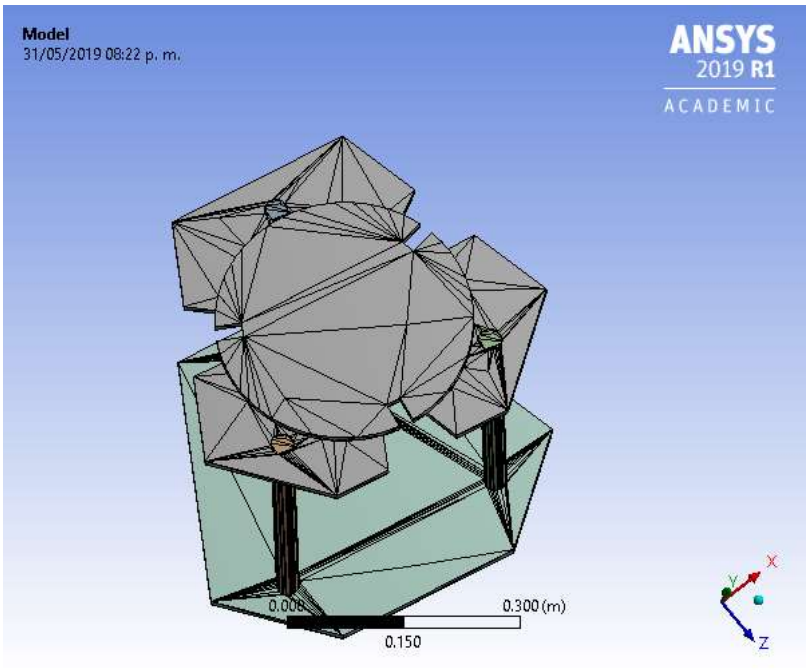
Project*

First Saved	Friday, May 31, 2019
Last Saved	Friday, May 31, 2019
Product Version	2019 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 (B4)

Geometry

TABLE 2
Model (B4) > Geometry

Object Name	*Geometry*
State	Fully Defined
Definition	
Source	C:\Users\INFER\OneDrive\Escritorio\Ensamblaje1.IGS
Type	Iges
Length Unit	Centimeters
Element Control	Program Controlled
Display Style	Body Color
Bounding Box	
Length X	0.58117 m
Length Y	0.5859 m
Length Z	0.62282 m
Properties	
Volume	4.8368e-003 m³
Mass	37.969 kg
Scale Factor Value	1.
Statistics	
Bodies	27
Active Bodies	5
Nodes	3384
Elements	1175
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
Clean Bodies On Import	No
Stitch Surfaces On Import	Program Tolerance
Decompose Disjoint Geometry	Yes
Enclosure and Symmetry Processing	Yes

TABLE 3
Model (B4) > Geometry > Parts

Object Name	*Placa Superior*	*Tubo de tuercas*	*Tubo de tuercas[2]*	*Tubo de tuercas[3]*	*Placa inferior*	*delta_man_5*	*delta_man_5[2]*	*delta_man_5[3]*	*potentiometer*	*potentiometer[2]*	*potentiometer[3]*
State	Meshed					Suppressed					
Graphics Properties											
Visible	Yes					No					
Definition											
Suppressed	No					Yes					
Stiffness Behavior	Flexible										
Coordinate System	Default Coordinate System										
Reference Temperature	By Environment										
Behavior	None										
Material											
Assignment	Structural Steel										
Nonlinear Effects	Yes										
Thermal Strain Effects	Yes										
Bounding Box											
Length X	0.58005 m	3.6771e-002 m			0.58002 m	1.4195e-002 m	3.7714e-002 m	4.0486e-002 m	6.3169e-002 m	4.9251e-002 m	2.968e-002 m
Length Y	0.13808 m	0.44689 m			0.12835 m	4.7891e-002 m	4.4786e-002 m	4.1392e-002 m	4.6363e-002 m	5.1718e-002 m	5.2767e-002 m
Length Z	0.52613 m	0.13363 m			0.52394 m	4.8189e-002 m	3.3562e-002 m	1.9205e-002 m	4.0661e-002 m	6.8893e-002 m	6.9241e-002 m
Properties											
Volume	2.2743e-003 m³	3.0879e-004 m³			1.6361e-003 m³	9.1622e-006 m³			4.4995e-006 m³		
Mass	17.853 kg	2.424 kg			12.843 kg	7.1923e-002 kg			3.5321e-002 kg		
Centroid X	-3.5825e-002 m	1.8679e-003 m	9.0495e-002 m	-0.20733 m	-3.4765e-002 m	-5.3197e-002 m	-0.16335 m	0.1058 m	-4.7663e-002 m	-0.16628 m	0.10507 m
Centroid Y	3.5855e-002 m	-0.22125 m	-0.15093 m	-0.16538 m	-0.39694 m	9.81e-002 m	5.0223e-002 m	5.7812e-002 m	9.8569e-002 m	5.1412e-002 m	5.6839e-002 m
Centroid Z	0.50994 m	0.38619 m	0.69735 m	0.63665 m	0.6078 m	0.64645 m	0.43536 m	0.4656 m	0.64754 m	0.44005 m	0.46007 m
Moment of Inertia Ip1	0.20551 kg·m²	2.6473e-004 kg·m²			0.17848 kg·m²	1.8754e-005 kg·m²			9.5924e-006 kg·m²		
Moment of Inertia Ip2	0.39178 kg·m²	4.1038e-002 kg·m²			0.3452 kg·m²	9.6023e-006 kg·m²			9.5547e-006 kg·m²		
Moment of Inertia Ip3	0.1874 kg·m²	4.1038e-002 kg·m²			0.16693 kg·m²	9.5836e-006 kg·m²			1.2067e-006 kg·m²		
Statistics											
Nodes	1547	311			904	0					
Elements	687	39			371	0					
Mesh Metric	None										

TABLE 4
Model (B4) > Geometry > Parts

Object Name	*delta_man_6*	*delta_man_6[2]*	*delta_man_6[3]*	*delta_man_7*	*delta_man_7[2]*	*delta_man_7[3]*	*delta_man_7[4]*	*delta_man_7[5]*	*delta_man_7[6]*	*delta_man_8*	*delta_mar*
State	Suppressed										
Graphics Properties											
Visible	No										
Definition											
Suppressed	Yes										
Stiffness Behavior	Flexible										
Coordinate System	Default Coordinate System										
Reference Temperature	By Environment										
Behavior	None										
Material											
Assignment	Structural Steel										
Nonlinear Effects	Yes										
Thermal Strain Effects	Yes										
Bounding Box											
Length X	2.2253e-002 m	3.5647e-002 m	9.2632e-002 m	4.9718e-002 m	1.6443e-002 m	4.0725e-002 m	4.9718e-002 m	1.6443e-002 m	1.9478e-002 m	3.0745e-0	
Length Y	0.10515 m	0.10101 m	9.0286e-002 m	2.7657e-002 m	3.5087e-002 m	3.1245e-002 m	2.7657e-002 m	3.5087e-002 m	0.13042 m	0.12825	
Length Z	6.1328e-002 m	3.7245e-002 m	3.1414e-002 m	1.72e-002 m	5.2768e-002 m	5.328e-002 m	1.72e-002 m	5.2768e-002 m	1.697e-002 m	3.5833e-0	
Properties											
Volume	8.4581e-006 m³			3.6847e-006 m³					7.5839e-006 m³		

Mass	6.6396e-002 kg			2.8925e-002 kg						5.9534e-002 kg	
Centroid X	-5.729e-002 m	-0.16638 m	9.3207e-002 m	-5.0771e-002 m	5.5384e-002 m	-0.1695 m	-0.10075 m	-4.0149e-002 m	2.0661e-002 m	-6.4546e-002 m	3.5527e-0
Centroid Y	7.3739e-002 m	2.5665e-002 m	3.9542e-002 m	9.0992e-003 m	-1.156e-002 m	-3.7395e-002 m	-0.12713 m	-0.11603 m	-0.13116 m	-5.4391e-002 m	-7.54e-0(
Centroid Z	0.64225 m	0.43147 m	0.47735 m	0.62816 m	0.49274 m	0.44334 m	0.50177 m	0.60757 m	0.51887 m	0.61397 m	0.4868
Moment of Inertia Ip1	2.8811e-006 kg·m²			1.2928e-006 kg·m²						6.7206e-007 kg·m²	
Moment of Inertia Ip2	5.7197e-005 kg·m²			5.2037e-006 kg·m²						8.0123e-005 kg·m²	
Moment of Inertia Ip3	5.4714e-005 kg·m²			4.0877e-006 kg·m²						7.9808e-005 kg·m²	
Statistics											
Nodes	0										
Elements	0										
Mesh Metric	None										

TABLE 5
Model (B4) > Geometry > Parts

Object Name	*delta_man_8[3]*	*delta_man_8[4]*	*delta_man_8[5]*	*delta_man_8[6]*	*delta_man_9*
State	Suppressed				
Graphics Properties					
Visible	No				
Definition					
Suppressed	Yes				
Stiffness Behavior	Flexible				
Coordinate System	Default Coordinate System				
Reference Temperature	By Environment				
Behavior	None				
Material					
Assignment	Structural Steel				
Nonlinear Effects	Yes				
Thermal Strain Effects	Yes				
Bounding Box					
Length X	1.9478e-002 m	3.0745e-002 m	7.117e-002 m		7.389e-002 m
Length Y	0.13042 m	0.12825 m	0.10512 m		2.7041e-002 m
Length Z	1.697e-002 m	3.5833e-002 m	6.6362e-002 m		6.9496e-002 m
Properties					
Volume	7.5839e-006 m³				1.5198e-005 m³
Mass	5.9534e-002 kg				0.1193 kg
Centroid X	-2.6374e-002 m	4.0518e-002 m	-0.12506 m	-0.14519 m	-6.4837e-002 m
Centroid Y	-5.2538e-002 m	-6.732e-002 m	-8.5683e-002 m	-7.8845e-002 m	-0.12982 m
Centroid Z	0.62175 m	0.52472 m	0.4562 m	0.4889 m	0.52389 m
Moment of Inertia Ip1	6.7206e-007 kg·m²				2.6681e-005 kg·m²
Moment of Inertia Ip2	8.0123e-005 kg·m²				2.6754e-005 kg·m²
Moment of Inertia Ip3	7.9808e-005 kg·m²				5.2714e-005 kg·m²
Statistics					
Nodes	0				
Elements	0				
Mesh Metric	None				

Coordinate Systems

TABLE 6
Model (B4) > 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.]

Connections

TABLE 7
Model (B4) > Connections

Object Name	*Connections*
State	Fully Defined
Auto Detection	
Generate Automatic Connection On Refresh	Yes
Transparency	
Enabled	Yes

TABLE 8
Model (B4) > Connections > Contacts

Object Name	*Contacts*
State	Fully Defined
Definition	
Connection Type	Contact
Scope	
Scoping Method	Geometry Selection
Geometry	All Bodies
Auto Detection	
Tolerance Type	Slider

Tolerance Slider	0.
Tolerance Value	2.5848e-003 m
Use Range	No
Face/Face	Yes
Face-Face Angle Tolerance	75. °
Face Overlap Tolerance	Off
Cylindrical Faces	Include
Face/Edge	No
Edge/Edge	No
Priority	Include All
Group By	Bodies
Search Across	Bodies
Statistics	
Connections	37
Active Connections	6

TABLE 9
Model (B4) > Connections > Contacts > Contact Regions

Object Name	*Contact Region*	*Contact Region 2*	*Contact Region 3*	*Contact Region 4*	*Contact Region 5*	*Contact Region 6*	*Contact Region 7*	*Contact Region 8*	*Contact Region 9*	*Contact Region 10*	*Contact Region 11*
State	Fully Defined			Suppressed						Fully Defined	
Scope											
Scoping Method	Geometry Selection										
Contact	2 Faces			1 Face						2 Faces	
Target	2 Faces			No Selection						2 Faces	
Contact Bodies	Placa Superior									Tubo de tuercas	Tubo de tuercas[2]
Target Bodies	Tubo de tuercas	Tubo de tuercas[2]	Tubo de tuercas[3]	delta_man_5	delta_man_5[2]	delta_man_5[3]	delta_man_6	delta_man_6[2]	delta_man_6[3]	Placa inferior	
Protected	No										
Definition											
Type	Bonded										
Scope Mode	Automatic										
Behavior	Program Controlled										
Trim Contact	Program Controlled										
Trim Tolerance	2.5848e-003 m										
Suppressed	No										
Advanced											
Formulation	Program Controlled										
Small Sliding	Program Controlled										
Detection Method	Program Controlled										
Penetration Tolerance	Program Controlled										
Elastic Slip Tolerance	Program Controlled										
Normal Stiffness	Program Controlled										
Update Stiffness	Program Controlled										
Pinball Region	Program Controlled										
Geometric Modification											
Contact Geometry Correction	None										
Target Geometry Correction	None										

TABLE 10
Model (B4) > Connections > Contacts > Contact Regions

Object Name	*Contact Region 12*	*Contact Region 13*	*Contact Region 14*	*Contact Region 15*	*Contact Region 16*	*Contact Region 17*	*Contact Region 18*	*Contact Region 19*	*Contact Region 20*	*Contact Region 21*	*Contact Region 22*
State	Fully Defined	Suppressed									
Scope											
Scoping Method	Geometry Selection										
Contact	2 Faces	No Selection									
Target	2 Faces	No Selection									
Contact Bodies	Tubo de tuercas[3]	delta_man_5		delta_man_5[2]		delta_man_5[3]		potentiometer	potentiometer[2]	potentiometer[3]	delta_man_
Target Bodies	Placa inferior	potentiometer	delta_man_6	potentiometer[2]	delta_man_6[2]	potentiometer[3]	delta_man_6[3]	delta_man_6	delta_man_6[2]	delta_man_6[3]	delta_man_
Protected	No										
Definition											
Type	Bonded										
Scope Mode	Automatic										
Behavior	Program Controlled										
Trim Contact	Program Controlled										
Trim Tolerance	2.5848e-003 m										
Suppressed	No										
Advanced											
Formulation	Program Controlled										
Small Sliding	Program Controlled										
Detection Method	Program Controlled										
Penetration Tolerance	Program Controlled										
Elastic Slip Tolerance	Program Controlled										
Normal Stiffness	Program Controlled										

Update Stiffness	Program Controlled
Pinball Region	Program Controlled
Geometric Modification	
Contact Geometry Correction	None
Target Geometry Correction	None

TABLE 11
Model (B4) > Connections > Contacts > Contact Regions

Object Name	*Contact Region 23*	*Contact Region 24*	*Contact Region 25*	*Contact Region 26*	*Contact Region 27*	*Contact Region 28*	*Contact Region 29*	*Contact Region 30*	*Contact Region 31*	*Contact Region 32*	*Co Reg*
State	Suppressed										
Scope											
Scoping Method	Geometry Selection										
Contact	No Selection										
Target	No Selection										
Contact Bodies	delta_man_6[2]	delta_man_6[3]	delta_man_7		delta_man_7[2]		delta_man_7[3]		delta_man_7[4]		
Target Bodies	delta_man_7[3]	delta_man_7[2]	delta_man_8	delta_man_8[3]	delta_man_8[2]	delta_man_8[4]	delta_man_8[5]	delta_man_8[6]	delta_man_8[5]	delta_man_8[6]	delta_
Protected	No										
Definition											
Type	Bonded										
Scope Mode	Automatic										
Behavior	Program Controlled										
Trim Contact	Program Controlled										
Trim Tolerance	2.5848e-003 m										
Suppressed	No										
Advanced											
Formulation	Program Controlled										
Small Sliding	Program Controlled										
Detection Method	Program Controlled										
Penetration Tolerance	Program Controlled										
Elastic Slip Tolerance	Program Controlled										
Normal Stiffness	Program Controlled										
Update Stiffness	Program Controlled										
Pinball Region	Program Controlled										
Geometric Modification											
Contact Geometry Correction	None										
Target Geometry Correction	None										

TABLE 12
Model (B4) > Connections > Contacts > Contact Regions

Object Name	*Contact Region 34*	*Contact Region 35*	*Contact Region 36*	*Contact Region 37*
State	Suppressed			
Scope				
Scoping Method	Geometry Selection			
Contact	No Selection			
Target	No Selection			
Contact Bodies	delta_man_7[5]		delta_man_7[6]	
Target Bodies	delta_man_8	delta_man_8[3]	delta_man_8[2]	delta_man_8[4]
Protected	No			
Definition				
Type	Bonded			
Scope Mode	Automatic			
Behavior	Program Controlled			
Trim Contact	Program Controlled			
Trim Tolerance	2.5848e-003 m			
Suppressed	No			
Advanced				
Formulation	Program Controlled			
Small Sliding	Program Controlled			
Detection Method	Program Controlled			
Penetration Tolerance	Program Controlled			
Elastic Slip Tolerance	Program Controlled			
Normal Stiffness	Program Controlled			
Update Stiffness	Program Controlled			
Pinball Region	Program Controlled			
Geometric Modification				
Contact Geometry Correction	None			
Target Geometry Correction	None			

Mesh

TABLE 13
Model (B4) > Mesh

Object Name	*Mesh*
State	Solved
Display	
Display Style	Use Geometry Setting
Defaults	
Physics Preference	Mechanical
Element Order	Quadratic
Element Size	100.0 m
Sizing	
Use Adaptive Sizing	No
Growth Rate	Default (1.85)
Max Size	1000.0 m
Mesh Defeaturing	No
Capture Curvature	No
Capture Proximity	No
Bounding Box Diagonal	1.0339 m
Average Surface Area	1.7479e-003 m²
Minimum Edge Length	2.6393e-005 m
Quality	
Check Mesh Quality	Yes, Errors and Warnings
Error Limits	Standard Mechanical
Target Quality	Default (0.050000)
Smoothing	Low
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
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	Default (0.9 m)
Generate Pinch on Refresh	No
Statistics	
Nodes	3384
Elements	1175

Static Structural (B5)

TABLE 14
Model (B4) > Analysis

Object Name	*Static Structural (B5)*
State	Solved
Definition	
Physics Type	Structural
Analysis Type	Static Structural
Solver Target	Mechanical APDL
Options	
Environment Temperature	22. °C
Generate Input Only	No

TABLE 15
Model (B4) > Static Structural (B5) > Analysis Settings

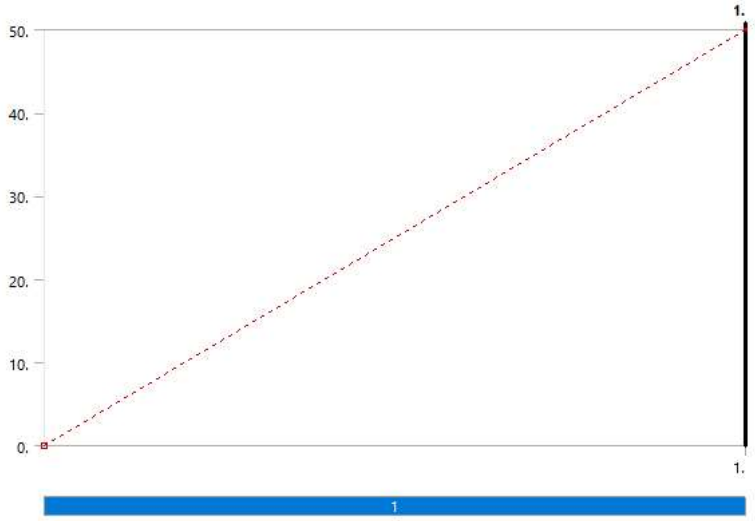
Object Name	*Analysis Settings*
State	Fully Defined
Step Controls	
Number Of Steps	1.
Current Step Number	1.
Step End Time	1. s
Auto Time Stepping	Program Controlled
Solver Controls	
Solver Type	Program Controlled
Weak Springs	Off
Solver Pivot Checking	Program Controlled
Large Deflection	Off
Inertia Relief	Off
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	Off
Output Controls	
Stress	Yes

Strain	Yes
Nodal Forces	No
Contact Miscellaneous	No
General Miscellaneous	No
Store Results At	All Time Points
Analysis Data Management	
Solver Files Directory	C:\Users\INFER\AppData\Local\Temp\WB_DESKTOP-OSROVNK_INFER_18280_2\unsaved_project_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 16
Model (B4) > Static Structural (B5) > Loads

Object Name	*Fixed Support*	*Pressure*
State	Fully Defined	
Scope		
Scoping Method	Geometry Selection	
Geometry	5 Faces	1 Face
Definition		
Type	Fixed Support	Pressure
Suppressed	No	
Define By		Normal To
Applied By		Surface Effect
Magnitude		50. Pa (ramped)

FIGURE 1
Model (B4) > Static Structural (B5) > Pressure



Solution (B6)

TABLE 17
Model (B4) > Static Structural (B5) > Solution

Object Name	*Solution (B6)*
State	Solved
Adaptive Mesh Refinement	
Max Refinement Loops	1.
Refinement Depth	2.
Information	
Status	Done
MAPDL Elapsed Time	5. s
MAPDL Memory Used	277. MB
MAPDL Result File Size	1.9375 MB
Post Processing	
Beam Section Results	No
On Demand Stress/Strain	No

TABLE 18
Model (B4) > Static Structural (B5) > Solution (B6) > 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 19
Model (B4) > Static Structural (B5) > Solution (B6) > Results

Object Name	*Equivalent Stress*	*Equivalent Elastic Strain*	*Total Deformation*
State	Solved		
Scope			
Scoping Method	Geometry Selection		
Geometry	All Bodies		
Definition			
Type	Equivalent (von-Mises) Stress	Equivalent Elastic Strain	Total Deformation
By	Time		
Display Time	Last		
Calculate Time History	Yes		
Identifier			
Suppressed	No		
Integration Point Results			
Display Option	Averaged		
Average Across Bodies	No		
Results			
Minimum	6.2271e-005 Pa	6.8009e-016 m/m	0. m
Maximum	242.62 Pa	1.2589e-009 m/m	9.7466e-011 m
Average	10.965 Pa	7.71e-011 m/m	1.6338e-012 m
Minimum Occurs On	Placa inferior		Placa Superior
Maximum Occurs On	Placa Superior		
Information			
Time	1. s		
Load Step	1		
Substep	1		
Iteration Number	1		

FIGURE 2
Model (B4) > Static Structural (B5) > Solution (B6) > Equivalent Stress

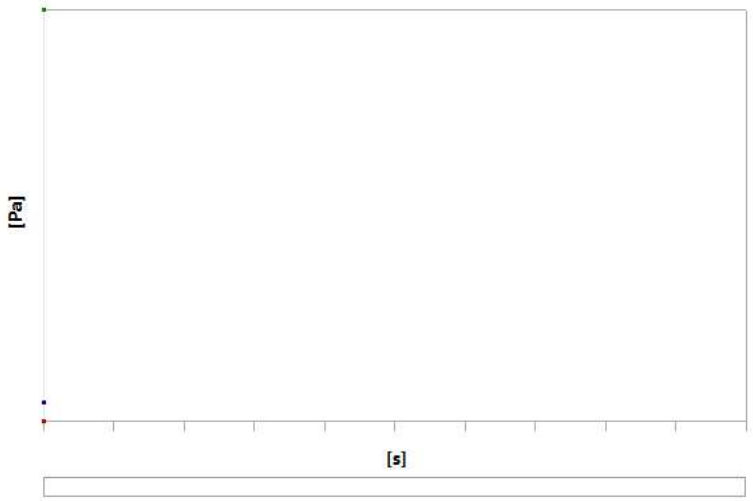


TABLE 20
Model (B4) > Static Structural (B5) > Solution (B6) > Equivalent Stress

Time [s]	Minimum [Pa]	Maximum [Pa]	Average [Pa]
1.	6.2271e-005	242.62	10.965

FIGURE 3
Model (B4) > Static Structural (B5) > Solution (B6) > Equivalent Stress > Image

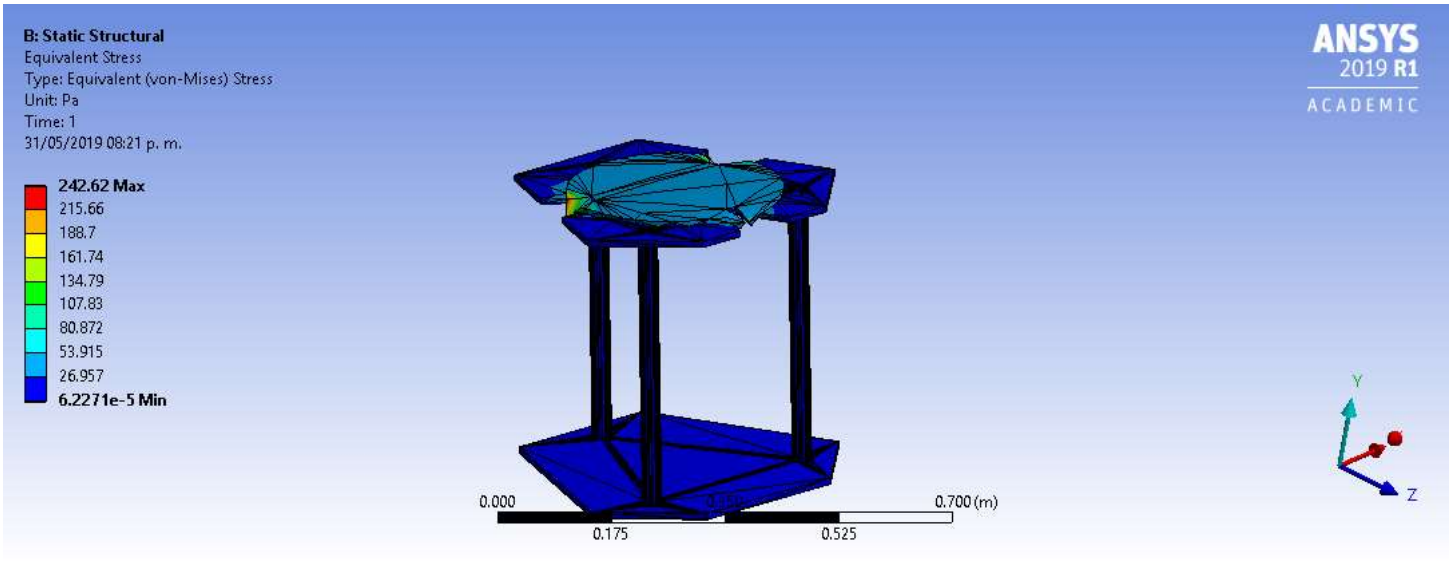


FIGURE 4
Model (B4) > Static Structural (B5) > Solution (B6) > Equivalent Elastic Strain

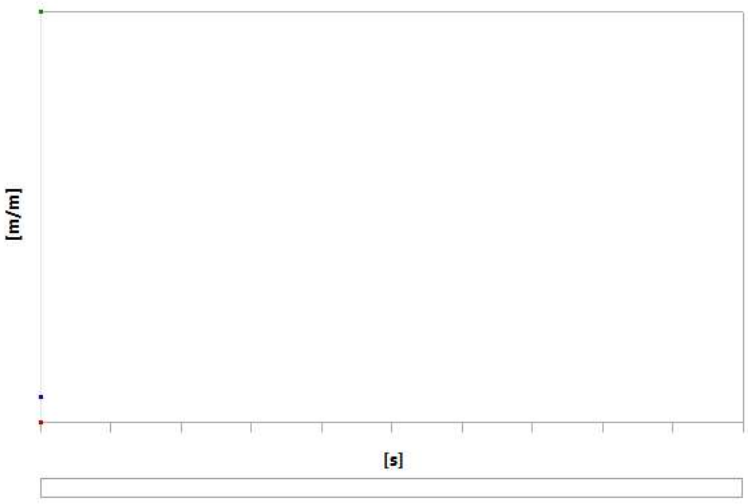


TABLE 21
Model (B4) > Static Structural (B5) > Solution (B6) > Equivalent Elastic Strain

Time [s]	Minimum [m/m]	Maximum [m/m]	Average [m/m]
1.	6.8009e-016	1.2589e-009	7.71e-011

FIGURE 5
Model (B4) > Static Structural (B5) > Solution (B6) > Equivalent Elastic Strain > Image

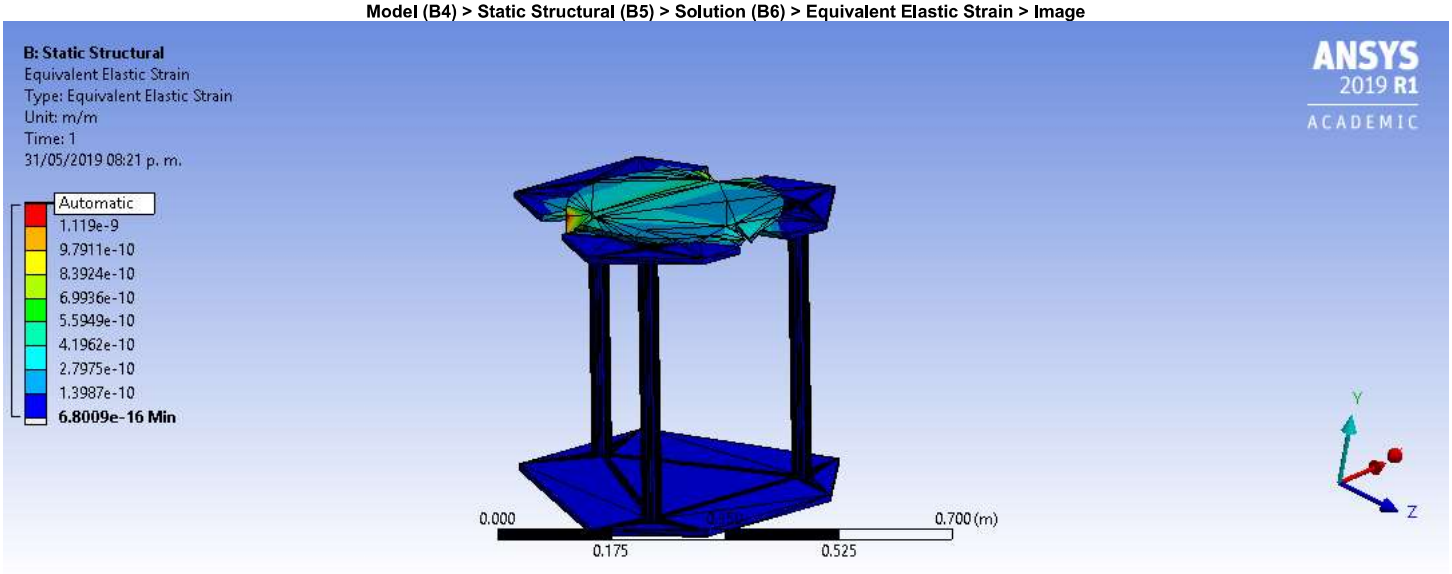


FIGURE 6
Model (B4) > Static Structural (B5) > Solution (B6) > Total Deformation

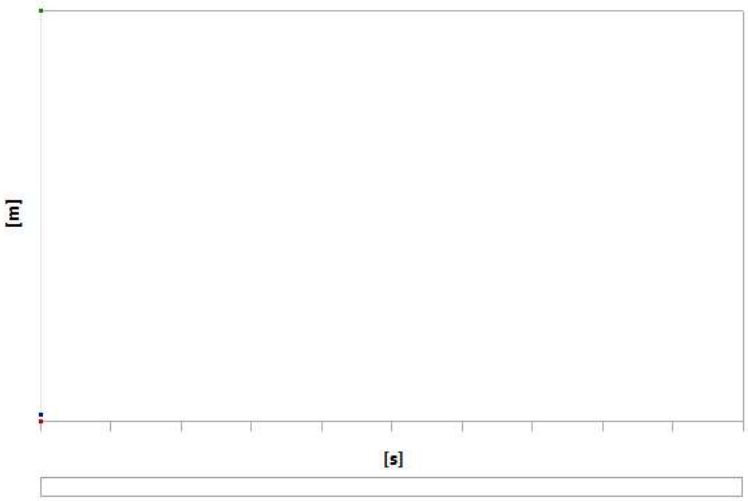
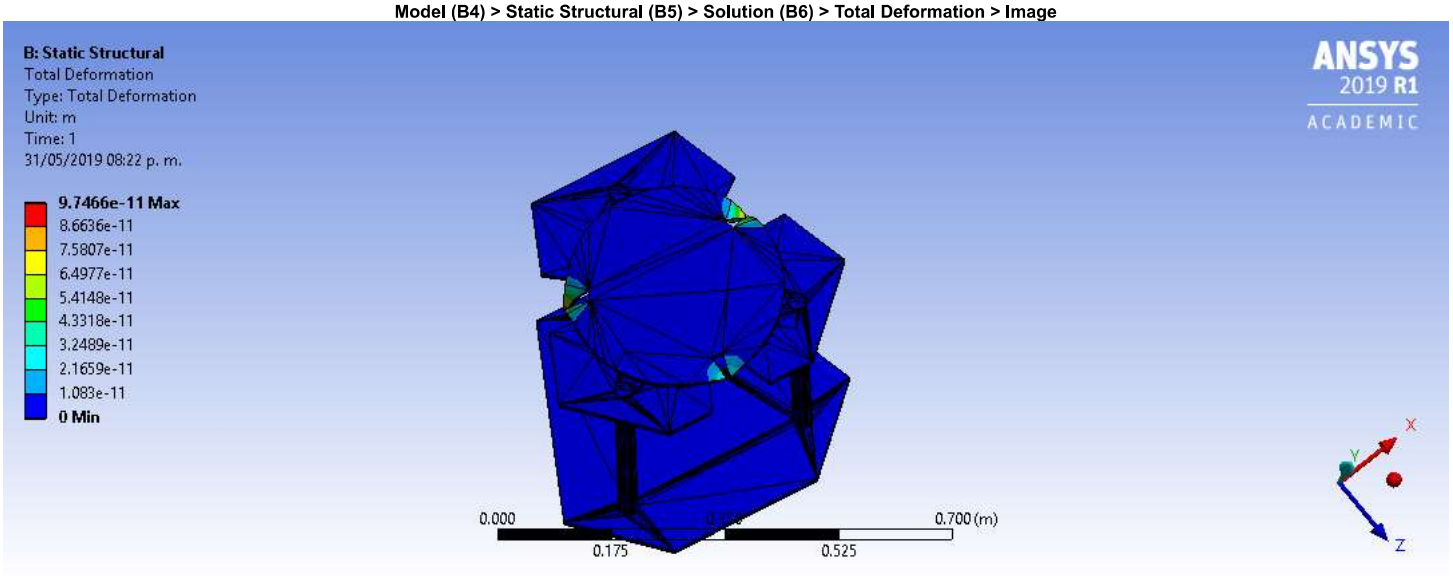


TABLE 22
Model (B4) > Static Structural (B5) > Solution (B6) > Total Deformation

Time [s]	Minimum [m]	Maximum [m]	Average [m]
1.	0.	9.7466e-011	1.6338e-012

FIGURE 7
Model (B4) > Static Structural (B5) > Solution (B6) > Total Deformation > Image



Material Data

Structural Steel

TABLE 23
Structural Steel > Constants

Density	7850 kg m^-3
Coefficient of Thermal Expansion	1.2e-005 C^-1
Specific Heat	434 J kg^-1 C^-1
Thermal Conductivity	60.5 W m^-1 C^-1
Resistivity	1.7e-007 ohm m

TABLE 24
Structural Steel > Color

Red	Green	Blue
132	139	179

TABLE 25
Structural Steel > Compressive Ultimate Strength

Compressive Ultimate Strength Pa
0

TABLE 26
Structural Steel > Compressive Yield Strength

Compressive Yield Strength Pa
2.5e+008

TABLE 27
Structural Steel > Tensile Yield Strength

Tensile Yield Strength Pa
2.5e+008

TABLE 28
Structural Steel > Tensile Ultimate Strength

Tensile Ultimate Strength Pa
4.6e+008

TABLE 29
Structural Steel > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22

TABLE 30
Structural Steel > S-N Curve

Alternating Stress Pa	Cycles	Mean Stress Pa
3.999e+009	10	0
2.827e+009	20	0
1.896e+009	50	0
1.413e+009	100	0
1.069e+009	200	0
4.41e+008	2000	0
2.62e+008	10000	0
2.14e+008	20000	0
1.38e+008	1.e+005	0
1.14e+008	2.e+005	0
8.62e+007	1.e+006	0

TABLE 31
Structural Steel > Strain-Life Parameters

Strength Coefficient Pa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient Pa	Cyclic Strain Hardening Exponent
9.2e+008	-0.106	0.213	-0.47	1.e+009	0.2

TABLE 32
Structural Steel > Isotropic Elasticity

Young's Modulus Pa	Poisson's Ratio	Bulk Modulus Pa	Shear Modulus Pa	Temperature C
2.e+011	0.3	1.6667e+011	7.6923e+010	

TABLE 33
Structural Steel > Isotropic Relative Permeability

Relative Permeability
10000