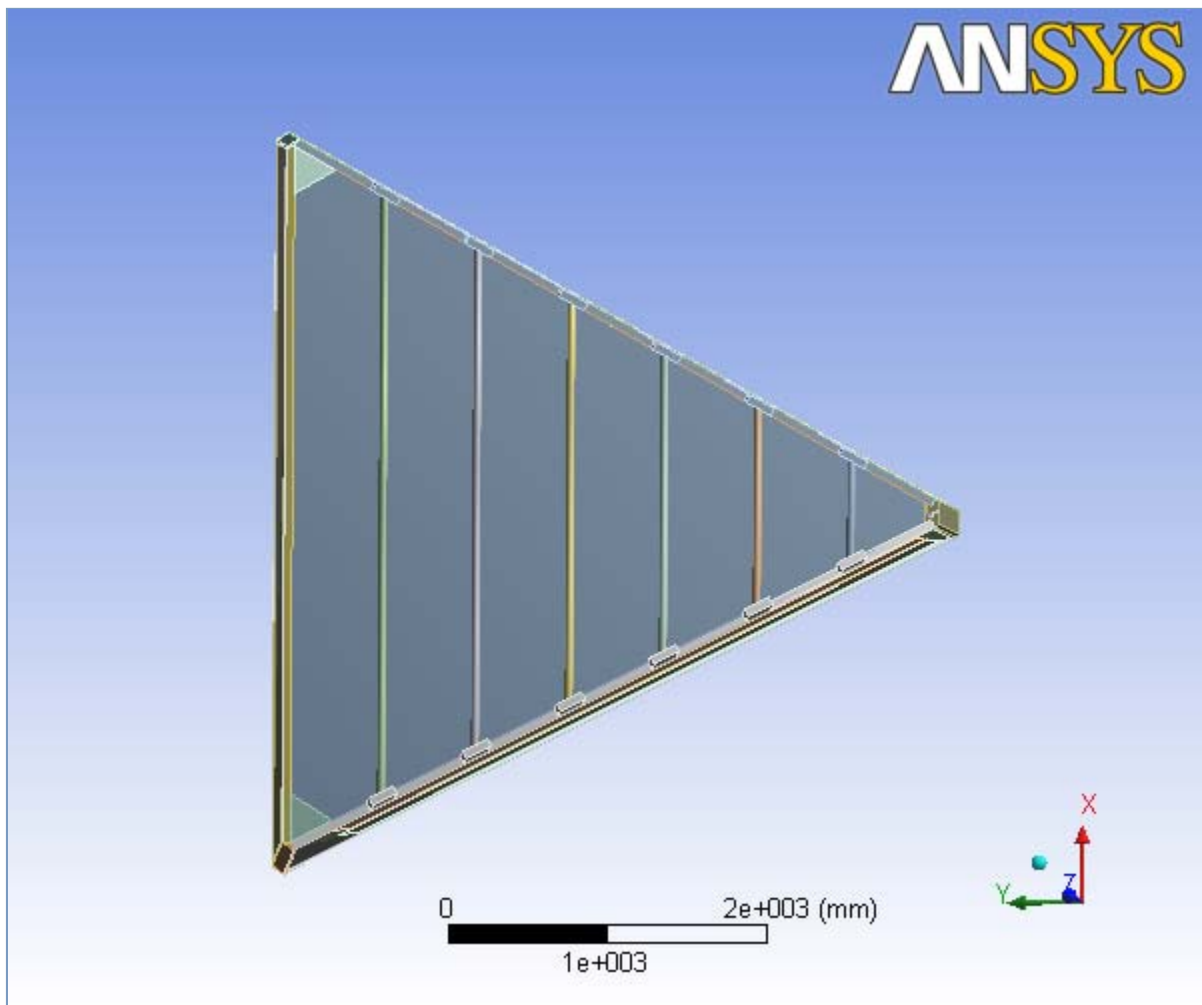




Project

<i>First Saved</i>	<i>Wednesday, June 18, 2008</i>
<i>Last Saved</i>	<i>Wednesday, June 18, 2008</i>
<i>Product Version</i>	<i>11.0 Release</i>



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Units

TABLE 1

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

Model

Geometry

TABLE 2
Model > Geometry

Object Name	<i>Geometry</i>
State	Fully Defined
Definition	
Source	C:\Documents and Settings\Jinnuri\Desktop\website\AI slit\change of directions\front constraints\correct angle.agdb
Type	DesignModeler
Length Unit	Millimeters
Element Control	Program Controlled
Display Style	Part Color
Bounding Box	
Length X	4666.1 mm
Length Y	3990.4 mm

Length Z	2314.9 mm
Properties	
Volume	8.0818e+008 mm ³
Mass	399.33 kg
Statistics	
Bodies	34
Active Bodies	34
Nodes	262117
Elements	77270
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
Model > Geometry > Parts

Object Name	<i>Nose Plate</i>	<i>Left End Plate Al Casing</i>	<i>Right End Plate Al casing</i>	<i>Left End Plate Polyurethane</i>	<i>Left End plate Upstream hole region</i>
State	Meshed				
Graphics Properties					
Visible	Yes				
Transparency	1				
Definition					
Suppressed	No				
Material	Aluminum			Polyurethane	
Stiffness Behavior	Flexible				
Nonlinear Material Effects	Yes				
Bounding Box					
Length X	180.75 mm	2283.4 mm	2283.2 mm	2260.4 mm	2008.7 mm
Length Y	94.005 mm	3904.2 mm	3903.9 mm	3864.3 mm	3428.4 mm
Length Z	568.09 mm	2296.2 mm	2297. mm	2241.4 mm	1789.9 mm
Properties					

Volume	7.1213e+006 mm ³	1.6804e+007 mm ³	1.6971e+007 mm ³	3.4379e+007 mm ³	3.987e+007 mm ³
Mass	19.228 kg	45.372 kg	45.822 kg	8.2511 kg	9.5688 kg
Centroid X	8.5774e-002 mm	-1139.4 mm	1141.5 mm	-1328.4 mm	-1096. mm
Centroid Y	42.669 mm	1903.1 mm	1906.9 mm	2230.5 mm	1828. mm
Centroid Z	-282.36 mm	707.38 mm	710.97 mm	667.75 mm	692.7 mm
Moment of Inertia Ip1	5.2535e+005 kg-mm ²	8.924e+007 kg-mm ²	8.9251e+007 kg-mm ²	2.1092e+007 kg-mm ²	1.3893e+007 kg-mm ²
Moment of Inertia Ip2	5.4397e+005 kg-mm ²	2.8518e+006 kg-mm ²	2.9061e+006 kg-mm ²	2.161e+005 kg-mm ²	30307 kg-mm ²
Moment of Inertia Ip3	46881 kg-mm ²	8.6402e+007 kg-mm ²	8.6361e+007 kg-mm ²	2.088e+007 kg-mm ²	1.3867e+007 kg-mm ²
Statistics					
Nodes	3560	19889	18895	18741	2739
Elements	2028	9298	8830	8323	1218

TABLE 4
Model > Geometry > Parts

Object Name	<i>Left End plate Downstream hole region</i>	<i>Right End plate Polyurethane</i>	<i>Right End Plate Downstream hole region</i>	<i>Left End plate Upstream hole region</i>	<i>Left End Plate Outer Steel slice</i>
State	Meshed				
Graphics Properties					
Visible	Yes				
Transparency	1				
Definition					
Suppressed	No				
Material	Polyurethane				Stainless steel
Stiffness Behavior	Flexible				
Nonlinear Material Effects	Yes				
Thickness					1.2192 mm
Thickness Mode					Manual
Bounding Box					
Length X	2027.4 mm	2260.2 mm	2176.2 mm	1957.4 mm	2239.4 mm
Length Y	3460.7 mm	3864. mm	3718.5 mm	3339.5 mm	3878.8 mm
Length Z	1811.5 mm	2240.3 mm	1742.4 mm	1601.6 mm	2296.2 mm
Properties					
Volume	4.1531e+007 mm ³	3.5005e+007 mm ³	4.2925e+007 mm ³	3.761e+007 mm ³	3.0281e+006 mm ³
Mass	9.9675 kg	8.4012 kg	10.302 kg	9.0264 kg	24.225 kg
Centroid X	-1086.9 mm	1303.4 mm	1155.5 mm	1037.4 mm	
Centroid Y	1812.3 mm	2187.2 mm	1931. mm	1726.6 mm	
Centroid Z	452. mm	667.47 mm	505.28 mm	643.66 mm	
Moment of Inertia Ip1	1.4739e+007 kg-mm ²	2.1874e+007 kg-mm ²	1.6313e+007 kg-mm ²	1.1679e+007 kg-mm ²	
Moment of Inertia Ip2	33499 kg-mm ²	2.2902e+005 kg-mm ²	34588 kg-mm ²	28585 kg-mm ²	
Moment of Inertia Ip3	1.4709e+007 kg-mm ²	2.1648e+007 kg-mm ²	1.6283e+007 kg-mm ²	1.1654e+007 kg-mm ²	

Surface Area (approx.)						2.4837e+006 mm ²
Statistics						
Nodes	2897	17614	3212	2313	549	
Elements	1300	7859	1469	1013	462	

TABLE 5
Model > Geometry > Parts

Object Name	<i>Left End plate Inner steel slice</i>	<i>Right End plate outer steel slice</i>	<i>Right End plate inner steel slice</i>	<i>Back plate lower steel slice</i>	<i>Back plate Al Casing</i>
State	Meshed				
Graphics Properties					
Visible	Yes				
Transparency	1				
Definition					
Suppressed	No				
Material	Stainless steel				Aluminum
Nonlinear Material Effects	Yes				
Thickness	1.2192 mm				
Thickness Mode	Manual				
Stiffness Behavior					Flexible
Bounding Box					
Length X	2239.4 mm	2239.2 mm	4567.5 mm		
Length Y	3878.8 mm	3878.5 mm	170.82 mm	218.77 mm	
Length Z	2296.2 mm	2296. mm	488.44 mm	505.21 mm	
Properties					
Volume	3.0281e+006 mm ³	3.0279e+006 mm ³	2.4164e+005 mm ³	1.0068e+007 mm ³	
Mass	24.225 kg	24.223 kg	1.9331 kg	27.185 kg	
Surface Area (approx.)	2.4837e+006 mm ²	2.4835e+006 mm ²	1.982e+005 mm ²		
Centroid X					2.9477e-010 mm
Centroid Y					3876.2 mm
Centroid Z					1488.7 mm
Moment of Inertia Ip1					1.5735e+006 kg·mm ²
Moment of Inertia Ip2					5.5622e+007 kg·mm ²
Moment of Inertia Ip3					5.406e+007 kg·mm ²
Statistics					
Nodes	665	537	481	1134	12137
Elements	576	448	392	766	5373

TABLE 6
Model > Geometry > Parts

Object Name	<i>Back plate lower steel slice</i>	<i>Back plate polyurethane</i>	<i>back plate Top Steel slice</i>	<i>Rod 1</i>	<i>Rod 6</i>
State	Meshed				
Graphics Properties					

Visible	Yes				
Transparency	1				
Definition					
Suppressed	No				
Material	Stainless steel	Polyurethane	Stainless steel	Carbon fiber	
Nonlinear Material Effects	Yes				
Thickness	1.2192 mm		1.2192 mm		
Thickness Mode	Manual		Manual		
Stiffness Behavior		Flexible		Flexible	
Bounding Box					
Length X	4519.2 mm		4567.5 mm	640.04 mm	3779.6 mm
Length Y	157.61 mm	205.56 mm	170.82 mm	50.8 mm	
Length Z	450.68 mm	467.45 mm	488.44 mm	50.8 mm	
Properties					
Volume	2.5777e+006 mm ³	1.074e+008 mm ³	2.8193e+006 mm ³	1.2067e+005 mm ³	7.4101e+005 mm ³
Mass	20.621 kg	25.777 kg	22.554 kg	6.9988e-002 kg	0.42978 kg
Surface Area (approx.)	2.1142e+006 mm ²		2.3124e+006 mm ²		
Centroid X		-3.0309e-012 mm		-4.9796e-011 mm	1.5012e-008 mm
Centroid Y		3875.2 mm		509.93 mm	3228.4 mm
Centroid Z		1491.6 mm		268.71 mm	1536.6 mm
Moment of Inertia Ip1		4.9513e+005 kg·mm ²		41.935 kg·mm ²	257.66 kg·mm ²
Moment of Inertia Ip2		4.2628e+007 kg·mm ²		2177.9 kg·mm ²	4.9806e+005 kg·mm ²
Moment of Inertia Ip3		4.2144e+007 kg·mm ²		2178.1 kg·mm ²	4.9806e+005 kg·mm ²
Statistics					
Nodes	630	4862	598	14372	40512
Elements	543	2276	511	2112	5776

TABLE 7
Model > Geometry > Parts

Object Name	<i>Rod 2</i>	<i>Rod 3</i>	<i>Rod 4</i>	<i>Rod 5</i>	<i>Hexcel</i>
State	Meshed				
Graphics Properties					
Visible	Yes				
Transparency	1				
Definition					
Suppressed	No				
Material	Carbon fiber				Hexcel
Stiffness Behavior	Flexible				
Nonlinear Material Effects	Yes				
Bounding Box					
Length X	1267.9 mm	1895.9 mm	2523.8 mm	3151.7 mm	4568.3 mm
Length Y	50.8 mm				3859.3 mm
Length Z	50.8 mm				1827.5 mm

Properties					
Volume	2.4474e+005 mm ³	3.688e+005 mm ³	4.9287e+005 mm ³	6.1694e+005 mm ³	3.8974e+008 mm ³
Mass	0.14195 kg	0.21391 kg	0.28587 kg	0.35782 kg	11.236 kg
Centroid X	-4.9017e-010 mm	1.5402e-009 mm	3.0975e-010 mm	-4.461e-009 mm	4.9591e-013 mm
Centroid Y	1053.4 mm	1597.1 mm	2140.9 mm	2684.6 mm	2614.3 mm
Centroid Z	522.28 mm	775.85 mm	1029.4 mm	1283. mm	648.83 mm
Moment of Inertia Ip1	85.088 kg·mm ²	128.23 kg·mm ²	171.37 kg·mm ²	214.51 kg·mm ²	1.1791e+007 kg·mm ²
Moment of Inertia Ip2	17994 kg·mm ²	61468 kg·mm ²	1.4662e+005 kg·mm ²	2.8747e+005 kg·mm ²	9.7381e+006 kg·mm ²
Moment of Inertia Ip3	17995 kg·mm ²	61469 kg·mm ²	1.4662e+005 kg·mm ²	2.8747e+005 kg·mm ²	2.1527e+007 kg·mm ²
Statistics					
Nodes	7704	20352	27072	33792	241
Elements	1092	2896	3856	4816	24

TABLE 8
Model > Geometry > Parts

Object Name	<i>Hexcel Downstream carbon slice</i>	<i>Hexcel upstream carbon slice</i>	<i>Left Corner</i>	<i>Left Triangle</i>	<i>Solid</i>
State	Meshed				
Graphics Properties					
Visible	Yes				
Transparency	1				
Definition					
Suppressed	No				
Material	Carbon fiber		Aluminum	Stainless steel	Aluminum
Nonlinear Material Effects	Yes				
Thickness	0.254 mm				
Thickness Mode	Manual				
Stiffness Behavior	Flexible				
Bounding Box					
Length X	4568.3 mm	4549.2 mm	153.37 mm	300. mm	43.689 mm
Length Y	3842.7 mm		251.02 mm	250.69 mm	4.5919 mm
Length Z	1791.9 mm		505.46 mm	134.91 mm	5. mm
Properties					
Volume	2.5305e+006 mm ³	2.5099e+006 mm ³	7.5687e+005 mm ³	1.0087e+006 mm ³	501.53 mm ³
Mass	1.4677 kg	1.4557 kg	2.0435 kg	8.0699 kg	1.3541e-003 kg
Surface Area (approx.)	9.9628e+006 mm ²	9.8815e+006 mm ²			
Centroid X			-2252.7 mm	-2037.6 mm	-14.563 mm
Centroid Y			3855.6 mm	3685.6 mm	61.893 mm
Centroid Z			1490.2 mm	1680.2 mm	2.5 mm
Moment of Inertia Ip1			48086 kg·mm ²	32497 kg·mm ²	4.0075e-003 kg·mm ²
Moment of Inertia Ip2			47348 kg·mm ²	30096 kg·mm ²	0.14681 kg·mm ²
Moment of Inertia					0.14518

Ip3		929.15 kg-mm ²	61725 kg-mm ²	kg-mm ²
Statistics				
Nodes	1234	1228	174	1185
Elements	1129	1125	24	554

TABLE 9
Model > Geometry > Parts

Object Name	<i>Solid</i>	<i>Solid</i>	<i>Solid</i>	<i>Right Triangle</i>
State	Meshed			
Graphics Properties				
Visible	Yes			
Transparency	1			
Definition				
Suppressed	No			
Material	Aluminum			Structural Steel
Stiffness Behavior	Flexible			
Nonlinear Material Effects	Yes			
Bounding Box				
Length X	43.171 mm	22.968 mm	20.539 mm	441.84 mm
Length Y	4.5375 mm	13.261 mm	11.858 mm	463.6 mm
Length Z	5. mm			505.34 mm
Properties				
Volume	489.72 mm ³	761.45 mm ³	608.87 mm ³	1.6112e+006 mm ³
Mass	1.3223e-003 kg	2.0559e-003 kg	1.644e-003 kg	12.648 kg
Centroid X	14.39 mm	-7.6561 mm	6.8462 mm	2116. mm
Centroid Y	87.316 mm	44.625 mm	18.691 mm	3755. mm
Centroid Z	2.5 mm			1611.2 mm
Moment of Inertia Ip1	3.8859e-003 kg-mm ²	1.7883e-002 kg-mm ²	1.2121e-002 kg-mm ²	4.4307e+005 kg-mm ²
Moment of Inertia Ip2	0.14005 kg-mm ²	7.1023e-002 kg-mm ²	4.6098e-002 kg-mm ²	4.6054e+005 kg-mm ²
Moment of Inertia Ip3	0.13842 kg-mm ²	8.034e-002 kg-mm ²	5.1369e-002 kg-mm ²	80594 kg-mm ²
Statistics				
Nodes	166	283	1776	400
Elements	14	36	977	139

Connections

TABLE 10
Model > Connections

Object Name	<i>Connections</i>
State	Fully Defined
Auto Detection	
Generate Contact On Update	Yes
Tolerance Type	Slider
Tolerance Slider	0.
Tolerance Value	16.404 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 11
Model > 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 End Plate Al Casing	Right End Plate Al casing	Left End Plate Polyurethane	Right End plate Polyurethane	Left End plate 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 12
Model > 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				
Target	1 Face				
Contact Bodies	Nose Plate				
Target Bodies	Right End plate inner steel slice	Solid			
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
Model > 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	4 Faces	1 Face			
Target	4 Faces	1 Face			
Contact Bodies	Left End Plate AI Casing				
Target Bodies	Left End Plate Polyurethane	Left End Plate Outer Steel slice	Left End plate Inner steel slice	Rod 1	Rod 6
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
Model > 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				
Target	1 Face				
Contact Bodies	Left End Plate AI Casing				
Target Bodies	Rod 2	Rod 3	Rod 4	Rod 5	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 15
Model > Connections > Contact Regions

Object Name	Contact Region 21	Contact Region 25	Contact Region 26	Contact Region 27	Contact Region 28
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 End Plate Al Casing	Right End Plate Al casing			
Target Bodies	Hexcel Downstream carbon slice	Right End plate Polyurethane	Right End plate outer steel slice	Right End plate inner steel slice	Rod 1
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
Model > Connections > Contact Regions

Object Name	Contact Region 29	Contact Region 30	Contact Region 31	Contact Region 32	Contact Region 33
State	Fully Defined				
Scope					
Scoping Method	Geometry Selection				
Contact	1 Face				
Target	1 Face				
Contact Bodies	Right End Plate Al casing				
Target Bodies	Rod 6	Rod 2	Rod 3	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 17
Model > Connections > Contact Regions

Object Name	<i>Contact Region 34</i>	<i>Contact Region 35</i>	<i>Contact Region 41</i>	<i>Contact Region 42</i>	<i>Contact Region 45</i>
State	Fully Defined				
Scope					
Scoping Method	Geometry Selection				
Contact	1 Face				
Target	1 Face				
Contact Bodies	Right End Plate Al casing		Left End Plate Polyurethane		Left End plate Upstream hole region
Target Bodies	Hexcel	Hexcel Downstream carbon slice	Left End plate Inner steel slice	Hexcel	Left End plate 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 18
Model > Connections > Contact Regions

Object Name	<i>Contact Region 47</i>	<i>Contact Region 51</i>	<i>Contact Region 52</i>	<i>Contact Region 55</i>	<i>Contact Region 57</i>
State	Fully Defined				
Scope					
Scoping Method	Geometry Selection				
Contact	1 Face				
Target	1 Face				
Contact Bodies	Left End plate Downstream hole region	Right End plate Polyurethane		Right End Plate Downstream hole region	Left End plate Upstream hole region
Target Bodies	Left End plate Inner steel slice	Right End plate inner steel slice	Hexcel	Right End plate 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 19
Model > Connections > Contact Regions

Object Name	Contact Region 58	Contact Region 59	Contact Region 60	Contact Region 61	Contact Region 62
State	Fully Defined				
Scope					
Scoping Method	Geometry Selection				
Contact	1 Face				
Target	1 Face				
Contact Bodies	Left End plate Inner steel slice	Right End plate inner steel slice	Back plate lower steel slice		
Target Bodies	Hexcel		Back plate Al Casing	Hexcel	Left Triangle
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
Model > Connections > Contact Regions

Object Name	Contact Region 63	Contact Region 64	Contact Region 65	Contact Region 66	Contact Region 69
State	Fully Defined				
Scope					
Scoping Method	Geometry Selection				
Contact	4 Faces	1 Face			
Target	4 Faces	1 Face			
Contact Bodies	Back plate Al Casing				
Target Bodies	Back plate polyurethane	back plateTop Steel slice	Hexcel	Hexcel Downstream carbon slice	Left Triangle
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
Model > Connections > Contact Regions

Object Name	<i>Contact Region 71</i>	<i>Contact Region 72</i>	<i>Contact Region 73</i>	<i>Contact Region 74</i>	<i>Contact Region 75</i>
State	Fully Defined				
Scope					
Scoping Method	Geometry Selection				
Contact	1 Face				
Target	1 Face				
Contact Bodies	Back plate lower steel slice		Back plate polyurethane		Hexcel
Target Bodies	Back plate polyurethane	Hexcel	back plateTop Steel slice	Hexcel	Hexcel Downstream carbon 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 22
Model > Connections > Contact Regions

Object Name	<i>Contact Region 76</i>	<i>Contact Region 78</i>	<i>Contact Region 79</i>	<i>Contact Region 80</i>	<i>Contact Region 84</i>
State	Fully Defined				
Scope					
Scoping Method	Geometry Selection				
Contact	1 Face				
Target	1 Face				
Contact Bodies	Hexcel	Hexcel Downstream carbon slice	Left End Plate Al Casing	Left End plate Inner steel slice	Left End Plate Polyurethane
Target Bodies	Hexcel upstream carbon slice	Left Corner	Left Triangle		Left End Plate 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 23
Model > Connections > Contact Regions

Object Name	<i>Contact Region 87</i>	<i>Contact Region 77</i>	<i>Contact Region 81</i>	<i>Contact Region 85</i>	<i>Contact Region 86</i>
State	Fully Defined				
Scope					
Scoping Method	Geometry Selection				
Contact	1 Face		2 Faces	4 Faces	
Target	1 Face		2 Faces	4 Faces	
Contact Bodies	Right End plate Polyurethane	Left End Plate Al Casing	Right End Plate Al casing	Left End Plate Polyurethane	
Target Bodies	Right End plate outer steel slice	Left Corner	Right Triangle	Left End plate Upstream hole region	Left End plate Downstream hole region
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 24
Model > Connections > Contact Regions

Object Name	<i>Contact Region 94</i>	<i>Contact Region 95</i>	<i>Contact Region 96</i>	<i>Contact Region 97</i>	<i>Contact Region 98</i>
State	Fully Defined				
Scope					
Scoping Method	Geometry Selection				
Contact	1 Face			2 Faces	1 Face
Target	1 Face			2 Faces	1 Face
Contact Bodies	Right End plate inner steel slice	Back plate lower steel slice	Back plate Al Casing		Hexcel Downstream carbon slice
Target Bodies	Right Triangle		Left Corner	Right Triangle	
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 25
Model > Connections > Contact Regions

Object Name	Contact Region 82	Contact Region 83	Contact Region 88	Contact Region 89	Contact Region 90
State	Fully Defined				
Scope					
Scoping Method	Geometry Selection				
Contact	1 Face				
Target	1 Face				
Contact Bodies	Left End Plate Al Casing	Right End Plate Al casing	Left End Plate Polyurethane	Left End plate Upstream hole region	Left End plate Downstream hole region
Target Bodies	Left End plate Upstream hole region		Left Triangle	Left End Plate 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 26
Model > Connections > Contact Regions

Object Name	Contact Region 91	Contact Region 92	Contact Region 93	Contact Region 99	Contact Region 100
State	Fully Defined				
Scope					
Scoping Method	Geometry Selection				
Contact	4 Faces			1 Face	
Target	4 Faces			1 Face	
Contact Bodies	Right End plate Polyurethane			Right End Plate Downstream hole region	Left End plate Upstream hole region
Target Bodies	Right End Plate Downstream hole region	Left End plate Upstream hole region	Right Triangle	Right End plate 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 27
Model > Connections > Contact Regions

Object Name	Contact Region 101	Contact Region 102	Contact Region 103	Contact Region 104
State	Fully Defined			
Scope				
Scoping Method	Geometry Selection			
Contact	1 Face		3 Faces	
Target	1 Face		3 Faces	
Contact Bodies	Back plate lower steel slice		Back plate polyurethane	
Target Bodies	Left Triangle	Right Triangle	Left Triangle	Right Triangle
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 28
Model > Mesh

Object Name	<i>Mesh</i>
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	262117
Elements	77270

TABLE 29
Model > Mesh > Mesh Controls

Object Name	<i>Refinement</i>	<i>Refinement 2</i>	<i>Refinement 3</i>	<i>Refinement 4</i>	<i>Refinement 5</i>
State	Fully Defined				
Scope					
Scoping Method	Geometry Selection				
Geometry	6 Faces			9 Faces	
Definition					
Suppressed	No				
Refinement	1				

Static Structural

TABLE 30
Model > Analysis

Object Name	<i>Static Structural</i>
State	Fully Defined
Definition	
Physics Type	Structural
Analysis Type	Static Structural
Options	
Reference Temp	22. °C

TABLE 31
Model > Static Structural > Analysis Settings

Object Name	<i>Analysis Settings</i>
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\change of directions\front constraints\correct angle Simulation Files\Static Structural\
Future Analysis	None
Save ANSYS db	No
Delete Unneeded Files	Yes
Nonlinear Solution	No

TABLE 32
Model > Static Structural > Accelerations

Object Name	<i>Acceleration</i>
State	Fully Defined
Scope	
Geometry	All Bodies
Definition	
Define By	Vector
Magnitude	9810. mm/s ² (ramped)
Direction	Defined
Suppressed	No

FIGURE 1
Model > Static Structural > Acceleration

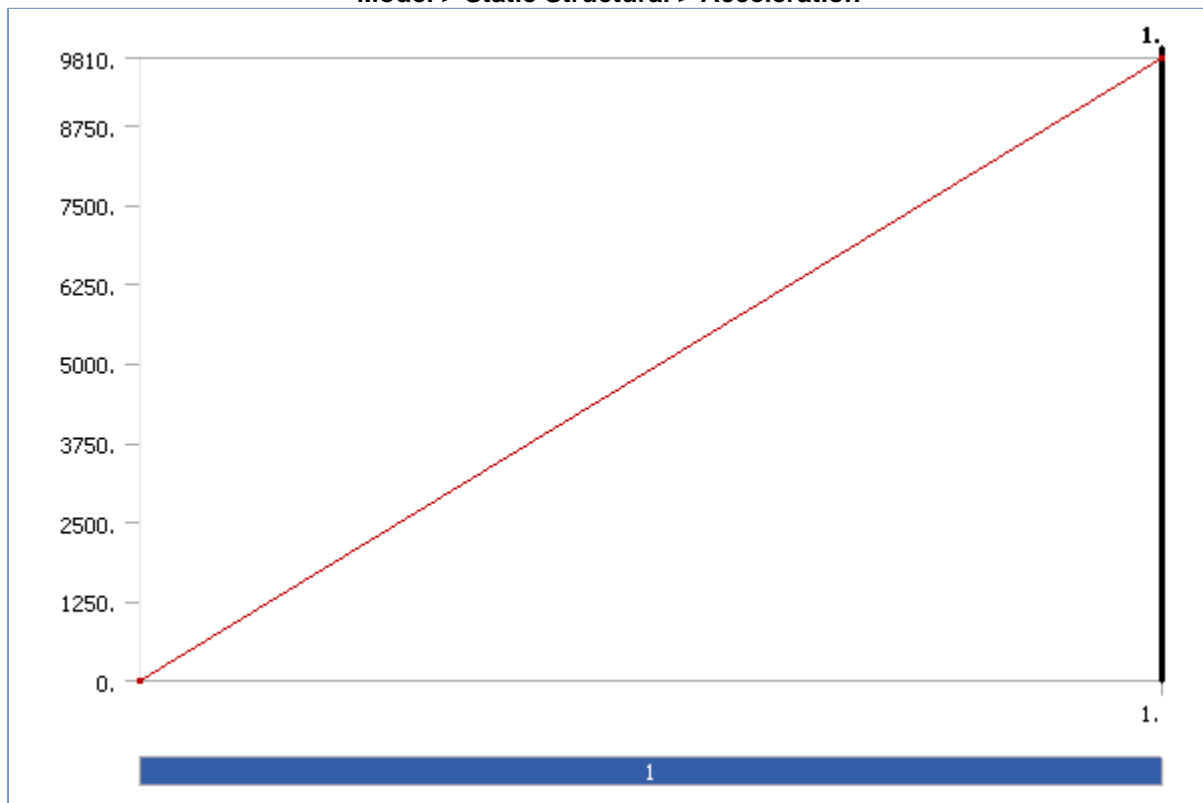


TABLE 33
Model > Static Structural > Loads

Object Name	<i>Left Triangle</i>	<i>Right Triangle Face</i>	<i>Left Upstream</i>	<i>Left Downstream</i>	<i>Right Upstream</i>
State	Fully Defined				
Scope					

Scoping Method	Geometry Selection			
Geometry	1 Face			
Definition				
Define By	Components			
Type	Displacement		Force	
X Component	Free	0. mm (ramped)	1503.7 N (ramped)	-1503.7 N (ramped)
Y Component	0. mm (ramped)	Free	-158. N (ramped)	158. N (ramped)
Z Component	0. mm (ramped)		0. N (ramped)	
Suppressed	No			

FIGURE 2
Model > Static Structural > Left Triangle

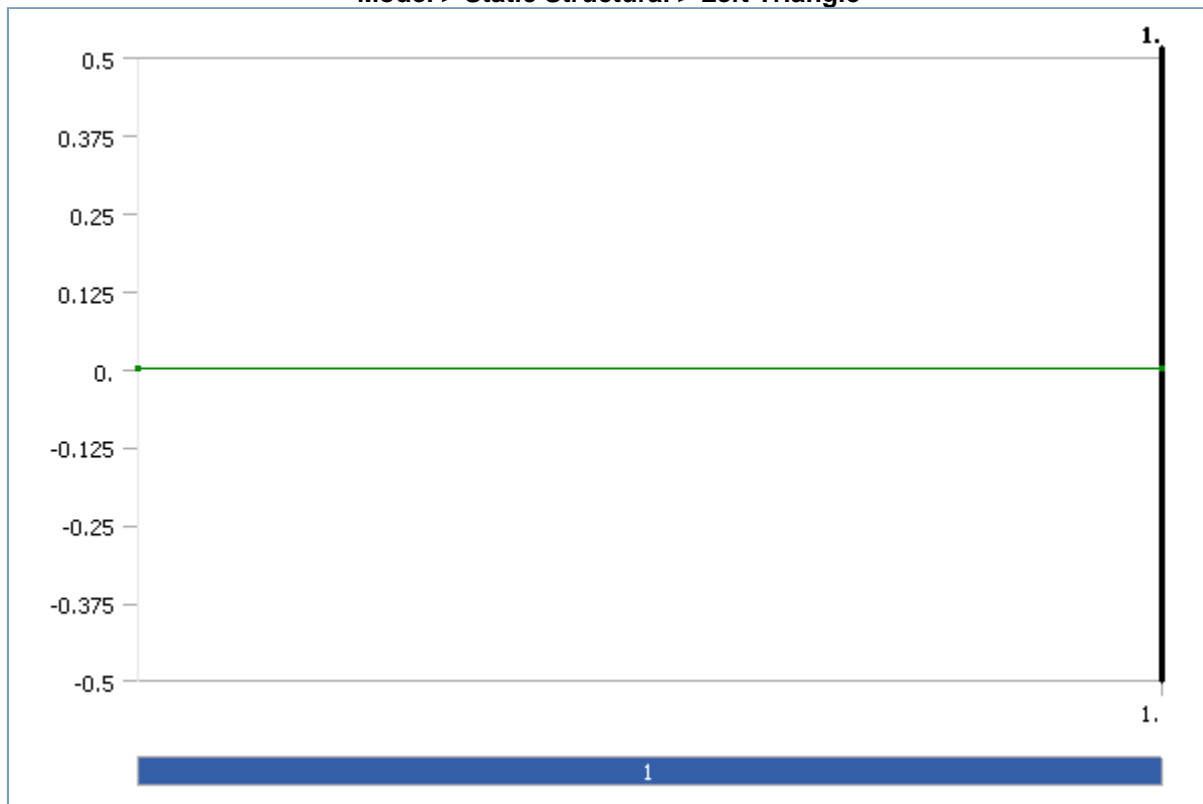


FIGURE 3
Model > Static Structural > Right Triangle Face

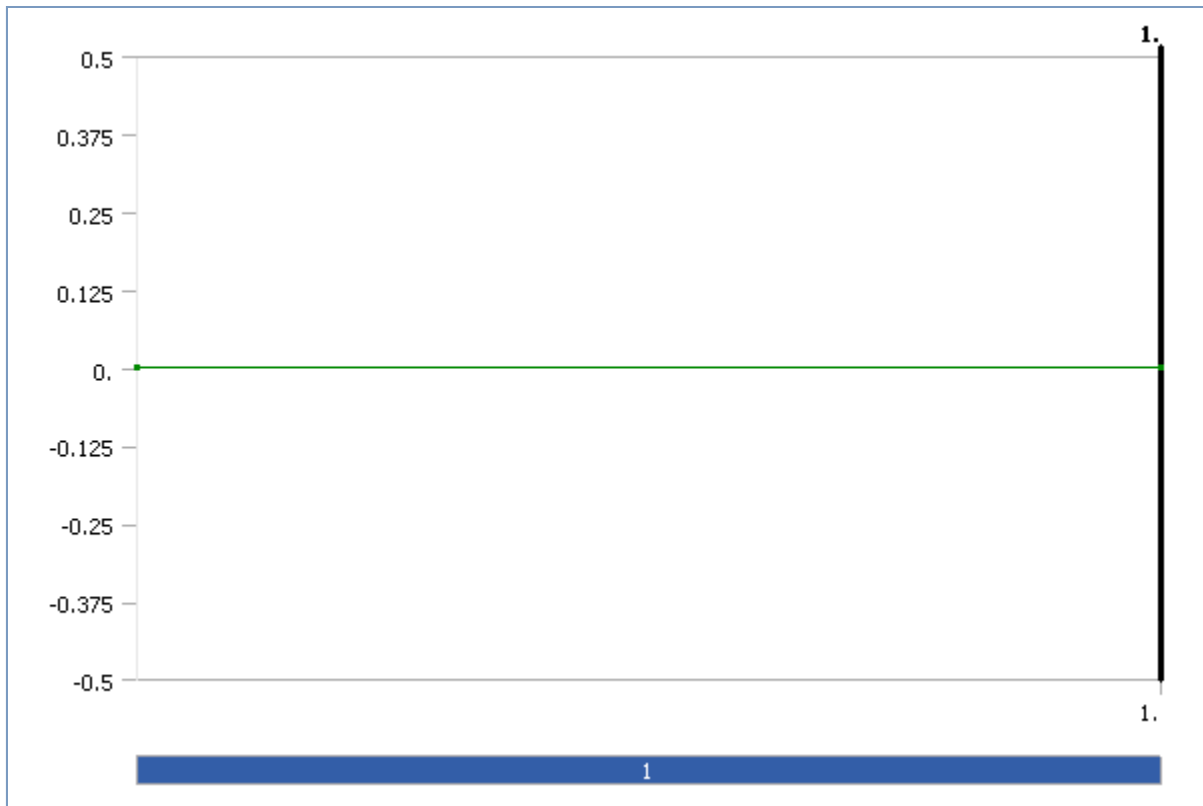


FIGURE 4
Model > Static Structural > Left Upstream

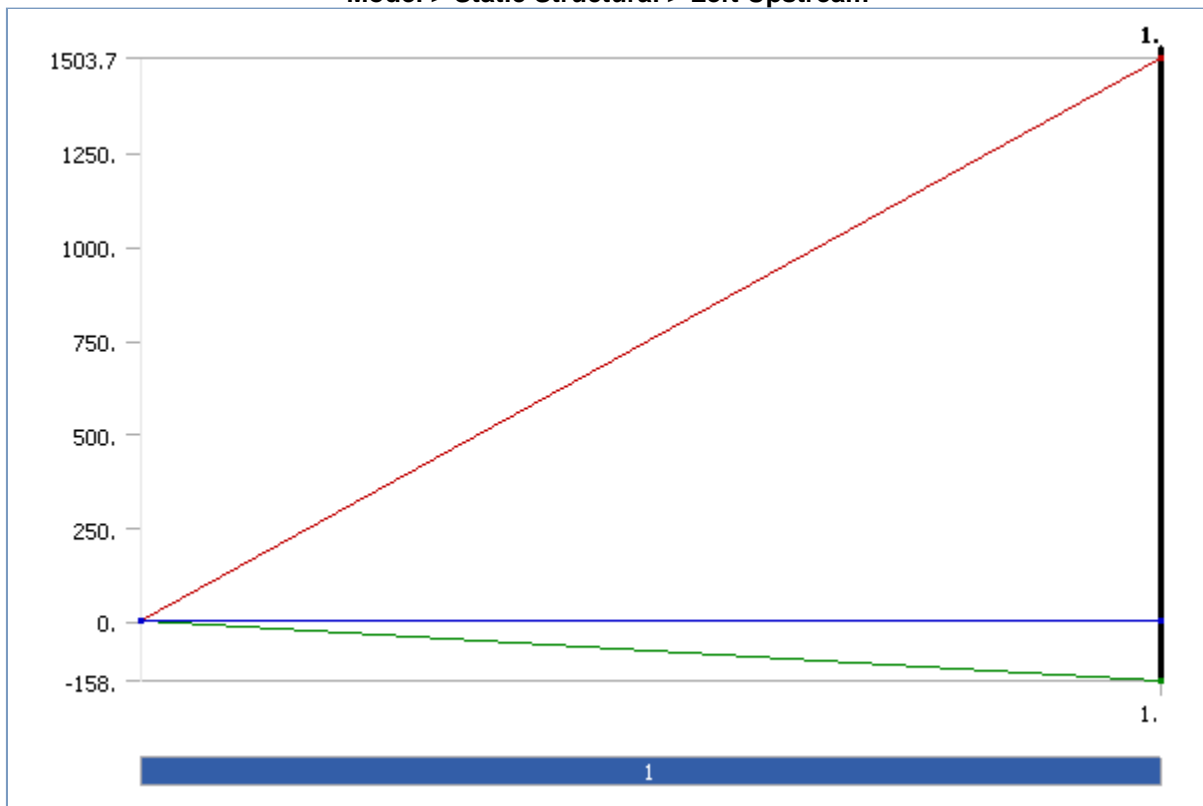


FIGURE 5
Model > Static Structural > Left Downstream

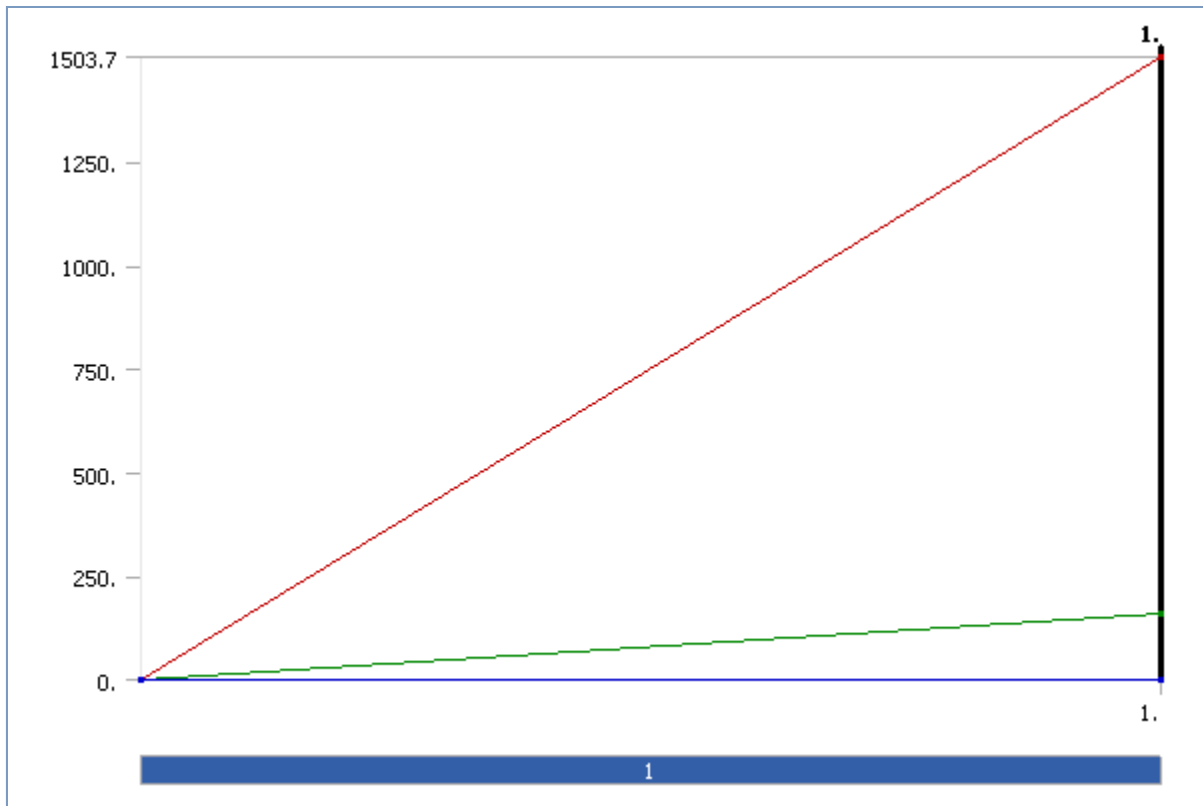


FIGURE 6
Model > Static Structural > Right Upstream

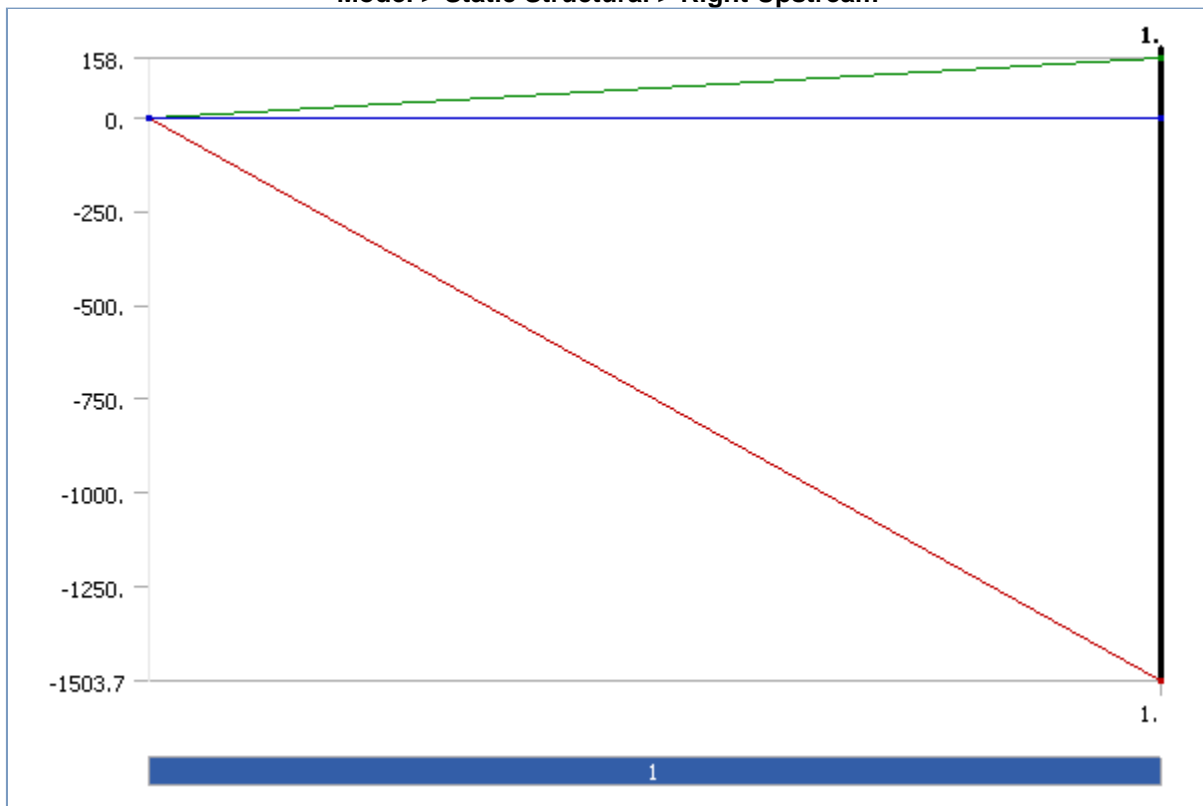


TABLE 34
Model > Static Structural > Loads

Object Name	<i>Right Downstream</i>	<i>Displacement</i>	<i>Rod 4 Right</i>	<i>rod 3 Right</i>	<i>Rod 4 Left</i>
State	Fully Defined				Suppressed
Scope					
Scoping Method	Geometry Selection				
Geometry	1 Face				
Definition					
Define By	Components				
Type	Force	Displacement	Force		
X Component	-1503.7 N (ramped)	0. mm (ramped)	250. N (ramped)	275. N (ramped)	-100. N (ramped)
Y Component	-158. N (ramped)	Free	0. N (ramped)		
Z Component	0. N (ramped)	0. mm (ramped)	0. N (ramped)		
Suppressed	No				Yes

FIGURE 7
Model > Static Structural > Right Downstream

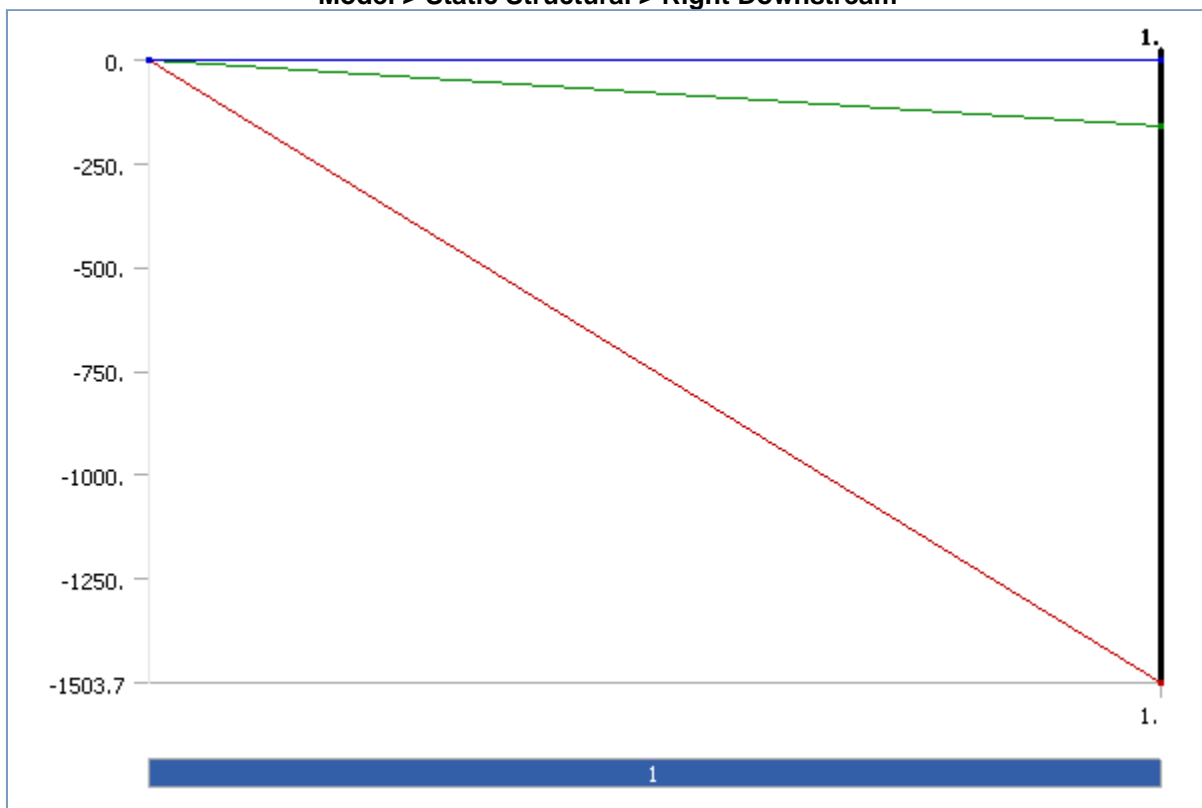


FIGURE 8
Model > Static Structural > Displacement

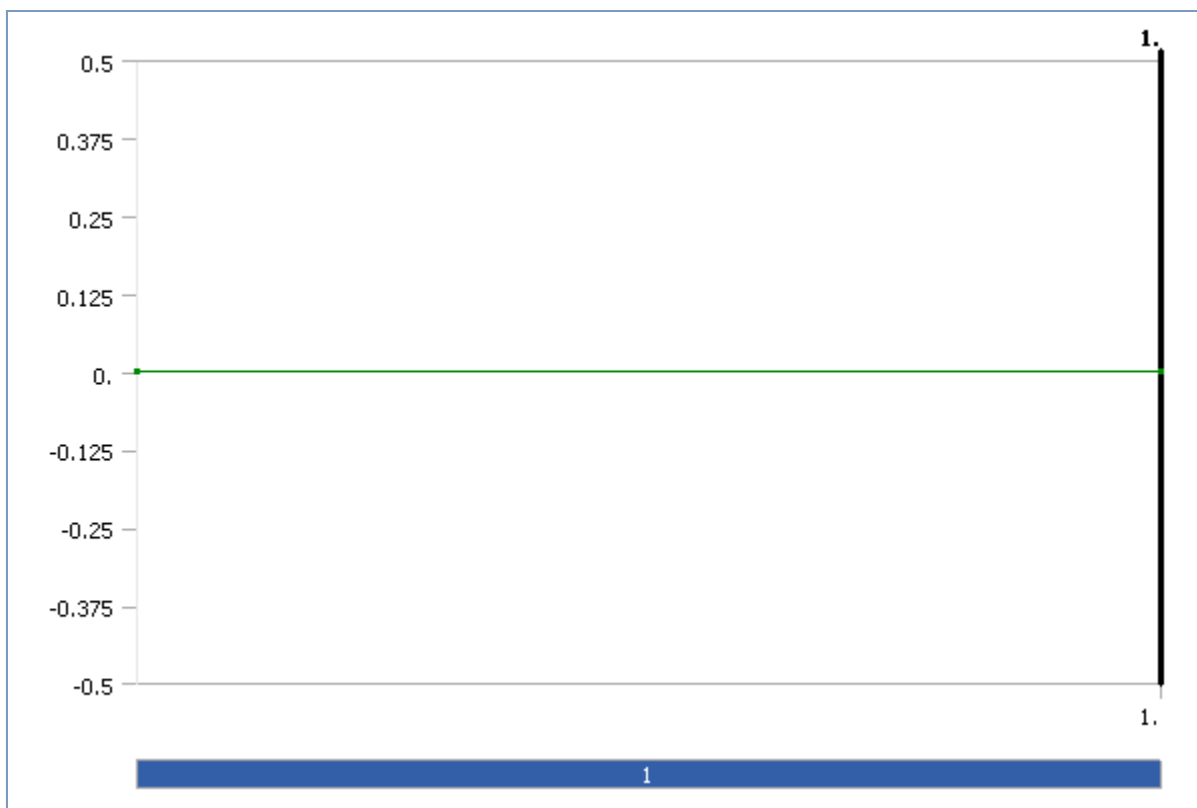


FIGURE 9
Model > Static Structural > Rod 4 Right

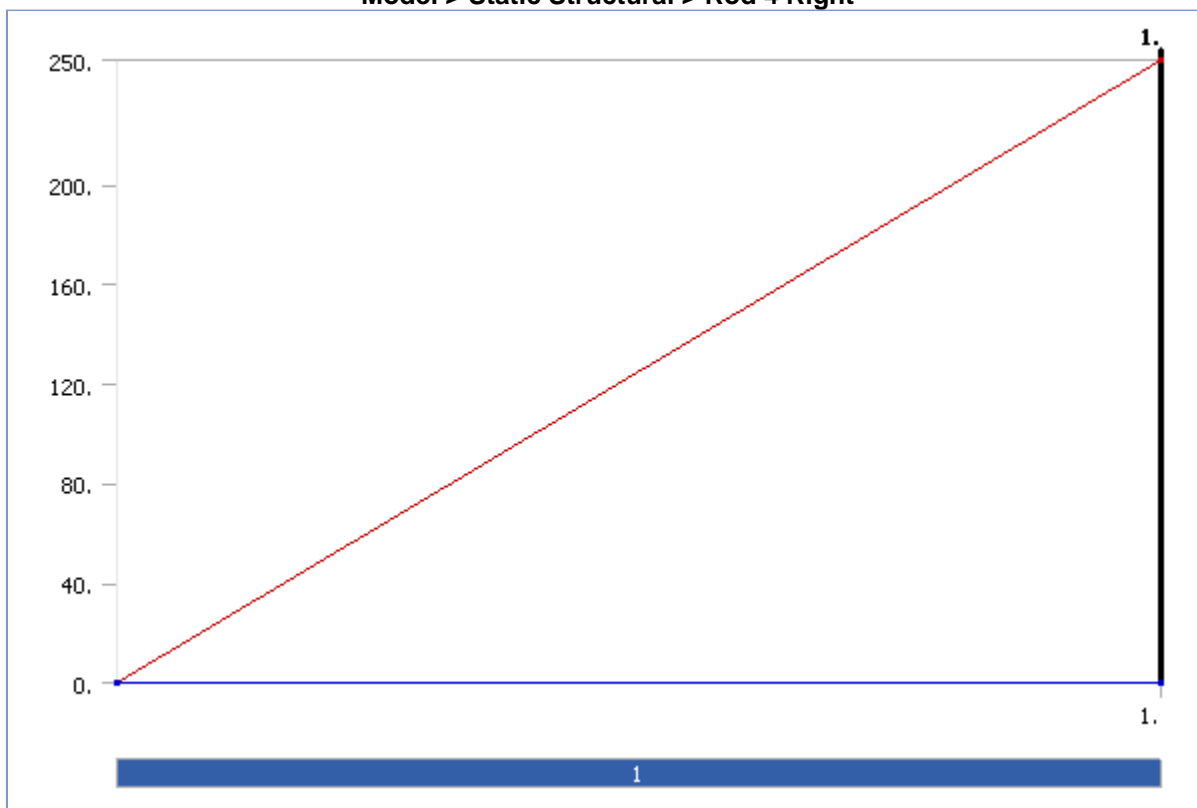


FIGURE 10
Model > Static Structural > rod 3 Right

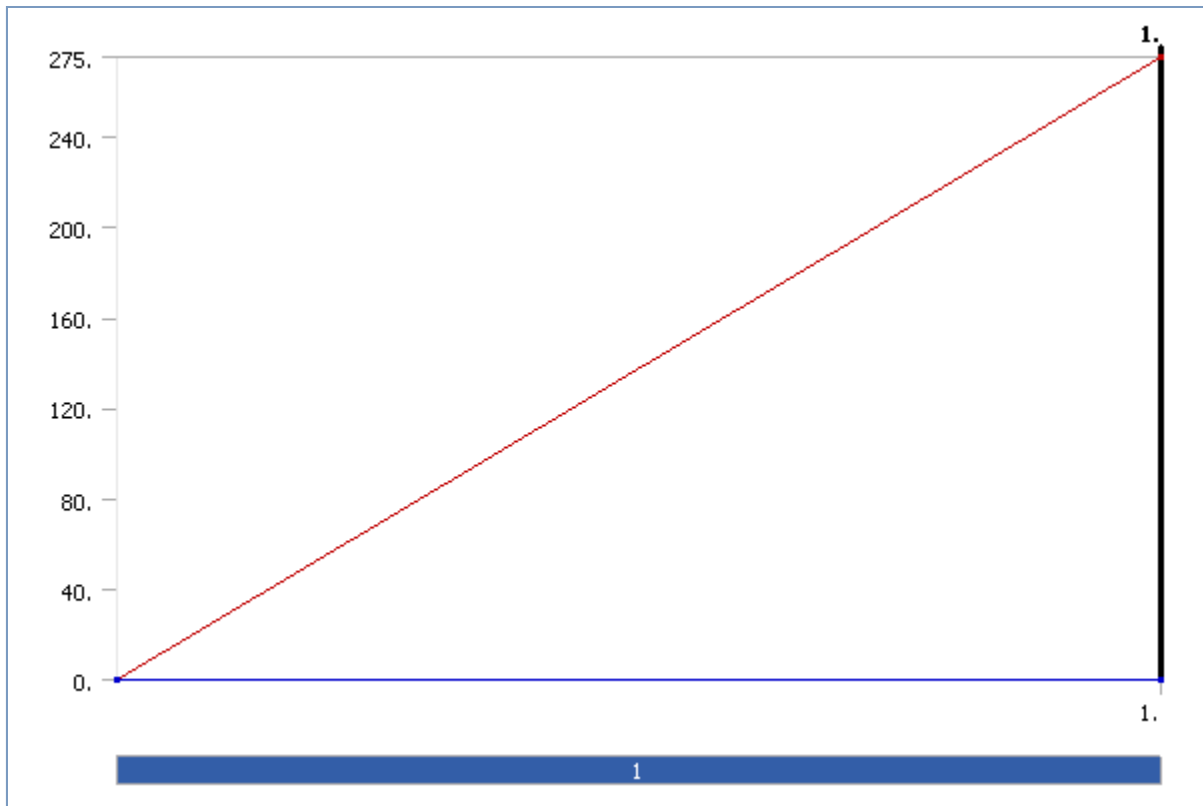


FIGURE 11
Model > Static Structural > Rod 4 Left

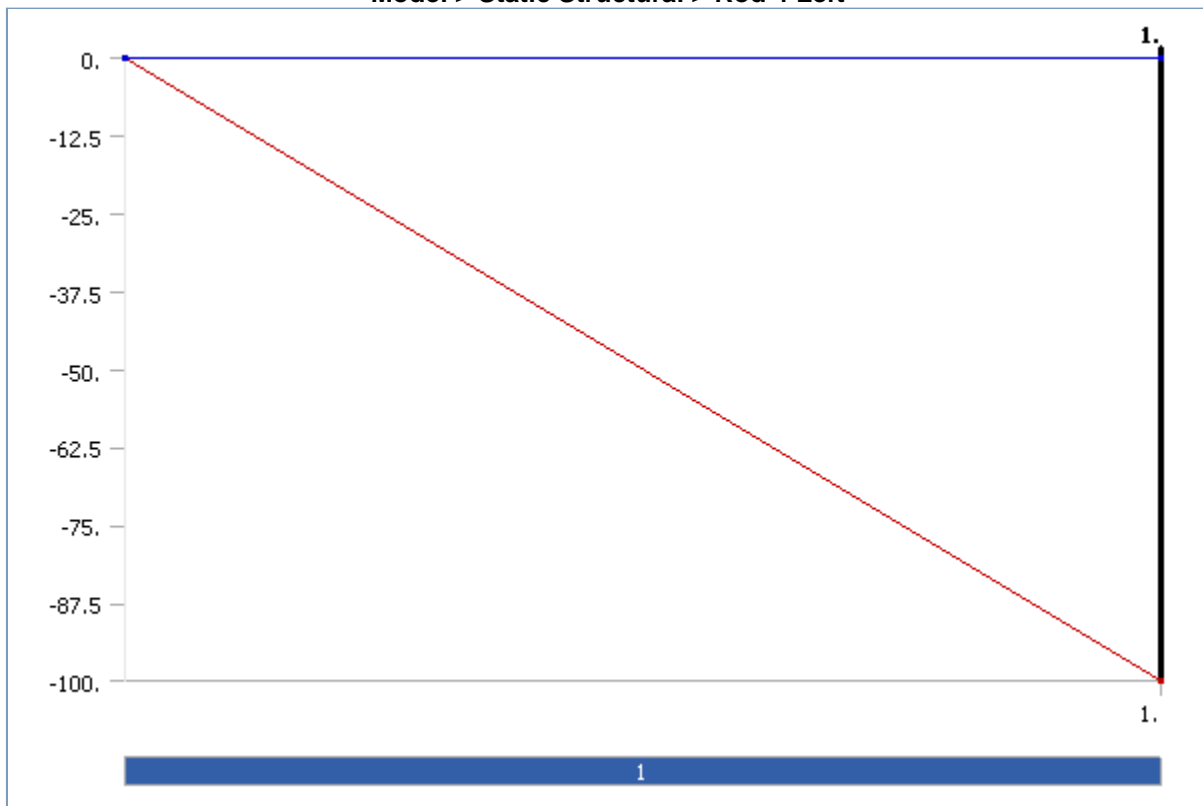


TABLE 35
Model > Static Structural > Loads

Object Name	<i>Rod 3 Left</i>
State	Suppressed
Scope	
Scoping Method	Geometry Selection
Geometry	1 Face
Definition	
Define By	Components
Type	Force
X Component	-100. N (ramped)
Y Component	0. N (ramped)
Z Component	0. N (ramped)
Suppressed	Yes

FIGURE 12
Model > Static Structural > Rod 3 Left

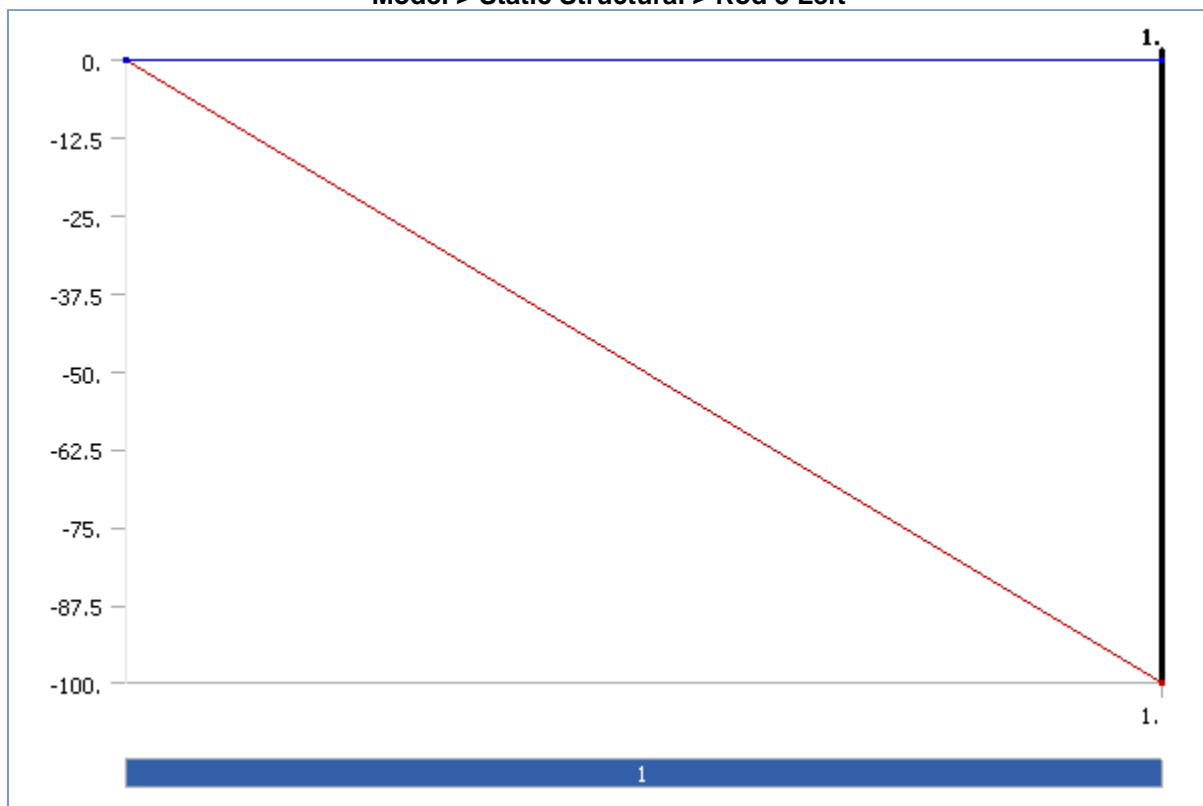


FIGURE 13
Model > Static Structural > Figure

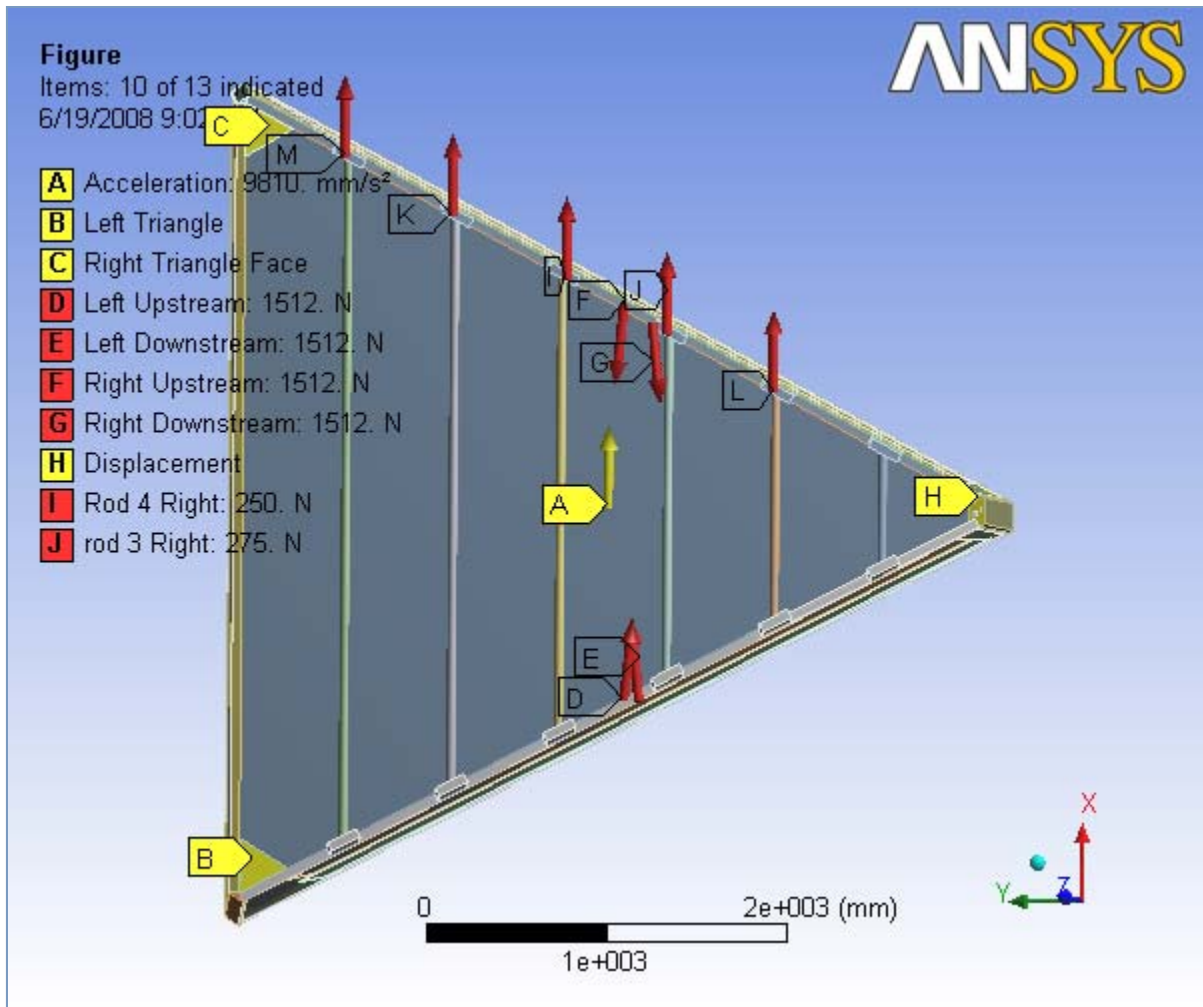


TABLE 36
Model > Static Structural > Loads

Object Name	<i>rod 5 right</i>	<i>rod 2 right</i>	<i>rod 6 right</i>
State	Fully Defined		
Scope			
Scoping Method	Geometry Selection		
Geometry	1 Face		
Definition			
Define By	Components		
Type	Force		
X Component	210. N (ramped)	200. N (ramped)	120. N (ramped)
Y Component	0. N (ramped)		
Z Component	0. N (ramped)		
Suppressed	No		

FIGURE 14
Model > Static Structural > rod 5 right

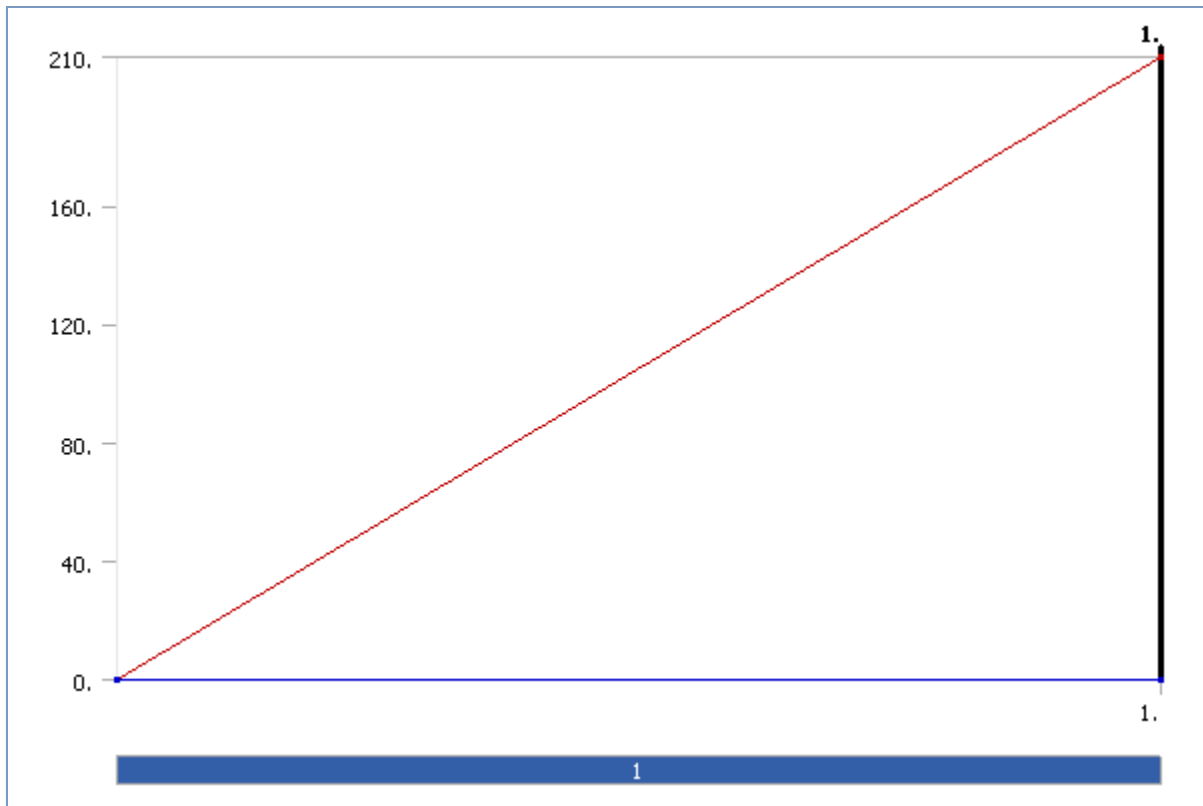


FIGURE 15
Model > Static Structural > rod 2 right

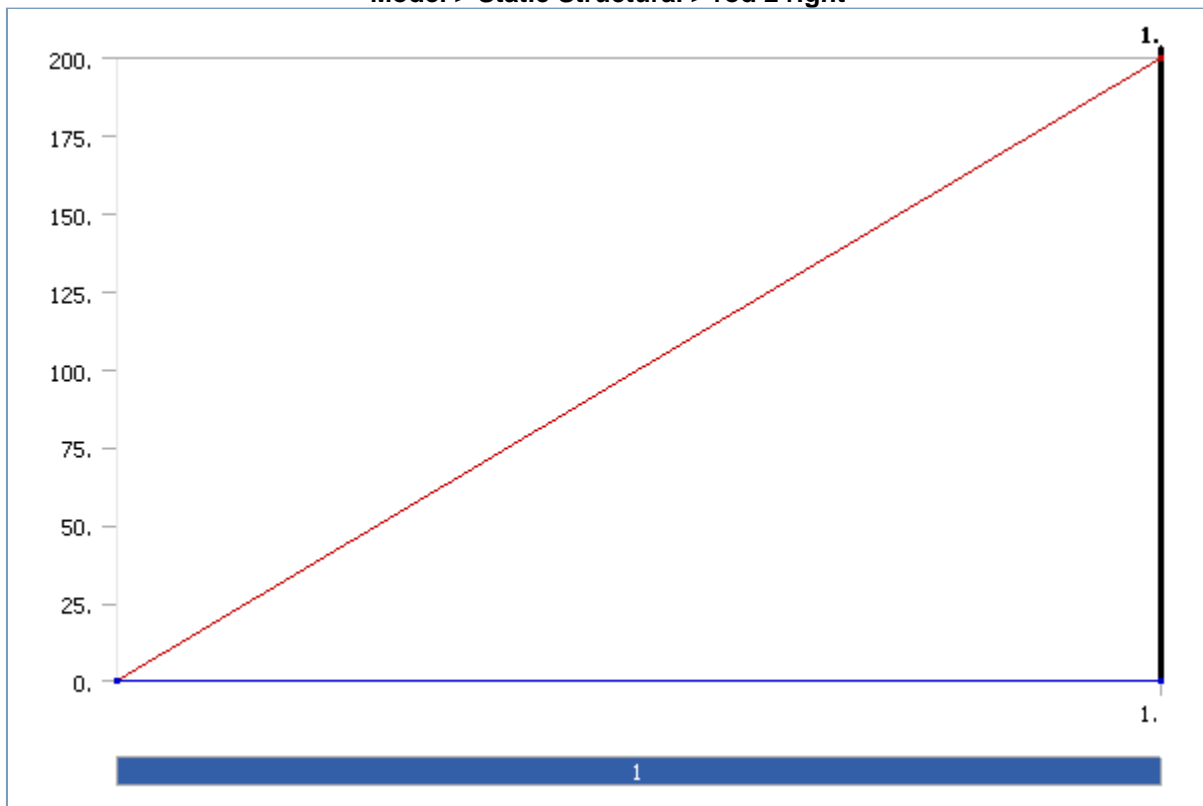
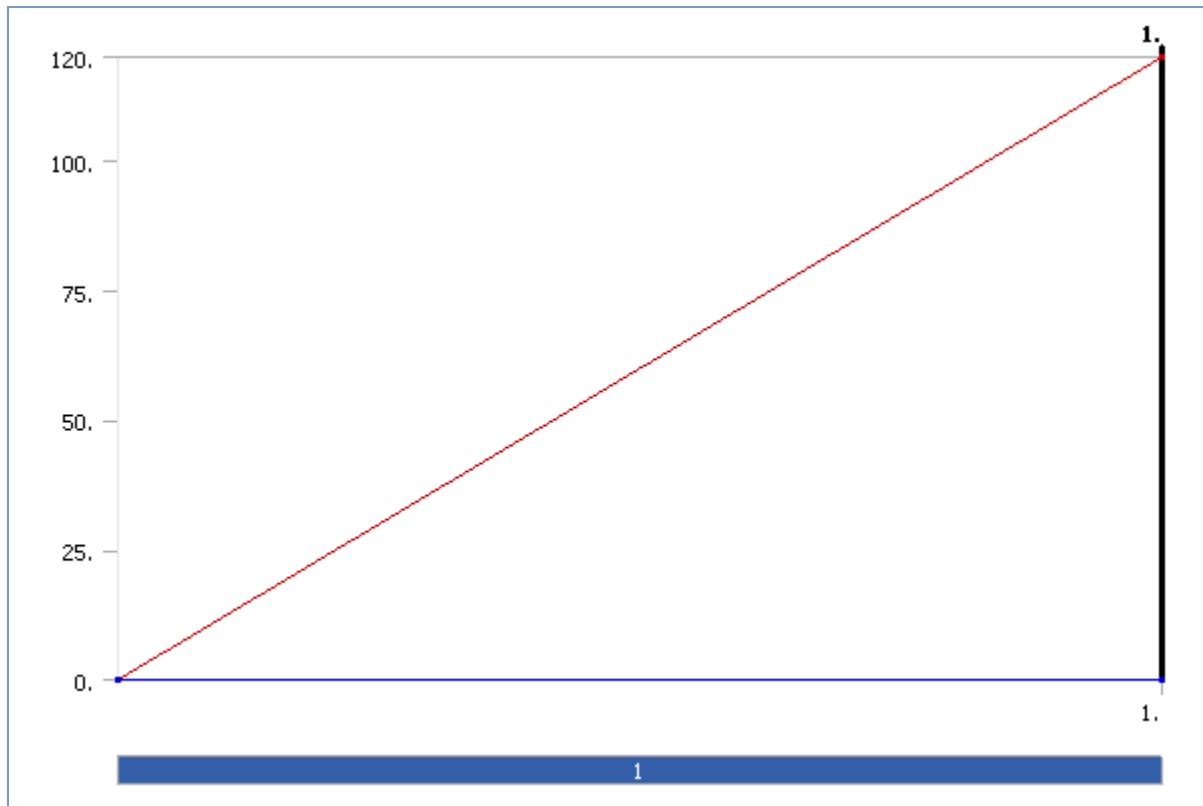


FIGURE 16
Model > Static Structural > rod 6 right



Solution

TABLE 37
Model > Static Structural > Solution

Object Name	<i>Solution</i>
State	Solved
Adaptive Mesh Refinement	
Max Refinement Loops	1.
Refinement Depth	2.

TABLE 38
Model > Static Structural > Solution > Solution Information

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

TABLE 39
Model > Static Structural > Solution > Results

Object Name	<i>Total Deformation</i>	<i>X - Directional Deformation</i>	<i>Y - Directional Deformation</i>	<i>Z - Directional Deformation</i>
State	Solved			
Scope				
Geometry	All Bodies			
Definition				

Type	Total Deformation	Directional Deformation		
Display Time	End Time			
Orientation		X Axis	Y Axis	Z Axis
Results				
Minimum	9.2075e-004 mm	-3.9094e-002 mm	-2.0876e-002 mm	-4.4835e-003 mm
Maximum	6.1912e-002 mm	2.2207e-002 mm	3.44e-002 mm	5.325e-002 mm
Minimum Occurs On	Back plate Al Casing	Right End Plate Downstream hole region	Rod 4	Hexcel Downstream carbon slice
Maximum Occurs On	Rod 6	Left End plate Inner steel slice	Rod 6	
Information				
Time	1. s			
Load Step	1			
Substep	1			
Iteration Number	1			

FIGURE 17
Model > Static Structural > Solution > Total Deformation > Figure

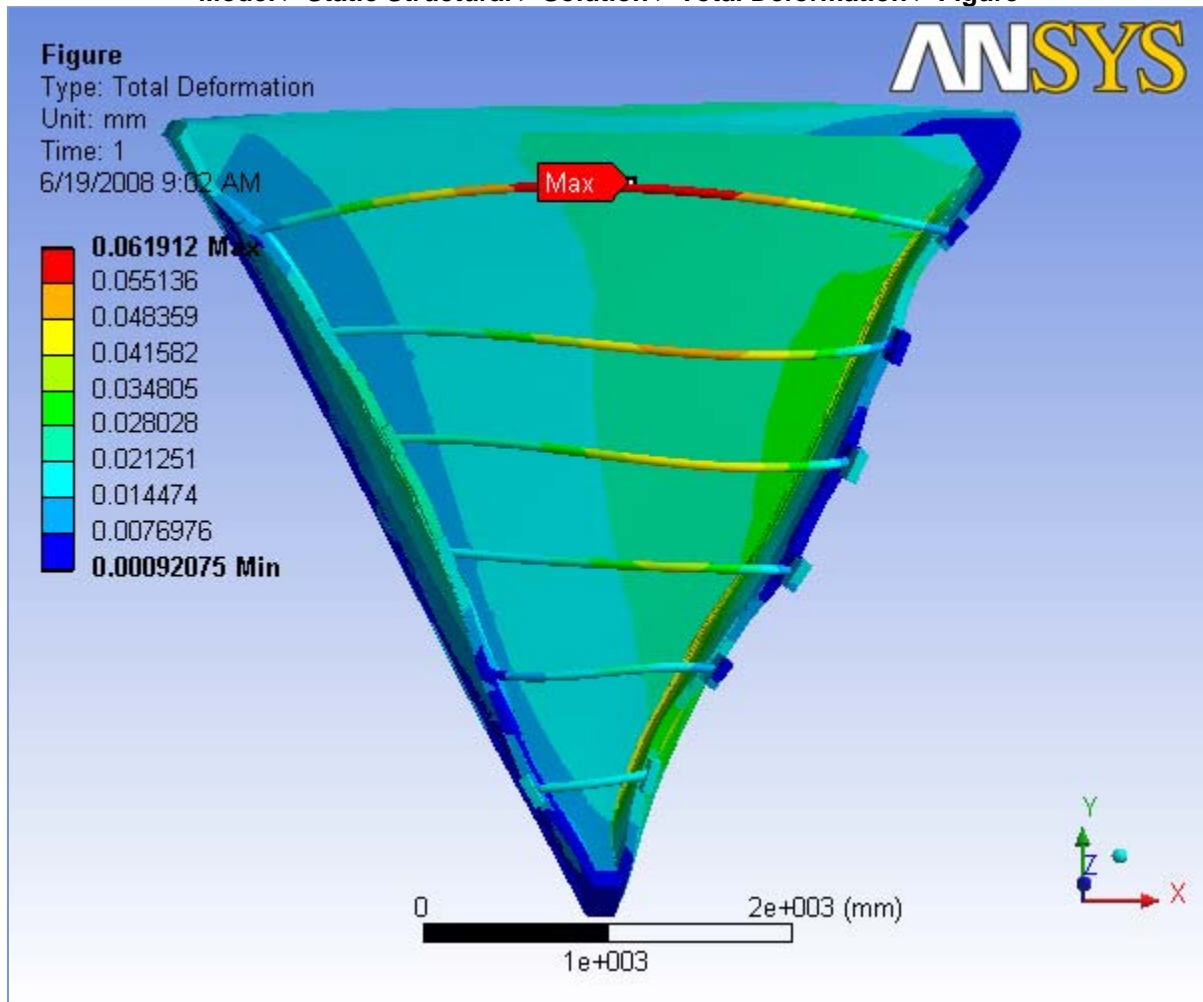


FIGURE 18
Model > Static Structural > Solution > X - Directional Deformation > Figure

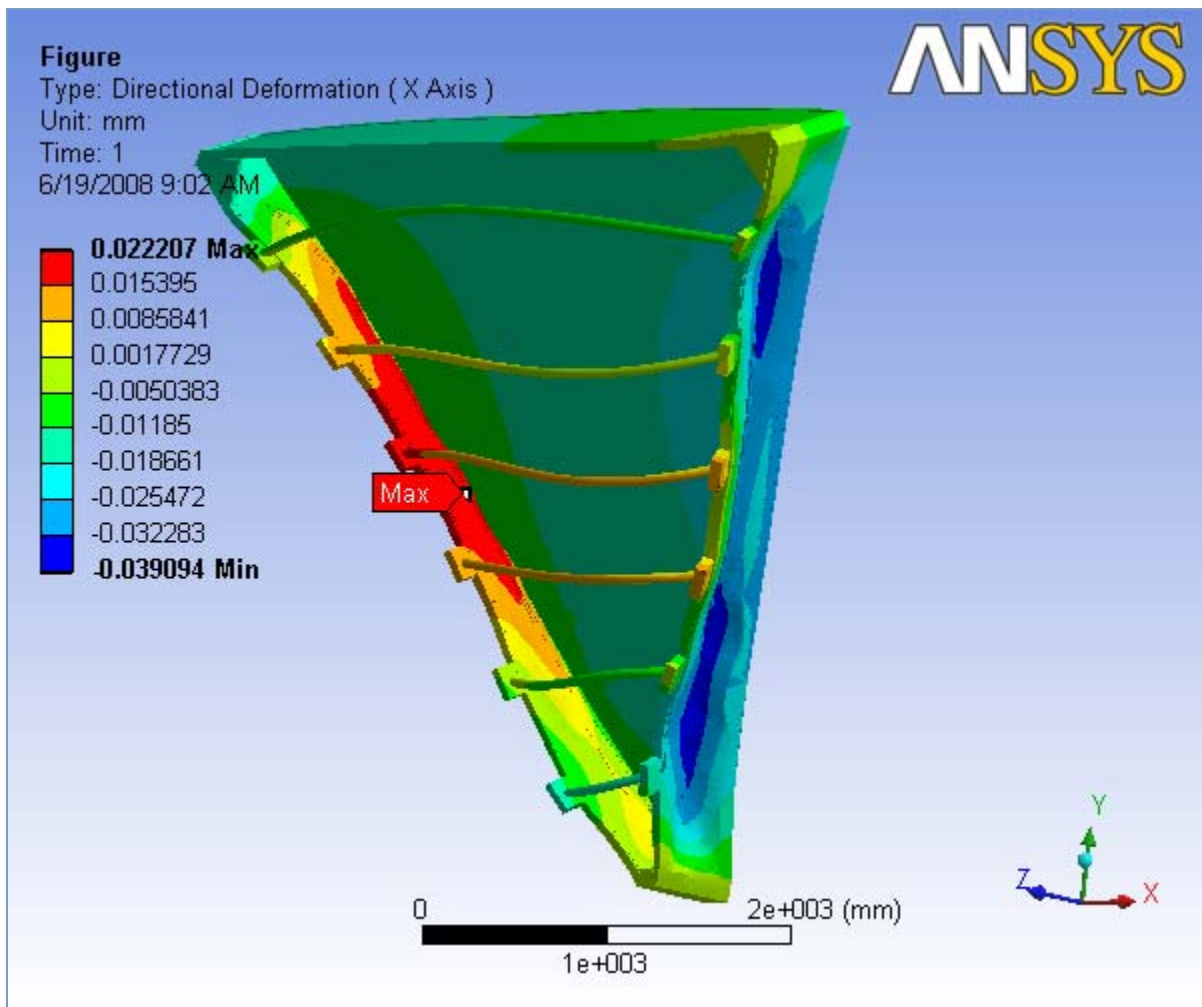


FIGURE 19
Model > Static Structural > Solution > Y - Directional Deformation > Figure

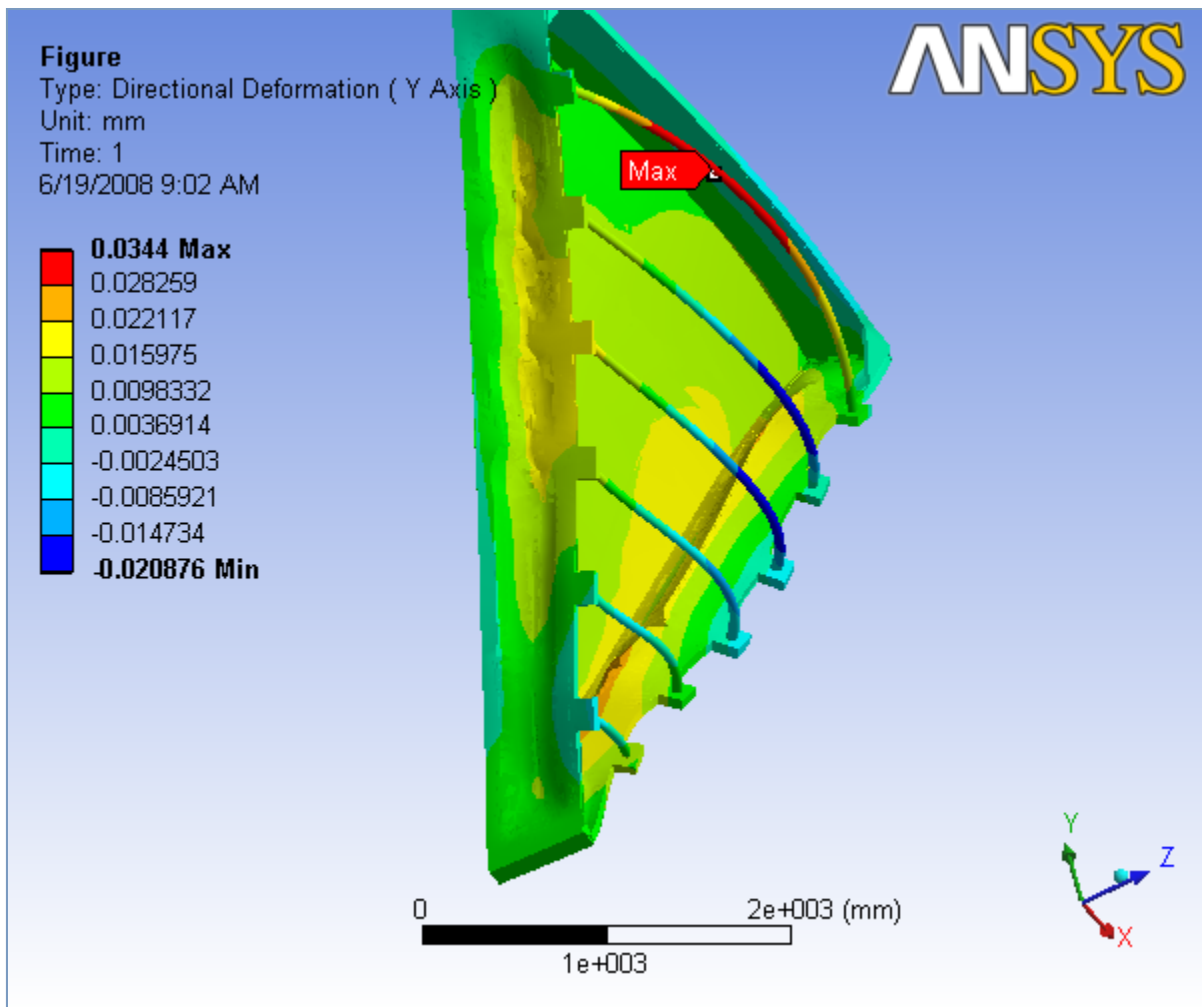
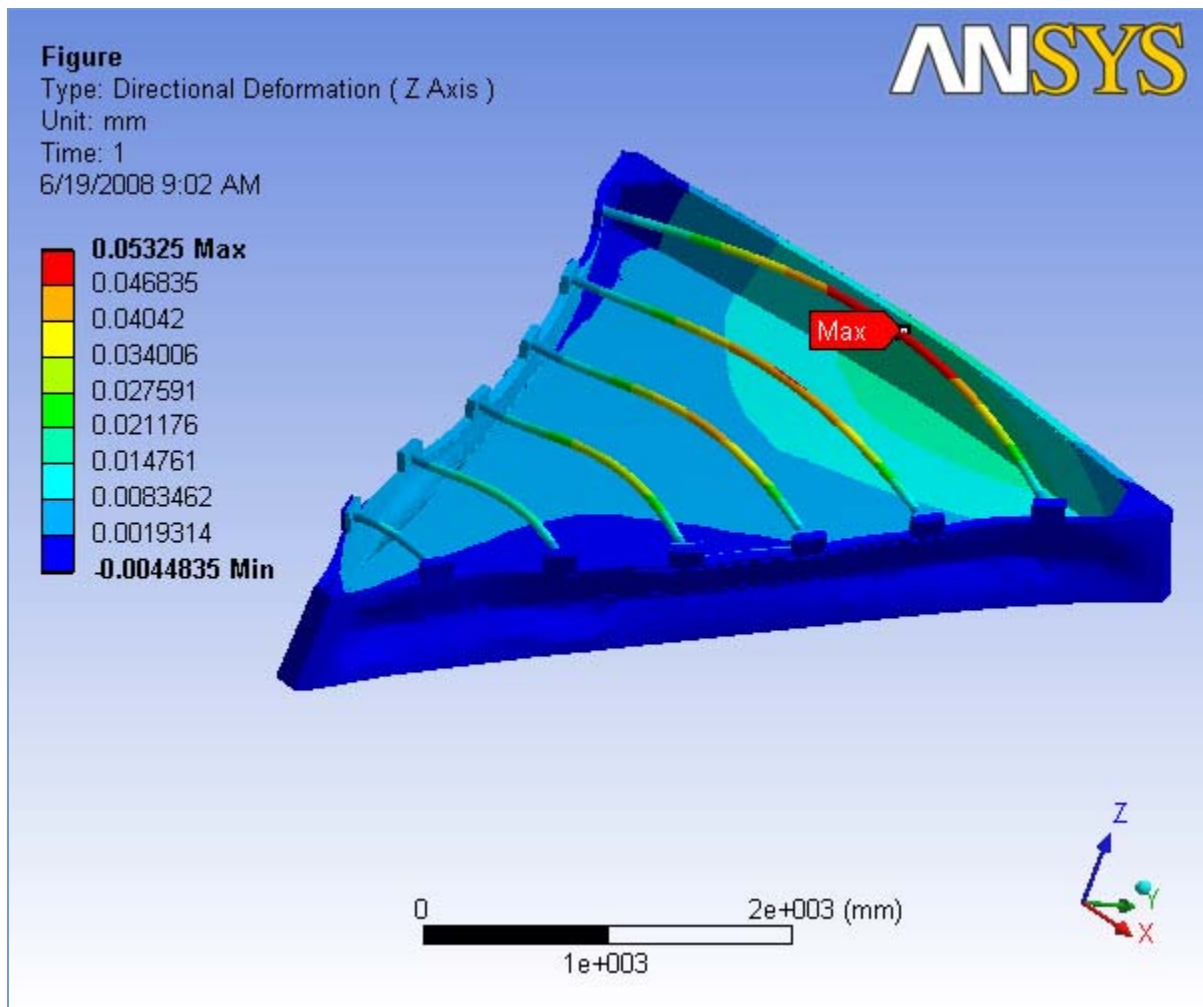


FIGURE 20
Model > Static Structural > Solution > Z - Directional Deformation > Figure



Material Data

Aluminum

TABLE 40
Aluminum > Constants

Structural	
Young's Modulus	1.5e+005 MPa
Poisson's Ratio	0.3
Density	5.8e-007 kg/mm ³
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

Polyurethane

TABLE 41

Polyurethane > Constants

Structural	
Young's Modulus	66. MPa
Poisson's Ratio	0.3
Density	2.4e-007 kg/mm ³
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 42
Stainless steel > Constants

Structural	
Young's Modulus	1.93e+005 MPa
Poisson's Ratio	0.3
Density	8.e-006 kg/mm ³
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 43
Carbon fiber > Constants

Structural	
Young's Modulus	1.5e+005 MPa
Poisson's Ratio	0.3
Density	5.8e-007 kg/mm ³
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 44
Hexcel > Constants

Structural	
Young's Modulus	30. MPa

Poisson's Ratio	0.33
Density	2.883e-008 kg/mm ³
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

Structural Steel

TABLE 45
Structural Steel > Constants

Structural	
Young's Modulus	2.e+005 MPa
Poisson's Ratio	0.3
Density	7.85e-006 kg/mm ³
Thermal Expansion	1.2e-005 1/°C
Tensile Yield Strength	250. MPa
Compressive Yield Strength	250. MPa
Tensile Ultimate Strength	460. MPa
Compressive Ultimate Strength	0. MPa
Thermal	
Thermal Conductivity	6.05e-002 W/mm·°C
Specific Heat	434. J/kg·°C
Electromagnetics	
Relative Permeability	10000
Resistivity	1.7e-004 Ohm·mm

FIGURE 21
Structural Steel > Alternating Stress

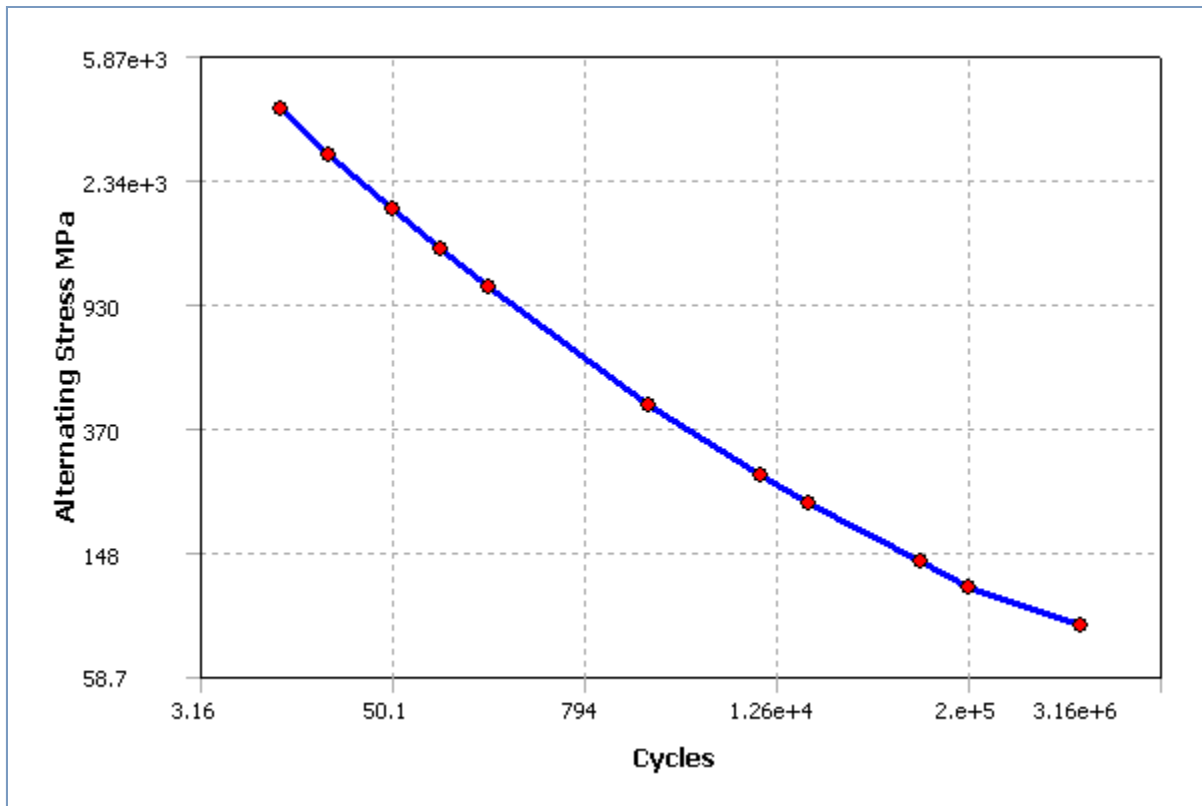


TABLE 46
Structural Steel > Alternating Stress > Property Attributes

Interpolation	Log-Log
Mean Curve Type	Mean Stress

TABLE 47
Structural Steel > Alternating Stress > Alternating Stress Curve Data

Mean Value MPa
0.

TABLE 48
Structural Steel > Alternating Stress > Alternating Stress vs. Cycles

Cycles	Alternating Stress MPa
10.	3999.
20.	2827.
50.	1896.
100.	1413.
200.	1069.
2000.	441.
10000	262.
20000	214.
1.e+005	138.
2.e+005	114.
1.e+006	86.2

FIGURE 22
Structural Steel > Strain-Life Parameters

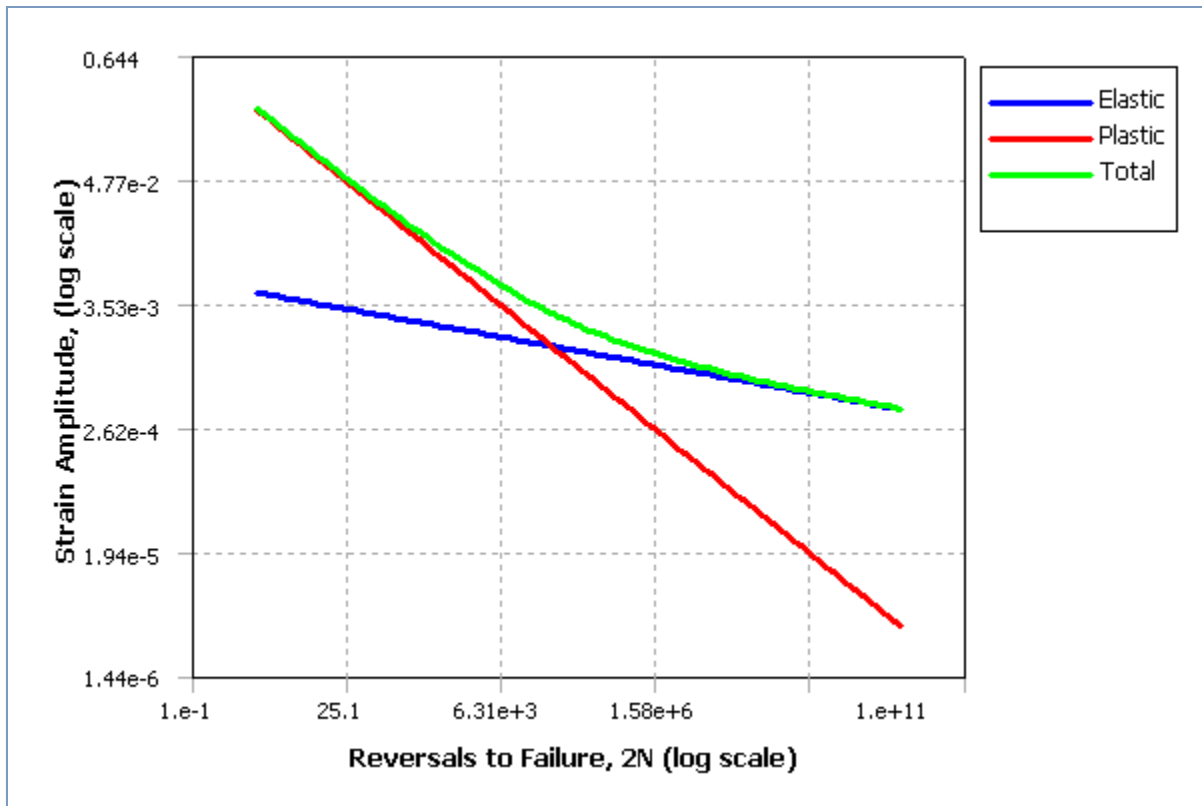


TABLE 49
Structural Steel > Strain-Life Parameters > Property Attributes
 Display Curve Type Strain-Life

TABLE 50
Structural Steel > Strain-Life Parameters > Strain-Life Parameters

Strength Coefficient MPa	920.
Strength Exponent	-0.106
Ductility Coefficient	0.213
Ductility Exponent	-0.47
Cyclic Strength Coefficient MPa	1000.
Cyclic Strain Hardening Exponent	0.2