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AutoPIPE 6.20 MODEL PAGE 1

[illegible]

# Pipe Stress Analysis and Design Program

Version: 6.20.09

Edition: Win

Developed and Maintained by

REBIS Industrial Workgroup Software  
1600 Riviera Ave., Suite 300  
Walnut Creek, CA 94596

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\*\* AUTOPIPE SYSTEM INFORMATION \*\*  
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SYSTEM NAME : 79319822\_KOMPLETT

PROJECT ID : ASU KOSICE

DESCRIPTION :

PREPARED BY : \_\_\_\_\_  
WEGSTEIN

CHECKED BY : \_\_\_\_\_  
FRICKHOEFER

PIPING CODE : B31.3  
VERTICAL AXIS : Z  
AMBIENT TEMPERATURE : 20.0 deg C  
COMPONENT LIBRARY : HANAU\_AL  
MATERIAL LIBRARY : AUTOB313  
MODEL REVISION NUMBER : 21

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C O M P O N E N T   D A T A   L I S T I N G

\*\*\* SEGMENT A , LINE # 79319822

From A00 to A01, DX= 317.21 mm, DY= -147.92 mm, L= 350.00 mm Redu

COMPONENT DATA (Reducer):

Length= 350.00 mm, SIF= 1.00

PIPE DATA:

Pipe Id= 400MX6.0, Material= AL, Poisson= 0.300, Nom Size= 400 mm,  
OD= 406.00 mm, Sch= 6.0, Wall Thk= 6.000 mm, Mill= 0.750 mm, Cor= 0 mm,  
Pipe Density= 2707.12 kg/m3, Pipe Unit Wgt= 200.17 N/m, Insul Thk= 0 mm,  
Lining Thk= 0 mm, Long Weld factor= 1.00, Circ Weld factor= 1.00,  
Long Modulus= 0.06899 x10<sup>6</sup> N/m, Hoop Modulus= 0.06899 x10<sup>6</sup> N/m,  
Shear Modulus= 0.02653 x10<sup>6</sup> N/m, Sc= 103.4 N/mm2, Syc= 0 N/mm2

OPERATING DATA:

P1= 0 N/mm2, T1= -196.00 deg C, Exp1= -3.84587 mm/m,  
E1= 0.07646 x10<sup>6</sup> N/m, Sh1= 71.00 N/mm2

POINT DATA:

A00, Coordinates, X= 0.00 mm, Y= 0.00 mm, Z= 0.00 mm

SUPPORT DATA:

A00, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid, KRY= Rigid,  
KRZ= Rigid

From A01 to A02, DX= 345.30 mm, DY= -161.02 mm, L= 381.00 mm

Run

PIPE DATA:

Pipe Id= 250MX4.0, Nom Size= 250 mm, OD= 273.00 mm, Sch= 4.0,  
Wall Thk= 4.000 mm, Mill= 0.500 mm

POINT DATA:

A01, Coordinates, X= 317.21 mm, Y= -147.92 mm, Z= 0.00 mm

From A02 to A03, DZ= -1920.90 mm

Bend

COMPONENT DATA (Bend, TIP= A02, Near= A02 N, Far= A02 F):

Elbow, Radius= 380.99 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 19.586, SIFI= 4.68, SIFO= 3.90

POINT DATA:

A02, Coordinates, X= 662.51 mm, Y= -308.94 mm, Z= 0.00 mm  
A02 N, Coordinates, X= 317.22 mm, Y= -147.92 mm, Z= 0.00 mm  
A02 F, Coordinates, X= 662.51 mm, Y= -308.94 mm, Z= -380.99 mm

From A03 to A04, DX= -1573.33 mm, DY= -572.64 mm, DZ= -146.48 mm,  
L= 1680.70 mm

Bend

COMPONENT DATA (Bend, TIP= A03, Near= A03 N, Far= A03 F):

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Elbow, Radius= 380.99 mm, Bend angle= 85.00 deg, End flanges= 0,  
Flex= 19.586, SIFI= 4.68, SIFO= 3.90

POINT DATA:

A03, Coordinates, X= 662.51 mm, Y= -308.94 mm, Z= -1920.90 mm  
A03 N, Coordinates, X= 662.51 mm, Y= -308.94 mm, Z= -1571.79 mm  
A03 F, Coordinates, X= 335.70 mm, Y= -427.89 mm, Z= -1951.33 mm

From A04 to A05, DX= -898.64 mm, DZ= -78.62 mm, L= 902.07 mm Bend

COMPONENT DATA (Bend, TIP= A04, Near= A04 N, Far= A04 F):

Elbow, Radius= 380.99 mm, Bend angle= 19.92 deg, End flanges= 0,  
Flex= 19.586, SIFI= 4.68, SIFO= 3.90

POINT DATA:

A04, Coordinates, X= -910.82 mm, Y= -881.58 mm, Z= -2067.38 mm  
A04 N, Coordinates, X= -848.18 mm, Y= -858.78 mm, Z= -2061.55 mm  
A04 F, Coordinates, X= -977.48 mm, Y= -881.58 mm, Z= -2073.21 mm

From A05 to A06, DX= -505.54 mm, DY= 353.98 mm, DZ= -53.99 mm,  
L= 619.51 mm Bend

COMPONENT DATA (Bend, TIP= A05, Near= A05 N, Far= A05 F):

Elbow, Radius= 380.99 mm, Bend angle= 34.86 deg, End flanges= 0,  
Flex= 19.586, SIFI= 4.68, SIFO= 3.90

POINT DATA:

A05, Coordinates, X= -1809.46 mm, Y= -881.58 mm, Z= -2146.00 mm  
A05 N, Coordinates, X= -1690.29 mm, Y= -881.58 mm, Z= -2135.57 mm  
A05 F, Coordinates, X= -1907.08 mm, Y= -813.23 mm, Z= -2156.43 mm

From A06 to A07, DZ= -3329.40 mm Bend

COMPONENT DATA (Bend, TIP= A06, Near= A06 N, Far= A06 F):

Elbow, Radius= 380.99 mm, Bend angle= 85.00 deg, End flanges= 0,  
Flex= 19.586, SIFI= 4.68, SIFO= 3.90

POINT DATA:

A06, Coordinates, X= -2315.00 mm, Y= -527.60 mm, Z= -2199.99 mm  
A06 N, Coordinates, X= -2030.11 mm, Y= -727.08 mm, Z= -2169.56 mm  
A06 F, Coordinates, X= -2315.00 mm, Y= -527.60 mm, Z= -2549.11 mm

From A07 to A08, DX= 526.52 mm, DY= -303.98 mm, DZ= -53.19 mm,  
L= 610.29 mm Bend

COMPONENT DATA (Bend, TIP= A07, Near= A07 N, Far= A07 F):

Elbow, Radius= 380.99 mm, Bend angle= 85.00 deg, End flanges= 0,  
Flex= 19.586, SIFI= 4.68, SIFO= 3.90

POINT DATA:

A07, Coordinates, X= -2315.00 mm, Y= -527.60 mm, Z= -5529.39 mm

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A07 N, Coordinates, X= -2315.00 mm, Y= -527.60 mm, Z= -5180.28 mm  
A07 F, Coordinates, X= -2013.81 mm, Y= -701.49 mm, Z= -5559.82 mm

From A08 to A09, DX= 1149.40 mm, DZ= -100.56 mm, L= 1153.79 mm Bend

COMPONENT DATA (Bend, TIP= A08, Near= A08 N, Far= A08 F):  
Elbow, Radius= 380.99 mm, Bend angle= 29.88 deg, End flanges= 0,  
Flex= 19.586, SIFI= 4.68, SIFO= 3.90

POINT DATA:

A08, Coordinates, X= -1788.48 mm, Y= -831.58 mm, Z= -5582.58 mm  
A08 N, Coordinates, X= -1876.19 mm, Y= -780.94 mm, Z= -5573.72 mm  
A08 F, Coordinates, X= -1687.20 mm, Y= -831.58 mm, Z= -5591.44 mm

From A09 to A10, DX= 750.10 mm, DY= 750.10 mm, DZ= -92.81 mm,  
L= 1064.85 mm Bend

COMPONENT DATA (Bend, TIP= A09, Near= A09 N, Far= A09 F):  
Elbow, Radius= 380.99 mm, Bend angle= 44.82 deg, End flanges= 0,  
Flex= 19.586, SIFI= 4.68, SIFO= 3.90

POINT DATA:

A09, Coordinates, X= -639.08 mm, Y= -831.58 mm, Z= -5683.14 mm  
A09 N, Coordinates, X= -795.59 mm, Y= -831.58 mm, Z= -5669.45 mm  
A09 F, Coordinates, X= -528.41 mm, Y= -720.91 mm, Z= -5696.83 mm

From A10 to A11, DY= 1417.78 mm, DZ= -124.04 mm, L= 1423.20 mm Bend

COMPONENT DATA (Bend, TIP= A10, Near= A10 N, Far= A10 F):  
Elbow, Radius= 380.99 mm, Bend angle= 44.82 deg, End flanges= 0,  
Flex= 19.586, SIFI= 4.68, SIFO= 3.90

POINT DATA:

A10, Coordinates, X= 111.02 mm, Y= -81.48 mm, Z= -5775.95 mm  
A10 N, Coordinates, X= 0.35 mm, Y= -192.15 mm, Z= -5762.26 mm  
A10 F, Coordinates, X= 111.02 mm, Y= 75.03 mm, Z= -5789.64 mm

From A11 to A12, DZ= -6349.12 mm Bend

COMPONENT DATA (Bend, TIP= A11, Near= A11 N, Far= A11 F):  
Elbow, Radius= 380.99 mm, Bend angle= 85.00 deg, End flanges= 0,  
Flex= 19.586, SIFI= 4.68, SIFO= 3.90

POINT DATA:

A11, Coordinates, X= 111.02 mm, Y= 1336.30 mm, Z= -5899.99 mm  
A11 N, Coordinates, X= 111.02 mm, Y= 988.52 mm, Z= -5869.56 mm  
A11 F, Coordinates, X= 111.02 mm, Y= 1336.30 mm, Z= -6249.10 mm

From A12 to A13, DZ= -6000.00 mm Run

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POINT DATA:

A12, Coordinates, X= 111.02 mm, Y= 1336.30 mm, Z= -12249.11 mm

From A13 to A14, DZ= -6000.00 mm

Run

POINT DATA:

A13, Coordinates, X= 111.02 mm, Y= 1336.30 mm, Z= -18249.11 mm

From A14 to A15, DZ= -3500.00 mm

Run

POINT DATA:

A14, Coordinates, X= 111.02 mm, Y= 1336.30 mm, Z= -24249.11 mm

From A15 to A16, DZ= -2500.00 mm

Run

POINT DATA:

A15, Coordinates, X= 111.02 mm, Y= 1336.30 mm, Z= -27749.11 mm

From A16 to A17, DZ= -4917.37 mm

Run

POINT DATA:

A16, Coordinates, X= 111.02 mm, Y= 1336.30 mm, Z= -30249.11 mm

From A17 to A18, DZ= -1082.63 mm

Tee

COMPONENT DATA (Tee Header, Center= A17):

B16.9 welding tee, SIFI= 3.56, SIFO= 4.41

POINT DATA:

A17, Coordinates, X= 111.02 mm, Y= 1336.30 mm, Z= -35166.48 mm

From A18 to A19, DZ= -200.00 mm

Redu

COMPONENT DATA (Reducer):

Length= 200.00 mm, SIF= 1.00

PIPE DATA:

Pipe Id= 250MX6.0, Nom Size= 250 mm, Sch= NS, Wall Thk= 6.000 mm,  
Mill= 0.750 mm

POINT DATA:

A18, Coordinates, X= 111.02 mm, Y= 1336.30 mm, Z= -36249.11 mm

From A19 to A20, DZ= -6000.00 mm

Run

PIPE DATA:

Pipe Id= 200MX6.0, Nom Size= 200 mm, OD= 219.10 mm

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POINT DATA:

A19, Coordinates, X= 111.02 mm, Y= 1336.30 mm, Z= -36449.11 mm

From A20 to A21, DZ= -6000.00 mm

Run

POINT DATA:

A20, Coordinates, X= 111.02 mm, Y= 1336.30 mm, Z= -42449.11 mm

From A21 to A22, DZ= -2774.88 mm

Run

POINT DATA:

A21, Coordinates, X= 111.02 mm, Y= 1336.30 mm, Z= -48449.11 mm

From A22 to A23, DX= 1232.13 mm, DY= 1232.13 mm, DZ= -1742.49 mm,  
L= 2464.26 mm

Bend

COMPONENT DATA (Bend, TIP= A22, Near= A22 N, Far= A22 F):

Elbow, Radius= 304.99 mm, Bend angle= 45.00 deg, End flanges= 0,  
Flex= 9.561, SIFI= 2.90, SIFO= 2.42

PIPE DATA (A22 N to A22 F):

Pipe Id= 200MX6.4, Nom Size= 200 mm, Sch= 6.4, Wall Thk= 6.400 mm,  
Mill= 0.800 mm

PIPE DATA (A22 F to A23 N):

Pipe Id= 200MX6.0, Nom Size= 200 mm, Sch= NS, Wall Thk= 6.000 mm,  
Mill= 0.750 mm

POINT DATA:

A22, Coordinates, X= 111.02 mm, Y= 1336.30 mm, Z= -51223.99 mm  
A22 N, Coordinates, X= 111.02 mm, Y= 1336.30 mm, Z= -51097.66 mm  
A22 F, Coordinates, X= 174.19 mm, Y= 1399.47 mm, Z= -51313.32 mm

From A23 to A24, DX= 923.13 mm

Bend

COMPONENT DATA (Bend, TIP= A23, Near= A23 N, Far= A23 F):

Elbow, Radius= 304.99 mm, Bend angle= 60.00 deg, End flanges= 0,  
Flex= 9.561, SIFI= 2.90, SIFO= 2.42

PIPE DATA (A23 N to A23 F):

Pipe Id= 200MX6.4, Nom Size= 200 mm, Sch= 6.4, Wall Thk= 6.400 mm,  
Mill= 0.800 mm

PIPE DATA (A23 F to A24 N):

Pipe Id= 200MX6.0, Nom Size= 200 mm, Sch= NS, Wall Thk= 6.000 mm,  
Mill= 0.750 mm

POINT DATA:

A23, Coordinates, X= 1343.15 mm, Y= 2568.43 mm, Z= -52966.48 mm  
A23 N, Coordinates, X= 1255.11 mm, Y= 2480.39 mm, Z= -52841.96 mm  
A23 F, Coordinates, X= 1519.24 mm, Y= 2568.43 mm, Z= -52966.48 mm

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From A24 to A25, DX= 505.51 mm, DZ= -505.50 mm, L= 714.89 mm Bend

COMPONENT DATA (Bend, TIP= A24, Near= A24 N, Far= A24 F):

Elbow, Radius= 304.99 mm, Bend angle= 45.00 deg, End flanges= 0,  
Flex= 9.561, SIFI= 2.90, SIFO= 2.42

PIPE DATA (A24 N to A24 F):

Pipe Id= 200MX6.4, Nom Size= 200 mm, Sch= 6.4, Wall Thk= 6.400 mm,  
Mill= 0.800 mm

PIPE DATA (A24 F to A25 N):

Pipe Id= 200MX6.0, Nom Size= 200 mm, Sch= NS, Wall Thk= 6.000 mm,  
Mill= 0.750 mm

POINT DATA:

A24, Coordinates, X= 2266.28 mm, Y= 2568.43 mm, Z= -52966.48 mm  
A24 N, Coordinates, X= 2139.95 mm, Y= 2568.43 mm, Z= -52966.48 mm  
A24 F, Coordinates, X= 2355.61 mm, Y= 2568.43 mm, Z= -53055.80 mm

From A25 to A26, DX= 909.24 mm Bend

COMPONENT DATA (Bend, TIP= A25, Near= A25 N, Far= A25 F):

Elbow, Radius= 304.99 mm, Bend angle= 45.00 deg, End flanges= 0,  
Flex= 9.561, SIFI= 2.90, SIFO= 2.42

PIPE DATA (A25 N to A25 F):

Pipe Id= 200MX6.4, Nom Size= 200 mm, Sch= 6.4, Wall Thk= 6.400 mm,  
Mill= 0.800 mm

PIPE DATA (A25 F to A26 N):

Pipe Id= 200MX6.0, Nom Size= 200 mm, Sch= NS, Wall Thk= 6.000 mm,  
Mill= 0.750 mm

POINT DATA:

A25, Coordinates, X= 2771.79 mm, Y= 2568.43 mm, Z= -53471.98 mm  
A25 N, Coordinates, X= 2682.46 mm, Y= 2568.43 mm, Z= -53382.65 mm  
A25 F, Coordinates, X= 2898.12 mm, Y= 2568.43 mm, Z= -53471.98 mm

From A26 to A27, DY= -817.32 mm Bend

COMPONENT DATA (Bend, TIP= A26, Near= A26 N, Far= A26 F):

Elbow, Radius= 304.99 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 9.561, SIFI= 2.90, SIFO= 2.42

PIPE DATA (A26 N to A26 F):

Pipe Id= 200MX6.4, Nom Size= 200 mm, Sch= 6.4, Wall Thk= 6.400 mm,  
Mill= 0.800 mm

PIPE DATA (A26 F to A27 N):

Pipe Id= 200MX6.0, Nom Size= 200 mm, Sch= NS, Wall Thk= 6.000 mm,  
Mill= 0.750 mm



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POINT DATA:

A26, Coordinates, X= 3681.03 mm, Y= 2568.43 mm, Z= -53471.98 mm  
A26 N, Coordinates, X= 3376.04 mm, Y= 2568.43 mm, Z= -53471.98 mm  
A26 F, Coordinates, X= 3681.03 mm, Y= 2263.44 mm, Z= -53471.98 mm

From A27 to A28, DY= -61.36 mm, DZ= -229.00 mm, L= 237.08 mm Bend

COMPONENT DATA (Bend, TIP= A27, Near= A27 N, Far= A27 F):

Elbow, Radius= 304.99 mm, Bend angle= 75.00 deg, End flanges= 0,  
Flex= 9.561, SIFI= 2.90, SIFO= 2.42

PIPE DATA (A27 N to A27 F):

Pipe Id= 200MX6.4, Nom Size= 200 mm, Sch= 6.4, Wall Thk= 6.400 mm,  
Mill= 0.800 mm

PIPE DATA (A27 F to A28):

Pipe Id= 200MX6.0, Nom Size= 200 mm, Sch= NS, Wall Thk= 6.000 mm,  
Mill= 0.750 mm

POINT DATA:

A27, Coordinates, X= 3681.03 mm, Y= 1751.11 mm, Z= -53471.98 mm  
A27 N, Coordinates, X= 3681.03 mm, Y= 1985.14 mm, Z= -53471.98 mm  
A27 F, Coordinates, X= 3681.03 mm, Y= 1690.54 mm, Z= -53698.03 mm

From A28 to A29, DY= -38.55 mm, DZ= -143.88 mm, L= 148.95 mm Redu

COMPONENT DATA (Reducer):

Length= 148.95 mm, SIF= 1.00

POINT DATA:

A28, Coordinates, X= 3681.03 mm, Y= 1689.75 mm, Z= -53700.98 mm

From A29 to A30, DY= -56.94 mm, DZ= -212.50 mm, L= 220.00 mm Valv

COMPONENT DATA (Valve):

NS, Rating= 40, Length= 220.00 mm, Weight= 65 kg, Surface factor= 0.00,  
End cond= Butt welded, SIF= 1.00, Without taper, Offset= 0.000 mm

PIPE DATA:

Pipe Id= 150MX6.0, Nom Size= 150 mm, OD= 168.30 mm

POINT DATA:

A29, Coordinates, X= 3681.03 mm, Y= 1651.20 mm, Z= -53844.86 mm

From A30 to A31, DY= 212.50 mm, DZ= -56.94 mm, L= 220.00 mm Valv

COMPONENT DATA (Valve):

NS, Rating= 40, Length= 220.00 mm, Weight= 65 kg, Surface factor= 0.00,  
End cond= Butt welded, SIF= 1.00, Without taper, Offset= 0.000 mm

POINT DATA:

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A30, Coordinates, X= 3681.03 mm, Y= 1594.26 mm, Z= -54057.36 mm

SUPPORT DATA:

A30, V-Stop, Support Id= A30 1, Connected to Ground, Mark= Undefined,  
Tag#= Undefined, CompID= Undefined

From A31 to A32, DY= 1512.07 mm, DZ= -405.16 mm, L= 1565.41 mm

Run

POINT DATA:

A31, Coordinates, X= 3681.03 mm, Y= 1806.76 mm, Z= -54114.30 mm

From A32 to A33, DZ= -1451.27 mm

Bend

COMPONENT DATA (Bend, TIP= A32, Near= A32 N, Far= A32 F):

Elbow, Radius= 228.37 mm, Bend angle= 75.00 deg, End flanges= 0,  
Flex= 7.930, SIFI= 2.56, SIFO= 2.14

POINT DATA:

A32, Coordinates, X= 3681.03 mm, Y= 3318.83 mm, Z= -54519.46 mm  
A32 N, Coordinates, X= 3681.03 mm, Y= 3149.57 mm, Z= -54474.11 mm  
A32 F, Coordinates, X= 3681.03 mm, Y= 3318.83 mm, Z= -54694.70 mm

From A33 to A34, DX= 1675.00 mm

Bend

COMPONENT DATA (Bend, TIP= A33, Near= A33 N, Far= A33 F):

Elbow, Radius= 228.50 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 7.925, SIFI= 2.56, SIFO= 2.14

POINT DATA:

A33, Coordinates, X= 3681.03 mm, Y= 3318.83 mm, Z= -55970.73 mm  
A33 N, Coordinates, X= 3681.03 mm, Y= 3318.83 mm, Z= -55742.23 mm  
A33 F, Coordinates, X= 3909.53 mm, Y= 3318.83 mm, Z= -55970.73 mm

\*\*\* SEGMENT B , LINE # 79319822

From A17 to B01, DX= 236.50 mm

Tee

COMPONENT DATA (Tee Branch, Center= A17):

B16.9 welding tee, SIFI= 3.56, SIFO= 4.41

PIPE DATA:

Pipe Id= 50MMX3.9, Nom Size= 50 mm, OD= 60.300 mm, Sch= 3.9,  
Wall Thk= 3.900 mm, Mill= 0.487 mm

POINT DATA:

A17, Coordinates, X= 111.02 mm, Y= 1336.30 mm, Z= -35166.48 mm

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\*\*\* SEGMENT C , LINE # 79319822

From C00 to C01, DY= 482.96 mm, DZ= -129.41 mm, L= 500.00 mm

Run

PIPE DATA:

Pipe Id= 150MX7.1, Nom Size= 150 mm, OD= 168.30 mm, Sch= 7.1,  
Wall Thk= 7.100 mm, Mill= 0.887 mm

POINT DATA:

C00, Coordinates, X= 7231.51 mm, Y= 3455.87 mm, Z= -55841.32 mm

SUPPORT DATA:

C00, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid, KRY= Rigid,  
KRZ= Rigid

From C01 to C02, DX= -1048.51 mm

Bend

COMPONENT DATA (Bend, TIP= C01, Near= C01 N, Far= C01 F):

Elbow, Radius= 228.99 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 6.593, SIFI= 2.27, SIFO= 1.89

POINT DATA:

C01, Coordinates, X= 7231.51 mm, Y= 3938.83 mm, Z= -55970.73 mm  
C01 N, Coordinates, X= 7231.51 mm, Y= 3717.64 mm, Z= -55911.46 mm  
C01 F, Coordinates, X= 7002.52 mm, Y= 3938.83 mm, Z= -55970.73 mm

From C02 to C03, DY= -620.00 mm

Bend

COMPONENT DATA (Bend, TIP= C02, Near= C02 N, Far= C02 F):

Elbow, Radius= 228.99 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 6.593, SIFI= 2.27, SIFO= 1.89

POINT DATA:

C02, Coordinates, X= 6183.00 mm, Y= 3938.83 mm, Z= -55970.73 mm  
C02 N, Coordinates, X= 6411.99 mm, Y= 3938.83 mm, Z= -55970.73 mm  
C02 F, Coordinates, X= 6183.00 mm, Y= 3709.84 mm, Z= -55970.73 mm

From C03 to A34, DX= -826.97 mm

Bend

COMPONENT DATA (Bend, TIP= C03, Near= C03 N, Far= C03 F):

Elbow, Radius= 228.99 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 6.593, SIFI= 2.27, SIFO= 1.89

POINT DATA:

C03, Coordinates, X= 6183.00 mm, Y= 3318.83 mm, Z= -55970.73 mm  
C03 N, Coordinates, X= 6183.00 mm, Y= 3547.82 mm, Z= -55970.73 mm  
C03 F, Coordinates, X= 5954.01 mm, Y= 3318.83 mm, Z= -55970.73 mm

\*\*\* SEGMENT D , LINE #

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From D00 to D01, DZ= 850.53 mm

Junc

PIPE DATA:

Pipe Id= 50MMX3.9, Nom Size= 50 mm, OD= 60.300 mm, Sch= 3.9,  
Wall Thk= 3.900 mm, Mill= 0.487 mm

POINT DATA:

D00, Coordinates, X= 2051.50 mm, Y= 2598.42 mm, Z= -55461.02 mm

From D01 to D02, DX= -1720.50 mm, DY= 1720.00 mm, DZ= 212.84 mm,  
L= 2442.09 mm

Bend

COMPONENT DATA (Bend, TIP= D01, Near= D01 N, Far= D01 F):

Elbow, Radius= 120.99 mm, Bend angle= 85.00 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

D01, Coordinates, X= 2051.50 mm, Y= 2598.42 mm, Z= -54610.50 mm  
D01 N, Coordinates, X= 2051.50 mm, Y= 2598.42 mm, Z= -54721.36 mm  
D01 F, Coordinates, X= 1973.39 mm, Y= 2676.50 mm, Z= -54600.83 mm

From D02 to D03, DZ= 9371.28 mm

Bend

COMPONENT DATA (Bend, TIP= D02, Near= D02 N, Far= D02 F):

Elbow, Radius= 120.99 mm, Bend angle= 85.00 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

D02, Coordinates, X= 331.00 mm, Y= 4318.42 mm, Z= -54397.65 mm  
D02 N, Coordinates, X= 409.11 mm, Y= 4240.33 mm, Z= -54407.31 mm  
D02 F, Coordinates, X= 331.00 mm, Y= 4318.42 mm, Z= -54286.79 mm

From D03 to D04, DY= -1237.29 mm, DZ= 108.25 mm, L= 1242.02 mm

Bend

COMPONENT DATA (Bend, TIP= D03, Near= D03 N, Far= D03 F):

Elbow, Radius= 120.99 mm, Bend angle= 85.00 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

D03, Coordinates, X= 331.00 mm, Y= 4318.42 mm, Z= -45026.38 mm  
D03 N, Coordinates, X= 331.00 mm, Y= 4318.42 mm, Z= -45137.24 mm  
D03 F, Coordinates, X= 331.00 mm, Y= 4207.98 mm, Z= -45016.71 mm

From D04 to D05, DX= 1612.06 mm, DY= 12.29 mm, DZ= 140.50 mm,  
L= 1618.22 mm

Bend

COMPONENT DATA (Bend, TIP= D04, Near= D04 N, Far= D04 F):

Elbow, Radius= 120.99 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

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POINT DATA:

D04, Coordinates, X= 331.00 mm, Y= 3081.13 mm, Z= -44918.12 mm  
D04 N, Coordinates, X= 331.00 mm, Y= 3201.66 mm, Z= -44928.67 mm  
D04 F, Coordinates, X= 451.53 mm, Y= 3082.05 mm, Z= -44907.62 mm

From D05 to D06, DZ= 1086.79 mm

Bend

COMPONENT DATA (Bend, TIP= D05, Near= D05 N, Far= D05 F):

Elbow, Radius= 120.99 mm, Bend angle= 85.02 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

D05, Coordinates, X= 1943.06 mm, Y= 3093.42 mm, Z= -44777.62 mm  
D05 N, Coordinates, X= 1832.58 mm, Y= 3092.58 mm, Z= -44787.25 mm  
D05 F, Coordinates, X= 1943.06 mm, Y= 3093.42 mm, Z= -44666.72 mm

From D06 to D07, DX= 89.68 mm, DZ= 24.03 mm, L= 92.84 mm

Bend

COMPONENT DATA (Bend, TIP= D06, Near= D06 N, Far= D06 F):

Elbow, Radius= 120.99 mm, Bend angle= 75.00 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

D06, Coordinates, X= 1943.06 mm, Y= 3093.42 mm, Z= -43690.83 mm  
D06 N, Coordinates, X= 1943.06 mm, Y= 3093.42 mm, Z= -43783.67 mm  
D06 F, Coordinates, X= 2032.74 mm, Y= 3093.42 mm, Z= -43666.80 mm

From D07 to D08, DX= 120.74 mm, DZ= 32.35 mm, L= 125.00 mm

Valv

COMPONENT DATA (Valve):

NS, Rating= 10, Length= 125.00 mm, Weight= 25 kg, Surface factor= 0.00,  
End cond= Butt welded, SIF= 1.00, Without taper, Offset= 0.000 mm

POINT DATA:

D07, Coordinates, X= 2032.74 mm, Y= 3093.42 mm, Z= -43666.80 mm

From D08 to D09, DX= -23.29 mm, DZ= 86.93 mm, L= 89.99 mm

Valv

COMPONENT DATA (Valve):

NS, Rating= 10, Length= 89.99 mm, Weight= 25 kg, Surface factor= 0.00,  
End cond= Butt welded, SIF= 1.00, Without taper, Offset= 0.000 mm

POINT DATA:

D08, Coordinates, X= 2153.48 mm, Y= 3093.42 mm, Z= -43634.45 mm

SUPPORT DATA:

D08, V-Stop, Support Id= D08 1, Connected to Ground, Mark= Undefined,  
Tag#= Undefined, CompID= Undefined

From D09 to D10, DX= -4.12 mm, DZ= 15.39 mm, L= 15.93 mm

Run

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POINT DATA:

D09, Coordinates, X= 2130.19 mm, Y= 3093.42 mm, Z= -43547.52 mm

From D10 to D11, DZ= 1255.64 mm

Bend

COMPONENT DATA (Bend, TIP= D10, Near= D10 N, Far= D10 F):

Elbow, Radius= 120.99 mm, Bend angle= 14.99 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

D10, Coordinates, X= 2126.07 mm, Y= 3093.42 mm, Z= -43532.13 mm  
D10 N, Coordinates, X= 2130.18 mm, Y= 3093.42 mm, Z= -43547.50 mm  
D10 F, Coordinates, X= 2126.07 mm, Y= 3093.42 mm, Z= -43516.22 mm

From D11 to D12, DX= -1250.05 mm, DZ= 109.37 mm, L= 1254.83 mm

Bend

COMPONENT DATA (Bend, TIP= D11, Near= D11 N, Far= D11 F):

Elbow, Radius= 120.99 mm, Bend angle= 85.00 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

D11, Coordinates, X= 2126.07 mm, Y= 3093.42 mm, Z= -42276.50 mm  
D11 N, Coordinates, X= 2126.07 mm, Y= 3093.42 mm, Z= -42387.36 mm  
D11 F, Coordinates, X= 2015.63 mm, Y= 3093.42 mm, Z= -42266.83 mm

From D12 to D13, DY= -120.54 mm, DZ= 10.55 mm, L= 121.00 mm

Bend

COMPONENT DATA (Bend, TIP= D12, Near= D12 N, Far= D12 F):

Elbow, Radius= 120.99 mm, Bend angle= 89.56 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

D12, Coordinates, X= 876.02 mm, Y= 3093.42 mm, Z= -42167.13 mm  
D12 N, Coordinates, X= 995.64 mm, Y= 3093.42 mm, Z= -42177.59 mm  
D12 F, Coordinates, X= 876.02 mm, Y= 2973.80 mm, Z= -42156.65 mm

From D13 to D14, DY= -1636.58 mm, DZ= 143.18 mm, L= 1642.83 mm

Run

POINT DATA:

D13, Coordinates, X= 876.02 mm, Y= 2972.88 mm, Z= -42156.57 mm

From D14 to D15, DZ= 250.01 mm

Bend

COMPONENT DATA (Bend, TIP= D14, Near= D14 N, Far= D14 F):

Elbow, Radius= 120.99 mm, Bend angle= 85.00 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

D14, Coordinates, X= 876.02 mm, Y= 1336.30 mm, Z= -42013.39 mm  
D14 N, Coordinates, X= 876.02 mm, Y= 1446.74 mm, Z= -42023.05 mm

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D14 F, Coordinates, X= 876.02 mm, Y= 1336.30 mm, Z= -41902.52 mm

From D15 to D16, DY= 348.66 mm, DZ= 30.50 mm, L= 349.99 mm Bend

COMPONENT DATA (Bend, TIP= D15, Near= D15 N, Far= D15 F):  
Elbow, Radius= 120.99 mm, Bend angle= 85.00 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

D15, Coordinates, X= 876.02 mm, Y= 1336.30 mm, Z= -41763.39 mm  
D15 N, Coordinates, X= 876.02 mm, Y= 1336.30 mm, Z= -41874.25 mm  
D15 F, Coordinates, X= 876.02 mm, Y= 1446.75 mm, Z= -41753.72 mm

From D16 to D17, DX= -120.54 mm, DZ= 10.55 mm, L= 121.00 mm Bend

COMPONENT DATA (Bend, TIP= D16, Near= D16 N, Far= D16 F):  
Elbow, Radius= 120.99 mm, Bend angle= 89.56 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

D16, Coordinates, X= 876.02 mm, Y= 1684.96 mm, Z= -41732.88 mm  
D16 N, Coordinates, X= 876.02 mm, Y= 1565.34 mm, Z= -41743.35 mm  
D16 F, Coordinates, X= 756.40 mm, Y= 1684.96 mm, Z= -41722.41 mm

From D17 to D18, DX= -223.46 mm, DZ= 19.55 mm, L= 224.31 mm Run

POINT DATA:

D17, Coordinates, X= 755.48 mm, Y= 1684.96 mm, Z= -41722.33 mm

From D18 to D19, DY= -348.66 mm, DZ= 30.50 mm, L= 349.99 mm Bend

COMPONENT DATA (Bend, TIP= D18, Near= D18 N, Far= D18 F):  
Elbow, Radius= 120.99 mm, Bend angle= 89.56 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

D18, Coordinates, X= 532.02 mm, Y= 1684.96 mm, Z= -41702.79 mm  
D18 N, Coordinates, X= 651.64 mm, Y= 1684.96 mm, Z= -41713.25 mm  
D18 F, Coordinates, X= 532.02 mm, Y= 1565.34 mm, Z= -41692.32 mm

From D19 to D20, DZ= 384.80 mm Bend

COMPONENT DATA (Bend, TIP= D19, Near= D19 N, Far= D19 F):  
Elbow, Radius= 120.99 mm, Bend angle= 85.00 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

D19, Coordinates, X= 532.02 mm, Y= 1336.30 mm, Z= -41672.29 mm  
D19 N, Coordinates, X= 532.02 mm, Y= 1446.75 mm, Z= -41681.95 mm  
D19 F, Coordinates, X= 532.02 mm, Y= 1336.30 mm, Z= -41561.41 mm

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From D20 to D21, DZ= 6121.00 mm

Run

POINT DATA:

D20, Coordinates, X= 532.02 mm, Y= 1336.30 mm, Z= -41287.48 mm

From D21 to B01, DX= -184.50 mm

Bend

COMPONENT DATA (Bend, TIP= D21, Near= D21 N, Far= D21 F):

Elbow, Radius= 120.99 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

D21, Coordinates, X= 532.02 mm, Y= 1336.30 mm, Z= -35166.48 mm

D21 N, Coordinates, X= 532.02 mm, Y= 1336.30 mm, Z= -35287.47 mm

D21 F, Coordinates, X= 411.03 mm, Y= 1336.30 mm, Z= -35166.48 mm

\*\*\* SEGMENT E , LINE #

From E00 to E01, DX= 492.40 mm, DY= 86.82 mm, L= 500.00 mm

Redu

COMPONENT DATA (Reducer):

Length= 500.00 mm, SIF= 1.00

PIPE DATA:

Pipe Id= 500MX6.0, Nom Size= 500 mm, OD= 508.00 mm, Sch= 6.0,  
Wall Thk= 6.000 mm, Mill= 0.750 mm

POINT DATA:

E00, Coordinates, X= 48.37 mm, Y= 4577.16 mm, Z= -55161.63 mm

SUPPORT DATA:

E00, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid, KRY= Rigid,  
KRZ= Rigid

From E01 to E02, DX= 600.73 mm, DY= 105.93 mm, L= 610.00 mm

Run

PIPE DATA:

Pipe Id= PIPE0001, Nom Size= 400 mm, OD= 406.00 mm, Sch= 4.0,  
Wall Thk= 4.000 mm, Mill= 0.500 mm

POINT DATA:

E01, Coordinates, X= 540.77 mm, Y= 4663.98 mm, Z= -55161.63 mm

From E02 to E03, DZ= 1800.00 mm

Bend

COMPONENT DATA (Bend, TIP= E02, Near= E02 N, Far= E02 F):

Elbow, Radius= 609.99 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 27.321, SIFI= 5.85, SIFO= 4.87



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POINT DATA:

E02, Coordinates, X= 1141.50 mm, Y= 4769.91 mm, Z= -55161.63 mm  
E02 N, Coordinates, X= 540.78 mm, Y= 4663.98 mm, Z= -55161.63 mm  
E02 F, Coordinates, X= 1141.50 mm, Y= 4769.91 mm, Z= -54551.64 mm

From E03 to E04, DY= -2171.49 mm

Bend

COMPONENT DATA (Bend, TIP= E03, Near= E03 N, Far= E03 F):

Elbow, Radius= 609.99 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 27.321, SIFI= 5.85, SIFO= 4.87

POINT DATA:

E03, Coordinates, X= 1141.50 mm, Y= 4769.91 mm, Z= -53361.63 mm  
E03 N, Coordinates, X= 1141.50 mm, Y= 4769.91 mm, Z= -53971.62 mm  
E03 F, Coordinates, X= 1141.50 mm, Y= 4159.92 mm, Z= -53361.63 mm

From E04 to E05, DZ= -2354.89 mm

Bend

COMPONENT DATA (Bend, TIP= E04, Near= E04 N, Far= E04 F):

Elbow, Radius= 609.99 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 27.321, SIFI= 5.85, SIFO= 4.87

POINT DATA:

E04, Coordinates, X= 1141.50 mm, Y= 2598.42 mm, Z= -53361.63 mm  
E04 N, Coordinates, X= 1141.50 mm, Y= 3208.41 mm, Z= -53361.63 mm  
E04 F, Coordinates, X= 1141.50 mm, Y= 2598.42 mm, Z= -53971.62 mm

From E05 to E06, DX= 710.00 mm

Bend

COMPONENT DATA (Bend, TIP= E05, Near= E05 N, Far= E05 F):

Elbow, Radius= 609.99 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 27.321, SIFI= 5.85, SIFO= 4.87

POINT DATA:

E05, Coordinates, X= 1141.50 mm, Y= 2598.42 mm, Z= -55716.52 mm  
E05 N, Coordinates, X= 1141.50 mm, Y= 2598.42 mm, Z= -55106.54 mm  
E05 F, Coordinates, X= 1751.49 mm, Y= 2598.42 mm, Z= -55716.52 mm

From E06 to E07, DX= 200.00 mm

Tee

COMPONENT DATA (Tee Header, Center= E06):

B16.9 welding tee, SIFI= 4.57, SIFO= 5.76

POINT DATA:

E06, Coordinates, X= 1851.50 mm, Y= 2598.42 mm, Z= -55716.52 mm

From E07 to E08, DX= 3104.49 mm

Tee

COMPONENT DATA (Tee Header, Center= E07):

B16.9 welding tee, SIFI= 4.57, SIFO= 5.76

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POINT DATA:

E07, Coordinates, X= 2051.50 mm, Y= 2598.42 mm, Z= -55716.52 mm

\*\*\* SEGMENT F , LINE #

From E06 to F01, DZ= 255.49 mm

Tee

COMPONENT DATA (Tee Branch, Center= E06):

B16.9 welding tee, SIFI= 4.57, SIFO= 5.76

PIPE DATA:

Pipe Id= 50MMX3.9, Nom Size= 50 mm, OD= 60.300 mm, Sch= 3.9,  
Wall Thk= 3.900 mm, Mill= 0.487 mm

POINT DATA:

E06, Coordinates, X= 1851.50 mm, Y= 2598.42 mm, Z= -55716.52 mm

\*\*\* SEGMENT G , LINE #

From E07 to D00, DZ= 255.49 mm

Tee

COMPONENT DATA (Tee Branch, Center= E07):

B16.9 welding tee, SIFI= 4.57, SIFO= 5.76

PIPE DATA:

Pipe Id= 50MMX3.9, Nom Size= 50 mm

POINT DATA:

E07, Coordinates, X= 2051.50 mm, Y= 2598.42 mm, Z= -55716.52 mm

\*\*\* SEGMENT H , LINE #

From E08 to H01, DX= 610.00 mm

Junc

PIPE DATA:

Pipe Id= 400MX6.0, Nom Size= 400 mm, OD= 406.00 mm, Sch= 6.0,  
Wall Thk= 6.000 mm, Mill= 0.750 mm

POINT DATA:

E08, Coordinates, X= 5155.99 mm, Y= 2598.42 mm, Z= -55716.52 mm

From H01 to H02, DY= -1223.08 mm, DZ= 1196.69 mm, L= 1711.14 mm

Bend

COMPONENT DATA (Bend, TIP= H01, Near= H01 N, Far= H01 F):

Elbow, Radius= 609.99 mm, Bend angle= 90.00 deg, End flanges= 0,

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C O M P O N E N T   D A T A   L I S T I N G

Flex= 18.033, SIFI= 4.43, SIFO= 3.69

POINT DATA:

H01, Coordinates, X= 5765.99 mm, Y= 2598.42 mm, Z= -55716.52 mm  
H01 N, Coordinates, X= 5156.00 mm, Y= 2598.42 mm, Z= -55716.52 mm  
H01 F, Coordinates, X= 5765.99 mm, Y= 2162.41 mm, Z= -55289.92 mm

From H02 to H03, DX= 1060.00 mm

Bend

COMPONENT DATA (Bend, TIP= H02, Near= H02 N, Far= H02 F):

Elbow, Radius= 609.99 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 18.033, SIFI= 4.43, SIFO= 3.69

POINT DATA:

H02, Coordinates, X= 5765.99 mm, Y= 1375.34 mm, Z= -54519.83 mm  
H02 N, Coordinates, X= 5765.99 mm, Y= 1811.35 mm, Z= -54946.43 mm  
H02 F, Coordinates, X= 6375.98 mm, Y= 1375.34 mm, Z= -54519.83 mm

From H03 to H04, DX= 1099.23 mm

Tee

COMPONENT DATA (Tee Header, Center= H03):

B16.9 welding tee, SIFI= 3.54, SIFO= 4.38

POINT DATA:

H03, Coordinates, X= 6825.99 mm, Y= 1375.34 mm, Z= -54519.83 mm

From H04 to H05, DX= 0.25 mm

Tee

COMPONENT DATA (Tee Header, Center= H04):

B16.9 welding tee, SIFI= 3.54, SIFO= 4.38

POINT DATA:

H04, Coordinates, X= 7925.22 mm, Y= 1375.34 mm, Z= -54519.83 mm

From H05 to H06, DX= 300.00 mm

Tee

COMPONENT DATA (Tee Header, Center= H05):

B16.9 welding tee, SIFI= 3.54, SIFO= 4.38

POINT DATA:

H05, Coordinates, X= 7925.47 mm, Y= 1375.34 mm, Z= -54519.83 mm

From H06 to H07, DX= 350.00 mm

Redu

COMPONENT DATA (Reducer):

Length= 350.00 mm, SIF= 1.00

POINT DATA:

H06, Coordinates, X= 8225.47 mm, Y= 1375.34 mm, Z= -54519.83 mm

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C O M P O N E N T   D A T A   L I S T I N G

\*\*\* SEGMENT I , LINE #

From H03 to I01, DY= -186.68 mm, DZ= 186.68 mm, L= 264.01 mm Tee

COMPONENT DATA (Tee Branch, Center= H03):  
B16.9 welding tee, SIFI= 3.54, SIFO= 4.38

PIPE DATA:  
Pipe Id= 150MX4.0, Nom Size= 150 mm, OD= 168.30 mm, Sch= 4.0,  
Wall Thk= 4.000 mm, Mill= 0.500 mm

POINT DATA:  
H03, Coordinates, X= 6825.99 mm, Y= 1375.34 mm, Z= -54519.83 mm

\*\*\* SEGMENT J , LINE #

From H04 to J01, DX= 0.25 mm, DY= -295.00 mm, L= 295.00 mm Tee

COMPONENT DATA (Tee Branch, Center= H04):  
B16.9 welding tee, SIFI= 3.54, SIFO= 4.38

PIPE DATA:  
Pipe Id= 300MX4.0, Nom Size= 300 mm, OD= 324.00 mm

POINT DATA:  
H04, Coordinates, X= 7925.22 mm, Y= 1375.34 mm, Z= -54519.83 mm

From J01 to J02, DY= -457.92 mm Run

PIPE DATA:  
Pipe Id= 300MX4.6, Nom Size= 300 mm, Sch= NS, Wall Thk= 4.600 mm,  
Mill= 0.575 mm

POINT DATA:  
J01, Coordinates, X= 7925.47 mm, Y= 1080.34 mm, Z= -54519.83 mm

From J02 to J03, DX= 780.15 mm, DZ= 209.04 mm, L= 807.67 mm Bend

COMPONENT DATA (Bend, TIP= J02, Near= J02 N, Far= J02 F):  
Elbow, Radius= 456.99 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 20.018, SIFI= 4.75, SIFO= 3.96

POINT DATA:  
J02, Coordinates, X= 7925.47 mm, Y= 622.42 mm, Z= -54519.83 mm  
J02 N, Coordinates, X= 7925.47 mm, Y= 1079.41 mm, Z= -54519.83 mm  
J02 F, Coordinates, X= 8366.89 mm, Y= 622.42 mm, Z= -54401.55 mm

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C O M P O N E N T   D A T A   L I S T I N G

From J03 to J04, DZ= 807.67 mm

Bend

COMPONENT DATA (Bend, TIP= J03, Near= J03 N, Far= J03 F):

Elbow, Radius= 456.99 mm, Bend angle= 75.00 deg, End flanges= 0,  
Flex= 20.018, SIFI= 4.75, SIFO= 3.96

POINT DATA:

J03, Coordinates, X= 8705.62 mm, Y= 622.42 mm, Z= -54310.79 mm  
J03 N, Coordinates, X= 8366.91 mm, Y= 622.42 mm, Z= -54401.55 mm  
J03 F, Coordinates, X= 8705.62 mm, Y= 622.42 mm, Z= -53960.13 mm

From J04 to J05, DX= -704.00 mm

Bend

COMPONENT DATA (Bend, TIP= J04, Near= J04 N, Far= J04 F):

Elbow, Radius= 456.99 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 20.018, SIFI= 4.75, SIFO= 3.96

PIPE DATA (J04 F to J05):

Pipe Id= 300MX5.0, Nom Size= 300 mm, Sch= 5.0, Wall Thk= 5.000 mm,  
Mill= 0.625 mm

POINT DATA:

J04, Coordinates, X= 8705.62 mm, Y= 622.42 mm, Z= -53503.11 mm  
J04 N, Coordinates, X= 8705.62 mm, Y= 622.42 mm, Z= -53960.11 mm  
J04 F, Coordinates, X= 8248.63 mm, Y= 622.42 mm, Z= -53503.11 mm

From J05 to J06, DX= -1450.00 mm

Tee

COMPONENT DATA (Tee Header, Center= J05):

B16.9 welding tee, SIFI= 3.44, SIFO= 4.26

POINT DATA:

J05, Coordinates, X= 8001.62 mm, Y= 622.42 mm, Z= -53503.11 mm

From J06 to J07, DX= -200.00 mm

Tee

COMPONENT DATA (Tee Header, Center= J06):

B16.9 welding tee, SIFI= 3.44, SIFO= 4.26

POINT DATA:

J06, Coordinates, X= 6551.62 mm, Y= 622.42 mm, Z= -53503.11 mm  
J07, Coordinates, X= 6351.62 mm, Y= 622.42 mm, Z= -53503.11 mm

\*\*\* SEGMENT K , LINE #

From H05 to K01, DY= 295.00 mm

Tee

COMPONENT DATA (Tee Branch, Center= H05):

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B16.9 welding tee, SIFI= 3.54, SIFO= 4.38

PIPE DATA:

Pipe Id= 300MX4.0, Nom Size= 300 mm, Sch= 4.0, Wall Thk= 4.000 mm,  
Mill= 0.500 mm

POINT DATA:

H05, Coordinates, X= 7925.47 mm, Y= 1375.34 mm, Z= -54519.83 mm

From K01 to K02, DY= 2844.08 mm

Run

PIPE DATA (K01 to K02 N):

Pipe Id= 300MX5.0, Nom Size= 300 mm, Sch= 5.0, Wall Thk= 5.000 mm,  
Mill= 0.625 mm

POINT DATA:

K01, Coordinates, X= 7925.47 mm, Y= 1670.34 mm, Z= -54519.83 mm

From K02 to K03, DX= 780.15 mm, DZ= 209.04 mm, L= 807.67 mm

Bend

COMPONENT DATA (Bend, TIP= K02, Near= K02 N, Far= K02 F):

Elbow, Radius= 456.99 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 20.018, SIFI= 4.75, SIFO= 3.96

PIPE DATA (K02 N to K02 F):

Pipe Id= 300MX4.6, Nom Size= 300 mm, Sch= NS, Wall Thk= 4.600 mm,  
Mill= 0.575 mm

POINT DATA:

K02, Coordinates, X= 7925.47 mm, Y= 4514.42 mm, Z= -54519.83 mm  
K02 N, Coordinates, X= 7925.47 mm, Y= 4057.43 mm, Z= -54519.83 mm  
K02 F, Coordinates, X= 8366.89 mm, Y= 4514.42 mm, Z= -54401.55 mm

From K03 to K04, DZ= 807.67 mm

Bend

COMPONENT DATA (Bend, TIP= K03, Near= K03 N, Far= K03 F):

Elbow, Radius= 456.99 mm, Bend angle= 75.00 deg, End flanges= 0,

Flex= 20.018, SIFI= 4.75, SIFO= 3.96

POINT DATA:

K03, Coordinates, X= 8705.62 mm, Y= 4514.42 mm, Z= -54310.79 mm  
K03 N, Coordinates, X= 8366.91 mm, Y= 4514.42 mm, Z= -54401.55 mm  
K03 F, Coordinates, X= 8705.62 mm, Y= 4514.42 mm, Z= -53960.13 mm

From K04 to K05, DX= -704.00 mm

Bend

COMPONENT DATA (Bend, TIP= K04, Near= K04 N, Far= K04 F):

Elbow, Radius= 456.99 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 20.018, SIFI= 4.75, SIFO= 3.96

PIPE DATA (K04 F to K05):

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Pipe Id= 300MX5.0, Nom Size= 300 mm, Sch= 5.0, Wall Thk= 5.000 mm,  
Mill= 0.625 mm

POINT DATA:

K04, Coordinates, X= 8705.62 mm, Y= 4514.42 mm, Z= -53503.11 mm  
K04 N, Coordinates, X= 8705.62 mm, Y= 4514.42 mm, Z= -53960.11 mm  
K04 F, Coordinates, X= 8248.63 mm, Y= 4514.42 mm, Z= -53503.11 mm

From K05 to K06, DX= -1450.00 mm

Tee

COMPONENT DATA (Tee Header, Center= K05):

B16.9 welding tee, SIFI= 3.44, SIFO= 4.26

POINT DATA:

K05, Coordinates, X= 8001.62 mm, Y= 4514.42 mm, Z= -53503.11 mm

From K06 to K07, DX= -200.00 mm

Tee

COMPONENT DATA (Tee Header, Center= K06):

B16.9 welding tee, SIFI= 3.44, SIFO= 4.26

POINT DATA:

K06, Coordinates, X= 6551.62 mm, Y= 4514.42 mm, Z= -53503.11 mm  
K07, Coordinates, X= 6351.62 mm, Y= 4514.42 mm, Z= -53503.11 mm

\*\*\* SEGMENT L , LINE #

From J05 to L01, DZ= 230.00 mm

Tee

COMPONENT DATA (Tee Branch, Center= J05):

B16.9 welding tee, SIFI= 3.44, SIFO= 4.26

PIPE DATA:

Pipe Id= 200MX6.4, Nom Size= 200 mm, OD= 219.10 mm, Sch= 6.4,  
Wall Thk= 6.400 mm, Mill= 0.800 mm

POINT DATA:

J05, Coordinates, X= 8001.62 mm, Y= 622.42 mm, Z= -53503.11 mm

From L01 to L02, DZ= 1067.60 mm

Run

PIPE DATA:

Pipe Id= 200MX6.4, Nom Size= 200 mm

POINT DATA:

L01, Coordinates, X= 8001.62 mm, Y= 622.42 mm, Z= -53273.12 mm  
L02, Coordinates, X= 8001.62 mm, Y= 622.42 mm, Z= -52205.52 mm

SUPPORT DATA:

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L02, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid, KRY= Rigid,  
KRZ= Rigid

\*\*\* SEGMENT M , LINE #

From K05 to M01, DZ= 230.00 mm

Tee

COMPONENT DATA (Tee Branch, Center= K05):  
B16.9 welding tee, SIFI= 3.44, SIFO= 4.26

PIPE DATA:  
Pipe Id= 200MX6.4, Nom Size= 200 mm

POINT DATA:  
K05, Coordinates, X= 8001.62 mm, Y= 4514.42 mm, Z= -53503.11 mm

From M01 to M02, DZ= 1067.60 mm

Run

PIPE DATA:  
Pipe Id= 200MX6,4, Nom Size= 200 mm

POINT DATA:  
M01, Coordinates, X= 8001.62 mm, Y= 4514.42 mm, Z= -53273.12 mm  
M02, Coordinates, X= 8001.62 mm, Y= 4514.42 mm, Z= -52205.52 mm

SUPPORT DATA:  
M02, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid, KRY= Rigid,  
KRZ= Rigid

\*\*\* SEGMENT N , LINE #

From J06 to N01, DZ= 230.00 mm

Tee

COMPONENT DATA (Tee Branch, Center= J06):  
B16.9 welding tee, SIFI= 3.44, SIFO= 4.26

PIPE DATA:  
Pipe Id= 200MX6.4, Nom Size= 200 mm

POINT DATA:  
J06, Coordinates, X= 6551.62 mm, Y= 622.42 mm, Z= -53503.11 mm

From N01 to N02, DZ= 1067.60 mm

Run

PIPE DATA:  
Pipe Id= 200MX6,4, Nom Size= 200 mm



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C O M P O N E N T   D A T A   L I S T I N G

POINT DATA:

N01, Coordinates, X= 6551.62 mm, Y= 622.42 mm, Z= -53273.12 mm  
N02, Coordinates, X= 6551.62 mm, Y= 622.42 mm, Z= -52205.52 mm

SUPPORT DATA:

N02, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid, KRY= Rigid,  
KRZ= Rigid

\*\*\* SEGMENT O , LINE #

From K06 to O01, DZ= 230.00 mm

Tee

COMPONENT DATA (Tee Branch, Center= K06):

B16.9 welding tee, SIFI= 3.44, SIFO= 4.26

PIPE DATA:

Pipe Id= 200MX6.4, Nom Size= 200 mm

POINT DATA:

K06, Coordinates, X= 6551.62 mm, Y= 4514.42 mm, Z= -53503.11 mm

From O01 to O02, DZ= 1067.60 mm

Run

PIPE DATA:

Pipe Id= 200MX6,4, Nom Size= 200 mm

POINT DATA:

O01, Coordinates, X= 6551.62 mm, Y= 4514.42 mm, Z= -53273.12 mm  
O02, Coordinates, X= 6551.62 mm, Y= 4514.42 mm, Z= -52205.52 mm

SUPPORT DATA:

O02, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid, KRY= Rigid,  
KRZ= Rigid

\*\*\* SEGMENT Q , LINE #

From Q00 to Q01, DZ= 767.00 mm

Run

PIPE DATA (Q00 to Q01 N):

Pipe Id= 200MX6,4, Nom Size= 200 mm

POINT DATA:

Q00, Coordinates, X= 8748.50 mm, Y= 2568.84 mm, Z= -48815.37 mm

SUPPORT DATA:

Q00, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid, KRY= Rigid,  
KRZ= Rigid

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From Q01 to Q02, DY= -308.05 mm Bend

COMPONENT DATA (Bend, TIP= Q01, Near= Q01 N, Far= Q01 F):  
Elbow, Radius= 304.99 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 9.561, SIFI= 2.90, SIFO= 2.42

PIPE DATA (Q01 N to Q01 F):  
Pipe Id= 200MX6.4, Nom Size= 200 mm

PIPE DATA (Q01 F to Q02):  
Pipe Id= 200MX6.4, Nom Size= 200 mm

POINT DATA:  
Q01, Coordinates, X= 8748.50 mm, Y= 2568.84 mm, Z= -48048.37 mm  
Q01 N, Coordinates, X= 8748.50 mm, Y= 2568.84 mm, Z= -48353.36 mm  
Q01 F, Coordinates, X= 8748.50 mm, Y= 2263.85 mm, Z= -48048.37 mm

From Q02 to Q03, DY= -148.95 mm Redu

COMPONENT DATA (Reducer):  
Length= 148.95 mm, SIF= 1.00

POINT DATA:  
Q02, Coordinates, X= 8748.50 mm, Y= 2260.79 mm, Z= -48048.37 mm

From Q03 to Q04, DY= -722.00 mm Run

PIPE DATA:  
Pipe Id= 150MX6.0, Nom Size= 150 mm, OD= 168.30 mm, Sch= NS,  
Wall Thk= 6.000 mm, Mill= 0.750 mm

POINT DATA:  
Q03, Coordinates, X= 8748.50 mm, Y= 2111.84 mm, Z= -48048.37 mm

From Q04 to Q05, DZ= -1181.59 mm Bend

COMPONENT DATA (Bend, TIP= Q04, Near= Q04 N, Far= Q04 F):  
Elbow, Radius= 228.99 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 7.908, SIFI= 2.56, SIFO= 2.13

POINT DATA:  
Q04, Coordinates, X= 8748.50 mm, Y= 1389.84 mm, Z= -48048.37 mm  
Q04 N, Coordinates, X= 8748.50 mm, Y= 1618.83 mm, Z= -48048.37 mm  
Q04 F, Coordinates, X= 8748.50 mm, Y= 1389.84 mm, Z= -48277.36 mm

From Q05 to Q06, DY= -841.60 mm Bend

COMPONENT DATA (Bend, TIP= Q05, Near= Q05 N, Far= Q05 F):  
Elbow, Radius= 228.99 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 7.908, SIFI= 2.56, SIFO= 2.13

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POINT DATA:

Q05, Coordinates, X= 8748.50 mm, Y= 1389.84 mm, Z= -49229.96 mm  
Q05 N, Coordinates, X= 8748.50 mm, Y= 1389.84 mm, Z= -49000.97 mm  
Q05 F, Coordinates, X= 8748.50 mm, Y= 1160.85 mm, Z= -49229.96 mm

From Q06 to Q07, DX= -1675.35 mm

Bend

COMPONENT DATA (Bend, TIP= Q06, Near= Q06 N, Far= Q06 F):

Elbow, Radius= 228.99 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 7.908, SIFI= 2.56, SIFO= 2.13

POINT DATA:

Q06, Coordinates, X= 8748.50 mm, Y= 548.24 mm, Z= -49229.96 mm  
Q06 N, Coordinates, X= 8748.50 mm, Y= 777.23 mm, Z= -49229.96 mm  
Q06 F, Coordinates, X= 8519.51 mm, Y= 548.24 mm, Z= -49229.96 mm

From Q07 to Q08, DZ= -2967.44 mm

Bend

COMPONENT DATA (Bend, TIP= Q07, Near= Q07 N, Far= Q07 F):

Elbow, Radius= 228.99 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 7.908, SIFI= 2.56, SIFO= 2.13

POINT DATA:

Q07, Coordinates, X= 7073.15 mm, Y= 548.24 mm, Z= -49229.96 mm  
Q07 N, Coordinates, X= 7302.14 mm, Y= 548.24 mm, Z= -49229.96 mm  
Q07 F, Coordinates, X= 7073.15 mm, Y= 548.24 mm, Z= -49458.95 mm

From Q08 to Q09, DX= -247.16 mm, DZ= -428.10 mm, L= 494.33 mm

Bend

COMPONENT DATA (Bend, TIP= Q08, Near= Q08 N, Far= Q08 F):

Elbow, Radius= 228.99 mm, Bend angle= 30.00 deg, End flanges= 0,  
Flex= 7.908, SIFI= 2.56, SIFO= 2.13

POINT DATA:

Q08, Coordinates, X= 7073.15 mm, Y= 548.24 mm, Z= -52197.39 mm  
Q08 N, Coordinates, X= 7073.15 mm, Y= 548.24 mm, Z= -52136.04 mm  
Q08 F, Coordinates, X= 7042.47 mm, Y= 548.24 mm, Z= -52250.54 mm

From Q09 to Q10, DY= 494.95 mm, DZ= -108.40 mm, L= 506.68 mm

Bend

COMPONENT DATA (Bend, TIP= Q09, Near= Q09 N, Far= Q09 F):

Elbow, Radius= 228.99 mm, Bend angle= 79.32 deg, End flanges= 0,  
Flex= 7.908, SIFI= 2.56, SIFO= 2.13

POINT DATA:

Q09, Coordinates, X= 6825.99 mm, Y= 548.24 mm, Z= -52625.50 mm  
Q09 N, Coordinates, X= 6920.91 mm, Y= 548.24 mm, Z= -52461.08 mm  
Q09 F, Coordinates, X= 6825.99 mm, Y= 733.69 mm, Z= -52666.11 mm

From Q10 to Q11, DZ= -1453.78 mm

Bend

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COMPONENT DATA (Bend, TIP= Q10, Near= Q10 N, Far= Q10 F):  
Elbow, Radius= 228.99 mm, Bend angle= 77.65 deg, End flanges= 0,  
Flex= 7.908, SIFI= 2.56, SIFO= 2.13

POINT DATA:

Q10, Coordinates, X= 6825.99 mm, Y= 1043.19 mm, Z= -52733.90 mm  
Q10 N, Coordinates, X= 6825.99 mm, Y= 863.19 mm, Z= -52694.48 mm  
Q10 F, Coordinates, X= 6825.99 mm, Y= 1043.19 mm, Z= -52918.16 mm

From Q11 to I01, DY= 145.47 mm, DZ= -145.47 mm, L= 205.73 mm Bend

COMPONENT DATA (Bend, TIP= Q11, Near= Q11 N, Far= Q11 F):  
Elbow, Radius= 228.98 mm, Bend angle= 45.00 deg, End flanges= 0,  
Flex= 7.909, SIFI= 2.56, SIFO= 2.13

POINT DATA:

Q11, Coordinates, X= 6825.99 mm, Y= 1043.19 mm, Z= -54187.68 mm  
Q11 N, Coordinates, X= 6825.99 mm, Y= 1043.19 mm, Z= -54092.83 mm  
Q11 F, Coordinates, X= 6825.99 mm, Y= 1110.26 mm, Z= -54254.75 mm

\*\*\* SEGMENT R , LINE #

From R00 to R01, DY= 300.00 mm Junc

PIPE DATA:

Pipe Id= 200MX6.0, Nom Size= 200 mm, OD= 219.10 mm

POINT DATA:

R00, Coordinates, X= 8956.47 mm, Y= 1688.37 mm, Z= -58466.52 mm

From R01 to R02, DY= 200.00 mm Redu

COMPONENT DATA (Reducer):

Length= 200.00 mm, SIF= 1.00

POINT DATA:

R01, Coordinates, X= 8956.47 mm, Y= 1988.37 mm, Z= -58466.52 mm

From R02 to R03, DX= 0 mm, DY= 200.00 mm, L= 200.00 mm Run

PIPE DATA:

Pipe Id= 250MX8.0, Nom Size= 250 mm, OD= 273.00 mm, Sch= 8.0,  
Wall Thk= 8.000 mm, Mill= 1.000 mm

POINT DATA:

R02, Coordinates, X= 8956.47 mm, Y= 2188.37 mm, Z= -58466.52 mm

From R03 to R04, DX= 0 mm, DY= 200.00 mm, L= 200.00 mm Tee

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C O M P O N E N T   D A T A   L I S T I N G

COMPONENT DATA (Tee Header, Center= R03):  
B16.9 welding tee, SIFI= 2.31, SIFO= 2.75

POINT DATA:  
R03, Coordinates, X= 8956.47 mm, Y= 2388.37 mm, Z= -58466.52 mm

From R04 to R05, DY= 200.00 mm

Redu

COMPONENT DATA (Reducer):  
Length= 200.00 mm, SIF= 1.00

PIPE DATA:  
Pipe Id= 250MX6.0, Nom Size= 250 mm, Sch= NS, Wall Thk= 6.000 mm,  
Mill= 0.750 mm

POINT DATA:  
R04, Coordinates, X= 8956.47 mm, Y= 2588.37 mm, Z= -58466.52 mm

From R05 to R06, DY= 1380.16 mm

Run

PIPE DATA (R05 to R06 N):  
Pipe Id= 200MX6.0, Nom Size= 200 mm, OD= 219.10 mm

POINT DATA:  
R05, Coordinates, X= 8956.47 mm, Y= 2788.37 mm, Z= -58466.52 mm

From R06 to R07, DX= 305.00 mm

Bend

COMPONENT DATA (Bend, TIP= R06, Near= R06 N, Far= R06 F):  
Elbow, Radius= 304.99 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 9.561, SIFI= 2.90, SIFO= 2.42

PIPE DATA (R06 N to R06 F):  
Pipe Id= PIPE0002, Nom Size= 200 mm, Sch= 6.4, Wall Thk= 6.400 mm,  
Mill= 0.800 mm, Long Modulus= 0.06899 x10<sup>6</sup> N/m,  
Hoop Modulus= 0.06899 x10<sup>6</sup> N/m, Shear Modulus= 0.02653 x10<sup>6</sup> N/m,  
Sc= 103.4 N/mm<sup>2</sup>

POINT DATA:  
R06, Coordinates, X= 8956.47 mm, Y= 4168.53 mm, Z= -58466.52 mm  
R06 N, Coordinates, X= 8956.47 mm, Y= 3863.54 mm, Z= -58466.52 mm  
R06 F, Coordinates, X= 9261.46 mm, Y= 4168.53 mm, Z= -58466.52 mm

From R07 to R08, DX= 100.00 mm

Run

POINT DATA:  
R07, Coordinates, X= 9261.47 mm, Y= 4168.53 mm, Z= -58466.52 mm

\*\*\* SEGMENT S , LINE #

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From R03 to S01, DX= 0 mm, DZ= 230.00 mm, L= 230.00 mm Tee

COMPONENT DATA (Tee Branch, Center= R03):  
B16.9 welding tee, SIFI= 2.31, SIFO= 2.75

PIPE DATA:

Pipe Id= 250MX4.0, Nom Size= 250 mm, OD= 273.00 mm, Sch= 4.0,  
Wall Thk= 4.000 mm, Mill= 0.500 mm, Long Modulus= 0.06899 x10<sup>6</sup> N/m,  
Hoop Modulus= 0.06899 x10<sup>6</sup> N/m, Shear Modulus= 0.02653 x10<sup>6</sup> N/m,  
Sc= 103.4 N/mm2

POINT DATA:

R03, Coordinates, X= 8956.47 mm, Y= 2388.37 mm, Z= -58466.52 mm

From S01 to S02, DY= 0.05 mm, DZ= 3445.24 mm, L= 3445.24 mm Run

PIPE DATA (S01 to S02 N):

Pipe Id= 250MX8.0, Nom Size= 250 mm, Sch= 8.0, Wall Thk= 8.000 mm,  
Mill= 1.000 mm

POINT DATA:

S01, Coordinates, X= 8956.47 mm, Y= 2388.37 mm, Z= -58236.52 mm

From S02 to S03, DY= -1013.08 mm, DZ= 271.45 mm, L= 1048.82 mm Bend

COMPONENT DATA (Bend, TIP= S02, Near= S02 N, Far= S02 F):  
Elbow, Radius= 380.99 mm, Bend angle= 75.00 deg, End flanges= 0,  
Flex= 12.864, SIFI= 3.54, SIFO= 2.95

PIPE DATA (S02 N to S02 F):

Pipe Id= 250MX6.0, Nom Size= 250 mm, Sch= NS, Wall Thk= 6.000 mm,  
Mill= 0.750 mm

PIPE DATA (S02 F to S03 N):

Pipe Id= 250MX8.0, Nom Size= 250 mm, Sch= 8.0, Wall Thk= 8.000 mm,  
Mill= 1.000 mm

POINT DATA:

S02, Coordinates, X= 8956.47 mm, Y= 2388.42 mm, Z= -54791.28 mm  
S02 N, Coordinates, X= 8956.47 mm, Y= 2388.42 mm, Z= -55083.63 mm  
S02 F, Coordinates, X= 8956.47 mm, Y= 2106.03 mm, Z= -54715.62 mm

From S03 to H07, DX= -381.00 mm Bend

COMPONENT DATA (Bend, TIP= S03, Near= S03 N, Far= S03 F):  
Elbow, Radius= 380.99 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 12.864, SIFI= 3.54, SIFO= 2.95

PIPE DATA (S03 N to S03 F):

Pipe Id= 250MX6.0, Nom Size= 250 mm, Sch= NS, Wall Thk= 6.000 mm,  
Mill= 0.750 mm

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POINT DATA:

S03, Coordinates, X= 8956.47 mm, Y= 1375.34 mm, Z= -54519.83 mm  
S03 N, Coordinates, X= 8956.47 mm, Y= 1743.35 mm, Z= -54618.44 mm  
S03 F, Coordinates, X= 8575.48 mm, Y= 1375.34 mm, Z= -54519.83 mm

\*\*\* SEGMENT T , LINE #

From T00 to T01, DY= -467.77 mm

Run

PIPE DATA:

Pipe Id= 50MMX3.9, Nom Size= 50 mm, OD= 60.300 mm, Sch= 3.9,  
Wall Thk= 3.900 mm, Mill= 0.487 mm

POINT DATA:

T00, Coordinates, X= -3156.49 mm, Y= 4798.10 mm, Z= -35167.03 mm

SUPPORT DATA:

T00, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid, KRY= Rigid,  
KRZ= Rigid

From T01 to T02, DY= -11.92 mm

Run

POINT DATA:

T01, Coordinates, X= -3156.49 mm, Y= 4330.33 mm, Z= -35167.03 mm

From T02 to T03, DX= 2.33 mm, DY= -11.69 mm, L= 11.92 mm

Bend

COMPONENT DATA (Bend, TIP= T02, Near= T02 N, Far= T02 F):

Elbow, Radius= 120.98 mm, Bend angle= 11.27 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

T02, Coordinates, X= -3156.49 mm, Y= 4318.41 mm, Z= -35167.03 mm  
T02 N, Coordinates, X= -3156.49 mm, Y= 4329.69 mm, Z= -35167.03 mm  
T02 F, Coordinates, X= -3154.28 mm, Y= 4307.34 mm, Z= -35167.03 mm

From T03 to T04, DX= 114.71 mm, DY= -576.68 mm, L= 587.98 mm

Run

POINT DATA:

T03, Coordinates, X= -3154.16 mm, Y= 4306.72 mm, Z= -35167.03 mm

From T04 to T05, DX= 25.95 mm, DY= -25.95 mm, L= 36.70 mm

Bend

COMPONENT DATA (Bend, TIP= T04, Near= T04 N, Far= T04 F):

Elbow, Radius= 120.99 mm, Bend angle= 33.75 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

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T04, Coordinates, X= -3039.45 mm, Y= 3730.04 mm, Z= -35167.03 mm  
T04 N, Coordinates, X= -3046.61 mm, Y= 3766.04 mm, Z= -35167.03 mm  
T04 F, Coordinates, X= -3013.95 mm, Y= 3704.54 mm, Z= -35167.03 mm

From T05 to T06, DX= 806.13 mm, DY= -806.13 mm, L= 1140.04 mm Run

POINT DATA:

T05, Coordinates, X= -3013.50 mm, Y= 3704.09 mm, Z= -35167.03 mm

From T06 to T07, DX= 3015.05 mm, DZ= -263.78 mm, L= 3026.57 mm Bend

COMPONENT DATA (Bend, TIP= T06, Near= T06 N, Far= T06 F):

Elbow, Radius= 120.99 mm, Bend angle= 45.22 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

T06, Coordinates, X= -2207.37 mm, Y= 2897.96 mm, Z= -35167.03 mm  
T06 N, Coordinates, X= -2243.00 mm, Y= 2933.59 mm, Z= -35167.03 mm  
T06 F, Coordinates, X= -2157.18 mm, Y= 2897.96 mm, Z= -35171.42 mm

From T07 to T08, DZ= -1986.23 mm Bend

COMPONENT DATA (Bend, TIP= T07, Near= T07 N, Far= T07 F):

Elbow, Radius= 120.99 mm, Bend angle= 85.00 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

T07, Coordinates, X= 807.68 mm, Y= 2897.96 mm, Z= -35430.81 mm  
T07 N, Coordinates, X= 697.23 mm, Y= 2897.96 mm, Z= -35421.15 mm  
T07 F, Coordinates, X= 807.68 mm, Y= 2897.96 mm, Z= -35541.68 mm

From T08 to T09, DY= 1074.02 mm, DZ= -93.97 mm, L= 1078.12 mm Bend

COMPONENT DATA (Bend, TIP= T08, Near= T08 N, Far= T08 F):

Elbow, Radius= 120.99 mm, Bend angle= 85.00 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

T08, Coordinates, X= 807.68 mm, Y= 2897.96 mm, Z= -37417.04 mm  
T08 N, Coordinates, X= 807.68 mm, Y= 2897.96 mm, Z= -37306.18 mm  
T08 F, Coordinates, X= 807.68 mm, Y= 3008.40 mm, Z= -37426.70 mm

From T09 to T10, DX= -461.98 mm, DZ= -40.42 mm, L= 463.74 mm Bend

COMPONENT DATA (Bend, TIP= T09, Near= T09 N, Far= T09 F):

Elbow, Radius= 120.99 mm, Bend angle= 89.56 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

T09, Coordinates, X= 807.68 mm, Y= 3971.98 mm, Z= -37511.01 mm



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T09 N, Coordinates, X= 807.68 mm, Y= 3852.36 mm, Z= -37500.54 mm  
T09 F, Coordinates, X= 688.06 mm, Y= 3971.98 mm, Z= -37521.48 mm

From T10 to T11, DZ= -4101.16 mm

Bend

COMPONENT DATA (Bend, TIP= T10, Near= T10 N, Far= T10 F):

Elbow, Radius= 120.99 mm, Bend angle= 85.00 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

T10, Coordinates, X= 345.70 mm, Y= 3971.98 mm, Z= -37551.43 mm  
T10 N, Coordinates, X= 456.14 mm, Y= 3971.98 mm, Z= -37541.77 mm  
T10 F, Coordinates, X= 345.70 mm, Y= 3971.98 mm, Z= -37662.30 mm

From T11 to T12, DX= 952.30 mm, DZ= -83.31 mm, L= 955.94 mm

Bend

COMPONENT DATA (Bend, TIP= T11, Near= T11 N, Far= T11 F):

Elbow, Radius= 120.99 mm, Bend angle= 85.00 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

T11, Coordinates, X= 345.70 mm, Y= 3971.98 mm, Z= -41652.59 mm  
T11 N, Coordinates, X= 345.70 mm, Y= 3971.98 mm, Z= -41541.72 mm  
T11 F, Coordinates, X= 456.15 mm, Y= 3971.98 mm, Z= -41662.25 mm

From T12 to T13, DX= 32.16 mm, DZ= -2.81 mm, L= 32.28 mm

Run

POINT DATA:

T12, Coordinates, X= 1298.00 mm, Y= 3971.98 mm, Z= -41735.90 mm

From T13 to T14, DX= 27.85 mm, DY= -16.08 mm, DZ= -2.81 mm, L= 32.28 mm

Bend

COMPONENT DATA (Bend, TIP= T13, Near= T13 N, Far= T13 F):

Elbow, Radius= 120.99 mm, Bend angle= 29.88 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

T13, Coordinates, X= 1330.16 mm, Y= 3971.98 mm, Z= -41738.71 mm  
T13 N, Coordinates, X= 1298.63 mm, Y= 3971.98 mm, Z= -41735.96 mm  
T13 F, Coordinates, X= 1357.46 mm, Y= 3956.22 mm, Z= -41741.47 mm

From T14 to T15, DX= 368.05 mm, DY= -212.50 mm, DZ= -37.18 mm,  
L= 426.61 mm

Run

POINT DATA:

T14, Coordinates, X= 1358.01 mm, Y= 3955.90 mm, Z= -41741.52 mm

From T15 to T16, DZ= -1753.98 mm

Bend

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COMPONENT DATA (Bend, TIP= T15, Near= T15 N, Far= T15 F):  
Elbow, Radius= 120.99 mm, Bend angle= 85.00 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

T15, Coordinates, X= 1726.06 mm, Y= 3743.40 mm, Z= -41778.70 mm  
T15 N, Coordinates, X= 1630.41 mm, Y= 3798.62 mm, Z= -41769.04 mm  
T15 F, Coordinates, X= 1726.06 mm, Y= 3743.40 mm, Z= -41889.57 mm

-----  
From T16 to T17, DX= 4.12 mm, DZ= -15.39 mm, L= 15.93 mm Bend

COMPONENT DATA (Bend, TIP= T16, Near= T16 N, Far= T16 F):  
Elbow, Radius= 120.99 mm, Bend angle= 14.99 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

T16, Coordinates, X= 1726.06 mm, Y= 3743.40 mm, Z= -43532.68 mm  
T16 N, Coordinates, X= 1726.06 mm, Y= 3743.40 mm, Z= -43516.77 mm  
T16 F, Coordinates, X= 1730.18 mm, Y= 3743.40 mm, Z= -43548.05 mm

-----  
From T17 to T18, DX= 23.29 mm, DZ= -86.93 mm, L= 90.00 mm Valv

COMPONENT DATA (Valve):  
NS, Rating= 10, Length= 90.00 mm, Weight= 25 kg, Surface factor= 0.00,  
End cond= Butt welded, SIF= 1.00, Without taper, Offset= 0.000 mm

POINT DATA:

T17, Coordinates, X= 1730.18 mm, Y= 3743.40 mm, Z= -43548.07 mm

-----  
From T18 to T19, DX= -120.74 mm, DZ= -32.35 mm, L= 125.00 mm Valv

COMPONENT DATA (Valve):  
NS, Rating= 10, Length= 125.00 mm, Weight= 25 kg, Surface factor= 0.00,  
End cond= Butt welded, SIF= 1.00, Without taper, Offset= 0.000 mm

POINT DATA:

T18, Coordinates, X= 1753.47 mm, Y= 3743.40 mm, Z= -43635.00 mm

SUPPORT DATA:

T18, V-Stop, Support Id= T18 1, Connected to Ground, Mark= Undefined,  
Tag#= Undefined, CompID= Undefined

-----  
From T19 to T20, DX= -89.68 mm, DZ= -24.03 mm, L= 92.84 mm Run

POINT DATA:

T19, Coordinates, X= 1632.73 mm, Y= 3743.40 mm, Z= -43667.35 mm

-----  
From T20 to T21, DZ= -803.06 mm Bend

COMPONENT DATA (Bend, TIP= T20, Near= T20 N, Far= T20 F):

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Elbow, Radius= 120.99 mm, Bend angle= 75.00 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

T20, Coordinates, X= 1543.05 mm, Y= 3743.40 mm, Z= -43691.38 mm  
T20 N, Coordinates, X= 1632.72 mm, Y= 3743.40 mm, Z= -43667.35 mm  
T20 F, Coordinates, X= 1543.05 mm, Y= 3743.40 mm, Z= -43784.22 mm

From T21 to T22, DX= -1635.59 mm, DZ= -143.10 mm, L= 1641.84 mm Bend

COMPONENT DATA (Bend, TIP= T21, Near= T21 N, Far= T21 F):

Elbow, Radius= 120.99 mm, Bend angle= 85.00 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

T21, Coordinates, X= 1543.05 mm, Y= 3743.40 mm, Z= -44494.44 mm  
T21 N, Coordinates, X= 1543.05 mm, Y= 3743.40 mm, Z= -44383.57 mm  
T21 F, Coordinates, X= 1432.60 mm, Y= 3743.40 mm, Z= -44504.11 mm

From T22 to T23, DY= 120.54 mm, DZ= -10.55 mm, L= 121.00 mm Bend

COMPONENT DATA (Bend, TIP= T22, Near= T22 N, Far= T22 F):

Elbow, Radius= 120.99 mm, Bend angle= 89.56 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

T22, Coordinates, X= -92.54 mm, Y= 3743.40 mm, Z= -44637.54 mm  
T22 N, Coordinates, X= 27.08 mm, Y= 3743.40 mm, Z= -44627.08 mm  
T22 F, Coordinates, X= -92.54 mm, Y= 3863.02 mm, Z= -44648.01 mm

From T23 to T24, DY= 723.61 mm, DZ= -63.30 mm, L= 726.37 mm Run

POINT DATA:

T23, Coordinates, X= -92.54 mm, Y= 3863.94 mm, Z= -44648.09 mm

From T24 to T25, DZ= -6110.88 mm Bend

COMPONENT DATA (Bend, TIP= T24, Near= T24 N, Far= T24 F):

Elbow, Radius= 120.99 mm, Bend angle= 85.00 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

T24, Coordinates, X= -92.54 mm, Y= 4587.55 mm, Z= -44711.39 mm  
T24 N, Coordinates, X= -92.54 mm, Y= 4477.10 mm, Z= -44701.73 mm  
T24 F, Coordinates, X= -92.54 mm, Y= 4587.55 mm, Z= -44822.26 mm

From T25 to T26, DZ= -3575.92 mm Run

POINT DATA:

T25, Coordinates, X= -92.54 mm, Y= 4587.55 mm, Z= -50822.27 mm

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From T26 to T27, DX= 1944.06 mm, DY= -1989.15 mm, DZ= -240.49 mm,  
L= 2791.76 mm

Bend

COMPONENT DATA (Bend, TIP= T26, Near= T26 N, Far= T26 F):  
Elbow, Radius= 120.99 mm, Bend angle= 85.06 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

T26, Coordinates, X= -92.54 mm, Y= 4587.55 mm, Z= -54398.19 mm  
T26 N, Coordinates, X= -92.54 mm, Y= 4587.55 mm, Z= -54287.21 mm  
T26 F, Coordinates, X= -15.26 mm, Y= 4508.48 mm, Z= -54407.75 mm

From T27 to F01, DX= -0.02 mm, DY= 0.02 mm, DZ= -822.34 mm, L= 822.34 mm

Bend

COMPONENT DATA (Bend, TIP= T27, Near= T27 N, Far= T27 F):  
Elbow, Radius= 120.99 mm, Bend angle= 85.06 deg, End flanges= 0,  
Flex= 2.781, SIFI= 1.27, SIFO= 1.06

POINT DATA:

T27, Coordinates, X= 1851.52 mm, Y= 2598.40 mm, Z= -54638.68 mm  
T27 N, Coordinates, X= 1774.24 mm, Y= 2677.48 mm, Z= -54629.13 mm  
T27 F, Coordinates, X= 1851.52 mm, Y= 2598.40 mm, Z= -54749.66 mm

\*\*\* SEGMENT U , LINE #

From U03 to U00, DX= -100.00 mm

Junc

PIPE DATA:

Pipe Id= 200MX6.4, Nom Size= 200 mm, OD= 219.10 mm, Sch= 6.4,  
Wall Thk= 6.400 mm, Mill= 0.800 mm

POINT DATA:

U03, Coordinates, X= 9361.47 mm, Y= 608.53 mm, Z= -58466.52 mm

From U00 to U01, DX= -305.00 mm

Run

POINT DATA:

U00, Coordinates, X= 9261.47 mm, Y= 608.53 mm, Z= -58466.52 mm

From U01 to R00, DY= 1079.84 mm

Bend

COMPONENT DATA (Bend, TIP= U01, Near= U01 N, Far= U01 F):  
Elbow, Radius= 304.99 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 9.561, SIFI= 2.90, SIFO= 2.42

PIPE DATA (U01 F to R00):

Pipe Id= 200MX6.4, Nom Size= 200 mm

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POINT DATA:

U01, Coordinates, X= 8956.47 mm, Y= 608.53 mm, Z= -58466.52 mm  
U01 N, Coordinates, X= 9261.46 mm, Y= 608.53 mm, Z= -58466.52 mm  
U01 F, Coordinates, X= 8956.47 mm, Y= 913.52 mm, Z= -58466.52 mm

\*\*\* SEGMENT V , LINE #

From V00 to V01, DX= -716.00 mm

Run

PIPE DATA:

Pipe Id= 100MXP, Nom Size= 100 mm, OD= 114.30 mm, Sch= 3.2,  
Wall Thk= 3.200 mm, Mill= 0.400 mm

OPERATING DATA:

Sh1= 143.00 N/mm2

POINT DATA:

V00, Coordinates, X= 11685.33 mm, Y= 608.53 mm, Z= -58466.52 mm

SUPPORT DATA:

V00, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid, KRY= Rigid,  
KRZ= Rigid

From V01 to V02, DX= -105.00 mm

Run

POINT DATA:

V01, Coordinates, X= 10969.33 mm, Y= 608.53 mm, Z= -58466.52 mm

From V02 to V03, DX= -105.00 mm

Tee

COMPONENT DATA (Tee Header, Center= V02):

B16.9 welding tee, SIFI= 2.38, SIFO= 2.84

POINT DATA:

V02, Coordinates, X= 10864.33 mm, Y= 608.53 mm, Z= -58466.52 mm

From V03 to V04, DX= -337.00 mm

Run

POINT DATA:

V03, Coordinates, X= 10759.33 mm, Y= 608.53 mm, Z= -58466.52 mm

From V04 to V05, DX= -78.00 mm

Run

COMPONENT DATA (Run):

Rigid, Include weight= Yes, Include expansion= Yes

POINT DATA:

V04, Coordinates, X= 10422.33 mm, Y= 608.53 mm, Z= -58466.52 mm

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V04, Flange= WELDNECK, Rating= 64, Weight= 9.66 kg,  
End cond= Butt welded, SIF= 1.00, Perform ANSI check= No, Without taper,  
Joint offset= 0.000 mm

From V05 to V06, DX= -82.00 mm

Valv

COMPONENT DATA (Valve):

NS, Rating= Non-standard, Length= 82.00 mm, Weight= 45 kg,  
Surface factor= 0.00, End cond= Weld neck, SIF= 1.00

POINT DATA:

V05, Coordinates, X= 10344.33 mm, Y= 608.53 mm, Z= -58466.52 mm

From V06 to V07, DX= -78.00 mm

Run

COMPONENT DATA (Run):

Rigid, Include weight= Yes, Include expansion= Yes

POINT DATA:

V06, Coordinates, X= 10262.33 mm, Y= 608.53 mm, Z= -58466.52 mm

From V07 to V08, DX= -250.00 mm

Run

POINT DATA:

V07, Coordinates, X= 10184.33 mm, Y= 608.53 mm, Z= -58466.52 mm  
V07, Flange= WELDNECK, Rating= 64, Weight= 9.66 kg,  
End cond= Butt welded, SIF= 1.00, Perform ANSI check= No, Without taper,  
Joint offset= 0.000 mm

From V08 to V09, DX= -160.00 mm

Run

COMPONENT DATA (Run):

Rigid, Include weight= Yes, Include expansion= Yes

OPERATING DATA:

Sh1= 71.00 N/mm2

POINT DATA:

V08, Coordinates, X= 9934.33 mm, Y= 608.53 mm, Z= -58466.52 mm

From V09 to U03, DX= -412.86 mm

Run

POINT DATA:

V09, Coordinates, X= 9774.33 mm, Y= 608.53 mm, Z= -58466.52 mm  
V09, Added Weight= 3.40 kg

\*\*\* SEGMENT W , LINE #

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From V02 to W01, DZ= 98.00 mm Tee

COMPONENT DATA (Tee Branch, Center= V02):  
B16.9 welding tee, SIFI= 2.38, SIFO= 2.84

PIPE DATA:  
Pipe Id= 80MMX3, Nom Size= 80 mm, OD= 88.900 mm, Sch= NS,  
Wall Thk= 3.000 mm, Mill= 0.375 mm

OPERATING DATA:  
Sh1= 143.00 N/mm2

POINT DATA:  
V02, Coordinates, X= 10864.33 mm, Y= 608.53 mm, Z= -58466.52 mm

From W01 to W02, DZ= 401.17 mm Run

POINT DATA:  
W01, Coordinates, X= 10864.33 mm, Y= 608.53 mm, Z= -58368.52 mm

From W02 to W03, DY= -525.00 mm, DZ= 92.57 mm, L= 533.10 mm Bend

COMPONENT DATA (Bend, TIP= W02, Near= W02 N, Far= W02 F):  
Elbow, Radius= 113.99 mm, Bend angle= 80.00 deg, End flanges= 0,  
Flex= 8.901, SIFI= 2.77, SIFO= 2.31

POINT DATA:  
W02, Coordinates, X= 10864.33 mm, Y= 608.53 mm, Z= -57967.35 mm  
W02 N, Coordinates, X= 10864.33 mm, Y= 608.53 mm, Z= -58063.00 mm  
W02 F, Coordinates, X= 10864.33 mm, Y= 514.33 mm, Z= -57950.74 mm

From W03 to W04, DX= 894.96 mm Bend

COMPONENT DATA (Bend, TIP= W03, Near= W03 N, Far= W03 F):  
Elbow, Radius= 113.75 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 8.919, SIFI= 2.77, SIFO= 2.31

POINT DATA:  
W03, Coordinates, X= 10864.33 mm, Y= 83.53 mm, Z= -57874.78 mm  
W03 N, Coordinates, X= 10864.33 mm, Y= 195.55 mm, Z= -57894.53 mm  
W03 F, Coordinates, X= 10978.08 mm, Y= 83.53 mm, Z= -57874.78 mm

From W04 to W05, DZ= -1201.57 mm Bend

COMPONENT DATA (Bend, TIP= W04, Near= W04 N, Far= W04 F):  
Elbow, Radius= 113.75 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 8.919, SIFI= 2.77, SIFO= 2.31

POINT DATA:  
W04, Coordinates, X= 11759.29 mm, Y= 83.53 mm, Z= -57874.78 mm

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W04 N, Coordinates, X= 11645.54 mm, Y= 83.53 mm, Z= -57874.78 mm  
W04 F, Coordinates, X= 11759.29 mm, Y= 83.53 mm, Z= -57988.53 mm

From W05 to W06, DY= 941.00 mm

Bend

COMPONENT DATA (Bend, TIP= W05, Near= W05 N, Far= W05 F):  
Elbow, Radius= 113.75 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 8.919, SIFI= 2.77, SIFO= 2.31

POINT DATA:

W05, Coordinates, X= 11759.29 mm, Y= 83.53 mm, Z= -59076.35 mm  
W05 N, Coordinates, X= 11759.29 mm, Y= 83.53 mm, Z= -58962.60 mm  
W05 F, Coordinates, X= 11759.29 mm, Y= 197.28 mm, Z= -59076.35 mm

From W06 to W07, DX= -894.92 mm

Bend

COMPONENT DATA (Bend, TIP= W06, Near= W06 N, Far= W06 F):  
Elbow, Radius= 113.75 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 8.919, SIFI= 2.77, SIFO= 2.31

POINT DATA:

W06, Coordinates, X= 11759.29 mm, Y= 1024.53 mm, Z= -59076.35 mm  
W06 N, Coordinates, X= 11759.29 mm, Y= 910.78 mm, Z= -59076.35 mm  
W06 F, Coordinates, X= 11645.54 mm, Y= 1024.53 mm, Z= -59076.35 mm

From W07 to W08, DY= 217.00 mm

Bend

COMPONENT DATA (Bend, TIP= W07, Near= W07 N, Far= W07 F):  
Elbow, Radius= 113.75 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 8.919, SIFI= 2.77, SIFO= 2.31

POINT DATA:

W07, Coordinates, X= 10864.37 mm, Y= 1024.53 mm, Z= -59076.35 mm  
W07 N, Coordinates, X= 10978.12 mm, Y= 1024.53 mm, Z= -59076.35 mm  
W07 F, Coordinates, X= 10864.37 mm, Y= 1138.28 mm, Z= -59076.35 mm

From W08 to W09, DY= 47.00 mm

Run

POINT DATA:

W08, Coordinates, X= 10864.37 mm, Y= 1241.53 mm, Z= -59076.35 mm  
W09, Coordinates, X= 10864.37 mm, Y= 1288.53 mm, Z= -59076.35 mm

SUPPORT DATA:

W08, Incline, Support Id= W08 1, Connected to Ground, Mark= Undefined,  
Tag#= Undefined, CompID= Undefined, Dir= Inclined, DirX= -1.000,  
DirY= 0.000, DirZ= 0.000, Stiffness= RIGID  
W09, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid, KRY= Rigid,  
KRZ= Rigid



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\*\*\* SEGMENT X , LINE #

From X00 to X01, DY= 101.60 mm

Run

COMPONENT DATA (Run):

Rigid, Include weight= Yes, Include expansion= Yes

PIPE DATA:

Pipe Id= 25MMXS40, Nom Size= 25 mm, OD= 33.400 mm, Sch= 2.6,  
Wall Thk= 2.600 mm, Mill= 0.325 mm

POINT DATA:

X00, Coordinates, X= 11590.33 mm, Y= 4066.93 mm, Z= -58466.52 mm

\*\*\* SEGMENT Y , LINE #

From Y00 to X01, DX= -195.00 mm

Run

PIPE DATA:

Pipe Id= PIPE0003, Nom Size= 100 mm, OD= 114.30 mm, Sch= 3.6,  
Wall Thk= 3.600 mm, Mill= 0.450 mm

POINT DATA:

Y00, Coordinates, X= 11785.33 mm, Y= 4168.53 mm, Z= -58466.52 mm

SUPPORT DATA:

Y00, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid, KRY= Rigid,  
KRZ= Rigid

From X01 to Y02, DX= -521.00 mm

Tee

COMPONENT DATA (Tee Header, Center= X01):

B16.9 welding tee, SIFI= 2.21, SIFO= 2.62

POINT DATA:

X01, Coordinates, X= 11590.33 mm, Y= 4168.53 mm, Z= -58466.52 mm

From Y02 to Y03, DX= -105.00 mm

Run

POINT DATA:

Y02, Coordinates, X= 11069.33 mm, Y= 4168.53 mm, Z= -58466.52 mm

From Y03 to Y04, DX= -105.00 mm

Tee

COMPONENT DATA (Tee Header, Center= Y03):

B16.9 welding tee, SIFI= 2.21, SIFO= 2.62

POINT DATA:

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Y03, Coordinates, X= 10964.33 mm, Y= 4168.53 mm, Z= -58466.52 mm

From Y04 to Y05, DX= -337.00 mm

Run

POINT DATA:

Y04, Coordinates, X= 10859.33 mm, Y= 4168.53 mm, Z= -58466.52 mm

From Y05 to Y06, DX= -78.00 mm

Run

COMPONENT DATA (Run):

Rigid, Include weight= Yes, Include expansion= Yes

POINT DATA:

Y05, Coordinates, X= 10522.33 mm, Y= 4168.53 mm, Z= -58466.52 mm

Y05, Flange= WELDNECK, Rating= 64, Weight= 9.66 kg,

End cond= Butt welded, SIF= 1.00, Perform ANSI check= No, Without taper,

Joint offset= 0.000 mm

From Y06 to Y07, DX= -80.00 mm

Valv

COMPONENT DATA (Valve):

NS, Rating= Non-standard, Length= 80.00 mm, Weight= 45 kg,

Surface factor= 0.00, End cond= Weld neck, SIF= 1.00

POINT DATA:

Y06, Coordinates, X= 10444.33 mm, Y= 4168.53 mm, Z= -58466.52 mm

From Y07 to Y08, DX= -80.00 mm

Run

COMPONENT DATA (Run):

Rigid, Include weight= Yes, Include expansion= Yes

POINT DATA:

Y07, Coordinates, X= 10364.33 mm, Y= 4168.53 mm, Z= -58466.52 mm

From Y08 to Y09, DX= -250.00 mm

Run

POINT DATA:

Y08, Coordinates, X= 10284.33 mm, Y= 4168.53 mm, Z= -58466.52 mm

Y08, Flange= WELDNECK, Rating= 64, Weight= 9.66 kg,

End cond= Butt welded, SIF= 1.00, Perform ANSI check= No, Without taper,

Joint offset= 0.000 mm

From Y09 to Y10, DX= -160.00 mm

Run

COMPONENT DATA (Run):

Rigid, Include weight= Yes, Include expansion= Yes

PIPE DATA:

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Pipe Id= PIPE0005, Nom Size= 80 mm, OD= 88.900 mm, Sch= 8.8,  
Wall Thk= 8.800 mm, Mill= 1.100 mm

OPERATING DATA:

Sh1= 71.00 N/mm2

POINT DATA:

Y09, Coordinates, X= 10034.33 mm, Y= 4168.53 mm, Z= -58466.52 mm

From Y10 to R08, DX= -512.86 mm

Run

POINT DATA:

Y10, Coordinates, X= 9874.33 mm, Y= 4168.53 mm, Z= -58466.52 mm

Y10, Added Weight= 3.40 kg

\*\*\* SEGMENT Z , LINE #

From Y03 to Z01, DZ= 98.00 mm

Tee

COMPONENT DATA (Tee Branch, Center= Y03):

B16.9 welding tee, SIFI= 2.21, SIFO= 2.62

PIPE DATA:

Pipe Id= PIPE0004, Nom Size= 80 mm, Sch= 3.2, Wall Thk= 3.200 mm,  
Mill= 0.400 mm

OPERATING DATA:

Sh1= 143.00 N/mm2

POINT DATA:

Y03, Coordinates, X= 10964.33 mm, Y= 4168.53 mm, Z= -58466.52 mm

From Z01 to Z02, DZ= 401.17 mm

Run

POINT DATA:

Z01, Coordinates, X= 10964.33 mm, Y= 4168.53 mm, Z= -58368.52 mm

From Z02 to Z03, DY= -525.00 mm, DZ= 92.57 mm, L= 533.10 mm

Bend

COMPONENT DATA (Bend, TIP= Z02, Near= Z02 N, Far= Z02 F):

Elbow, Radius= 113.99 mm, Bend angle= 80.00 deg, End flanges= 0,  
Flex= 8.306, SIFI= 2.64, SIFO= 2.20

POINT DATA:

Z02, Coordinates, X= 10964.33 mm, Y= 4168.53 mm, Z= -57967.35 mm

Z02 N, Coordinates, X= 10964.33 mm, Y= 4168.53 mm, Z= -58063.00 mm

Z02 F, Coordinates, X= 10964.33 mm, Y= 4074.33 mm, Z= -57950.74 mm

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From Z03 to Z04, DX= 894.96 mm

Bend

COMPONENT DATA (Bend, TIP= Z03, Near= Z03 N, Far= Z03 F):

Elbow, Radius= 113.75 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 8.323, SIFI= 2.65, SIFO= 2.21

POINT DATA:

Z03, Coordinates, X= 10964.33 mm, Y= 3643.53 mm, Z= -57874.78 mm  
Z03 N, Coordinates, X= 10964.33 mm, Y= 3755.55 mm, Z= -57894.53 mm  
Z03 F, Coordinates, X= 11078.08 mm, Y= 3643.53 mm, Z= -57874.78 mm

From Z04 to Z05, DZ= -1201.57 mm

Bend

COMPONENT DATA (Bend, TIP= Z04, Near= Z04 N, Far= Z04 F):

Elbow, Radius= 113.75 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 8.323, SIFI= 2.65, SIFO= 2.21

POINT DATA:

Z04, Coordinates, X= 11859.29 mm, Y= 3643.53 mm, Z= -57874.78 mm  
Z04 N, Coordinates, X= 11745.54 mm, Y= 3643.53 mm, Z= -57874.78 mm  
Z04 F, Coordinates, X= 11859.29 mm, Y= 3643.53 mm, Z= -57988.53 mm

From Z05 to Z06, DY= 941.00 mm

Bend

COMPONENT DATA (Bend, TIP= Z05, Near= Z05 N, Far= Z05 F):

Elbow, Radius= 113.75 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 8.323, SIFI= 2.65, SIFO= 2.21

POINT DATA:

Z05, Coordinates, X= 11859.29 mm, Y= 3643.53 mm, Z= -59076.35 mm  
Z05 N, Coordinates, X= 11859.29 mm, Y= 3643.53 mm, Z= -58962.60 mm  
Z05 F, Coordinates, X= 11859.29 mm, Y= 3757.28 mm, Z= -59076.35 mm

From Z06 to Z07, DX= -894.92 mm

Bend

COMPONENT DATA (Bend, TIP= Z06, Near= Z06 N, Far= Z06 F):

Elbow, Radius= 113.75 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 8.323, SIFI= 2.65, SIFO= 2.21

POINT DATA:

Z06, Coordinates, X= 11859.29 mm, Y= 4584.53 mm, Z= -59076.35 mm  
Z06 N, Coordinates, X= 11859.29 mm, Y= 4470.78 mm, Z= -59076.35 mm  
Z06 F, Coordinates, X= 11745.54 mm, Y= 4584.53 mm, Z= -59076.35 mm

From Z07 to Z08, DY= 217.00 mm

Bend

COMPONENT DATA (Bend, TIP= Z07, Near= Z07 N, Far= Z07 F):

Elbow, Radius= 113.75 mm, Bend angle= 90.00 deg, End flanges= 0,  
Flex= 8.323, SIFI= 2.65, SIFO= 2.21

POINT DATA:

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Z07, Coordinates, X= 10964.37 mm, Y= 4584.53 mm, Z= -59076.35 mm  
Z07 N, Coordinates, X= 11078.12 mm, Y= 4584.53 mm, Z= -59076.35 mm  
Z07 F, Coordinates, X= 10964.37 mm, Y= 4698.28 mm, Z= -59076.35 mm

From Z08 to Z09, DY= 47.00 mm

Run

POINT DATA:

Z08, Coordinates, X= 10964.37 mm, Y= 4801.53 mm, Z= -59076.35 mm  
Z09, Coordinates, X= 10964.37 mm, Y= 4848.53 mm, Z= -59076.35 mm

SUPPORT DATA:

Z08, Incline, Support Id= Z08 1, Connected to Ground, Mark= Undefined,  
Tag#= Undefined, CompID= Undefined, Dir= Inclined, DirX= -1.000,  
DirY= 0.000, DirZ= 0.000, Stiffness= RIGID  
Z09, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid, KRY= Rigid,  
KRZ= Rigid

Number of points in the system: 401

Weight of Empty Pipes + Weight of Contents = Total Weight of System  
1870.5 kg       +       0.0 kg       =       1870.5 kg

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C O O R D I N A T E S   D A T A   L I S T I N G

| POINT<br>NAME                   | -----COORDINATE (mm)<br>X | Y       | )-----<br>Z |
|---------------------------------|---------------------------|---------|-------------|
| *** SEGMENT A , LINE # 79319822 |                           |         |             |
| A00                             | 0.00                      | 0.00    | 0.00        |
| A01                             | 317.21                    | -147.92 | 0.00        |
| A02 N                           | 317.22                    | -147.92 | 0.00        |
| A02                             | 662.51                    | -308.94 | 0.00        |
| A02 F                           | 662.51                    | -308.94 | -380.99     |
| A03 N                           | 662.51                    | -308.94 | -1571.79    |
| A03                             | 662.51                    | -308.94 | -1920.90    |
| A03 F                           | 335.70                    | -427.89 | -1951.33    |
| A04 N                           | -848.18                   | -858.78 | -2061.55    |
| A04                             | -910.82                   | -881.58 | -2067.38    |
| A04 F                           | -977.48                   | -881.58 | -2073.21    |
| A05 N                           | -1690.29                  | -881.58 | -2135.57    |
| A05                             | -1809.46                  | -881.58 | -2146.00    |
| A05 F                           | -1907.08                  | -813.23 | -2156.43    |
| A06 N                           | -2030.11                  | -727.08 | -2169.56    |
| A06                             | -2315.00                  | -527.60 | -2199.99    |
| A06 F                           | -2315.00                  | -527.60 | -2549.11    |
| A07 N                           | -2315.00                  | -527.60 | -5180.28    |
| A07                             | -2315.00                  | -527.60 | -5529.39    |
| A07 F                           | -2013.81                  | -701.49 | -5559.82    |
| A08 N                           | -1876.19                  | -780.94 | -5573.72    |
| A08                             | -1788.48                  | -831.58 | -5582.58    |
| A08 F                           | -1687.20                  | -831.58 | -5591.44    |
| A09 N                           | -795.59                   | -831.58 | -5669.45    |
| A09                             | -639.08                   | -831.58 | -5683.14    |
| A09 F                           | -528.41                   | -720.91 | -5696.83    |
| A10 N                           | 0.35                      | -192.15 | -5762.26    |
| A10                             | 111.02                    | -81.48  | -5775.95    |
| A10 F                           | 111.02                    | 75.03   | -5789.64    |
| A11 N                           | 111.02                    | 988.52  | -5869.56    |
| A11                             | 111.02                    | 1336.30 | -5899.99    |
| A11 F                           | 111.02                    | 1336.30 | -6249.10    |
| A12                             | 111.02                    | 1336.30 | -12249.11   |
| A13                             | 111.02                    | 1336.30 | -18249.11   |
| A14                             | 111.02                    | 1336.30 | -24249.11   |
| A15                             | 111.02                    | 1336.30 | -27749.11   |
| A16                             | 111.02                    | 1336.30 | -30249.11   |
| A17                             | 111.02                    | 1336.30 | -35166.48   |
| A18                             | 111.02                    | 1336.30 | -36249.11   |
| A19                             | 111.02                    | 1336.30 | -36449.11   |
| A20                             | 111.02                    | 1336.30 | -42449.11   |
| A21                             | 111.02                    | 1336.30 | -48449.11   |
| A22 N                           | 111.02                    | 1336.30 | -51097.66   |
| A22                             | 111.02                    | 1336.30 | -51223.99   |
| A22 F                           | 174.19                    | 1399.47 | -51313.32   |
| A23 N                           | 1255.11                   | 2480.39 | -52841.96   |
| A23                             | 1343.15                   | 2568.43 | -52966.48   |
| A23 F                           | 1519.24                   | 2568.43 | -52966.48   |
| A24 N                           | 2139.95                   | 2568.43 | -52966.48   |
| A24                             | 2266.28                   | 2568.43 | -52966.48   |
| A24 F                           | 2355.61                   | 2568.43 | -53055.80   |

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| POINT<br>NAME                   | -----COORDINATE (mm)<br>X | Y       | Z         |
|---------------------------------|---------------------------|---------|-----------|
| A25 N                           | 2682.46                   | 2568.43 | -53382.65 |
| A25                             | 2771.79                   | 2568.43 | -53471.98 |
| A25 F                           | 2898.12                   | 2568.43 | -53471.98 |
| A26 N                           | 3376.04                   | 2568.43 | -53471.98 |
| A26                             | 3681.03                   | 2568.43 | -53471.98 |
| A26 F                           | 3681.03                   | 2263.44 | -53471.98 |
| A27 N                           | 3681.03                   | 1985.14 | -53471.98 |
| A27                             | 3681.03                   | 1751.11 | -53471.98 |
| A27 F                           | 3681.03                   | 1690.54 | -53698.03 |
| A28                             | 3681.03                   | 1689.75 | -53700.98 |
| A29                             | 3681.03                   | 1651.20 | -53844.86 |
| A30                             | 3681.03                   | 1594.26 | -54057.36 |
| A31                             | 3681.03                   | 1806.76 | -54114.30 |
| A32 N                           | 3681.03                   | 3149.57 | -54474.11 |
| A32                             | 3681.03                   | 3318.83 | -54519.46 |
| A32 F                           | 3681.03                   | 3318.83 | -54694.70 |
| A33 N                           | 3681.03                   | 3318.83 | -55742.23 |
| A33                             | 3681.03                   | 3318.83 | -55970.73 |
| A33 F                           | 3909.53                   | 3318.83 | -55970.73 |
| A34                             | 5356.03                   | 3318.83 | -55970.73 |
| *** SEGMENT B , LINE # 79319822 |                           |         |           |
| A17                             | 111.02                    | 1336.30 | -35166.48 |
| B01                             | 347.52                    | 1336.30 | -35166.48 |
| *** SEGMENT C , LINE # 79319822 |                           |         |           |
| C00                             | 7231.51                   | 3455.87 | -55841.32 |
| C01 N                           | 7231.51                   | 3717.64 | -55911.46 |
| C01                             | 7231.51                   | 3938.83 | -55970.73 |
| C01 F                           | 7002.52                   | 3938.83 | -55970.73 |
| C02 N                           | 6411.99                   | 3938.83 | -55970.73 |
| C02                             | 6183.00                   | 3938.83 | -55970.73 |
| C02 F                           | 6183.00                   | 3709.84 | -55970.73 |
| C03 N                           | 6183.00                   | 3547.82 | -55970.73 |
| C03                             | 6183.00                   | 3318.83 | -55970.73 |
| C03 F                           | 5954.01                   | 3318.83 | -55970.73 |
| A34                             | 5356.03                   | 3318.83 | -55970.73 |
| *** SEGMENT D , LINE #          |                           |         |           |
| D00                             | 2051.50                   | 2598.42 | -55461.02 |
| D01 N                           | 2051.50                   | 2598.42 | -54721.36 |
| D01                             | 2051.50                   | 2598.42 | -54610.50 |
| D01 F                           | 1973.39                   | 2676.50 | -54600.83 |
| D02 N                           | 409.11                    | 4240.33 | -54407.31 |
| D02                             | 331.00                    | 4318.42 | -54397.65 |
| D02 F                           | 331.00                    | 4318.42 | -54286.79 |
| D03 N                           | 331.00                    | 4318.42 | -45137.24 |
| D03                             | 331.00                    | 4318.42 | -45026.38 |
| D03 F                           | 331.00                    | 4207.98 | -45016.71 |
| D04 N                           | 331.00                    | 3201.66 | -44928.67 |
| D04                             | 331.00                    | 3081.13 | -44918.12 |
| D04 F                           | 451.53                    | 3082.05 | -44907.62 |

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| POINT<br>NAME | -----COORDINATE (mm)<br>X | Y       | )-----<br>Z |
|---------------|---------------------------|---------|-------------|
| D05 N         | 1832.58                   | 3092.58 | -44787.25   |
| D05           | 1943.06                   | 3093.42 | -44777.62   |
| D05 F         | 1943.06                   | 3093.42 | -44666.72   |
| D06 N         | 1943.06                   | 3093.42 | -43783.67   |
| D06           | 1943.06                   | 3093.42 | -43690.83   |
| D06 F         | 2032.74                   | 3093.42 | -43666.80   |
| D07           | 2032.74                   | 3093.42 | -43666.80   |
| D08           | 2153.48                   | 3093.42 | -43634.45   |
| D09           | 2130.19                   | 3093.42 | -43547.52   |
| D10 N         | 2130.18                   | 3093.42 | -43547.50   |
| D10           | 2126.07                   | 3093.42 | -43532.13   |
| D10 F         | 2126.07                   | 3093.42 | -43516.22   |
| D11 N         | 2126.07                   | 3093.42 | -42387.36   |
| D11           | 2126.07                   | 3093.42 | -42276.50   |
| D11 F         | 2015.63                   | 3093.42 | -42266.83   |
| D12 N         | 995.64                    | 3093.42 | -42177.59   |
| D12           | 876.02                    | 3093.42 | -42167.13   |
| D12 F         | 876.02                    | 2973.80 | -42156.65   |
| D13           | 876.02                    | 2972.88 | -42156.57   |
| D14 N         | 876.02                    | 1446.74 | -42023.05   |
| D14           | 876.02                    | 1336.30 | -42013.39   |
| D14 F         | 876.02                    | 1336.30 | -41902.52   |
| D15 N         | 876.02                    | 1336.30 | -41874.25   |
| D15           | 876.02                    | 1336.30 | -41763.39   |
| D15 F         | 876.02                    | 1446.75 | -41753.72   |
| D16 N         | 876.02                    | 1565.34 | -41743.35   |
| D16           | 876.02                    | 1684.96 | -41732.88   |
| D16 F         | 756.40                    | 1684.96 | -41722.41   |
| D17           | 755.48                    | 1684.96 | -41722.33   |
| D18 N         | 651.64                    | 1684.96 | -41713.25   |
| D18           | 532.02                    | 1684.96 | -41702.79   |
| D18 F         | 532.02                    | 1565.34 | -41692.32   |
| D19 N         | 532.02                    | 1446.75 | -41681.95   |
| D19           | 532.02                    | 1336.30 | -41672.29   |
| D19 F         | 532.02                    | 1336.30 | -41561.41   |
| D20           | 532.02                    | 1336.30 | -41287.48   |
| D21 N         | 532.02                    | 1336.30 | -35287.47   |
| D21           | 532.02                    | 1336.30 | -35166.48   |
| D21 F         | 411.03                    | 1336.30 | -35166.48   |
| B01           | 347.52                    | 1336.30 | -35166.48   |

\*\*\* SEGMENT E , LINE #

|       |         |         |           |
|-------|---------|---------|-----------|
| E00   | 48.37   | 4577.16 | -55161.63 |
| E01   | 540.77  | 4663.98 | -55161.63 |
| E02 N | 540.78  | 4663.98 | -55161.63 |
| E02   | 1141.50 | 4769.91 | -55161.63 |
| E02 F | 1141.50 | 4769.91 | -54551.64 |
| E03 N | 1141.50 | 4769.91 | -53971.62 |
| E03   | 1141.50 | 4769.91 | -53361.63 |
| E03 F | 1141.50 | 4159.92 | -53361.63 |
| E04 N | 1141.50 | 3208.41 | -53361.63 |
| E04   | 1141.50 | 2598.42 | -53361.63 |



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| POINT<br>NAME          | -----COORDINATE (mm)<br>X | Y       | Z         |
|------------------------|---------------------------|---------|-----------|
| E04 F                  | 1141.50                   | 2598.42 | -53971.62 |
| E05 N                  | 1141.50                   | 2598.42 | -55106.54 |
| E05                    | 1141.50                   | 2598.42 | -55716.52 |
| E05 F                  | 1751.49                   | 2598.42 | -55716.52 |
| E06                    | 1851.50                   | 2598.42 | -55716.52 |
| E07                    | 2051.50                   | 2598.42 | -55716.52 |
| E08                    | 5155.99                   | 2598.42 | -55716.52 |
| *** SEGMENT F , LINE # |                           |         |           |
| E06                    | 1851.50                   | 2598.42 | -55716.52 |
| F01                    | 1851.50                   | 2598.42 | -55461.02 |
| *** SEGMENT G , LINE # |                           |         |           |
| E07                    | 2051.50                   | 2598.42 | -55716.52 |
| D00                    | 2051.50                   | 2598.42 | -55461.02 |
| *** SEGMENT H , LINE # |                           |         |           |
| E08                    | 5155.99                   | 2598.42 | -55716.52 |
| H01 N                  | 5156.00                   | 2598.42 | -55716.52 |
| H01                    | 5765.99                   | 2598.42 | -55716.52 |
| H01 F                  | 5765.99                   | 2162.41 | -55289.92 |
| H02 N                  | 5765.99                   | 1811.35 | -54946.43 |
| H02                    | 5765.99                   | 1375.34 | -54519.83 |
| H02 F                  | 6375.98                   | 1375.34 | -54519.83 |
| H03                    | 6825.99                   | 1375.34 | -54519.83 |
| H04                    | 7925.22                   | 1375.34 | -54519.83 |
| H05                    | 7925.47                   | 1375.34 | -54519.83 |
| H06                    | 8225.47                   | 1375.34 | -54519.83 |
| H07                    | 8575.47                   | 1375.34 | -54519.83 |
| *** SEGMENT I , LINE # |                           |         |           |
| H03                    | 6825.99                   | 1375.34 | -54519.83 |
| I01                    | 6825.99                   | 1188.66 | -54333.15 |
| *** SEGMENT J , LINE # |                           |         |           |
| H04                    | 7925.22                   | 1375.34 | -54519.83 |
| J01                    | 7925.47                   | 1080.34 | -54519.83 |
| J02 N                  | 7925.47                   | 1079.41 | -54519.83 |
| J02                    | 7925.47                   | 622.42  | -54519.83 |
| J02 F                  | 8366.89                   | 622.42  | -54401.55 |
| J03 N                  | 8366.91                   | 622.42  | -54401.55 |
| J03                    | 8705.62                   | 622.42  | -54310.79 |
| J03 F                  | 8705.62                   | 622.42  | -53960.13 |
| J04 N                  | 8705.62                   | 622.42  | -53960.11 |
| J04                    | 8705.62                   | 622.42  | -53503.11 |
| J04 F                  | 8248.63                   | 622.42  | -53503.11 |
| J05                    | 8001.62                   | 622.42  | -53503.11 |
| J06                    | 6551.62                   | 622.42  | -53503.11 |
| J07                    | 6351.62                   | 622.42  | -53503.11 |
| *** SEGMENT K , LINE # |                           |         |           |
| H05                    | 7925.47                   | 1375.34 | -54519.83 |

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C O O R D I N A T E S   D A T A   L I S T I N G

| POINT<br>NAME          | -----COORDINATE (mm)-----<br>X | Y       | Z         |
|------------------------|--------------------------------|---------|-----------|
| K01                    | 7925.47                        | 1670.34 | -54519.83 |
| K02 N                  | 7925.47                        | 4057.43 | -54519.83 |
| K02                    | 7925.47                        | 4514.42 | -54519.83 |
| K02 F                  | 8366.89                        | 4514.42 | -54401.55 |
| K03 N                  | 8366.91                        | 4514.42 | -54401.55 |
| K03                    | 8705.62                        | 4514.42 | -54310.79 |
| K03 F                  | 8705.62                        | 4514.42 | -53960.13 |
| K04 N                  | 8705.62                        | 4514.42 | -53960.11 |
| K04                    | 8705.62                        | 4514.42 | -53503.11 |
| K04 F                  | 8248.63                        | 4514.42 | -53503.11 |
| K05                    | 8001.62                        | 4514.42 | -53503.11 |
| K06                    | 6551.62                        | 4514.42 | -53503.11 |
| K07                    | 6351.62                        | 4514.42 | -53503.11 |
| *** SEGMENT L , LINE # |                                |         |           |
| J05                    | 8001.62                        | 622.42  | -53503.11 |
| L01                    | 8001.62                        | 622.42  | -53273.12 |
| L02                    | 8001.62                        | 622.42  | -52205.52 |
| *** SEGMENT M , LINE # |                                |         |           |
| K05                    | 8001.62                        | 4514.42 | -53503.11 |
| M01                    | 8001.62                        | 4514.42 | -53273.12 |
| M02                    | 8001.62                        | 4514.42 | -52205.52 |
| *** SEGMENT N , LINE # |                                |         |           |
| J06                    | 6551.62                        | 622.42  | -53503.11 |
| N01                    | 6551.62                        | 622.42  | -53273.12 |
| N02                    | 6551.62                        | 622.42  | -52205.52 |
| *** SEGMENT O , LINE # |                                |         |           |
| K06                    | 6551.62                        | 4514.42 | -53503.11 |
| O01                    | 6551.62                        | 4514.42 | -53273.12 |
| O02                    | 6551.62                        | 4514.42 | -52205.52 |
| *** SEGMENT Q , LINE # |                                |         |           |
| Q00                    | 8748.50                        | 2568.84 | -48815.37 |
| Q01 N                  | 8748.50                        | 2568.84 | -48353.36 |
| Q01                    | 8748.50                        | 2568.84 | -48048.37 |
| Q01 F                  | 8748.50                        | 2263.85 | -48048.37 |
| Q02                    | 8748.50                        | 2260.79 | -48048.37 |
| Q03                    | 8748.50                        | 2111.84 | -48048.37 |
| Q04 N                  | 8748.50                        | 1618.83 | -48048.37 |
| Q04                    | 8748.50                        | 1389.84 | -48048.37 |
| Q04 F                  | 8748.50                        | 1389.84 | -48277.36 |
| Q05 N                  | 8748.50                        | 1389.84 | -49000.97 |
| Q05                    | 8748.50                        | 1389.84 | -49229.96 |
| Q05 F                  | 8748.50                        | 1160.85 | -49229.96 |
| Q06 N                  | 8748.50                        | 777.23  | -49229.96 |
| Q06                    | 8748.50                        | 548.24  | -49229.96 |
| Q06 F                  | 8519.51                        | 548.24  | -49229.96 |
| Q07 N                  | 7302.14                        | 548.24  | -49229.96 |
| Q07                    | 7073.15                        | 548.24  | -49229.96 |

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# COORDINATES DATA LISTING

| POINT<br>NAME | -----COORDINATE (mm) -----<br>X | Y       | Z         |
|---------------|---------------------------------|---------|-----------|
| Q07 F         | 7073.15                         | 548.24  | -49458.95 |
| Q08 N         | 7073.15                         | 548.24  | -52136.04 |
| Q08           | 7073.15                         | 548.24  | -52197.39 |
| Q08 F         | 7042.47                         | 548.24  | -52250.54 |
| Q09 N         | 6920.91                         | 548.24  | -52461.08 |
| Q09           | 6825.99                         | 548.24  | -52625.50 |
| Q09 F         | 6825.99                         | 733.69  | -52666.11 |
| Q10 N         | 6825.99                         | 863.19  | -52694.48 |
| Q10           | 6825.99                         | 1043.19 | -52733.90 |
| Q10 F         | 6825.99                         | 1043.19 | -52918.16 |
| Q11 N         | 6825.99                         | 1043.19 | -54092.83 |
| Q11           | 6825.99                         | 1043.19 | -54187.68 |
| Q11 F         | 6825.99                         | 1110.26 | -54254.75 |
| I01           | 6825.99                         | 1188.66 | -54333.15 |

## \*\*\* SEGMENT R , LINE #

|       |         |         |           |
|-------|---------|---------|-----------|
| R00   | 8956.47 | 1688.37 | -58466.52 |
| R01   | 8956.47 | 1988.37 | -58466.52 |
| R02   | 8956.47 | 2188.37 | -58466.52 |
| R03   | 8956.47 | 2388.37 | -58466.52 |
| R04   | 8956.47 | 2588.37 | -58466.52 |
| R05   | 8956.47 | 2788.37 | -58466.52 |
| R06 N | 8956.47 | 3863.54 | -58466.52 |
| R06   | 8956.47 | 4168.53 | -58466.52 |
| R06 F | 9261.46 | 4168.53 | -58466.52 |
| R07   | 9261.47 | 4168.53 | -58466.52 |
| R08   | 9361.47 | 4168.53 | -58466.52 |

## \*\*\* SEGMENT S , LINE #

|       |         |         |           |
|-------|---------|---------|-----------|
| R03   | 8956.47 | 2388.37 | -58466.52 |
| S01   | 8956.47 | 2388.37 | -58236.52 |
| S02 N | 8956.47 | 2388.42 | -55083.63 |
| S02   | 8956.47 | 2388.42 | -54791.28 |
| S02 F | 8956.47 | 2106.03 | -54715.62 |
| S03 N | 8956.47 | 1743.35 | -54618.44 |
| S03   | 8956.47 | 1375.34 | -54519.83 |
| S03 F | 8575.48 | 1375.34 | -54519.83 |
| H07   | 8575.47 | 1375.34 | -54519.83 |

## \*\*\* SEGMENT T , LINE #

|       |          |         |           |
|-------|----------|---------|-----------|
| T00   | -3156.49 | 4798.10 | -35167.03 |
| T01   | -3156.49 | 4330.33 | -35167.03 |
| T02 N | -3156.49 | 4329.69 | -35167.03 |
| T02   | -3156.49 | 4318.41 | -35167.03 |
| T02 F | -3154.28 | 4307.34 | -35167.03 |
| T03   | -3154.16 | 4306.72 | -35167.03 |
| T04 N | -3046.61 | 3766.04 | -35167.03 |
| T04   | -3039.45 | 3730.04 | -35167.03 |
| T04 F | -3013.95 | 3704.54 | -35167.03 |
| T05   | -3013.50 | 3704.09 | -35167.03 |
| T06 N | -2243.00 | 2933.59 | -35167.03 |
| T06   | -2207.37 | 2897.96 | -35167.03 |

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# C O O R D I N A T E S   D A T A   L I S T I N G

| POINT<br>NAME | -----COORDINATE (mm)-----<br>X | Y       | Z         |
|---------------|--------------------------------|---------|-----------|
| T06 F         | -2157.18                       | 2897.96 | -35171.42 |
| T07 N         | 697.23                         | 2897.96 | -35421.15 |
| T07           | 807.68                         | 2897.96 | -35430.81 |
| T07 F         | 807.68                         | 2897.96 | -35541.68 |
| T08 N         | 807.68                         | 2897.96 | -37306.18 |
| T08           | 807.68                         | 2897.96 | -37417.04 |
| T08 F         | 807.68                         | 3008.40 | -37426.70 |
| T09 N         | 807.68                         | 3852.36 | -37500.54 |
| T09           | 807.68                         | 3971.98 | -37511.01 |
| T09 F         | 688.06                         | 3971.98 | -37521.48 |
| T10 N         | 456.14                         | 3971.98 | -37541.77 |
| T10           | 345.70                         | 3971.98 | -37551.43 |
| T10 F         | 345.70                         | 3971.98 | -37662.30 |
| T11 N         | 345.70                         | 3971.98 | -41541.72 |
| T11           | 345.70                         | 3971.98 | -41652.59 |
| T11 F         | 456.15                         | 3971.98 | -41662.25 |
| T12           | 1298.00                        | 3971.98 | -41735.90 |
| T13 N         | 1298.63                        | 3971.98 | -41735.96 |
| T13           | 1330.16                        | 3971.98 | -41738.71 |
| T13 F         | 1357.46                        | 3956.22 | -41741.47 |
| T14           | 1358.01                        | 3955.90 | -41741.52 |
| T15 N         | 1630.41                        | 3798.62 | -41769.04 |
| T15           | 1726.06                        | 3743.40 | -41778.70 |
| T15 F         | 1726.06                        | 3743.40 | -41889.57 |
| T16 N         | 1726.06                        | 3743.40 | -43516.77 |
| T16           | 1726.06                        | 3743.40 | -43532.68 |
| T16 F         | 1730.18                        | 3743.40 | -43548.05 |
| T17           | 1730.18                        | 3743.40 | -43548.07 |
| T18           | 1753.47                        | 3743.40 | -43635.00 |
| T19           | 1632.73                        | 3743.40 | -43667.35 |
| T20 N         | 1632.72                        | 3743.40 | -43667.35 |
| T20           | 1543.05                        | 3743.40 | -43691.38 |
| T20 F         | 1543.05                        | 3743.40 | -43784.22 |
| T21 N         | 1543.05                        | 3743.40 | -44383.57 |
| T21           | 1543.05                        | 3743.40 | -44494.44 |
| T21 F         | 1432.60                        | 3743.40 | -44504.11 |
| T22 N         | 27.08                          | 3743.40 | -44627.08 |
| T22           | -92.54                         | 3743.40 | -44637.54 |
| T22 F         | -92.54                         | 3863.02 | -44648.01 |
| T23           | -92.54                         | 3863.94 | -44648.09 |
| T24 N         | -92.54                         | 4477.10 | -44701.73 |
| T24           | -92.54                         | 4587.55 | -44711.39 |
| T24 F         | -92.54                         | 4587.55 | -44822.26 |
| T25           | -92.54                         | 4587.55 | -50822.27 |
| T26 N         | -92.54                         | 4587.55 | -54287.21 |
| T26           | -92.54                         | 4587.55 | -54398.19 |
| T26 F         | -15.26                         | 4508.48 | -54407.75 |
| T27 N         | 1774.24                        | 2677.48 | -54629.13 |
| T27           | 1851.52                        | 2598.40 | -54638.68 |
| T27 F         | 1851.52                        | 2598.40 | -54749.66 |
| F01           | 1851.50                        | 2598.42 | -55461.02 |

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C O O R D I N A T E S   D A T A   L I S T I N G

| POINT<br>NAME          | -----COORDINATE (mm) -----<br>X                      Y                      Z |         |           |
|------------------------|-------------------------------------------------------------------------------|---------|-----------|
| *** SEGMENT U , LINE # |                                                                               |         |           |
| U03                    | 9361.47                                                                       | 608.53  | -58466.52 |
| U00                    | 9261.47                                                                       | 608.53  | -58466.52 |
| U01 N                  | 9261.46                                                                       | 608.53  | -58466.52 |
| U01                    | 8956.47                                                                       | 608.53  | -58466.52 |
| U01 F                  | 8956.47                                                                       | 913.52  | -58466.52 |
| R00                    | 8956.47                                                                       | 1688.37 | -58466.52 |
| *** SEGMENT V , LINE # |                                                                               |         |           |
| V00                    | 11685.33                                                                      | 608.53  | -58466.52 |
| V01                    | 10969.33                                                                      | 608.53  | -58466.52 |
| V02                    | 10864.33                                                                      | 608.53  | -58466.52 |
| V03                    | 10759.33                                                                      | 608.53  | -58466.52 |
| V04                    | 10422.33                                                                      | 608.53  | -58466.52 |
| V05                    | 10344.33                                                                      | 608.53  | -58466.52 |
| V06                    | 10262.33                                                                      | 608.53  | -58466.52 |
| V07                    | 10184.33                                                                      | 608.53  | -58466.52 |
| V08                    | 9934.33                                                                       | 608.53  | -58466.52 |
| V09                    | 9774.33                                                                       | 608.53  | -58466.52 |
| U03                    | 9361.47                                                                       | 608.53  | -58466.52 |
| *** SEGMENT W , LINE # |                                                                               |         |           |
| V02                    | 10864.33                                                                      | 608.53  | -58466.52 |
| W01                    | 10864.33                                                                      | 608.53  | -58368.52 |
| W02 N                  | 10864.33                                                                      | 608.53  | -58063.00 |
| W02                    | 10864.33                                                                      | 608.53  | -57967.35 |
| W02 F                  | 10864.33                                                                      | 514.33  | -57950.74 |
| W03 N                  | 10864.33                                                                      | 195.55  | -57894.53 |
| W03                    | 10864.33                                                                      | 83.53   | -57874.78 |
| W03 F                  | 10978.08                                                                      | 83.53   | -57874.78 |
| W04 N                  | 11645.54                                                                      | 83.53   | -57874.78 |
| W04                    | 11759.29                                                                      | 83.53   | -57988.53 |
| W04 F                  | 11759.29                                                                      | 83.53   | -58962.60 |
| W05 N                  | 11759.29                                                                      | 83.53   | -59076.35 |
| W05                    | 11759.29                                                                      | 83.53   | -59076.35 |
| W05 F                  | 11759.29                                                                      | 197.28  | -59076.35 |
| W06 N                  | 11759.29                                                                      | 910.78  | -59076.35 |
| W06                    | 11759.29                                                                      | 1024.53 | -59076.35 |
| W06 F                  | 11645.54                                                                      | 1024.53 | -59076.35 |
| W07 N                  | 10978.12                                                                      | 1024.53 | -59076.35 |
| W07                    | 10864.37                                                                      | 1024.53 | -59076.35 |
| W07 F                  | 10864.37                                                                      | 1138.28 | -59076.35 |
| W08                    | 10864.37                                                                      | 1241.53 | -59076.35 |
| W09                    | 10864.37                                                                      | 1288.53 | -59076.35 |
| *** SEGMENT X , LINE # |                                                                               |         |           |
| X00                    | 11590.33                                                                      | 4066.93 | -58466.52 |
| X01                    | 11590.33                                                                      | 4168.53 | -58466.52 |
| *** SEGMENT Y , LINE # |                                                                               |         |           |
| Y00                    | 11785.33                                                                      | 4168.53 | -58466.52 |
| X01                    | 11590.33                                                                      | 4168.53 | -58466.52 |

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C O O R D I N A T E S   D A T A   L I S T I N G

| POINT<br>NAME | -----COORDINATE (mm)-----<br>X | Y       | Z         |
|---------------|--------------------------------|---------|-----------|
| Y02           | 11069.33                       | 4168.53 | -58466.52 |
| Y03           | 10964.33                       | 4168.53 | -58466.52 |
| Y04           | 10859.33                       | 4168.53 | -58466.52 |
| Y05           | 10522.33                       | 4168.53 | -58466.52 |
| Y06           | 10444.33                       | 4168.53 | -58466.52 |
| Y07           | 10364.33                       | 4168.53 | -58466.52 |
| Y08           | 10284.33                       | 4168.53 | -58466.52 |
| Y09           | 10034.33                       | 4168.53 | -58466.52 |
| Y10           | 9874.33                        | 4168.53 | -58466.52 |
| R08           | 9361.47                        | 4168.53 | -58466.52 |

\*\*\* SEGMENT Z , LINE #

|       |          |         |           |
|-------|----------|---------|-----------|
| Y03   | 10964.33 | 4168.53 | -58466.52 |
| Z01   | 10964.33 | 4168.53 | -58368.52 |
| Z02 N | 10964.33 | 4168.53 | -58063.00 |
| Z02   | 10964.33 | 4168.53 | -57967.35 |
| Z02 F | 10964.33 | 4074.33 | -57950.74 |
| Z03 N | 10964.33 | 3755.55 | -57894.53 |
| Z03   | 10964.33 | 3643.53 | -57874.78 |
| Z03 F | 11078.08 | 3643.53 | -57874.78 |
| Z04 N | 11745.54 | 3643.53 | -57874.78 |
| Z04   | 11859.29 | 3643.53 | -57874.78 |
| Z04 F | 11859.29 | 3643.53 | -57988.53 |
| Z05 N | 11859.29 | 3643.53 | -58962.60 |
| Z05   | 11859.29 | 3643.53 | -59076.35 |
| Z05 F | 11859.29 | 3757.28 | -59076.35 |
| Z06 N | 11859.29 | 4470.78 | -59076.35 |
| Z06   | 11859.29 | 4584.53 | -59076.35 |
| Z06 F | 11745.54 | 4584.53 | -59076.35 |
| Z07 N | 11078.12 | 4584.53 | -59076.35 |
| Z07   | 10964.37 | 4584.53 | -59076.35 |
| Z07 F | 10964.37 | 4698.28 | -59076.35 |
| Z08   | 10964.37 | 4801.53 | -59076.35 |
| Z09   | 10964.37 | 4848.53 | -59076.35 |

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PIPE DATA LISTING

| Pipe ID/<br>Material | Nom/<br>Sch | O.D.<br>mm | -----Thickness(mm)----- |      |      |      | Spec<br>Grav | Weight(N/m ) |       |       | ZL/<br>ZC          |
|----------------------|-------------|------------|-------------------------|------|------|------|--------------|--------------|-------|-------|--------------------|
|                      |             |            | W.Th.                   | Corr | Mill | Insu | Ling         | Pipe         | Other | Total |                    |
| 400MX6.0<br>AL       | 400<br>6.0  | 406.00     | 6.000                   | 0    | 0.75 | 0    | 0            | 0            | 200   | 0     | 200 1.00<br>1.00   |
| 250MX6.0<br>AL       | 250<br>NS   | 273.00     | 6.000                   | 0    | 0.75 | 0    | 0            | 0            | 134   | 0     | 134 1.00<br>1.00   |
| 250MX4.0<br>AL       | 250<br>4.0  | 273.00     | 4.000                   | 0    | 0.50 | 0    | 0            | 0            | 89.74 | 0     | 89.74 1.00<br>1.00 |
| 200MX6.0<br>AL       | 200<br>NS   | 219.10     | 6.000                   | 0    | 0.75 | 0    | 0            | 0            | 107   | 0     | 107 1.00<br>1.00   |
| 200MX6.4<br>AL       | 200<br>6.4  | 219.10     | 6.400                   | 0    | 0.80 | 0    | 0            | 0            | 114   | 0     | 114 1.00<br>1.00   |
| 150MX6.0<br>AL       | 150<br>NS   | 168.30     | 6.000                   | 0    | 0.75 | 0    | 0            | 0            | 81.22 | 0     | 81.22 1.00<br>1.00 |
| 50MMX3.9<br>AL       | 50<br>3.9   | 60.300     | 3.900                   | 0    | 0.49 | 0    | 0            | 0            | 18.35 | 0     | 18.35 1.00<br>1.00 |
| 150MX7.1<br>AL       | 150<br>7.1  | 168.30     | 7.100                   | 0    | 0.89 | 0    | 0            | 0            | 95.46 | 0     | 95.46 1.00<br>1.00 |
| 500MX6.0<br>AL       | 500<br>6.0  | 508.00     | 6.000                   | 0    | 0.75 | 0    | 0            | 0            | 251   | 0     | 251 1.00<br>1.00   |
| PIPE0001<br>AL       | 400<br>4.0  | 406.00     | 4.000                   | 0    | 0.50 | 0    | 0            | 0            | 134   | 0     | 134 1.00<br>1.00   |
| 150MX4.0<br>AL       | 150<br>4.0  | 168.30     | 4.000                   | 0    | 0.50 | 0    | 0            | 0            | 54.81 | 0     | 54.81 1.00<br>1.00 |
| 300MX4.0<br>AL       | 300<br>4.0  | 324.00     | 4.000                   | 0    | 0.50 | 0    | 0            | 0            | 107   | 0     | 107 1.00<br>1.00   |
| 300MX4.6<br>AL       | 300<br>NS   | 324.00     | 4.600                   | 0    | 0.57 | 0    | 0            | 0            | 123   | 0     | 123 1.00<br>1.00   |
| 300MX5.0<br>AL       | 300<br>5.0  | 324.00     | 5.000                   | 0    | 0.63 | 0    | 0            | 0            | 133   | 0     | 133 1.00<br>1.00   |
| 200MX6,4<br>AL       | 200<br>6.4  | 219.10     | 6.400                   | 0    | 0.80 | 0    | 0            | 0            | 114   | 0     | 114 1.00<br>1.00   |
| 250MX8.0<br>AL       | 250<br>8.0  | 273.00     | 8.000                   | 0    | 1.00 | 0    | 0            | 0            | 177   | 0     | 177 1.00<br>1.00   |
| PIPE0002<br>AL       | 200<br>6.4  | 219.10     | 6.400                   | 0    | 0.80 | 0    | 0            | 0            | 114   | 0     | 114 1.00<br>1.00   |
| 100MXPN              | 100         | 114.30     | 3.200                   | 0    | 0.40 | 0    | 0            | 0            | 29.65 | 0     | 29.65 1.00         |

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P I P E D A T A L I S T I N G

| Pipe ID/<br>Material | Nom/<br>Sch | O.D.<br>mm | -----Thickness(mm)-----<br>W.Th. Corr Mill Insu Ling | Spec<br>Grav | Weight(N/m )<br>Pipe Other Total | ZL/<br>ZC    |
|----------------------|-------------|------------|------------------------------------------------------|--------------|----------------------------------|--------------|
| AL                   | 3.2         |            |                                                      |              |                                  | 1.00         |
| 80MMX3<br>AL         | 80<br>NS    | 88.900     | 3.000 0 0.38 0 0                                     | 0            | 21.49 0 21.49                    | 1.00<br>1.00 |
| 100X8.8<br>AL        | 100<br>8.8  | 114.30     | 8.800 0 1.10 0 0                                     | 0            | 77.43 0 77.43                    | 1.00<br>1.00 |
| 25MMXS40<br>AL       | 25<br>2.6   | 33.400     | 2.600 0 0.32 0 0                                     | 0            | 6.68 0 6.68                      | 1.00<br>1.00 |
| PIPE0003<br>AL       | 100<br>3.6  | 114.30     | 3.600 0 0.45 0 0                                     | 0            | 33.24 0 33.24                    | 1.00<br>1.00 |
| PIPE0004<br>AL       | 80<br>3.2   | 88.900     | 3.200 0 0.40 0 0                                     | 0            | 22.87 0 22.87                    | 1.00<br>1.00 |
| PIPE0005<br>AL       | 80<br>8.8   | 88.900     | 8.800 0 1.10 0 0                                     | 0            | 58.79 0 58.79                    | 1.00<br>1.00 |



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M A T E R I A L D A T A L I S T I N G

| Material<br>Name | Pipe ID  | Density<br>kg/m3 | Pois.<br>Ratio | Temper.<br>deg C | Modulus x10 <sup>6</sup> N/<br>Axial | Hoop    | Shear   | Expans.<br>mm/m |
|------------------|----------|------------------|----------------|------------------|--------------------------------------|---------|---------|-----------------|
| AL               | 400MX6.0 | 2707.1           | 0.30           | 20.0<br>-196.0   | 0.06899<br>0.07646                   | 0.06899 | 0.02653 | -3.8459         |
| AL               | 250MX4.0 | 2707.1           | 0.30           | 20.0<br>-196.0   | 0.06899<br>0.07646                   | 0.06899 | 0.02653 | -3.8459         |
| AL               | 250MX6.0 | 2707.1           | 0.30           | 20.0<br>-196.0   | 0.06899<br>0.07646                   | 0.06899 | 0.02653 | -3.8459         |
| AL               | 200MX6.0 | 2707.1           | 0.30           | 20.0<br>-196.0   | 0.06899<br>0.07646                   | 0.06899 | 0.02653 | -3.8459         |
| AL               | 200MX6.4 | 2707.1           | 0.30           | 20.0<br>-196.0   | 0.06899<br>0.07646                   | 0.06899 | 0.02653 | -3.8459         |
| AL               | 150MX6.0 | 2707.1           | 0.30           | 20.0<br>-196.0   | 0.06899<br>0.07646                   | 0.06899 | 0.02653 | -3.8459         |
| AL               | 50MMX3.9 | 2707.1           | 0.30           | 20.0<br>-196.0   | 0.06899<br>0.07646                   | 0.06899 | 0.02653 | -3.8459         |
| AL               | 150MX7.1 | 2707.1           | 0.30           | 20.0<br>-196.0   | 0.06899<br>0.07646                   | 0.06899 | 0.02653 | -3.8459         |
| AL               | 500MX6.0 | 2707.1           | 0.30           | 20.0<br>-196.0   | 0.06899<br>0.07646                   | 0.06899 | 0.02653 | -3.8459         |
| AL               | PIPE0001 | 2707.1           | 0.30           | 20.0<br>-196.0   | 0.06899<br>0.07646                   | 0.06899 | 0.02653 | -3.8459         |
| AL               | 150MX4.0 | 2707.1           | 0.30           | 20.0<br>-196.0   | 0.06899<br>0.07646                   | 0.06899 | 0.02653 | -3.8459         |
| AL               | 300MX4.0 | 2707.1           | 0.30           | 20.0<br>-196.0   | 0.06899<br>0.07646                   | 0.06899 | 0.02653 | -3.8459         |
| AL               | 300MX4.6 | 2707.1           | 0.30           | 20.0<br>-196.0   | 0.06899<br>0.07646                   | 0.06899 | 0.02653 | -3.8459         |
| AL               | 300MX5.0 | 2707.1           | 0.30           | 20.0<br>-196.0   | 0.06899<br>0.07646                   | 0.06899 | 0.02653 | -3.8459         |
| AL               | 200MX6,4 | 2707.1           | 0.30           | 20.0<br>-196.0   | 0.06899<br>0.07646                   | 0.06899 | 0.02653 | -3.8459         |
| AL               | 250MX8.0 | 2707.1           | 0.30           | 20.0<br>-196.0   | 0.06899<br>0.07646                   | 0.06899 | 0.02653 | -3.8459         |
| AL               | PIPE0002 | 2707.1           | 0.30           | 20.0<br>-196.0   | 0.06899<br>0.07646                   | 0.06899 | 0.02653 | -3.8459         |

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# M A T E R I A L   D A T A   L I S T I N G

| Material<br>Name | Pipe ID  | Density<br>kg/m3 | Pois.<br>Ratio | Temper.<br>deg C | Modulus x10 <sup>6</sup> N/ |         |         | Expans.<br>mm/m |
|------------------|----------|------------------|----------------|------------------|-----------------------------|---------|---------|-----------------|
|                  |          |                  |                |                  | Axial                       | Hoop    | Shear   |                 |
| AL               | 100MXP   | 2707.1           | 0.30           | 20.0<br>-196.0   | 0.06899<br>0.07646          | 0.06899 | 0.02653 | -3.8459         |
| AL               | 100X8.8  | 2707.1           | 0.30           | 20.0<br>-196.0   | 0.06899<br>0.07646          | 0.06899 | 0.02653 | -3.8459         |
| AL               | 80MMX3   | 2707.1           | 0.30           | 20.0<br>-196.0   | 0.06899<br>0.07646          | 0.06899 | 0.02653 | -3.8459         |
| AL               | 25MMXS40 | 2707.1           | 0.30           | 20.0<br>-196.0   | 0.06899<br>0.07646          | 0.06899 | 0.02653 | -3.8459         |
| AL               | PIPE0003 | 2707.1           | 0.30           | 20.0<br>-196.0   | 0.06899<br>0.07646          | 0.06899 | 0.02653 | -3.8459         |
| AL               | PIPE0005 | 2707.1           | 0.30           | 20.0<br>-196.0   | 0.06899<br>0.07646          | 0.06899 | 0.02653 | -3.8459         |
| AL               | PIPE0004 | 2707.1           | 0.30           | 20.0<br>-196.0   | 0.06899<br>0.07646          | 0.06899 | 0.02653 | -3.8459         |

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M A T E R I A L   A L L O W A B L E   D A T A   L I S T I N G

| Material<br>Name | Pipe ID  | Temper.<br>deg C | Allow.<br>N/mm2 | Yield<br>N/mm2 |
|------------------|----------|------------------|-----------------|----------------|
| AL               | 400MX6.0 | 20.0<br>-196.0   | 103.42<br>71.00 | 0.00           |
| AL               | 250MX4.0 | 20.0<br>-196.0   | 103.42<br>71.00 | 0.00           |
| AL               | 250MX6.0 | 20.0<br>-196.0   | 103.42<br>71.00 | 0.00           |
| AL               | 200MX6.0 | 20.0<br>-196.0   | 103.42<br>71.00 | 0.00           |
| AL               | 200MX6.4 | 20.0<br>-196.0   | 103.42<br>71.00 | 0.00           |
| AL               | 150MX6.0 | 20.0<br>-196.0   | 103.42<br>71.00 | 0.00           |
| AL               | 50MMX3.9 | 20.0<br>-196.0   | 103.42<br>71.00 | 0.00           |
| AL               | 150MX7.1 | 20.0<br>-196.0   | 103.42<br>71.00 | 0.00           |
| AL               | 500MX6.0 | 20.0<br>-196.0   | 103.42<br>71.00 | 0.00           |
| AL               | PIPE0001 | 20.0<br>-196.0   | 103.42<br>71.00 | 0.00           |
| AL               | 150MX4.0 | 20.0<br>-196.0   | 103.42<br>71.00 | 0.00           |
| AL               | 300MX4.0 | 20.0<br>-196.0   | 103.42<br>71.00 | 0.00           |
| AL               | 300MX4.6 | 20.0<br>-196.0   | 103.42<br>71.00 | 0.00           |
| AL               | 300MX5.0 | 20.0<br>-196.0   | 103.42<br>71.00 | 0.00           |
| AL               | 200MX6,4 | 20.0<br>-196.0   | 103.42<br>71.00 | 0.00           |
| AL               | 250MX8.0 | 20.0<br>-196.0   | 103.42<br>71.00 | 0.00           |
| AL               | PIPE0002 | 20.0<br>-196.0   | 103.42<br>71.00 | 0.00           |

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M A T E R I A L   A L L O W A B L E   D A T A   L I S T I N G

| Material<br>Name | Pipe ID  | Temper.<br>deg C | Allow.<br>N/mm2  | Yield<br>N/mm2 |
|------------------|----------|------------------|------------------|----------------|
| AL               | 100MXPB  | 20.0<br>-196.0   | 103.42<br>143.00 | 0.00           |
| AL               | 100X8.8  | 20.0<br>-196.0   | 103.42<br>71.00  | 0.00           |
| AL               | 80MMX3   | 20.0<br>-196.0   | 103.42<br>143.00 | 0.00           |
| AL               | 25MMXS40 | 20.0<br>-196.0   | 103.42<br>143.00 | 0.00           |
| AL               | PIPE0003 | 20.0<br>-196.0   | 103.42<br>143.00 | 0.00           |
| AL               | PIPE0005 | 20.0<br>-196.0   | 103.42<br>71.00  | 0.00           |
| AL               | PIPE0004 | 20.0<br>-196.0   | 103.42<br>143.00 | 0.00           |

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| POINT<br>NAME | -----C A S E 1----- |                 |                | -----C A S E 2----- |                 |                | -----C A S E 3----- |                 |                |
|---------------|---------------------|-----------------|----------------|---------------------|-----------------|----------------|---------------------|-----------------|----------------|
|               | PRESS.<br>N/mm2     | TEMPER<br>deg C | EXPAN.<br>mm/m | PRESS.<br>N/mm2     | TEMPER<br>deg C | EXPAN.<br>mm/m | PRESS.<br>N/mm2     | TEMPER<br>deg C | EXPAN.<br>mm/m |

\*\*\* SEGMENT A , LINE # 79319822  
A00           0   -196   -3.846  
A34           0   -196   -3.846

\*\*\* SEGMENT B , LINE # 79319822  
A17           0   -196   -3.846  
B01           0   -196   -3.846

\*\*\* SEGMENT C , LINE # 79319822  
C00           0   -196   -3.846  
A34           0   -196   -3.846

\*\*\* SEGMENT D , LINE #  
D00           0   -196   -3.846  
B01           0   -196   -3.846

\*\*\* SEGMENT E , LINE #  
E00           0   -196   -3.846  
E08           0   -196   -3.846

\*\*\* SEGMENT F , LINE #  
E06           0   -196   -3.846  
F01           0   -196   -3.846

\*\*\* SEGMENT G , LINE #  
E07           0   -196   -3.846  
D00           0   -196   -3.846

\*\*\* SEGMENT H , LINE #  
E08           0   -196   -3.846  
H07           0   -196   -3.846

\*\*\* SEGMENT I , LINE #  
H03           0   -196   -3.846  
I01           0   -196   -3.846

\*\*\* SEGMENT J , LINE #  
H04           0   -196   -3.846  
J07           0   -196   -3.846

\*\*\* SEGMENT K , LINE #  
H05           0   -196   -3.846  
K07           0   -196   -3.846

\*\*\* SEGMENT L , LINE #  
J05           0   -196   -3.846  
L02           0   -196   -3.846

\*\*\* SEGMENT M , LINE #  
K05           0   -196   -3.846  
M02           0   -196   -3.846

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TEMPERATURE AND PRESSURE DATA

|                        | -----C A S E 1----- |        |        | -----C A S E 2----- |        |        | -----C A S E 3----- |        |        |
|------------------------|---------------------|--------|--------|---------------------|--------|--------|---------------------|--------|--------|
| POINT                  | PRESS.              | TEMPER | EXPAN. | PRESS.              | TEMPER | EXPAN. | PRESS.              | TEMPER | EXPAN. |
| NAME                   | N/mm2               | deg C  | mm/m   | N/mm2               | deg C  | mm/m   | N/mm2               | deg C  | mm/m   |
| *** SEGMENT N , LINE # |                     |        |        |                     |        |        |                     |        |        |
| J06                    | 0                   | -196   | -3.846 |                     |        |        |                     |        |        |
| N02                    | 0                   | -196   | -3.846 |                     |        |        |                     |        |        |
| *** SEGMENT O , LINE # |                     |        |        |                     |        |        |                     |        |        |
| K06                    | 0                   | -196   | -3.846 |                     |        |        |                     |        |        |
| O02                    | 0                   | -196   | -3.846 |                     |        |        |                     |        |        |
| *** SEGMENT Q , LINE # |                     |        |        |                     |        |        |                     |        |        |
| Q00                    | 0                   | -196   | -3.846 |                     |        |        |                     |        |        |
| I01                    | 0                   | -196   | -3.846 |                     |        |        |                     |        |        |
| *** SEGMENT R , LINE # |                     |        |        |                     |        |        |                     |        |        |
| R00                    | 0                   | -196   | -3.846 |                     |        |        |                     |        |        |
| R08                    | 0                   | -196   | -3.846 |                     |        |        |                     |        |        |
| *** SEGMENT S , LINE # |                     |        |        |                     |        |        |                     |        |        |
| R03                    | 0                   | -196   | -3.846 |                     |        |        |                     |        |        |
| H07                    | 0                   | -196   | -3.846 |                     |        |        |                     |        |        |
| *** SEGMENT T , LINE # |                     |        |        |                     |        |        |                     |        |        |
| T00                    | 0                   | -196   | -3.846 |                     |        |        |                     |        |        |
| F01                    | 0                   | -196   | -3.846 |                     |        |        |                     |        |        |
| *** SEGMENT U , LINE # |                     |        |        |                     |        |        |                     |        |        |
| U03                    | 0                   | -196   | -3.846 |                     |        |        |                     |        |        |
| R00                    | 0                   | -196   | -3.846 |                     |        |        |                     |        |        |
| *** SEGMENT V , LINE # |                     |        |        |                     |        |        |                     |        |        |
| V00                    | 0                   | -196   | -3.846 |                     |        |        |                     |        |        |
| U03                    | 0                   | -196   | -3.846 |                     |        |        |                     |        |        |
| *** SEGMENT W , LINE # |                     |        |        |                     |        |        |                     |        |        |
| V02                    | 0                   | -196   | -3.846 |                     |        |        |                     |        |        |
| W09                    | 0                   | -196   | -3.846 |                     |        |        |                     |        |        |
| *** SEGMENT X , LINE # |                     |        |        |                     |        |        |                     |        |        |
| X00                    | 0                   | -196   | -3.846 |                     |        |        |                     |        |        |
| X01                    | 0                   | -196   | -3.846 |                     |        |        |                     |        |        |
| *** SEGMENT Y , LINE # |                     |        |        |                     |        |        |                     |        |        |
| Y00                    | 0                   | -196   | -3.846 |                     |        |        |                     |        |        |
| R08                    | 0                   | -196   | -3.846 |                     |        |        |                     |        |        |
| *** SEGMENT Z , LINE # |                     |        |        |                     |        |        |                     |        |        |
| Y03                    | 0                   | -196   | -3.846 |                     |        |        |                     |        |        |
| Z09                    | 0                   | -196   | -3.846 |                     |        |        |                     |        |        |

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H O T M O D U L U S (x10^6 N/)

| POINT<br>NAME | CASE 1 | CASE 2 | CASE 3 |
|---------------|--------|--------|--------|
|---------------|--------|--------|--------|

\*\*\* SEGMENT A , LINE # 79319822

A00 0.07646

A34 0.07646

\*\*\* SEGMENT B , LINE # 79319822

A17 0.07646

B01 0.07646

\*\*\* SEGMENT C , LINE # 79319822

C00 0.07646

A34 0.07646

\*\*\* SEGMENT D , LINE #

D00 0.07646

B01 0.07646

\*\*\* SEGMENT E , LINE #

E00 0.07646

E08 0.07646

\*\*\* SEGMENT F , LINE #

E06 0.07646

F01 0.07646

\*\*\* SEGMENT G , LINE #

E07 0.07646

D00 0.07646

\*\*\* SEGMENT H , LINE #

E08 0.07646

H07 0.07646

\*\*\* SEGMENT I , LINE #

H03 0.07646

I01 0.07646

\*\*\* SEGMENT J , LINE #

H04 0.07646

J07 0.07646

\*\*\* SEGMENT K , LINE #

H05 0.07646

K07 0.07646

\*\*\* SEGMENT L , LINE #

J05 0.07646

L02 0.07646

\*\*\* SEGMENT M , LINE #

K05 0.07646

M02 0.07646

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H O T M O D U L U S (x10<sup>6</sup> N/)

| POINT<br>NAME          | CASE 1  | CASE 2 | CASE 3 |
|------------------------|---------|--------|--------|
| *** SEGMENT N , LINE # |         |        |        |
| J06                    | 0.07646 |        |        |
| N02                    | 0.07646 |        |        |
| *** SEGMENT O , LINE # |         |        |        |
| K06                    | 0.07646 |        |        |
| O02                    | 0.07646 |        |        |
| *** SEGMENT Q , LINE # |         |        |        |
| Q00                    | 0.07646 |        |        |
| I01                    | 0.07646 |        |        |
| *** SEGMENT R , LINE # |         |        |        |
| R00                    | 0.07646 |        |        |
| R08                    | 0.07646 |        |        |
| *** SEGMENT S , LINE # |         |        |        |
| R03                    | 0.07646 |        |        |
| H07                    | 0.07646 |        |        |
| *** SEGMENT T , LINE # |         |        |        |
| T00                    | 0.07646 |        |        |
| F01                    | 0.07646 |        |        |
| *** SEGMENT U , LINE # |         |        |        |
| U03                    | 0.07646 |        |        |
| R00                    | 0.07646 |        |        |
| *** SEGMENT V , LINE # |         |        |        |
| V00                    | 0.07646 |        |        |
| U03                    | 0.07646 |        |        |
| *** SEGMENT W , LINE # |         |        |        |
| V02                    | 0.07646 |        |        |
| W09                    | 0.07646 |        |        |
| *** SEGMENT X , LINE # |         |        |        |
| X00                    | 0.07646 |        |        |
| X01                    | 0.07646 |        |        |
| *** SEGMENT Y , LINE # |         |        |        |
| Y00                    | 0.07646 |        |        |
| R08                    | 0.07646 |        |        |
| *** SEGMENT Z , LINE # |         |        |        |
| Y03                    | 0.07646 |        |        |
| Z09                    | 0.07646 |        |        |

\* Non-standard material



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|       | H O T               |      |      | A L L O W A B L E S (N/mm2 ) |      |      |                     |      |      |
|-------|---------------------|------|------|------------------------------|------|------|---------------------|------|------|
|       | -----C A S E 1----- |      |      | -----C A S E 2-----          |      |      | -----C A S E 3----- |      |      |
| POINT | NOT                 | NOT  |      | NOT                          | NOT  |      | NOT                 | NOT  |      |
| NAME  | ALLOW               | USED | USED | ALLOW                        | USED | USED | ALLOW               | USED | USED |

\*\*\* SEGMENT A , LINE # 79319822

A00 71.00\*

A34 71.00\*

\*\*\* SEGMENT B , LINE # 79319822

A17 71.00\*

B01 71.00\*

\*\*\* SEGMENT C , LINE # 79319822

C00 71.00\*

A34 71.00\*

\*\*\* SEGMENT D , LINE #

D00 71.00\*

B01 71.00\*

\*\*\* SEGMENT E , LINE #

E00 71.00\*

E08 71.00\*

\*\*\* SEGMENT F , LINE #

E06 71.00\*

F01 71.00\*

\*\*\* SEGMENT G , LINE #

E07 71.00\*

D00 71.00\*

\*\*\* SEGMENT H , LINE #

E08 71.00\*

H07 71.00\*

\*\*\* SEGMENT I , LINE #

H03 71.00\*

I01 71.00\*

\*\*\* SEGMENT J , LINE #

H04 71.00\*

J07 71.00\*

\*\*\* SEGMENT K , LINE #

H05 71.00\*

K07 71.00\*

\*\*\* SEGMENT L , LINE #

J05 71.00\*

L02 71.00\*

\*\*\* SEGMENT M , LINE #

K05 71.00\*

M02 71.00\*

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| H O T                  |         |      | A L L O W A B L E S (N/mm2 ) |       |      |                     |       |      |
|------------------------|---------|------|------------------------------|-------|------|---------------------|-------|------|
| -----C A S E 1-----    |         |      | -----C A S E 2-----          |       |      | -----C A S E 3----- |       |      |
| POINT                  | NOT     | NOT  | NOT                          | NOT   | NOT  | NOT                 | NOT   | NOT  |
| NAME                   | ALLOW   | USED | USED                         | ALLOW | USED | USED                | ALLOW | USED |
|                        |         |      |                              |       |      |                     |       |      |
| *** SEGMENT N , LINE # |         |      |                              |       |      |                     |       |      |
| J06                    | 71.00*  |      |                              |       |      |                     |       |      |
| N02                    | 71.00*  |      |                              |       |      |                     |       |      |
| *** SEGMENT O , LINE # |         |      |                              |       |      |                     |       |      |
| K06                    | 71.00*  |      |                              |       |      |                     |       |      |
| O02                    | 71.00*  |      |                              |       |      |                     |       |      |
| *** SEGMENT Q , LINE # |         |      |                              |       |      |                     |       |      |
| Q00                    | 71.00*  |      |                              |       |      |                     |       |      |
| I01                    | 71.00*  |      |                              |       |      |                     |       |      |
| *** SEGMENT R , LINE # |         |      |                              |       |      |                     |       |      |
| R00                    | 71.00*  |      |                              |       |      |                     |       |      |
| R08                    | 71.00*  |      |                              |       |      |                     |       |      |
| *** SEGMENT S , LINE # |         |      |                              |       |      |                     |       |      |
| R03                    | 71.00*  |      |                              |       |      |                     |       |      |
| H07                    | 71.00*  |      |                              |       |      |                     |       |      |
| *** SEGMENT T , LINE # |         |      |                              |       |      |                     |       |      |
| T00                    | 71.00*  |      |                              |       |      |                     |       |      |
| F01                    | 71.00*  |      |                              |       |      |                     |       |      |
| *** SEGMENT U , LINE # |         |      |                              |       |      |                     |       |      |
| U03                    | 71.00*  |      |                              |       |      |                     |       |      |
| R00                    | 71.00*  |      |                              |       |      |                     |       |      |
| *** SEGMENT V , LINE # |         |      |                              |       |      |                     |       |      |
| V00                    | 143.00* |      |                              |       |      |                     |       |      |
| V08                    | 71.00*  |      |                              |       |      |                     |       |      |
| U03                    | 71.00*  |      |                              |       |      |                     |       |      |
| *** SEGMENT W , LINE # |         |      |                              |       |      |                     |       |      |
| V02                    | 143.00* |      |                              |       |      |                     |       |      |
| W09                    | 71.00*  |      |                              |       |      |                     |       |      |
| *** SEGMENT X , LINE # |         |      |                              |       |      |                     |       |      |
| X00                    | 143.00* |      |                              |       |      |                     |       |      |
| X01                    | 143.00* |      |                              |       |      |                     |       |      |
| *** SEGMENT Y , LINE # |         |      |                              |       |      |                     |       |      |
| Y00                    | 143.00* |      |                              |       |      |                     |       |      |
| Y09                    | 71.00*  |      |                              |       |      |                     |       |      |
| R08                    | 71.00*  |      |                              |       |      |                     |       |      |
| *** SEGMENT Z , LINE # |         |      |                              |       |      |                     |       |      |
| Y03                    | 143.00* |      |                              |       |      |                     |       |      |
| Z09                    | 143.00* |      |                              |       |      |                     |       |      |

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|       | -----C A S E 1----- |      | H O T | A L L O W A B L E S (N/mm2 ) |      |      | -----C A S E 2----- |      | -----C A S E 3----- |  |
|-------|---------------------|------|-------|------------------------------|------|------|---------------------|------|---------------------|--|
| POINT | NOT                 | NOT  | NOT   | NOT                          | NOT  | NOT  | NOT                 | NOT  | NOT                 |  |
| NAME  | ALLOW               | USED | USED  | ALLOW                        | USED | USED | ALLOW               | USED | USED                |  |

\* Non-code material

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THERMAL ANCHOR MOVEMENTS AND DISPLACEMENTS

| POINT<br>NAME | LOAD CASE | DX<br>(mm ) | DY<br>(mm ) | DZ<br>(mm ) | RX<br>(deg ) | RY<br>(deg ) | RZ<br>(deg ) |
|---------------|-----------|-------------|-------------|-------------|--------------|--------------|--------------|
| A00           | Thermal 1 | -4.70       | 2.20        | -228.90     | 0.000        | 0.000        | 0.000        |
| C00           | Thermal 1 | 0.00        | -3.40       | 28.50       | 0.000        | 0.000        | 0.000        |
| E00           | Thermal 1 | -5.60       | -1.00       | -16.50      | 0.000        | 0.000        | 0.000        |
| L02           | Thermal 1 | 0.00        | 2.90        | 14.80       | 0.000        | 0.000        | 0.000        |
| M02           | Thermal 1 | 0.00        | -2.90       | 14.90       | 0.000        | 0.000        | 0.000        |
| N02           | Thermal 1 | 0.00        | 2.90        | 14.80       | 0.000        | 0.000        | 0.000        |
| O02           | Thermal 1 | 0.00        | -2.90       | 14.80       | 0.000        | 0.000        | 0.000        |
| Q00           | Thermal 1 | 0.00        | 0.00        | -5.20       | 0.000        | 0.000        | 0.000        |
| T00           | Thermal 1 | 0.00        | 0.00        | -95.00      | 0.000        | 0.000        | 0.000        |