

**AISI 410 / UNS S41000 / DIN 1.4006**

Iron Chrome Martensitic Stainless Steel

Alloy 410 Data Sheet

**Introduction**

AISI / SS 410 is basic Iron-Chrome martensitic alloy with good mechanical strength & can be hardened/tempered as per application. Alloy 410 exhibit range of mechanical properties with different types of Heat Treatment.

**Chemical Composition ( Typical )**

Element	Limits	
	min	max
Carbon	0.080	0.150
Manganese	0.000	1.000
Phosphorus	0.000	0.040
Sulphur	0.000	0.030
Silicon	0.000	1.000
Chromium	11.500	13.500
Nickel	0.300	1.000
Nitrogen	0.000	0.030
Iron	Remainder	

**Mechanical Properties ( Typical )**

Parameter	Value
Yield 0.2 % ( Mpa/Nmm <sup>2</sup> ), Min	205
Tensile ( Mpa/Nmm <sup>2</sup> ), Min	450
Elongation (% in 50MM ), Min	30
Reduction Area(%), Min	20
Hardness ( BHN ), Max	217

**Physical Properties**

Parameter	Value
Density ( Kg/m <sup>3</sup> )	7740
Elastic Modulus ( Gpa )	200
*Co-eff of Expansion ( $\mu\text{m}/\text{m}/^\circ\text{C}$ )	28.7
*Thermal Condc. (W/m.K)	24.9
Electric Resistivity (n $\Omega$ .m) 20°C	560

\*Note : @500°C

**Corrosion Data**

Alloy 410 does not approve in corrosion resistance as compared to any 300 Series Austenitic Stainless Steel. However it is substitutes by its high strength, hardenability & its ability to display varied mechanical stages.

## Equivalent Grade Designation

AISI 410  
UNS S41000  
DIN 1.4006  
SAE 51410  
SUS 410  
BS 410S21  
X10Cr13  
AS 410

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## Available Product Forms

Round, Square, Hexagon & Flat Bars  
Seamless / Welded Pipes  
Seamless / Welded Tubes  
Hot & Cold Rolled Plates & Sheets  
Forged Bars  
Buttweld Pipe Fittings  
Forged Fittings  
Ferrule Compression Fittings  
Forged Flanges  
Valves

## Common Manufacturing Specifications

AMS 5512, 5556, 5558, 5571, 5575, 5646, 5654, 5674, ASTM/ASME A167, A182, A213, A240, A249, A269, A271, A276, A314, A336, A358, A376, A403, A409, A430, A473, A479, A511, A554, A580, A632, A774, A778, A813, A814, MIL A-23196, MIL S-23195, MIL S-23196, MIL T-6737QQ, AMS 5504, AMS 5505, AMS 5591, AMS 5613, AMS 5776, ASTM A176, ASTM A182 (F6A, F8a), ASTM A193 (410,B6, B6X)ASTM A194 (410,B6, B6X), ASTM A268

## Alternate to Alloy

If hardenability is not required, AISI 304 is best alternative with increases Corrosion resistance. AISI 420 also serves as good alternative.

## Applications & Industries

Steam & Gas turbine parts  
Valve & Pumps body parts  
Mining Equipments  
Machine parts & Cutlery  
Fasteners - Bolts, Screws, Nuts & Springs  
Petrochemical Equipments  
Automotive parts & Bushes

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