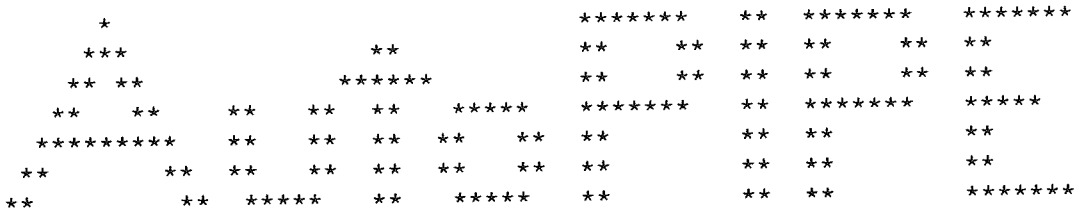

Pipe Stress Analysis and Design Program

Version: 6.20.09

Edition: Win

Developed and Maintained by

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

****
**
** AUTOPIPE SYSTEM INFORMATION **
**
****

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 : 4

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

From A06 to A07, DX= 0.25 mm Tee

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

From A07 to A08, DX= 375.23 mm Tee

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

From A08 to A09, DX= 180.00 mm Run

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

From A03 to B01, DY= 400.00 mm Tee

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

From B01 to B02, DY= 1476.16 mm Run

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

From B02 to B03, DZ= 1276.00 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= 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

From A05 to D01, DZ= -430.00 mm — Tee

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

From D01 to D02, DZ= -100.00 mm — Run

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

From D02 to D03, DZ= -475.00 mm — Tee

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

From D03 to D04, DZ= -427.86 mm — Tee

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

From A06 to E01, DY= 400.00 mm — Tee

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

From E01 to E02, DY= 1476.16 mm Run

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

From E02 to E03, DZ= 1276.00 mm Bend

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

From D02 to F01, DX= 349.45 mm Tee

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

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

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

---

*** 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

---

From I01 to I02, DZ= 800.00 mm Bend

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

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

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

---

From I03 to I04, DZ= 5857.86 mm Bend

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

---

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

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

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

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

---

From I05 to I06, DZ= -5857.86 mm Bend

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

---

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

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

---

From I07 to I08, DZ= -6029.00 mm Bend

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

---

From I08 to I09, DZ= -250.00 mm Run

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

---

From I09 to I10, DZ= -694.48 mm Run

POINT DATA:
I09, Coordinates, X= -6052.12 mm, Y= 2658.22 mm, Z= 13617.37 mm

---

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

---

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

---

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

---

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

---

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

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

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

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

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

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

From I20 to I21, DX= 3096.01 mm Bend

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

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

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

From I21 to A01, DX= 1470.47 mm Junc

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	600	610.00	7.000	0	0.88	0	0	0	352	0	352	1.00
AL	NS											1.00
600MX7	600	610.00	7.000	0	0.88	0	0	0	352	0	352	1.00
AL	NS											1.00
350MX6.0	350	355.60	6.000	0	0.75	0	0	0	175	0	175	1.00
AL	NS											1.00
25MMX3.4	25	33.700	3.400	0	0.43	0	0	0	8.59	0	8.59	1.00
AL	NS											1.00
150MX7.1	150	168.30	7.100	0	0.89	0	0	0	95.46	0	95.46	1.00
AL	7.1											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	
				-196.0	0.07646			-3.8459
AL	600MX7	2707.1	0.30	20.0	0.06899	0.06899	0.02653	
				-196.0	0.07646			-3.8459
AL	350MX6.0	2707.1	0.30	20.0	0.06899	0.06899	0.02653	
				-196.0	0.07646			-3.8459
AL	25MMX3.4	2707.1	0.30	20.0	0.06899	0.06899	0.02653	
				-196.0	0.07646			-3.8459
AL	150MX7.1	2707.1	0.30	20.0	0.06899	0.06899	0.02653	
				-196.0	0.07646			-3.8459

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	4.947	1.050	22.611	0.016	-0.018	-0.001
A02	T1	4.255	1.048	22.667	0.016	-0.018	-0.001
A03	T1	2.815	1.043	22.779	0.016	-0.017	-0.001
A04	T1	2.814	1.043	22.779	0.016	-0.017	-0.001
A05	T1	0.044	1.042	22.917	0.016	-0.006	0.001
A06	T1	-2.724	1.057	22.923	0.017	0.004	0.002
A07	T1	-2.725	1.057	22.923	0.017	0.004	0.002
A08	T1	-4.168	1.069	22.895	0.017	0.004	0.002
A09	T1	-4.860	1.075	22.882	0.017	0.004	0.002
*** Segment A end *** Line # 79319709ALT							
*** Segment B begin *** Line # 79319709ALT							
A03	T1	2.815	1.043	22.779	0.016	-0.017	-0.001
B01	T1	2.650	-0.465	22.816	-0.006	-0.031	0.034
B02 N	T1	1.594	-4.019	22.269	-0.062	-0.065	0.071
B02 F	T1	0.304	-3.025	17.657	-0.147	-0.029	0.033
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	2.814	1.043	22.779	0.016	-0.017	-0.001
C01	T1	2.602	2.550	22.592	0.039	-0.042	-0.037
C02 N	T1	2.222	4.008	22.257	0.062	-0.067	-0.052
C02 F	T1	0.518	3.024	17.656	0.147	-0.048	-0.050
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	0.044	1.042	22.917	0.016	-0.006	0.001
D01	T1	0.088	1.165	24.571	0.016	-0.006	0.001
D02	T1	0.098	1.194	24.955	0.016	-0.006	0.001
D03	T1	0.146	1.330	26.782	0.016	-0.006	0.001
D04	T1	0.190	1.453	28.428	0.016	-0.006	0.001
*** Segment D end *** Line # 79319709ALT							
*** Segment E begin *** Line # 79319709ALT							
A06	T1	-2.724	1.057	22.923	0.017	0.004	0.002
E01	T1	-2.565	-0.451	22.949	-0.009	0.020	-0.034
E02 N	T1	-1.526	-4.007	22.312	-0.068	0.056	-0.070
E02 F	T1	-0.300	-3.003	17.658	-0.145	0.028	-0.034
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	0.098	1.194	24.955	0.016	-0.006	0.001
F01	T1	-1.246	1.197	24.991	0.016	-0.006	0.001
*** Segment F end *** Line # 79319709ALT							
*** Segment G begin *** Line # 79319709ALT							
A07	T1	-2.725	1.057	22.923	0.017	0.004	0.002
G01	T1	-2.506	2.565	22.710	0.043	0.031	0.037
G02 N	T1	-2.125	4.024	22.332	0.068	0.056	0.052
G02 F	T1	-0.506	3.003	17.659	0.146	0.046	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	0.146	1.330	26.782	0.016	-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	1.704	1.327	26.741	0.016	-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	-1.836	-6.470	-91.606	-0.033	-0.040	0.022
I02 N	T1	-2.261	-6.131	-93.565	-0.043	-0.055	0.022
I02 F	T1	-2.351	-5.921	-93.988	-0.056	-0.075	0.017
I03 N	T1	-2.580	-4.834	-95.197	-0.062	-0.087	0.020
I03 F	T1	-2.735	-4.591	-95.617	-0.069	-0.108	0.015
I04 N	T1	-19.577	3.578	-117.021	-0.085	-0.227	0.026
I04 F	T1	-21.356	4.226	-116.867	-0.081	-0.254	0.022
I05 N	T1	-25.120	5.658	-112.036	-0.069	-0.251	0.022
I05 F	T1	-25.064	5.756	-110.187	-0.044	-0.203	0.026
I06 N	T1	-10.201	3.930	-89.413	-0.007	-0.124	0.016
I06 F	T1	-9.985	4.748	-88.356	-0.001	-0.110	0.010
I07 N	T1	-9.985	4.748	-88.356	-0.001	-0.110	0.010
I07 F	T1	-9.858	5.632	-87.352	0.020	-0.091	0.004
I08	T1	-2.431	8.912	-65.037	0.031	-0.069	-0.002
I09	T1	-2.131	9.046	-64.076	0.031	-0.069	-0.002
I10 N	T1	-1.318	9.376	-61.520	0.026	-0.072	-0.002
I10 F	T1	-1.243	9.431	-61.295	0.023	-0.074	-0.002
I11 N	T1	-0.424	10.301	-58.946	0.019	-0.078	-0.003
I11 F	T1	-0.911	10.553	-57.790	0.011	-0.090	-0.005
I12 N	T1	-4.114	10.480	-56.172	0.005	-0.083	-0.007
I12 F	T1	-4.715	10.452	-55.286	-0.001	-0.043	-0.013

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	-4.716	10.452	-55.274	-0.001	-0.043	-0.013
I14	T1	-4.776	10.434	-54.426	-0.001	-0.043	-0.013
I15	T1	-3.916	10.481	-54.365	-0.002	-0.043	-0.013
I16 N	T1	-0.441	10.680	-54.031	-0.009	-0.035	-0.015
I16 F	T1	0.371	10.673	-53.294	-0.018	-0.047	-0.012
I17	T1	9.163	4.998	-30.210	-0.106	-0.135	-0.016
I18 N	T1	17.905	-2.323	-18.937	-0.184	-0.210	-0.017
I18 F	T1	18.351	-2.427	-16.760	-0.257	-0.268	-0.012
I19 N	T1	13.440	5.156	-1.362	-0.255	-0.303	-0.010
I19 F	T1	14.140	5.031	0.925	-0.195	-0.286	-0.002
I20 N	T1	21.386	0.566	6.550	-0.156	-0.282	0.002
I20 F	T1	21.629	0.065	8.549	-0.120	-0.276	0.019
I21	T1	10.603	0.901	20.246	-0.030	-0.157	0.011
*** Segment I end *** Line # 79319709ALT							
*** Segment J begin *** Line # 79319709ALT							
I21	T1	10.603	0.901	20.246	-0.030	-0.157	0.011
A01	T1	4.947	1.050	22.611	0.016	-0.018	-0.001
*** 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	8863	-35042	-547	36150	-37035	-7959	4171	38110
C03	Anchor T1	15336	35070	-767	38284	37024	-13548	-6261	39919
E03	Anchor T1	-8940	-34302	285	35449	-36469	7845	-4268	37546
G03	Anchor T1	-15226	34238	682	37477	36474	13237	6324	39313
I01 N	Anchor T1	-34	36	347	351	-200	-436	19	480

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	34	-36	-347	351	-340	-1592	141	1634
A02	T1	34	-36	-347	351	-340	-1654	148	1696
A03 -	T1	34	-36	-347	351	-340	-1784	161	1824
A03 +	T1	-8830	35006	200	36103	-6993	-5135	12620	15314
A04 -	T1	-8830	35006	200	36103	-6993	-5135	12611	15307
A04 +	T1	-24166	-65	967	24185	-280	-11156	-1361	11242
A05 -	T1	-24166	-65	967	24185	-280	-10455	-1314	10541
A05 +	T1	-24166	-65	967	24185	-280	-10455	-1314	10541
A06 -	T1	-24166	-65	967	24185	-280	-9754	-1267	9840
A06 +	T1	-15226	34238	682	37477	-8115	-6191	-13772	17142
A07 -	T1	-15226	34238	682	37477	-8115	-6191	-13781	17149
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	8863	-35042	-547	36150	6653	3351	-12458	14515
B01	T1	8863	-35042	-547	36150	6871	3351	-8913	11742
B02 N	T1	8863	-35042	-547	36150	7387	3351	-553	8130
B02 F	T1	8863	-35042	-547	36150	-10999	-1373	4171	11843
B03	T1	8863	-35042	-547	36150	-37035	-7959	4171	38110
*** Segment B end *** Line # 79319709ALT									
*** Segment C begin *** Line # 79319709ALT									
A04	T1	15336	35070	-767	38284	-6713	6021	13972	16629
C01	T1	15336	35070	-767	38284	-7020	6021	7846	12128

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	15336	35070	-767	38284	-7317	6021	1913	9667
C02 F	T1	15336	35070	-767	38284	10966	-2153	-6261	12810
C03	T1	15336	35070	-767	38284	37024	-13548	-6261	39919
*** 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	-8940	-34302	285	35449	7835	-3563	12505	15181
E01	T1	-8940	-34302	285	35449	7721	-3563	8929	12330
E02 N	T1	-8940	-34302	285	35449	7453	-3563	497	8275
E02 F	T1	-8940	-34302	285	35449	-10982	1202	-4268	11843
E03	T1	-8940	-34302	285	35449	-36469	7845	-4268	37546
*** 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	-15226	34238	682	37477	-8115	-6191	-13781	17149

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	-15226	34238	682	37477	-7842	-6191	-7682	12603
G02 N	T1	-15226	34238	682	37477	-7578	-6191	-1792	9948
G02 F	T1	-15226	34238	682	37477	11034	1924	6324	12863
G03	T1	-15226	34238	682	37477	36474	13237	6324	39313
*** 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	34	-36	-347	351	200	436	-19	480
I01 F	T1	34	-36	-347	351	268	408	-9	488
I02 N	T1	34	-36	-347	351	250	391	-9	464
I02 F	T1	34	-36	-347	351	235	390	-10	455
I03 N	T1	34	-36	-347	351	156	396	-19	426
I03 F	T1	34	-36	-347	351	141	395	-20	420
I04 N	T1	34	-36	-347	351	-61	208	-20	218
I04 F	T1	34	-36	-347	351	-90	123	-14	153
I05 N	T1	34	-36	-347	351	-184	-226	13	291
I05 F	T1	34	-36	-347	351	-196	-295	20	355
I06 N	T1	34	-36	-347	351	0	-113	20	115
I06 F	T1	34	-36	-347	351	-66	-133	15	149
I07 N	T1	34	-36	-347	351	-66	-133	15	149
I07 F	T1	34	-36	-347	351	-132	-152	11	202

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	34	-36	-347	351	78	42	11	90
I09	T1	34	-36	-347	351	87	51	11	102
I10 N	T1	34	-36	-347	351	112	73	11	134
I10 F	T1	34	-36	-347	351	111	75	10	135
I11 N	T1	34	-36	-347	351	76	96	5	122
I11 F	T1	34	-36	-347	351	65	31	11	72
I12 N	T1	34	-36	-347	351	67	-266	42	278
I12 F	T1	34	-36	-347	351	74	-330	49	342
I13	T1	34	-36	-347	351	74	-330	49	342
I14	T1	34	-36	-347	351	81	-343	51	356
I15	T1	34	-36	-347	351	83	-267	44	283
I16 N	T1	34	-36	-347	351	92	41	12	101
I16 F	T1	34	-36	-347	351	100	107	6	147
I17	T1	34	-36	-347	351	318	309	6	443
I18 N	T1	34	-36	-347	351	424	407	6	588
I18 F	T1	34	-36	-347	351	364	375	4	523
I19 N	T1	34	-36	-347	351	-341	-32	-22	344
I19 F	T1	34	-36	-347	351	-402	-64	-25	408
I20 N	T1	34	-36	-347	351	-349	-15	-25	350
I20 F	T1	34	-36	-347	351	-340	-86	-16	352
I21	T1	34	-36	-347	351	-340	-1082	88	1137
*** Segment I end *** Line # 79319709ALT									
*** Segment J begin *** Line # 79319709ALT									
I21	T1	34	-36	-347	351	-340	-1082	88	1137
A01	T1	34	-36	-347	351	-340	-1592	141	1634
*** 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	1654	148	340	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	161	1784	340	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	12620	5135	6993	4.15	5.20	(17)	DISP	30	147
A04 -	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.15	5.20	(18)	SUST	0	71
	Cold to T1	12611	5135	6993	4.15	5.20	(17)	DISP	30	147
A04 +	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.15	5.20	(18)	SUST	0	71
	Cold to T1	1361	11156	280	4.15	5.20	(17)	DISP	29	147
A05 -	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.15	5.20	(18)	SUST	0	71
	Cold to T1	10455	1314	280	4.15	5.20	(17)	DISP	22	147
A05 +	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.15	5.20	(18)	SUST	0	71
	Cold to T1	10455	1314	280	4.15	5.20	(17)	DISP	22	147
A06 -	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.15	5.20	(18)	SUST	0	71
	Cold to T1	1267	9754	280	4.15	5.20	(17)	DISP	26	147
A06 +	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.15	5.20	(18)	SUST	0	71
	Cold to T1	13772	6191	8115	4.15	5.20	(17)	DISP	33	147
A07 -	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.15	5.20	(18)	SUST	0	71
	Cold to T1	13781	6191	8115	4.15	5.20	(17)	DISP	33	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.
*** 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	12458	6653	3351	4.15	5.20	(17)	DISP	93	147
B01	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	6871	8913	3351	1.00	1.00	(17)	DISP	21	147
B02 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	7387	553	3351	1.00	1.00	(17)	DISP	14	147
B02 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.05	3.38	(18)	SUST	0	71
	Cold to T1	7387	553	3351	4.05	3.38	(17)	DISP	53	147
B02 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.05	3.38	(18)	SUST	0	71
	Cold to T1	10999	1373	4171	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	1373	10999	4171	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	7959	37035	4171	1.00	1.00	(17)	DISP	67	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	13972	6717	6016	4.15	5.20	(17)	DISP	101	147
C01	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	7020	7846	6021	1.00	1.00	(17)	DISP	21	147
C02 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	7317	1913	6021	1.00	1.00	(17)	DISP	17	147
C02 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.05	3.38	(18)	SUST	0	71
	Cold to T1	7317	1913	6021	4.05	3.38	(17)	DISP	55	147

ASME B31.3b (2001) CODE COMPLIANCE

Point name	Load combination	In-Pl. Moment (Moments in Nm)	Out-Pl. Moment	Torsion Moment	S.I.F In	S.I.F Out	Eq. no.	Load type	Code Stress (Stress in N/mm2)	Code Allow.
C02 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.05	3.38	(18)	SUST	0	71
	Cold to T1	10966	2153	6261	4.05	3.38	(17)	DISP	80	147
C02 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	2153	10966	6261	1.00	1.00	(17)	DISP	23	147
C03	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	13548	37024	6261	1.00	1.00	(17)	DISP	70	147
*** Segment C end *** Line # 79319709ALT										
*** Segment D begin *** Line # 79319709ALT										
A05	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
D01	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
D02 -	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
D02 +	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
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
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
D04	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 D end *** Line # 79319709ALT										
*** Segment E begin *** Line # 79319709ALT										
A06	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.15	5.20	(18)	SUST	0	71
	Cold to T1	12505	7835	3563	4.15	5.20	(17)	DISP	98	147

ASME B31.3b (2001) CODE COMPLIANCE

Point name	Load combination	In-Pl. Moment (Moments in Nm)	Out-Pl. Moment	Torsion Moment	S.I.F In	S.I.F Out	Eq. no.	Load type	Code Stress (Stress in N/mm2)	Code Allow.
E01	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	7721	8929	3563	1.00	1.00	(17)	DISP	22	147
E02 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	7453	497	3563	1.00	1.00	(17)	DISP	15	147
E02 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.05	3.38	(18)	SUST	0	71
	Cold to T1	7453	497	3563	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	10982	1202	4268	4.05	3.38	(17)	DISP	79	147
E02 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	1202	10982	4268	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	7845	36469	4268	1.00	1.00	(17)	DISP	66	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	13781	8111	6196	4.15	5.20	(17)	DISP	106	147
G01	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	7842	7682	6191	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	7578	1792	6191	1.00	1.00	(17)	DISP	18	147
G02 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.05	3.38	(18)	SUST	0	71
	Cold to T1	7578	1792	6191	4.05	3.38	(17)	DISP	56	147
G02 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		4.05	3.38	(18)	SUST	0	71
	Cold to T1	11034	1924	6324	4.05	3.38	(17)	DISP	81	147

ASME B31.3b (2001) CODE COMPLIANCE

Point name	Load combination	In-Pl. Moment (Moments in Nm)	Out-Pl. Moment	Torsion Moment	S.I.F In	S.I.F Out	Eq. no.	Load type	Code Stress (Stress in N/mm2)	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	1924	11034	6324	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	13237	36474	6324	1.00	1.00	(17)	DISP	69	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	80	19	473	2.27	1.89	(17)	DISP	4	147
I01 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	154	463	9	2.27	1.89	(17)	DISP	7	147
I01 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	408	268	9	1.00	1.00	(17)	DISP	4	147
I02 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	391	250	9	1.00	1.00	(17)	DISP	3	147
I02 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	140	442	9	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.
I02 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	127	374	228	2.27	1.89	(17)	DISP	6	147
I02 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	127	374	228	1.00	1.00	(17)	DISP	3	147
I03 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	48	357	228	1.00	1.00	(17)	DISP	3	147
I03 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	48	357	228	2.27	1.89	(17)	DISP	5	147
I03 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	34	418	20	2.27	1.89	(17)	DISP	6	147
I03 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	395	141	20	1.00	1.00	(17)	DISP	3	147
I04 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	208	61	20	1.00	1.00	(17)	DISP	2	147
I04 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	185	113	20	2.27	1.89	(17)	DISP	3	147
I04 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	96	14	119	2.27	1.89	(17)	DISP	2	147
I04 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	96	14	119	1.00	1.00	(17)	DISP	1	147
I05 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	266	13	119	1.00	1.00	(17)	DISP	2	147
I05 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	266	13	119	2.27	1.89	(17)	DISP	4	147
I05 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	336	113	20	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.
I05 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	295	196	20	1.00	1.00	(17)	DISP	3	147
I06 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	113	0	20	1.00	1.00	(17)	DISP	1	147
I06 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	39	107	20	2.27	1.89	(17)	DISP	2	147
I06 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	108	15	102	2.27	1.89	(17)	DISP	2	147
I06 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	108	15	102	1.00	1.00	(17)	DISP	1	147
I07 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	108	15	102	1.00	1.00	(17)	DISP	1	147
I07 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	108	15	102	2.27	1.89	(17)	DISP	2	147
I07 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	177	98	11	2.27	1.89	(17)	DISP	3	147
I07 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	152	132	11	1.00	1.00	(17)	DISP	1	147
I08	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	42	78	11	1.00	1.00	(17)	DISP	1	147
I09	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	51	87	11	1.00	1.00	(17)	DISP	1	147
I10 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	73	112	11	1.00	1.00	(17)	DISP	1	147
I10 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	112	73	11	2.27	1.89	(17)	DISP	2	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.	(Stress in N/mm2) Load type	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	111	70	30	2.27	1.89	(17)	DISP	2	147
I10 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	111	70	30	1.00	1.00	(17)	DISP	1	147
I11 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	76	92	30	1.00	1.00	(17)	DISP	1	147
I11 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	90	78	30	2.27	1.89	(17)	DISP	2	147
I11 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	26	24	64	2.27	1.89	(17)	DISP	1	147
I11 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	31	16	64	1.00	1.00	(17)	DISP	1	147
I12 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	266	48	64	1.00	1.00	(17)	DISP	2	147
I12 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	266	48	64	2.27	1.89	(17)	DISP	4	147
I12 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	330	84	29	2.27	1.89	(17)	DISP	6	147
I12 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	330	84	29	1.00	1.00	(17)	DISP	2	147
I13	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	330	84	29	1.00	1.00	(17)	DISP	2	147
I15	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	267	21	92	1.00	1.00	(17)	DISP	2	147
I16 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	41	12	92	1.00	1.00	(17)	DISP	1	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.
I16 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	41	12	92	2.27	1.89	(17)	DISP	1	147
I16 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	107	100	6	2.27	1.89	(17)	DISP	2	147
I16 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	107	100	6	1.00	1.00	(17)	DISP	1	147
I17	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	309	318	6	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	407	424	6	1.00	1.00	(17)	DISP	4	147
I18 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	571	141	6	2.27	1.89	(17)	DISP	10	147
I18 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	503	4	143	2.27	1.89	(17)	DISP	8	147
I18 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	503	4	143	1.00	1.00	(17)	DISP	4	147
I19 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	311	22	143	1.00	1.00	(17)	DISP	2	147
I19 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	311	22	143	2.27	1.89	(17)	DISP	5	147
I19 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	380	146	25	2.27	1.89	(17)	DISP	7	147
I19 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	64	402	25	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	15	349	25	1.00	1.00	(17)	DISP	3	147

ASME B31.3b (2001) CODE COMPLIANCE

Point name	Load combination	In-Pl. Moment (Moments in Nm)	Out-Pl. Moment	Torsion Moment	S.I.F In	S.I.F Out	Eq. no.	Load type	Code Stress (Stress in N/mm2)	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	15	349	25	2.27	1.89	(17)	DISP	5	147
I20 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.27	1.89	(18)	SUST	0	71
	Cold to T1	86	16	340	2.27	1.89	(17)	DISP	3	147
I20 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	86	16	340	1.00	1.00	(17)	DISP	3	147
I21	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	1082	88	340	1.00	1.00	(17)	DISP	8	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	1082	88	340	1.00	1.00	(17)	DISP	8	147
A01	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	1592	141	340	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 :	-25.120	Point : I05 N	Load Comb.: T1
Maximum Y :	10.680	Point : I16 N	Load Comb.: T1
Maximum Z :	-117.021	Point : I04 N	Load Comb.: T1
Max. total:	118.878	Point : I04 F	Load Comb.: T1

Maximum rotations (deg)

Maximum X :	-0.257	Point : I18 F	Load Comb.: T1
Maximum Y :	-0.303	Point : I19 N	Load Comb.: T1
Maximum Z :	0.071	Point : B02 N	Load Comb.: T1
Max. total:	0.396	Point : I19 N	Load Comb.: T1

Maximum restraint forces (N)

Maximum X :	15336	Point : C03	Load Comb.: T1
Maximum Y :	35070	Point : C03	Load Comb.: T1
Maximum Z :	-767	Point : C03	Load Comb.: T1
Max. total:	38284	Point : C03	Load Comb.: T1

Maximum restraint moments (Nm)

Maximum X :	-37035	Point : B03	Load Comb.: T1
Maximum Y :	-13548	Point : C03	Load Comb.: T1
Maximum Z :	6324	Point : G03	Load Comb.: T1
Max. total:	39919	Point : C03	Load Comb.: T1

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

Maximum pipe forces (N)

Maximum X :	-24166	Point : A04	Load Comb.: T1
Maximum Y :	35070	Point : A04	Load Comb.: T1
Maximum Z :	967	Point : A04	Load Comb.: T1
Max. total:	38284	Point : A04	Load Comb.: T1

Maximum pipe moments (Nm)

Maximum X :	-37035	Point : B03	Load Comb.: T1
Maximum Y :	-13548	Point : C03	Load Comb.: T1
Maximum Z :	13972	Point : A04	Load Comb.: T1
Max. total:	39919	Point : C03	Load Comb.: T1

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

Maximum displacement stress

Point		: A07
Stress	N/mm2	: 106
Allowable	N/mm2	: 147
Ratio		: 0.72
Load combination		: Cold to T1

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

Maximum displacement stress ratio

Point		: A07
Stress	N/mm2	: 106
Allowable	N/mm2	: 147
Ratio		: 0.72
Load combination		: Cold to T1

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