

Study Report



Analyzed File	TEST 05202021 v2
Version	Autodesk Fusion 360 (2.0.10148)
Creation Date	2021-05-20, 20:40:35
Author	edang

▣ Project Properties

Title	Studies
Author	edang

SAMPLE ONLY

▣ Simulation Model 1:1

▣ Study 1 - Static Stress

▣ Study Properties

Study Type	Static Stress
Last Modification Date	2021-05-20, 19:53:52

▣ 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	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	257	112

☐ **Load Case1**

☐ **Constraints**

☐ **Fixed1**

Type	Fixed
Ux	Yes
Uy	Yes
Uz	Yes

☐ **Selected Entities**



☐ **Loads**

☐ **Force1**

Type	Force
Magnitude	10000 N
X Value	0 N
Y Value	0 N
Z Value	-10000 N
Force Per Entity	No

☐ **Selected Entities**



☐ Results

☐ Result Summary

Name	Minimum	Maximum
Safety Factor		
Safety Factor (Per Body)	4.447	12.54
Stress		
Von Mises	1.595 MPa	4.498 MPa
1st Principal	-2.525 MPa	0.6344 MPa
3rd Principal	-4.406 MPa	-3.663 MPa
Normal XX	-2.525 MPa	0.6243 MPa
Normal YY	-2.525 MPa	0.6343 MPa
Normal ZZ	-4.395 MPa	-3.663 MPa
Shear XY	-0.2674 MPa	0.3046 MPa
Shear YZ	-0.3267 MPa	0.296 MPa
Shear ZX	-0.3209 MPa	0.328 MPa
Displacement		
Total	0 mm	1.775 mm
X	-0.02492 mm	0.02413 mm
Y	-0.02442 mm	0.02443 mm
Z	-1.774 mm	0 mm
Reaction Force		
Total	0 N	3207 N
X	-933.9 N	939.6 N
Y	-945.2 N	956.3 N
Z	0 N	3207 N
Strain		
Equivalent	8.026E-04	0.001852
1st Principal	3.301E-07	8.454E-04
3rd Principal	-0.001941	-9.83E-04
Normal XX	0	8.31E-04
Normal YY	0	8.335E-04
Normal ZZ	-0.00194	-9.824E-04
Shear XY	-3.295E-04	3.753E-04
Shear YZ	-4.026E-04	3.647E-04
Shear ZX	-3.954E-04	4.041E-04

☐ Safety Factor


☐ **Safety Factor (Per Body)**

0  8




☐ **Stress**

☐ **Von Mises**

[MPa] 1.595  4.498



☐ **1st Principal**

[MPa] -2.525  0.634



☐ **3rd Principal**

[MPa] -4.406  -3.663



☐ **Displacement**

☐ **Total**

[mm] 0  1.775

