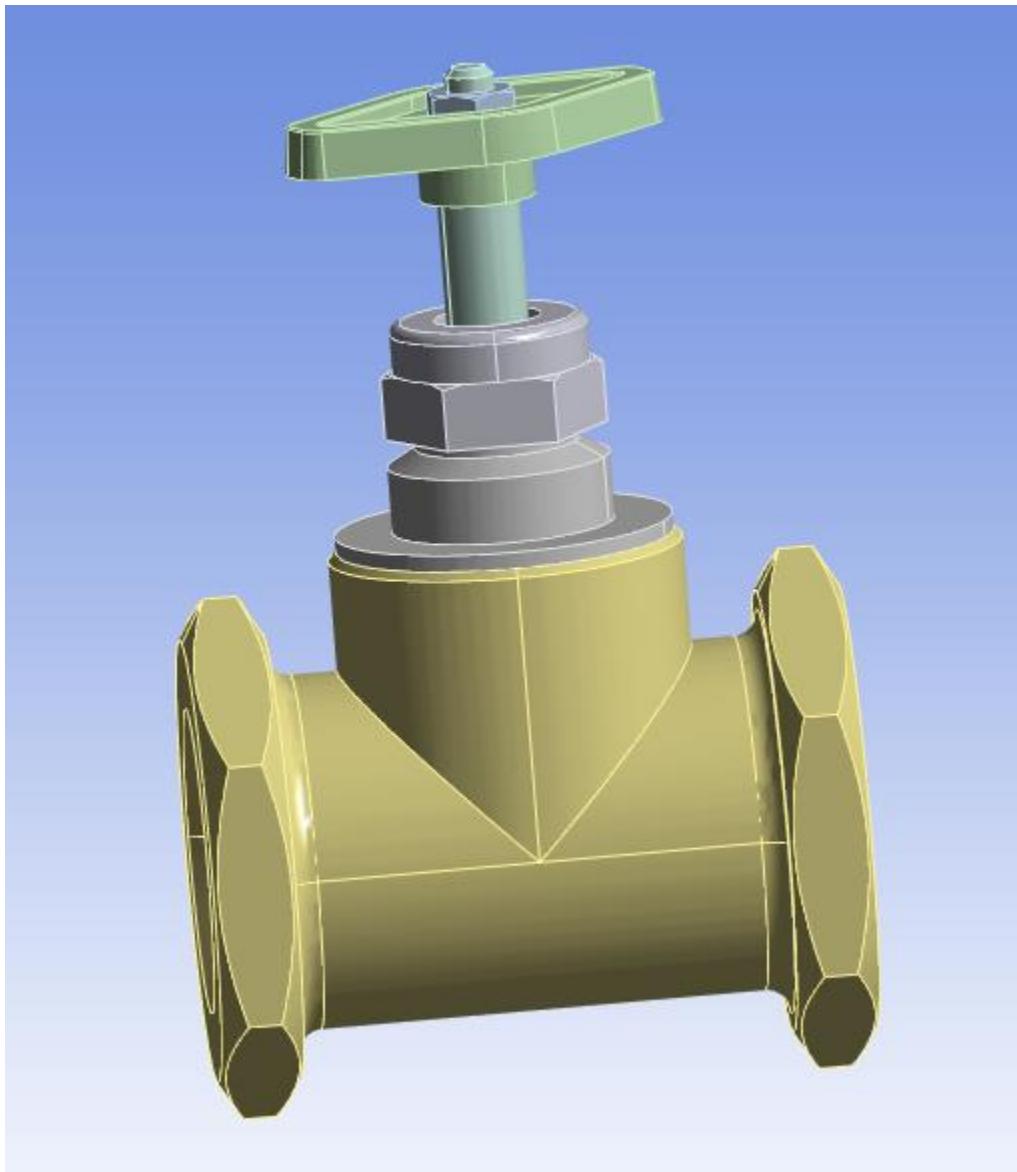


## Project 19: ANSYS Explicit Dynamics: Gate Valve

Problem Statement: Perform an explicit dynamics analysis on a gate valve and calculate equivalent stress and strain.

Geometry:

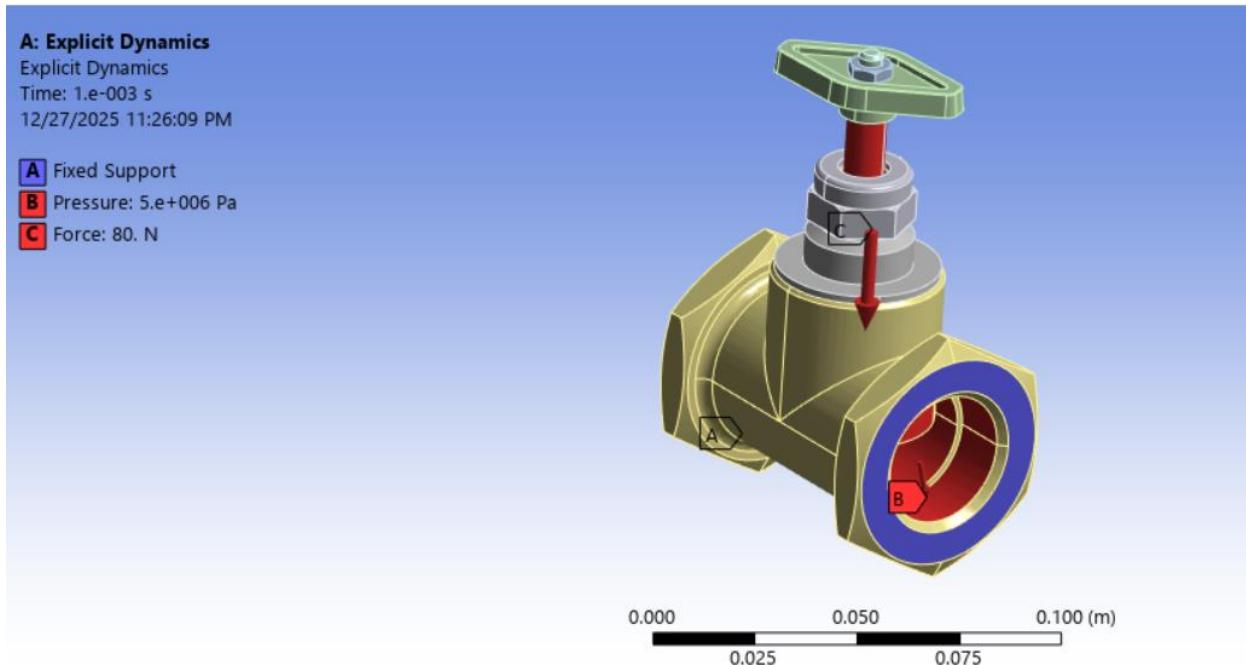


## Material Properties:

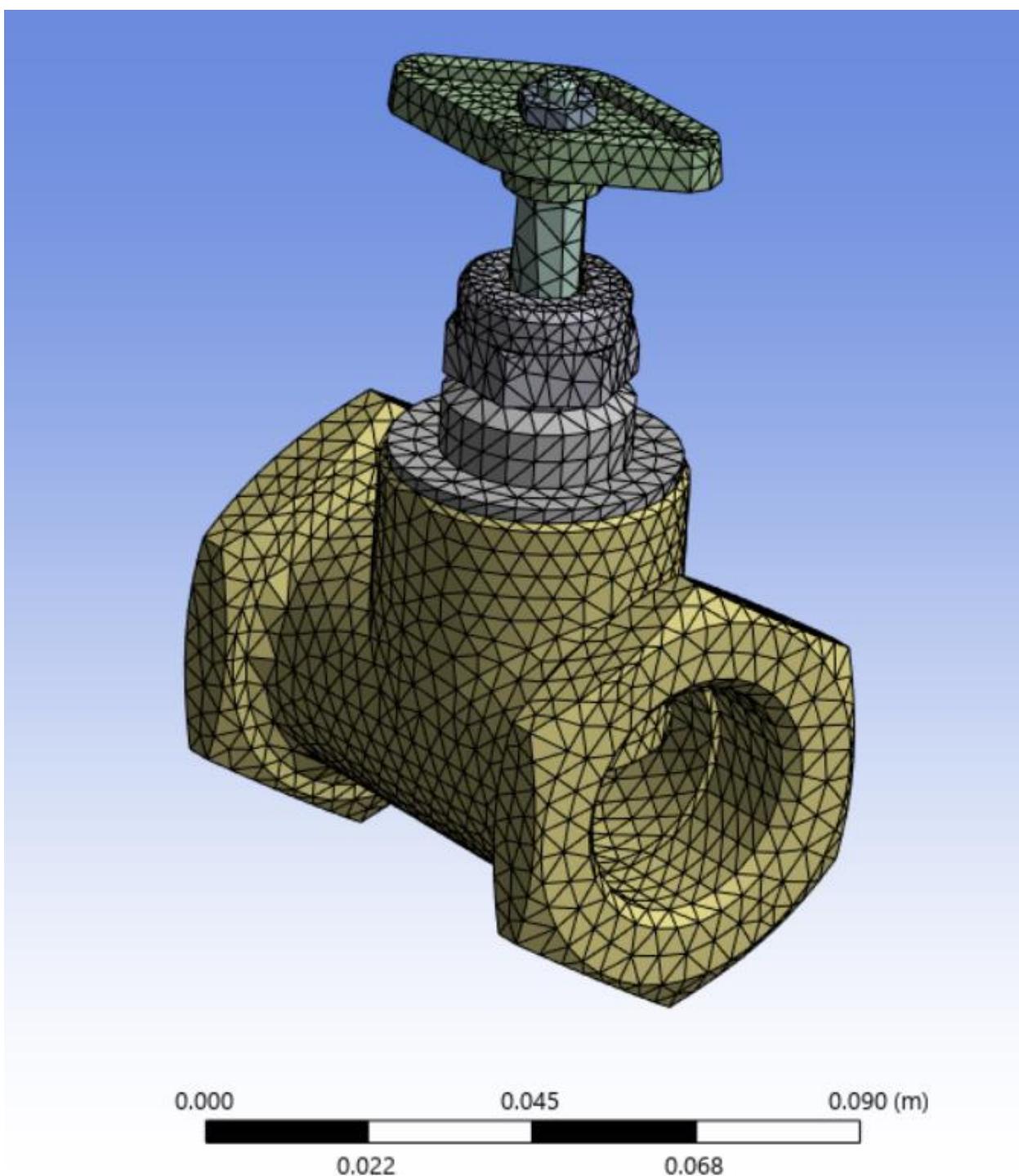
Properties of Outline Row 3: Stainless Steel					
	A	B	C	D	E
1	Property	Value	Unit	X	P
2	Material Field Variables	Table			
3	Density	7750	kg m^-3		
4	Isotropic Elasticity				
5	Derive from	Young's Modulus an...			
6	Young's Modulus	1.93E+11	Pa		
7	Poisson's Ratio	0.31			
8	Bulk Modulus	1.693E+11	Pa		
9	Shear Modulus	7.3664E+10	Pa		
10	Specific Heat Constant Pressure, C_p	480	J kg^-1 C^-1		

Boundary Conditions:

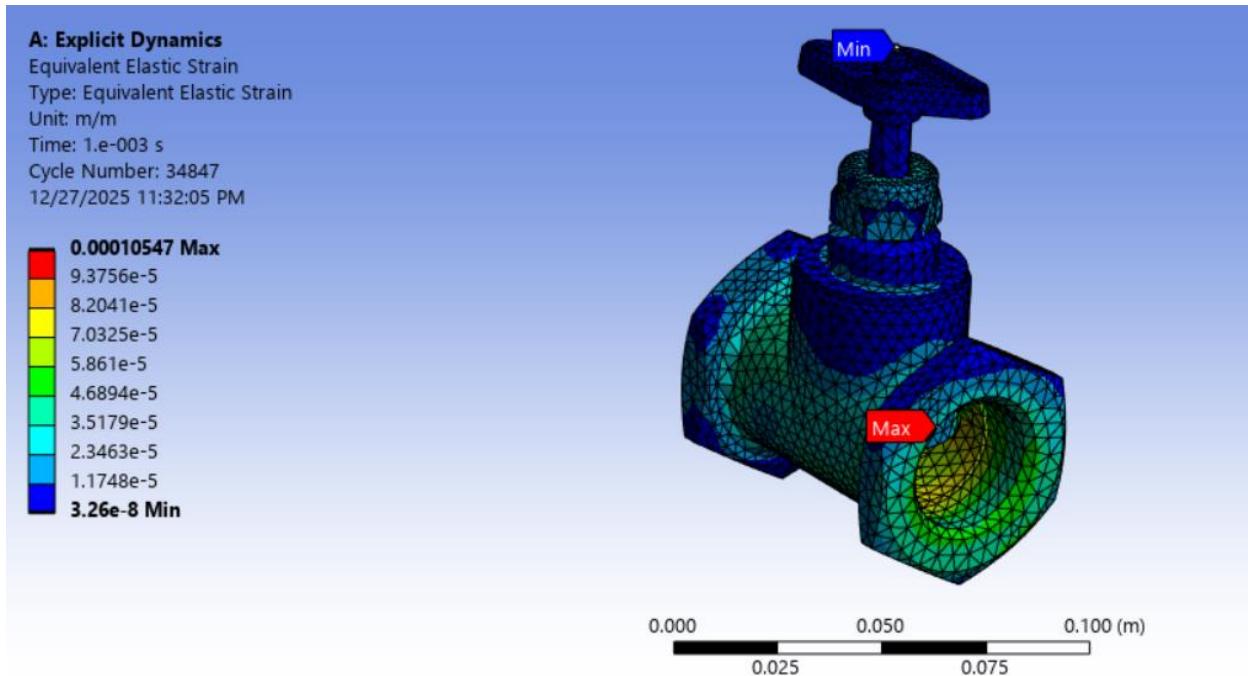
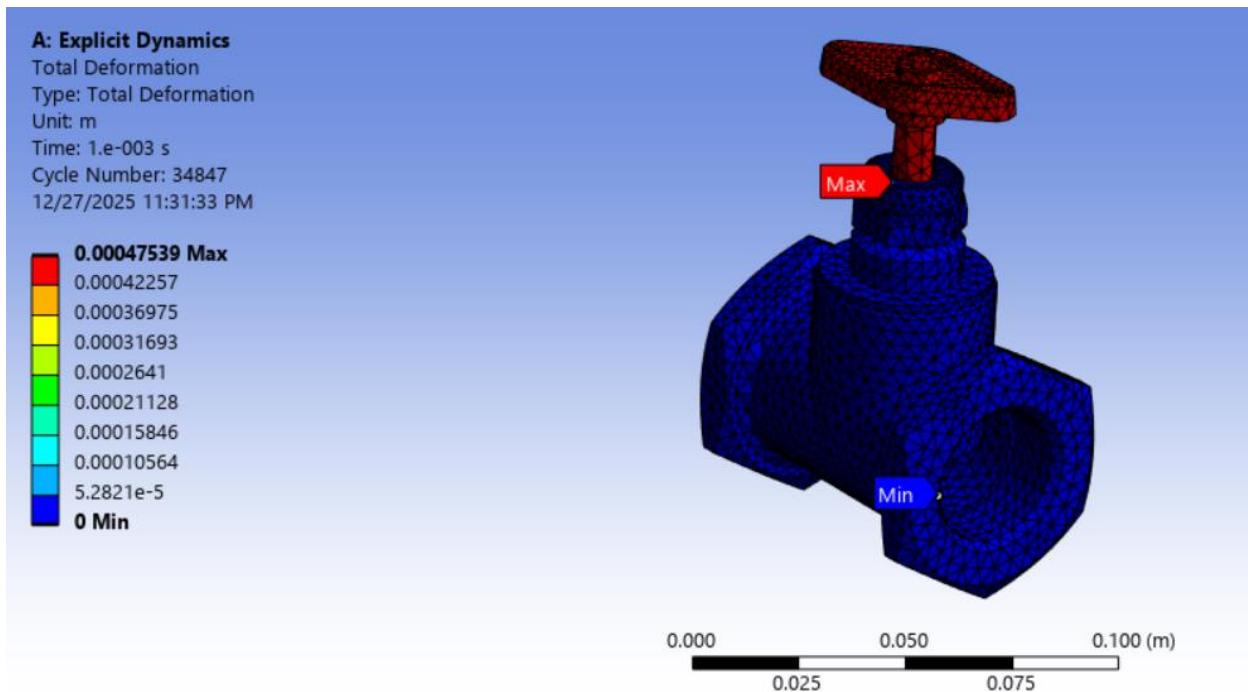
Fixed support at right and left edges. Pressure of 5MPa applied in the internal surfaces. A downward force of 80N is applied at the lever. Analysis duration: 0.001s.



Mesh:



Results: Total deformation, equivalent elastic strain, equivalent stress.



**A: Explicit Dynamics**

Equivalent Stress

Type: Equivalent (von-Mises) Stress

Unit: Pa

Time: 1.e-003 s

Cycle Number: 34847

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**1.9675e7 Max**

1.749e7

1.5304e7

1.3118e7

1.0932e7

8.7463e6

6.5605e6

4.3747e6

2.1889e6

**3055.6 Min**