Study Report

AUTODESK

Analyzed File	stress_analysis v1
Version	Autodesk Fusion 360 (2.0.16490)
Creation Date	2023-07-19, 10:16:22
Author	ramonadevi

Report Properties

Title	Studies
Author	ramonadevi

Simulation Model 1:1

Study 1 - Static Stress

Study Properties

Study Type	Static Stress
Last Modification Date	2023-07-19, 10:10:05

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

Materials

Component	Material	Safety Factor
Body1	Steel	Yield Strength

Steel

Density	7.85E-06 kg / mm^3
Young's Modulus	210000 MPa
Poisson's Ratio	0.3
Yield Strength	207 MPa
Ultimate Tensile Strength	345 MPa
Thermal Conductivity	0.056 W / (mm C)
Thermal Expansion Coefficient	1.2E-05 / C
Specific Heat	480 J / (kg C)

Contacts

Mesh

Type	Nodes	Elements
Solids	2164	968

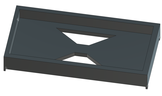
Load Case1

Constraints

Fixed1

Type	Fixed
Ux	Fixed
Uy	Fixed
Uz	Fixed

Selected Entities

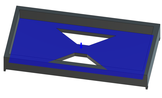


Loads

Force1

Type	Force
X Value	0 N
Y Value	0 N
Z Value	-500 N
Force Per Entity	No

Selected Entities



Results

Result Summary

Name	Minimum	Maximum
Safety Factor		
Safety Factor (Per Body)	6.304	15
Stress		
Von Mises	0.01325 MPa	32.84 MPa
1st Principal	-2.415 MPa	23.53 MPa
3rd Principal	-28.42 MPa	3.045 MPa
Normal XX	-7.02 MPa	14.64 MPa
Normal YY	-3.767 MPa	5.649 MPa
Normal ZZ	-26.43 MPa	19.44 MPa
Shear XY	-3.671 MPa	2.951 MPa
Shear YZ	-4.923 MPa	11.35 MPa
Shear ZX	-3.484 MPa	11.75 MPa
Displacement		
Total	0 mm	0.00563 mm
X	-0.001439 mm	5.204E-04 mm
Y	-0.00102 mm	5.55E-04 mm
Z	-0.00561 mm	0 mm
Reaction Force		
Total	0 N	142.8 N
X	-34.26 N	66.06 N
Y	-9.374 N	24.16 N
Z	0 N	129.9 N
Strain		
Equivalent	8.054E-08	2.277E-04
1st Principal	6.995E-08	2.006E-04
3rd Principal	-2.195E-04	-3.306E-08
Normal XX	-1.762E-05	6.126E-05
Normal YY	-1.783E-05	2.915E-05
Normal ZZ	-1.169E-04	7.679E-05
Shear XY	-4.545E-05	3.654E-05
Shear YZ	-6.095E-05	1.405E-04
Shear ZX	-4.313E-05	1.455E-04
Contact Force		
Total	0 N	0 N
X	0 N	0 N
Y	0 N	0 N
Z	0 N	0 N

Safety Factor

Safety Factor (Per Body)

0 8

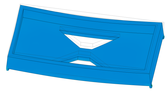
Stress

Von Mises

[MPa] 0.01 32.84

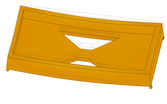
1st Principal

[MPa] -2.41 23.53



3rd Principal

[MPa] -28.42 3.04



Displacement

Total

[mm] 0 0.00563