

# **410 STAINLESS**

AMS 5504 / 5505 / 5591 / 5776

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**

Carbon – 0.15%

Mn Manganese – 1.00%

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**

410 Coil, Sheet, Bar, & Plate

UNS S41000 AMS 5504

AMS 5613 (Chemistry Only)

**ASTM A 240** 

**ASTM A 276** 

**ASTM A 493** 

ASTM F 899

ASTM SA 240

B50991B

EN 1.4006

**PWA-LCS** 

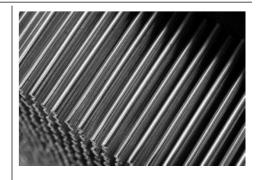
GE-S400/1000

RR SABRe Edition 2

**DFARS Compliant** 

#### **Features**

- Good resistance to corrosion
- Good ductility
- Well suited for highly stressed parts



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### **Physical Properties**

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