

Haynes® HR-120® alloy

UNS N08120
W. Nr 2.4854

Applicable Specifications

Wire & Bar ASTM B408

Description: Haynes® HR-120® alloy is a solid solution strengthened heat resistant alloy that provides excellent strength at elevated temperature combined with very good resistance to carburizing and sulfidizing environments. Its oxidation resistance is comparable to other widely used Fe-Ni-Cr materials but its strength at temperatures up to 2200°F is significantly higher. HR-120® also has excellent resistance to hot corrosion in molten salt environments used for parts heat treating. The alloy can be readily cold or hot formed and is commonly welded using Haynes 556® filler wire and MULTIMET® electrodes.

Applications include: Heat treatment baskets, Wire mesh belts, Heat treating fixtures, Basket liners, Muffles/retorts, Recuperators, Fluidized bed components, Waste incinerators, Turbine engine parts

Industries supplied include: Industrial Heat Treating, Chemical/Waste Processing, Food Processing

Nominal Composition

	C	Mn	Si	B	Ni	Cr	Co	Mo	Nb (Cb)	W	N	Al	Fe
min	0.03	-	-	-	35.00	23.00	-	-	0.40	-	0.15	-	33 Bal
max	0.10	1.5	0.03	0.01	39.00	27.00	3.00	2.50	0.90	2.50	0.30	0.40	-

Physical Properties

	At 70°F	At 20°C
Density	0.291 lb/in ³	8.07 g/cm ³
Modulus of Elasticity (E)	28.7 x 10 ³ ksi	198 GPa
Modulus of Rigidity (G)	11.0 x 10 ³ ksi	76 GPa
Coefficient of Expansion	9.87 µin/in-°F (70-1800°F)	17.8 µm/m-°C (25-1000°C)
Electrical Resistivity	41.4 µohm-in	105.2 µohm-cm
Thermal Conductivity	83 Btu-in/ft ² -hr-°F	12.0 W/m-°C

Typical Mechanical Properties

Condition	Heat Treatment	Tensile Strength	Suggested Operating Conditions
Annealed	2048-2246°F (1120-1230°C)	110-140 ksi (758-965 MPa)	Up to 2200°F (1205°C)

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