

Tensile Test Calculations Known	Project Lead the Way Unknown
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Original Diameter =	0.1030	Crosssection Area =	0.0083	
Force at Proportional Limit	620			
Force at the Yield Point =	670	Yield Stress =	80412	$\sigma = F/A$
Force at the Ultimate Point =	679	Ultimate Stress =	81493	PeakForce/Original Area
Original Length =	1.000	Delta (Change in L) =	0.0820	Deformation at Rupture
Final Length =	1.0820			
		Rupture Strain =	0.082	$\epsilon = \delta/L$
Deformation at yield	0.027	Yield strain=	0.027	
Deformation at proportional limit	0.023			
Deformation offset	0.003	Modulus of Elasticity = (Youngs Modulus)	3720576	$E = FL/A \delta$
Final Diameter =	0.0765	Final C/S Area =	0.005	
		% Reduction in Area =	44.837	
		% Elongation =	8.2	
		Modulus of Resilience = (U_r)	965	$U_r = \frac{1}{2}(\sigma \epsilon)$
		Modulus of Toughness = (U_t)	6653	$U_t = 1/3 \epsilon r (\sigma_y + 2\sigma_u)$