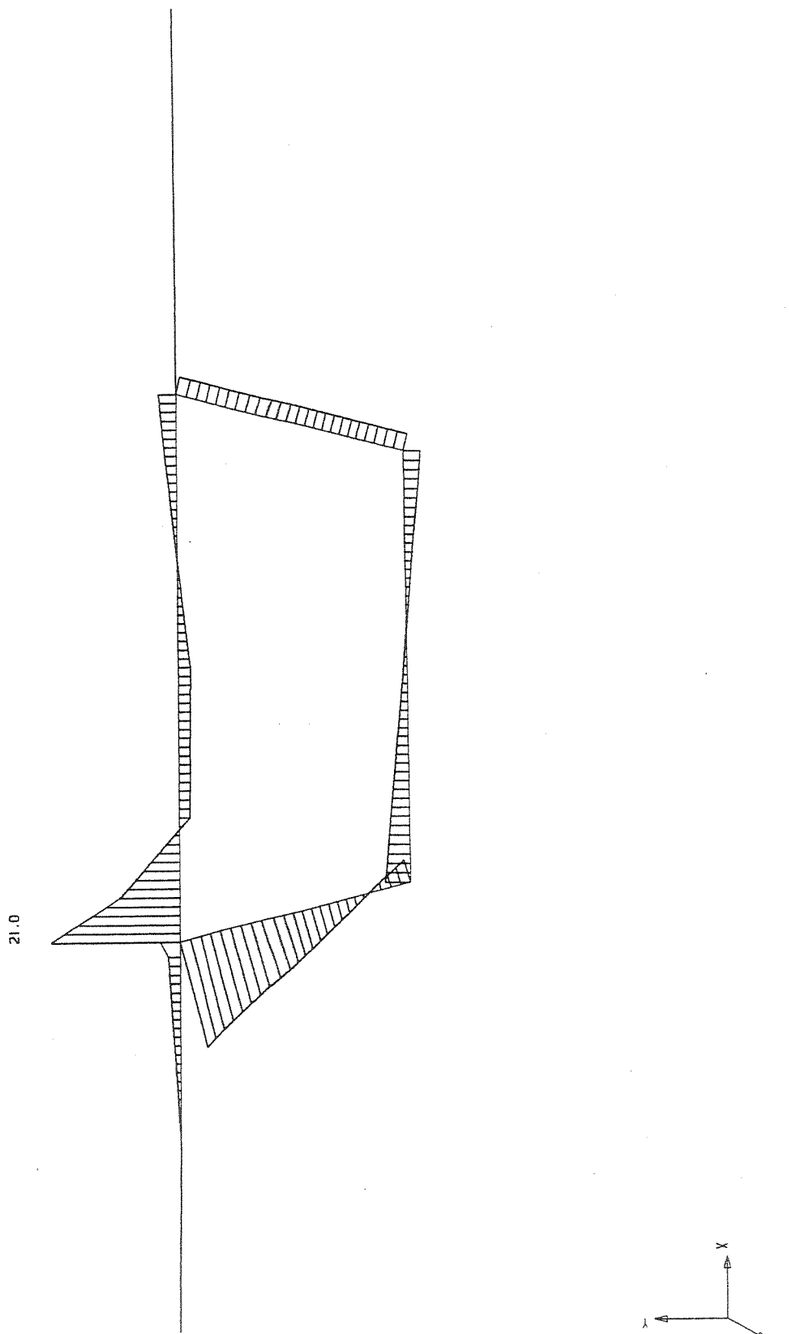
proc Flexion transversal (v-45)
hipo 11 sob-1.1 (ipf-75)

mz 10.0



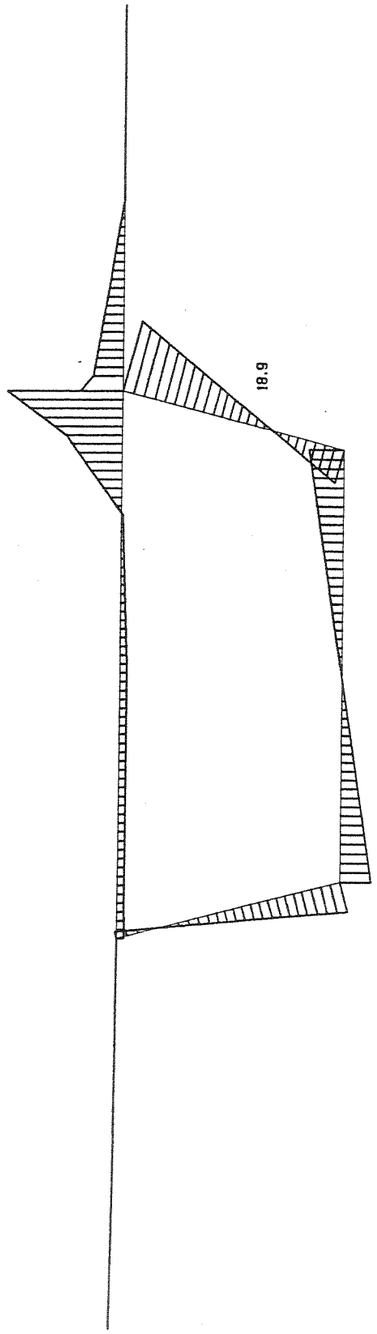

proc Flexion transversal (v-45)
hipo 12 sob-1.2 (ipf-75)

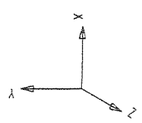
mz 10.0



proc Flexion transversal (v-45)
hipo 13 sob-2.1 (ipf-75)

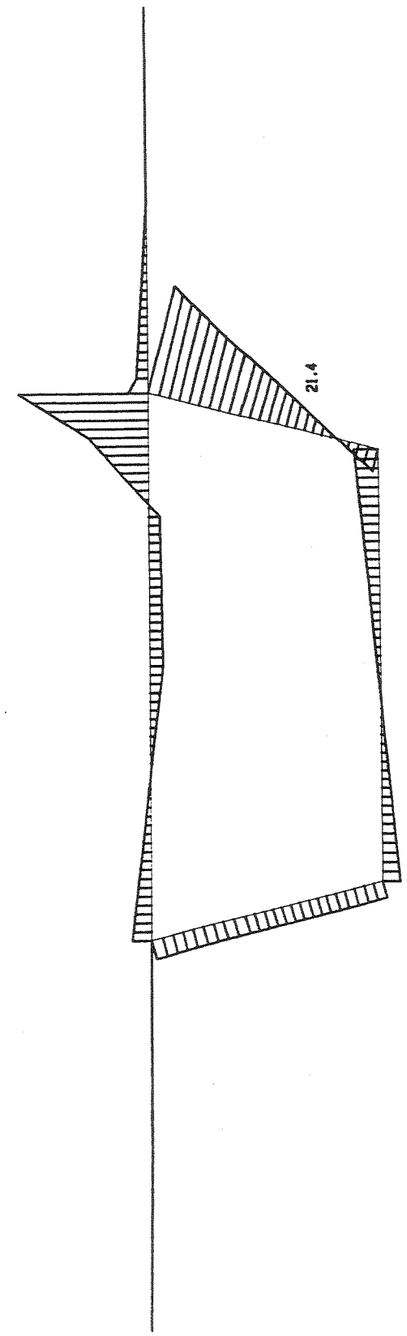
mz 10.0

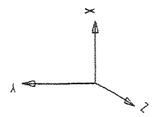



proc Flexion transversal (v-45)
hipo 14 sob-2.2 (ipf-75)

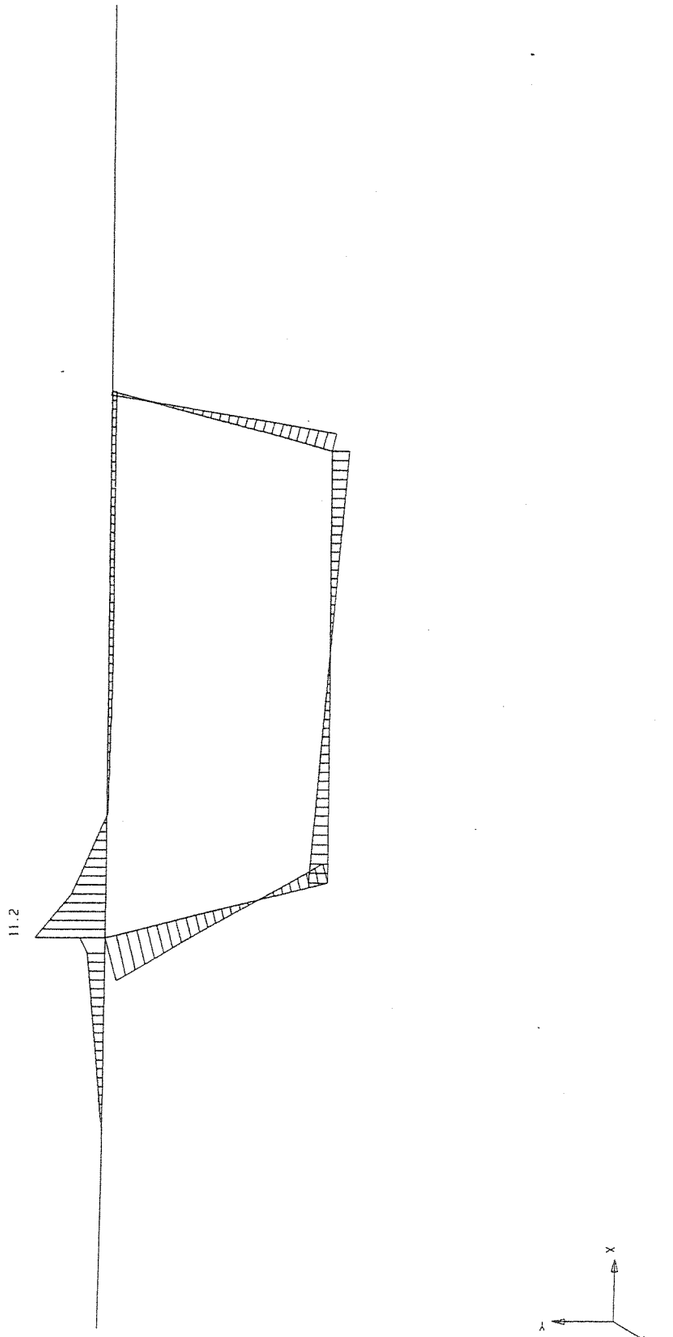
mz 10.0



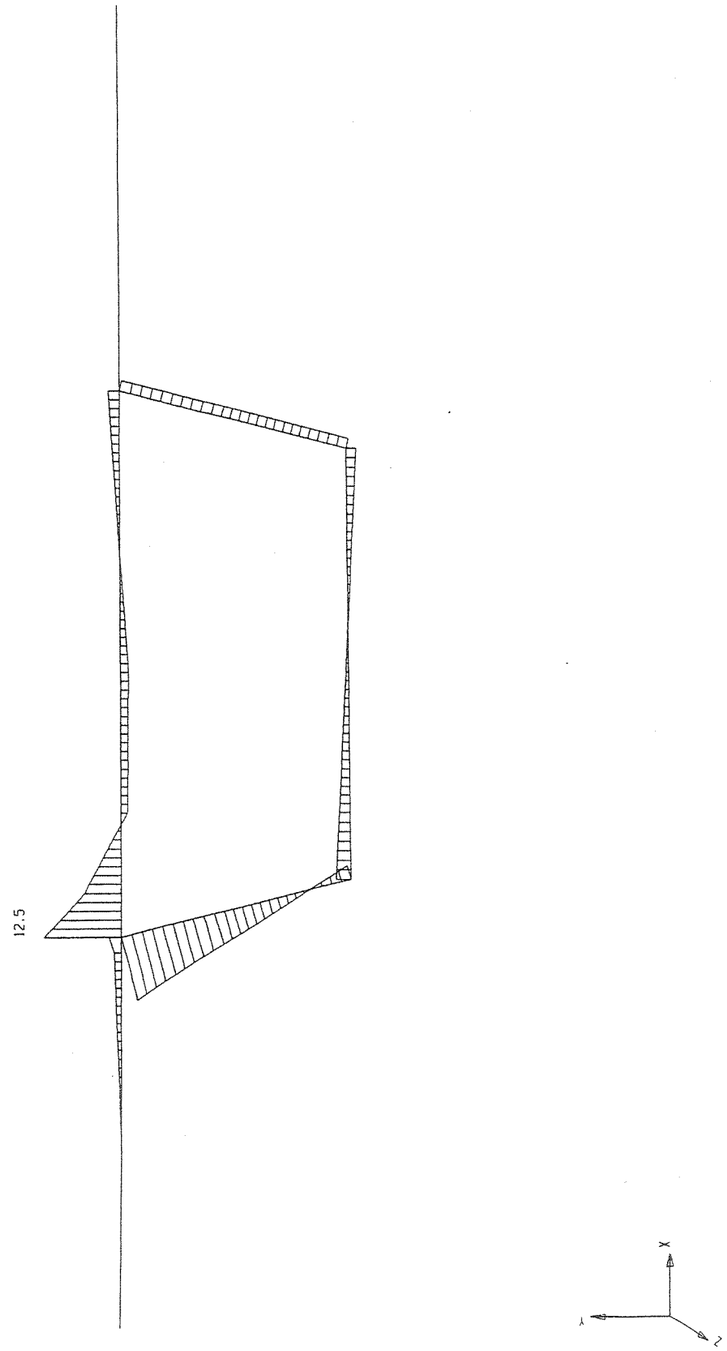
proc Flexion transversal (v-45)
hipo 15 sob-1.1 (ec-1)

mz 10.0



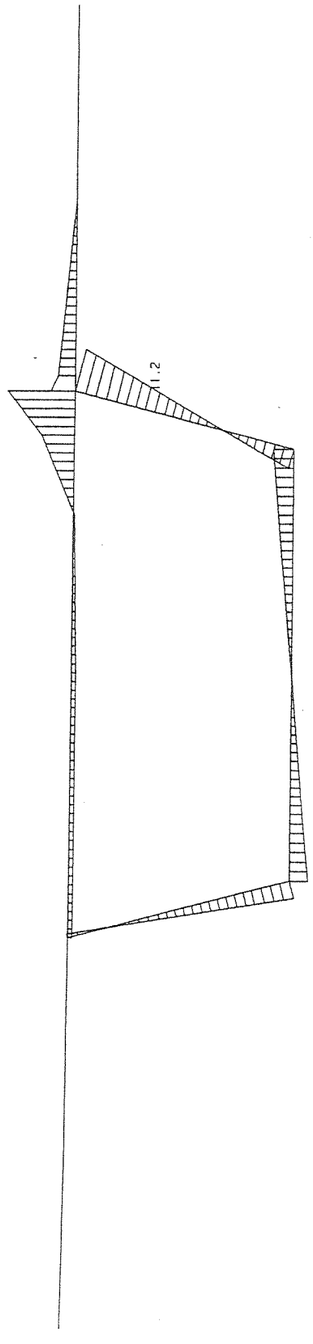

proc Flexion transversal (v-45)
hipo 16 sob-1.2 (ec-1)

mz 10.0



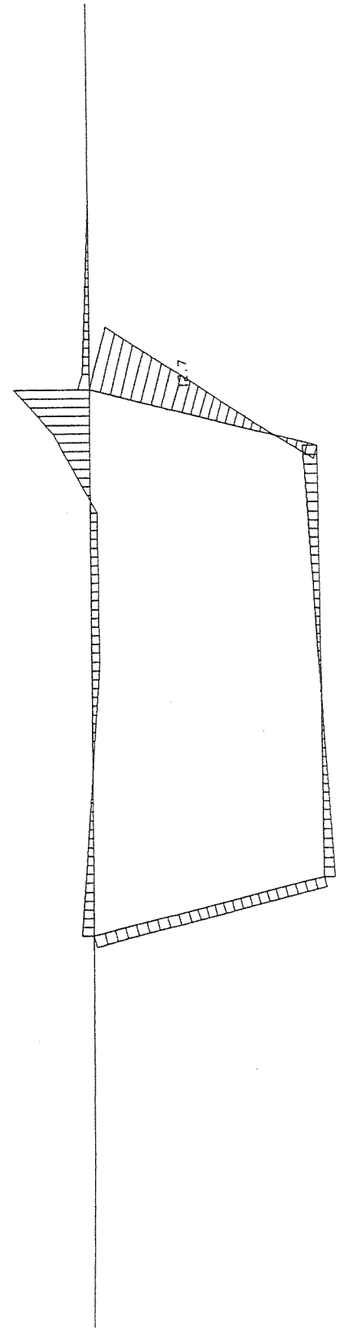
proc Flexion transversal (v-45)
hipo 17 sob-2.1 (ec-1)

mz 10.0



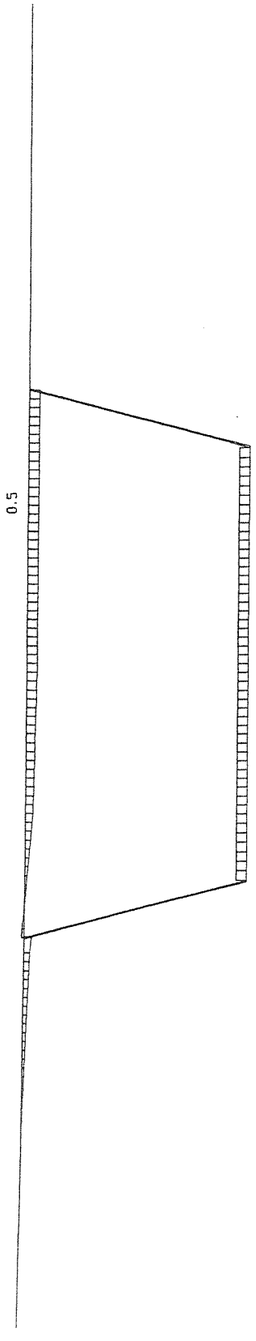

proc Flexion transversal (v-45)
hipo 18 sob-2.2 (ec-1)

mz 10.0



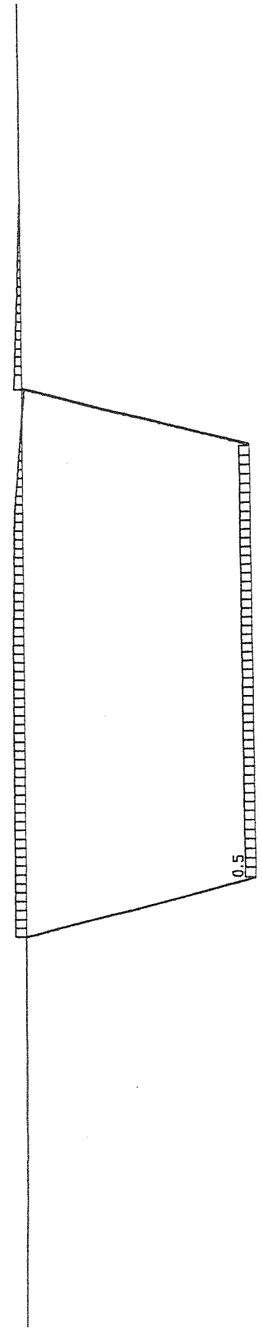
proc Flexion transversal (v-45)
hipo 19 f.cent (ipf-75) (izda)

fx 3.0

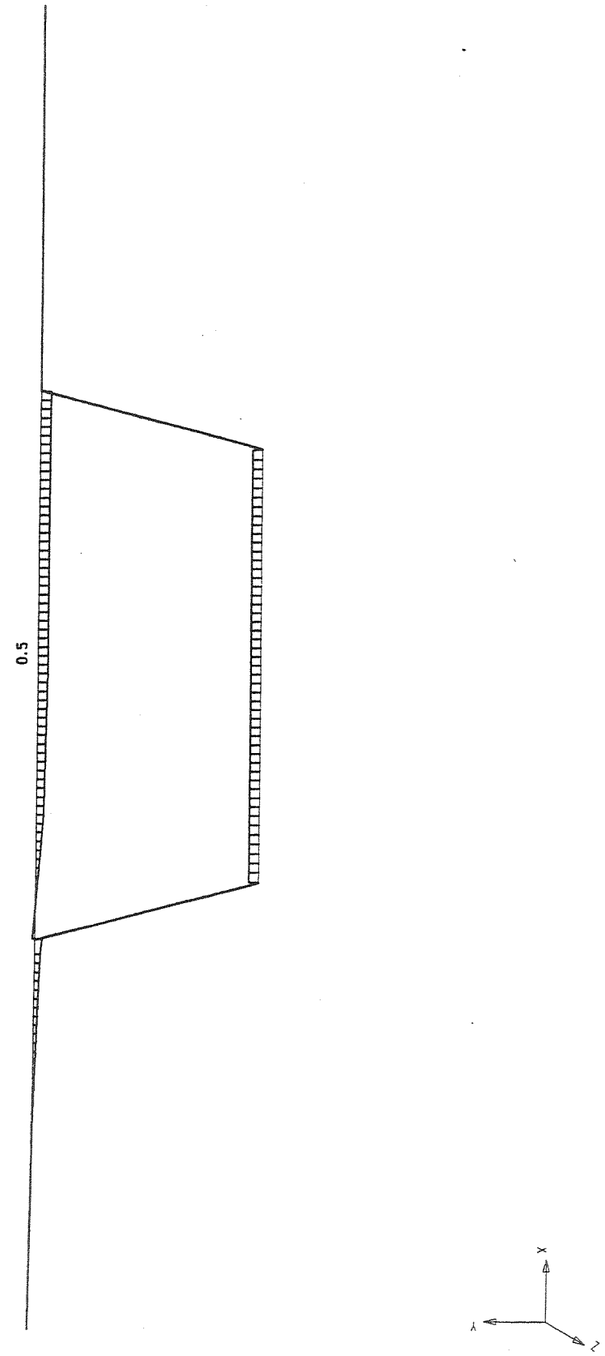



proc Flexion transversal (v-45)
hipo 20 f.cent (ipf-75) (dcha)

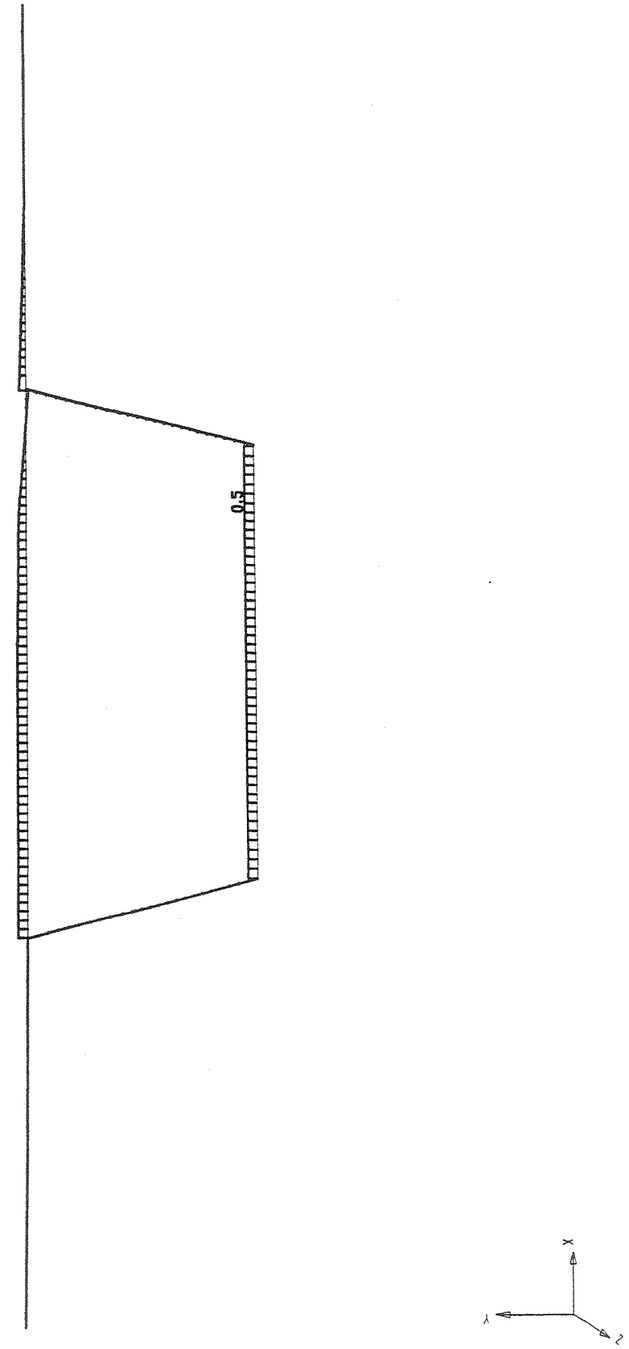
fx 3.0



proc Flexion transversal (v-45)
hipo 21 f.cent (ec-1) (izda)  fx  3.0

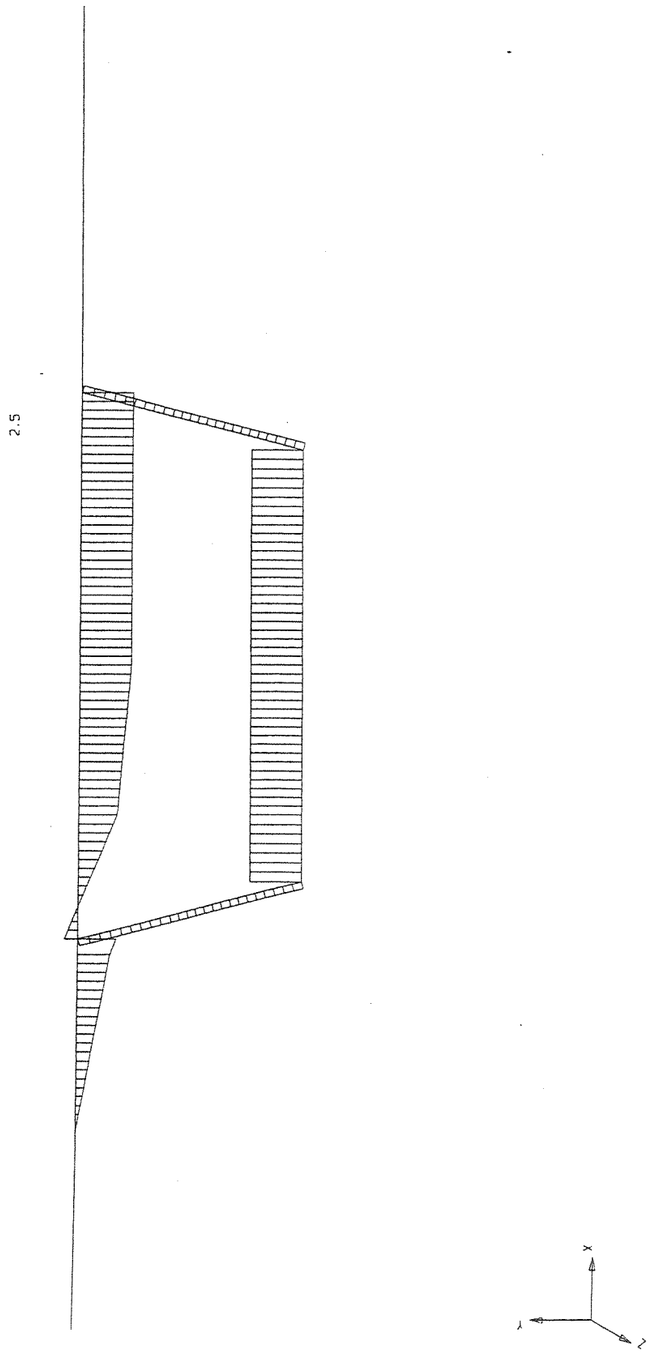



proc Flexion transversal (v-45)
hipo 22 f.cent (ec-1) (dcha)  fx  3.0



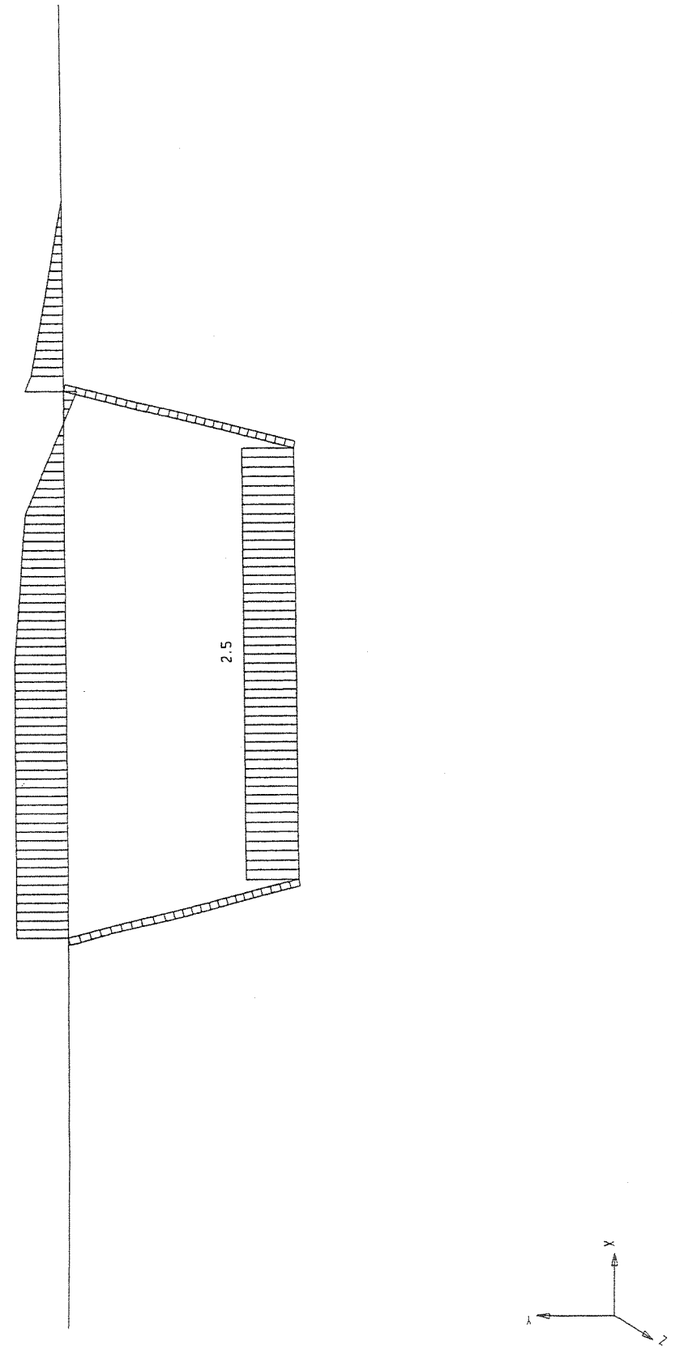
proc Flexion transversal (v-45)
hipo 23 f.lazo (ipf-75) (izda)

fx 3.0



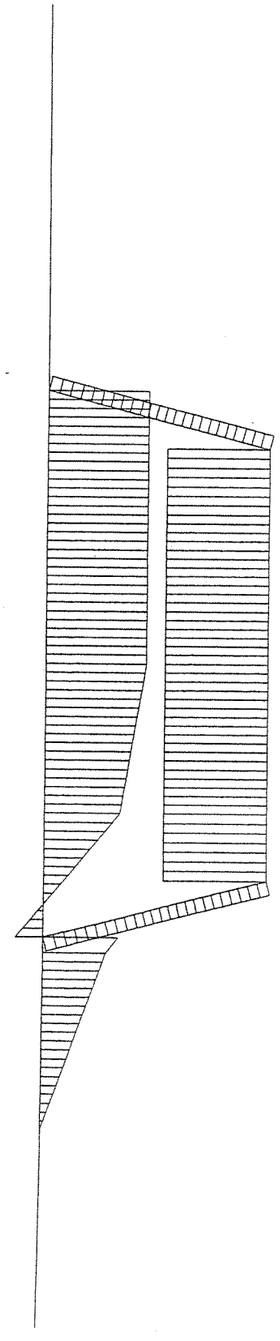

proc Flexion transversal (v-45)
hipo 24 f.lazo (ipf-75) (dcha)

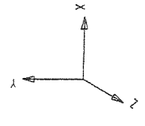
fx 3.0



proc Flexion transversal (v-45)
hipo 25 f.lazo (ec-1) (izda)

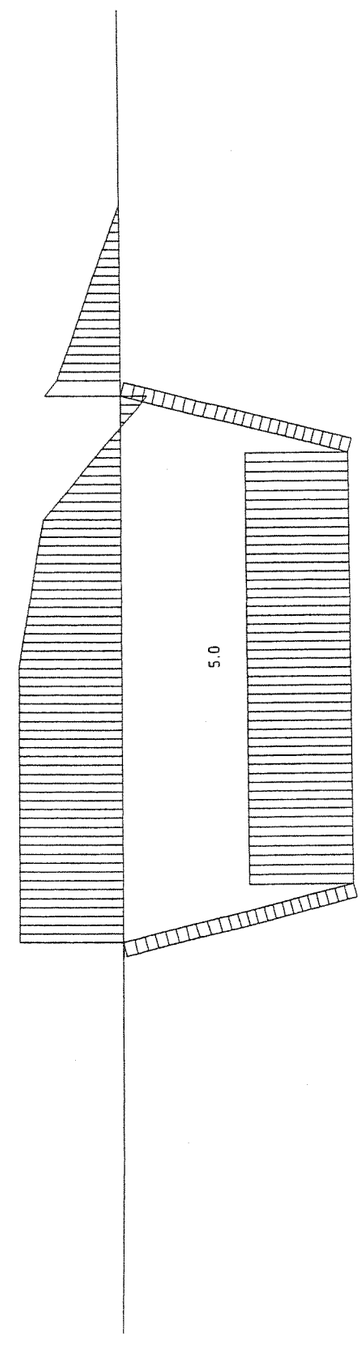
fx 3.0

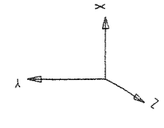


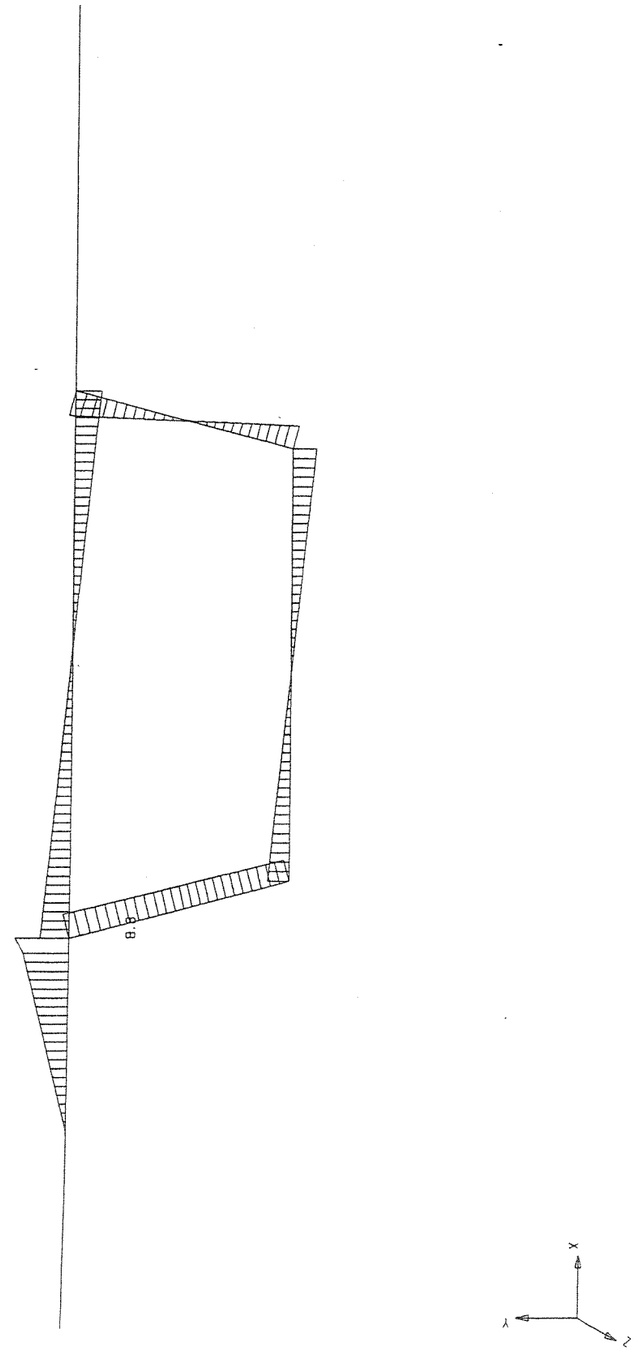

proc Flexion transversal (v-45)
hipo 26 f.lazo (ec-1) (dcha)

fx 3.0

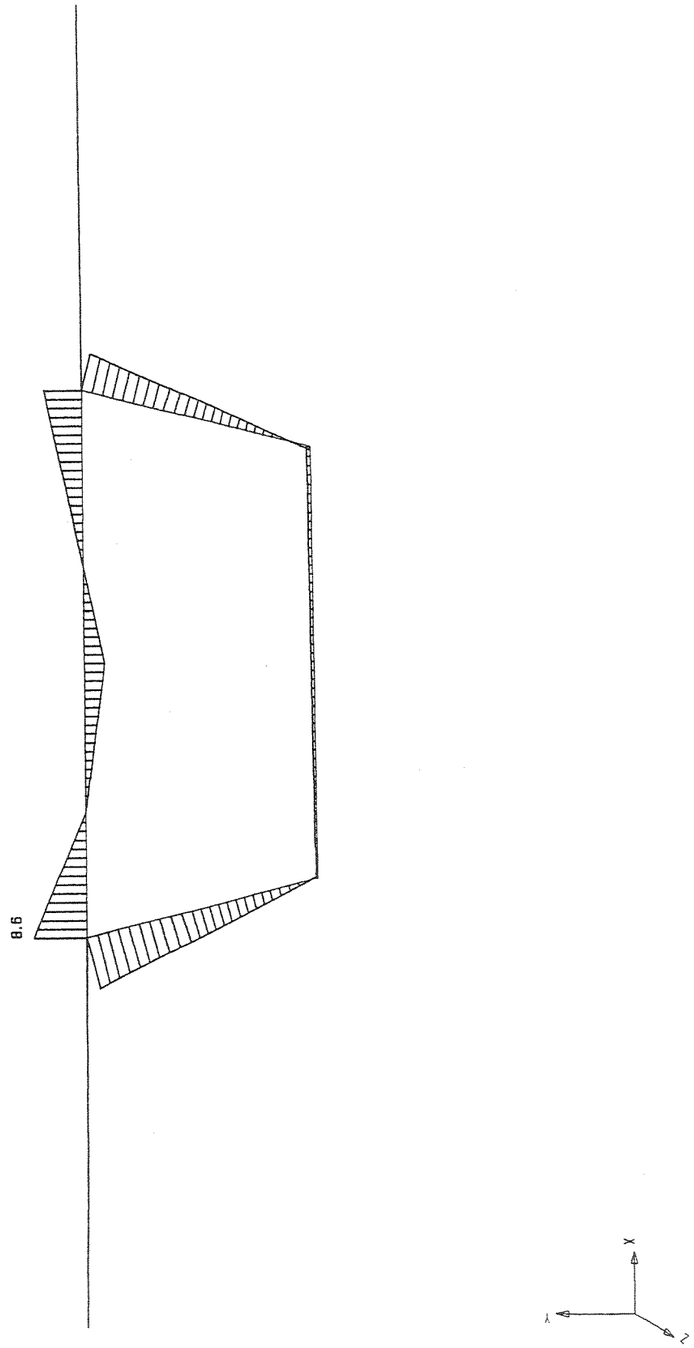


proc Flexion transversal (v-45)
hipo 27 descarr-1.1 mz 10.0

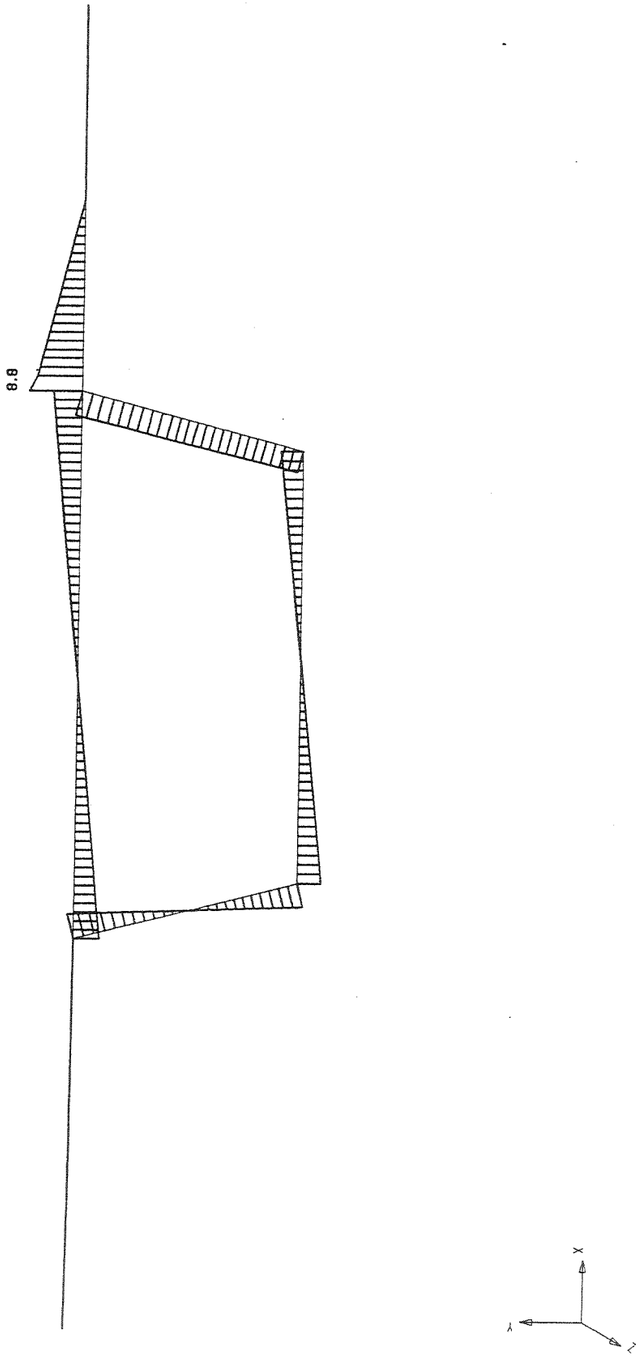


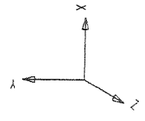

proc Flexion transversal (v-45)
hipo 28 descarr-1.2 mz 10.0



proc Flexion transversal (v-45)
hipo 29 descarr-1.3

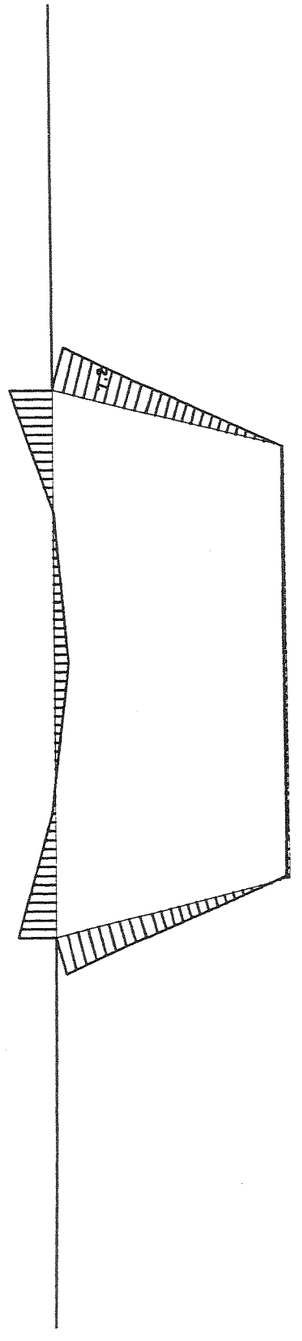
mz 10.0

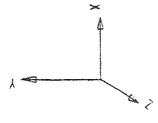



proc Flexion transversal (v-45)
hipo 30 descarr-1.4

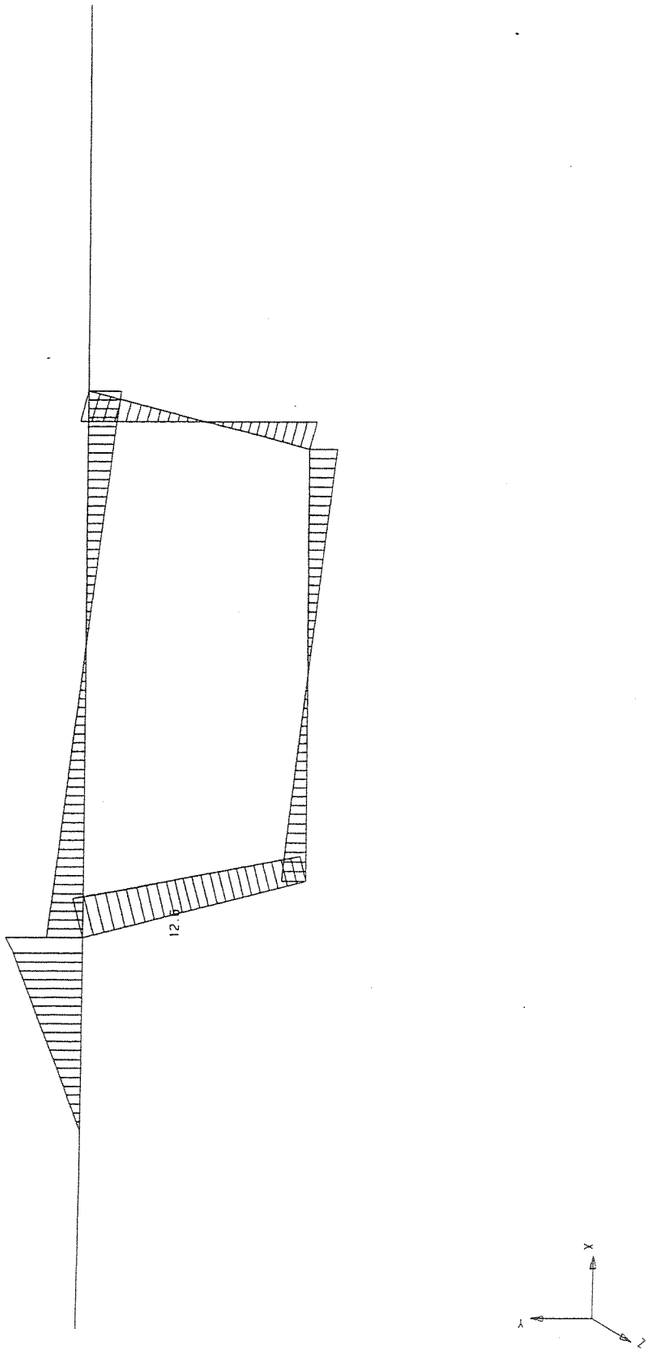
mz 10.0



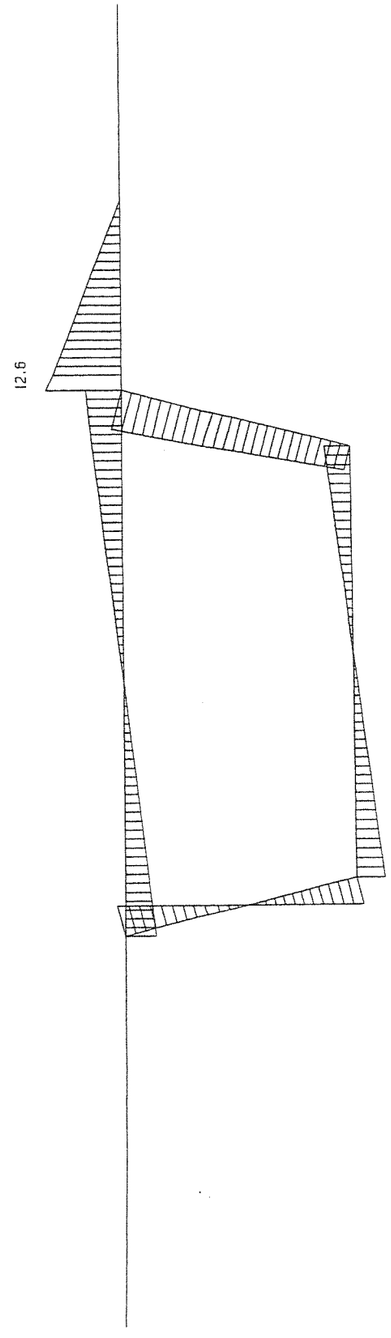
proc Flexion transversal (v-45)
hipo 31 descarr-2.1

mz 10.0




proc Flexion transversal (v-45)
hipo 32 descarr-1.3

mz 10.0



# COMBINACIÓN DE HIPÓTESIS

proc Flexion transversal (v-60)

numero total de hipotesis previstas: 100

==========

| | |
|---|---|
| 1 | hipo 1 Peso Propio |
| 2 | hipo 2 Carga Muerta |
| 3 | hipo 3 Desbalastado-1 |
| 4 | hipo 4 Desbalastado-2 |
| 11 | hipo 11 sob-1.1 (ipf-75) |
| 12 | hipo 12 sob-1.2 (ipf-75) |
| 13 | hipo 13 sob-2.1 (ipf-75) |
| 14 | hipo 14 sob-2.2 (ipf-75) |
| 15 | hipo 15 sob-1.1 (ec-1) |
| 16 | hipo 16 sob-1.2 (ec-1) |
| 17 | hipo 17 sob-2.1 (ec-1) |
| 18 | hipo 18 sob-2.2 (ec-1) |
| 19 | hipo 19 f.cent (ipf-75) (izda) |
| 20 | hipo 20 f.cent (ipf-75) (dcha) |
| 21 | hipo 21 f.cent (ec-1) (izda) |
| 22 | hipo 22 f.cent (ec-1) (dcha) |
| 23 | hipo 23 f.lazo (ipf-75) (izda) |
| 24 | hipo 24 f.lazo (ipf-75) (dcha) |
| 25 | hipo 25 f.lazo (ec-1) (izda) |
| 26 | hipo 26 f.lazo (ec-1) (dcha) |
| 27 | hipo 27 descarr-1.1 |
| 28 | hipo 28 descarr-1.2 |
| 29 | hipo 29 descarr-1.3 |
| 30 | hipo 30 descarr-1.4 |
| 31 | hipo 31 descarr-2.1 |
| 32 | hipo 32 descarr-1.3 |

CARLOS FERNANDEZ CASADO, S.L.
OFICINA DE PROYECTOS

HC

PROYECTO _____ FECHA _____

COMBINACIONES DE HIPÓTESIS (ELU)

a) Combinación IPF-75

1.35 CP + 1.35 SC + 1.5 (FC + Lazo)

b) Combinación EC-1

- 1.35 CP + 1.35 SC + 1.5 (FC + Lazo)
- CP + 1. DESCARR (Descendente)

# CÁLCULO DE LA ARMADURA

CARLOS FERNANDEZ CASADO, S.L.
OFICINA DE PROYECTOS

HOJA ____ DE ____

PROYECTO ____ FECHA ____

DATOS PARA PROGRAMA "ARMADURA" (U-45)

- 5000. 51000.

barr

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 0 0 25 | 1,00 | 0,20 | 0. | 0. | 1,00 | 0,25 |
| 2 | 0,025 | 1,00 | 0,25 | 0. | 0. | 1,00 | 0,40 |
| 5 | 0,025 | 1,00 | 0,50 | 0. | 0. | 1,00 | 0,30 |
| 6 | 0,025 | 1,00 | 0,30 | 0. | 0. | 1,00 | 0,30 |
| 7 | | | | " | | | |
| 8 | 0,025 | 1,00 | 0,30 | 0. | 0. | 1,00 | 0,50 |
| 11 | 0,025 | 1,00 | 0,40 | 0. | 0. | 1,00 | 0,25 |
| 12 | 0,025 | 1,00 | 0,25 | 0. | 0. | 1,00 | 0,20 |
| 14y12 | 0,025 | 1,00 | 0,45 | 0. | 0. | 1,00 | 0,45 |
| 15y19 | 0,025 | 1,00 | 0,45 | 0. | 0. | 1,00 | 0,60 |
| 22y23 | 0,025 | 1,00 | 0,30 | 0. | 0. | 1,00 | 0,30 |

proc Flexion transversal (u-45)

BARRA 1 NUDO 1

| HIPO | B | H | R | BW | HF | AXIL | MOME | W S/M | W I/M | W M/M | CONT | W | W MIN | TORS | WT | WL | REB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 1.00 | 0.20 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.26 | 0.00 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 72 | 1.00 | 0.20 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.26 | 0.00 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 73 | 1.00 | 0.20 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.26 | 0.00 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 74 | 1.00 | 0.20 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.26 | 0.00 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 75 | 1.00 | 0.20 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.26 | 0.00 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 76 | 1.00 | 0.20 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.26 | 0.00 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |

proc Flexion transversal (u-45)

BARRA 1 NUDO 2

| HIPO | B | H | R | BW | HF | AXIL | MOME | W S/M | W I/M | W M/M | CORT | W | W MIN | TORS | WT | WL | REL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 1.00 | 0.25 | 0.03 | 0.00 | 0.00 | 0.00 | -3.44 | 3.48 | 0.00 | 6.76 | 3.15 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 72 | 1.00 | 0.25 | 0.03 | 0.00 | 0.00 | 0.00 | -3.44 | 3.48 | 0.00 | 6.76 | 3.15 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 73 | 1.00 | 0.25 | 0.03 | 0.00 | 0.00 | 0.00 | -2.29 | 2.31 | 0.00 | 6.76 | 2.10 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 74 | 1.00 | 0.25 | 0.03 | 0.00 | 0.00 | 0.00 | -3.44 | 3.48 | 0.00 | 6.76 | 3.15 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 75 | 1.00 | 0.25 | 0.03 | 0.00 | 0.00 | 0.00 | -3.44 | 3.48 | 0.00 | 6.76 | 3.15 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 76 | 1.00 | 0.25 | 0.03 | 0.00 | 0.00 | 0.00 | -2.29 | 2.31 | 0.00 | 6.76 | 2.10 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |

proc Flexion transversal (u-45)

BARRA 2 NUDO 2

| HIPO | B | H | R | BW | HF | AXIL | MOME | W S/M | W I/M | W M/M | CORT | W | W MIN | TORS | WT | WL | REL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 1.00 | 0.25 | 0.03 | 0.00 | 0.00 | 0.00 | -3.44 | 3.48 | 0.00 | 6.76 | -3.15 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 72 | 1.00 | 0.25 | 0.03 | 0.00 | 0.00 | 0.00 | -3.44 | 3.48 | 0.00 | 6.76 | -3.15 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 73 | 1.00 | 0.25 | 0.03 | 0.00 | 0.00 | 0.00 | -2.29 | 2.31 | 0.00 | 6.76 | -2.10 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 74 | 1.00 | 0.25 | 0.03 | 0.00 | 0.00 | 0.00 | -3.44 | 3.48 | 0.00 | 6.76 | -3.15 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 75 | 1.00 | 0.25 | 0.03 | 0.00 | 0.00 | 0.00 | -3.44 | 3.48 | 0.00 | 6.76 | -3.15 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 76 | 1.00 | 0.25 | 0.03 | 0.00 | 0.00 | 0.00 | -2.29 | 2.31 | 0.00 | 6.76 | -2.10 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |

proc Flexion transversal (v-45)

BARRA 2 NUDO 7

| HIPO | B | H | R | BW | HF | AXIL | MOME | W S/M | W I/M | W M/M | CORT | W | W MIN | TORS | WT | WL | REL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 1.00 | 0.40 | 0.03 | 0.00 | 0.00 | 0.00 | -13.98 | 8.51 | 0.00 | 11.27 | 8.22 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |
| 72 | 1.00 | 0.40 | 0.03 | 0.00 | 0.00 | -1.22 | -13.94 | 8.65 | 0.02 | 11.27 | 8.22 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |
| 73 | 1.00 | 0.40 | 0.03 | 0.00 | 0.00 | 0.00 | -9.29 | 5.64 | 0.00 | 11.27 | 5.48 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 74 | 1.00 | 0.40 | 0.03 | 0.00 | 0.00 | 0.00 | -21.13 | 13.01 | 0.00 | 11.27 | 25.84 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.07 |
| 75 | 1.00 | 0.40 | 0.03 | 0.00 | 0.00 | 0.00 | -21.13 | 13.01 | 0.00 | 11.27 | 25.84 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.07 |
| 76 | 1.00 | 0.40 | 0.03 | 0.00 | 0.00 | 0.00 | -9.29 | 5.64 | 0.00 | 11.27 | 5.48 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |

proc Flexion transversal (v-45)

BARRA 5 NUDO 7

| HIPO | B | H | R | BW | HF | AXIL | MOME | W S/M | W I/M | W M/M | CORT | W | W MIN | TORS | WT | WL | REL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 1.00 | 0.50 | 0.03 | 0.00 | 0.00 | -2.00 | -9.72 | 4.88 | 0.02 | 14.28 | 10.87 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.0 |
| 72 | 1.00 | 0.50 | 0.03 | 0.00 | 0.00 | -13.89 | -20.39 | 11.43 | 0.17 | 14.28 | 33.34 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.0 |
| 73 | 1.00 | 0.50 | 0.03 | 0.00 | 0.00 | -5.29 | -28.67 | 14.48 | 0.07 | 14.28 | 40.95 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.0 |
| 74 | 1.00 | 0.50 | 0.03 | 0.00 | 0.00 | -7.66 | 0.07 | 0.83 | 0.90 | 15.03 | 2.43 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.0 |
| 75 | 1.00 | 0.50 | 0.03 | 0.00 | 0.00 | -5.29 | -28.67 | 14.48 | 0.07 | 14.28 | 40.95 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.0 |
| 76 | 1.00 | 0.50 | 0.03 | 0.00 | 0.00 | -7.66 | 0.07 | 0.83 | 0.90 | 15.03 | 2.43 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.0 |

proc Flexion transversal (v-45)

BARRA 6 NUDO 10

| NIPO | B | H | R | BW | HF | AXIL | MOME | W S/M | W I/M | W M/M | CORT | W | W MIN | TORS | WT | WL | REL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -2.00 | -1.15 | 1.19 | 0.02 | 8.27 | -9.28 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.03 |
| 72 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -15.19 | -1.05 | 2.66 | 0.77 | 9.02 | -12.18 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.04 |
| 73 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -6.59 | -2.84 | 3.16 | 0.08 | 8.27 | -19.80 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.07 |
| 74 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -7.66 | 1.47 | 0.10 | 2.16 | 8.27 | -0.85 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 75 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -5.99 | -5.56 | 5.34 | 0.07 | 8.27 | -8.43 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.03 |
| 76 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -10.48 | 2.55 | 0.13 | 3.39 | 8.27 | -15.46 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.06 |

proc Flexion transversal (v-45)

BARRA 6 NUDO 10

| NIPO | B | H | R | BW | HF | AXIL | MOME | W S/M | W I/M | W M/M | CORT | W | W MIN | TORS | WT | WL | REL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -2.00 | -1.15 | 1.19 | 0.02 | 8.27 | 9.28 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.03 |
| 72 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -15.19 | -1.05 | 2.66 | 0.77 | 9.02 | 12.18 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.04 |
| 73 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -6.59 | -2.84 | 3.16 | 0.08 | 8.27 | 19.80 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.07 |
| 74 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -7.66 | 1.47 | 0.10 | 2.16 | 8.27 | 0.85 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 75 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -5.99 | -5.56 | 5.34 | 0.07 | 8.27 | 8.43 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.03 |
| 76 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -10.48 | 2.55 | 0.13 | 3.39 | 8.27 | 15.46 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.06 |

proc Flexion transversal (v-45)

BARRA 6 NUDO 12

| HIPO | B | H | R | BW | HF | AXIL | MOME | M S/M | M I/M | M M/M | CORT | M | M MIN | TORS | MT | ML | REL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -2.00 | 4.49 | 0.02 | 3.96 | 8.27 | 0.60 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 72 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -15.70 | 4.90 | 0.20 | 5.98 | 8.27 | -1.14 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 73 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -6.50 | 4.85 | 0.08 | 4.81 | 8.27 | -4.68 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |
| 74 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -10.48 | 6.32 | 0.13 | 6.52 | 8.27 | 2.21 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 75 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -7.66 | 0.78 | 0.16 | 1.56 | 9.02 | -2.16 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 76 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -7.11 | 7.88 | 0.09 | 7.42 | 8.27 | -0.51 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |

proc Flexion transversal (v-45)

BARRA 7 NUDO 12

| HIPO | B | H | R | BW | HF | AXIL | MOME | M S/M | M I/M | M M/M | CORT | M | M MIN | TORS | MT | ML | REL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -2.00 | 4.49 | 0.02 | 3.96 | 8.27 | -0.60 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 72 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -15.70 | 4.90 | 0.20 | 5.98 | 8.27 | 1.14 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 73 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -6.50 | 4.85 | 0.08 | 4.81 | 8.27 | 4.68 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |
| 74 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -10.48 | 6.32 | 0.13 | 6.52 | 8.27 | -2.21 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 75 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -7.66 | 0.78 | 0.16 | 1.56 | 9.02 | -1.65 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 76 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -7.11 | 7.88 | 0.09 | 7.42 | 8.27 | 0.51 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |

proc flexion transversal (u-45)

BARRA 7 NUDO 14

| HIPO | B | H | R | BW | HF | AXIL | MOME | W S/N | W I/N | W M/N | CORT | W | W MIN | TORS | WT | WL | REL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -2.00 | -2.43 | 2.25 | 0.02 | 8.27 | 5.95 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |
| 72 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -15.70 | 2.18 | 0.20 | 3.73 | 8.27 | 10.20 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.04 |
| 73 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -7.66 | 1.99 | 0.10 | 2.59 | 8.27 | 0.69 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 74 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -7.11 | 0.54 | 0.32 | 1.29 | 9.02 | 18.12 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.07 |
| 75 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -7.66 | -4.10 | 4.32 | 0.10 | 8.27 | 4.49 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |
| 76 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -10.82 | 5.76 | 0.14 | 6.11 | 8.27 | 13.96 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.05 |

proc flexion transversal (u-45)

BARRA 8 NUDO 14

| HIPO | B | H | R | BW | HF | AXIL | MOME | W S/N | W I/N | W M/N | CORT | W | W MIN | TORS | WT | WL | REL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -2.00 | -2.43 | 2.25 | 0.02 | 8.27 | -5.95 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |
| 72 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -15.70 | 2.18 | 0.20 | 3.73 | 8.27 | -10.20 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.04 |
| 73 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -7.66 | 1.99 | 0.10 | 2.59 | 8.27 | -0.69 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 74 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -7.11 | 0.54 | 0.32 | 1.29 | 9.02 | -18.12 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.07 |
| 75 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -7.66 | -4.10 | 4.32 | 0.10 | 8.27 | -4.49 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |
| 76 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | -10.82 | 5.76 | 0.14 | 6.11 | 8.27 | -13.96 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.05 |

proc Flexion transversal (v-45)

BARRA 9 NUDO 10

| HIPO | B | H | R | BW | HF | AXIL | MOME | M S/M | M I/M | M M/M | CORT | W | W MIN | TORS | MT | ML | REL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 1.00 | 0.50 | 0.03 | 0.00 | 0.00 | -2.00 | -8.19 | 4.15 | 0.02 | 14.28 | 7.61 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |
| 72 | 1.00 | 0.50 | 0.03 | 0.00 | 0.00 | -15.70 | -15.53 | 9.29 | 0.20 | 14.28 | 31.47 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.07 |
| 73 | 1.00 | 0.50 | 0.03 | 0.00 | 0.00 | -7.66 | 0.70 | 0.51 | 1.22 | 15.03 | 2.35 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 74 | 1.00 | 0.50 | 0.03 | 0.00 | 0.00 | -7.11 | -23.90 | 12.35 | 0.09 | 14.28 | 39.39 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.08 |
| 75 | 1.00 | 0.50 | 0.03 | 0.00 | 0.00 | -7.11 | -23.90 | 12.35 | 0.09 | 14.28 | 39.39 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.08 |
| 76 | 1.00 | 0.50 | 0.03 | 0.00 | 0.00 | -7.66 | 0.70 | 0.51 | 1.22 | 15.03 | 2.35 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |

proc Flexion transversal (v-45)

BARRA 11 NUDO 22

| HIPO | B | H | R | BW | HF | AXIL | MOME | M S/M | M I/M | M M/M | CORT | W | W MIN | TORS | MT | ML | REL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 1.00 | 0.40 | 0.03 | 0.00 | 0.00 | 1.24 | -12.89 | 7.72 | 0.02 | 11.27 | 7.10 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |
| 72 | 1.00 | 0.40 | 0.03 | 0.00 | 0.00 | 1.16 | -11.60 | 6.93 | 0.01 | 11.27 | 6.39 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |
| 73 | 1.00 | 0.40 | 0.03 | 0.00 | 0.00 | 0.00 | -20.09 | 12.35 | 0.00 | 11.27 | 24.94 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.07 |
| 74 | 1.00 | 0.40 | 0.03 | 0.00 | 0.00 | 0.00 | -8.60 | 5.22 | 0.00 | 11.27 | 4.73 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 75 | 1.00 | 0.40 | 0.03 | 0.00 | 0.00 | 0.00 | -20.09 | 12.35 | 0.00 | 11.27 | 24.94 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.07 |
| 76 | 1.00 | 0.40 | 0.03 | 0.00 | 0.00 | 0.00 | -8.60 | 5.22 | 0.00 | 11.27 | 4.73 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |

proc Flexion transversal (u-45)

BARRA 11 NUDO 23

| HIPO | B | H | R | BW | HF | AXIL | MOME | W S/M | W I/M | W M/M | CORT | W | W MIN | TORS | WT | WL | REL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 1.00 | 0.25 | 0.03 | 0.00 | 0.00 | 0.00 | -3.44 | 3.48 | 0.00 | 6.76 | -3.15 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 72 | 1.00 | 0.25 | 0.03 | 0.00 | 0.00 | 0.00 | -3.44 | 3.48 | 0.00 | 6.76 | -3.15 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 73 | 1.00 | 0.25 | 0.03 | 0.00 | 0.00 | 0.00 | -3.44 | 3.48 | 0.00 | 6.76 | -3.15 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 74 | 1.00 | 0.25 | 0.03 | 0.00 | 0.00 | 0.00 | -2.29 | 2.31 | 0.00 | 6.76 | -2.10 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 75 | 1.00 | 0.25 | 0.03 | 0.00 | 0.00 | 0.00 | -3.44 | 3.48 | 0.00 | 6.76 | -3.15 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 76 | 1.00 | 0.25 | 0.03 | 0.00 | 0.00 | 0.00 | -2.29 | 2.31 | 0.00 | 6.76 | -2.10 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |

proc Flexion transversal (u-45)

BARRA 12 NUDO 23

| HIPO | B | H | R | BW | HF | AXIL | MOME | W S/M | W I/M | W M/M | CORT | W | W MIN | TORS | WT | WL | REL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 1.00 | 0.25 | 0.03 | 0.00 | 0.00 | 0.00 | -3.44 | 3.48 | 0.00 | 6.76 | 3.15 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 72 | 1.00 | 0.25 | 0.03 | 0.00 | 0.00 | 0.00 | -3.44 | 3.48 | 0.00 | 6.76 | 3.15 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 73 | 1.00 | 0.25 | 0.03 | 0.00 | 0.00 | 0.00 | -3.44 | 3.48 | 0.00 | 6.76 | 3.15 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 74 | 1.00 | 0.25 | 0.03 | 0.00 | 0.00 | 0.00 | -2.29 | 2.31 | 0.00 | 6.76 | 2.10 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 75 | 1.00 | 0.25 | 0.03 | 0.00 | 0.00 | 0.00 | -3.44 | 3.48 | 0.00 | 6.76 | 3.15 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 76 | 1.00 | 0.25 | 0.03 | 0.00 | 0.00 | 0.00 | -2.29 | 2.31 | 0.00 | 6.76 | 2.10 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |

proc Flexion transversal (v-45)

BARRA 13 NUDO 24

| NIPO | B | H | R | BW | HF | AXIL | MOME | W S/M | W I/M | W M/M | CORT | W | W MIN | TORS | WT | WL | REL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 1.00 | 0.20 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.26 | 0.00 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 72 | 1.00 | 0.20 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.26 | 0.00 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 73 | 1.00 | 0.20 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.26 | 0.00 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 74 | 1.00 | 0.20 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.26 | 0.00 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 75 | 1.00 | 0.20 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.26 | 0.00 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 76 | 1.00 | 0.20 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.26 | 0.00 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |

proc Flexion transversal (v-45)

BARRA 14 NUDO 8

| NIPO | B | H | R | BW | HF | AXIL | MOME | W S/M | W I/M | W M/M | CORT | W | W MIN | TORS | WT | WL | REL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 80.50 | 6.47 | 1.01 | -5.92 | 12.78 | -14.48 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 72 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 12.73 | -0.96 | -1.00 | 0.16 | 12.78 | 4.59 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 73 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 21.41 | -2.93 | -0.97 | 0.27 | 12.78 | 4.61 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 74 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 77.23 | 2.96 | 0.97 | -7.47 | 12.78 | -16.96 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 75 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 21.41 | -2.93 | -0.97 | 0.27 | 12.78 | 4.61 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 76 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 77.77 | 10.83 | 0.97 | -3.20 | 12.78 | -14.31 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |

proc Flexion transversal (v-45)

BARRA 14 NUDO 6

| HIPO | B | H | R | BW | HF | AXIL | MOME | M S/M | M I/M | M M/M | CORT | M | M MIN | TORS | MT | ML | REL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 78.83 | -8.11 | -4.83 | 0.99 | 12.78 | 14.04 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.03 |
| 72 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 11.62 | 3.89 | 0.15 | 0.70 | 12.78 | -4.88 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 73 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 19.74 | 2.02 | 0.25 | -1.26 | 12.78 | -5.05 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 74 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 75.56 | -14.17 | -1.10 | 0.94 | 12.78 | 16.53 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.04 |
| 75 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 75.56 | -14.17 | -1.10 | 0.94 | 12.78 | 16.53 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.04 |
| 76 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 23.04 | 8.35 | 0.29 | 1.77 | 12.78 | -1.90 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |

proc Flexion transversal (v-45)

BARRA 15 NUDO 6

| HIPO | B | H | R | BW | HF | AXIL | MOME | M S/M | M I/M | M M/M | CORT | M | M MIN | TORS | MT | ML | REL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 78.83 | -8.11 | -4.83 | 0.99 | 12.78 | -14.04 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.03 |
| 72 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 11.62 | 3.89 | 0.15 | 0.70 | 12.78 | 4.88 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 73 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 19.74 | 2.02 | 0.25 | -1.26 | 12.78 | 5.05 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 74 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 75.56 | -14.17 | -1.10 | 0.94 | 12.78 | -16.52 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.04 |
| 75 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 75.56 | -14.17 | -1.10 | 0.94 | 12.78 | -16.52 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.04 |
| 76 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 23.04 | 8.35 | 0.29 | 1.77 | 12.78 | 1.90 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |

proc Flexion transversal (v-45)

BARRA 15 NUDO 5

| NIPO | B | H | R | BW | HF | AXIL | MOME | M S/M | M I/M | M M/M | CORT | R | M MIN | TORS | MT | ML | REL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 1.00 | 0.60 | 0.03 | 0.00 | 0.00 | 77.85 | -15.66 | -2.76 | 0.97 | 17.29 | 13.78 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |
| 72 | 1.00 | 0.60 | 0.03 | 0.00 | 0.00 | 10.96 | 6.58 | 0.14 | 1.31 | 17.29 | -5.06 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 73 | 1.00 | 0.60 | 0.03 | 0.00 | 0.00 | 18.76 | 4.82 | 0.23 | -0.29 | 17.29 | -5.31 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 74 | 1.00 | 0.60 | 0.03 | 0.00 | 0.00 | 74.57 | -23.06 | 0.63 | 0.93 | 17.29 | 16.27 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.03 |
| 75 | 1.00 | 0.60 | 0.03 | 0.00 | 0.00 | 74.57 | -23.06 | 0.63 | 0.93 | 17.29 | 16.27 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.03 |
| 76 | 1.00 | 0.60 | 0.03 | 0.00 | 0.00 | 22.39 | 9.43 | 0.28 | 1.12 | 17.29 | -2.07 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |

proc Flexion transversal (v-45)

BARRA 18 NUDO 17

| NIPO | B | H | R | BW | HF | AXIL | MOME | M S/M | M I/M | M M/M | CORT | R | M MIN | TORS | MT | ML | REL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 78.59 | -1.74 | -8.29 | 0.98 | 12.78 | 9.69 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |
| 72 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 11.85 | 1.56 | 0.15 | -0.57 | 12.78 | -4.82 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 73 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 75.75 | 1.89 | 0.95 | -7.08 | 12.78 | 12.43 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.03 |
| 74 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 19.57 | 7.72 | 0.24 | 1.83 | 12.78 | -9.15 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |
| 75 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 75.97 | -6.05 | -5.63 | 0.95 | 12.78 | 9.62 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |
| 76 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 19.57 | 7.72 | 0.24 | 1.83 | 12.78 | -9.15 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |

proc Flexion transversal (v-45)

BARRA 19 NUDO 19

| HIPO | B | H | R | BW | HF | AXIL | MOME | M S/H | M I/H | M M/H | CORT | N | N MIN | TORS | MT | ML | REL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 76.92 | 7.95 | 0.96 | -4.70 | 12.78 | -9.26 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |
| 72 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 10.74 | -3.52 | 0.60 | 0.13 | 12.78 | 5.11 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 73 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 74.08 | 14.38 | 0.93 | -0.81 | 12.78 | -11.99 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.03 |
| 74 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 17.90 | -1.86 | -1.13 | 0.22 | 12.78 | 9.59 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |
| 75 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 22.17 | -7.98 | 1.67 | 0.28 | 12.78 | 2.13 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 76 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 74.08 | 14.38 | 0.93 | -0.81 | 12.78 | -11.99 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.03 |

proc Flexion transversal (v-45)

BARRA 19 NUDO 19

| HIPO | B | H | R | BW | HF | AXIL | MOME | M S/H | M I/H | M M/H | CORT | N | N MIN | TORS | MT | ML | REL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 76.92 | 7.95 | 0.96 | -4.70 | 12.78 | -9.25 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |
| 72 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 10.74 | -3.52 | 0.60 | 0.13 | 12.78 | -5.11 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 73 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 74.08 | 14.38 | 0.93 | -0.81 | 12.78 | 11.99 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.03 |
| 74 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 17.90 | -1.86 | -1.13 | 0.22 | 12.78 | -9.59 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |
| 75 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 22.17 | -7.98 | 1.67 | 0.28 | 12.78 | -2.13 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 76 | 1.00 | 0.45 | 0.03 | 0.00 | 0.00 | 74.08 | 14.38 | 0.93 | -0.81 | 12.78 | 11.99 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.03 |

proc flexion transversal (v-45)

BARRA 19 NUDO 20

| NIPO | B | H | R | BW | HF | AXIL | MOME | M S/N | M I/N | M N/M | CORT | M | M MIN | TORS | MT | ML | REL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 1.00 | 0.60 | 0.03 | 0.00 | 0.00 | 75.94 | 12.90 | 0.95 | -3.65 | 17.29 | -9.00 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |
| 72 | 1.00 | 0.60 | 0.03 | 0.00 | 0.00 | 19.09 | -6.34 | 1.32 | 0.13 | 17.29 | 5.28 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 73 | 1.00 | 0.60 | 0.03 | 0.00 | 0.00 | 73.09 | 20.81 | 0.91 | -0.12 | 17.29 | -11.73 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |
| 74 | 1.00 | 0.60 | 0.03 | 0.00 | 0.00 | 16.92 | -7.13 | 0.84 | 0.21 | 17.29 | 9.85 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |
| 75 | 1.00 | 0.60 | 0.03 | 0.00 | 0.00 | 21.51 | -9.19 | 1.12 | 0.27 | 17.29 | 2.30 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 76 | 1.00 | 0.60 | 0.03 | 0.00 | 0.00 | 73.09 | 20.81 | 0.91 | -0.12 | 17.29 | -11.73 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |

proc flexion transversal (v-45)

BARRA 22 NUDO 11

| NIPO | B | H | R | BW | HF | AXIL | MOME | M S/N | M I/N | M N/M | CORT | M | M MIN | TORS | MT | ML | REL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | 17.20 | -5.55 | 2.48 | 0.22 | 8.27 | 4.46 | 0.00 | 15.87 | 0.00 | 0.00 | 0.03 | 0.02 |
| 72 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | 2.00 | -0.70 | 0.33 | 0.02 | 8.27 | 1.26 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 73 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | 13.80 | -10.61 | 7.27 | 0.17 | 8.27 | 7.89 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.03 |
| 74 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | 9.88 | 4.28 | 0.12 | 2.35 | 8.27 | -1.40 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 75 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | 13.80 | -10.61 | 7.27 | 0.17 | 8.27 | 7.89 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.03 |
| 76 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | 9.88 | 4.28 | 0.12 | 2.35 | 8.27 | -1.40 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.03 |

proc Flexion transversal (v-45)

BARRA 22 NUDO 13

| HIPO | B | H | R | BW | HF | AXIL | MOME | M S/M | M I/M | M M/M | CORT | W | W MIN | TORS | WT | WL | REL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | 17.70 | 0.15 | 0.22 | -2.03 | 8.27 | -2.66 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 72 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | 2.00 | 0.35 | 0.02 | 0.04 | 8.27 | -0.06 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 73 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | 13.80 | 0.58 | 0.17 | -1.20 | 8.27 | -6.09 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |
| 74 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | 9.88 | 0.60 | 0.12 | -0.71 | 8.27 | 3.20 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 75 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | 9.10 | -0.50 | -0.70 | 0.11 | 8.27 | -1.45 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 76 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | 5.96 | 1.02 | 0.07 | 0.11 | 8.27 | -0.23 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |

proc Flexion transversal (v-45)

BARRA 23 NUDO 13

| HIPO | B | H | R | BW | HF | AXIL | MOME | M S/M | M I/M | M M/M | CORT | W | W MIN | TORS | WT | WL | REL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | 17.70 | 0.15 | 0.22 | -2.03 | 8.27 | 2.66 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 72 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | 2.00 | 0.35 | 0.02 | 0.04 | 8.27 | 0.06 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 73 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | 13.80 | 0.58 | 0.17 | -1.20 | 8.27 | 6.09 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |
| 74 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | 9.88 | 0.60 | 0.12 | -0.71 | 8.27 | -3.20 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 75 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | 9.10 | -0.50 | -0.70 | 0.11 | 8.27 | 1.45 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.01 |
| 76 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | 5.96 | 1.02 | 0.07 | 0.11 | 8.27 | 0.23 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |

proc Flexion transversal (v-45)

BARRA 23 NUDO 15

| HIPO | B | H | R | BW | HF | AXIL | MOME | W S/M | W I/M | W M/M | CORT | W | W MIN | TORS | WT | WL | REL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 71 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | 17.70 | 2.97 | 0.22 | 0.32 | 8.27 | -0.86 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 72 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | 2.00 | -0.52 | 0.18 | 0.02 | 8.27 | 1.14 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 73 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | 13.80 | 8.88 | 0.17 | 5.78 | 8.27 | -4.29 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |
| 74 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | 9.88 | -5.97 | 3.77 | 0.12 | 8.27 | 5.00 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |
| 75 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | 9.88 | -5.97 | 3.77 | 0.12 | 8.27 | 5.00 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |
| 76 | 1.00 | 0.30 | 0.03 | 0.00 | 0.00 | 13.80 | 8.88 | 0.17 | 5.78 | 8.27 | -4.29 | 0.00 | 15.87 | 0.00 | 0.00 | 0.00 | 0.02 |