

Hastelloy® B-3 alloy

UNS N10675
W. Nr 2.4600

HASTELLOY® B-3 alloy is a nickel-molybdenum alloy with thermal stability greater than that of Hastelloy B-2. It has excellent resistance to pitting, corrosion, and stress corrosion cracking. It has excellent resistance to hydrochloric acid at all concentrations and temperatures. It also withstands sulfuric, acetic, formic, and phosphoric acids, and other non-oxidizing media.

Applications include: chemical processing, vacuum furnaces, mechanical components.

Nominal Composition

	C	Mn	Si	P	S	Cr	Co	Mo	V	Fe	Al	W	Ni
min	-	-	-	-	-	1.00	-	27.00	-	1.00	-	-	65.00
max	0.01	3.00	0.10	0.030	0.010	3.00	3.00	32.00	0.20	3.00	0.50	3.00	-

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
Modulus of Rigidity (G)	12.0 x 10 ³ ksi	83 GPa
Coefficient of Expansion	6.6 microinches/in.-°F (70-1000°F)	11.8 µm/m-°C (20-538°C)
Electrical Resistivity	53.8 µ ohm.in	137 µ ohm.cm
Thermal Conductivity	78 Btu-in./ft. ² hr.-°F	11.2 W/m-K

Applicable Specifications

Strip	ASTM B333
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Typical Mechanical Properties – Spring Applications

Condition	Heat Treatment	Tensile Strength	Suggested Operating Conditions
Annealed	2100°F (1150°C)	110 ksi (760 MPa) min 125 ksi (860 MPa) typ	-300°F to 1800°F (-184°C to 900°C)

Hastelloy® is a registered trademark of Haynes International, Inc.

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