

Type 410 is hardenable, straight-chromium stainless steels which combine superior wear resistance of high carbon alloys with the excellent corrosion resistance of chromium stainless steels. Oil quenching these alloys from temperatures between 1800°F to 1950°F (982-1066°C) produces the highest strength and/or wear resistance as well as corrosion resistance. Type 410 alloy is used where strength, hardness, and/or wear resistance must be combined with corrosion resistance.

Nominal Composition

C	Carbon – 0.15%
Mn	Manganese – 1.00%
P	Silicon – 1.00%
S	Chromium – 11.50 – 13.50%
Si	Nickel – 0.75%
Cr	Sulfur – 0.03%
Ni	Phosphorous – 0.04%

Percent by weight, maximum unless a range is listed.

Industry Applications

- Automotive exhausts, manifolds and high temperature engine components
- Medical instruments and devices
- Petro-chemical applications

Standard Inventory Specifications

UNS S41000
AMS 5504
AMs 5613 (Chemistry Only)
ASTM A 240
ASTM A 276
ASTM A 493
ASTM F 899
ASTM SA 240

Testing

100% PMI Testing
EN10204.3.1B Factory TestCertificate
Third Party Inspection Accepted

Packaging

With plastic caps to both ends, Wrapped with Poly bags, pack into bundles. Or pack into plywood boxes as required.



Physical Properties

Properties

Density	0.276 lb./in ³
Specific Gravity	7.65
Melting Range	2700 – 2790°F (1482-1532°C)
Modulus of Elasticity	29 x 10 ⁶ psi (200 GPa)

Coefficient of Thermal Expansion

Temperature Range		Coefficients	
°C	°F	W/m·K	Btu/(hr/ft²/in/°F)
20-200	68-392	10.5 x 10-6	5.9 x 10-6
20-600	68-1112	11.6 x 10-6	6.5 x 10-6

Thermal Conductivity

Temperature Range		Coefficients	
°C	°F	W/m·K	Btu/(hr/ft²/in/°F)
100	212	(0.249)	14.4

Electrical Resistivity

Temperature Range		
°C	°F	microhm-cm
20	68	56

Specific Heat

Btu/lb.-°F - .11

Mechanical Properties

Typical Annealed Properties				
HRB	0.2% Offset Yield Strength Ksi (Mpa)	Tensile Strength Ksi (Mpa)	Elongation, Percent in 2” (51 mm)	Hardening Response HRC
82-96	30 (205) – 42 (290)	65 (450) – 74 (510)	20 - 34	38-45