Analysis 3.2

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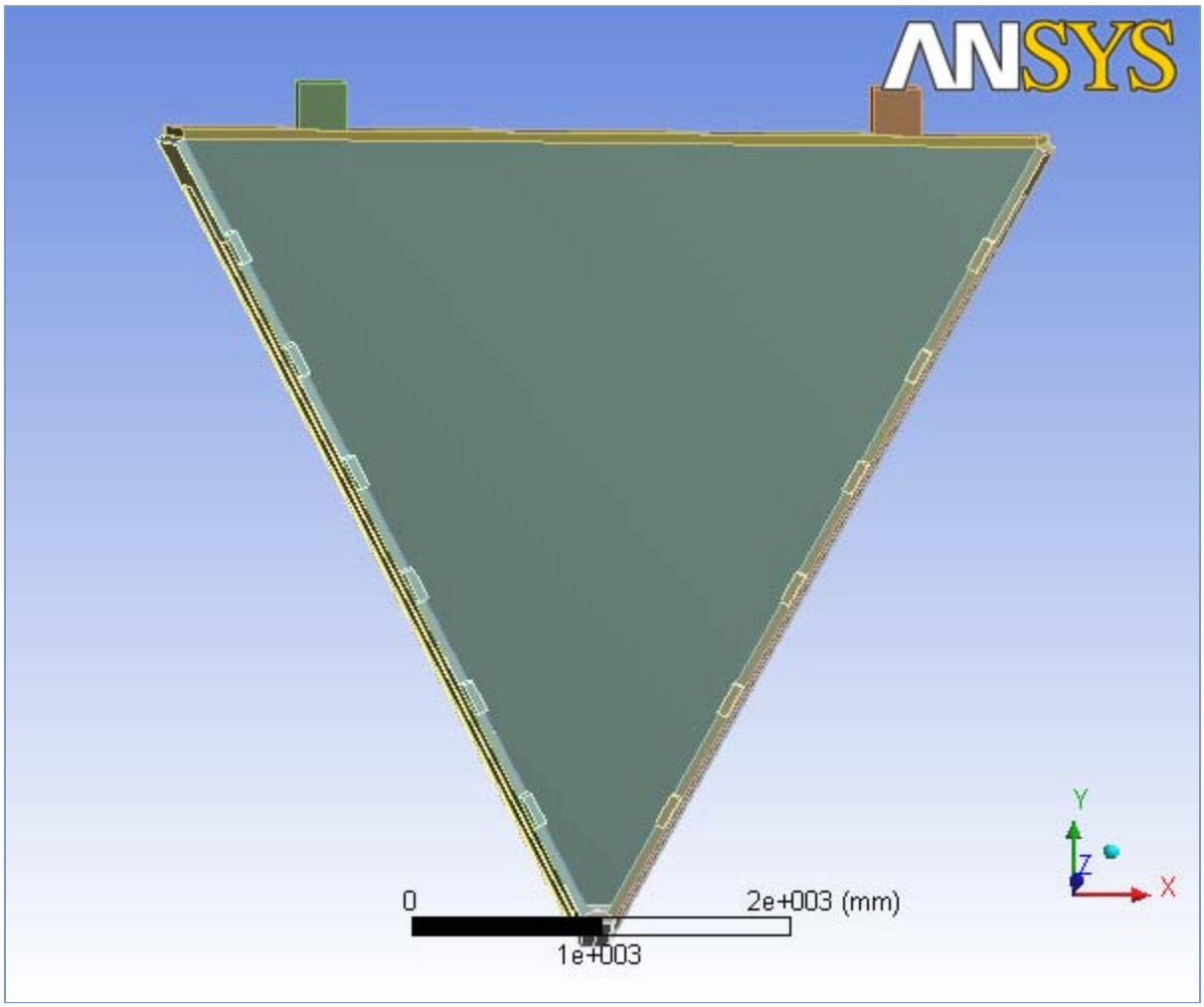


Contents

Units

TABLE 1

Unit System	Metric (mm, kg, N, °C, s, mV, mA)
Angle	Degrees
Rotational Velocity	rad/s

Ideal slice with Wire loads, Hexcel (No Gravity, No Rods

Geometry

TABLE 2
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Geometry

Object Name	*Geometry*
State	Fully Defined
Definition	
Source	C:\Documents and Settings\Jinnuri\Desktop\website\R3_2.agdb
Type	DesignModeler
Length Unit	Millimeters
Element Control	Program Controlled
Display Style	Part Color
Bounding Box	
Length X	4768.3 mm
Length Y	4317.7 mm
Length Z	2060. mm
Properties	
Volume	8.4931e+008 mm³

Mass	341.2 kg
Statistics	
Bodies	29
Active Bodies	23
Nodes	16997
Elements	5986
Preferences	
Import Solid Bodies	Yes
Import Surface Bodies	Yes
Import Line Bodies	Yes
Parameter Processing	Yes
Personal Parameter Key	DS
CAD Attribute Transfer	No
Named Selection Processing	No
Material Properties Transfer	No
CAD Associativity	Yes
Import Coordinate Systems	No
Reader Save Part File	No
Import Using Instances	Yes
Do Smart Update	No
Attach File Via Temp File	No
Analysis Type	3-D
Mixed Import Resolution	None
Enclosure and Symmetry Processing	Yes

TABLE 3
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Geometry > Parts

Object Name	*Nose Plate*	*Left Endplate Downstream Hole area*	*Right Endplate Upstream Hole area*	*Left Endplate Upstream Hole area*	*Left Endplate Aluminum Casing*
State	Meshed				
Graphics Properties					
Visible	Yes				
Transparency	1				
Definition					
Suppressed	No				
Material	Aluminum	Polyurethane			Aluminum
Stiffness Behavior	Flexible				
Nonlinear Material Effects	Yes				
Bounding Box					
Length X	180.6 mm	2159.8 mm	2116.2 mm	1973.8 mm	2338.9 mm
Length Y	94.006 mm	3690. mm	3614.6 mm	3368. mm	4000.3 mm
Length Z	529.95 mm	1562.8 mm	1531.7 mm	1437.5 mm	1983.2 mm
Properties					
Volume	6.6319e+006 mm³	4.3107e+007 mm³	4.1332e+007 mm³	3.8462e+007 mm³	1.1673e+007 mm³
Mass	17.906 kg	10.346 kg	9.9198 kg	9.2309 kg	31.518 kg
Centroid X	-1.8724e-016 mm	-1157.7 mm	1145.5 mm	-1057.2 mm	-1178.2 mm
Centroid Y	42.65 mm	1932.5 mm	1911.3 mm	1758.4 mm	1967.9 mm

Centroid Z	-263.29 mm	368. mm	587.1 mm	528.73 mm	639.08 mm
Moment of Inertia Ip1	4.2714e+005 kg·mm²	1.68e+007 kg·mm²	1.5457e+007 kg·mm²	1.2459e+007 kg·mm²	5.6821e+007 kg·mm²
Moment of Inertia Ip2	4.4442e+005 kg·mm²	34145 kg·mm²	31455 kg·mm²	29271 kg·mm²	1.6143e+006 kg·mm²
Moment of Inertia Ip3	43603 kg·mm²	1.677e+007 kg·mm²	1.543e+007 kg·mm²	1.2434e+007 kg·mm²	5.5221e+007 kg·mm²
Statistics					
Nodes	440	296		272	2445
Elements	179	24		22	926

TABLE 4
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Geometry > Parts

Object Name	*Left Endplate Polyurethane*	*Right Endplate Downstream Hole area*	*Right Endplate Aluminum Casing*	*Right Endplate Polyurethane*	*Left Endplate Inner Steel slice*
State	Meshed				
Graphics Properties					
Visible	Yes				
Transparency	1				
Definition					
Suppressed	No				
Material	Polyurethane		Aluminum	Polyurethane	Stainless Steel
Stiffness Behavior	Flexible				
Nonlinear Material Effects	Yes				
Thickness					1.2192 mm
Thickness Mode					Manual
Bounding Box					
Length X	2327.6 mm	1998.1 mm	2338.8 mm	2322.8 mm	2294.9 mm
Length Y	3980.8 mm	3410. mm	4000.2 mm	3972.4 mm	3974.9 mm
Length Z	1956.7 mm	1457.6 mm	1984. mm	1954.5 mm	1983.2 mm
Properties					
Volume	3.4557e+007 mm³	3.9784e+007 mm³	1.1919e+007 mm³	3.4764e+007 mm³	2.9149e+006 mm³
Mass	8.2936 kg	9.5482 kg	32.181 kg	8.3434 kg	23.319 kg
Centroid X	-1396. mm	1078.8 mm	1201.6 mm	1379.8 mm	
Centroid Y	2345.1 mm	1795.8 mm	2008.4 mm	2317.1 mm	
Centroid Z	542.67 mm	316.67 mm	651.27 mm	513.21 mm	
Moment of Inertia Ip1	2.0961e+007 kg·mm²	1.321e+007 kg·mm²	6.0236e+007 kg·mm²	2.1346e+007 kg·mm²	
Moment of Inertia Ip2	2.0417e+005 kg·mm²	31513 kg·mm²	1.6548e+006 kg·mm²	1.8581e+005 kg·mm²	
Moment of Inertia Ip3	2.076e+007 kg·mm²	1.3183e+007 kg·mm²	5.8594e+007 kg·mm²	2.1163e+007 kg·mm²	
Surface Area (approx.)					2.3908e+006 mm²
Statistics					
Nodes	1862	272	2379	1843	168
Elements	639	22	905	627	124

TABLE 5

Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Geometry > Parts

Object Name	*Left Endplate Outer Steel slice*	*Right Endplate Outer Steel slice*	*Right Endplate Inner Steel Slice*	*Backplate Aluminum Casing*	*Backplate Polyurethane*
State	Meshed				
Graphics Properties					
Visible	Yes				
Transparency	1				
Definition					
Suppressed	No				
Material	Stainless Steel			Aluminum	Polyurethane
Nonlinear Material Effects	Yes				
Thickness	1.2192 mm				
Thickness Mode	Manual				
Stiffness Behavior				Flexible	
Bounding Box					
Length X	2294.9 mm	2294.8 mm		4682.7 mm	4659.3 mm
Length Y	3974.9 mm	3974.8 mm		186.53 mm	180.41 mm
Length Z	1983.2 mm	1984. mm		498.46 mm	476.92 mm
Properties					
Volume	2.9149e+006 mm³			5.2863e+006 mm³	1.1124e+008 mm³
Mass	23.319 kg			14.273 kg	26.698 kg
Surface Area (approx.)	2.3908e+006 mm²				
Centroid X				175.74 mm	-0.24556 mm
Centroid Y				3986.6 mm	3987.5 mm
Centroid Z				1225.6 mm	1222.4 mm
Moment of Inertia Ip1				7.8718e+005 kg·mm²	5.1362e+005 kg·mm²
Moment of Inertia Ip2				3.0219e+007 kg·mm²	4.725e+007 kg·mm²
Moment of Inertia Ip3				2.9438e+007 kg·mm²	4.6748e+007 kg·mm²
Statistics					
Nodes	176	157	155	708	241
Elements	132	113	111	74	24

TABLE 6
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Geometry > Parts

Object Name	*Backplate Outer steel slice*	*Back Plate Inner Steel slice*	*Rod 4*	*Rod 5*	*Rod 6*
State	Meshed		Suppressed		
Graphics Properties					
Visible	Yes		No		
Transparency	1				
Definition					
Suppressed	No		Yes		
Material	Stainless Steel		Carbon Fiber		
Nonlinear Material Effects	Yes				

Thickness	1.2192 mm				
Thickness Mode	Manual				
Stiffness Behavior			Flexible		
Bounding Box					
Length X	4524.4 mm		2618.1 mm	3260.4 mm	3902.6 mm
Length Y	137.65 mm		50.8 mm		
Length Z	484.52 mm		50.8 mm		
Properties					
Volume	2.7483e+006 mm³		5.1151e+005 mm³	6.3841e+005 mm³	7.6532e+005 mm³
Mass	21.987 kg		0.29667 kg	0.37028 kg	0.44388 kg
Surface Area (approx.)	2.2542e+006 mm²				
Centroid X			-3.0688e-010 mm	-8.6731e-011 mm	-1.3795e-008 mm
Centroid Y			2220.1 mm	2776.3 mm	3332.5 mm
Centroid Z			880.31 mm	1091.6 mm	1302.9 mm
Moment of Inertia Ip1			177.84 kg·mm²	221.97 kg·mm²	266.09 kg·mm²
Moment of Inertia Ip2			1.6387e+005 kg·mm²	3.1853e+005 kg·mm²	5.4867e+005 kg·mm²
Moment of Inertia Ip3			1.6388e+005 kg·mm²	3.1853e+005 kg·mm²	5.4867e+005 kg·mm²
Statistics					
Nodes	174	186	0		
Elements	129	141	0		

TABLE 7
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Geometry > Parts

Object Name	*Rod 1*	*Rod 2*	*Rod 3*	*Force ref line*	*30 deg Ref line*
State	Suppressed			Meshed	
Graphics Properties					
Visible	No			Yes	
Transparency				1	
Definition					
Suppressed	Yes			No	
Material	Carbon Fiber			Aluminum	
Stiffness Behavior	Flexible				
Nonlinear Material Effects	Yes				
Bounding Box					
Length X	691.28 mm	1333.5 mm	1975.8 mm	70. mm	11.116 mm
Length Y	50.8 mm			3.6786 mm	19.253 mm
Length Z	50.8 mm			5. mm	
Properties					
Volume	1.3079e+005 mm³	2.577e+005 mm³	3.846e+005 mm³	643.76 mm³	535.05 mm³
Mass	7.586e-002 kg	0.14946 kg	0.22307 kg	1.7382e-003 kg	1.4446e-003 kg
Centroid X	-7.386e-011 mm	5.0812e-010 mm	-5.8382e-011 mm	2.7078e-014 mm	-3.7053 mm
Centroid Y	551.82 mm	1107.8 mm	1663.9 mm	68.426 mm	39.079 mm
Centroid Z	246.45 mm	457.74 mm	669.03 mm	2.5 mm	

Moment of Inertia Ip1	45.457 kg·mm²	89.595 kg·mm²	133.72 kg·mm²	4.9279e-003 kg·mm²	3.5962e-002 kg·mm²
Moment of Inertia Ip2	2768.1 kg·mm²	21001 kg·mm²	69702 kg·mm²	0.3585 kg·mm²	9.7246e-003 kg·mm²
Moment of Inertia Ip3	2768.2 kg·mm²	21001 kg·mm²	69702 kg·mm²	0.35618 kg·mm²	3.9668e-002 kg·mm²
Statistics					
Nodes	0			237	294
Elements	0			22	38

TABLE 8
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Geometry > Parts

Object Name	*60 Deg Ref line*	*Left Hinge*	*Right Hinge*	*Hexcel*
State	Meshed			
Graphics Properties				
Visible	Yes			
Transparency	1			
Definition				
Suppressed	No			
Material	Aluminum	Polyurethane		Hexcel
Stiffness Behavior	Flexible			
Nonlinear Material Effects	Yes			
Bounding Box				
Length X	20.123 mm	250.37 mm		4671.1 mm
Length Y	11.618 mm	371.11 mm		3939.1 mm
Length Z	5. mm	528.13 mm		1527.6 mm
Properties				
Volume	584.49 mm³	2.9863e+007 mm³		3.9367e+008 mm³
Mass	1.5781e-003 kg	7.1671 kg		11.351 kg
Centroid X	-6.7077 mm	-1527.6 mm	1521.8 mm	-2.4337e-006 mm
Centroid Y	13.673 mm	4131.5 mm	4132.1 mm	2672.3 mm
Centroid Z	2.5 mm	1265.9 mm	1263.7 mm	485.69 mm
Moment of Inertia Ip1	1.1301e-002 kg·mm²	1.7368e+005 kg·mm²		1.1729e+007 kg·mm²
Moment of Inertia Ip2	4.2611e-002 kg·mm²	1.7368e+005 kg·mm²		1.0294e+007 kg·mm²
Moment of Inertia Ip3	4.7337e-002 kg·mm²	74658 kg·mm²		2.2019e+007 kg·mm²
Statistics				
Nodes	250	376		3394
Elements	30	54		1572

Connections

TABLE 9
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Connections

Object Name	*Connections*
State	Fully Defined
Auto Detection	
Generate Contact On Update	Yes
Tolerance Type	Slider
Tolerance Slider	0.
Tolerance Value	16.886 mm
Face/Face	Yes

Face/Edge	No
Edge/Edge	No
Priority	Include All
Same Body Grouping	Yes
Revolute Joints	Yes
Fixed Joints	Yes
Transparency	
Enabled	Yes

TABLE 10
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Connections > Contact Regions

Object Name	*Contact Region*	*Contact Region 2*	*Contact Region 3*	*Contact Region 4*	*Contact Region 5*
State	Fully Defined				
Scope					
Scoping Method	Geometry Selection				
Contact	2 Faces				1 Face
Target	2 Faces				1 Face
Contact Bodies	Nose Plate				
Target Bodies	Left Endplate Aluminum Casing	Left Endplate Polyurethane	Right Endplate Aluminum Casing	Right Endplate Polyurethane	Left Endplate Inner Steel slice
Definition					
Type	Bonded				
Scope Mode	Automatic				
Behavior	Symmetric				
Suppressed	No				
Advanced					
Formulation	Pure Penalty				
Normal Stiffness	Program Controlled				
Update Stiffness	Never				
Thermal Conductance	Program Controlled				
Pinball Region	Program Controlled				

TABLE 11
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Connections > Contact Regions

Object Name	*Contact Region 6*	*Contact Region 7*	*Contact Region 8*	*Contact Region 9*	*Contact Region 10*
State	Fully Defined				
Scope					
Scoping Method	Geometry Selection				
Contact	1 Face				4 Faces
Target	1 Face				4 Faces
Contact Bodies	Nose Plate				Left Endplate Downstream Hole area
Target Bodies	Right Endplate Inner Steel Slice	Force ref line	30 deg Ref line	60 Deg Ref line	Left Endplate Polyurethane
Definition					
Type	Bonded				
Scope Mode	Automatic				

Behavior	Symmetric
Suppressed	No
Advanced	
Formulation	Pure Penalty
Normal Stiffness	Program Controlled
Update Stiffness	Never
Thermal Conductance	Program Controlled
Pinball Region	Program Controlled

TABLE 12
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Connections > Contact Regions

Object Name	*Contact Region 11*	*Contact Region 12*	*Contact Region 13*	*Contact Region 14*	*Contact Region 15*
State	Fully Defined				
Scope					
Scoping Method	Geometry Selection				
Contact	1 Face			4 Faces	1 Face
Target	1 Face			4 Faces	1 Face
Contact Bodies	Left Endplate Downstream Hole area		Right Endplate Upstream Hole area		
Target Bodies	Left Endplate Inner Steel slice	Left Endplate Outer Steel slice	Right Endplate Aluminum Casing	Right Endplate Polyurethane	Right Endplate Outer Steel slice
Definition					
Type	Bonded				
Scope Mode	Automatic				
Behavior	Symmetric				
Suppressed	No				
Advanced					
Formulation	Pure Penalty				
Normal Stiffness	Program Controlled				
Update Stiffness	Never				
Thermal Conductance	Program Controlled				
Pinball Region	Program Controlled				

TABLE 13
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Connections > Contact Regions

Object Name	*Contact Region 16*	*Contact Region 17*	*Contact Region 18*	*Contact Region 19*	*Contact Region 20*
State	Fully Defined				
Scope					
Scoping Method	Geometry Selection				
Contact	1 Face		4 Faces	1 Face	
Target	1 Face		4 Faces	1 Face	
Contact Bodies	Right Endplate Upstream Hole area	Left Endplate Upstream Hole area			
Target Bodies	Right Endplate Inner Steel Slice	Left Endplate Aluminum Casing	Left Endplate Polyurethane	Left Endplate Inner Steel slice	Left Endplate Outer Steel slice
Definition					
Type	Bonded				

Scope Mode	Automatic
Behavior	Symmetric
Suppressed	No
Advanced	
Formulation	Pure Penalty
Normal Stiffness	Program Controlled
Update Stiffness	Never
Thermal Conductance	Program Controlled
Pinball Region	Program Controlled

TABLE 14
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Connections > Contact Regions

Object Name	*Contact Region 21*	*Contact Region 22*	*Contact Region 23*	*Contact Region 24*	*Contact Region 25*
State	Fully Defined			Suppressed	
Scope					
Scoping Method	Geometry Selection				
Contact	4 Faces	1 Face			
Target	4 Faces	1 Face		No Selection	
Contact Bodies	Left Endplate Aluminum Casing				
Target Bodies	Left Endplate Polyurethane	Left Endplate Inner Steel slice	Left Endplate Outer Steel slice	Rod 4	Rod 5
Definition					
Type	Bonded				
Scope Mode	Automatic				
Behavior	Symmetric				
Suppressed	No				
Advanced					
Formulation	Pure Penalty				
Normal Stiffness	Program Controlled				
Update Stiffness	Never				
Thermal Conductance	Program Controlled				
Pinball Region	Program Controlled				

TABLE 15
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Connections > Contact Regions

Object Name	*Contact Region 26*	*Contact Region 27*	*Contact Region 28*	*Contact Region 29*	*Contact Region 30*
State	Suppressed				Fully Defined
Scope					
Scoping Method	Geometry Selection				
Contact	1 Face				2 Faces
Target	No Selection				2 Faces
Contact Bodies	Left Endplate Aluminum Casing				
Target Bodies	Rod 6	Rod 1	Rod 2	Rod 3	Hexcel
Definition					
Type	Bonded				
Scope Mode	Automatic				
Behavior	Symmetric				
Suppressed	No				

Advanced	
Formulation	Pure Penalty
Normal Stiffness	Program Controlled
Update Stiffness	Never
Thermal Conductance	Program Controlled
Pinball Region	Program Controlled

TABLE 16
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Connections > Contact Regions

Object Name	*Contact Region 31*	*Contact Region 32*	*Contact Region 33*	*Contact Region 34*	*Contact Region 35*
State	Fully Defined				
Scope					
Scoping Method	Geometry Selection				
Contact	1 Face			4 Faces	1 Face
Target	1 Face			4 Faces	1 Face
Contact Bodies	Left Endplate Polyurethane			Right Endplate Downstream Hole area	
Target Bodies	Left Endplate Inner Steel slice	Left Endplate Outer Steel slice	Hexcel	Right Endplate Polyurethane	Right Endplate Outer Steel slice
Definition					
Type	Bonded				
Scope Mode	Automatic				
Behavior	Symmetric				
Suppressed	No				
Advanced					
Formulation	Pure Penalty				
Normal Stiffness	Program Controlled				
Update Stiffness	Never				
Thermal Conductance	Program Controlled				
Pinball Region	Program Controlled				

TABLE 17
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Connections > Contact Regions

Object Name	*Contact Region 36*	*Contact Region 37*	*Contact Region 38*	*Contact Region 39*	*Contact Region 40*
State	Fully Defined				Suppressed
Scope					
Scoping Method	Geometry Selection				
Contact	1 Face	4 Faces	1 Face		
Target	1 Face	4 Faces	1 Face		No Selection
Contact Bodies	Right Endplate Downstream Hole area	Right Endplate Aluminum Casing			
Target Bodies	Right Endplate Inner Steel Slice	Right Endplate Polyurethane	Right Endplate Outer Steel slice	Right Endplate Inner Steel Slice	Rod 4
Definition					
Type	Bonded				
Scope Mode	Automatic				
Behavior	Symmetric				
Suppressed	No				

Advanced	
Formulation	Pure Penalty
Normal Stiffness	Program Controlled
Update Stiffness	Never
Thermal Conductance	Program Controlled
Pinball Region	Program Controlled

TABLE 18
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Connections > Contact Regions

Object Name	*Contact Region 41*	*Contact Region 42*	*Contact Region 43*	*Contact Region 44*	*Contact Region 45*
State	Suppressed				
Scope					
Scoping Method	Geometry Selection				
Contact	1 Face				
Target	No Selection				
Contact Bodies	Right Endplate Aluminum Casing				
Target Bodies	Rod 5	Rod 6	Rod 1	Rod 2	Rod 3
Definition					
Type	Bonded				
Scope Mode	Automatic				
Behavior	Symmetric				
Suppressed	No				
Advanced					
Formulation	Pure Penalty				
Normal Stiffness	Program Controlled				
Update Stiffness	Never				
Thermal Conductance	Program Controlled				
Pinball Region	Program Controlled				

TABLE 19
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Connections > Contact Regions

Object Name	*Contact Region 46*	*Contact Region 47*	*Contact Region 48*	*Contact Region 49*	*Contact Region 50*
State	Fully Defined				
Scope					
Scoping Method	Geometry Selection				
Contact	2 Faces	1 Face			
Target	2 Faces	1 Face			
Contact Bodies	Right Endplate Aluminum Casing	Right Endplate Polyurethane			Left Endplate Inner Steel slice
Target Bodies	Hexcel	Right Endplate Outer Steel slice	Right Endplate Inner Steel Slice	Hexcel	
Definition					
Type	Bonded				
Scope Mode	Automatic				
Behavior	Symmetric				
Suppressed	No				

Advanced	
Formulation	Pure Penalty
Normal Stiffness	Program Controlled
Update Stiffness	Never
Thermal Conductance	Program Controlled
Pinball Region	Program Controlled

TABLE 20
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Connections > Contact Regions

Object Name	*Contact Region 51*	*Contact Region 52*	*Contact Region 53*	*Contact Region 54*	*Contact Region 55*
State	Fully Defined				
Scope					
Scoping Method	Geometry Selection				
Contact	1 Face	4 Faces	1 Face		2 Faces
Target	1 Face	4 Faces	1 Face		2 Faces
Contact Bodies	Right Endplate Inner Steel Slice	Backplate Aluminum Casing			
Target Bodies	Hexcel	Backplate Polyurethane	Backplate Outer steel slice	Back Plate Inner Steel slice	Left Hinge
Definition					
Type	Bonded				
Scope Mode	Automatic				
Behavior	Symmetric				
Suppressed	No				
Advanced					
Formulation	Pure Penalty				
Normal Stiffness	Program Controlled				
Update Stiffness	Never				
Thermal Conductance	Program Controlled				
Pinball Region	Program Controlled				

TABLE 21
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Connections > Contact Regions

Object Name	*Contact Region 56*	*Contact Region 57*	*Contact Region 58*	*Contact Region 59*	*Contact Region 60*
State	Fully Defined				
Scope					
Scoping Method	Geometry Selection				
Contact	2 Faces	1 Face			
Target	2 Faces	1 Face			
Contact Bodies	Backplate Aluminum Casing		Backplate Polyurethane		
Target Bodies	Right Hinge	Hexcel	Backplate Outer steel slice	Back Plate Inner Steel slice	Left Hinge
Definition					
Type	Bonded				
Scope Mode	Automatic				
Behavior	Symmetric				
Suppressed	No				
Advanced					

Formulation	Pure Penalty
Normal Stiffness	Program Controlled
Update Stiffness	Never
Thermal Conductance	Program Controlled
Pinball Region	Program Controlled

TABLE 22
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Connections > Contact Regions

Object Name	*Contact Region 61*	*Contact Region 62*	*Contact Region 63*	*Contact Region 64*	*Contact Region 65*
State	Fully Defined				
Scope					
Scoping Method	Geometry Selection				
Contact	1 Face				
Target	1 Face				
Contact Bodies	Backplate Polyurethane		Backplate Outer steel slice		Back Plate Inner Steel slice
Target Bodies	Right Hinge	Hexcel	Left Hinge	Right Hinge	Hexcel
Definition					
Type	Bonded				
Scope Mode	Automatic				
Behavior	Symmetric				
Suppressed	No				
Advanced					
Formulation	Pure Penalty				
Normal Stiffness	Program Controlled				
Update Stiffness	Never				
Thermal Conductance	Program Controlled				
Pinball Region	Program Controlled				

Mesh

TABLE 23
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Mesh

Object Name	*Mesh*
State	Solved
Defaults	
Physics Preference	Mechanical
Relevance	-35
Advanced	
Relevance Center	Coarse
Element Size	Default
Shape Checking	Standard Mechanical
Solid Element Midside Nodes	Program Controlled
Straight Sided Elements	No
Initial Size Seed	Active Assembly
Smoothing	Low
Transition	Fast
Statistics	

Nodes	16997
Elements	5986

Static Structural

TABLE 24
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Analysis

Object Name	*Static Structural*
State	Fully Defined
Definition	
Physics Type	Structural
Analysis Type	Static Structural
Options	
Reference Temp	22. °C

TABLE 25
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Static Structural > 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	Direct
Weak Springs	Program Controlled
Large Deflection	Off
Inertia Relief	Off
Nonlinear Controls	
Force Convergence	Program Controlled
Moment Convergence	Program Controlled
Displacement Convergence	Program Controlled
Rotation Convergence	Program Controlled
Line Search	Program Controlled
Output Controls	
Calculate Stress	Yes
Calculate Strain	Yes
Calculate Results At	All Time Points
Analysis Data Management	
Solver Files Directory	C:\Documents and Settings\Jinnuri\Desktop\website\AI slit\New Constraints\Analysis 3 \Analysis 3 Simulation Files\Static Structural\
Future Analysis	None
Save ANSYS db	No
Delete Unneeded Files	Yes
Nonlinear Solution	No

FIGURE 1
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Static Structural > Figure

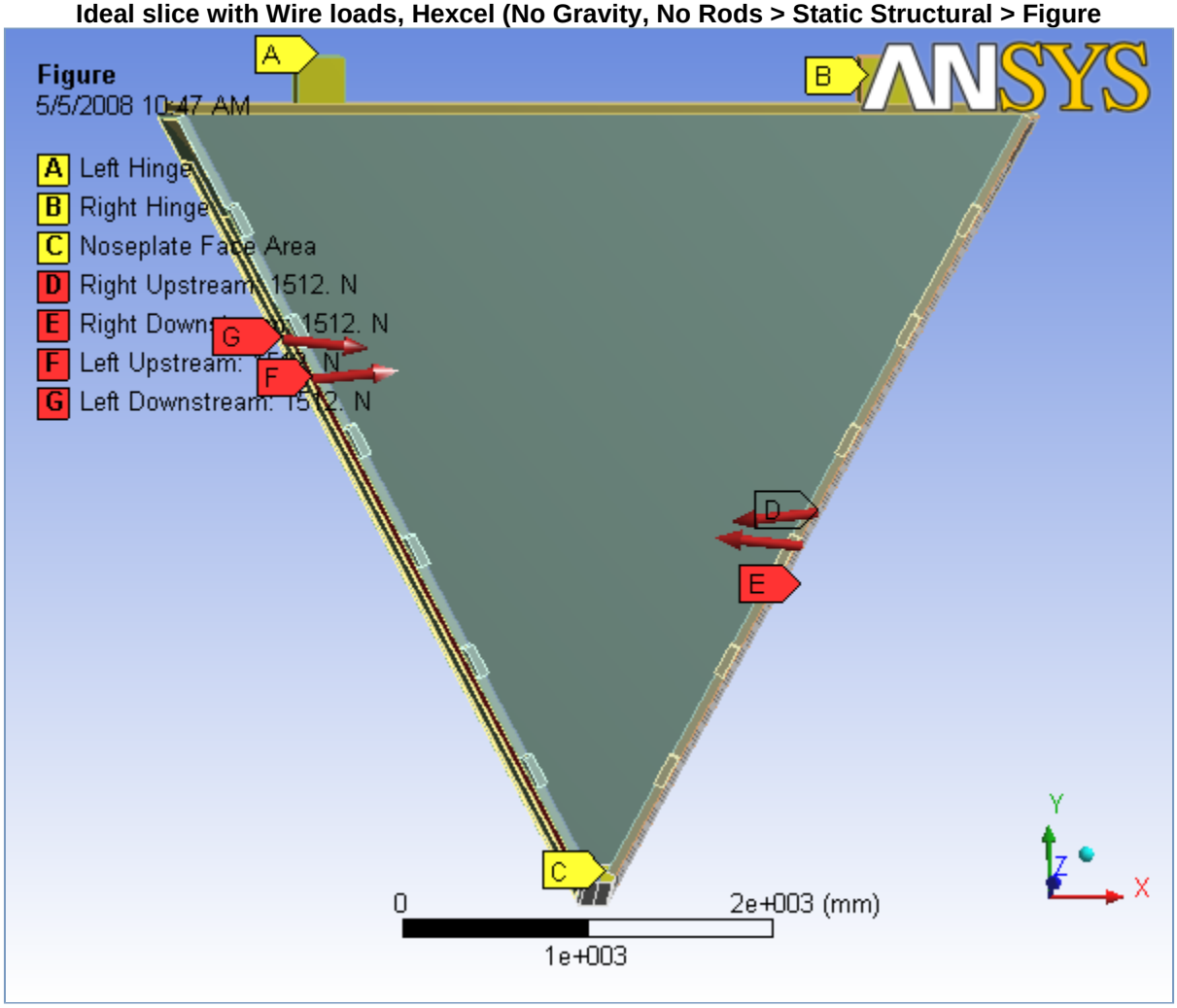


TABLE 26
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Static Structural > Accelerations

Object Name	*Acceleration*
State	Suppressed
Scope	
Geometry	All Bodies
Definition	
Define By	Vector
Magnitude	9810. mm/s² (ramped)
Direction	Defined
Suppressed	Yes

FIGURE 2
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Static Structural > Acceleration

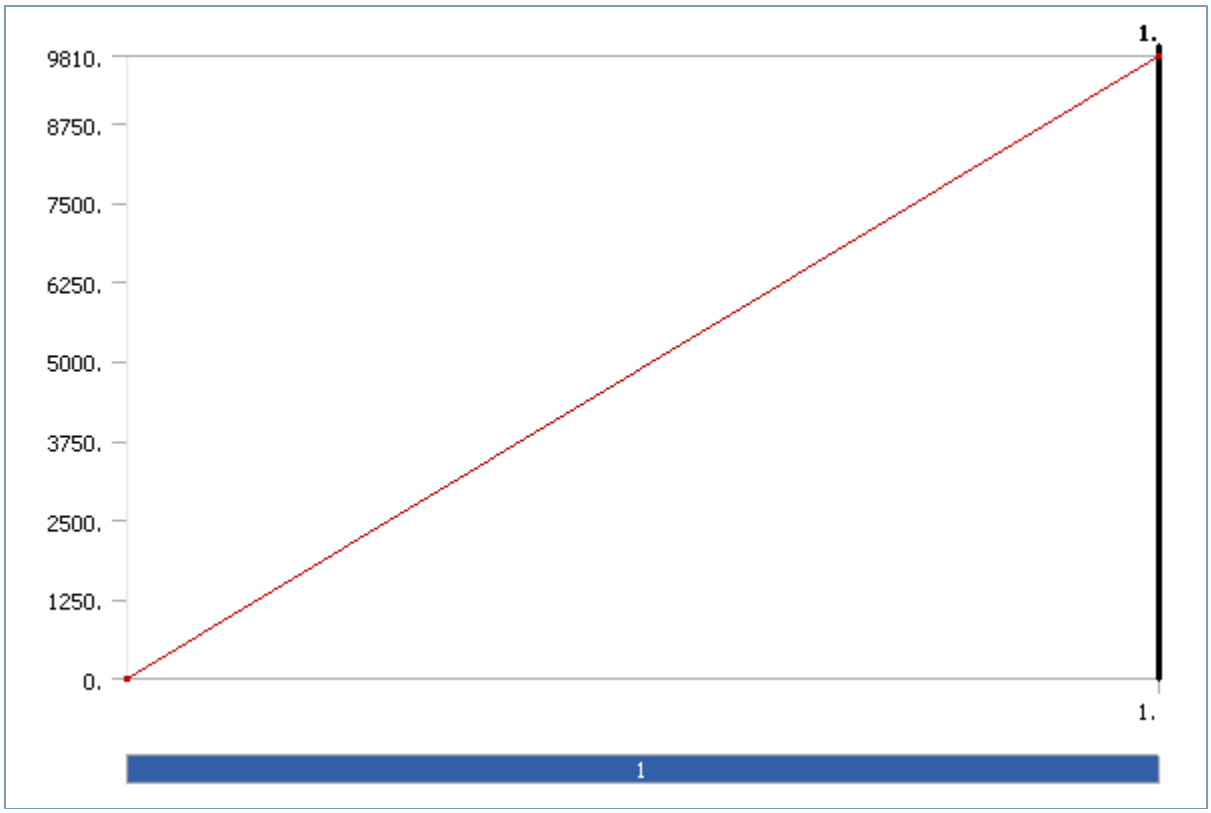


TABLE 27
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Static Structural > Loads

Object Name	*Left Hinge*	*Right Hinge*	*Noseplate Face Area*	*Right Upstream*	*Right Downstream*
State	Fully Defined				
Scope					
Scoping Method	Geometry Selection				
Geometry	5 Faces		1 Face		
Definition					
Define By	Components			Vector	
Type	Displacement			Force	
X Component	0. mm (ramped)	Free			
Y Component	Free	0. mm (ramped)			
Z Component	0. mm (ramped)				
Suppressed	No				
Magnitude				1512. N (ramped)	
Direction				Defined	

FIGURE 3
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Static Structural > Left Hinge

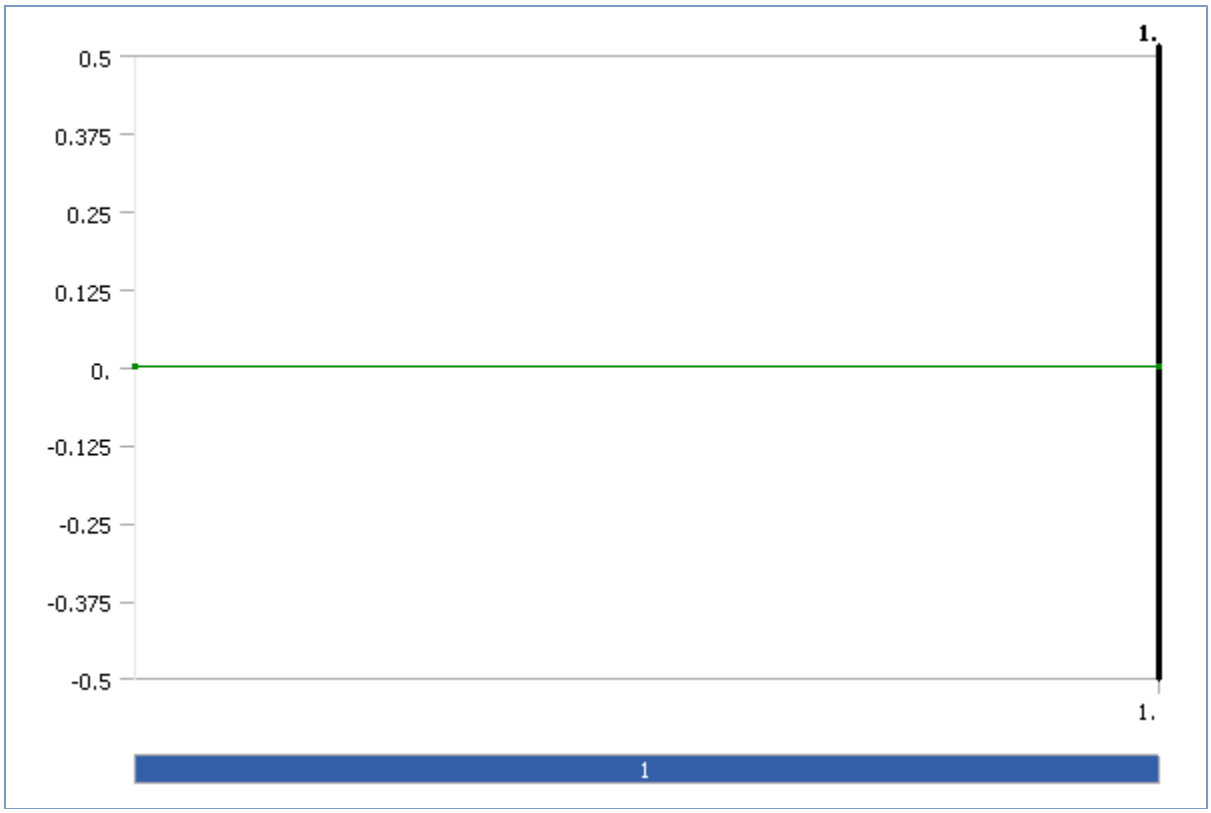


FIGURE 4
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Static Structural > Right Hinge

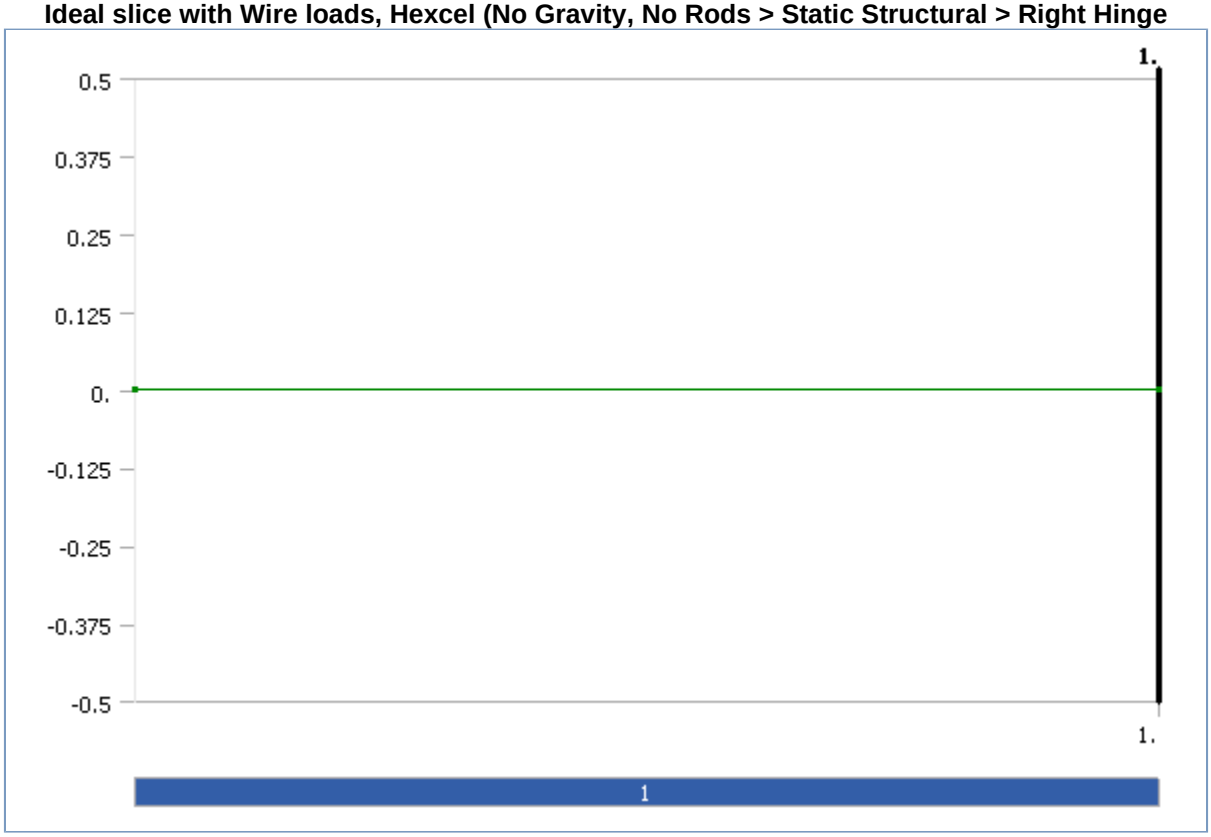


FIGURE 5
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Static Structural > Noseplate Face Area

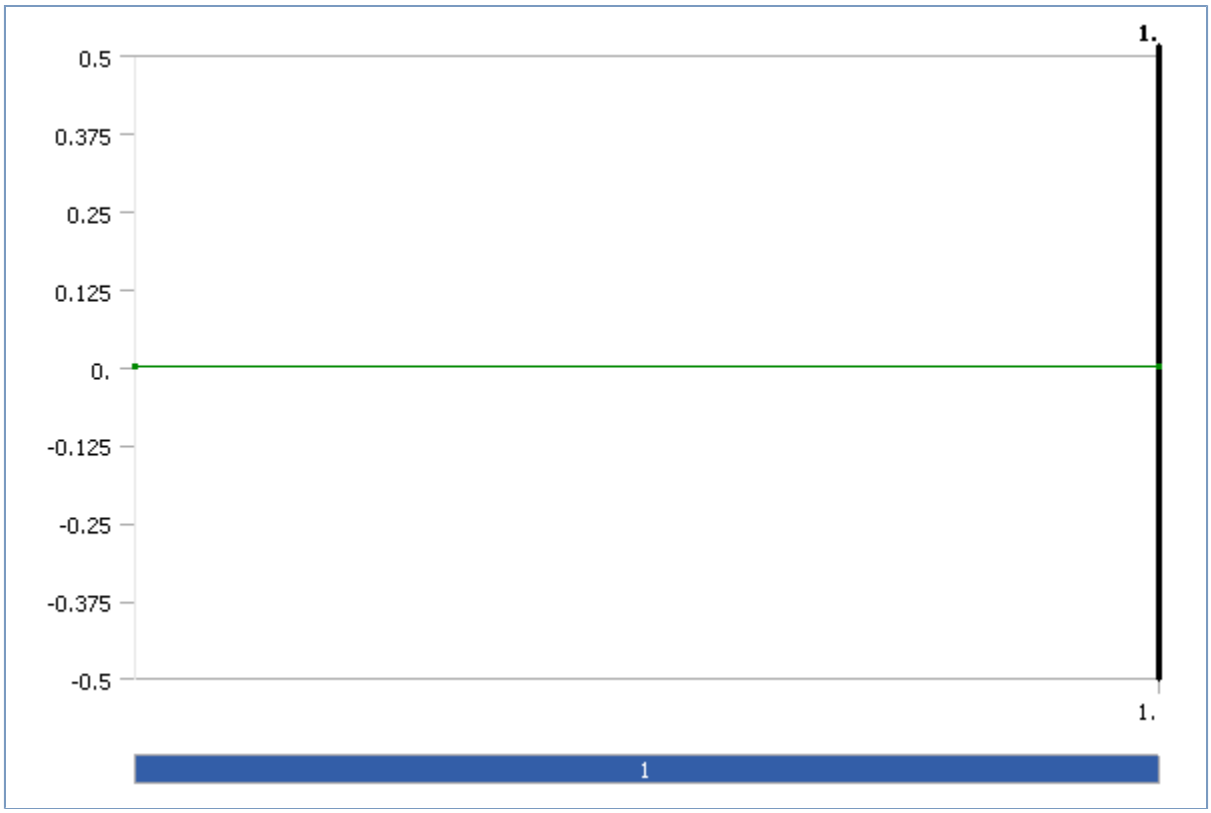


FIGURE 6
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Static Structural > Right Upstream

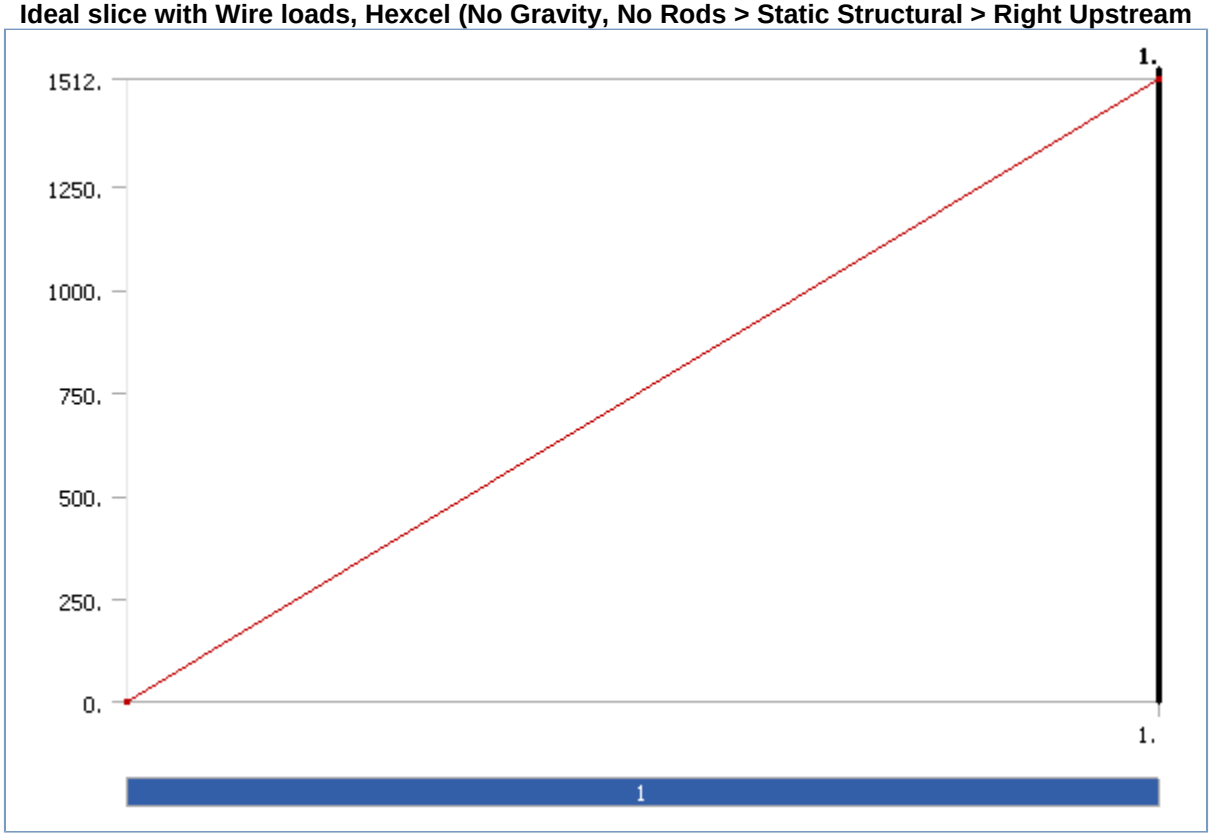


FIGURE 7
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Static Structural > Right Downstream

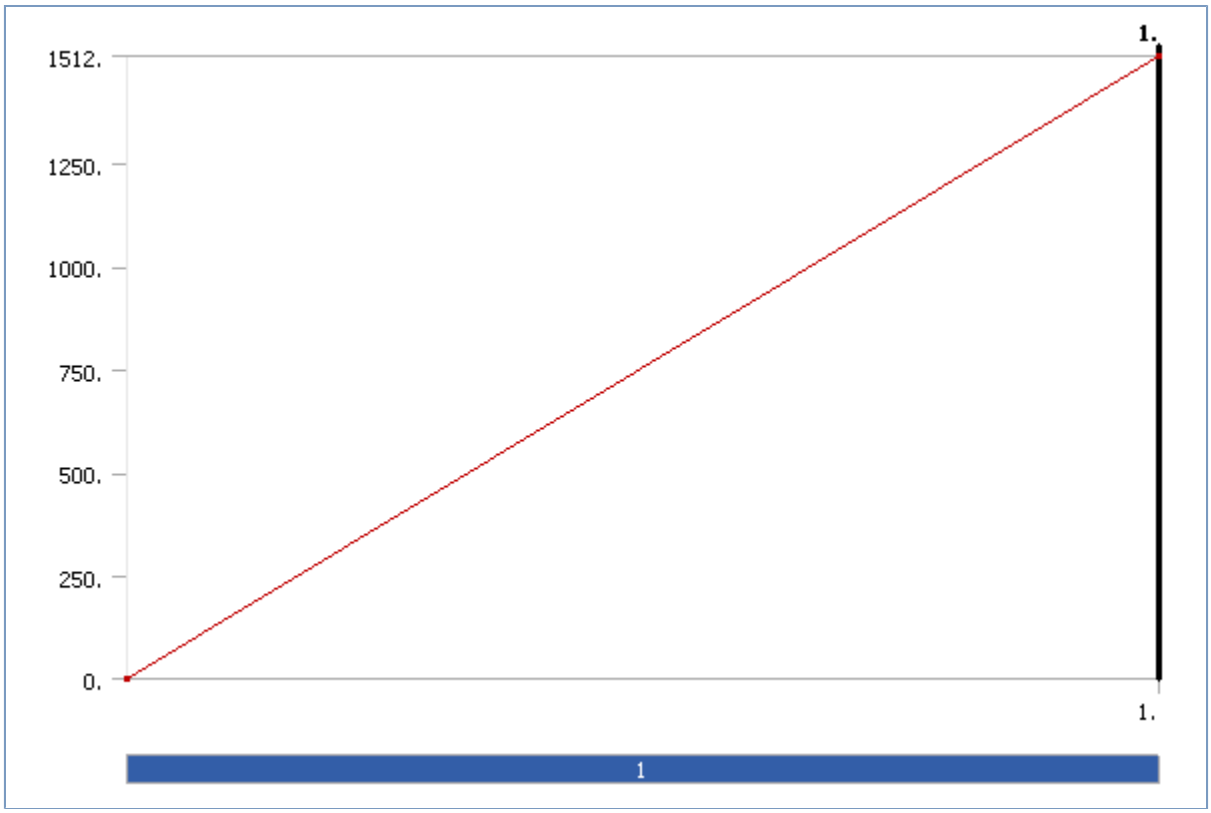


TABLE 28
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Static Structural > Loads

Object Name	*Left Upstream*	*Left Downstream*
State	Fully Defined	
Scope		
Scoping Method	Geometry Selection	
Geometry	1 Face	
Definition		
Define By	Vector	
Type	Force	
Magnitude	1512. N (ramped)	
Direction	Defined	
Suppressed	No	

FIGURE 8
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Static Structural > Left Upstream

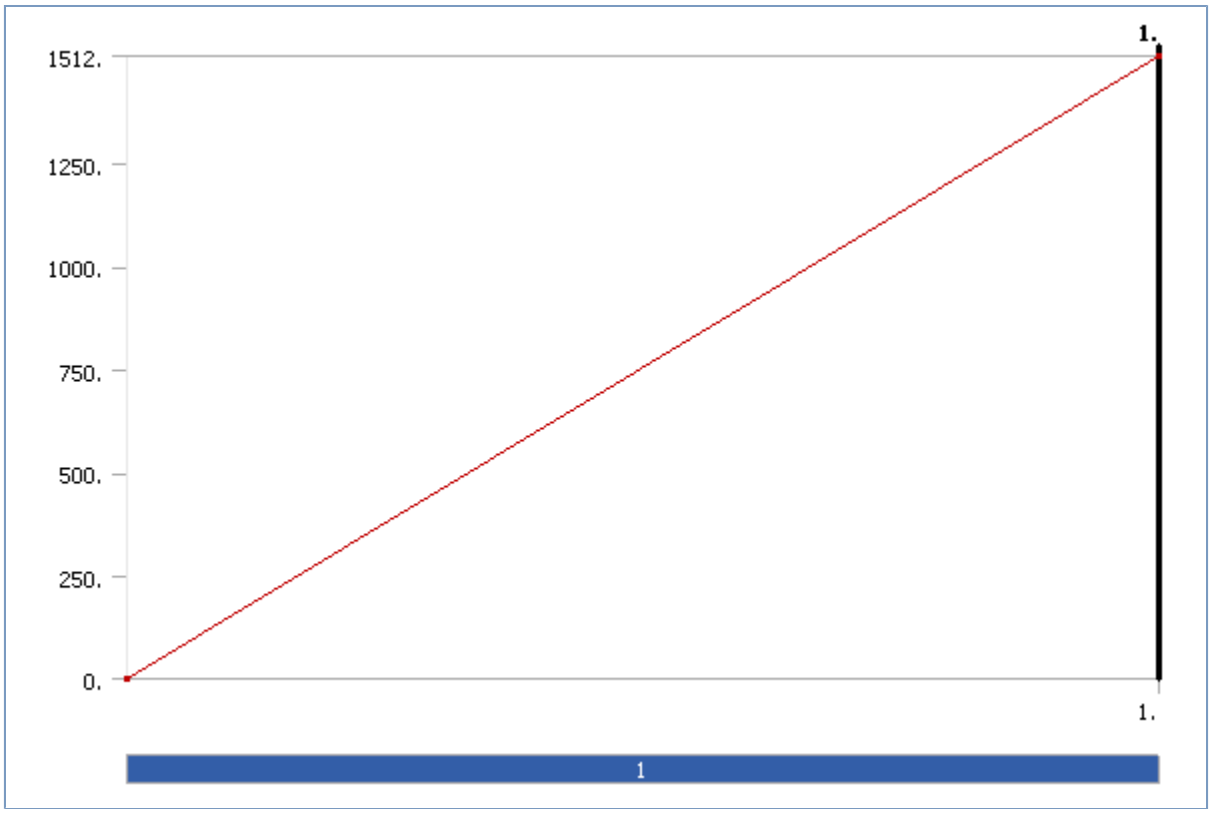
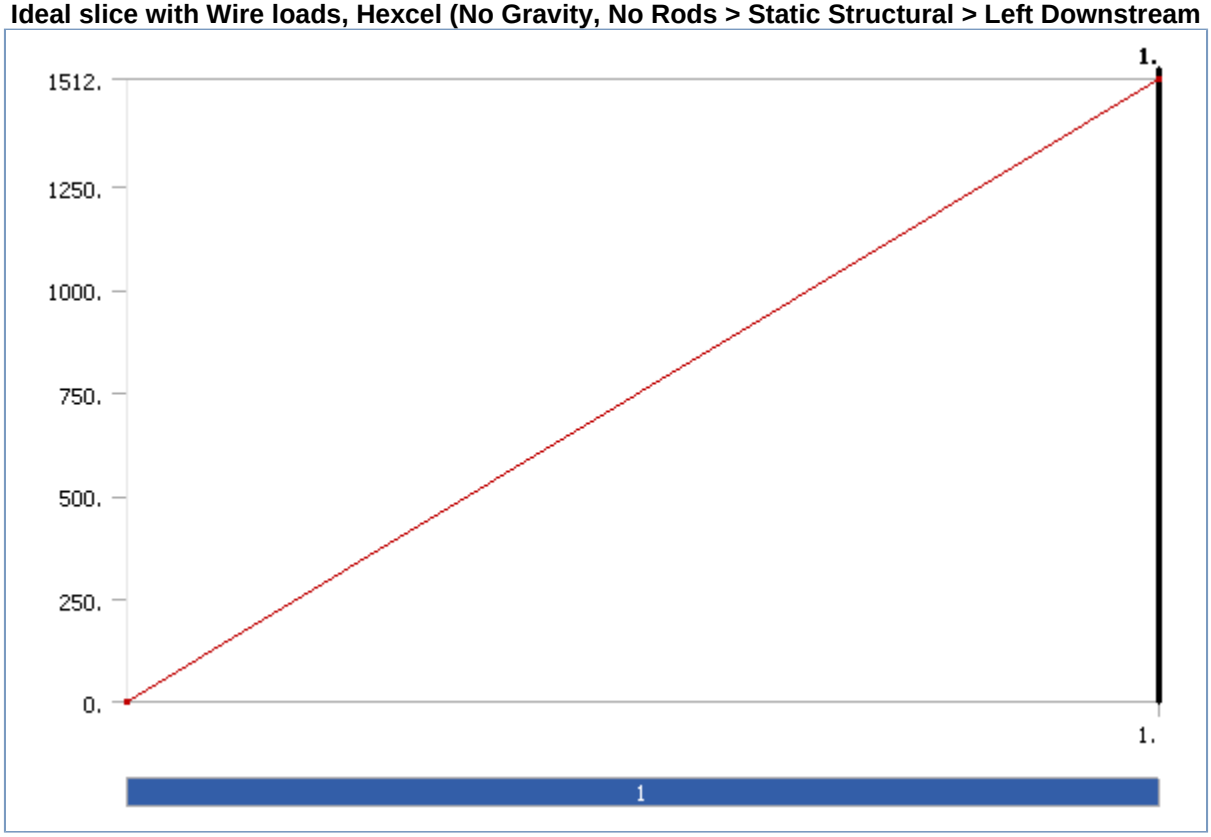


FIGURE 9
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Static Structural > Left Downstream



Solution

TABLE 29
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Static Structural > Solution

Object Name	*Solution*
State	Solved
Adaptive Mesh Refinement	
Max Refinement Loops	1.
Refinement Depth	2.

TABLE 30
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Static Structural > Solution > Solution Information

Object Name	*Solution Information*
State	Solved
Solution Information	
Solution Output	Solver Output
Newton-Raphson Residuals	0
Update Interval	2.5 s
Display Points	All

TABLE 31
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Static Structural > Solution > Results

Object Name	*Total Deformation*	*X - Directional Deformation*	*Y - Directional Deformation*	*Z - Directional Deformation*	*Equivalent Stress*
State	Solved				
Scope					
Geometry	All Bodies				
Definition					
Type	Total Deformation	Directional Deformation			Equivalent (von-Mises) Stress
Display Time	End Time				
Orientation		X Axis	Y Axis	Z Axis	
Shell					Top/Bottom
Results					
Minimum	5.3944e-004 mm	-0.10446 mm	-9.5838e-003 mm	-5.2702e-002 mm	5.2433e-006 MPa
Maximum	0.11582 mm	8.9777e-002 mm	5.0484e-002 mm	2.3249e-002 mm	1.7817 MPa
Minimum Occurs On	Right Hinge	Right Endplate Aluminum Casing		Hexcel	Right Hinge
Maximum Occurs On	Right Endplate Aluminum Casing	Left Endplate Aluminum Casing		Left Endplate Outer Steel slice	Left Endplate Inner Steel slice
Information					
Time	1. s				
Load Step	1				
Substep	1				
Iteration Number	1				

FIGURE 10
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Static Structural > Solution > Total Deformation > Figure

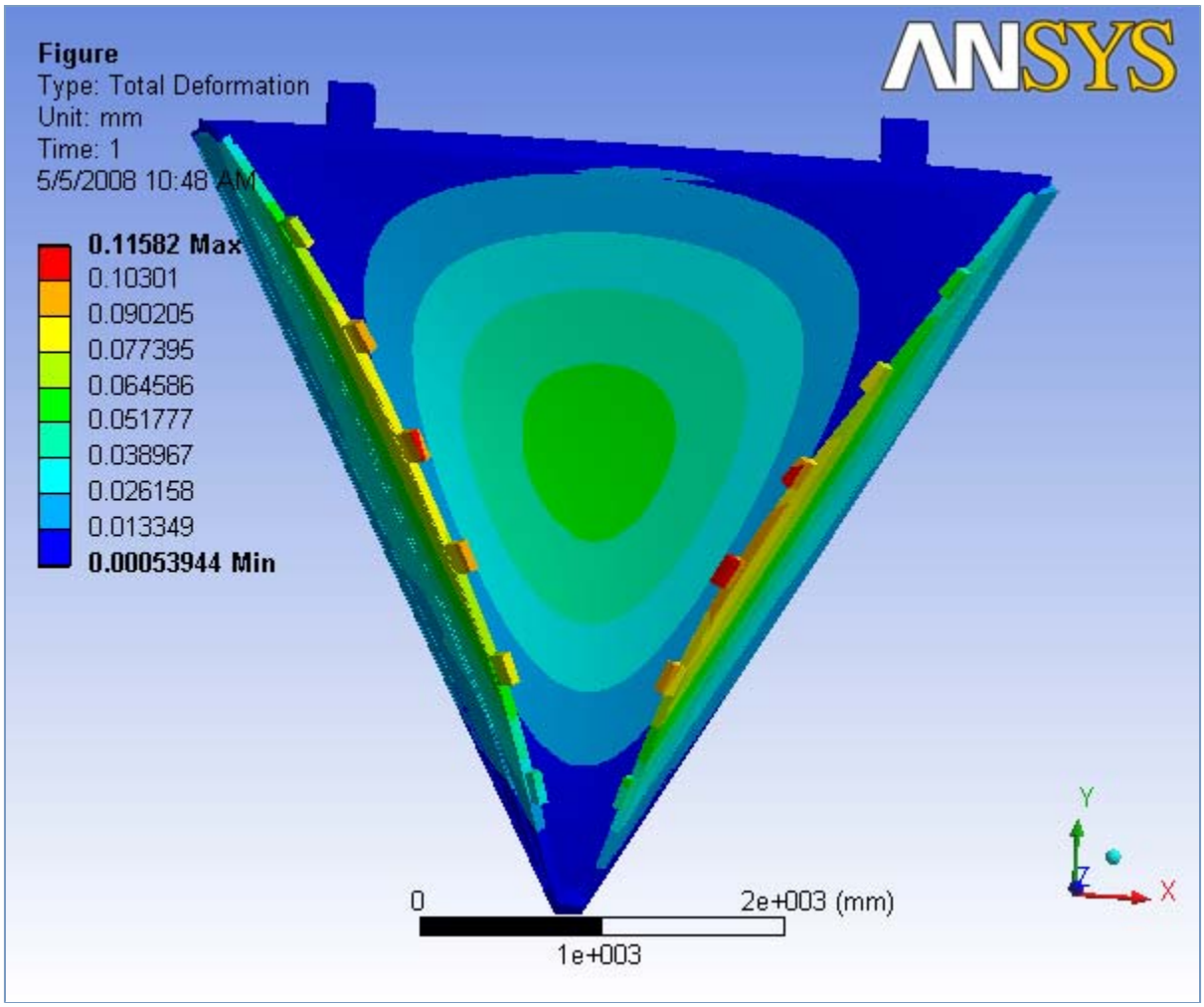


FIGURE 11
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Static Structural > Solution > X - Directional Deformation > Figure

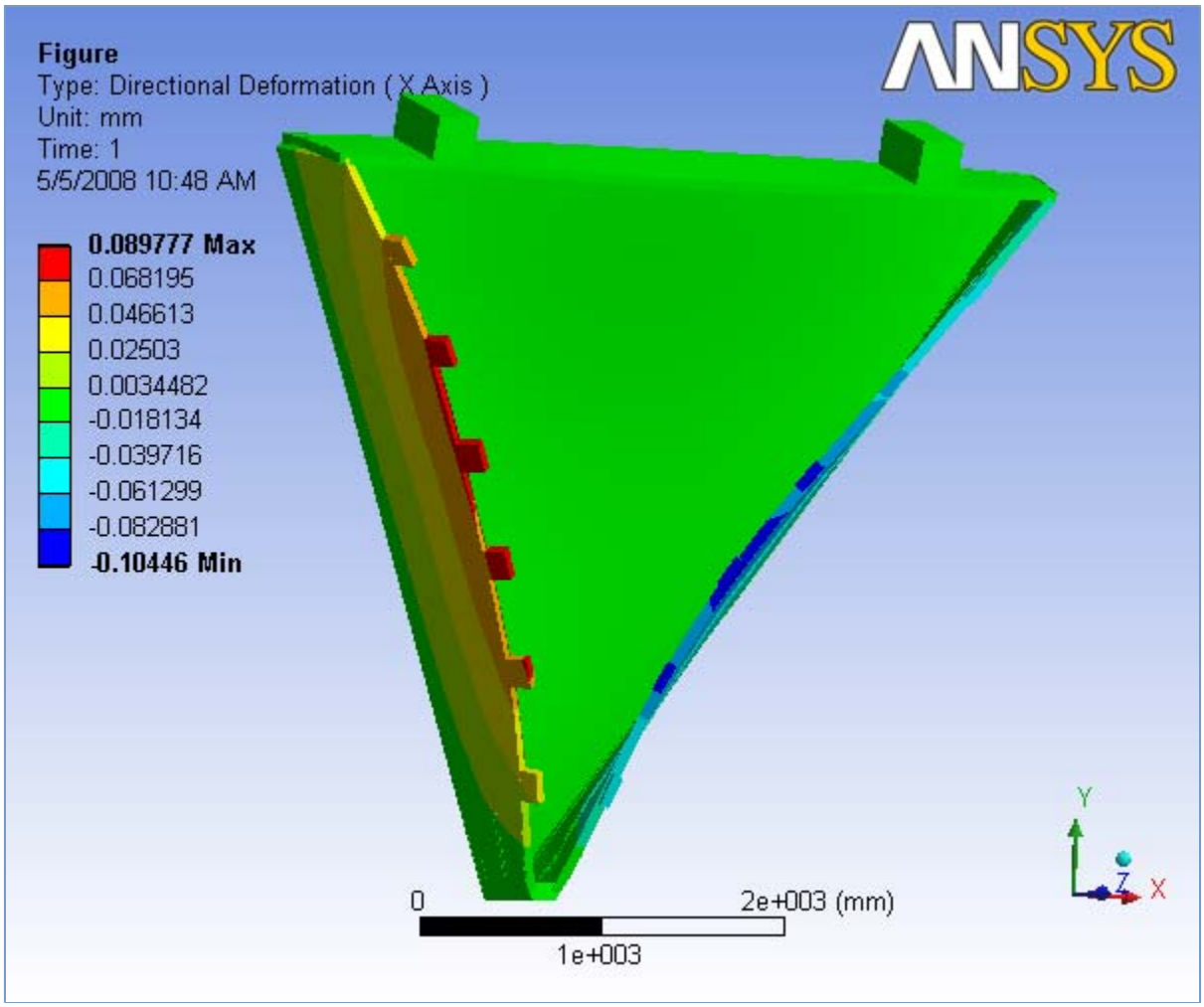


FIGURE 12
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Static Structural > Solution > Y - Directional Deformation > Figure

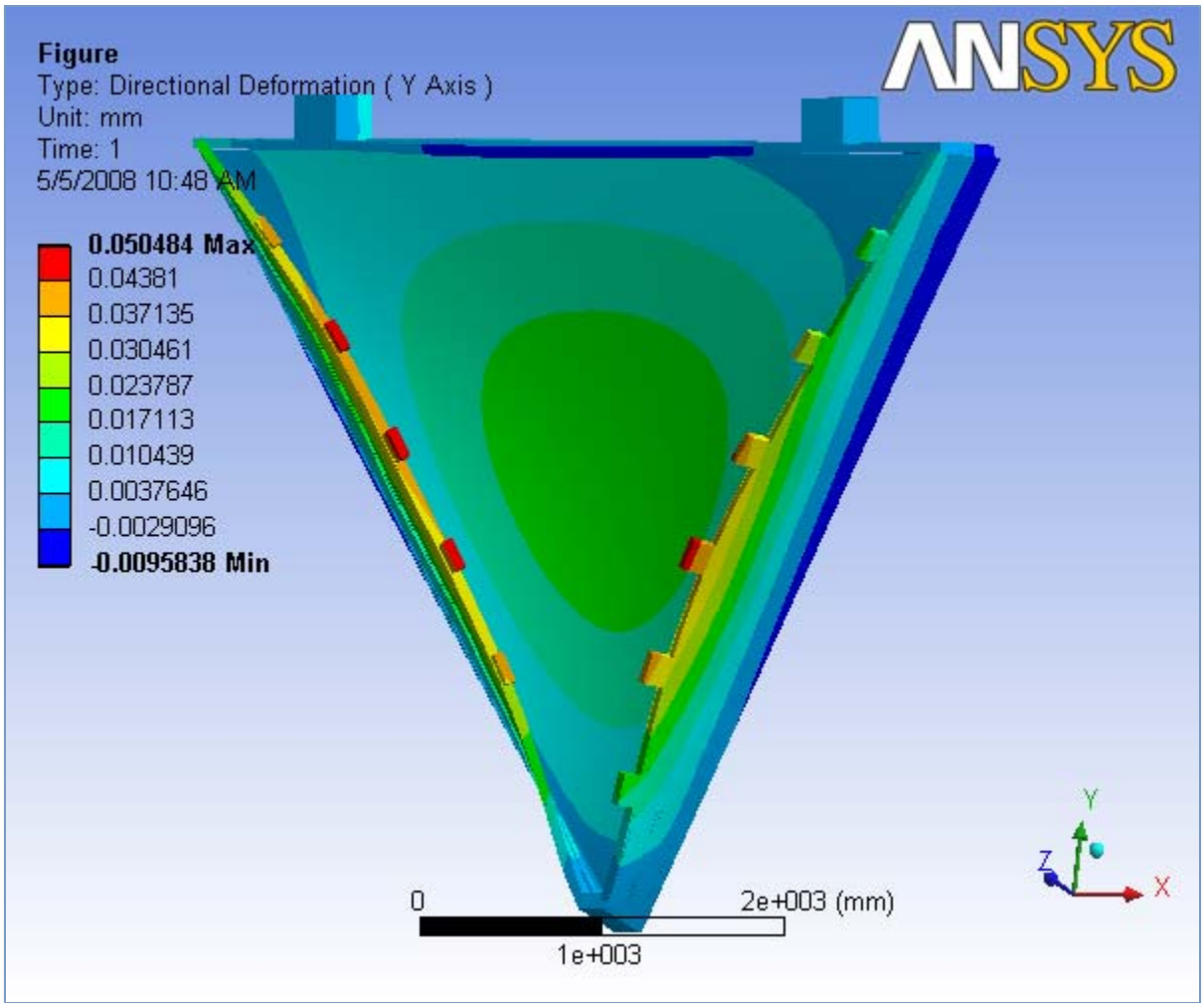


FIGURE 13
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Static Structural > Solution > Z - Directional Deformation > Figure

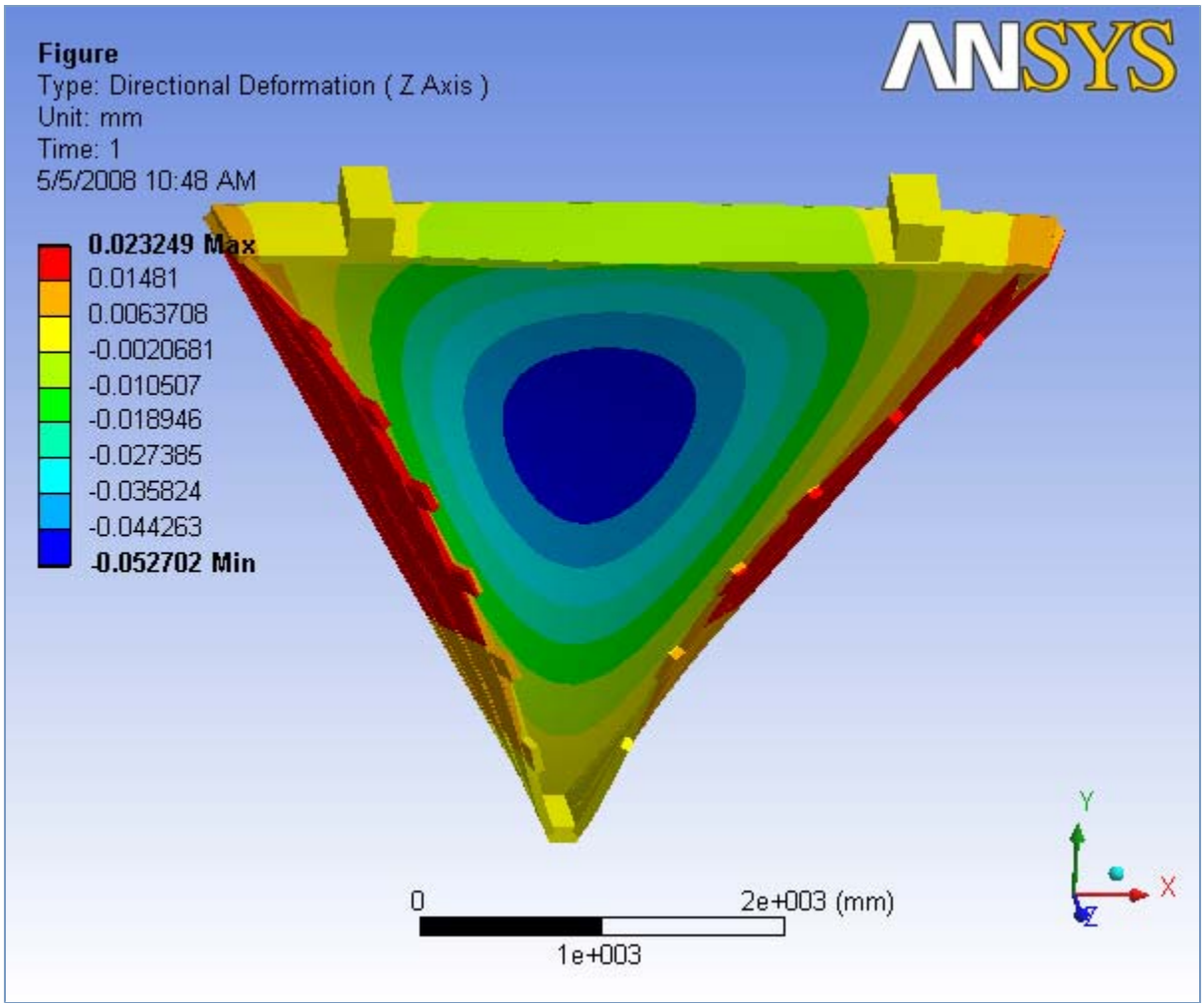


FIGURE 14
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Static Structural > Solution > Equivalent Stress > Figure

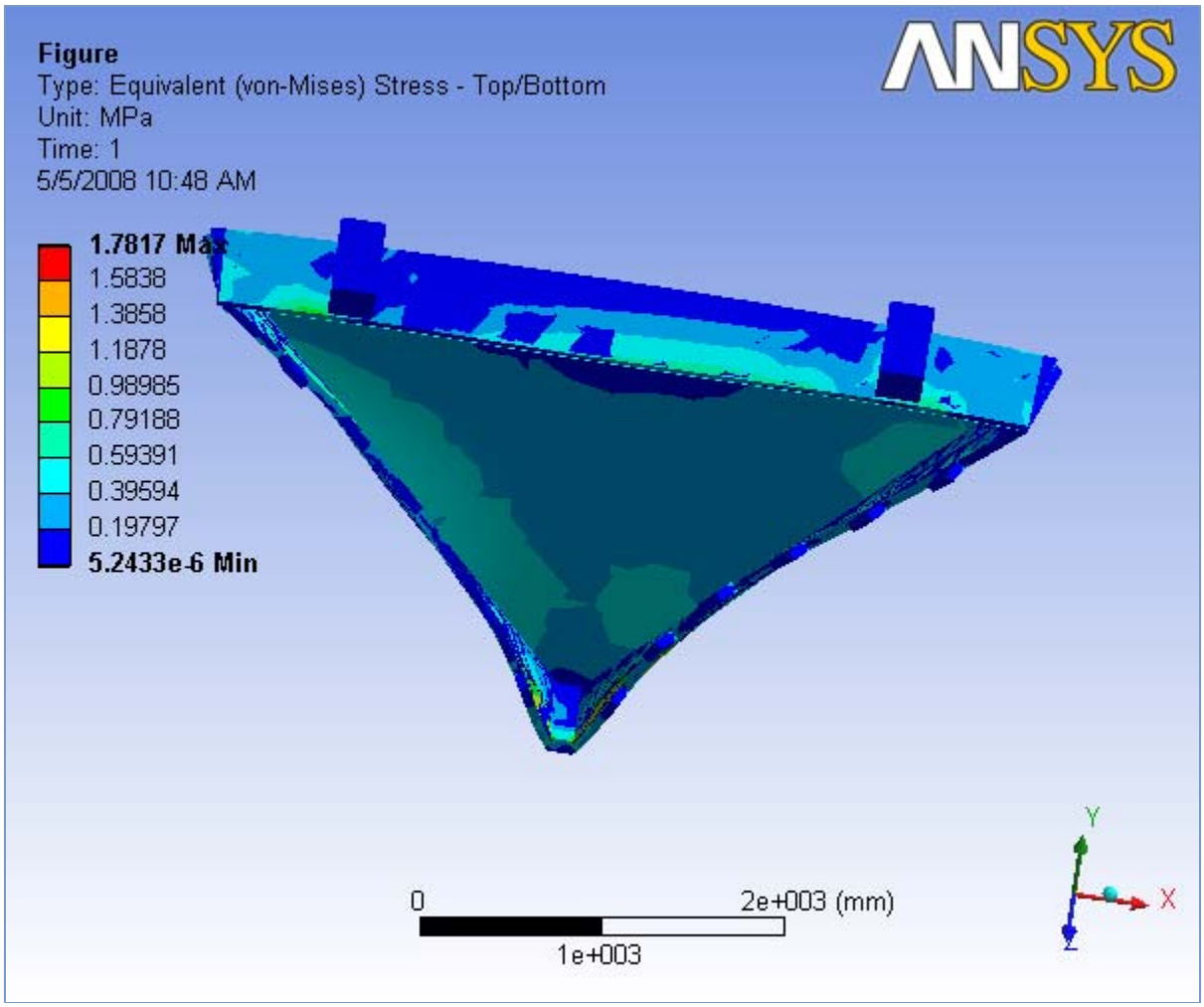
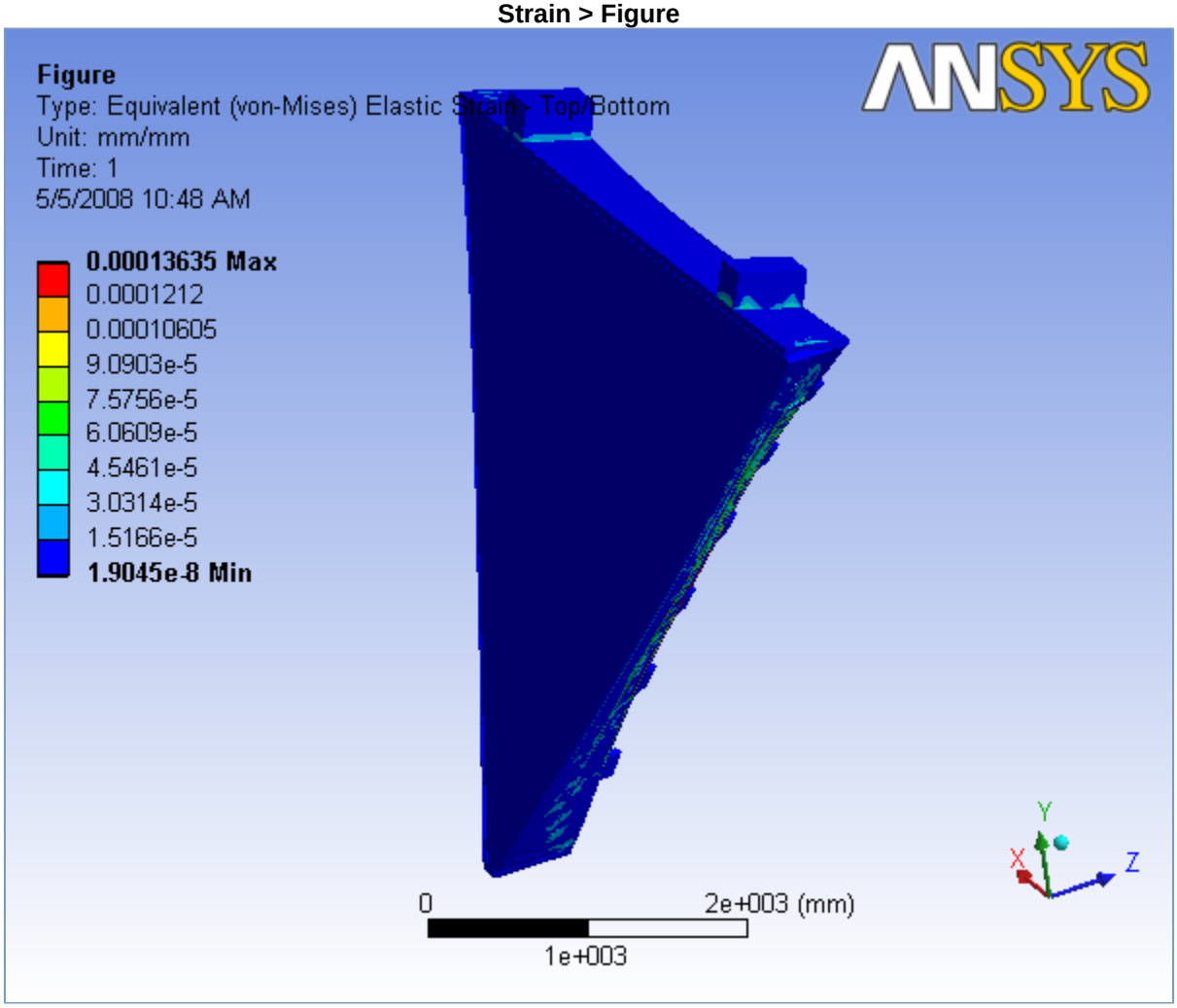


TABLE 32
Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Static Structural > Solution > Results

Object Name	*Equivalent Elastic Strain*
State	Solved
Scope	
Geometry	All Bodies
Definition	
Type	Equivalent (von-Mises) Elastic Strain
Shell	Top/Bottom
Display Time	End Time
Results	
Minimum	1.9045e-008 mm/mm
Maximum	1.3635e-004 mm/mm
Minimum Occurs On	60 Deg Ref line
Maximum Occurs On	Left Endplate Polyurethane
Information	
Time	1. s
Load Step	1
Substep	1
Iteration Number	1

FIGURE 15

Ideal slice with Wire loads, Hexcel (No Gravity, No Rods > Static Structural > Solution > Equivalent Elastic Strain > Figure



Material Data

Aluminum

TABLE 33
Aluminum > Constants

Structural	
Young's Modulus	68900 MPa
Poisson's Ratio	0.33
Density	2.7e-006 kg/mm³
Thermal Expansion	2.3e-005 1/°C
Thermal	
Thermal Conductivity	0. W/mm·°C
Specific Heat	0. J/kg·°C
Electromagnetics	
Relative Permeability	0.
Resistivity	0. Ohm·mm

Polyurethane

TABLE 34
Polyurethane > Constants

Structural	
Young's Modulus	66. MPa
Poisson's Ratio	0.3
Density	2.4e-007 kg/mm³
Thermal Expansion	6.12e-005 1/°C
Thermal	
Thermal Conductivity	0. W/mm·°C
Specific Heat	0. J/kg·°C
Electromagnetics	
Relative Permeability	0.
Resistivity	0. Ohm·mm

Stainless Steel

TABLE 35
Stainless Steel > Constants

Structural	
Young's Modulus	1.93e+005 MPa
Poisson's Ratio	0.3
Density	8.e-006 kg/mm³
Thermal Expansion	0. 1/°C
Thermal	
Thermal Conductivity	0. W/mm·°C
Specific Heat	0. J/kg·°C
Electromagnetics	
Relative Permeability	0.
Resistivity	0. Ohm·mm

Carbon Fiber

TABLE 36
Carbon Fiber > Constants

Structural	
Young's Modulus	1.5e+005 MPa
Poisson's Ratio	0.3
Density	5.8e-007 kg/mm³
Thermal Expansion	0. 1/°C
Thermal	
Thermal Conductivity	0. W/mm·°C
Specific Heat	0. J/kg·°C
Electromagnetics	
Relative Permeability	0.
Resistivity	0. Ohm·mm

Hexcel

TABLE 37
Hexcel > Constants

Structural	

Young's Modulus	1.4805e+005 MPa
Poisson's Ratio	0.33
Density	2.8833e-008 kg/mm³
Thermal Expansion	0. 1/°C
Thermal	
Thermal Conductivity	0. W/mm·°C
Specific Heat	0. J/kg·°C
Electromagnetics	
Relative Permeability	0.
Resistivity	0. Ohm·mm