

Haynes Hastelloy® G-30® alloy, 10% cold rolled

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

Material Notes:

HASTELLOY® G-30® alloy is a high chromium nickel-base alloy which shows superior corrosion resistance in commercial phosphoric acids as well as many complex environments containing highly oxidizing acids such as nitric/hydrochloric, nitric/hydrofluoric and sulfuric acids. The resistance of G-30 alloy to the formation of grain boundary precipitates in the heat-affected zone makes it suitable for use in most chemical process applications in the as-welded condition. HASTELLOY G-30 alloy is available in the form of plate, sheet, strip, billet, bar, wire, covered electrodes, pipe and tubing. Typical Applications: Phosphoric Acid Service Sulfuric Acid Service Nitric Acid Service Nuclear Fuel Reprocessing Nuclear Waste Processing Pickling Operations Petrochemicals Fertilizer Manufacture Pesticide Manufacture Gold Ore Extraction Heat Treatment: The standard solution heat treatment consists of heating to 2150°F (1177°C) followed by rapid air-cooling or water quenching. Parts which have been hot formed should be solution heat-treated prior to final fabrication or installation. Forming: G-30 alloy has excellent forming characteristics and cold forming is the preferred method of forming. Because of its good ductility, it can be easily cold-worked. The alloy is generally stiffer than the austenitic stainless steels so more energy is required during cold forming. Data provided by the manufacturer, Haynes International, Inc.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Haynes-Hastelloy-G-30-alloy-10-cold-rolled.php

Physical Properties	Metric	English	Comments
Density	8.22 g/cc	0.297 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	139	139	Converted from Rockwell B hardness.
Hardness, Knoop	186	186	Converted from Rockwell B hardness.
Hardness, Rockwell B	98	98	
Hardness, Vickers	241	241	Converted from Rockwell B hardness.
Tensile Strength, Ultimate	800 MPa	116000 psi	
Tensile Strength, Yield	607 MPa @Strain 0.200 %	88000 psi @Strain 0.200 %	
Elongation at Break	38 %	38 %	in 50.8 mm
Reduction of Area	62 %	62 %	
Modulus of Elasticity	202 GPa	29300 ksi	plate heat treated to 1177°C, rapid quenched
	184 GPa @Temperature 538 °C	26700 ksi @Temperature 1000 °F	plate heat treated to 1177°C and rapid quenched

Mechanical Properties	192 GPa Metric	27800 ksi English	plate heat treated to 1177°C and rapid quenched
	@Temperature 427 °C	@Temperature 801 °F	
	194 GPa	28100 ksi	plate heat treated to 1177°C and rapid quenched
	@Temperature 316 °C	@Temperature 601 °F	
	196 GPa	28400 ksi	plate heat treated to 1177°C and rapid quenched
	@Temperature 204 °C	@Temperature 399 °F	

Thermal Properties	Metric	English	Comments
CTE, linear	14.4 µm/m-°C	8.00 µin/in-°F	
	@Temperature 30.0 - 316 °C	@Temperature 86.0 - 601 °F	
	14.9 µm/m-°C	8.28 µin/in-°F	
	@Temperature 30.0 - 427 °C	@Temperature 86.0 - 801 °F	
	15.5 µm/m-°C	8.61 µin/in-°F	
	@Temperature 30.0 - 538 °C	@Temperature 86.0 - 1000 °F	
Thermal Conductivity	16.0 µm/m-°C	8.89 µin/in-°F	
	@Temperature 30.0 - 649 °C	@Temperature 86.0 - 1200 °F	
	16.0 µm/m-°C	8.89 µin/in-°F	
	@Temperature 30.0 - 760 °C	@Temperature 86.0 - 1400 °F	
	10.2 W/m-K	70.8 BTU-in/hr-ft ² -°F	
	@Temperature 24.0 °C	@Temperature 75.2 °F	
	11.9 W/m-K	82.6 BTU-in/hr-ft ² -°F	
	@Temperature 100 °C	@Temperature 212 °F	
	14.4 W/m-K	99.9 BTU-in/hr-ft ² -°F	
	@Temperature 200 °C	@Temperature 392 °F	
	16.7 W/m-K	116 BTU-in/hr-ft ² -°F	
	@Temperature 300 °C	@Temperature 572 °F	
	18.7 W/m-K	130 BTU-in/hr-ft ² -°F	
	@Temperature 400 °C	@Temperature 752 °F	
	20.3 W/m-K	141 BTU-in/hr-ft ² -°F	

Thermal Properties	@Temperature 500 °C Metric	@Temperature 932 °F English	Comments
	21.4 W/m-K	149 BTU-in/hr-ft ² -°F	
	@Temperature 600 °C	@Temperature 1110 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.030 %	<= 0.030 %	
Chromium, Cr	28 - 31.5 %	28 - 31.5 %	
Cobalt, Co	<= 5.0 %	<= 5.0 %	
Copper, Cu	1.0 - 2.4 %	1.0 - 2.4 %	
Iron, Fe	13 - 17 %	13 - 17 %	
Manganese, Mn	<= 1.5 %	<= 1.5 %	
Molybdenum, Mo	4.0 - 6.0 %	4.0 - 6.0 %	
Nb + Ta	0.30 - 1.5 %	0.30 - 1.5 %	
Nickel, Ni	43 %	43 %	As Remainder
Phosphorous, P	<= 0.040 %	<= 0.040 %	
Silicon, Si	0.80 %	0.80 %	
Sulfur, S	<= 0.020 %	<= 0.020 %	
Tungsten, W	1.5 - 4.0 %	1.5 - 4.0 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000116 ohm-cm	0.000116 ohm-cm	
	@Temperature 24.0 °C	@Temperature 75.2 °F	
	0.000117 ohm-cm	0.000117 ohm-cm	
	@Temperature 100 °C	@Temperature 212 °F	
	0.000119 ohm-cm	0.000119 ohm-cm	
	@Temperature 200 °C	@Temperature 392 °F	
	0.000119 ohm-cm	0.000119 ohm-cm	
@Temperature 300 °C	@Temperature 572 °F		
0.000123 ohm-cm	0.000123 ohm-cm		
@Temperature 400 °C	@Temperature 752 °F		

Electrical Properties	0.000124 ohm-cm Metric	0.000124 ohm-cm English	Comments
	@Temperature 500 °C	@Temperature 932 °F	
	0.000125 ohm-cm	0.000125 ohm-cm	
	@Temperature 600 °C	@Temperature 1110 °F	

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