Study Report

Analyzed File	Motor_Mount v9 v55
Version	Autodesk Fusion (2.0.20754)
Creation Date	2024-11-25, 14:05:59
Author	dulnethweerasinghe

Report Properties

Title	Studies
Author	dulnethweerasinghe

Simulation Model 1

Study 4 - Static Stress

Study Properties

Study Type	Static Stress
Last Modification Date	2024-11-25, 14:05:35

Settings

General

Contact Tolerance	0.10 mm
Remove Rigid Body Modes	No

Mesh

Average Element Size (% of model size)	
Solids	3
Scale Mesh Size Per Part	Yes
Average Element Size (absolute value)	-
Element Order	Parabolic
Create Curved Mesh Elements	Yes
Max. Turn Angle on Curves (Deg.)	20
Max. Adjacent Mesh Size Ratio	1.5
Max. Aspect Ratio	9
Minimum Element Size (% of average size)	10

Adaptive Mesh Refinement

Number of Refinement Steps	6
Results Convergence Tolerance (%)	5
Portion of Elements to Refine (%)	40
Results for Baseline Accuracy	von Mises Stress

Materials

Component	Material	Safety Factor
Body1	Steel, Mild	Yield Strength

Steel, Mild

Density	7.850E-06 kg / mm^3
Young's Modulus	220000.00 MPa
Poisson's Ratio	0.275
Yield Strength	207.00 MPa
Ultimate Tensile Strength	345.00 MPa
Thermal Conductivity	0.045 W / (mm C)
Thermal Expansion Coefficient	1.200E-05 / C
Specific Heat	480.00 J / (kg C)

Contacts

Mesh

Type	Nodes	Elements
Solids	1620856	1105979

Load Case1

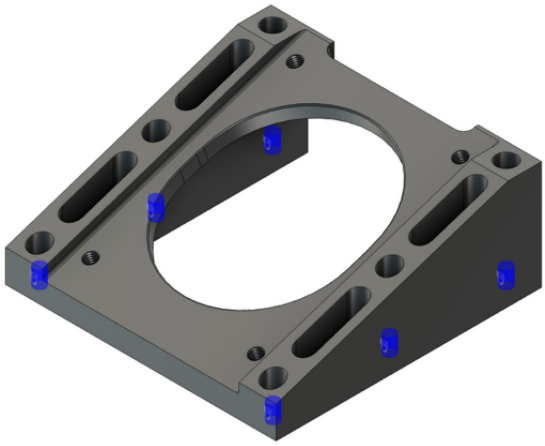
⚠ Solve result of this load case is out of date.

Constraints

Fixed1

Type	Fixed
Ux	Fixed
Uy	Fixed
Uz	Fixed

Selected Entities

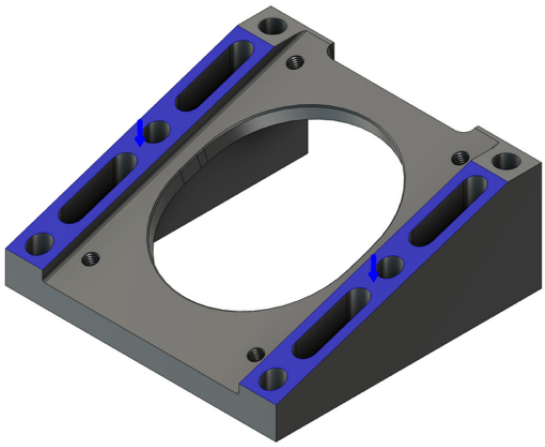


Loads

Force1

Type	Force
Magnitude	20.00 N
X Value	0.00 N
Y Value	0.00 N
Z Value	-20.00 N
X Angle	0.0 deg
Y Angle	0.0 deg
Z Angle	0.0 deg
Flip Direction	Yes
Force Per Entity	No

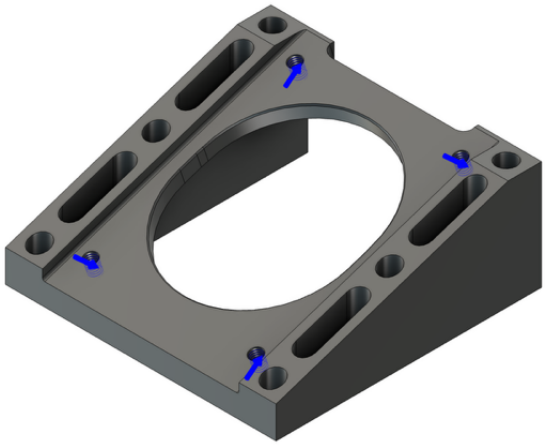
Selected Entities



Force5

Type	Force
Magnitude	78.20 N
X Value	18.216 N
Y Value	-72.19 N
Z Value	23.917 N
Force Per Entity	No

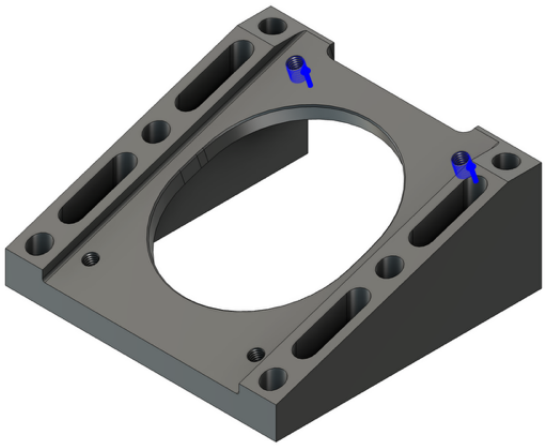
Selected Entities



Force6

Type	Force
Magnitude	162.10 N
X Value	0.00 N
Y Value	50.979 N
Z Value	153.875 N
X Angle	0.0 deg
Y Angle	0.0 deg
Z Angle	0.0 deg
Force Per Entity	Yes

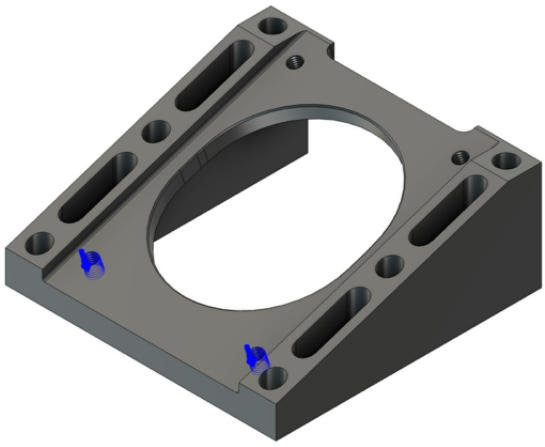
Selected Entities



Force7

Type	Force
Magnitude	162.10 N
X Value	0.00 N
Y Value	-50.979 N
Z Value	-153.875 N
X Angle	0.0 deg
Y Angle	0.0 deg
Z Angle	0.0 deg
Flip Direction	Yes
Force Per Entity	Yes

Selected Entities



Results

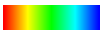
Result Summary

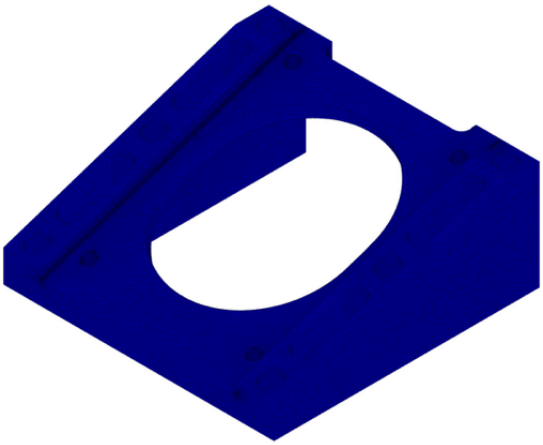
Name	Minimum	Maximum
Safety Factor		
Safety Factor (Per Body)	6.55	15.00

Stress		
von Mises	0.002 MPa	31.604 MPa
1st Principal	-12.40 MPa	41.625 MPa
3rd Principal	-45.352 MPa	11.056 MPa
Normal XX	-44.879 MPa	40.959 MPa
Normal YY	-17.801 MPa	20.926 MPa
Normal ZZ	-12.616 MPa	14.933 MPa
Shear XY	-14.588 MPa	14.383 MPa
Shear YZ	-4.371 MPa	6.525 MPa
Shear ZX	-9.101 MPa	9.424 MPa
Displacement		
Total	0.00 mm	0.002 mm
X	-3.742E-04 mm	3.597E-04 mm
Y	-4.481E-04 mm	8.567E-04 mm
Z	-0.001 mm	0.002 mm
Reaction Force		
Total	0.00 N	0.64 N
X	-0.579 N	0.558 N
Y	-0.405 N	0.436 N
Z	-0.289 N	0.528 N
Strain		
Equivalent	9.605E-09	2.109E-04
1st Principal	-2.905E-08	2.143E-04
3rd Principal	-2.314E-04	-3.501E-09
Normal XX	-1.686E-04	1.549E-04
Normal YY	-6.131E-05	5.991E-05
Normal ZZ	-3.327E-05	5.088E-05
Shear XY	-1.691E-04	1.667E-04
Shear YZ	-5.066E-05	7.563E-05
Shear ZX	-1.055E-04	1.092E-04
Contact Force		
Total	0.00 N	0.00 N
X	0.00 N	0.00 N
Y	0.00 N	0.00 N
Z	0.00 N	0.00 N

⊟ Safety Factor

⊟ Safety Factor (Per Body)

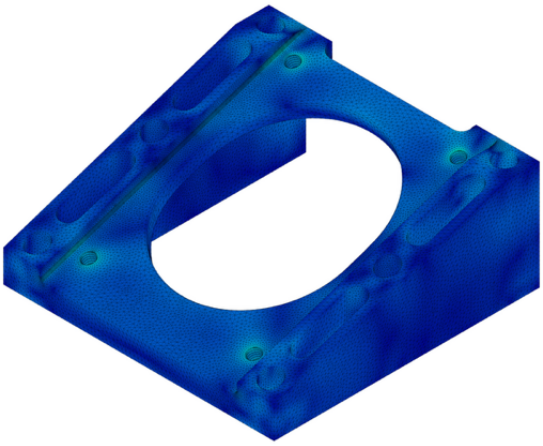
0.00  8.00



Stress

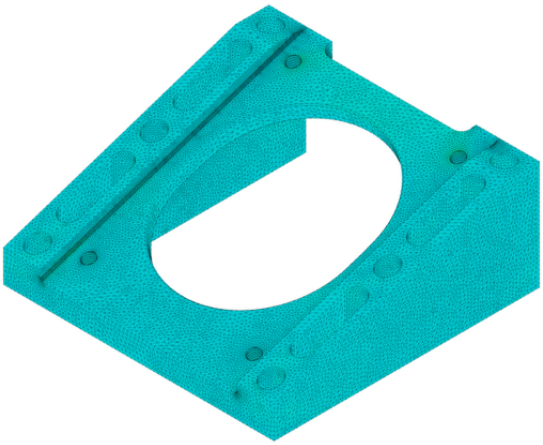
von Mises

[MPa] 0.002 31.604



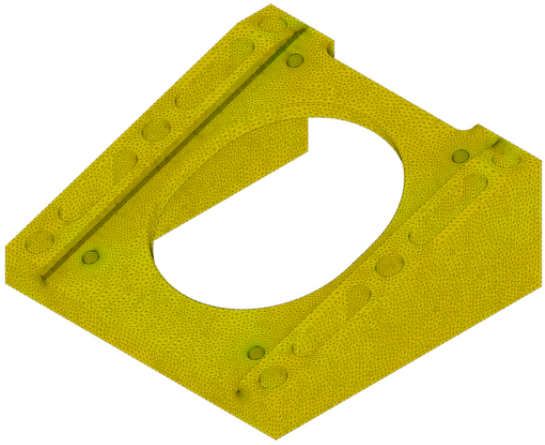
1st Principal

[MPa] -12.40 41.625



3rd Principal

[MPa] -45.352 11.056



Displacement

Total

[mm] 0.00 0.002