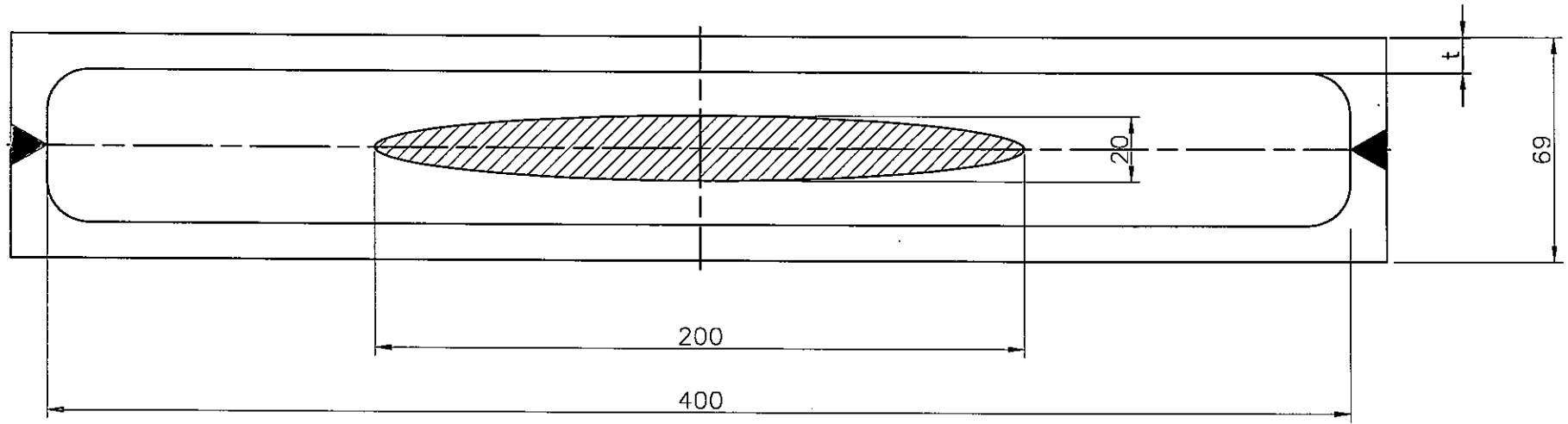


**DRAFT**



Possible HRS Vacuum Chamber section  
August 28, 2014

Scale ~ 1/2

*GR*  
AUG 28 2014

Comparison of different materials for the HRS vacuum box.

Bottom/Top

Long side greater than 2 x longer than short side  
 Short Side (b) 400 mm  
 Assume Long edge is fixed support ~1900 mm

FIXED



Material	UTS KSI	Yield KSI	Allowable KSI	E psi	t for 12KSI mm	allowable stress correction t2/t1	t at allowable stress mm	deflection mm
Aluminum 6061T651	42	35	10.5	1.00E+07	9.9	1.07	10.6	0.92
Aluminum 6061T651 Weld			6.0	1.00E+07	9.9	1.41	14.0	
Titanium Grade 1	35	25	8.8	1.55E+07	9.9	1.17	11.6	0.45
Titanium Grade 2 Annealed	50	40	12.5	1.55E+07	9.9	0.98	9.7	0.77
SS 316L	25	70	16.7	3.03E+07	9.9	0.85	8.4	0.61
SS 316	30	75	18.8	3.03E+07	9.9	0.80	7.9	0.73

Bottom/Top

Long side greater than 2 x longer than short side  
 Short Side (b) 400 mm  
 Assume Long edge is just supported ~1900 mm

Supported

Material	UTS KSI	Yield KSI	Allowable KSI	E psi	t for 12KSI mm	allowable stress correction t2/t1	t at allowable stress mm	deflection mm
Aluminum 6061T651	42	35	10.5	1.00E+07	12.1	1.07	13.0	2.44
Aluminum 6061T651 Weld			6.0	1.00E+07	12.1	1.41	17.1	
Titanium Grade 1	35	25	8.8	1.55E+07	12.1	1.17	14.2	1.20
Titanium Grade 2 Annealed	50	40	12.5	1.55E+07	12.1	0.98	11.9	2.00
SS 316L	25	70	16.7	3.03E+07	12.1	0.85	10.3	1.60
SS 316	30	75	18.8	3.03E+07	12.1	0.80	9.7	1.90

G&L  
 AUG 28 2014