

**Beam and Column Calculator (Version: 12.0 SP1 (Build 120284100, 284))**

8/27/2007

**Project Info****Material**

Material	Steel	
Yield Strength	$S_y$	44000 psi
Modulus of Elasticity	E	29700000 psi
Modulus of Rigidity	G	11400000 psi

**Beam Calculation****Calculation Properties**

Include						
Yes	Density	$\rho$	491 lbmass/ft^3			
Yes	Shear Displacement Ratio	$\beta$	0.000 ul			
	Number of Divisions		1000 ul			
	Mode of reduced stress		HMH			

**Loads**

Index	Location	Radial Force				Bending Moment				Continuous Load				Axial Force	Torque	Deflection				Rotation
		XY	XZ	Size	Angle	XY	XZ	Size	Angle	XY	XZ	Size	Angle	Length		XY	XZ	Size	Angle	
1	120 in	150000.000 lbforce		150000.000 lbforce												-629305.135 microin	629305.135 microin	180.00 deg	0.27 deg	
2	240 in	150000.000 lbforce		150000.000 lbforce												-629305.135 microin	629305.135 microin	180.00 deg	0.27 deg	

**Supports**

Index	Type	Location	Reaction Force					Yielding		Radial Displacement		Deflection				Rotation
			XY	XZ	Size	Angle	Axial Force	XY	XZ	XY	XZ	XY	XZ	Size	Angle	
1	Free	30 in	155984.034 lbforce		155984.034 lbforce							0.000 microin	0.000 microin			0.47 deg
2	Fixed	330 in	155984.034 lbforce		155984.034 lbforce							-0.000 microin	0.000 microin	180.00 deg	0.47 deg	

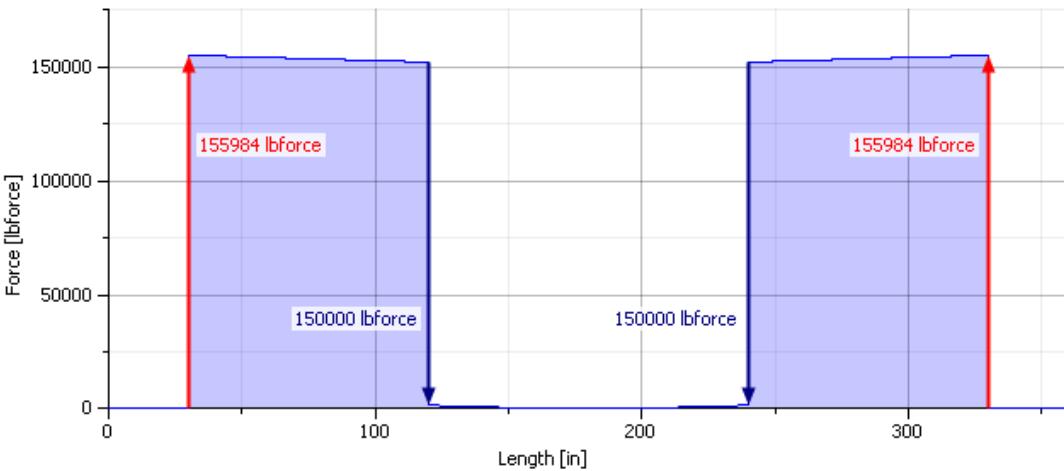
**Results**

Maximal Deflection	$f_{max}$	769297.925 microin
Angle of Twist	$\alpha$	0.00 deg
Length	L	360.000 in
Mass	Mass	11968.068 lbmass
Maximal Bending Stress	$\sigma_{max}$	0.000 psi
Maximal Torsional Stress	$Tk_{max}$	0.000 psi

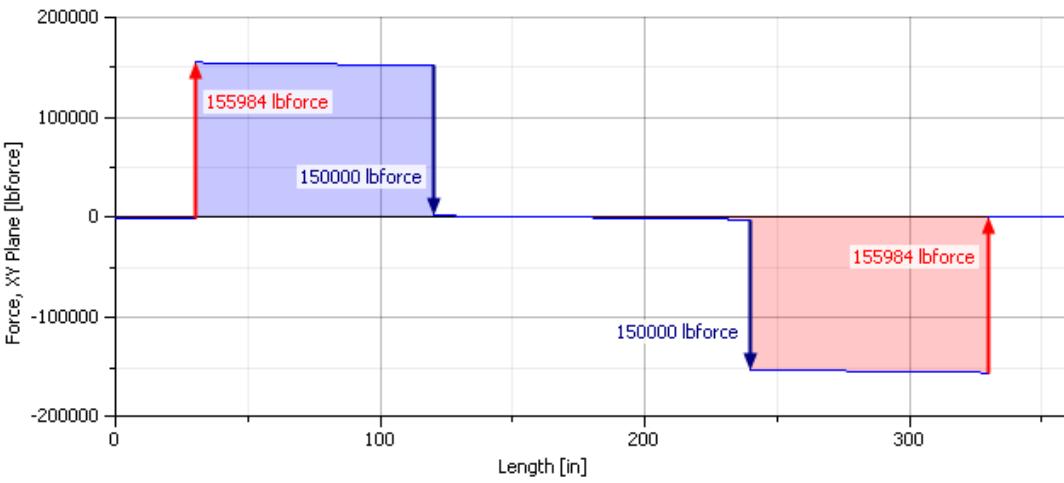
**Preview**



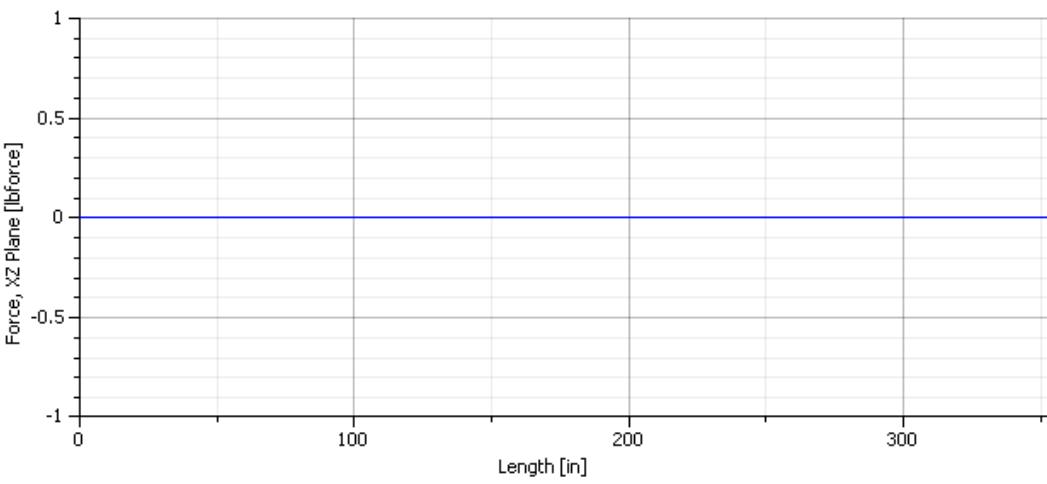
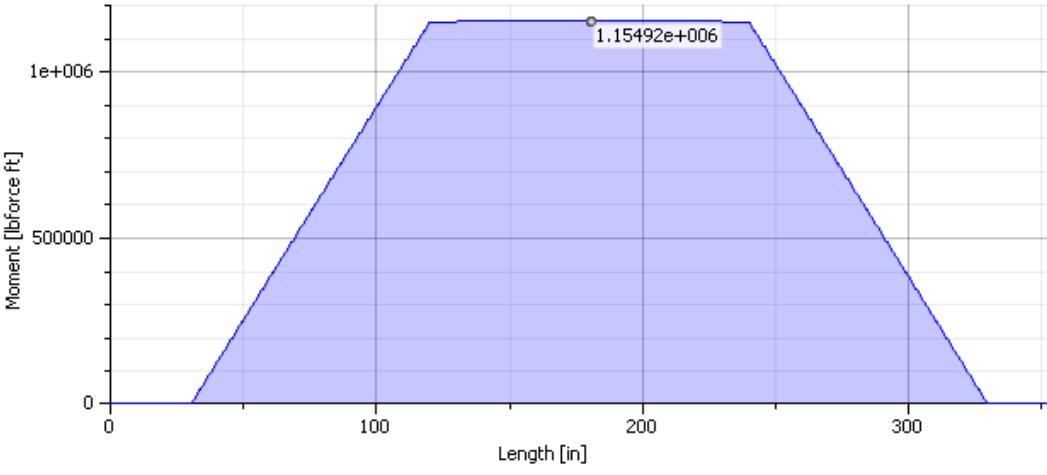
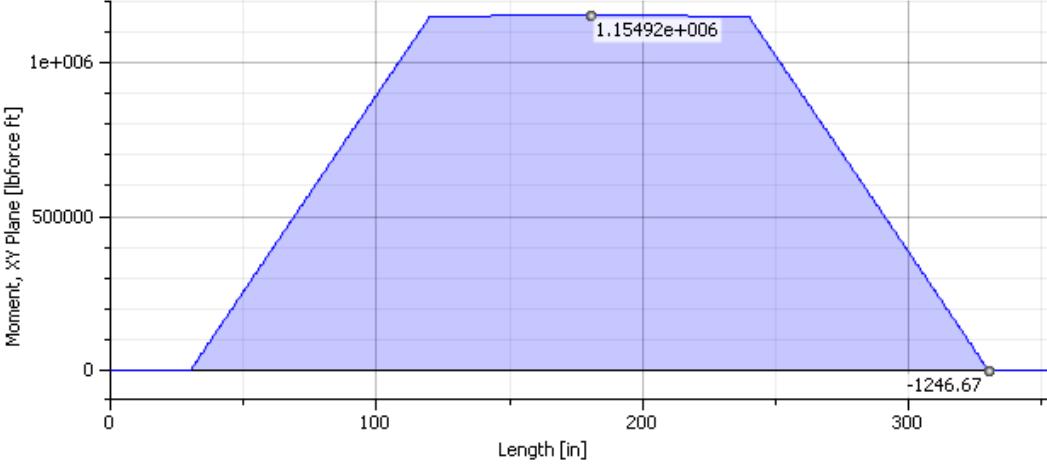
#### Force

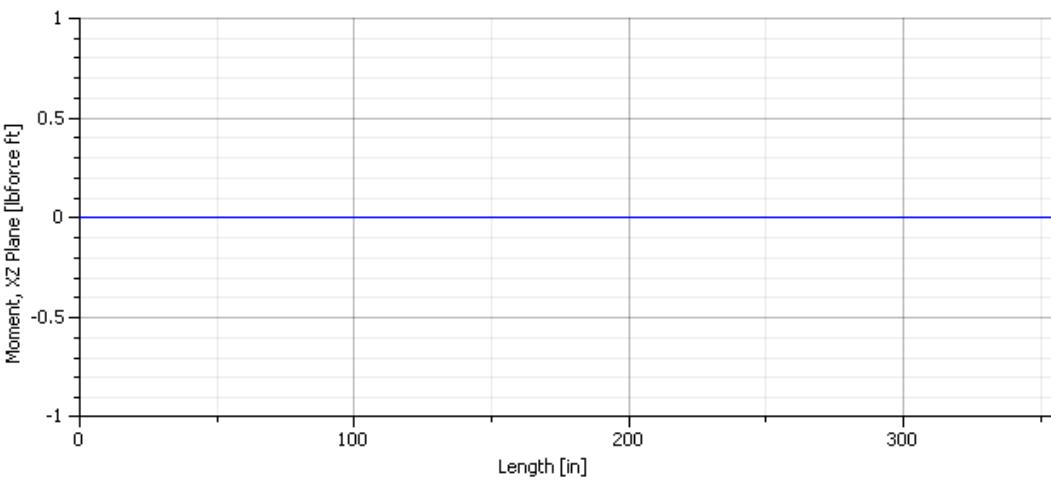
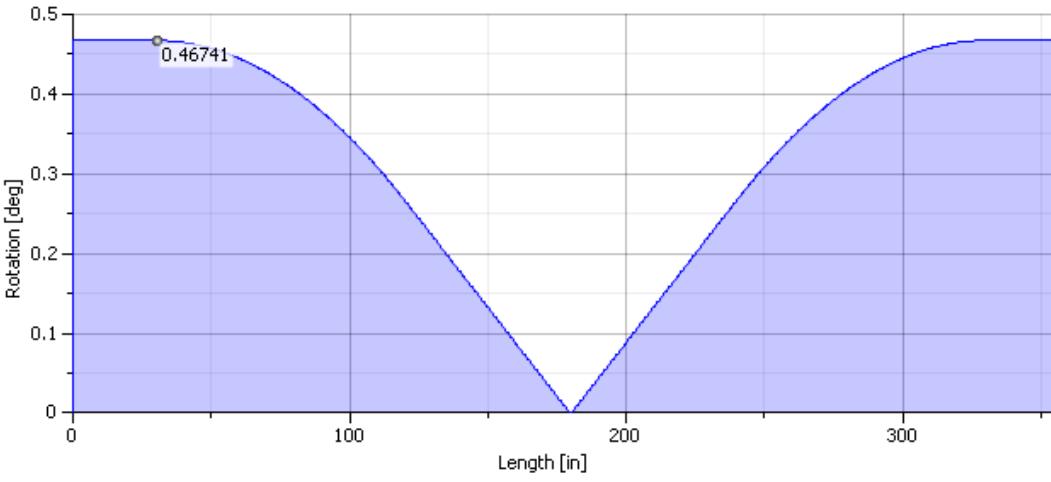
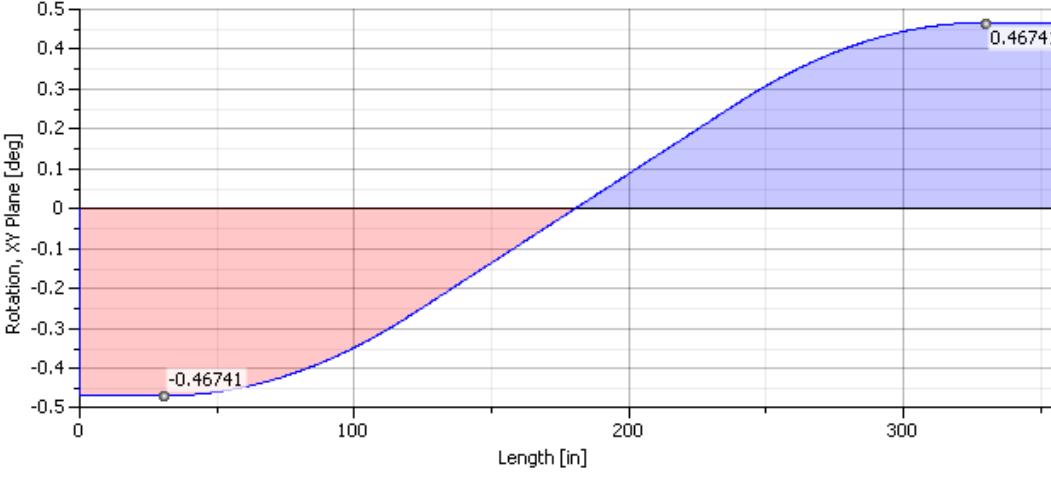


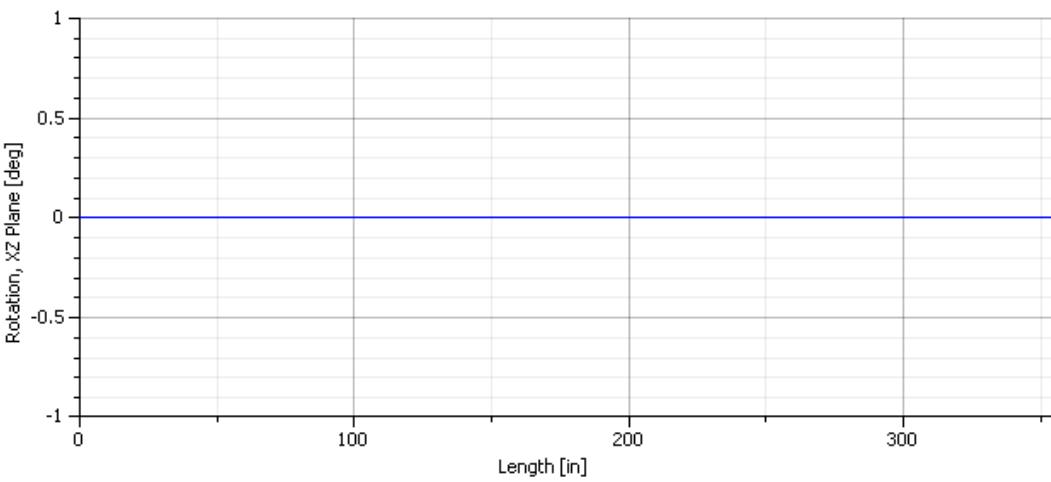
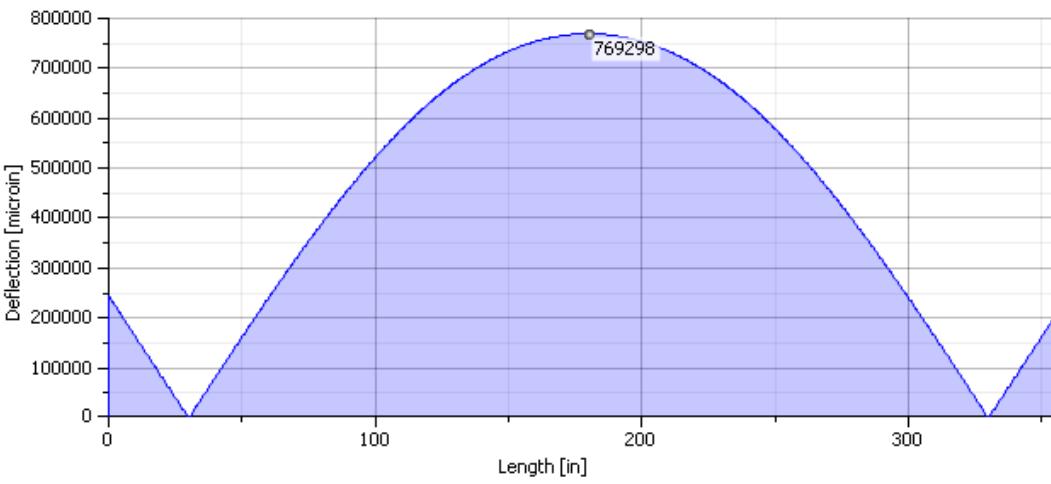
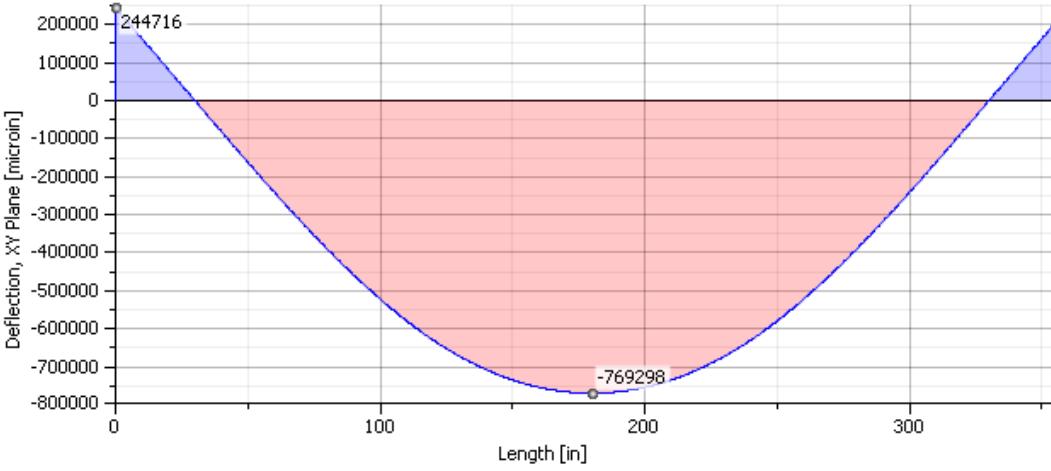
#### Force, XY Plane

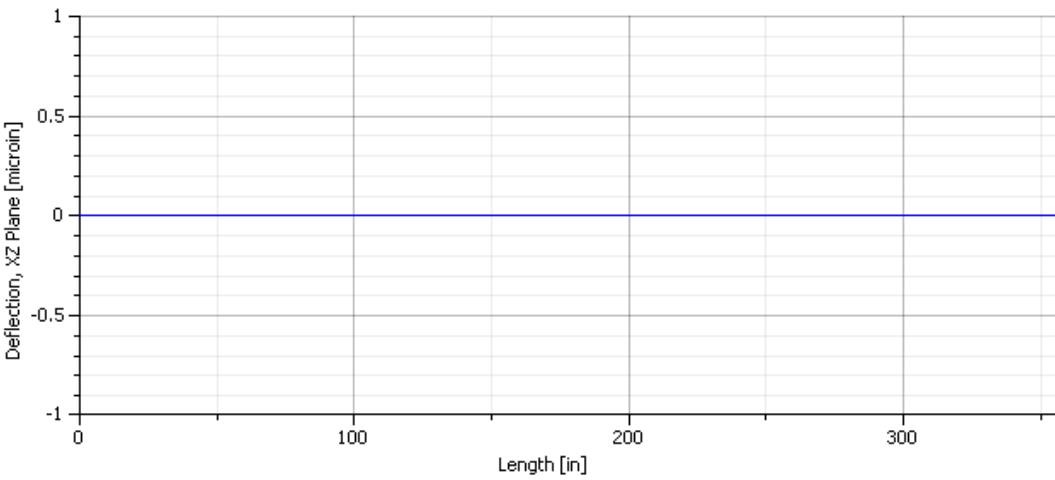


#### Force, XZ Plane

**Moment****Moment, XY Plane****Moment, XZ Plane**

**Rotation****Rotation, XY Plane****Rotation, XZ Plane**

**Deflection****Deflection, XY Plane****Deflection, XZ Plane**



◻ \$\$GraphName19\$



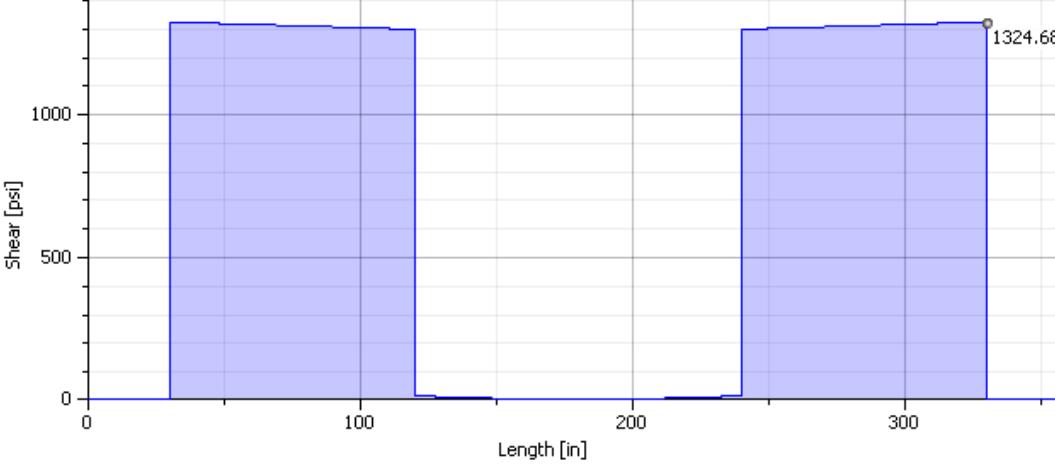
◻ \$\$GraphName17\$



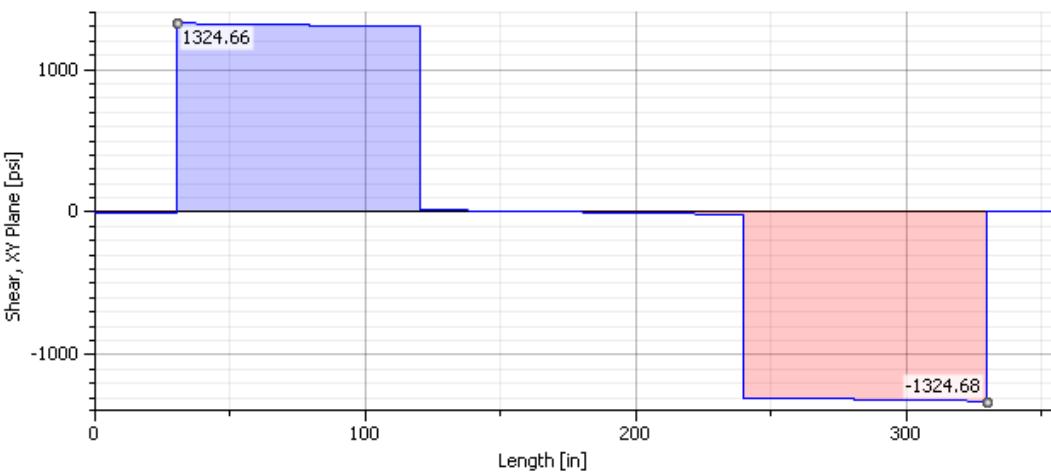
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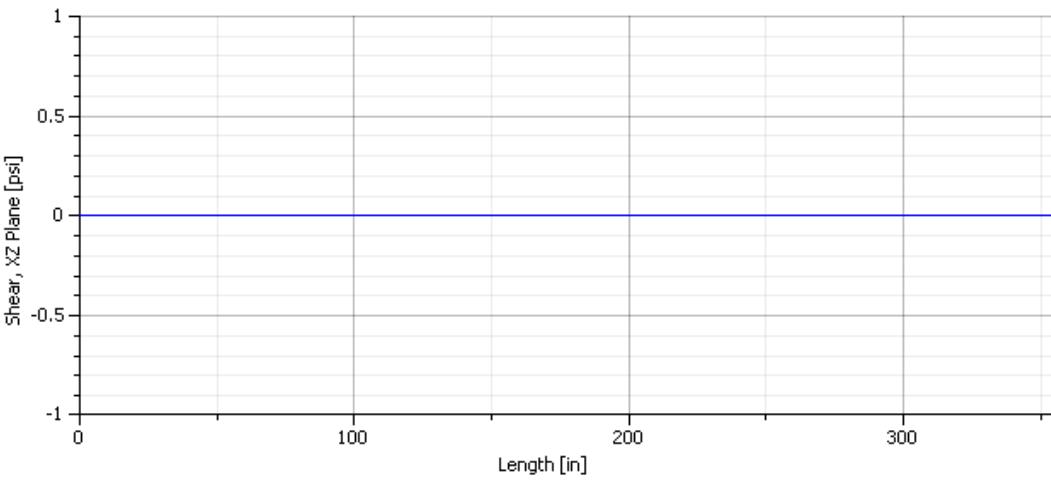
◻ Shear



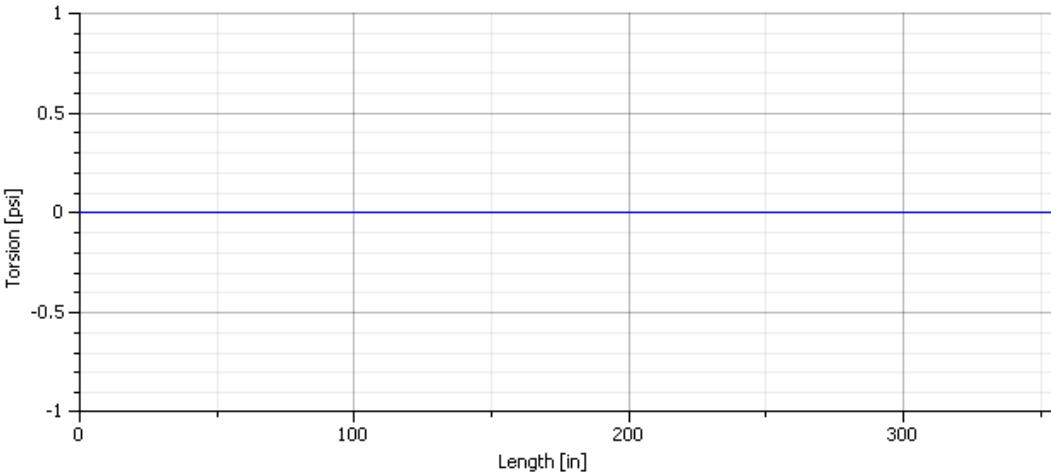
◻ Shear, XY Plane



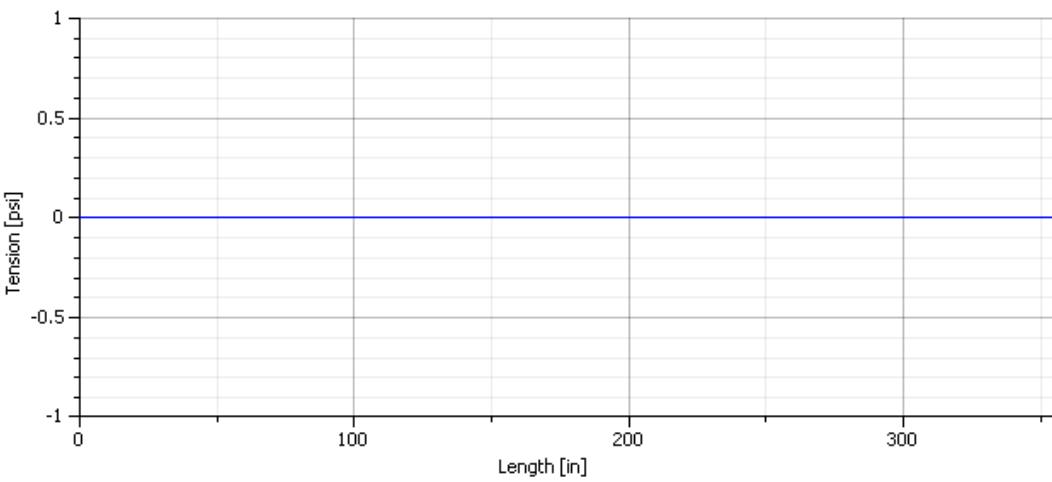
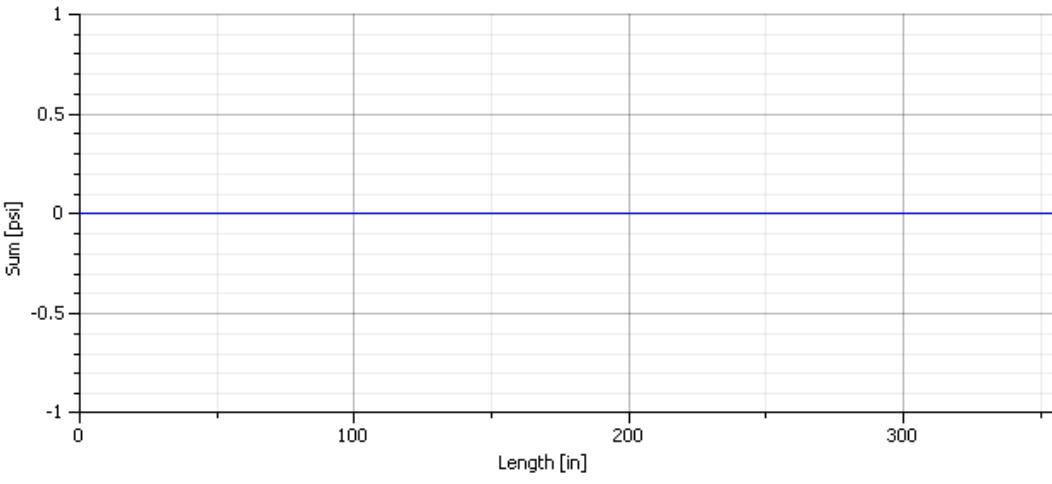
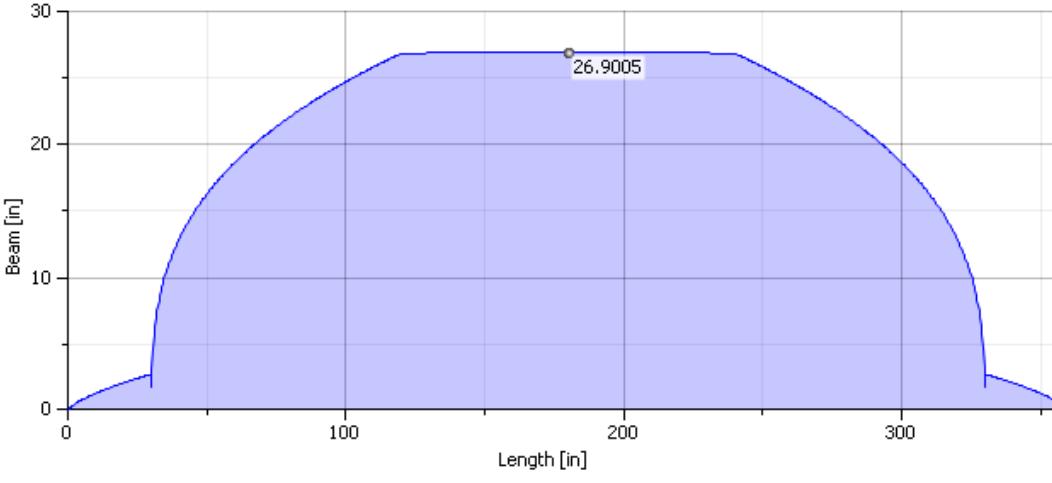
Shear, XY Plane



Torsion



Tension

**Sum****Beam****Summary of Messages**

2:50:41 PM Calculation: Calculated.