

## Hastelloy X / UNS N06002 / DIN 2.4665

High Strength Ni Cr Mo Alloy

Alloy X Data Sheet

### Introduction

Hastelloy X is Nickel based Chromium Iron Molybdenum alloy with excellent resistance to stress Corrosion cracking to petrochemical applications along with high temperature strength & weldability.

#### Chemical Composition ( Typical )

Element	Limits	
	min	max
Carbon	0.050	0.150
Manganese	0.000	1.000
Silicon	0.000	1.000
Sulphur	0.000	0.030
Phosphorus	0.000	0.040
Chromium	20.500	23.000
Molybdenum	8.000	10.000
Cobalt	0.500	2.500
Iron	17.000	20.000
Vanadium	0.200	1.000
Aluminum	0.000	0.500
Titanium	0.000	0.150
Copper	0.000	0.500
Nickel	Remainder	

#### Mechanical Properties ( Typical )

Parameter	Value
Yield 0.2 % ( Mpa/Nmm <sup>2</sup> ), Min	385
Tensile ( Mpa/Nmm <sup>2</sup> ), Min	755
Elongation (% in 50MM ), Min	45
Reduction Area(%), Min	22
Hardness ( HRB ), Max	87

#### Physical Properties

Parameter	Value
Density ( Kg/m <sup>3</sup> )	8220
Elastic Modulus ( Gpa )	205
*Co-eff of Expansion ( $\mu\text{m}/\text{m}/^\circ\text{C}$ )	11.7
*Thermal Condc. ( W/m.K )	14.1
*Electric Resistivity ( n $\Omega$ .m )	1270

\*Note : @500°C

#### Corrosion Data

Hastelloy X is excellent resistant to reducing and carburizing environment making it most suitable to Furnace applications. Composition of Alloy X has good strength and excellent oxidation resistance at high temperatures. It also exhibits exceptional resistant to stress-corrosion cracking in petrochemical applications.

## Equivalent Grade Designation

Hastelloy X  
Alloy X  
UNS N06002  
W. Nr./EN 2.4665  
DIN 2.4665  
AISI 680

Alloy X Data Sheet

## Available Product Forms

Round, Square, Hexagon ,Flat Bars & Wires  
Seamless / Welded Pipes  
Seamless / Welded Tubes  
Hot & Cold Rolled Plates & Sheets  
Forged Bars  
Forged Flanges  
Butt-Weld Pipe Fittings  
Socket-Weld/Forged Pipe Fittings  
Machined Components  
Ferrule Compression Fittings  
Welding Consumables

## Common Manufacturing Specifications

ASTM B366, ASTM B435, ASTM B572, ASTM B619, ASTM B622, ASTM B626, AMS 5536, AMS 5587, AMS 5588, AMS 5754, AMS 5798, GE B50A436, GE B50A463, GE B50T83A, GE B50TF24, GE B50TF25, GE B50TF31, PWA 1038..etc

## Alternate to Alloy

Hastelloy B3 & Hastelloy C276 are suitable substitute to this grade.

## Applications & Industries

Gas Turbines  
Oil & Petrochemical industry  
Industrial furnaces & Heat treating equipment  
Nuclear engineering  
Valves, Pumps, Fasteners - Nuts, Bolts, Washer, Anchor Rods  
Machine Components  
Jet engine combustion chambers & Aircraft cabin heaters  
Turbine exhaust components

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