Haynes HastelloyÂ® G-30Â® alloy, 50% cold rolled and 5000 hours at 500Â°C, air cooled

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

Material Notes:

HASTELLOYÂ® G-30Â® 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.HASTELLY 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 2150Â°F (1177Â°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-50-cold-rolled-and-5000-hours-at-500C-air-cooled.php

Physical Properties	Metric	English	Comments
Density	8.22 g/cc	0.297 lb/inÂ³	

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	1324 MPa	192000 psi	
Tensile Strength, Yield	1158 MPa @Strain 0.200 %	168000 psi @Strain 0.200 %	
Elongation at Break	8.0 %	8.0 %	in 50.8 mm
Reduction of Area	14 %	14 %	
Modulus of Elasticity	202 GPa	29300 ksi	plate heat treated to 1177Â°C, rapid quenched
	184 GPa @Temperature 538 Â°C	26700 ksi @Temperature 1000 Â°F	plate heat treated to 1177Â°C and rapid quenched
	192 GPa @Temperature 427 Â°C	27800 ksi @Temperature 801 Â°F	plate heat treated to 1177Â°C and rapid quenched
	194 GPa @Temperature 316 Â°C	28100 ksi @Temperature 601 Â°F	plate heat treated to 1177Â°C and rapid quenched

Mechanical Properties	Metric	English	Comments
	195 GPa @Temperature 204 Â°C	28400 ksi @Temperature 399 Â°F	plate heat treated to 1177Â°C and rapid quenched
Charpy Impact	15.0 J	11.1 ft-lb	50% cold rolled and 500 hours at 500Â°C (930Â°F)

Thermal Properties	Metric	English	Comments
CTE, linear	14.4 Âµm/m-Â°C @Temperature 30.0 - 316 Â°C	8.00 Âµin/in-Â°F @Temperature 86.0 - 601 Â°F	
	14.9 Âµm/m-Â°C @Temperature 30.0 - 427 Â°C	8.28 Âµin/in-Â°F @Temperature 86.0 - 801 Â°F	
	15.5 Âµm/m-Â°C @Temperature 30.0 - 538 Â°C	8.61 Âµin/in-Â°F @Temperature 86.0 - 1000 Â°F	
	16.0 Âµm/m-Â°C @Temperature 30.0 - 760 Â°C	8.89 Âµin/in-Â°F @Temperature 86.0 - 1400 Â°F	
	16.0 Âµm/m-Â°C @Temperature 30.0 - 649 Â°C	8.89 Âµin/in-Â°F @Temperature 86.0 - 1200 Â°F	
Thermal Conductivity	10.2 W/m-K @Temperature 24.0 Â°C	70.8 BTU-in/hr-ftÂ²-Â°F @Temperature 75.2 Â°F	
	11.9 W/m-K @Temperature 100 Â°C	82.6 BTU-in/hr-ftÂ²-Â°F @Temperature 212 Â°F	
	14.4 W/m-K @Temperature 200 Â°C	99.9 BTU-in/hr-ftÂ²-Â°F @Temperature 392 Â°F	
	16.7 W/m-K @Temperature 300 Â°C	116 BTU-in/hr-ftÂ²-Â°F @Temperature 572 Â°F	
	18.7 W/m-K @Temperature 400 Â°C	130 BTU-in/hr-ftÂ²-Â°F @Temperature 752 Â°F	
	20.3 W/m-K @Temperature 500 Â°C	141 BTU-in/hr-ftÂ²-Â°F @Temperature 932 Â°F	

Thermal Properties	Metric	English	Comments
	21.6 W/m-K @Temperature 600 Â°C	149 BTU-in/hr-ftÂ²-Â°F @Temperature 1110 Â°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 @Temperature 24.0 Â°C	0.000116 ohm-cm @Temperature 75.2 Â°F	
	0.000117 ohm-cm @Temperature 100 Â°C	0.000117 ohm-cm @Temperature 212 Â°F	
	0.000119 ohm-cm @Temperature 200 Â°C	0.000119 ohm-cm @Temperature 392 Â°F	
	0.000119 ohm-cm @Temperature 300 Â°C	0.000119 ohm-cm @Temperature 572 Â°F	
	0.000123 ohm-cm @Temperature 400 Â°C	0.000123 ohm-cm @Temperature 752 Â°F	
	0.000124 ohm-cm	0.000124 ohm-cm	

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

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