

PLATE ENDCAP CONFIGURATION (External Pressure)

Outer Diameter : 7.0000 in
 Free Diameter : 4.5000 in
 Plate Thickness : 0.87500 in
 Edge Restraint : Fixed

Weight in air : 3.4011 lbs
 Weight in water: 2.1538 lbs

Failure Mode: Radial Stress Failure at 12.502 Ksi (free dia. = 4.5000 inches)

Tangential Stress Failure at 18.800 Ksi (plate center)
 Seat failure at 36.378 Ksi

ALUMINUM, 7075-T6 Properties:

Yield Strength : 62 Ksi
 Elastic Modulus : 10.3 Mpsi
 Density : 0.101 lb/cu in
 Poisson's Ratio : 0.33
 Comments :
 Compressive Young's Modulus = 10.5 Mpsi

Flat Circular Plate distortion: Table eval dia., De = plate free diameter for Max Radial
 Table eval dia., De = plate center for Max Tangential

Pressure Ksi	Depth m (sea)	De Max Radial Stress, Ksi	De Max Tan Stress, Ksi	Avg Seat Stress, Ksi	CL Deflection Inches
1.0000	685.44	4.9592	3.2979	-1.7043	-0.00062058
2.0000	1368.8	9.9184	6.5957	-3.4087	-0.0012412
3.0000	2050.1	14.878	9.8936	-5.1130	-0.0018617
4.0000	2729.4	19.837	13.191	-6.8174	-0.0024823
5.0000	3406.7	24.796	16.489	-8.5217	-0.0031029
6.0000	4082.0	29.755	19.787	-10.226	-0.0037235
7.0000	4755.3	34.714	23.085	-11.930	-0.0043440
8.0000	5426.6	39.673	26.383	-13.635	-0.0049646
9.0000	6096.0	44.633	29.681	-15.339	-0.0055852
10.000	6763.5	49.592	32.979	-17.043	-0.0062058
11.000	7429.0	54.551	36.276	-18.748	-0.0068264
12.000	8092.7	59.510	39.574	-20.452	-0.0074469
12.502*	8425.1	62.000	41.230	-21.308	-0.0077585
13.000*	8754.4	64.469	42.872	-22.157	-0.0080675
14.000*	9414.3	69.429	46.170	-23.861	-0.0086881
15.000*	10072	74.388	49.468	-25.565	-0.0093087
16.000*	10729	79.347	52.766	-27.270	-0.0099292
17.000*	11383	84.306	56.064	-28.974	-0.010550
18.000*	12036	89.265	59.361	-30.678	-0.011170
19.000*	12686	94.224	62.659	-32.383	-0.011791
20.000*	13336	99.184	65.957	-34.087	-0.012412

* = after housing failure

Flat Circular Plate distortion: Table eval dia., De = plate free diameter for Max Radial
Table eval dia., De = plate center for Max Tangential

FD Shear
Stress, Ksi
-1.2857
-2.5714
-3.8571
-5.1429
-6.4286
-7.7143
-9.0000
-10.286
-11.571
-12.857
-14.143
-15.429
-16.074
-16.714
-18.000
-19.286
-20.571
-21.857
-23.143
-24.429
-25.714

* = after housing failure