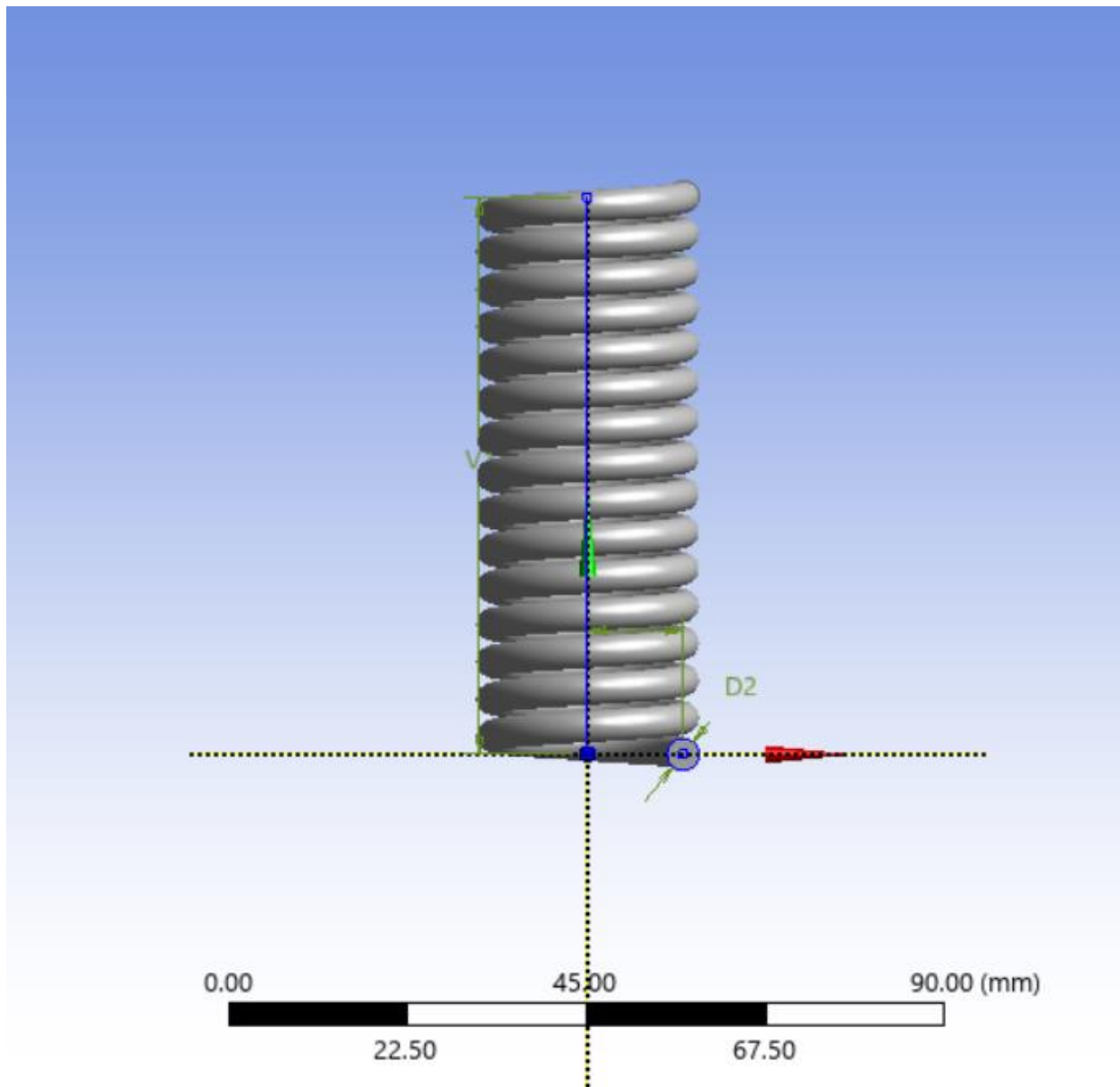





Project 26: ANSYS Static Structural: Deformation of a helical spring




































Problem Statement: Calculate the deformation for a helical spring.

Geometry:



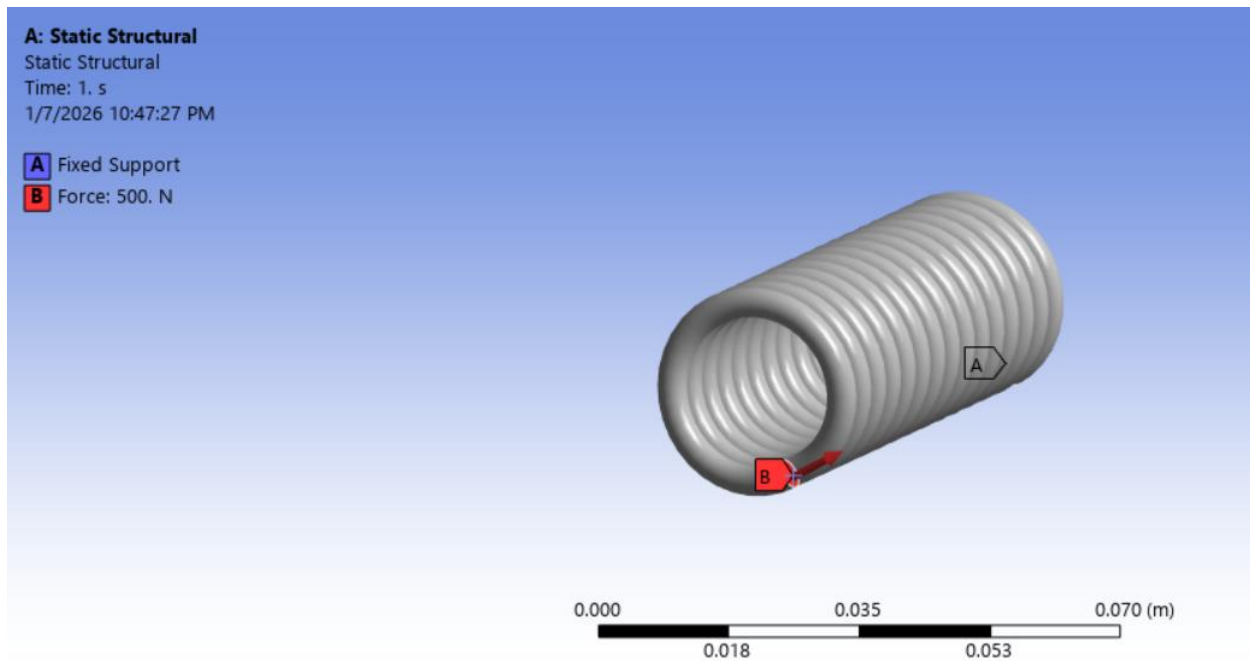
Material Properties:

3	 Structural Steel				Fatigue Data at zero mean stress comes from 1998 ASME BPV Code, Section 8, Div 2, Table 5-110.1
*	Click here to add a new material				

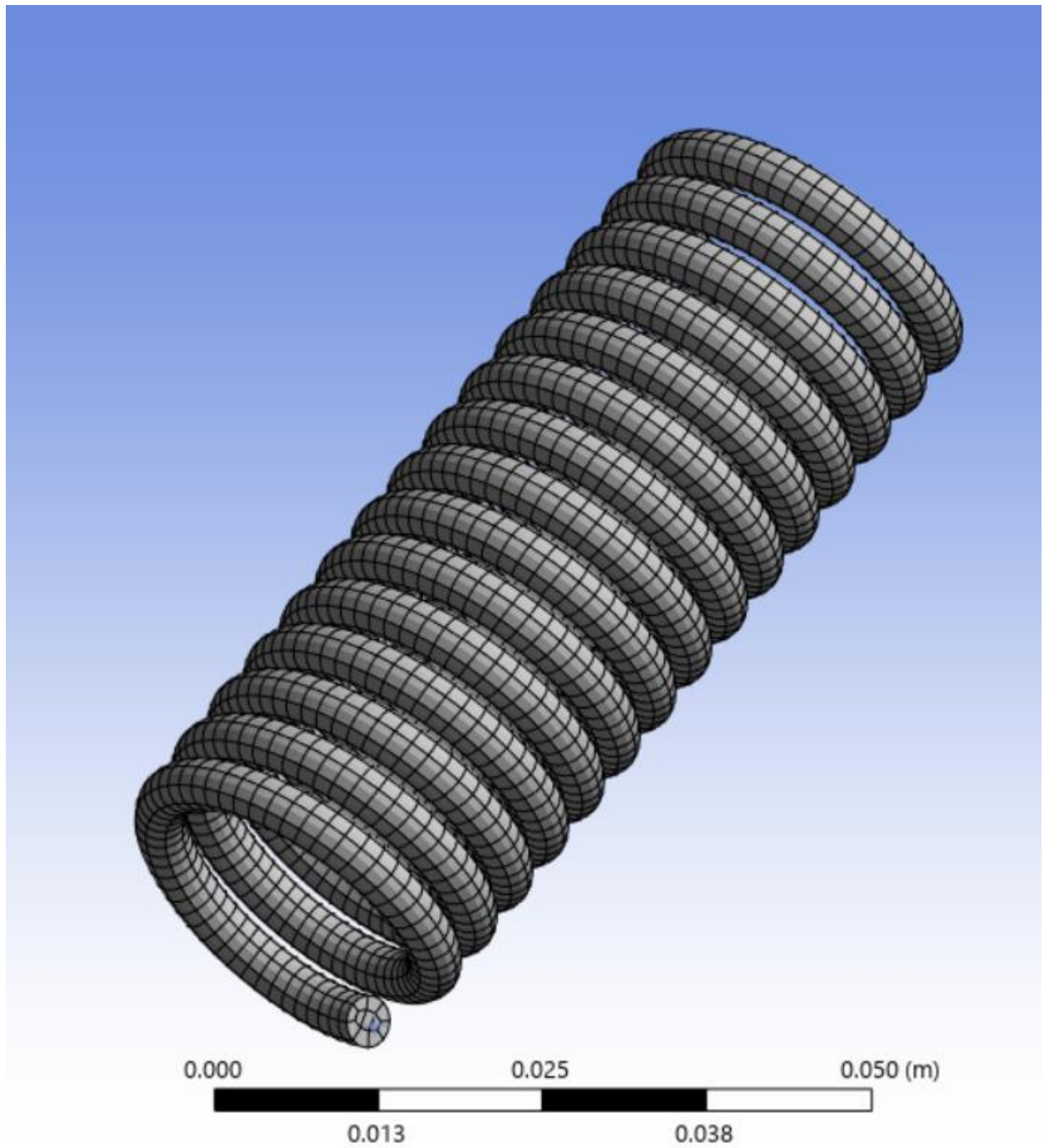
Properties of Outline Row 3: Structural Steel					
	A	B	C	D	E
1	Property	Value	Unit		
3	 Density	7850	kg m ⁻³		
4	  Isotropic Secant Coefficient of Thermal Expansion				
6	 Isotropic Elasticity				
7	Derive from	Young's Modulus a...			
8	Young's Modulus	2E+11	Pa		
9	Poisson's Ratio	0.3			
10	Bulk Modulus	1.6667E+11	Pa		
11	Shear Modulus	7.6923E+10	Pa		
12	  Strain-Life Parameters				
20	  S-N Curve	 Tabular			
24	 Tensile Yield Strength	2.5E+08	Pa		
25	 Compressive Yield Strength	2.5E+08	Pa		
26	 Tensile Ultimate Strength	4.6E+08	Pa		
27	 Compressive Ultimate Strength	0	Pa		

Boundary Conditions:

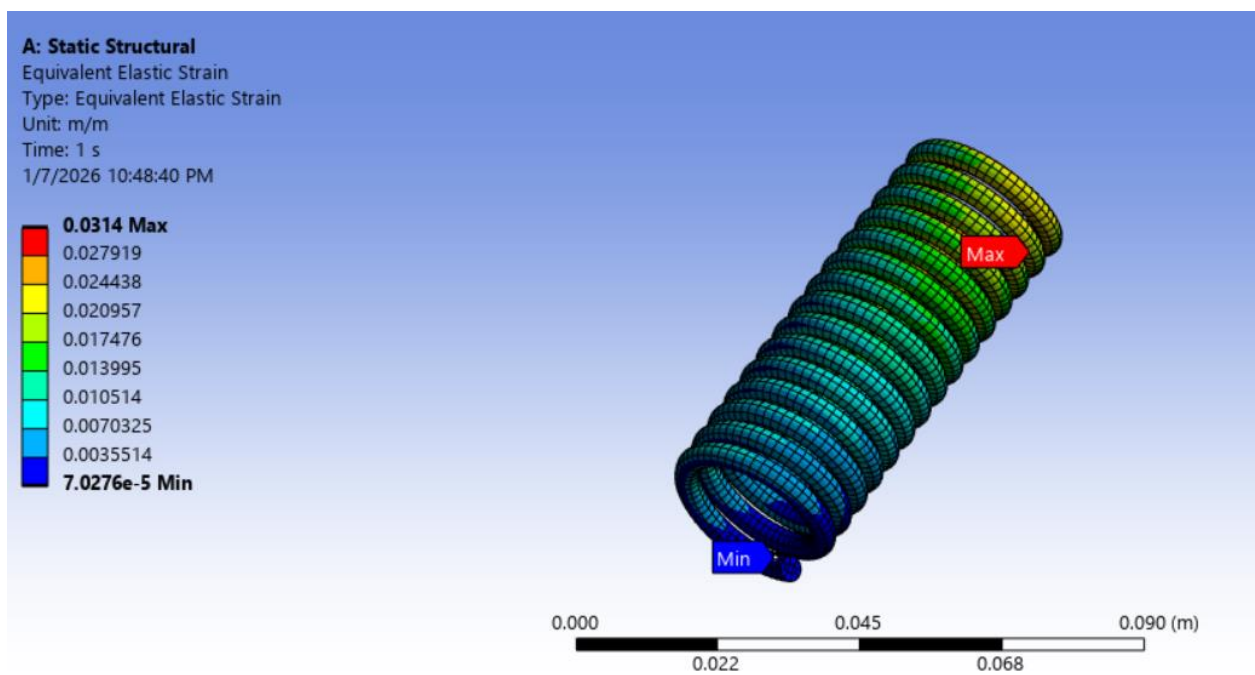
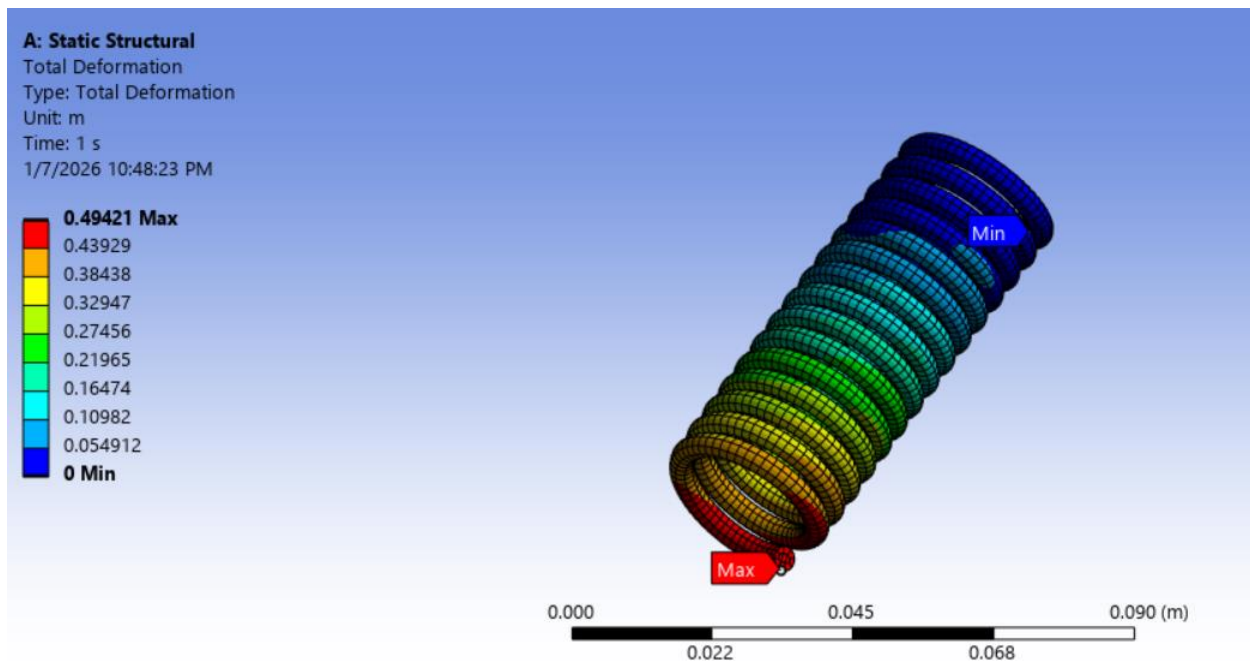
Bottom end surface is fixed. Top end surface has a force of 500N applied.



Mesh:



Results: Deformation, stress, strain.



A: Static Structural
Equivalent Stress
Type: Equivalent (von-Mises) Stress
Unit: Pa
Time: 1 s
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