



### Other common names: Alloy B-2

Hastelloy B2 is a strong solution strengthened, nickel-molybdenum alloy, with noteworthy resistance to decreasing situations such as hydrogen chloride gas and sulphuric, acetic and phosphoric acids. Molybdenum is the essential alloying component which gives critical corrosion resistance to decreasing situations. This nickel steel alloy can be utilized as a part of the as-welded condition since it resists the formation of grain-limit carbide precipitates in the weld heat-influenced zone. This nickel alloy gives excellent resistance to hydrochloric acid at all focuses and temperatures. In increments, Hastelloy B2 has magnificent resistance to pitting, stress corrosion cracking and to knife-line and heat-affected area attack. Alloy B2 gives resistance to pure sulphuric acid and various non-oxidizing acids.

### Limiting Factors

Alloy B-2 has poor corrosion resistance to oxidizing situations; hence, it is not recommended for use in oxidizing media or in the vicinity of ferric or cupric salts since they might bring about quick untimely corrosion failure. These salts might create when hydrochloric acid interacts with iron and copper. Accordingly, if this alloy is utilized as a part of conjunction with iron or copper piping in a system containing hydrochloric acid, the presence of these salts could cause the alloy to fail prematurely. Additionally, this nickel steel alloy ought not to be utilized at temperatures within the scope of 1000° F and 1600° F due to a reduction in the ductility in the alloy.

### Applications

- Chemical processes
- Vacuum furnaces
- Mechanical components in reducing environments

### Characteristics

- Great resistance to stress corrosion cracking and pitting
- Significant resistance to reducing conditions like hydrogen chloride, sulphuric, acetic and phosphoric acids
- Resistance to hydrochloric acid at all concentrations and temperatures

# HASTELLOY® B2

## Machining

It can be machinable by standard methods.

## Forming

This alloy may be formed by conventional methods as utilized with stainless steels.

## Welding

The alloy is promptly weldable by all strategies and might be utilized as a part of the as welded condition.

## Heat Treatment

Solution treated at 1950 F and fast extinguished. This is the ordinary condition in which the product structures are furnished and utilized. Bright annealed product forms (sheet and strip) are solution treated at 2100 F and after then cooled in a hydrogen climate to avoid oxidation of the bright surface.

## Forging

Promptly be forged at temperatures 2250 F to 1800 F.

## Hot Working

It can be hot worked by standard means.

## Cold Working

Can be promptly cold worked by standard means.

## Annealing

Anneal taking after broad work hardening because of cold working by 1950 F soaks took after by fast extinguish. Note that splendid completion parts must be solution annealed and fast cooled in an inactive (argon gas) or decreasing (hydrogen) climate to prevent surface oxidation during heating and cooling.

## Hardening

Hardens are done by cold working not heat treatment.

## Chemical Properties

C	Si	P	S	Cr	Mn	Fe	Co	Ni	Mo
0.02 max	0.1 max	0.04 max	0.03 max	1.0 max	1.0 max	2.0 max	1.0 max	Remainder	26.0 - 30.0

## Mechanical Properties

Tensile Strength (ksi)	0.2% Yield Strength (ksi)	Elongation% in 2 inches
110	51	40

## Physical Properties

Properties	Units	Temperature in °C
Density	9.22 g/cm <sup>3</sup>	22°
Specific Heat	0.089 Kcal/kg.C	Room
Melting Range	1370-1418°C	-
Modulus of Elasticity	217 KN/mm <sup>2</sup>	Room
Electrical Resistivity	137 μΩ.cm	0°
Coefficient of Expansion	10.3 μm/m °C	20-93°
Thermal Conductivity	11.1 W/m-°K	0°

## ASTM Specifications

Pipe / Tube (SMLS)	Pipe Welded	Tube Welded	Sheet / Plate	Bar	Forging	Fitting
B 622	B 619	B 626	B 333	B 335	B 564	B 366

## Availability

MANUFACTURING	RAW MATERIALS
Fasteners	Pipes
Custom Machining	Tubes
Custom Fabrication	Bars
Piping / Spools	Sheets
Stamped Parts	Plates
B/W Fittings	-
S/W Fittings	-
Flanges	-
Compression Fittings	-

### Disclaimer

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