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AutoPIPE 6.20 MODEL PAGE 1

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 **
**

SYSTEM NAME : 79319824_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 : 8

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

*** SEGMENT B , LINE # 79319824

From B00 to B02, DX= 394.29 mm, DY= 227.64 mm, L= 455.29 mm Run

PIPE DATA:

Pipe Id= 200MX6,4, Material= AL, Poisson= 0.300, Nom Size= 200 mm,
OD= 219.10 mm, Sch= NS, Wall Thk= 6.400 mm, Mill= 0.800 mm, Cor= 0 mm,
Pipe Density= 2707.12 kg/m3, Pipe Unit Wgt= 113.53 N/m, Insul Thk= 0 mm,
Lining Thk= 0 mm, Long Weld factor= 1.00, Circ Weld factor= 1.00,
Long Modulus= 0.06899 x10⁶ N/m, Hoop Modulus= 0.06899 x10⁶ N/m,
Shear Modulus= 0.02653 x10⁶ 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 x10⁶ N/m, Sh1= 71.00 N/mm2

POINT DATA:

B00, Coordinates, X= -2837.22 mm, Y= 1488.88 mm, Z= 1241.43 mm

SUPPORT DATA:

B00, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid, KRY= Rigid,
KRZ= Rigid

From B02 to B04, DX= 772.85 mm, DY= 1338.61 mm, L= 1545.70 mm Bend

COMPONENT DATA (Bend, TIP= B02, Near= B02 N, Far= B02 F):

Elbow, Radius= 304.98 mm, Bend angle= 30.00 deg, End flanges= 0,
Flex= 9.561, SIFI= 2.90, SIFO= 2.42

POINT DATA:

B02, Coordinates, X= -2442.93 mm, Y= 1716.52 mm, Z= 1241.43 mm
B02 N, Coordinates, X= -2513.70 mm, Y= 1675.66 mm, Z= 1241.43 mm
B02 F, Coordinates, X= -2402.07 mm, Y= 1787.29 mm, Z= 1241.43 mm

From B04 to B06, DX= 2024.89 mm, DZ= -106.12 mm, L= 2027.67 mm Bend

COMPONENT DATA (Bend, TIP= B04, Near= B04 N, Far= B04 F):

Elbow, Radius= 304.99 mm, Bend angle= 60.05 deg, End flanges= 0,
Flex= 9.561, SIFI= 2.90, SIFO= 2.42

POINT DATA:

B04, Coordinates, X= -1670.08 mm, Y= 3055.13 mm, Z= 1241.43 mm
B04 N, Coordinates, X= -1758.20 mm, Y= 2902.50 mm, Z= 1241.43 mm
B04 F, Coordinates, X= -1494.08 mm, Y= 3055.13 mm, Z= 1232.21 mm

From B06 to B08, DX= 941.08 mm, DY= -1630.00 mm, DZ= -98.64 mm,
L= 1884.74 mm Bend

COMPONENT DATA (Bend, TIP= B06, Near= B06 N, Far= B06 F):

Elbow, Radius= 304.99 mm, Bend angle= 59.91 deg, End flanges= 0,

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Flex= 9.561, SIFI= 2.90, SIFO= 2.42

POINT DATA:

B06, Coordinates, X= 354.81 mm, Y= 3055.13 mm, Z= 1135.31 mm
B06 N, Coordinates, X= 179.29 mm, Y= 3055.13 mm, Z= 1144.51 mm
B06 F, Coordinates, X= 442.57 mm, Y= 2903.12 mm, Z= 1126.11 mm

From B08 to B09, DX= 979.02 mm, DZ= -93.94 mm, L= 983.52 mm Bend

COMPONENT DATA (Bend, TIP= B08, Near= B08 N, Far= B08 F):

Elbow, Radius= 304.99 mm, Bend angle= 59.87 deg, End flanges= 0,
Flex= 9.561, SIFI= 2.90, SIFO= 2.42

POINT DATA:

B08, Coordinates, X= 1295.89 mm, Y= 1425.13 mm, Z= 1036.67 mm
B08 N, Coordinates, X= 1208.21 mm, Y= 1577.00 mm, Z= 1045.86 mm
B08 F, Coordinates, X= 1470.70 mm, Y= 1425.13 mm, Z= 1019.90 mm

From B09 to B10, DX= 210.68 mm, DZ= -20.22 mm, L= 211.65 mm Run

POINT DATA:

B09, Coordinates, X= 2274.91 mm, Y= 1425.13 mm, Z= 942.73 mm

From B10 to B11, DX= 55.57 mm, DZ= -207.39 mm, L= 214.71 mm Bend

COMPONENT DATA (Bend, TIP= B10, Near= B10 N, Far= B10 F):

Elbow, Radius= 304.99 mm, Bend angle= 69.52 deg, End flanges= 0,
Flex= 9.561, SIFI= 2.90, SIFO= 2.42

POINT DATA:

B10, Coordinates, X= 2485.59 mm, Y= 1425.13 mm, Z= 922.51 mm
B10 N, Coordinates, X= 2275.54 mm, Y= 1425.13 mm, Z= 942.67 mm
B10 F, Coordinates, X= 2540.37 mm, Y= 1425.13 mm, Z= 718.07 mm

From B11 to B12, DX= 66.50 mm, DZ= -248.20 mm, L= 256.95 mm Valv

COMPONENT DATA (Valve):

NS, Rating= 10, Length= 256.95 mm, Weight= 80 kg, Surface factor= 0.00,
End cond= Butt welded, SIF= 1.00, Without taper, Offset= 0.000 mm

POINT DATA:

B11, Coordinates, X= 2541.16 mm, Y= 1425.13 mm, Z= 715.12 mm

From B12 to B13, DX= -251.14 mm, DZ= -67.29 mm, L= 260.00 mm Valv

COMPONENT DATA (Valve):

NS, Rating= 10, Length= 260.00 mm, Weight= 80 kg, Surface factor= 0.00,
End cond= Butt welded, SIF= 1.00, Without taper, Offset= 0.000 mm

POINT DATA:

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

B12, Coordinates, X= 2607.66 mm, Y= 1425.13 mm, Z= 466.92 mm

*** SEGMENT C , LINE #

From C00 to C01, DX= 82.25 mm, DY= -176.37 mm, L= 194.61 mm Run

PIPE DATA:

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

POINT DATA:

C00, Coordinates, X= -0.01 mm, Y= 0.00 mm, Z= 0.00 mm

From C01 to C02, DX= 1987.54 mm, DZ= 154.48 mm, L= 1993.53 mm Bend

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

Elbow, Radius= 304.99 mm, Bend angle= 65.08 deg, End flanges= 0,
Flex= 9.561, SIFI= 2.90, SIFO= 2.42

POINT DATA:

C01, Coordinates, X= 82.24 mm, Y= -176.37 mm, Z= 0.00 mm

C01 N, Coordinates, X= 0.00 mm, Y= -0.01 mm, Z= 0.00 mm

C01 F, Coordinates, X= 276.25 mm, Y= -176.37 mm, Z= 15.08 mm

SUPPORT DATA:

C01 N, Anchor, KTX= Rigid, KTY= Rigid, KTZ= Rigid, KRX= Rigid,
KRY= Rigid, KRZ= Rigid

From C02 to C03, DY= 1601.50 mm, DZ= 168.32 mm, L= 1610.32 mm Bend

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

Elbow, Radius= 304.99 mm, Bend angle= 89.54 deg, End flanges= 0,
Flex= 9.561, SIFI= 2.90, SIFO= 2.42

POINT DATA:

C02, Coordinates, X= 2069.78 mm, Y= -176.37 mm, Z= 154.48 mm

C02 N, Coordinates, X= 1768.16 mm, Y= -176.37 mm, Z= 131.04 mm

C02 F, Coordinates, X= 2069.78 mm, Y= 124.50 mm, Z= 186.10 mm

From C03 to B13, DX= 286.74 mm, DZ= 76.83 mm, L= 296.85 mm Bend

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

Elbow, Radius= 304.99 mm, Bend angle= 88.45 deg, End flanges= 0,
Flex= 9.561, SIFI= 2.90, SIFO= 2.42

POINT DATA:

C03, Coordinates, X= 2069.78 mm, Y= 1425.13 mm, Z= 322.80 mm

C03 N, Coordinates, X= 2069.78 mm, Y= 1129.91 mm, Z= 291.77 mm

C03 F, Coordinates, X= 2356.51 mm, Y= 1425.13 mm, Z= 399.63 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

Number of points in the system: 31

Weight of Empty Pipes + Weight of Contents = Total Weight of System
287.0 kg + 0.0 kg = 287.0 kg

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

POINT -----COORDINATE (mm) -----
NAME X Y Z

*** SEGMENT B , LINE # 79319824

B00	-2837.22	1488.88	1241.43
B02 N	-2513.70	1675.66	1241.43
B02	-2442.93	1716.52	1241.43
B02 F	-2402.07	1787.29	1241.43
B04 N	-1758.20	2902.50	1241.43
B04	-1670.08	3055.13	1241.43
B04 F	-1494.08	3055.13	1232.21
B06 N	179.29	3055.13	1144.51
B06	354.81	3055.13	1135.31
B06 F	442.57	2903.12	1126.11
B08 N	1208.21	1577.00	1045.86
B08	1295.89	1425.13	1036.67
B08 F	1470.70	1425.13	1019.90
B09	2274.91	1425.13	942.73
B10 N	2275.54	1425.13	942.67
B10	2485.59	1425.13	922.51
B10 F	2540.37	1425.13	718.07
B11	2541.16	1425.13	715.12
B12	2607.66	1425.13	466.92
B13	2356.52	1425.13	399.63

*** SEGMENT C , LINE #

C00	-0.01	0.00	0.00
C01 N	0.00	-0.01	0.00
C01	82.24	-176.37	0.00
C01 F	276.25	-176.37	15.08
C02 N	1768.16	-176.37	131.04
C02	2069.78	-176.37	154.48
C02 F	2069.78	124.50	186.10
C03 N	2069.78	1129.91	291.77
C03	2069.78	1425.13	322.80
C03 F	2356.51	1425.13	399.63
B13	2356.52	1425.13	399.63

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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
200MX6.4 AL	200 NS	219.10	6.400 0 0.80 0 0	0	114 0 114	1.00 1.00
200MX6,4 AL	200 NS	219.10	6.400 0 0.80 0 0	0	114 0 114	1.00 1.00
PIPE0001 AL	200 NS	219.10	6.400 0 0.80 0 0	0	114 0 114	1.00 1.00
PIPE0002 AL	200 6.4	219.10	6.400 0 0.80 0 0	0	114 0 114	1.00 1.00
PIPE0003 AL	200 NS	219.10	54.77 0 6.85 0 0	0	751 0 751	1.00 1.00

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

Material Name	Pipe ID	Density kg/m3	Pois. Ratio	Temper. deg C	Modulus x10 ⁶ N/ Axial	Hoop	Shear	Expans. mm/m
AL	200MX6,4	2707.1	0.30	20.0 -196.0	0.06899 0.07646	0.06899	0.02653	-3.8459

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

Material Name	Pipe ID	Temper. deg C	Allow. N/mm2	Yield N/mm2
AL	200MX6,4	20.0 -196.0	103.42 71.00	0.00

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TEMPERATURE AND PRESSURE DATA

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

*** SEGMENT B , LINE # 79319824

B00	0	-196	-3.846
B13	0	-196	-3.846

*** SEGMENT C , LINE #

C00	0	-196	-3.846
B13	0	-196	-3.846

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H O T M O D U L U S (x10⁶ N/)

POINT

NAME	CASE 1	CASE 2	CASE 3
------	--------	--------	--------

*** SEGMENT B , LINE # 79319824

B00	0.07646		
-----	---------	--	--

B13	0.07646		
-----	---------	--	--

*** SEGMENT C , LINE #

C00	0.07646		
-----	---------	--	--

B13	0.07646		
-----	---------	--	--

* Non-standard material

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

*** SEGMENT B , LINE # 79319824

B00 71.00*

B13 71.00*

*** SEGMENT C , LINE #

C00 71.00*

B13 71.00*

< User-defined code allowable

* Non-code material

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THERMAL ANCHOR MOVEMENTS AND DISPLACEMENTS

POINT NAME	LOAD CASE	DX (mm)	DY (mm)	DZ (mm)	RX (deg)	RY (deg)	RZ (deg)
B00	Thermal 1	8.40	-0.50	-62.90	0.000	0.000	0.000
C01 N	Thermal 1	-2.40	5.20	-58.90	0.000	0.000	0.000

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

Point name	Load combination	TRANSLATIONS (mm)			ROTATIONS (deg)		
		X	Y	Z	X	Y	Z
*** Segment B begin *** Line # 79319824							
B00	T1	8.400	-0.500	-62.900	0.000	0.000	0.000
B02 N	T1	7.156	-1.219	-62.902	0.000	0.001	0.000
B02 F	T1	6.728	-1.650	-62.906	-0.001	0.002	-0.001
B04 N	T1	4.275	-5.952	-62.956	0.000	0.005	-0.001
B04 F	T1	3.262	-6.544	-62.945	0.000	0.006	-0.001
B06 N	T1	-3.185	-6.561	-62.817	0.002	0.008	0.000
B06 F	T1	-4.198	-5.974	-62.788	0.003	0.008	0.001
B08 N	T1	-7.118	-0.849	-62.663	0.003	0.008	0.002
B08 F	T1	-8.126	-0.255	-62.605	0.003	0.007	0.002
B09	T1	-11.228	-0.220	-62.401	0.003	0.006	0.002
B10 N	T1	-11.230	-0.220	-62.401	0.003	0.006	0.002
B10 F	T1	-12.266	-0.197	-61.562	0.003	0.002	0.003
B11	T1	-12.269	-0.196	-61.550	0.003	0.002	0.003
B12	T1	-12.536	-0.180	-60.599	0.003	0.002	0.003
B13	T1	-11.573	-0.189	-60.329	0.003	0.002	0.003
*** Segment B end *** Line # 79319824							
*** Segment C begin *** Line #							
C00	T1	-2.400	5.200	-58.900	0.000	0.000	0.000
C01 N	T1	-2.400	5.200	-58.900	0.000	0.000	0.000
C01 F	T1	-3.460	5.884	-58.958	0.000	-0.001	0.002
C02 N	T1	-9.199	5.950	-59.385	0.002	-0.001	0.003
C02 F	T1	-10.380	4.809	-59.581	0.003	0.000	0.004
C03 N	T1	-10.453	0.936	-59.926	0.004	0.000	0.004
C03 F	T1	-11.573	-0.189	-60.329	0.003	0.002	0.003

B13	T1	-11.573	-0.189	-60.329	0.003	0.002	0.003
-----	----	---------	--------	---------	-------	-------	-------

*** Segment C end *** Line #

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

Point name	Load combination	FORCES (N)				MOMENTS (Nm)			
		X	Y	Z	Result	X	Y	Z	Result
B00	Anchor T1	11	-6	-17	21	-2	55	-19	59
C01 N	Anchor T1	-11	6	17	21	21	-20	20	35

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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)				MOMENTS (Nm)			
		X	Y	Z	Result	X	Y	Z	Result

*** Segment B begin *** Line # .79319824									
B00	T1	-11	6	17	21	2	-55	19	59
B02 N	T1	-11	6	17	21	-1	-50	16	52
B02 F	T1	-11	6	17	21	-3	-48	14	50
B04 N	T1	-11	6	17	21	-22	-37	-2	43
B04 F	T1	-11	6	17	21	-25	-32	-5	41
B06 N	T1	-11	6	17	21	-25	-5	-14	29
B06 F	T1	-11	6	17	21	-23	0	-14	26
B08 N	T1	-11	6	17	21	0	12	-4	13
B08 F	T1	-11	6	17	21	2	16	-4	17
B09	T1	-11	6	17	21	2	29	-8	30
B10 N	T1	-11	6	17	21	2	29	-8	30
B10 F	T1	-11	6	17	21	1	31	-10	33
B11	T1	-11	6	17	21	1	31	-10	33
B12	T1	-11	6	17	21	-1	30	-10	31
B13	T1	-11	6	17	21	-1	25	-9	26
*** Segment B end *** Line # 79319824									
*** Segment C begin *** Line #									
C00	T1	0	0	0	0	0	0	0	0
C01 N-	T1	0	0	0	0	0	0	0	0
C01 N+	T1	11	-6	-17	21	-21	20	-20	35
C01 F	T1	11	-6	-17	21	-24	15	-20	35
C02 N	T1	11	-6	-17	21	-25	-12	-12	30
C02 F	T1	11	-6	-17	21	-20	-18	-7	28
C03 N	T1	11	-6	-17	21	-3	-19	4	19

C03 F T1

11

-6

-17

21

1

-25

9

26

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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)				MOMENTS (Nm)			
		X	Y	Z	Result	X	Y	Z	Result
B13	T1	11	-6	-17	21	1	-25	9	26

*** Segment C end *** Line #

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ASME B31.3b (2001) CODE COMPLIANCE									
			(Moments in Nm)			(Stress in N/mm2)			
Point	Load	In-Pl.	Out-Pl.	Torsion	S.I.F	Eq. Load	Code	Code	
name	combination	Moment	Moment	Moment	In Out	no. type	Stress	Allow.	
*** Segment B begin *** Line # 79319824									
B00	Max P					(3a) HOOP	0	71	
	Max P	0	0		1.00 1.00	(18) SUST	0	71	
	Cold to T1	49	19	26	1.00 1.00	(17) DISP	0	147	
B02 N-	Max P					(3a) HOOP	0	71	
	Max P	0	0		1.00 1.00	(18) SUST	0	71	
	Cold to T1	43	16	26	1.00 1.00	(17) DISP	0	147	
B02 N+	Max P					(3a) HOOP	0	71	
	Max P	0	0		2.90 2.42	(18) SUST	0	71	
	Cold to T1	16	43	26	2.90 2.42	(17) DISP	1	147	
B02 F-	Max P					(3a) HOOP	0	71	
	Max P	0	0		2.90 2.42	(18) SUST	0	71	
	Cold to T1	14	22	43	2.90 2.42	(17) DISP	0	147	
B02 F+	Max P					(3a) HOOP	0	71	
	Max P	0	0		1.00 1.00	(18) SUST	0	71	
	Cold to T1	22	14	43	1.00 1.00	(17) DISP	0	147	
B04 N-	Max P					(3a) HOOP	0	71	
	Max P	0	0		1.00 1.00	(18) SUST	0	71	
	Cold to T1	1	2	43	1.00 1.00	(17) DISP	0	147	
B04 N+	Max P					(3a) HOOP	0	71	
	Max P	0	0		2.90 2.42	(18) SUST	0	71	
	Cold to T1	2	0	43	2.90 2.42	(17) DISP	0	147	
B04 F-	Max P					(3a) HOOP	0	71	
	Max P	0	0		2.90 2.42	(18) SUST	0	71	
	Cold to T1	5	33	24	2.90 2.42	(17) DISP	0	147	
B04 F+	Max P					(3a) HOOP	0	71	
	Max P	0	0		1.00 1.00	(18) SUST	0	71	
	Cold to T1	32	6	24	1.00 1.00	(17) DISP	0	147	
B06 N-	Max P					(3a) HOOP	0	71	
	Max P	0	0		1.00 1.00	(18) SUST	0	71	
	Cold to T1	5	15	24	1.00 1.00	(17) DISP	0	147	
B06 N+	Max P					(3a) HOOP	0	71	
	Max P	0	0		2.90 2.42	(18) SUST	0	71	
	Cold to T1	15	5	24	2.90 2.42	(17) DISP	0	147	
B06 F-	Max P					(3a) HOOP	0	71	
	Max P	0	0		2.90 2.42	(18) SUST	0	71	
	Cold to T1	15	19	10	2.90 2.42	(17) DISP	0	147	

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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 Out	Eq. Load no. type	Code Stress	Code Allow.	
B06 F+	Max P					(3a) HOOP	0	71	
	Max P	0	0		1.00 1.00	(18) SUST	0	71	
	Cold to T1	20	14	10	1.00 1.00	(17) DISP	0	147	
B08 N-	Max P					(3a) HOOP	0	71	
	Max P	0	0		1.00 1.00	(18) SUST	0	71	
	Cold to T1	6	4	10	1.00 1.00	(17) DISP	0	147	
B08 N+	Max P					(3a) HOOP	0	71	
	Max P	0	0		2.90 2.42	(18) SUST	0	71	
	Cold to T1	4	6	10	2.90 2.42	(17) DISP	0	147	
B08 F-	Max P					(3a) HOOP	0	71	
	Max P	0	0		2.90 2.42	(18) SUST	0	71	
	Cold to T1	4	16	3	2.90 2.42	(17) DISP	0	147	
B08 F+	Max P					(3a) HOOP	0	71	
	Max P	0	0		1.00 1.00	(18) SUST	0	71	
	Cold to T1	16	3	3	1.00 1.00	(17) DISP	0	147	
B09	Max P					(3a) HOOP	0	71	
	Max P	0	0		1.00 1.00	(18) SUST	0	71	
	Cold to T1	29	8	3	1.00 1.00	(17) DISP	0	147	
B10 N-	Max P					(3a) HOOP	0	71	
	Max P	0	0		1.00 1.00	(18) SUST	0	71	
	Cold to T1	29	8	3	1.00 1.00	(17) DISP	0	147	
B10 N+	Max P					(3a) HOOP	0	71	
	Max P	0	0		2.90 2.42	(18) SUST	0	71	
	Cold to T1	29	8	3	2.90 2.42	(17) DISP	0	147	
B10 F-	Max P					(3a) HOOP	0	71	
	Max P	0	0		2.90 2.42	(18) SUST	0	71	
	Cold to T1	31	2	9	2.90 2.42	(17) DISP	0	147	
B10 F+	Max P					(3a) HOOP	0	71	
	Max P	0	0		1.00 1.00	(18) SUST	0	71	
	Cold to T1	31	2	9	1.00 1.00	(17) DISP	0	147	
B11	Max P					(3a) HOOP	0	71	
	Max P	0	0		1.00 1.00	(18) SUST	0	71	
	Cold to T1	31	2	9	1.00 1.00	(17) DISP	0	147	
*** Segment B end *** Line # 79319824									
*** Segment C begin *** Line #									
C00	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	

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ASME B31.3b (2001) CODE COMPLIANCE										
Point name	Load combination	(Moments in Nm)			(Stress in N/mm2)					
		In-Pl. Moment	Out-Pl. Moment	Torsion Moment	S.I.F		Eq. Load no. type	Code Stress	Code Allow.	
					In	Out				
C01 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
C01 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.90	2.42	(18)	SUST	0	71
	Cold to T1	19	12	27	2.90	2.42	(17)	DISP	0	147
C01 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.90	2.42	(18)	SUST	0	71
	Cold to T1	19	14	26	2.90	2.42	(17)	DISP	0	147
C01 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	15	18	26	1.00	1.00	(17)	DISP	0	147
C02 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	12	10	26	1.00	1.00	(17)	DISP	0	147
C02 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.90	2.42	(18)	SUST	0	71
	Cold to T1	9	13	26	2.90	2.42	(17)	DISP	0	147
C02 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.90	2.42	(18)	SUST	0	71
	Cold to T1	3	20	18	2.90	2.42	(17)	DISP	0	147
C02 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	20	5	18	1.00	1.00	(17)	DISP	0	147
C03 N-	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	3	6	18	1.00	1.00	(17)	DISP	0	147
C03 N+	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.90	2.42	(18)	SUST	0	71
	Cold to T1	6	2	18	2.90	2.42	(17)	DISP	0	147
C03 F-	Max P						(3a)	HOOP	0	71
	Max P	0	0		2.90	2.42	(18)	SUST	0	71
	Cold to T1	10	24	3	2.90	2.42	(17)	DISP	0	147
C03 F+	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	25	8	3	1.00	1.00	(17)	DISP	0	147
B13	Max P						(3a)	HOOP	0	71
	Max P	0	0		1.00	1.00	(18)	SUST	0	71
	Cold to T1	25	8	3	1.00	1.00	(17)	DISP	0	147

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

Maximum displacements (mm)

Maximum X :	-12.536	Point : B12	Load Comb.: T1
Maximum Y :	-6.561	Point : B06 N	Load Comb.: T1
Maximum Z :	-62.956	Point : B04 N	Load Comb.: T1
Max. total:	63.460	Point : B00	Load Comb.: T1

Maximum rotations (deg)

Maximum X :	0.004	Point : C03 N	Load Comb.: T1
Maximum Y :	0.008	Point : B06 F	Load Comb.: T1
Maximum Z :	0.004	Point : C03 N	Load Comb.: T1
Max. total:	0.009	Point : B06 F	Load Comb.: T1

Maximum restraint forces (N)

Maximum X :	-11	Point : C01 N	Load Comb.: T1
Maximum Y :	6	Point : C01 N	Load Comb.: T1
Maximum Z :	-17	Point : B00	Load Comb.: T1
Max. total:	21	Point : B00	Load Comb.: T1

Maximum restraint moments (Nm)

Maximum X :	21	Point : C01 N	Load Comb.: T1
Maximum Y :	55	Point : B00	Load Comb.: T1
Maximum Z :	20	Point : C01 N	Load Comb.: T1
Max. total:	59	Point : B00	Load Comb.: T1

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

Maximum pipe forces (N)

Maximum X :	11	Point : C02 N	Load Comb.: T1
Maximum Y :	6	Point : B02 N	Load Comb.: T1
Maximum Z :	17	Point : B04 F	Load Comb.: T1
Max. total:	21	Point : B08 F	Load Comb.: T1

Maximum pipe moments (Nm)

Maximum X :	-25	Point : B06 N	Load Comb.: T1
Maximum Y :	-55	Point : B00	Load Comb.: T1
Maximum Z :	-20	Point : C01 F	Load Comb.: T1
Max. total:	59	Point : B00	Load Comb.: T1

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

Maximum displacement stress

Point : B02 N
Stress N/mm2 : 1
Allowable N/mm2 : 147
Ratio : 0.00
Load combination : Cold to T1

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

Maximum displacement stress ratio

Point : B02 N
Stress N/mm2 : 1
Allowable N/mm2 : 147
Ratio : 0.00
Load combination : Cold to T1

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