

TUBE CONFIGURATION (External Pressure)

Inner Diameter : 7.9810 in
 Outer Diameter : 8.6250 in
 Wall Thickness : 0.32200 in
 Tube Length : 35.000 in

Weight in air : 28.809 lbs
 Weight in water: -46.934 lbs

Failure Mode: Thin Wall Buckling at 0.11202 Kbar by 2 nodes

Shell failure at 0.21613 Kbar (Thin wall eq's)
 Seat failure N/A
 Shear failure N/A

ALUMINUM, 6061-T6 Properties:

Yield Strength : 35 Ksi
 Elastic Modulus : 9.9 Mpsi
 Density : 0.098 lb/cu in
 Poisson's Ratio : 0.33
 Comments :
 Compressive Young's Modulus = 10.1 Mpsi Compressive
 Yield Strength = 34 Ksi Minimum Welded Yield Strength
 = 15 kpsi

Tube distortion values:

Pressure Ksi	Depth m (sea)	Max Axial Stress, Ksi	Max Hoop Stress, Ksi	Max Equiv Stress, Ksi	d ID Inches
0.10000	68.638	-0.64464	-1.2893	1.1166	-0.00090289
0.20000	137.26	-1.2893	-2.5786	2.2331	-0.0018058
0.30000	205.85	-1.9339	-3.8679	3.3497	-0.0027087
0.40000	274.43	-2.5786	-5.1571	4.4662	-0.0036116
0.50000	342.98	-3.2232	-6.4464	5.5828	-0.0045145
0.60000	411.52	-3.8679	-7.7357	6.6993	-0.0054173
0.70000	480.03	-4.5125	-9.0250	7.8159	-0.0063202
0.80000	548.52	-5.1571	-10.314	8.9324	-0.0072231
0.90000	616.99	-5.8018	-11.604	10.049	-0.0081260
1.0000	685.44	-6.4464	-12.893	11.166	-0.0090289
1.1000	753.88	-7.0911	-14.182	12.282	-0.0099318
1.2000	822.28	-7.7357	-15.471	13.399	-0.010835
1.3000	890.67	-8.3804	-16.761	14.515	-0.011738
1.4000	959.04	-9.0250	-18.050	15.632	-0.012640
1.5000	1027.4	-9.6696	-19.339	16.748	-0.013543
1.6000	1095.7	-10.314	-20.629	17.865	-0.014446
1.6247*	1112.6	-10.473	-20.947	18.141	-0.014669
1.7000*	1164.0	-10.959	-21.918	18.981	-0.015349
1.8000*	1232.3	-11.604	-23.207	20.098	-0.016252
1.9000*	1300.6	-12.248	-24.496	21.215	-0.017155
2.0000*	1368.8	-12.893	-25.786	22.331	-0.018058

* = after housing failure

Tube distortion values:

d OD Inches	d Length Inches
-0.00090289	-0.00077487
-0.0018058	-0.0015497
-0.0027087	-0.0023246
-0.0036116	-0.0030995
-0.0045145	-0.0038744
-0.0054173	-0.0046492
-0.0063202	-0.0054241
-0.0072231	-0.0061990
-0.0081260	-0.0069739
-0.0090289	-0.0077487
-0.0099318	-0.0085236
-0.010835	-0.0092985
-0.011738	-0.010073
-0.012640	-0.010848
-0.013543	-0.011623
-0.014446	-0.012398
-0.014669	-0.012589
-0.015349	-0.013173
-0.016252	-0.013948
-0.017155	-0.014723
-0.018058	-0.015497

* = after housing failure