

Hastelloy® B-3® alloy

UNS N10675
W. Nr 2.4600

Applicable Specifications

Wire & Bar | ASTM B335

Description: Hastelloy® B-3® alloy is a nickel-molybdenum alloy with increased structural and thermal stability compared to that of Hastelloy® B-2®. It has excellent resistance to pitting, corrosion, and stress corrosion cracking in high-purity acid environments. It has excellent resistance to hydrochloric acid at all concentrations and temperatures. The alloy can withstand most concentrations of sulfuric, acetic, formic, and phosphoric acids, as well as other nonoxidizing media. Hastelloy® B-3® can be cold worked to increase strength with limited effects on general corrosion resistance but is recommended to be re-annealed for optimum stress corrosion cracking resistance.

Applications include: Reaction vessels, Welding wire, Fittings, Rings, Springs

Industries supplied include: Chemical Processing

Nominal Composition

C	Mn	Si	S	P	Ni	Cr	Mo	Co
0.01 max	3.0 max	0.10 max	0.03 max	0.030 max	65.0 min	1.0 - 3.0	27.0 - 32.0	3.0 max
Nb (Cb)	V	Al	Cu	Ta	Ti	W	Zr	Fe
0.20 max	0.20 max	0.50 max	0.20 max	0.20 max	0.20 max	3.0 max	0.10 max	1.0 - 3.0

Physical Properties

	At 70°F	At 20°C
Density	0.333 lb/in ³	9.22 g/cm ³
Modulus of Elasticity (E)	31.4 x 10 ³ ksi	216 GPa
Coefficient of Expansion	6.5 µin/in-°F (70-1200°F)	11.8 µm/m-°C (25-600°C)
Electrical Resistivity	53.8 µohm-in	136.6 µohm-cm
Thermal Conductivity	78 Btu-in/ft ² -hr-°F	11.2 W/m-°C

Typical Mechanical Properties

Condition	Heat Treatment	Tensile Strength	Suggested Operating Conditions
Annealed	1950°F (1066°C)	120-150 ksi (827-1035 MPa)	-320°F to 1200°F (-200°C to 650°C)
Spring Temper	None	200 ksi min (1379 MPa)	Up to 750°F (400°C)

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