Skirt Data:

SA-36	Material
36,000	**Fy** [psi] - yeild stress at design temperature
29,000,000	**E** [psi] - elasticity at design temperature
30.00	**Do** [in] - skirt outside diameter
0.1875	**t** [in] - skirt thickness
14.00	**L** [in] - skirt length
12.00	**W** [in] - width of large opening

ISOMETRIC VIEW

Misc. Data:

4,727.56	**Wt** [lbs] - vessel weight
0.3124	**r** [in] - radius of gyration
0.204	**Ix** [in^4] - moment of inertia

Leg Calculations: AISC manual ninth edition

1	**D** [in] = Do-(2*t) *skirt inside diameter*	30-(2*0.188) =	29.6250
2	**R** [in] = D/2 *inside radius*	29.625/2 =	14.8125
3	**Θ** [Rad] = 2*(ASIN((W/2)/(D/2))) *opening angle*	2*(ASIN((12/2)/(29.625/2))) =	0.8341
4	**dΘ** [in] = (D/2)*(RAD(90)-Θ) *arc length of support*	(29.625/2)*(RADIANS(90)-0.834) =	10.9124
5	**A** [in^2] = t*dΘ *area of support*	0.188*10.912 =	2.0461
6	**l** [in] = L-1.50	14-1.5 =	12.5000
7	**P1** [lbf] = Wt/4+48*0/(4*D) *axial end load*	4727.56/4+48*0/(4*29.625) =	1,181.8900
8	**a** [in] = dΘ/2 *arc length*	10.912/2 =	5.4562
9	**Cy** [in] = 2*R*SIN(a/(2*R)) *neutral axis distance Y-Y*	2*14.813*SIN(5.456/(2*14.813)) =	5.4254
10	**Cx** [in] = ((2*R-SQRT((4*R²)-Cy²))/2)+t *neutral axis distance X-X*		
11		((2*14.813-SQRT((4*14.813²)-5.425²))/2)+0.188 =	0.4380
12	**Ecc** [in] = Cx	0.438 =	0.4380

Allowable Axial Compressive Stress