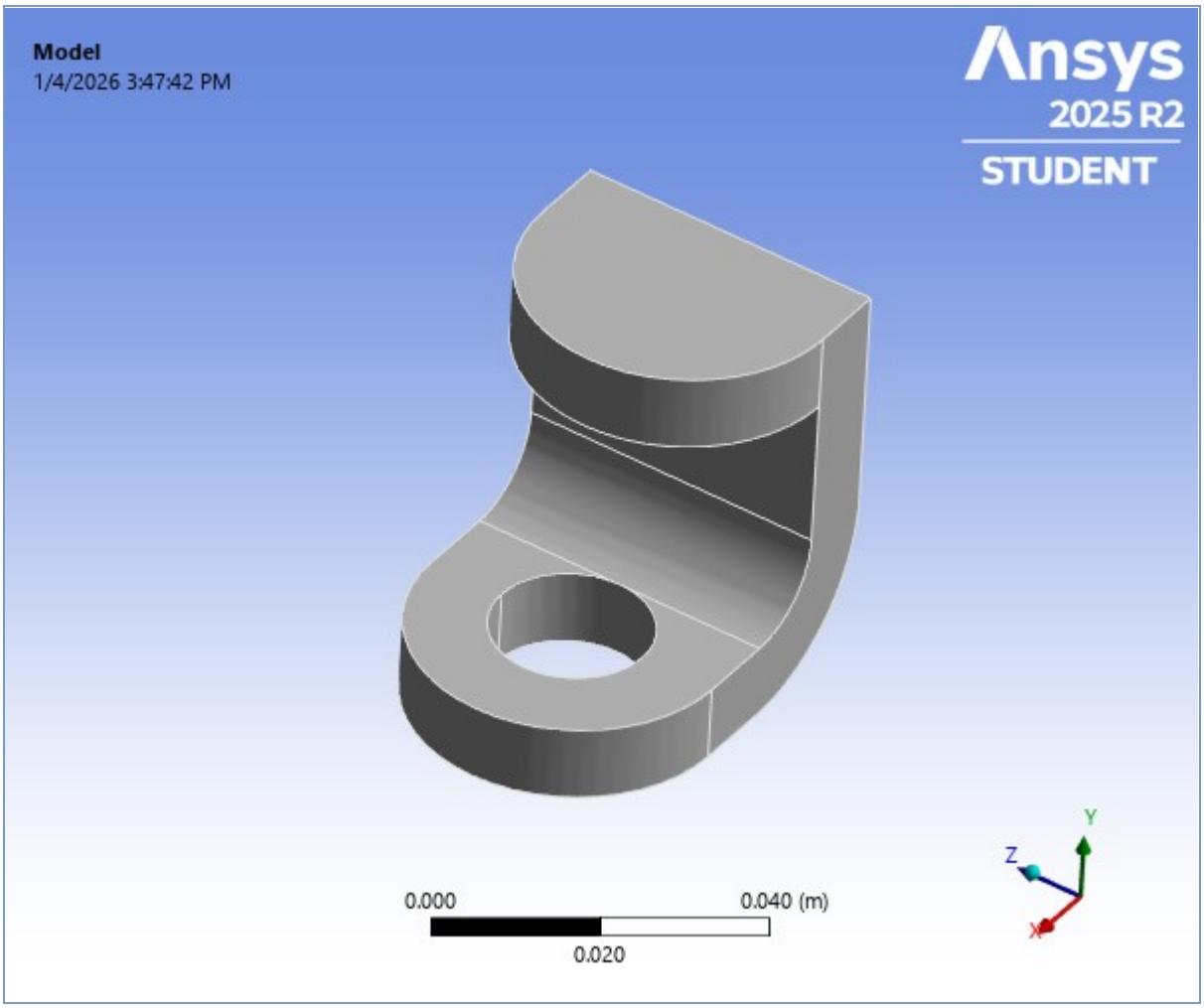
Project*

First Saved	Saturday, March 1, 2025
Last Saved	Saturday, March 1, 2025
Product Version	2025 R1
Save Project Before Solution	No
Save Project After Solution	No



Contents

Units

TABLE 1

Unit System	Metric (m, kg, N, s, V, A) Degrees rad/s Celsius
Angle	Degrees
Rotational Velocity	rad/s
Temperature	Celsius

Model (A4)

FIGURE 1
Model (A4) > Figure

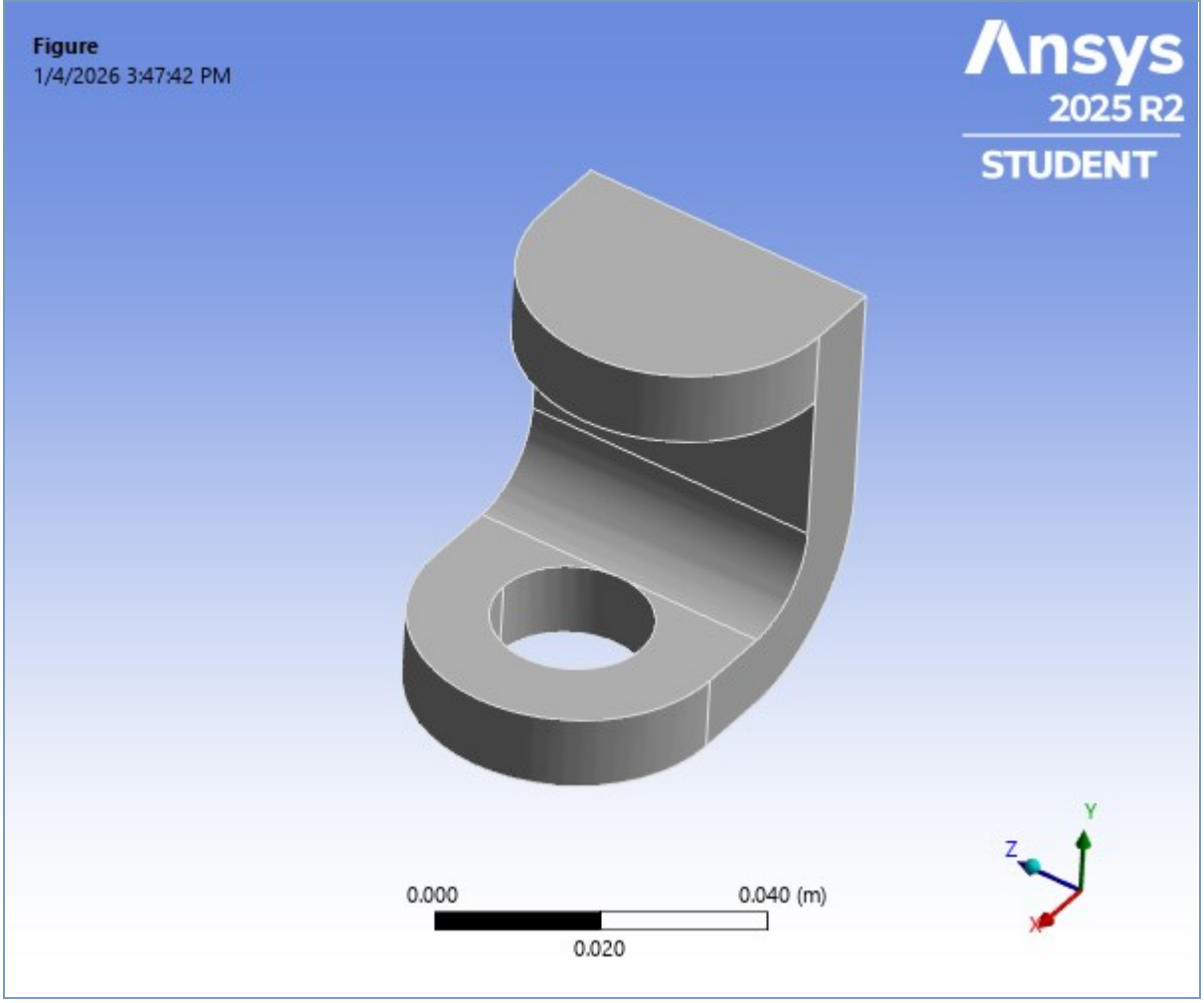


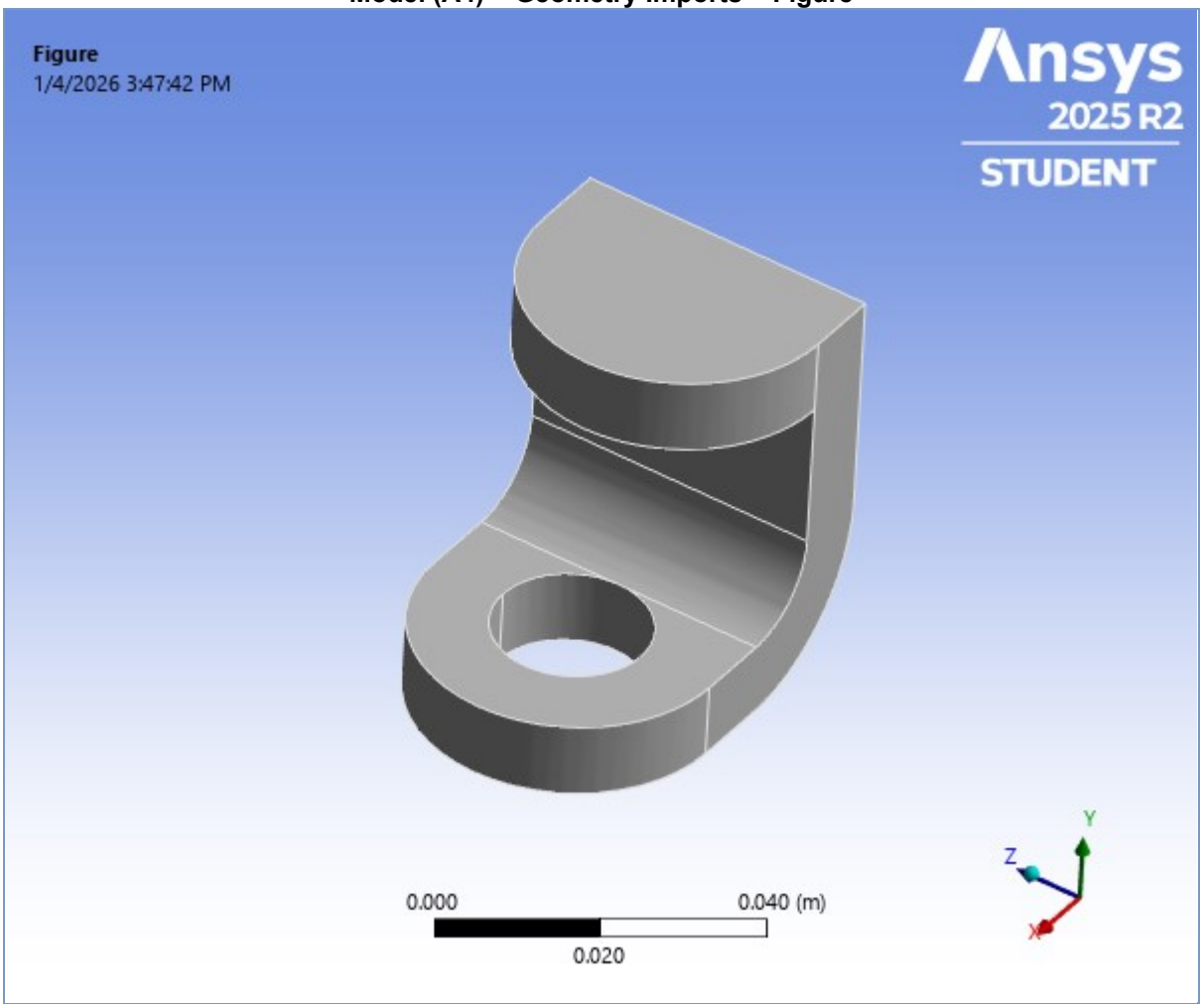
TABLE 2
Model (A4) > Geometry Imports

Object Name	*Geometry Imports*
State	Solved

TABLE 3
Model (A4) > Geometry Imports > Geometry Import (A3)

Object Name	*Geometry Import (A3)*
State	Solved
Definition	
Source	C:\Users\mhmd\Desktop\Ansys mechanical\3d\exPart2.STEP
Type	Step
Basic Geometry Options	
Solid Bodies	Yes
Surface Bodies	Yes
Line Bodies	No
Parameters	Independent
Parameter Key	ANS;DS
Attributes	No
Named Selections	No
Material Properties	No
Advanced Geometry Options	
Use Associativity	Yes
Coordinate Systems	No
Reader Mode Saves Updated File	No
Use Instances	Yes
Smart CAD Update	Yes
Compare Parts On Update	No
Analysis Type	3-D
Mixed Import Resolution	None
Import Facet Quality	Source
Clean Bodies On Import	No
Stitch Surfaces On Import	None
Decompose Disjoint Geometry	Yes
Enclosure and Symmetry Processing	Yes

FIGURE 2
Model (A4) > Geometry Imports > Figure



Geometry

TABLE 4
Model (A4) > Geometry

Object Name	*Geometry*
State	Fully Defined
Definition	
Source	C:\Users\mhmd\Desktop\Ansys mechanical\3d\exPart2.STEP
Type	Step
Length Unit	Millimeters
Element Control	Program Controlled
Display Style	Body Color
Bounding Box	
Length X	5.e-002 m
Length Y	5.e-002 m
Length Z	4.e-002 m
Properties	
Volume	3.485e-005 m³
Mass	0.27183 kg
Scale Factor Value	1.
Statistics	
Bodies	1
Active Bodies	1
Nodes	2586
Elements	1274
Mesh Metric	None
Update Options	
Assign Default Material	No
Basic Geometry Options	
Solid Bodies	Yes
Surface Bodies	Yes
Line Bodies	No
Parameters	Independent

Parameter Key	ANS;DS
Attributes	No
Named Selections	No
Material Properties	No
Advanced Geometry Options	
Use Associativity	Yes
Coordinate Systems	No
Reader Mode Saves Updated File	No
Use Instances	Yes
Smart CAD Update	Yes
Compare Parts On Update	No
Analysis Type	3-D
Mixed Import Resolution	None
Import Facet Quality	Source
Clean Bodies On Import	No
Stitch Surfaces On Import	None
Decompose Disjoint Geometry	Yes
ID_GeometryPrefProcessPhysicsDefinition	No
Enclosure and Symmetry Processing	Yes

TABLE 5
Model (A4) > Geometry > Parts

Object Name	*exPart2|Cut-Extrude1*
State	Meshed
Graphics Properties	
Visible	Yes
Transparency	1
Definition	
Suppressed	No
Stiffness Behavior	Flexible
Coordinate System	Default Coordinate System
Reference Temperature	By Environment
Treatment	None
Material	
Assignment	steel 37
Nonlinear Effects	Yes
Thermal Strain Effects	Yes
Bounding Box	
Length X	5.e-002 m
Length Y	5.e-002 m
Length Z	4.e-002 m
Properties	
Volume	3.485e-005 m³
Mass	0.27183 kg
Centroid X	1.489e-002 m
Centroid Y	2.3918e-002 m
Centroid Z	-1.4669e-018 m
Moment of Inertia Ip1	1.2472e-004 kg·m²
Moment of Inertia Ip2	6.5146e-005 kg·m²
Moment of Inertia Ip3	1.1862e-004 kg·m²
Statistics	
Nodes	2586
Elements	1274
Mesh Metric	None

FIGURE 3
Model (A4) > Geometry > Figure

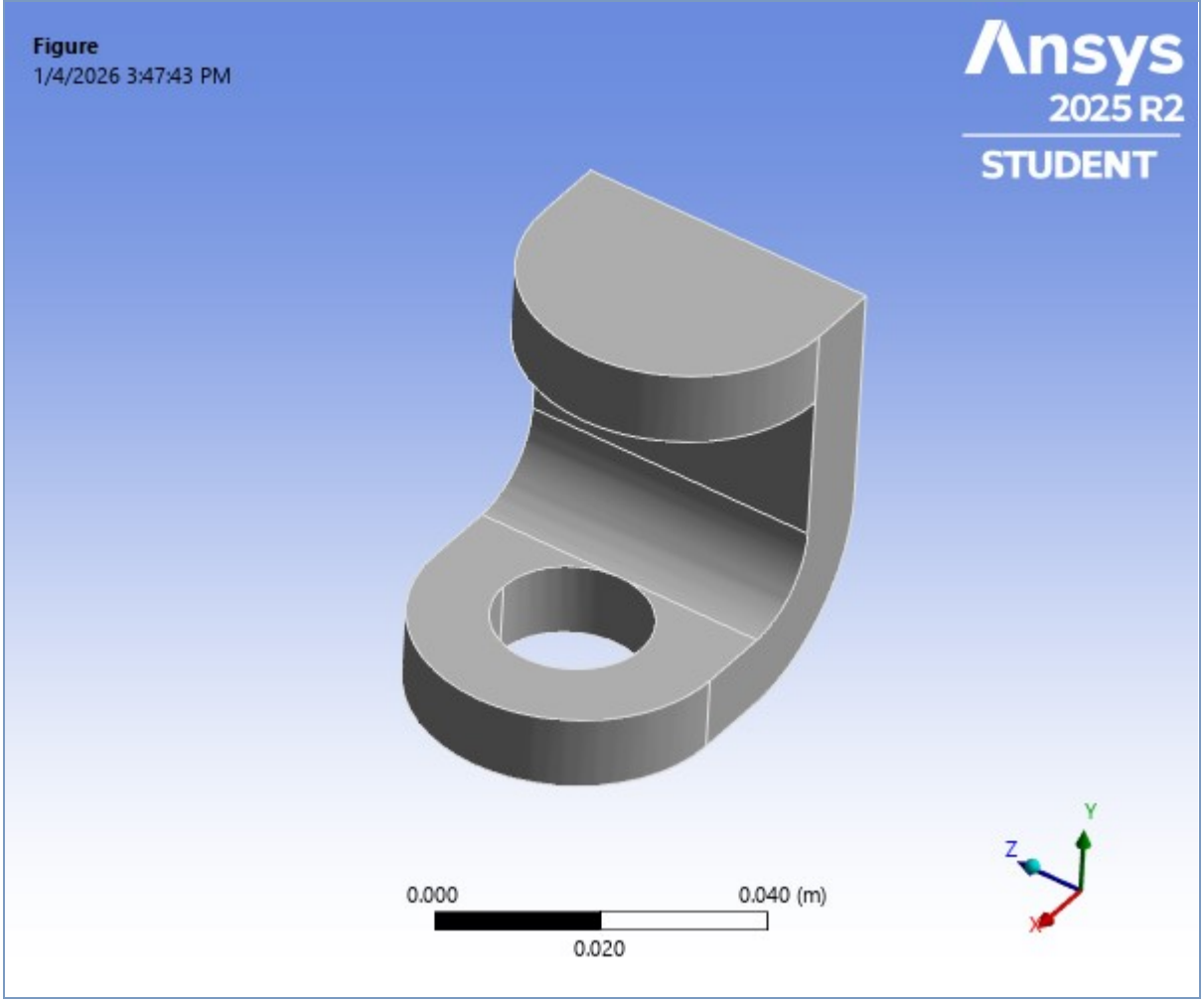


TABLE 6
Model (A4) > Materials

Object Name	*Materials*
State	Fully Defined
Statistics	
Materials	2
Material Assignments	0

Coordinate Systems

TABLE 7
Model (A4) > Coordinate Systems > Coordinate System

Object Name	*Global Coordinate System*
State	Fully Defined
Definition	
Type	Cartesian
Coordinate System ID	0.
Origin	
Origin X	0. m
Origin Y	0. m
Origin Z	0. m
Directional Vectors	
X Axis Data	[1. 0. 0.]
Y Axis Data	[0. 1. 0.]
Z Axis Data	[0. 0. 1.]
Transfer Properties	
Source	
Read Only	No

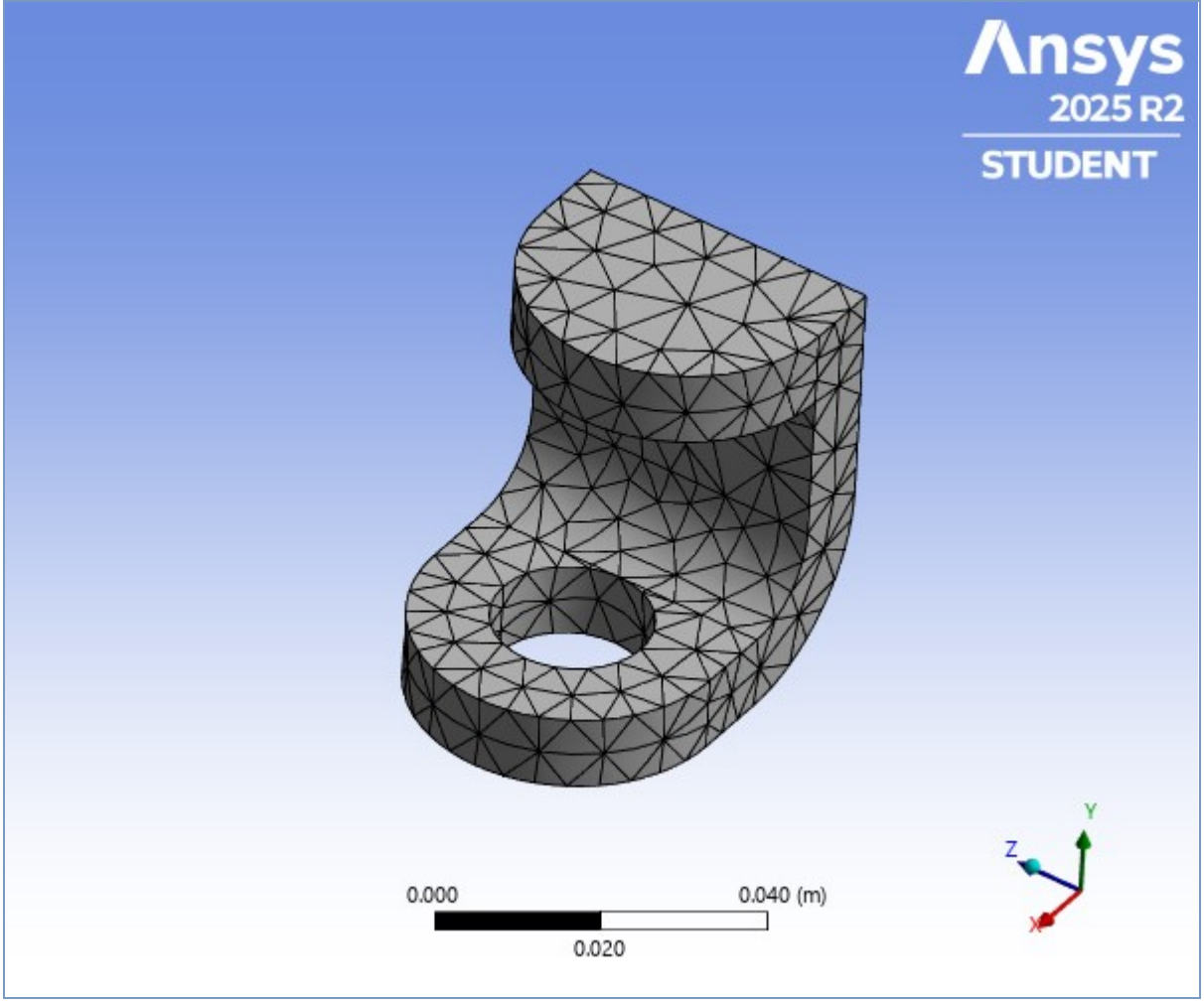
Mesh

TABLE 8
Model (A4) > Mesh

Object Name	*Mesh*

State	Solved
Display	
Display Style	Use Geometry Setting
Defaults	
Physics Preference	Mechanical
Element Order	Program Controlled
Element Size	Default
Sizing	
Use Adaptive Sizing	Yes
Resolution	Default (2)
Mesh Defeaturing	Yes
Defeature Size	Default
Transition	Fast
Span Angle Center	Coarse
Initial Size Seed	Assembly
Bounding Box Diagonal	8.124e-002 m
Average Surface Area	7.2324e-004 m²
Minimum Edge Length	1.e-002 m
Quality	
Check Mesh Quality	Yes, Errors
Error Limits	Aggressive Mechanical
Target Element Quality	Default (5.e-002)
Smoothing	Medium
Mesh Metric	None
Inflation	
Use Automatic Inflation	None
Inflation Option	Smooth Transition
Transition Ratio	0.272
Maximum Layers	5
Growth Rate	1.2
Inflation Algorithm	Pre
Inflation Element Type	Wedges
View Advanced Options	No
Advanced	
Number of CPUs for Parallel Part Meshing	Program Controlled
Straight Sided Elements	No
Rigid Body Behavior	Dimensionally Reduced
Triangle Surface Mesher	Program Controlled
Topology Checking	Yes
Pinch Tolerance	Please Define
Generate Pinch on Refresh	No
Auto-Map Fillets	No
Automatic Methods	
Sheet Body Method	Quad Dominant
Sweepable Body Method	Sweep
Statistics	
Nodes	2586
Elements	1274
Show Detailed Statistics	No

FIGURE 4
Model (A4) > Mesh > Figure



Static Structural (A5)

TABLE 9
Model (A4) > Analysis

Object Name	*Static Structural (A5)*
State	Solved
Definition	
Physics Type	Structural
Analysis Type	Static Structural
Solver Target	Mechanical APDL
Options	
Environment Temperature	22. °C
Generate Input Only	No

TABLE 10
Model (A4) > Static Structural (A5) > Analysis Settings

Object Name	*Analysis Settings*
State	Fully Defined
Step Controls	
Number Of Steps	1.
Current Step Number	1.
Step End Time	1. s
Auto Time Stepping	Program Controlled
Solver Controls	
Solver Type	Program Controlled
Weak Springs	Off
Solver Pivot Checking	Program Controlled
Large Deflection	Off
Inertia Relief	Off
Quasi-Static Solution	Off
Rotordynamics Controls	
Coriolis Effect	Off
Restart Controls	
Generate Restart Points	Program Controlled

Retain Files After Full Solve	No
Combine Restart Files	Program Controlled
Nonlinear Controls	
Newton-Raphson Option	Program Controlled
Force Convergence	Program Controlled
Moment Convergence	Program Controlled
Displacement Convergence	Program Controlled
Rotation Convergence	Program Controlled
Line Search	Program Controlled
Stabilization	Program Controlled
Advanced	
Inverse Option	No
Contact Split (DMP)	Program Controlled
Output Controls	
Output Selection	None
Stress	Yes
Back Stress	No
Strain	Yes
Contact Data	Yes
Nonlinear Data	No
Nodal Forces	No
Volume and Energy	Yes
Euler Angles	Yes
General Miscellaneous	No
Contact Miscellaneous	No
Store Results At	All Time Points
Result File Compression	Program Controlled
Analysis Data Management	
Solver Files Directory	E:\from mhmd LAB\Ansys mechanical\3d\alagah\alagah_files\dp0\SYS\MECH\
Future Analysis	None
Scratch Solver Files Directory	
Save MAPDL db	No
Contact Summary	Program Controlled
Delete Unneeded Files	Yes
Nonlinear Solution	No
Solver Units	Active System
Solver Unit System	mks

TABLE 11
Model (A4) > Static Structural (A5) > Loads

Object Name	*Fixed Support*	*Force*
State	Fully Defined	
Scope		
Scoping Method	Geometry Selection	
Geometry	2 Faces	1 Face
Definition		
Type	Fixed Support	Force
Suppressed	No	
Define By		Components
Applied By		Surface Effect
Coordinate System		Global Coordinate System
X Component		0. N (ramped)
Y Component		-1000. N (ramped)
Z Component		0. N (ramped)

FIGURE 5
Model (A4) > Static Structural (A5) > Fixed Support > Figure

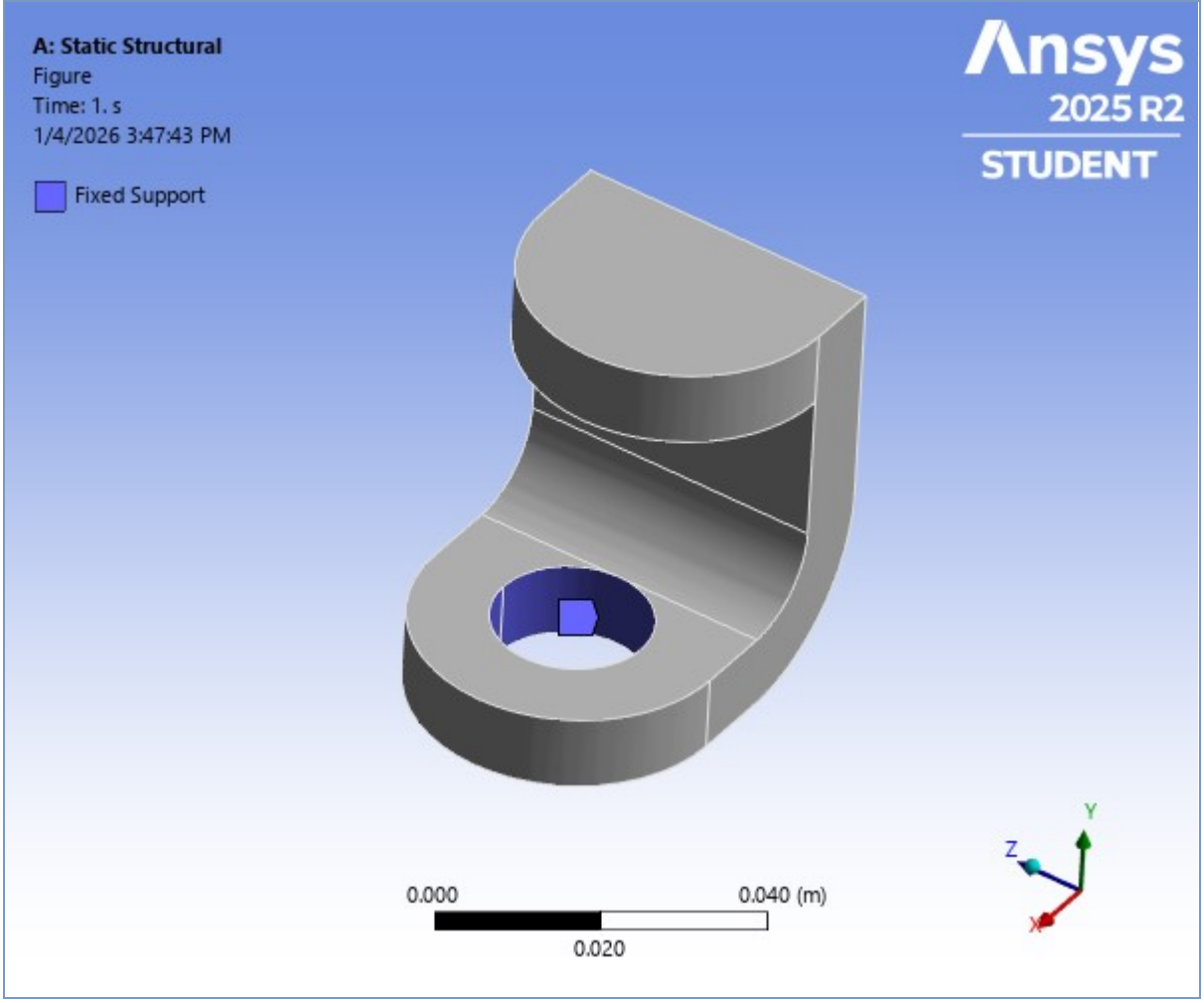


FIGURE 6
Model (A4) > Static Structural (A5) > Force

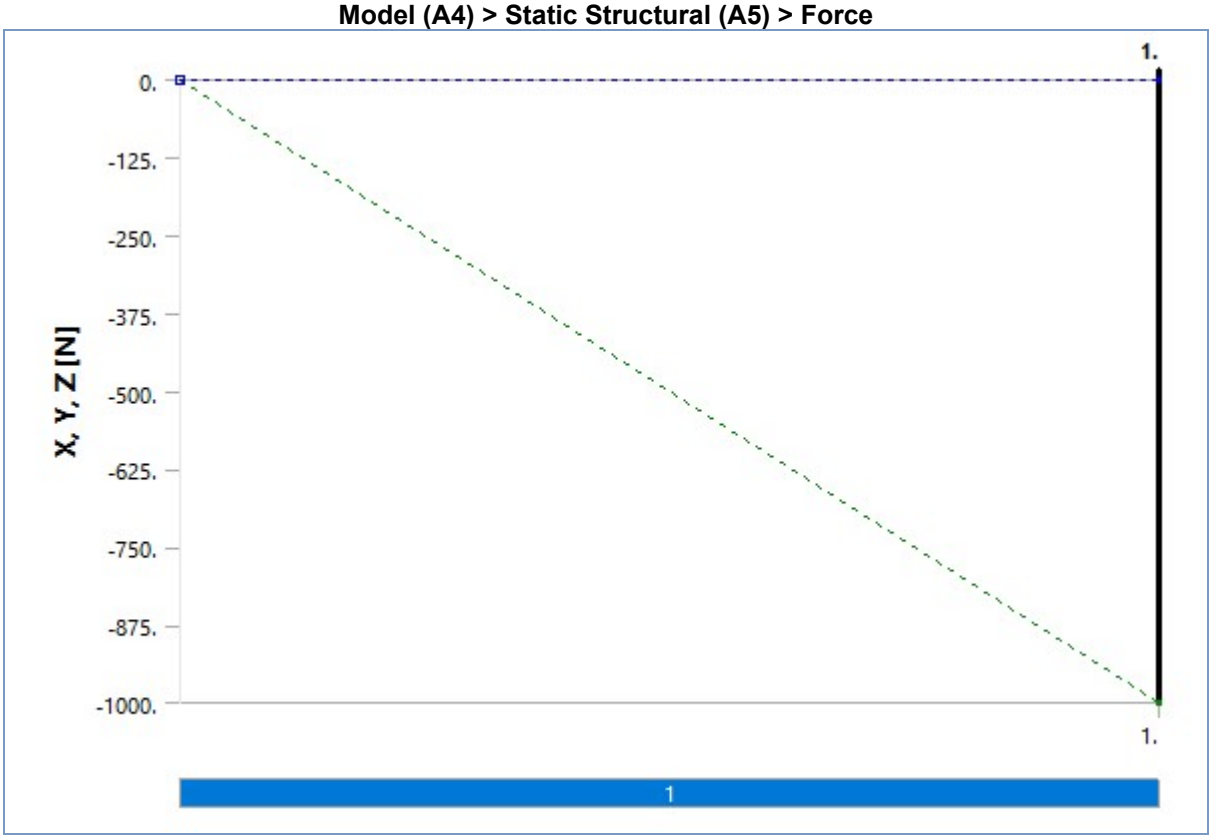
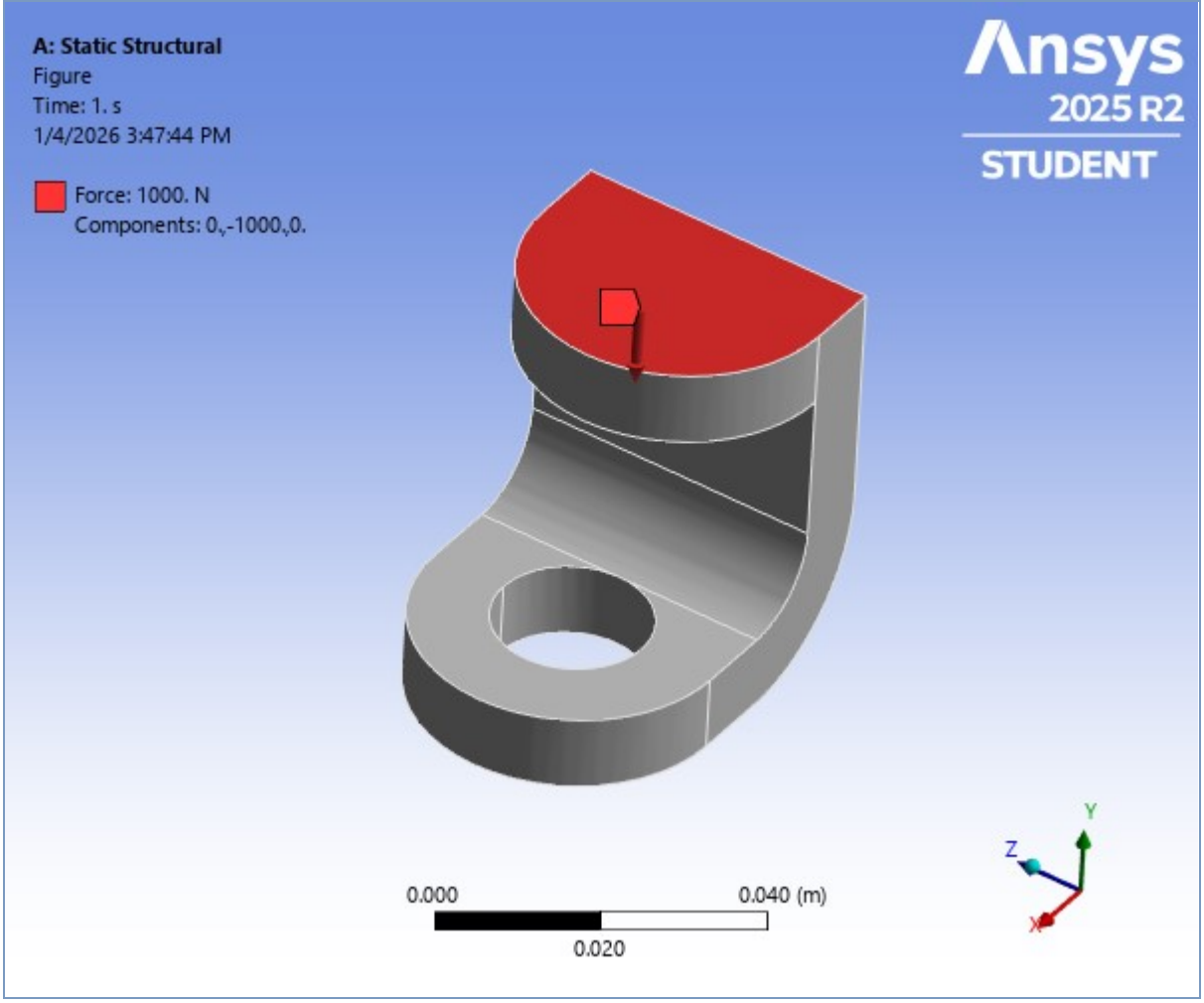


FIGURE 7
Model (A4) > Static Structural (A5) > Force > Figure



Solution (A6)

TABLE 12
Model (A4) > Static Structural (A5) > Solution

Object Name	*Solution (A6)*
State	Solved
Adaptive Mesh Refinement	
Max Refinement Loops	1.
Refinement Depth	2.
Information	
Status	Done
MAPDL Elapsed Time	2. s
MAPDL Memory Used	190. MB
MAPDL Result File Size	1.125 MB
Post Processing	
Beam Section Results	No
On Demand Stress/Strain	No

TABLE 13
Model (A4) > Static Structural (A5) > Solution (A6) > Solution Information

Object Name	*Solution Information*
State	Solved
Solution Information	
Solution Output	Solver Output
Newton-Raphson Residuals	0
Identify Element Violations	0
Update Interval	2.5 s
Display Points	All
FE Connection Visibility	
Activate Visibility	Yes
Display	All FE Connectors
Draw Connections Attached To	All Nodes
Line Color	Connection Type
Visible on Results	No

Line Thickness	Single
Display Type	Lines

TABLE 14
Model (A4) > Static Structural (A5) > Solution (A6) > Results

Object Name	*Total Deformation*	*Equivalent Stress*
State	Solved	
Scope		
Scoping Method	Geometry Selection	
Geometry	All Bodies	
Definition		
Type	Total Deformation	Equivalent (von-Mises) Stress
By	Time	
Display Time	Last	
Separate Data by Entity	No	
Calculate Time History	Yes	
Identifier		
Suppressed	No	
Results		
Minimum	0. m	28409 Pa
Maximum	1.2799e-005 m	2.3909e+007 Pa
Average	2.4637e-006 m	4.6488e+006 Pa
Minimum Occurs On	exPart2|Cut-Extrude1	
Maximum Occurs On	exPart2|Cut-Extrude1	
Information		
Time	1. s	
Load Step	1	
Substep	1	
Iteration Number	1	
Integration Point Results		
Display Option		Averaged
Average Across Bodies		No

FIGURE 8
Model (A4) > Static Structural (A5) > Solution (A6) > Total Deformation

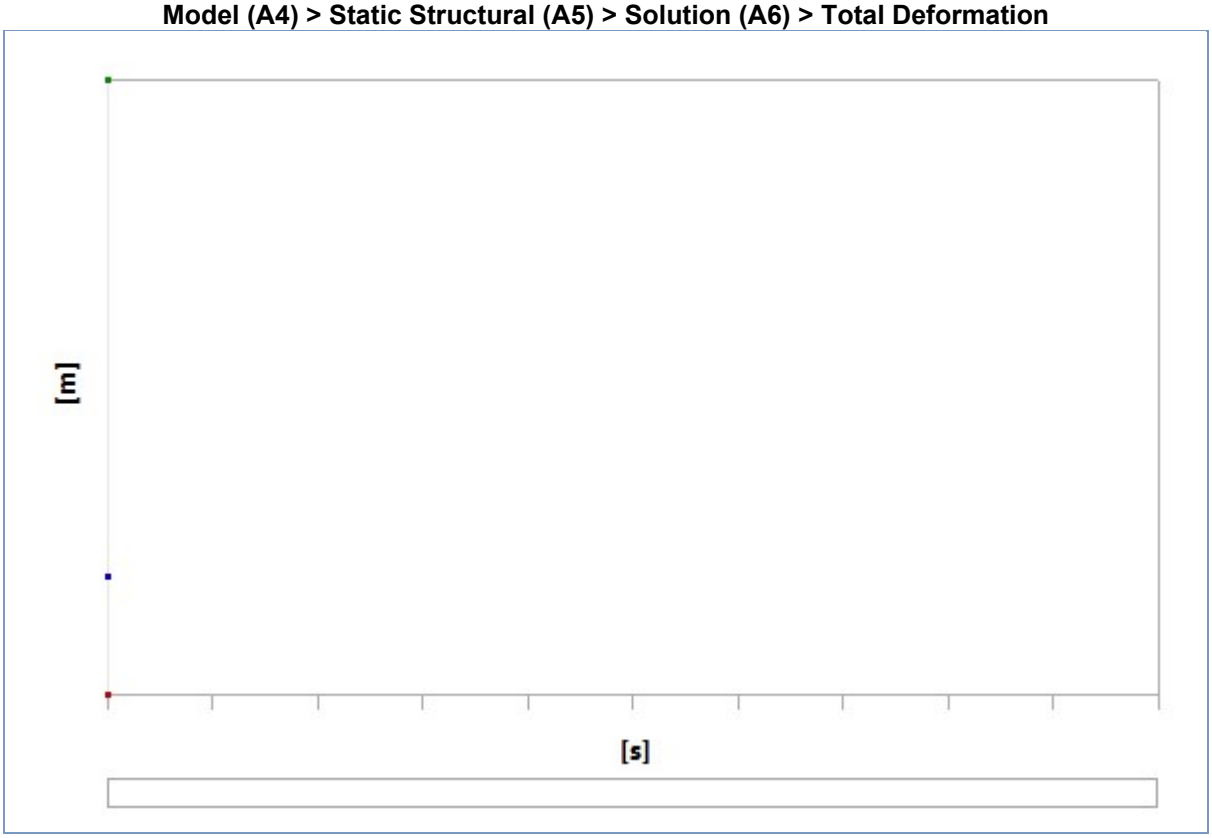


TABLE 15
Model (A4) > Static Structural (A5) > Solution (A6) > Total Deformation

Time [s]	Minimum [m]	Maximum [m]	Average [m]
1.	0.	1.2799e-005	2.4637e-006

FIGURE 9

Model (A4) > Static Structural (A5) > Solution (A6) > Total Deformation > Figure

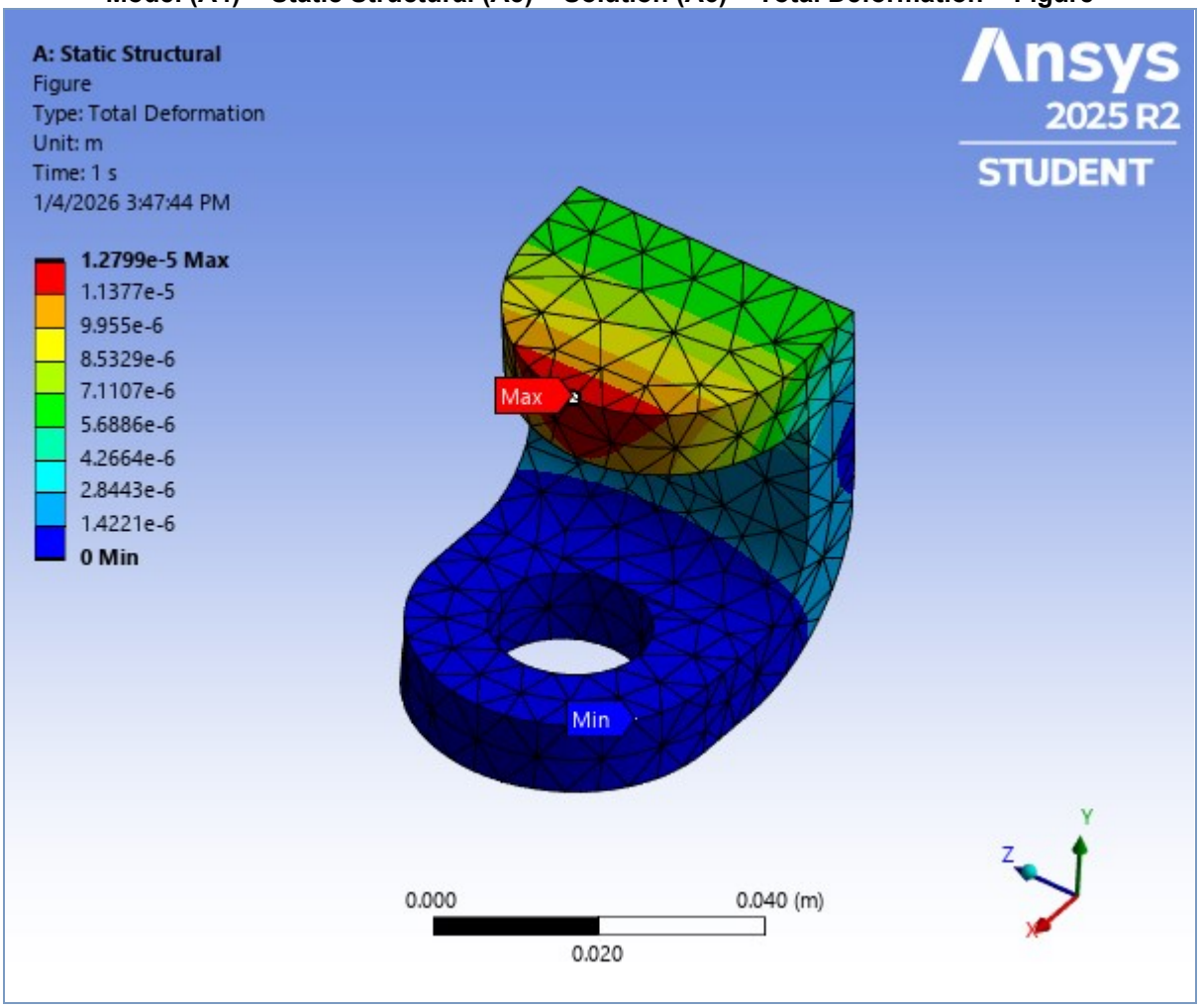


FIGURE 10
Model (A4) > Static Structural (A5) > Solution (A6) > Equivalent Stress

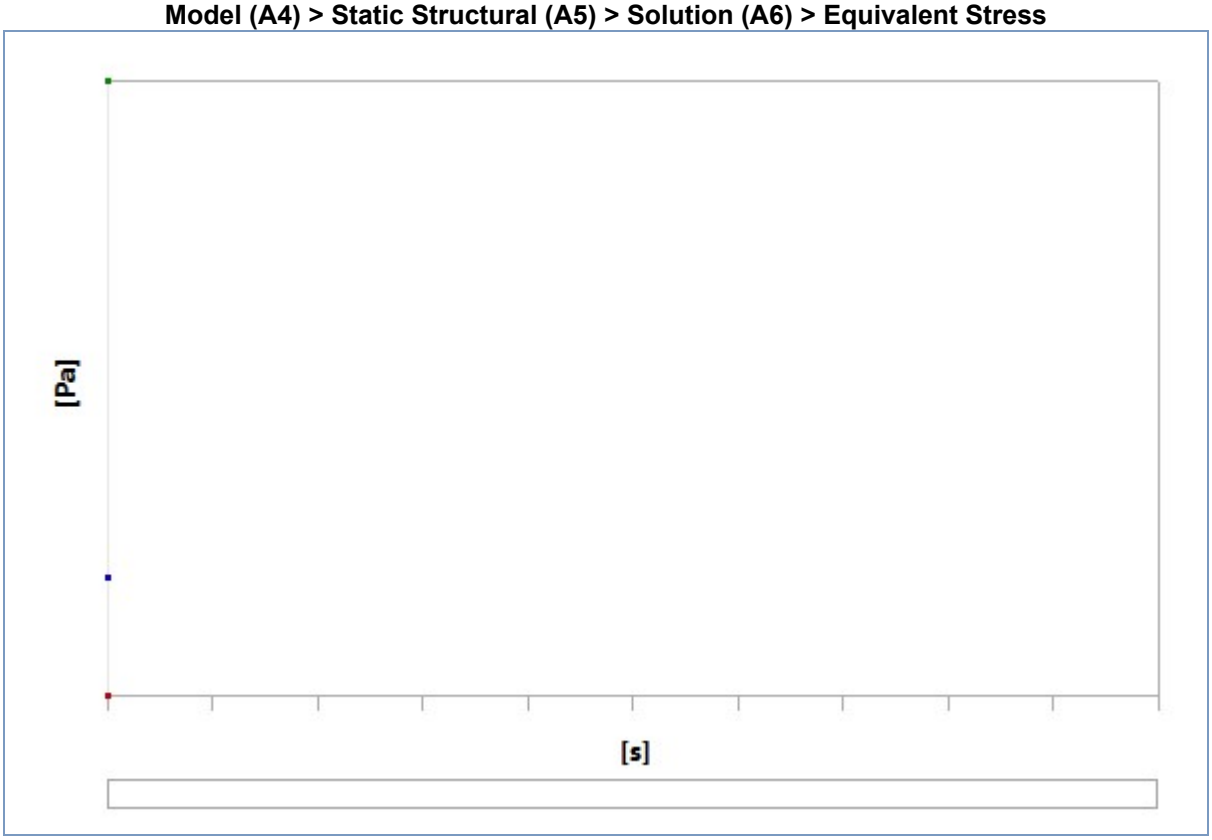


TABLE 16
Model (A4) > Static Structural (A5) > Solution (A6) > Equivalent Stress

Time [s]	Minimum [Pa]	Maximum [Pa]	Average [Pa]
1.	28409	2.3909e+007	4.6488e+006

FIGURE 11
Model (A4) > Static Structural (A5) > Solution (A6) > Equivalent Stress > Figure

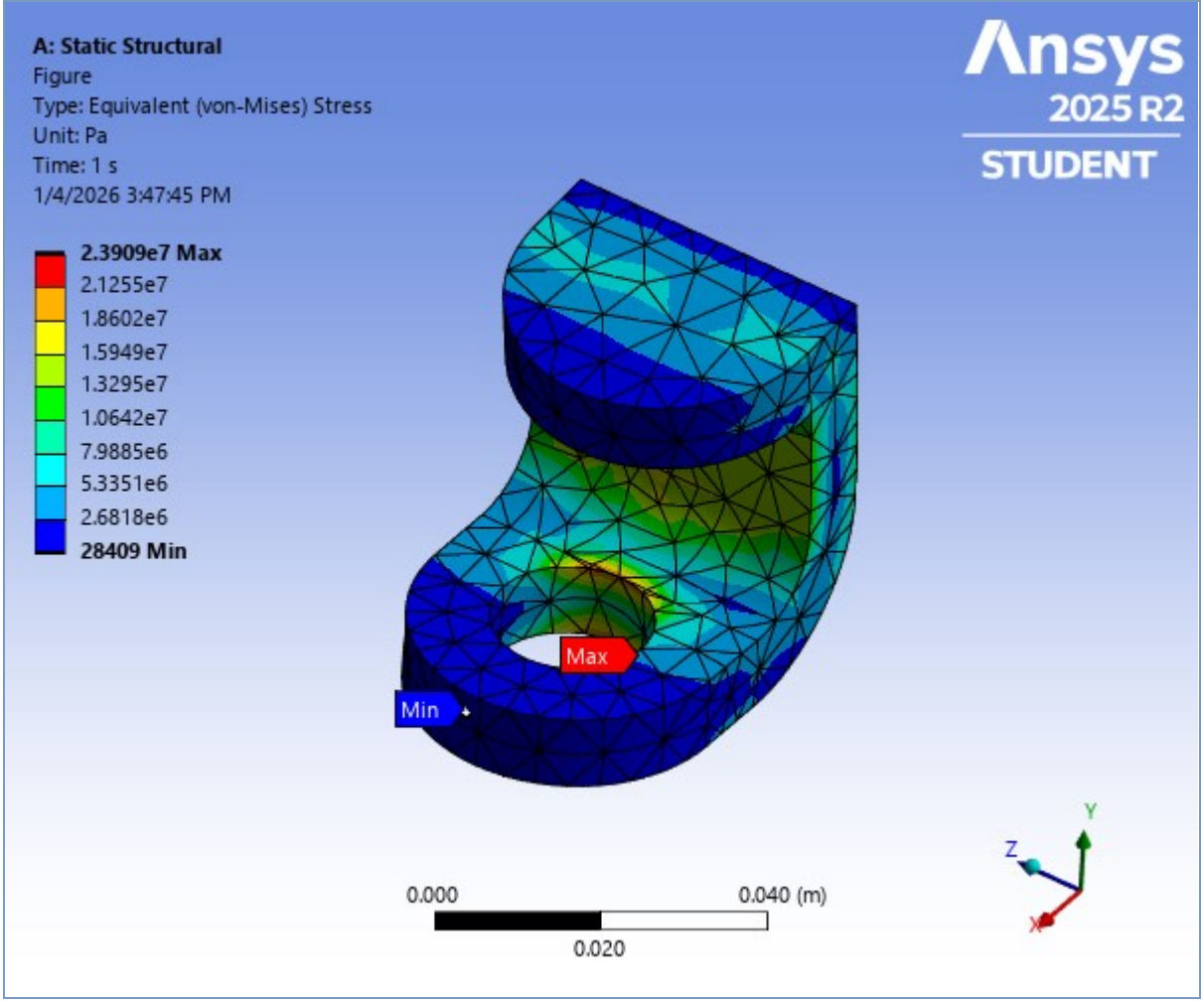


TABLE 17
Model (A4) > Static Structural (A5) > Solution (A6) > Stress Safety Tools

Object Name	*Stress Tool*
State	Solved
Definition	
Theory	Max Equivalent Stress
Stress Limit Type	Tensile Yield Per Material

TABLE 18
Model (A4) > Static Structural (A5) > Solution (A6) > Stress Tool > Results

Object Name	*Safety Factor*
State	Solved
Scope	
Scoping Method	Geometry Selection
Geometry	All Bodies
Definition	
Type	Safety Factor
By	Time
Display Time	Last
Separate Data by Entity	No
Calculate Time History	Yes
Identifier	
Suppressed	No
Integration Point Results	
Display Option	Averaged
Average Across Bodies	No
Results	
Minimum	9.8291
Minimum Occurs On	exPart2|Cut-Extrude1
Information	
Time	1. s
Load Step	1
Substep	1
Iteration Number	1

FIGURE 12
Model (A4) > Static Structural (A5) > Solution (A6) > Stress Tool > Safety Factor

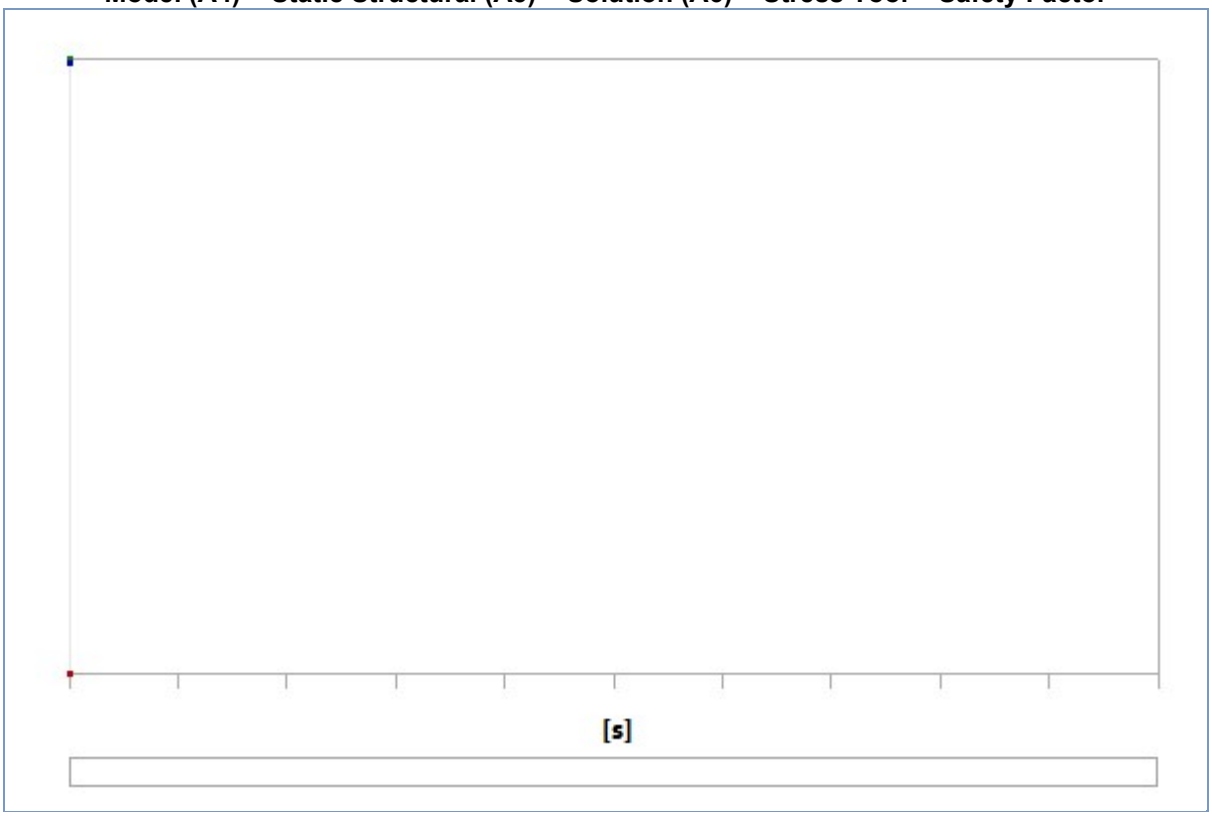


TABLE 19
Model (A4) > Static Structural (A5) > Solution (A6) > Stress Tool > Safety Factor

Time [s]	Minimum	Maximum	Average
1.	9.8291	15.	14.964

Material Data

steel 37

TABLE 20
steel 37 > Constants

Density	7800 kg m^-3

TABLE 21
steel 37 > Color

Red	Green	Blue
222	222	222

TABLE 22
steel 37 > Isotropic Elasticity

Young's Modulus Pa	Poisson's Ratio	Bulk Modulus Pa	Shear Modulus Pa	Temperature C
2.0224e+011	0.28	1.5321e+011	7.9e+010	

TABLE 23
steel 37 > Tensile Yield Strength

Tensile Yield Strength Pa
2.35e+008

TABLE 24
steel 37 > Tensile Ultimate Strength

Tensile Ultimate Strength Pa
4.2e+008