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 : 79319709_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 : AUTODIN

MATERIAL LIBRARY : AUTOB313

MODEL REVISION NUMBER : 3

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

*** SEGMENT A , LINE # 79319709ALT

From A01 to A02, DX= 180.00 mm Junc

PIPE DATA:
Pipe Id= 600MX1, Material= AL, Poisson= 0.300, Nom Size= 600 mm,
OD= 610.00 mm, Sch= NS, Wall Thk= 7.000 mm, Mill= 0.875 mm, Cor= 0 mm,
Pipe Density= 2707.12 kg/m3, Pipe Unit Wgt= 352.04 N/m, Insul Thk= 0 mm,
Lining Thk= 0 mm, Long Weld factor= 1.00, Circ Weld factor= 1.00,
Long Modulus= 0.06899 x10^6 N/m, Hoop Modulus= 0.06899 x10^6 N/m,
Shear Modulus= 0.02653 x10^6 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 x10^6 N/m, Sh1= 71.00 N/mm2

POINT DATA:
A01, Coordinates, X= 0.00 mm, Y= 0.00 mm, Z= 0.00 mm

From A02 to A03, DX= 374.52 mm Run

PIPE DATA:
Pipe Id= 600MX7, Nom Size= 600 mm

POINT DATA:
A02, Coordinates, X= 180.00 mm, Y= 0.00 mm, Z= 0.00 mm

From A03 to A04, DX= 0.25 mm Tee

COMPONENT DATA (Tee Header, Center= A03):
B16.9 welding tee, SIFI= 4.15, SIFO= 5.20

POINT DATA:
A03, Coordinates, X= 554.52 mm, Y= 0.00 mm, Z= 0.00 mm

From A04 to A05, DX= 725.23 mm Tee

COMPONENT DATA (Tee Header, Center= A04):
B16.9 welding tee, SIFI= 4.15, SIFO= 5.20

POINT DATA:
A04, Coordinates, X= 554.77 mm, Y= 0.00 mm, Z= 0.00 mm

From A05 to A06, DX= 724.52 mm Tee

COMPONENT DATA (Tee Header, Center= A05):
B16.9 welding tee, SIFI= 4.15, SIFO= 5.20

POINT DATA:

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

A05, Coordinates, X= 1280.00 mm, Y= 0.00 mm, Z= 0.00 mm

Tee

From A06 to A07, DX= 0.25 mm

COMPONENT DATA (Tee Header, Center= A06):
B16.9 welding tee, SIFI= 4.15, SIFO= 5.20

POINT DATA:
A06, Coordinates, X= 2004.52 mm, Y= 0.00 mm, Z= 0.00 mm

Tee

From A07 to A08, DX= 375.23 mm

COMPONENT DATA (Tee Header, Center= A07):
B16.9 welding tee, SIFI= 4.15, SIFO= 5.20

POINT DATA:
A07, Coordinates, X= 2004.77 mm, Y= 0.00 mm, Z= 0.00 mm

Run

From A08 to A09, DX= 180.00 mm

COMPONENT DATA (Run):
Rigid, Include weight= Yes, Include expansion= Yes

POINT DATA:
A08, Coordinates, X= 2380.00 mm, Y= 0.00 mm, Z= 0.00 mm
A09, Coordinates, X= 2560.00 mm, Y= 0.00 mm, Z= 0.00 mm

*** SEGMENT B , LINE # 79319709ALT

Tee

From A03 to B01, DY= 400.00 mm

COMPONENT DATA (Tee Branch, Center= A03):
B16.9 welding tee, SIFI= 4.15, SIFO= 5.20

PIPE DATA:
Pipe Id= 350MX6.0, Nom Size= 350 mm, OD= 355.60 mm, Wall Thk= 6.000 mm,
Mill= 0.750 mm

POINT DATA:
A03, Coordinates, X= 554.52 mm, Y= 0.00 mm, Z= 0.00 mm

Run

From B01 to B02, DY= 1476.16 mm

POINT DATA:
B01, Coordinates, X= 554.52 mm, Y= 400.00 mm, Z= 0.00 mm

Bend

From B02 to B03, DZ= 1276.00 mm

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

COMPONENT DATA (Bend, TIP= B02, Near= B02 N, Far= B02 F):
Elbow, Radius= 532.99 mm, Bend angle= 90.00 deg, End flanges= 0,
Flex= 15.765, SIFI= 4.05, SIFO= 3.38

POINT DATA:
B02, Coordinates, X= 554.52 mm, Y= 1876.16 mm, Z= 0.00 mm
B02 N, Coordinates, X= 554.52 mm, Y= 1343.17 mm, Z= 0.00 mm
B02 F, Coordinates, X= 554.52 mm, Y= 1876.16 mm, Z= 532.99 mm
B03, Coordinates, X= 554.52 mm, Y= 1876.16 mm, Z= 1276.00 mm

SUPPORT DATA:
B03, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid, KRY= Rigid,
KRZ= Rigid

*** SEGMENT C , LINE # 79319709ALT

From A04 to C01, DX= -0.25 mm, DY= -400.00 mm, L= 400.00 mm Tee

COMPONENT DATA (Tee Branch, Center= A04):
B16.9 welding tee, SIFI= 4.15, SIFO= 5.20

PIPE DATA:
Pipe Id= 350MX6.0, Nom Size= 350 mm

POINT DATA:
A04, Coordinates, X= 554.77 mm, Y= 0.00 mm, Z= 0.00 mm

From C01 to C02, DY= -919.84 mm Run

POINT DATA:
C01, Coordinates, X= 554.52 mm, Y= -400.00 mm, Z= 0.00 mm

From C02 to C03, DZ= 1276.00 mm Bend

COMPONENT DATA (Bend, TIP= C02, Near= C02 N, Far= C02 F):
Elbow, Radius= 532.99 mm, Bend angle= 90.00 deg, End flanges= 0,
Flex= 15.765, SIFI= 4.05, SIFO= 3.38

POINT DATA:
C02, Coordinates, X= 554.52 mm, Y= -1319.84 mm, Z= 0.00 mm
C02 N, Coordinates, X= 554.52 mm, Y= -786.85 mm, Z= 0.00 mm
C02 F, Coordinates, X= 554.52 mm, Y= -1319.84 mm, Z= 532.99 mm
C03, Coordinates, X= 554.52 mm, Y= -1319.84 mm, Z= 1276.00 mm

SUPPORT DATA:
C03, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid, KRY= Rigid,
KRZ= Rigid

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

*** SEGMENT D , LINE # 79319709ALT

Tee

From A05 to D01, DZ= -430.00 mm

COMPONENT DATA (Tee Branch, Center= A05):
B16.9 welding tee, SIFI= 4.15, SIFO= 5.20

PIPE DATA:
Pipe Id= 600MX7, Nom Size= 600 mm, OD= 610.00 mm, Wall Thk= 7.000 mm,
Mill= 0.875 mm

POINT DATA:
A05, Coordinates, X= 1280.00 mm, Y= 0.00 mm, Z= 0.00 mm

Run

From D01 to D02, DZ= -100.00 mm

POINT DATA:
D01, Coordinates, X= 1280.00 mm, Y= 0.00 mm, Z= -430.00 mm

Tee

From D02 to D03, DZ= -475.00 mm

COMPONENT DATA (Tee Header, Center= D02):
B16.9 welding tee, SIFI= 4.15, SIFO= 5.20

POINT DATA:
D02, Coordinates, X= 1280.00 mm, Y= 0.00 mm, Z= -530.00 mm

Tee

From D03 to D04, DZ= -427.86 mm

COMPONENT DATA (Tee Header, Center= D03):
B16.9 welding tee, SIFI= 4.15, SIFO= 5.20

POINT DATA:
D03, Coordinates, X= 1280.00 mm, Y= 0.00 mm, Z= -1005.00 mm
D04, Coordinates, X= 1280.00 mm, Y= 0.00 mm, Z= -1432.86 mm

*** SEGMENT E , LINE # 79319709ALT

Tee

From A06 to E01, DY= 400.00 mm

COMPONENT DATA (Tee Branch, Center= A06):
B16.9 welding tee, SIFI= 4.15, SIFO= 5.20

PIPE DATA:
Pipe Id= 350MX6.0, Nom Size= 350 mm, OD= 355.60 mm, Wall Thk= 6.000 mm,
Mill= 0.750 mm

POINT DATA:

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

A06, Coordinates, X= 2004.52 mm, Y= 0.00 mm, Z= 0.00 mm

Run

From E01 to E02, DY= 1476.16 mm

POINT DATA:
E01, Coordinates, X= 2004.52 mm, Y= 400.00 mm, Z= 0.00 mm

Bend

From E02 to E03, DZ= 1276.00 mm

COMPONENT DATA (Bend, TIP= E02, Near= E02 N, Far= E02 F):
Elbow, Radius= 532.99 mm, Bend angle= 90.00 deg, End flanges= 0,
Flex= 15.765, SIFI= 4.05, SIFO= 3.38

POINT DATA:
E02, Coordinates, X= 2004.52 mm, Y= 1876.16 mm, Z= 0.00 mm
E02 N, Coordinates, X= 2004.52 mm, Y= 1343.17 mm, Z= 0.00 mm
E02 F, Coordinates, X= 2004.52 mm, Y= 1876.16 mm, Z= 532.99 mm
E03, Coordinates, X= 2004.52 mm, Y= 1876.16 mm, Z= 1276.00 mm

SUPPORT DATA:
E03, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid, KRY= Rigid,
KRZ= Rigid

*** SEGMENT F , LINE # 79319709ALT

Tee

From D02 to F01, DX= 349.45 mm

COMPONENT DATA (Tee Branch, Center= D02):
B16.9 welding tee, SIFI= 4.15, SIFO= 5.20
Rigid, Include weight= Yes, Include expansion= Yes

PIPE DATA:
Pipe Id= 25MMX3.4, Nom Size= 25 mm, OD= 33.700 mm, Wall Thk= 3.400 mm,
Mill= 0.425 mm

POINT DATA:
D02, Coordinates, X= 1280.00 mm, Y= 0.00 mm, Z= -530.00 mm
F01, Coordinates, X= 1629.45 mm, Y= 0.00 mm, Z= -530.00 mm

*** SEGMENT G , LINE # 79319709ALT

Tee

From A07 to G01, DX= -0.25 mm, DY= -400.00 mm, L= 400.00 mm

COMPONENT DATA (Tee Branch, Center= A07):
B16.9 welding tee, SIFI= 4.15, SIFO= 5.20

PIPE DATA:

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

Pipe Id= 350MX6.0, Nom Size= 350 mm, OD= 355.60 mm, Wall Thk= 6.000 mm, Mill= 0.750 mm

POINT DATA:
A07, Coordinates, X= 2004.77 mm, Y= 0.00 mm, Z= 0.00 mm

From G01 to G02, DY= -919.84 mm Run

POINT DATA:
G01, Coordinates, X= 2004.52 mm, Y= -400.00 mm, Z= 0.00 mm

From G02 to G03, DZ= 1276.00 mm Bend

COMPONENT DATA (Bend, TIP= G02, Near= G02 N, Far= G02 F):
Elbow, Radius= 532.99 mm, Bend angle= 90.00 deg, End flanges= 0, Flex= 15.765, SIFI= 4.05, SIFO= 3.38

POINT DATA:
G02, Coordinates, X= 2004.52 mm, Y= -1319.84 mm, Z= 0.00 mm
G02 N, Coordinates, X= 2004.52 mm, Y= -786.85 mm, Z= 0.00 mm
G02 F, Coordinates, X= 2004.52 mm, Y= -1319.84 mm, Z= 532.99 mm
G03, Coordinates, X= 2004.52 mm, Y= -1319.84 mm, Z= 1276.00 mm

SUPPORT DATA:
G03, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid, KRY= Rigid, KRZ= Rigid

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*** SEGMENT H , LINE # 79319709ALT

From D03 to H01, DX= -405.00 mm Tee

COMPONENT DATA (Tee Branch, Center= D03):
B16.9 welding tee, SIFI= 4.15, SIFO= 5.20

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:
D03, Coordinates, X= 1280.00 mm, Y= 0.00 mm, Z= -1005.00 mm
H01, Coordinates, X= 875.00 mm, Y= 0.00 mm, Z= -1005.00 mm

*** SEGMENT I , LINE # 79319709ALT

From I00 to I01, DX= 59.27 mm, DY= 221.20 mm, L= 229.00 mm Run

PIPE DATA:

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

Pipe Id= 150MX7.1, Nom Size= 150 mm

POINT DATA:
I00, Coordinates, X= -7648.81 mm, Y= 3508.61 mm, Z= 18642.57 mm

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Bend

From I01 to I02, DZ= 800.00 mm

COMPONENT DATA (Bend, TIP= I01, Near= I01 N, Far= I01 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:
I01, Coordinates, X= -7589.54 mm, Y= 3729.81 mm, Z= 18642.57 mm
I01 N, Coordinates, X= -7648.81 mm, Y= 3508.62 mm, Z= 18642.57 mm
I01 F, Coordinates, X= -7589.54 mm, Y= 3729.81 mm, Z= 18871.56 mm

SUPPORT DATA:
I01 N, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid,
KRY= Rigid, KRZ= Rigid

Bend

From I02 to I03, DX= -67.81 mm, DY= -253.07 mm, DZ= 453.80 mm,
L= 524.00 mm

COMPONENT DATA (Bend, TIP= I02, Near= I02 N, Far= I02 F):
Elbow, Radius= 228.99 mm, Bend angle= 30.00 deg, End flanges= 0,
Flex= 6.593, SIFI= 2.27, SIFO= 1.89

POINT DATA:
I02, Coordinates, X= -7589.54 mm, Y= 3729.81 mm, Z= 19442.57 mm
I02 N, Coordinates, X= -7589.54 mm, Y= 3729.81 mm, Z= 19381.21 mm
I02 F, Coordinates, X= -7597.48 mm, Y= 3700.18 mm, Z= 19495.71 mm

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Bend

From I03 to I04, DZ= 5857.86 mm

COMPONENT DATA (Bend, TIP= I03, Near= I03 N, Far= I03 F):
Elbow, Radius= 228.99 mm, Bend angle= 30.00 deg, End flanges= 0,
Flex= 6.593, SIFI= 2.27, SIFO= 1.89

POINT DATA:
I03, Coordinates, X= -7657.35 mm, Y= 3476.74 mm, Z= 19896.37 mm
I03 N, Coordinates, X= -7649.41 mm, Y= 3506.37 mm, Z= 19843.23 mm
I03 F, Coordinates, X= -7657.35 mm, Y= 3476.74 mm, Z= 19957.73 mm

---

Bend

From I04 to I05, DX= 1448.58 mm, DY= -388.14 mm, L= 1499.68 mm

COMPONENT DATA (Bend, TIP= I04, Near= I04 N, Far= I04 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:
I04, Coordinates, X= -7657.35 mm, Y= 3476.74 mm, Z= 25754.23 mm

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I04 N, Coordinates, X= -7657.35 mm, Y= 3476.74 mm, Z= 25525.24 mm
I04 F, Coordinates, X= -7436.16 mm, Y= 3417.47 mm, Z= 25754.23 mm

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Bend

From I05 to I06, DZ= -5857.86 mm

COMPONENT DATA (Bend, TIP= I05, Near= I05 N, Far= I05 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:
I05, Coordinates, X= -6208.77 mm, Y= 3088.60 mm, Z= 25754.23 mm
I05 N, Coordinates, X= -6429.96 mm, Y= 3147.87 mm, Z= 25754.23 mm
I05 F, Coordinates, X= -6208.77 mm, Y= 3088.60 mm, Z= 25525.24 mm

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Bend

From I06 to I07, DX= 156.65 mm, DY= -430.38 mm, L= 458.00 mm

COMPONENT DATA (Bend, TIP= I06, Near= I06 N, Far= I06 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:
I06, Coordinates, X= -6208.77 mm, Y= 3088.60 mm, Z= 19896.37 mm
I06 N, Coordinates, X= -6208.77 mm, Y= 3088.60 mm, Z= 20125.36 mm
I06 F, Coordinates, X= -6130.45 mm, Y= 2873.42 mm, Z= 19896.37 mm

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Bend

From I07 to I08, DZ= -6029.00 mm

COMPONENT DATA (Bend, TIP= I07, Near= I07 N, Far= I07 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:
I07, Coordinates, X= -6052.12 mm, Y= 2658.22 mm, Z= 19896.37 mm
I07 N, Coordinates, X= -6130.44 mm, Y= 2873.40 mm, Z= 19896.37 mm
I07 F, Coordinates, X= -6052.12 mm, Y= 2658.22 mm, Z= 19667.38 mm

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Run

From I08 to I09, DZ= -250.00 mm

COMPONENT DATA (Run):
Rigid, Include weight= Yes, Include expansion= Yes

POINT DATA:
I08, Coordinates, X= -6052.12 mm, Y= 2658.22 mm, Z= 13867.37 mm

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Run

From I09 to I10, DZ= -694.48 mm

POINT DATA:
I09, Coordinates, X= -6052.12 mm, Y= 2658.22 mm, Z= 13617.37 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 I10 to I11, DY= -230.05 mm, DZ= -858.57 mm, L= 888.86 mm Bend

COMPONENT DATA (Bend, TIP= I10, Near= I10 N, Far= I10 F):
Elbow, Radius= 228.98 mm, Bend angle= 15.00 deg, End flanges= 0,
Flex= 6.593, SIFI= 2.27, SIFO= 1.89

POINT DATA:
I10, Coordinates, X= -6052.12 mm, Y= 2658.22 mm, Z= 12922.89 mm
I10 N, Coordinates, X= -6052.12 mm, Y= 2658.22 mm, Z= 12953.04 mm
I10 F, Coordinates, X= -6052.12 mm, Y= 2650.42 mm, Z= 12893.77 mm

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From I11 to I12, DX= 1232.37 mm, DZ= -107.82 mm, L= 1237.08 mm Bend

COMPONENT DATA (Bend, TIP= I11, Near= I11 N, Far= I11 F):
Elbow, Radius= 228.99 mm, Bend angle= 85.17 deg, End flanges= 0,
Flex= 6.593, SIFI= 2.27, SIFO= 1.89

POINT DATA:
I11, Coordinates, X= -6052.12 mm, Y= 2428.17 mm, Z= 12064.32 mm
I11 N, Coordinates, X= -6052.12 mm, Y= 2482.64 mm, Z= 12267.61 mm
I11 F, Coordinates, X= -5842.46 mm, Y= 2428.17 mm, Z= 12045.98 mm

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From I12 to I13, DX= 42.29 mm, DZ= -157.83 mm, L= 163.40 mm Bend

COMPONENT DATA (Bend, TIP= I12, Near= I12 N, Far= I12 F):
Elbow, Radius= 228.99 mm, Bend angle= 70.00 deg, End flanges= 0,
Flex= 6.593, SIFI= 2.27, SIFO= 1.89

POINT DATA:
I12, Coordinates, X= -4819.75 mm, Y= 2428.17 mm, Z= 11956.50 mm
I12 N, Coordinates, X= -4979.48 mm, Y= 2428.17 mm, Z= 11970.48 mm
I12 F, Coordinates, X= -4778.25 mm, Y= 2428.17 mm, Z= 11801.62 mm

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From I13 to I14, DX= 56.15 mm, DZ= -209.56 mm, L= 216.95 mm Valv

COMPONENT DATA (Valve):
NS, Rating= 40, Length= 216.95 mm, Weight= 65 kg, Surface factor= 0.00,
End cond= Butt welded, SIF= 1.00, Without taper, Offset= 0.000 mm

POINT DATA:
I13, Coordinates, X= -4777.46 mm, Y= 2428.17 mm, Z= 11798.67 mm

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From I14 to I15, DX= -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:
I14, Coordinates, X= -4721.31 mm, Y= 2428.17 mm, Z= 11589.11 mm

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

SUPPORT DATA:
I14, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid, KRY= Rigid, KRZ= Rigid

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From I15 to I16, DX= -1034.57 mm, DZ= -277.21 mm, L= 1071.07 mm Run

POINT DATA:
I15, Coordinates, X= -4933.81 mm, Y= 2428.17 mm, Z= 11532.17 mm

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From I16 to I17, DZ= -6175.72 mm Bend

COMPONENT DATA (Bend, TIP= I16, Near= I16 N, Far= I16 F):
Elbow, Radius= 228.99 mm, Bend angle= 75.00 deg, End flanges= 0,
Flex= 6.593, SIFI= 2.27, SIFO= 1.89

POINT DATA:
I16, Coordinates, X= -5968.38 mm, Y= 2428.17 mm, Z= 11254.96 mm
I16 N, Coordinates, X= -5798.66 mm, Y= 2428.17 mm, Z= 11300.44 mm
I16 F, Coordinates, X= -5968.38 mm, Y= 2428.17 mm, Z= 11079.25 mm

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From I17 to I18, DZ= -3159.24 mm Run

POINT DATA:
I17, Coordinates, X= -5968.38 mm, Y= 2428.17 mm, Z= 5079.24 mm

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From I18 to I19, DX= 1401.90 mm, DY= -2428.17 mm, L= 2803.81 mm Bend

COMPONENT DATA (Bend, TIP= I18, Near= I18 N, Far= I18 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:

I18, Coordinates, X= -5968.38 mm, Y= 2428.17 mm, Z= 1920.00 mm
I18 N, Coordinates, X= -5968.38 mm, Y= 2428.17 mm, Z= 2148.99 mm
I18 F, Coordinates, X= -5853.89 mm, Y= 2229.86 mm, Z= 1920.00 mm

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From I19 to I20, DZ= -1920.00 mm Bend

COMPONENT DATA (Bend, TIP= I19, Near= I19 N, Far= I19 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:
I19, Coordinates, X= -4566.48 mm, Y= 0.00 mm, Z= 1920.00 mm
I19 N, Coordinates, X= -4680.98 mm, Y= 198.31 mm, Z= 1920.00 mm
I19 F, Coordinates, X= -4566.48 mm, Y= 0.00 mm, Z= 1691.01 mm

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From I20 to I21, DX= 3096.01 mm Bend

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

COMPONENT DATA (Bend, TIP= I20, Near= I20 N, Far= I20 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:
I20, Coordinates, X= -4566.48 mm, Y= 0.00 mm, Z= 0.00 mm
I20 N, Coordinates, X= -4566.48 mm, Y= 0.00 mm, Z= 228.99 mm
I20 F, Coordinates, X= -4337.49 mm, Y= 0.00 mm, Z= 0.00 mm

*** SEGMENT J , LINE # 79319709ALT

Junc

From I21 to A01, DX= 1470.47 mm

PIPE DATA:
Pipe Id= 150MX7.1, Nom Size= 150 mm

POINT DATA:
I21, Coordinates, X= -1470.47 mm, Y= 0.00 mm, Z= 0.00 mm

Number of points in the system: 94

Weight of Empty Pipes	+	Weight of Contents	=	Total Weight of System
887.1 kg	+	0.0 kg	=	887.1 kg

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

POINT NAME	COORDINATE (mm) X	Y	Z
*** SEGMENT A , LINE # 79319709ALT			
A01	0.00	0.00	0.00
A02	180.00	0.00	0.00
A03	554.52	0.00	0.00
A04	554.77	0.00	0.00
A05	1280.00	0.00	0.00
A06	2004.52	0.00	0.00
A07	2004.77	0.00	0.00
A08	2380.00	0.00	0.00
A09	2560.00	0.00	0.00
*** SEGMENT B , LINE # 79319709ALT			
A03	554.52	0.00	0.00
B01	554.52	400.00	0.00
B02 N	554.52	1343.17	0.00
B02	554.52	1876.16	0.00
B02 F	554.52	1876.16	532.99
B03	554.52	1876.16	1276.00
*** SEGMENT C , LINE # 79319709ALT			
A04	554.77	0.00	0.00
C01	554.52	-400.00	0.00
C02 N	554.52	-786.85	0.00
C02	554.52	-1319.84	0.00
C02 F	554.52	-1319.84	532.99
C03	554.52	-1319.84	1276.00
*** SEGMENT D , LINE # 79319709ALT			
A05	1280.00	0.00	0.00
D01	1280.00	0.00	-430.00
D02	1280.00	0.00	-530.00
D03	1280.00	0.00	-1005.00
D04	1280.00	0.00	-1432.86
*** SEGMENT E , LINE # 79319709ALT			
A06	2004.52	0.00	0.00
E01	2004.52	400.00	0.00
E02 N	2004.52	1343.17	0.00
E02	2004.52	1876.16	0.00
E02 F	2004.52	1876.16	532.99
E03	2004.52	1876.16	1276.00
*** SEGMENT F , LINE # 79319709ALT			
D02	1280.00	0.00	-530.00
F01	1629.45	0.00	-530.00
*** SEGMENT G , LINE # 79319709ALT			
A07	2004.77	0.00	0.00
G01	2004.52	-400.00	0.00
G02 N	2004.52	-786.85	0.00
G02	2004.52	-1319.84	0.00
G02 F	2004.52	-1319.84	532.99

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

POINT NAME	COORDINATE (mm) X	Y	Z
G03	2004.52	-1319.84	1276.00
*** SEGMENT H , LINE # 79319709ALT			
D03	1280.00	0.00	-1005.00
H01	875.00	0.00	-1005.00
*** SEGMENT I , LINE # 79319709ALT			
I00	-7648.81	3508.61	18642.57
I01 N	-7648.81	3508.62	18642.57
I01	-7589.54	3729.81	18642.57
I01 F	-7589.54	3729.81	18871.56
I02 N	-7589.54	3729.81	19381.21
I02	-7589.54	3729.81	19442.57
I02 F	-7597.48	3700.18	19495.71
I03 N	-7649.41	3506.37	19843.23
I03	-7657.35	3476.74	19896.37
I03 F	-7657.35	3476.74	19957.73
I04 N	-7657.35	3476.74	25525.24
I04	-7657.35	3476.74	25754.23
I04 F	-7436.16	3417.47	25754.23
I05 N	-6429.96	3147.87	25754.23
I05	-6208.77	3088.60	25754.23
I05 F	-6208.77	3088.60	25525.24
I06 N	-6208.77	3088.60	20125.36
I06	-6208.77	3088.60	19896.37
I06 F	-6130.45	2873.42	19896.37
I07 N	-6130.44	2873.40	19896.37
I07	-6052.12	2658.22	19896.37
I07 F	-6052.12	2658.22	19667.38
I08	-6052.12	2658.22	13867.37
I09	-6052.12	2658.22	13617.37
I10 N	-6052.12	2658.22	12953.04
I10	-6052.12	2658.22	12922.89
I10 F	-6052.12	2650.42	12893.77
I11 N	-6052.12	2482.64	12267.61
I11	-6052.12	2428.17	12064.32
I11 F	-5842.46	2428.17	12045.98
I12 N	-4979.48	2428.17	11970.48
I12	-4819.75	2428.17	11956.50
I12 F	-4778.25	2428.17	11801.62
I13	-4777.46	2428.17	11798.67
I14	-4721.31	2428.17	11589.11
I15	-4933.81	2428.17	11532.17
I16 N	-5798.66	2428.17	11300.44
I16	-5968.38	2428.17	11254.96
I16 F	-5968.38	2428.17	11079.25
I17	-5968.38	2428.17	5079.24
I18 N	-5968.38	2428.17	2148.99
I18	-5968.38	2428.17	1920.00
I18 F	-5853.89	2229.86	1920.00
I19 N	-4680.98	198.31	1920.00
I19	-4566.48	0.00	1920.00

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

POINT NAME	COORDINATE (mm) X	Y	Z
I19 F	-4566.48	0.00	1691.01
I20 N	-4566.48	0.00	228.99
I20	-4566.48	0.00	0.00
I20 F	-4337.49	0.00	0.00
I21	-1470.47	0.00	0.00
*** SEGMENT J , LINE # 79319709ALT			
I21	-1470.47	0.00	0.00
A01	0.00	0.00	0.00

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

Pipe ID/ Material	Nom/ Sch	O.D. mm	Thickness (mm) W.Th.	Corr	Mill	Insu	Ling	Spec Grav	Weight (N/m) Pipe	Other	Total	ZL/ ZC
600MX1 AL	600 NS	610.00	7.000	0	0.88	0	0	0	352	0	352	1.00 1.00
600MX7 AL	600 NS	610.00	7.000	0	0.88	0	0	0	352	0	352	1.00 1.00
350MX6.0 AL	350 NS	355.60	6.000	0	0.75	0	0	0	175	0	175	1.00 1.00
25MMX3.4 AL	25 NS	33.700	3.400	0	0.43	0	0	0	8.59	0	8.59	1.00 1.00
150MX7.1 AL	150 7.1	168.30	7.100	0	0.89	0	0	0	95.46	0	95.46	1.00 1.00

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

Material Name	Pipe ID	Density kg/m3	Pois. Ratio	Temper. deg C	Modulus x10^6 N/ Axial	Hoop	Shear	Expans. mm/m
AL	600MX1	2707.1	0.30	20.0	0.06899	0.06899	0.02653	-3.8459
				-196.0	0.07646			
AL	600MX7	2707.1	0.30	20.0	0.06899	0.06899	0.02653	-3.8459
				-196.0	0.07646			
AL	350MX6.0	2707.1	0.30	20.0	0.06899	0.06899	0.02653	-3.8459
				-196.0	0.07646			
AL	25MMX3.4	2707.1	0.30	20.0	0.06899	0.06899	0.02653	-3.8459
				-196.0	0.07646			
AL	150MX7.1	2707.1	0.30	20.0	0.06899	0.06899	0.02653	-3.8459
				-196.0	0.07646			

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 Name	Pipe ID	Temper. deg C	Allow. N/mm2	Yield N/mm2
AL	600MX1	20.0	103.42	0.00
		-196.0	71.00	
AL	600MX7	20.0	103.42	0.00
		-196.0	71.00	
AL	350MX6.0	20.0	103.42	0.00
		-196.0	71.00	
AL	25MMX3.4	20.0	103.42	0.00
		-196.0	71.00	
AL	150MX7.1	20.0	103.42	0.00
		-196.0	71.00	

TEMPERATURE AND PRESSURE DATA

POINT NAME	-----C A S E 1------ PRESS. N/mm2	TEMPER deg C	EXPAN. mm/m	-----C A S E 2------ PRESS. N/mm2	TEMPER deg C	EXPAN. mm/m	-----C A S E 3------ PRESS. N/mm2	TEMPER deg C	EXPAN. mm/m
*** SEGMENT A , LINE # 79319709ALT									
A01	0	-196	-3.846						
A09	0	-196	-3.846						
*** SEGMENT B , LINE # 79319709ALT									
A03	0	-196	-3.846						
B03	0	-196	-3.846						
*** SEGMENT C , LINE # 79319709ALT									
A04	0	-196	-3.846						
C03	0	-196	-3.846						
*** SEGMENT D , LINE # 79319709ALT									
A05	0	-196	-3.846						
D04	0	-196	-3.846						
*** SEGMENT E , LINE # 79319709ALT									
A06	0	-196	-3.846						
E03	0	-196	-3.846						
*** SEGMENT F , LINE # 79319709ALT									
D02	0	-196	-3.846						
F01	0	-196	-3.846						
*** SEGMENT G , LINE # 79319709ALT									
A07	0	-196	-3.846						
G03	0	-196	-3.846						
*** SEGMENT H , LINE # 79319709ALT									
D03	0	-196	-3.846						
H01	0	-196	-3.846						
*** SEGMENT I , LINE # 79319709ALT									
I00	0	-196	-3.846						
I21	0	-196	-3.846						
*** SEGMENT J , LINE # 79319709ALT									
I21	0	-196	-3.846						
A01	0	-196	-3.846						

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

POINT NAME	CASE 1	CASE 2	CASE 3
*** SEGMENT A , LINE # 79319709ALT			
A01	0.07646		
A09	0.07646		
*** SEGMENT B , LINE # 79319709ALT			
A03	0.07646		
B03	0.07646		
*** SEGMENT C , LINE # 79319709ALT			
A04	0.07646		
C03	0.07646		
*** SEGMENT D , LINE # 79319709ALT			
A05	0.07646		
D04	0.07646		
*** SEGMENT E , LINE # 79319709ALT			
A06	0.07646		
E03	0.07646		
*** SEGMENT F , LINE # 79319709ALT			
D02	0.07646		
F01	0.07646		
*** SEGMENT G , LINE # 79319709ALT			
A07	0.07646		
G03	0.07646		
*** SEGMENT H , LINE # 79319709ALT			
D03	0.07646		
H01	0.07646		
*** SEGMENT I , LINE # 79319709ALT			
I00	0.07646		
I21	0.07646		
*** SEGMENT J , LINE # 79319709ALT			
I21	0.07646		
A01	0.07646		

* Non-standard material

H O T A L L O W A B L E S (N/mm2)

POINT NAME	------C A S E 1------ ALLOW	NOT USED	NOT USED	------C A S E 2------ ALLOW	NOT USED	NOT USED	------C A S E 3------ ALLOW	NOT USED	NOT USED
*** SEGMENT A , LINE # 79319709ALT									
A01	71.00*								
A09	71.00*								
*** SEGMENT B , LINE # 79319709ALT									
A03	71.00*								
B03	71.00*								
*** SEGMENT C , LINE # 79319709ALT									
A04	71.00*								
C03	71.00*								
*** SEGMENT D , LINE # 79319709ALT									
A05	71.00*								
D04	71.00*								
*** SEGMENT E , LINE # 79319709ALT									
A06	71.00*								
E03	71.00*								
*** SEGMENT F , LINE # 79319709ALT									
D02	71.00*								
F01	71.00*								
*** SEGMENT G , LINE # 79319709ALT									
A07	71.00*								
G03	71.00*								
*** SEGMENT H , LINE # 79319709ALT									
D03	71.00*								
H01	71.00*								
*** SEGMENT I , LINE # 79319709ALT									
I00	71.00*								
I21	71.00*								
*** SEGMENT J , LINE # 79319709ALT									
I21	71.00*								
A01	71.00*								

< User-defined code allowable
* Non-code material

THERMAL ANCHOR MOVEMENTS AND DISPLACEMENTS

POINT NAME	LOAD CASE	DX (mm)	DY (mm)	DZ (mm)	RX (deg)	RY (deg)	RZ (deg)
B03	Thermal 1	0.00	-1.60	14.80	0.000	0.000	0.000
C03	Thermal 1	0.00	1.60	14.80	0.000	0.000	0.000
E03	Thermal 1	0.00	-1.60	14.80	0.000	0.000	0.000
G03	Thermal 1	0.00	1.60	14.80	0.000	0.000	0.000
I01 N	Thermal 1	-1.50	-5.70	-90.70	0.000	0.000	0.000

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

Point name	Load combination	TRANSLATIONS (mm) X	Y	Z	ROTATIONS (deg) X	Y	Z
*** Segment A begin *** Line # 79319709ALT							
A01	T1	4.847	1.090	22.943	0.018	-0.001	-0.003
A02	T1	4.155	1.081	22.946	0.018	-0.001	-0.003
A03	T1	2.715	1.064	22.956	0.018	-0.002	-0.003
A04	T1	2.714	1.064	22.956	0.018	-0.002	-0.003
A05	T1	-0.056	1.041	22.934	0.017	0.006	-0.001
A06	T1	-2.823	1.039	22.802	0.017	0.015	0.001
A07	T1	-2.824	1.039	22.801	0.017	0.015	0.001
A08	T1	-4.267	1.043	22.701	0.017	0.015	0.001
A09	T1	-4.959	1.045	22.652	0.017	0.015	0.001
*** Segment A end *** Line # 79319709ALT							
*** Segment B begin *** Line # 79319709ALT							
A03	T1	2.715	1.064	22.956	0.018	-0.002	-0.003
B01	T1	2.560	-0.445	22.982	-0.009	-0.018	0.033
B02 N	T1	1.523	-4.001	22.323	-0.069	-0.054	0.070
B02 F	T1	0.301	-2.996	17.658	-0.145	-0.028	0.034
B03	T1	0.000	-1.600	14.800	0.000	0.000	0.000
*** Segment B end *** Line # 79319709ALT							
*** Segment C begin *** Line # 79319709ALT							
A04	T1	2.714	1.064	22.956	0.018	-0.002	-0.003
C01	T1	2.493	2.572	22.735	0.044	-0.029	-0.038
C02 N	T1	2.110	4.031	22.347	0.069	-0.055	-0.053
C02 F	T1	0.503	3.002	17.659	0.145	-0.046	-0.051
C03	T1	0.000	1.600	14.800	0.000	0.000	0.000
*** Segment C end *** Line # 79319709ALT							
*** Segment D begin *** Line # 79319709ALT							

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

Point name	Load combination	TRANSLATIONS (mm) X	Y	Z	ROTATIONS (deg) X	Y	Z
A05	T1	-0.056	1.041	22.934	0.017	0.006	-0.001
D01	T1	-0.103	1.172	24.588	0.017	0.006	-0.001
D02	T1	-0.114	1.202	24.972	0.017	0.006	-0.001
D03	T1	-0.167	1.346	26.799	0.017	0.006	-0.001
D04	T1	-0.214	1.476	28.445	0.017	0.006	-0.001
*** Segment D end *** Line # 79319709ALT							
*** Segment E begin *** Line # 79319709ALT							
A06	T1	-2.823	1.039	22.802	0.017	0.015	0.001
E01	T1	-2.656	-0.469	22.842	-0.006	0.030	-0.035
E02 N	T1	-1.594	-4.023	22.282	-0.063	0.064	-0.072
E02 F	T1	-0.305	-3.022	17.657	-0.147	0.029	-0.033
E03	T1	0.000	-1.600	14.800	0.000	0.000	0.000
*** Segment E end *** Line # 79319709ALT							
*** Segment F begin *** Line # 79319709ALT							
D02	T1	-0.114	1.202	24.972	0.017	0.006	-0.001
F01	T1	-1.458	1.196	24.934	0.017	0.006	-0.001
*** Segment F end *** Line # 79319709ALT							
*** Segment G begin *** Line # 79319709ALT							
A07	T1	-2.824	1.039	22.801	0.017	0.015	0.001
G01	T1	-2.610	2.546	22.606	0.040	0.042	0.037
G02 N	T1	-2.229	4.004	22.263	0.063	0.067	0.053
G02 F	T1	-0.521	3.020	17.656	0.147	0.048	0.050
G03	T1	0.000	1.600	14.800	0.000	0.000	0.000
*** Segment G end *** Line # 79319709ALT							
*** Segment H begin *** Line # 79319709ALT							
D03	T1	-0.167	1.346	26.799	0.017	0.006	-0.001

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

Point name	Load combination	TRANSLATIONS (mm) X	Y	Z	ROTATIONS (deg) X	Y	Z
H01	T1	1.391	1.353	26.844	0.017	0.006	-0.001
*** Segment H end *** Line # 79319709ALT							
*** Segment I begin *** Line # 79319709ALT							
I00	T1	-1.500	-5.700	-90.700	0.000	0.000	0.000
I01 N	T1	-1.500	-5.700	-90.700	0.000	0.000	0.000
I01 F	T1	-2.477	-5.994	-91.750	-0.232	-0.287	0.145
I02 N	T1	-5.498	-3.621	-93.705	-0.300	-0.391	0.144
I02 F	T1	-6.330	-2.825	-94.022	-0.398	-0.535	0.109
I03 N	T1	-9.249	0.379	-94.449	-0.441	-0.622	0.121
I03 F	T1	-10.552	1.423	-94.742	-0.501	-0.769	0.089
I04 N	T1	-130.348	65.264	-116.096	-0.754	-1.603	0.112
I04 F	T1	-137.814	68.974	-109.467	-0.787	-1.793	0.108
I05 N	T1	-141.179	71.899	-74.333	-0.757	-1.754	0.106
I05 F	T1	-135.832	69.784	-66.421	-0.641	-1.380	0.106
I06 N	T1	-40.157	18.932	-45.597	-0.494	-0.739	0.062
I06 F	T1	-37.594	17.838	-42.007	-0.452	-0.622	0.016
I07 N	T1	-37.594	17.838	-42.007	-0.452	-0.622	0.016
I07 F	T1	-35.735	17.244	-38.822	-0.295	-0.469	-0.024
I08	T1	-4.489	1.660	-16.455	-0.077	-0.250	-0.026
I09	T1	-3.396	1.323	-15.494	-0.077	-0.250	-0.026
I10 N	T1	-0.405	0.426	-12.932	-0.079	-0.267	-0.026
I10 F	T1	-0.126	0.373	-12.692	-0.081	-0.280	-0.025
I11 N	T1	2.985	0.139	-10.042	-0.077	-0.305	-0.025
I11 F	T1	3.474	0.080	-7.818	-0.048	-0.373	0.001
I12 N	T1	0.624	0.039	-2.143	-0.019	-0.313	-0.002
I12 F	T1	0.218	0.000	-0.818	0.000	-0.001	0.000

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

Point name	Load combination	TRANSLATIONS (mm) X	Y	Z	ROTATIONS (deg) X	Y	Z
I13	T1	0.215	0.000	-0.806	0.000	0.000	0.000
I14	T1	0.000	0.000	0.000	0.000	0.000	0.000
I15	T1	0.817	0.000	0.219	0.000	0.000	0.000
I16 N	T1	4.259	-0.104	0.678	-0.030	-0.052	0.004
I16 F	T1	5.293	-0.318	1.289	-0.064	-0.129	0.021
I17	T1	24.185	-9.479	24.353	-0.064	-0.174	0.036
I18 N	T1	30.851	-10.431	35.618	0.038	-0.072	0.044
I18 F	T1	30.671	-9.274	36.120	0.156	0.026	0.034
I19 N	T1	27.277	-0.818	28.287	0.175	0.108	0.025
I19 F	T1	26.433	0.562	28.391	0.127	0.121	-0.001
I20 N	T1	23.075	3.431	34.011	0.101	0.146	-0.020
I20 F	T1	21.526	3.663	34.162	0.078	0.201	-0.040
I21	T1	10.502	1.575	24.771	0.038	0.132	-0.032
*** Segment I end *** Line # 79319709ALT							
*** Segment J begin *** Line # 79319709ALT							
I21	T1	10.502	1.575	24.771	0.038	0.132	-0.032
A01	T1	4.847	1.090	22.943	0.018	-0.001	-0.003
*** Segment J end *** Line # 79319709ALT							

R E S T R A I N T R E A C T I O N S

Point name	Load combination	FORCES (N) X	Y	Z	Result	MOMENTS (Nm) X	Y	Z	Result
B03	Anchor T1	9014	-34055	566	35233	-36276	-7881	4307	37372
C03	Anchor T1	15207	34149	866	37392	36427	-13179	-6342	39254
E03	Anchor T1	-8906	-34930	-331	36049	-36967	7976	-4202	38050
G03	Anchor T1	-15449	34947	-672	38215	36923	13627	6314	39861
I01 N	Anchor T1	-256	161	2598	2616	-1380	-3137	36	3427
I14	Anchor T1	390	-271	-3027	3064	-684	-3776	323	3851

G L O B A L F O R C E S & M O M E N T S

Point name	Load combination	FORCES (N) X	Y	Z	Result	MOMENTS (Nm) X	Y	Z	Result
*** Segment A begin *** Line # 79319709ALT									
A01	T1	-134	110	429	463	151	1588	-362	1636
A02	T1	-134	110	429	463	151	1665	-382	1715
A03 -	T1	-134	110	429	463	151	1826	-423	1880
A03 +	T1	-9148	34166	-137	35370	-8089	-1795	12183	14734
A04 -	T1	-9148	34166	-137	35370	-8089	-1795	12174	14727
A04 +	T1	-24355	17	-1003	24376	201	-8020	-1545	8170
A05 -	T1	-24355	17	-1003	24376	201	-8748	-1558	8888
A05 +	T1	-24355	17	-1003	24376	201	-8748	-1558	8888
A06 -	T1	-24355	17	-1003	24376	201	-9475	-1570	9606
A06 +	T1	-15449	34947	-672	38215	-6782	-6087	-14076	16769
A07 -	T1	-15449	34947	-672	38215	-6782	-6087	-14085	16776
A07 +	T1	0	0	0	0	0	0	0	0
A08	T1	0	0	0	0	0	0	0	0
A09	T1	0	0	0	0	0	0	0	0
*** Segment A end *** Line # 79319709ALT									
*** Segment B begin *** Line # 79319709ALT									
A03	T1	9014	-34055	566	35233	8241	3621	-12606	15490
B01	T1	9014	-34055	566	35233	8014	3621	-9000	12583
B02 N	T1	9014	-34055	566	35233	7480	3621	-498	8325
B02 F	T1	9014	-34055	566	35233	-10973	-1183	4307	11847
B03	T1	9014	-34055	566	35233	-36276	-7881	4307	37372
*** Segment B end *** Line # 79319709ALT									
*** Segment C begin *** Line # 79319709ALT									
A04	T1	15207	34149	866	37392	-8290	6225	13720	17196
C01	T1	15207	34149	866	37392	-7944	6225	7645	12661

G L O B A L F O R C E S & M O M E N T S

Point name	Load combination	FORCES (N) X	Y	Z	Result	MOMENTS (Nm) X	Y	Z	Result
C02 N	T1	15207	34149	866	37392	-7609	6225	1763	9987
C02 F	T1	15207	34149	866	37392	11054	-1880	-6342	12882
C03	T1	15207	34149	866	37392	36427	-13179	-6342	39254
*** Segment C end *** Line # 79319709ALT									
*** Segment D begin *** Line # 79319709ALT									
A05	T1	0	0	0	0	0	0	0	0
D01	T1	0	0	0	0	0	0	0	0
D02 -	T1	0	0	0	0	0	0	0	0
D02 +	T1	0	0	0	0	0	0	0	0
D03 -	T1	0	0	0	0	0	0	0	0
D03 +	T1	0	0	0	0	0	0	0	0
D04	T1	0	0	0	0	0	0	0	0
*** Segment D end *** Line # 79319709ALT									
*** Segment E begin *** Line # 79319709ALT									
A06	T1	-8906	-34930	-331	36049	6983	-3388	12507	14719
E01	T1	-8906	-34930	-331	36049	7115	-3388	8944	11921
E02 N	T1	-8906	-34930	-331	36049	7428	-3388	545	8182
E02 F	T1	-8906	-34930	-331	36049	-11014	1359	-4202	11866
E03	T1	-8906	-34930	-331	36049	-36967	7976	-4202	38050
*** Segment E end *** Line # 79319709ALT									
*** Segment F begin *** Line # 79319709ALT									
D02	T1	0	0	0	0	0	0	0	0
F01	T1	0	0	0	0	0	0	0	0
*** Segment F end *** Line # 79319709ALT									
*** Segment G begin *** Line # 79319709ALT									
A07	T1	-15449	34947	-672	38215	-6782	-6087	-14085	16776

G L O B A L F O R C E S & M O M E N T S

Point name	Load combination	FORCES (N) X	Y	Z	Result	MOMENTS (Nm) X	Y	Z	Result
G01	T1	-15449	34947	-672	38215	-7051	-6087	-7897	12211
G02 N	T1	-15449	34947	-672	38215	-7311	-6087	-1920	9705
G02 F	T1	-15449	34947	-672	38215	10957	2148	6314	12827
G03	T1	-15449	34947	-672	38215	36923	13627	6314	39861
*** Segment G end *** Line # 79319709ALT									
*** Segment H begin *** Line # 79319709ALT									
D03	T1	0	0	0	0	0	0	0	0
H01	T1	0	0	0	0	0	0	0	0
*** Segment H end *** Line # 79319709ALT									
*** Segment I begin *** Line # 79319709ALT									
I00	T1	0	0	0	0	0	0	0	0
I01 N-	T1	0	0	0	0	0	0	0	0
I01 N+	T1	256	-161	-2598	2616	1380	3137	-36	3427
I01 F	T1	256	-161	-2598	2616	1917	2924	30	3497
I02 N	T1	256	-161	-2598	2616	1836	2794	30	3343
I02 F	T1	256	-161	-2598	2616	1740	2785	22	3284
I03 N	T1	256	-161	-2598	2616	1181	2831	-36	3068
I03 F	T1	256	-161	-2598	2616	1086	2823	-45	3025
I04 N	T1	256	-161	-2598	2616	192	1399	-45	1412
I04 F	T1	256	-161	-2598	2616	1	765	-25	766
I05 N	T1	256	-161	-2598	2616	-699	-1849	68	1978
I05 F	T1	256	-161	-2598	2616	-816	-2365	88	2503
I06 N	T1	256	-161	-2598	2616	50	-984	88	989
I06 F	T1	256	-161	-2598	2616	-472	-1129	46	1224
I07 N	T1	256	-161	-2598	2616	-472	-1129	46	1224
I07 F	T1	256	-161	-2598	2616	-994	-1274	3	1616

G L O B A L F O R C E S & M O M E N T S

Point name	Load combination	FORCES (N) X	Y	Z	Result	MOMENTS (Nm) X	Y	Z	Result
I08	T1	256	-161	-2598	2616	-63	210	3	219
I09	T1	256	-161	-2598	2616	-23	274	3	275
I10 N	T1	256	-161	-2598	2616	83	444	3	452
I10 F	T1	256	-161	-2598	2616	73	459	1	465
I11 N	T1	256	-161	-2598	2616	-263	619	-42	674
I11 F	T1	256	-161	-2598	2616	-369	131	-22	392
I12 N	T1	256	-161	-2598	2616	-357	-2092	116	2125
I12 F	T1	256	-161	-2598	2616	-329	-2571	149	2596
I13	T1	256	-161	-2598	2616	-329	-2572	149	2598
I14 -	T1	256	-161	-2598	2616	-295	-2665	158	2686
I14 +	T1	-134	110	429	463	388	1112	-166	1189
I15	T1	-134	110	429	463	382	1013	-142	1092
I16 N	T1	-134	110	429	463	357	611	-47	709
I16 F	T1	-134	110	429	463	332	508	-28	608
I17	T1	-134	110	429	463	-330	-295	-28	444
I18 N	T1	-134	110	429	463	-654	-687	-28	949
I18 F	T1	-134	110	429	463	-594	-669	-14	894
I19 N	T1	-134	110	429	463	278	-165	128	348
I19 F	T1	-134	110	429	463	338	-146	142	395
I20 N	T1	-134	110	429	463	177	-342	142	410
I20 F	T1	-134	110	429	463	151	-274	117	335
I21	T1	-134	110	429	463	151	956	-200	989
*** Segment I end *** Line # 79319709ALT									
*** Segment J begin *** Line # 79319709ALT									
I21	T1	-134	110	429	463	151	956	-200	989
A01	T1	-134	110	429	463	151	1588	-362	1636
*** Segment J end *** Line # 79319709ALT									

ASME B31.3b (2001) CODE COMPLIANCE

Point name	Load combination	(Moments in Nm) In-Pl. Moment	Out-Pl. Moment	Torsion Moment	S.I.F In	S.I.F Out	Eq. no.	Load type	(Stress in N/mm2) Code Stress	Code Allow.
*** Segment A begin *** Line # 79319709ALT										
A02	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	1665	382	151	1.00	1.00	(17)	DISP	1	147
A03 -	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.15	5.20	(18)	SUST	0	71
	Cold to T1	423	1826	151	4.15	5.20	(17)	DISP	5	147
A03 +	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.15	5.20	(18)	SUST	0	71
	Cold to T1	12183	1795	8089	4.15	5.20	(17)	DISP	26	147
A04 -	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.15	5.20	(18)	SUST	0	71
	Cold to T1	12174	1795	8089	4.15	5.20	(17)	DISP	26	147
A04 +	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.15	5.20	(18)	SUST	0	71
	Cold to T1	1545	8020	201	4.15	5.20	(17)	DISP	21	147
A05 -	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.15	5.20	(18)	SUST	0	71
	Cold to T1	8748	1558	201	4.15	5.20	(17)	DISP	19	147
A05 +	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.15	5.20	(18)	SUST	0	71
	Cold to T1	8748	1558	201	4.15	5.20	(17)	DISP	19	147
A06 -	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.15	5.20	(18)	SUST	0	71
	Cold to T1	1570	9475	201	4.15	5.20	(17)	DISP	25	147
A06 +	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.15	5.20	(18)	SUST	0	71
	Cold to T1	14076	6087	6782	4.15	5.20	(17)	DISP	34	147
A07 -	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.15	5.20	(18)	SUST	0	71
	Cold to T1	14085	6087	6782	4.15	5.20	(17)	DISP	34	147
A07 +	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.15	5.20	(18)	SUST	0	71
	Cold to T1	0	0	0	4.15	5.20	(17)	DISP	0	147
A08	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	0	0	0	1.00	1.00	(17)	DISP	0	147
*** Segment A end *** Line # 79319709ALT										

ASME B31.3b (2001) CODE COMPLIANCE

Point name	Load combination	(Moments in Nm) In-Pl. Moment	Out-Pl. Moment	Torsion Moment	S.I.F In	S.I.F Out	Eq. no.	Load type	(Stress in N/mm2) Code Stress	Code Allow.
							(3a)	HOOP	0	71
C02 F-	Max P									
	Max P	0	0		4.05	3.38	(18)	SUST	0	71
	Cold to T1	11054	1880	6342	4.05	3.38	(17)	DISP	81	147
							(3a)	HOOP	0	71
C02 F+	Max P									
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	1880	11054	6342	1.00	1.00	(17)	DISP	23	147
							(3a)	HOOP	0	71
C03	Max P									
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	13179	36427	6342	1.00	1.00	(17)	DISP	69	147
*** Segment C end *** Line # 79319709ALT										
*** Segment D begin *** Line # 79319709ALT										
							(3a)	HOOP	0	71
A05	Max P									
	Max P	0	0		4.15	5.20	(18)	SUST	0	71
	Cold to T1	0	0	0	4.15	5.20	(17)	DISP	0	147
							(3a)	HOOP	0	71
D01	Max P									
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	0	0	0	1.00	1.00	(17)	DISP	0	147
							(3a)	HOOP	0	71
D02 -	Max P									
	Max P	0	0		4.15	5.20	(18)	SUST	0	71
	Cold to T1	0	0	0	4.15	5.20	(17)	DISP	0	147
							(3a)	HOOP	0	71
D02 +	Max P									
	Max P	0	0		4.15	5.20	(18)	SUST	0	71
	Cold to T1	0	0	0	4.15	5.20	(17)	DISP	0	147
							(3a)	HOOP	0	71
D03 -	Max P									
	Max P	0	0		4.15	5.20	(18)	SUST	0	71
	Cold to T1	0	0	0	4.15	5.20	(17)	DISP	0	147
							(3a)	HOOP	0	71
D03 +	Max P									
	Max P	0	0		4.15	5.20	(18)	SUST	0	71
	Cold to T1	0	0	0	4.15	5.20	(17)	DISP	0	147
							(3a)	HOOP	0	71
D04	Max P									
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	0	0	0	1.00	1.00	(17)	DISP	0	147
*** Segment D end *** Line # 79319709ALT										
*** Segment E begin *** Line # 79319709ALT										
							(3a)	HOOP	0	71
A06	Max P									
	Max P	0	0		4.15	5.20	(18)	SUST	0	71
	Cold to T1	12507	6983	3388	4.15	5.20	(17)	DISP	94	147

ASME B31.3b (2001) CODE COMPLIANCE

Point name	Load combination	(Moments in Nm) In-Pl. Moment	Out-Pl. Moment	Torsion Moment	S.I.F In	S.I.F Out	Eq. no.	Load type	(Stress in N/mm2) Code Stress	Code Allow.
E01	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	7115	8944	3388	1.00	1.00	(17)	DISP	21	147
E02 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	7428	545	3388	1.00	1.00	(17)	DISP	14	147
E02 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.05	3.38	(18)	SUST	0	71
	Cold to T1	7428	545	3388	4.05	3.38	(17)	DISP	54	147
E02 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.05	3.38	(18)	SUST	0	71
	Cold to T1	11014	1359	4202	4.05	3.38	(17)	DISP	80	147
E02 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	1359	11014	4202	1.00	1.00	(17)	DISP	21	147
E03	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	7976	36967	4202	1.00	1.00	(17)	DISP	67	147

*** Segment E end *** Line # 79319709ALT

*** Segment F begin *** Line # 79319709ALT

*** Segment F end *** Line # 79319709ALT

*** Segment G begin *** Line # 79319709ALT

A07	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.15	5.20	(18)	SUST	0	71
	Cold to T1	14085	6778	6091	4.15	5.20	(17)	DISP	102	147
G01	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	7051	7897	6087	1.00	1.00	(17)	DISP	22	147
G02 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	7311	1920	6087	1.00	1.00	(17)	DISP	17	147
G02 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.05	3.38	(18)	SUST	0	71
	Cold to T1	7311	1920	6087	4.05	3.38	(17)	DISP	55	147
G02 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.05	3.38	(18)	SUST	0	71
	Cold to T1	10957	2148	6314	4.05	3.38	(17)	DISP	80	147

ASME B31.3b (2001) CODE COMPLIANCE

Point name	Load combination	(Moments in Nm) In-Pl. Moment	Out-Pl. Moment	Torsion Moment	S.I.F In	S.I.F Out	Eq. no.	Load type	(Stress in N/mm2) Code Stress	Code Allow.
*** Segment B begin *** Line # 79319709ALT										
A03	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.15	5.20	(18)	SUST	0	71
	Cold to T1	12606	8241	3621	4.15	5.20	(17)	DISP	101	147
B01	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	8014	9000	3621	1.00	1.00	(17)	DISP	22	147
B02 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	7480	498	3621	1.00	1.00	(17)	DISP	15	147
B02 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.05	3.38	(18)	SUST	0	71
	Cold to T1	7480	498	3621	4.05	3.38	(17)	DISP	54	147
B02 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.05	3.38	(18)	SUST	0	71
	Cold to T1	10973	1183	4307	4.05	3.38	(17)	DISP	79	147
B02 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	1183	10973	4307	1.00	1.00	(17)	DISP	21	147
B03	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	7881	36276	4307	1.00	1.00	(17)	DISP	66	147
*** Segment B end *** Line # 79319709ALT										
*** Segment C begin *** Line # 79319709ALT										
A04	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.15	5.20	(18)	SUST	0	71
	Cold to T1	13720	8294	6220	4.15	5.20	(17)	DISP	107	147
C01	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	7944	7645	6225	1.00	1.00	(17)	DISP	22	147
C02 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	7609	1763	6225	1.00	1.00	(17)	DISP	18	147
C02 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.05	3.38	(18)	SUST	0	71
	Cold to T1	7609	1763	6225	4.05	3.38	(17)	DISP	57	147

ASME B31.3b (2001) CODE COMPLIANCE

Point name	Load combination	(Moments in Nm) In-Pl. Moment	Out-Pl. Moment	Torsion Moment	S.I.F In	S.I.F Out	Eq. no.	Load type	(Stress in N/mm2) Code Stress	Code Allow.
G02 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	2148	10957	6314	1.00	1.00	(17)	DISP	23	147
G03	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	13627	36923	6314	1.00	1.00	(17)	DISP	70	147

*** Segment G end *** Line # 79319709ALT

*** Segment H begin *** Line # 79319709ALT

D03	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.15	5.20	(18)	SUST	0	71
	Cold to T1	0	0	0	4.15	5.20	(17)	DISP	0	147
H01	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	0	0	0	1.00	1.00	(17)	DISP	0	147

*** Segment H end *** Line # 79319709ALT

*** Segment I begin *** Line # 79319709ALT

I00	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	0	0	0	1.00	1.00	(17)	DISP	0	147
I01 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	0	0	0	1.00	1.00	(17)	DISP	0	147
I01 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	521	36	3387	2.27	1.89	(17)	DISP	26	147
I01 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	1095	3321	30	2.27	1.89	(17)	DISP	49	147
I01 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	2924	1917	30	1.00	1.00	(17)	DISP	25	147
I02 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	2794	1836	30	1.00	1.00	(17)	DISP	24	147
I02 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	1050	3174	30	2.27	1.89	(17)	DISP	46	147

ASME B31.3b (2001) CODE COMPLIANCE

Point name	Load combination	(Moments in Nm) In-Pl. Moment	Out-Pl. Moment	Torsion Moment	S.I.F In	S.I.F Out	Eq. no.	Load type	(Stress in N/mm2) Code Stress	Code Allow.
I02 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	960	2731	1552	2.27	1.89	(17)	DISP	42	147
I02 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	960	2731	1552	1.00	1.00	(17)	DISP	24	147
I03 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	408	2615	1552	1.00	1.00	(17)	DISP	22	147
I03 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	408	2615	1552	2.27	1.89	(17)	DISP	38	147
I03 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	318	3007	45	2.27	1.89	(17)	DISP	41	147
I03 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	2823	1086	45	1.00	1.00	(17)	DISP	22	147
I04 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	1399	192	45	1.00	1.00	(17)	DISP	10	147
I04 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	1401	177	45	2.27	1.89	(17)	DISP	23	147
I04 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	740	25	197	2.27	1.89	(17)	DISP	12	147
I04 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	740	25	197	1.00	1.00	(17)	DISP	6	147
I05 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	1967	68	197	1.00	1.00	(17)	DISP	14	147
I05 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	1967	68	197	2.27	1.89	(17)	DISP	32	147
I05 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	2496	177	88	2.27	1.89	(17)	DISP	41	147

ASME B31.3b (2001) CODE COMPLIANCE

Point name	Load combination	(Moments in Nm) In-Pl. Moment	Out-Pl. Moment	Torsion Moment	S.I.F In	S.I.F Out	Eq. no.	Load type	(Stress in N/mm2) Code Stress	Code Allow.
I05 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	2365	816	88	1.00	1.00	(17)	DISP	18	147
I06 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	984	50	88	1.00	1.00	(17)	DISP	7	147
I06 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	289	942	88	2.27	1.89	(17)	DISP	14	147
I06 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	830	46	899	2.27	1.89	(17)	DISP	15	147
I06 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	835	46	894	1.00	1.00	(17)	DISP	9	147
I07 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	835	46	894	1.00	1.00	(17)	DISP	9	147
I07 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	830	46	899	2.27	1.89	(17)	DISP	15	147
I07 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	1370	857	3	2.27	1.89	(17)	DISP	25	147
I07 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	1274	994	3	1.00	1.00	(17)	DISP	12	147
I08	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	210	63	3	1.00	1.00	(17)	DISP	2	147
I09	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	274	23	3	1.00	1.00	(17)	DISP	2	147
I10 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	444	83	3	1.00	1.00	(17)	DISP	3	147
I10 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	83	444	3	2.27	1.89	(17)	DISP	6	147

ASME B31.3b (2001) CODE COMPLIANCE

Point name	Load combination	(Moments in Nm) In-Pl. Moment	Out-Pl. Moment	Torsion Moment	S.I.F In	S.I.F Out	Eq. no.	Load type	(Stress in N/mm2) Code Stress	Code Allow.
I10 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	73	443	120	2.27	1.89	(17)	DISP	6	147
I10 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	73	443	120	1.00	1.00	(17)	DISP	3	147
I11 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	263	609	120	1.00	1.00	(17)	DISP	5	147
I11 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	615	249	120	2.27	1.89	(17)	DISP	11	147
I11 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	141	18	365	2.27	1.89	(17)	DISP	3	147
I11 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	131	54	365	1.00	1.00	(17)	DISP	3	147
I12 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	2092	85	365	1.00	1.00	(17)	DISP	15	147
I12 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	2092	85	365	2.27	1.89	(17)	DISP	34	147
I12 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	2571	280	229	2.27	1.89	(17)	DISP	42	147
I12 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	2571	280	229	1.00	1.00	(17)	DISP	19	147
I13	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	2572	279	229	1.00	1.00	(17)	DISP	19	147
I15	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	1013	236	332	1.00	1.00	(17)	DISP	8	147
I16 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	611	137	332	1.00	1.00	(17)	DISP	5	147

ASME B31.3b (2001) CODE COMPLIANCE
(Moments in Nm) (Stress in N/mm2)

Point name	Load combination	In-Pl. Moment	Out-Pl. Moment	Torsion Moment	S.I.F In	S.I.F Out	Eq. no.	Load type	Code Stress	Code Allow.
I16 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	611	137	332	2.27	1.89	(17)	DISP	10	147
I16 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	508	332	28	2.27	1.89	(17)	DISP	9	147
I16 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	508	332	28	1.00	1.00	(17)	DISP	4	147
I17	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	295	330	28	1.00	1.00	(17)	DISP	3	147
I18 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	687	654	28	1.00	1.00	(17)	DISP	7	147
I18 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	910	268	28	2.27	1.89	(17)	DISP	15	147
I18 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	849	14	282	2.27	1.89	(17)	DISP	14	147
I18 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	849	14	282	1.00	1.00	(17)	DISP	6	147
I19 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	158	128	282	1.00	1.00	(17)	DISP	3	147
I19 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	158	128	282	2.27	1.89	(17)	DISP	4	147
I19 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	220	296	142	2.27	1.89	(17)	DISP	5	147
I19 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	146	338	142	1.00	1.00	(17)	DISP	3	147
I20 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	342	177	142	1.00	1.00	(17)	DISP	3	147

ASME B31.3b (2001) CODE COMPLIANCE

Point name	Load combination	(Moments in Nm) In-Pl. Moment	Out-Pl. Moment	Torsion Moment	S.I.F In	S.I.F Out	Eq. no.	Load type	(Stress in N/mm2) Code Stress	Code Allow.
I20 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	342	177	142	2.27	1.89	(17)	DISP	6	147
I20 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	274	117	151	2.27	1.89	(17)	DISP	5	147
I20 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	274	117	151	1.00	1.00	(17)	DISP	2	147
I21	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	956	200	151	1.00	1.00	(17)	DISP	7	147

*** Segment I end *** Line # 79319709ALT

*** Segment J begin *** Line # 79319709ALT

I21	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	956	200	151	1.00	1.00	(17)	DISP	7	147
A01	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	1588	362	151	1.00	1.00	(17)	DISP	12	147

*** Segment J end *** Line # 79319709ALT

S Y S T E M S U M M A R Y

Maximum displacements (mm)

Maximum X :	-141.179	Point : I05 N	Load Comb.: T1
Maximum Y :	71.899	Point : I05 N	Load Comb.: T1
Maximum Z :	-116.096	Point : I04 N	Load Comb.: T1
Max. total:	189.032	Point : I04 F	Load Comb.: T1

Maximum rotations (deg)

Maximum X :	-0.787	Point : I04 F	Load Comb.: T1
Maximum Y :	-1.793	Point : I04 F	Load Comb.: T1
Maximum Z :	0.145	Point : I01 F	Load Comb.: T1
Max. total:	1.961	Point : I04 F	Load Comb.: T1

Maximum restraint forces (N)

Maximum X :	-15449	Point : G03	Load Comb.: T1
Maximum Y :	34947	Point : G03	Load Comb.: T1
Maximum Z :	-3027	Point : I14	Load Comb.: T1
Max. total:	38215	Point : G03	Load Comb.: T1

Maximum restraint moments (Nm)

Maximum X :	-36967	Point : E03	Load Comb.: T1
Maximum Y :	13627	Point : G03	Load Comb.: T1
Maximum Z :	-6342	Point : C03	Load Comb.: T1
Max. total:	39861	Point : G03	Load Comb.: T1

S Y S T E M S U M M A R Y

Maximum pipe forces (N)

Maximum X :	-24355	Point : A04	Load Comb.: T1
Maximum Y :	34947	Point : A07	Load Comb.: T1
Maximum Z :	-2598	Point : I01 N	Load Comb.: T1
Max. total:	38215	Point : A07	Load Comb.: T1

Maximum pipe moments (Nm)

Maximum X :	-36967	Point : E03	Load Comb.: T1
Maximum Y :	13627	Point : G03	Load Comb.: T1
Maximum Z :	-14085	Point : A07	Load Comb.: T1
Max. total:	39861	Point : G03	Load Comb.: T1

S Y S T E M S U M M A R Y

Maximum displacement stress

Point		: A04
Stress	N/mm2	: 107
Allowable	N/mm2	: 147
Ratio		: 0.73
Load combination		: Cold to T1

S Y S T E M S U M M A R Y

Maximum displacement stress ratio

Point		: A04
Stress	N/mm2	: 107
Allowable	N/mm2	: 147
Ratio		: 0.73
Load combination		: Cold to T1

* * * The system satisfies ASME B31.3 code requirements * * *
* * * for the selected options * * *