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Material Properties: Martensitic Stainless Steels

Table 1: Physical and Mechanical Properties – Type 410 (UNS41000)

Density lb/in ³ (g/cm ³)	Thermal Conductivity @ 68°F Btu/hr/ft/°F (W/m•K)	Coefficient of Thermal Expansion μin/in/°F (μm/m/K)	Specific heat Btu/lb/°F (kJ/kg•K)	Melting Point °F(°C)	Elastic Modulus 10 ⁶ psi (GPa)	Poisson's ratio ν
0.281(7.78)	14.4(24.9)	5.5(9.9)	0.11(0.46)	2750(1510)	29.0(200)	0.30

Table 2: As-Delivered (Annealed) Tensile Properties – Type 410 (UNS41000)

Dir.	0.2%YS ksi(MPa)	UTS ksi(MPa)	%El (in 2")	Hard R _B	n- value
L	42.2(291)	77.1(532)	32.7	79	0.196
T	44.2(305)	76.8(530)	31.1	--	0.194

Results are average of duplicate tensile tests; courtesy of AK Steel Labs

Table 3: Tensile Properties after Heat-Treatment and Stress Relief – Type 410 (UNS41000)

Dir.	0.2%YS ksi(MPa)	UTS ksi(MPa)	%El (in 2")	Hard R _c
L	148.0(1020)	196.5(1355)	9.2	41.5
T	149.4(1030)	197.2(1360)	8.6	42.0

Results are average of duplicate tensile tests, courtesy of AK Steel Labs
 *350°F/30min stress relief after hardening

Figure 1: Engineering Stress-Strain Curve – Type 410 (UNS41000) Strip

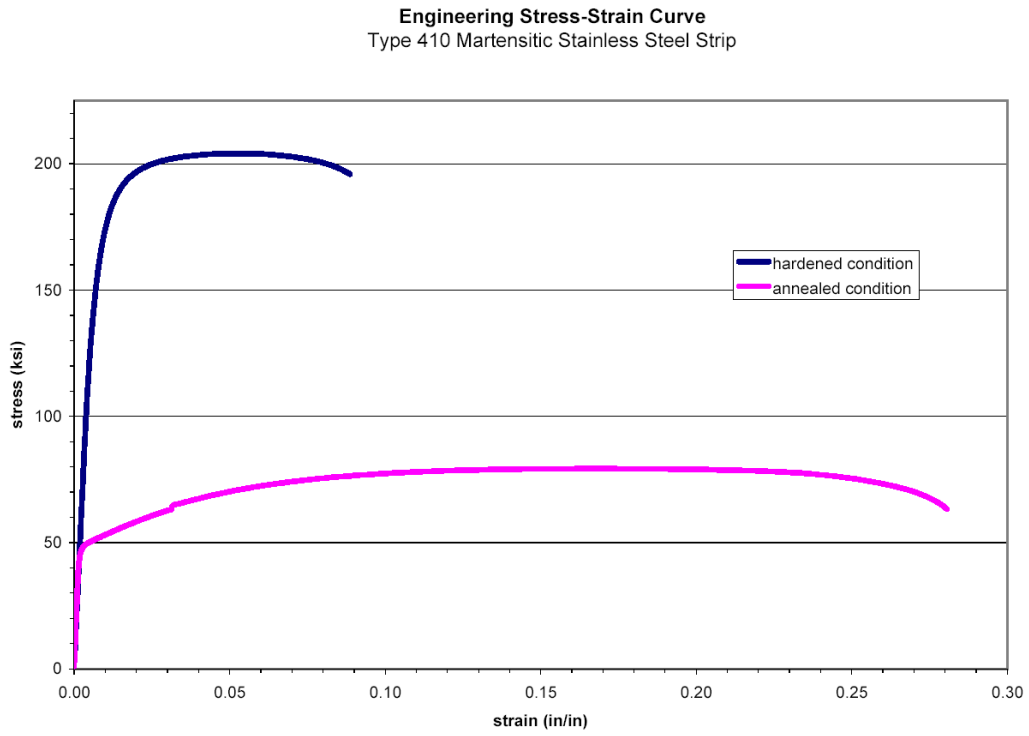


Figure 2: True Stress-Strain Curve – Type 410 (UNS41000) Strip

