

Study Report

Analyzed File	zbiornik-stp203 v3
Version	Autodesk Fusion 360 (2.0.8809)
Creation Date	2020-08-13, 12:45:31
Author	ASUS

Project Properties

Title	Studies
Author	ASUS

Simulation Model 1:1

Study 1 - Static Stress

Study Properties

Study Type	Static Stress
Last Modification Date	2020-08-13, 12:37:22

Settings

General

Contact Tolerance	0.1 mm
Remove Rigid Body Modes	No

Damping

▫

Mesh

Average Element Size (% of model size)	
Solids	10
Scale Mesh Size Per Part	No
Average Element Size (absolute value)	-
Element Order	Parabolic
Create Curved Mesh Elements	Yes
Max. Turn Angle on Curves (Deg.)	60
Max. Adjacent Mesh Size Ratio	1.5
Max. Aspect Ratio	10
Minimum Element Size (% of average size)	20

Adaptive Mesh Refinement

Number of Refinement Steps	0
Results Convergence Tolerance (%)	20
Portion of Elements to Refine (%)	10

Results for Baseline Accuracy	Von Mises Stress
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Materials

Component	Material	Safety Factor
Body1	ABS Plastic	Yield Strength

ABS Plastic

Density	1.06E-06 kg / mm ³
Young's Modulus	2240 MPa
Poisson's Ratio	0.38
Yield Strength	20 MPa
Ultimate Tensile Strength	29.6 MPa
Thermal Conductivity	1.6E-04 W / (mm C)
Thermal Expansion Coefficient	8.57E-05 / C
Specific Heat	1500 J / (kg C)

Contacts

Mesh

Type	Nodes	Elements
Solids	78024	41692

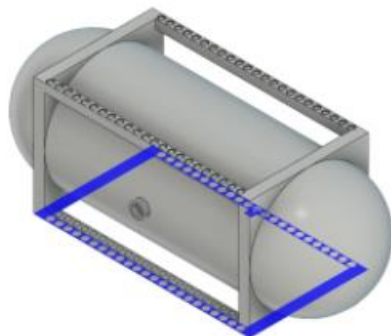
Load Case1

Constraints

Fixed1

Type	Fixed
Ux	Yes
Uy	Yes
Uz	Yes

Selected Entities

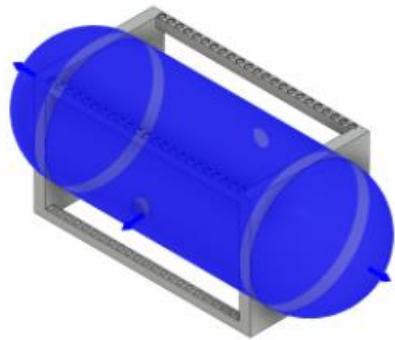


Loads

Force1

Type	Force
Magnitude	60 N
X Value	60 N
Y Value	3.674E-15 N
Z Value	4.499E-31 N
Flip Direction	Yes
Force Per Entity	No

Selected Entities



Results

Result Summary

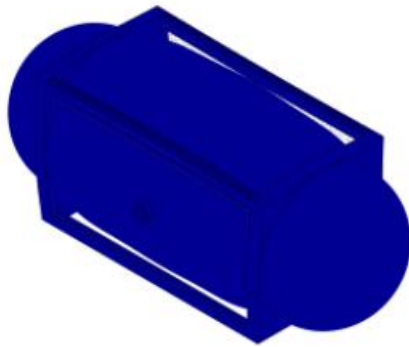
Name	Minimum	Maximum
Safety Factor		
Safety Factor (Per Body)	15	15
Stress		
Von Mises	4.479E-10 MPa	0.01811 MPa
1st Principal	-0.005072 MPa	0.02021 MPa
3rd Principal	-0.01061 MPa	0.002042 MPa
Normal XX	-0.005893 MPa	0.006329 MPa
Normal YY	-0.005912 MPa	0.007317 MPa
Normal ZZ	-0.009832 MPa	0.02003 MPa
Shear XY	-0.001757 MPa	0.00176 MPa
Shear YZ	-0.00361 MPa	0.003611 MPa
Shear ZX	-0.005103 MPa	0.005557 MPa
Displacement		
Total	0 mm	2.017E-04 mm
X	-9.472E-05 mm	9.453E-05 mm
Y	-1.253E-04 mm	1.255E-04 mm

Z	-1.057E-04 mm	2.017E-04 mm
Reaction Force		
Total	0 N	0.03054 N
X	-0.01891 N	0.01873 N
Y	-0.009882 N	0.01056 N
Z	-0.01608 N	0.02971 N
Strain		
Equivalent	2.562E-13	9.638E-06
1st Principal	-2.231E-08	1.028E-05
3rd Principal	-5.154E-06	9.208E-14
Normal XX	-2.404E-06	2.249E-06
Normal YY	-3.686E-06	2.827E-06
Normal ZZ	-2.387E-06	8.194E-06
Shear XY	-2.165E-06	2.168E-06
Shear YZ	-4.448E-06	4.449E-06
Shear ZX	-6.288E-06	6.847E-06

Safety Factor

Safety Factor (Per Body)

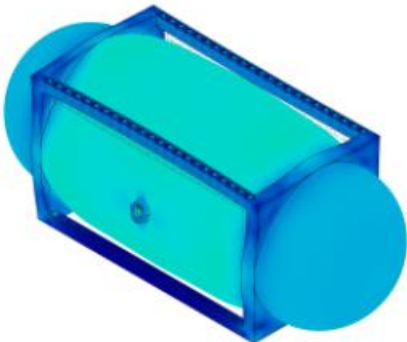
0  8



Stress

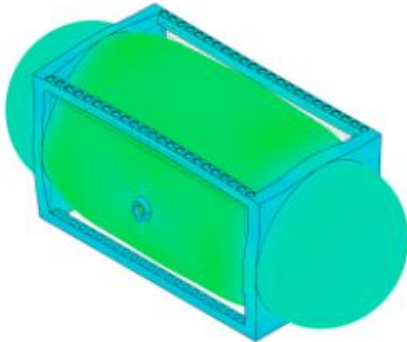
Von Mises

[MPa] 0 0.01811



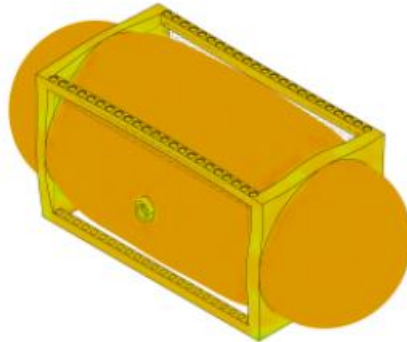
1st Principal

[MPa] -0.00507 0.02021



3rd Principal

[MPa] -0.01061 0.00204



Displacement

Total

[mm] 0 2.017E-04

