

Haynes 625 alloy, 50% cold reduction, 1120°C anneal for 5 minutes

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

Material Notes:

Cb and Ta content 3.7% combined. Excellent strength up to 816°C, good oxidation resistance and aqueous corrosion, excellent forming and welding characteristics. Applications include a variety of high-temperature aerospace, chemical process industry and power industry uses. Widely used in sea water and power plant scrubber applications. Data provided by the manufacturer, Haynes International, Inc.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Haynes-625-alloy-50-cold-reduction-1120C-anneal-for-5-minutes.php

Physical Properties	Metric	English	Comments
Density	8.44 g/cc	0.305 lb/in ³	at RT

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	900 MPa	131000 psi	
Tensile Strength, Yield	420 MPa @Strain 0.200 %	60900 psi @Strain 0.200 %	
Elongation at Break	50 %	50 %	in 50.8 mm
Modulus of Elasticity	208 GPa	30200 ksi	RT
	126 GPa @Temperature 1000 °C	18300 ksi @Temperature 1830 °F	
	142 GPa @Temperature 900 °C	20600 ksi @Temperature 1650 °F	
	153 GPa @Temperature 800 °C	22200 ksi @Temperature 1470 °F	
	163 GPa @Temperature 700 °C	23600 ksi @Temperature 1290 °F	
	171 GPa @Temperature 600 °C	24800 ksi @Temperature 1110 °F	
	179 GPa @Temperature 500 °C	26000 ksi @Temperature 932 °F	
	186 GPa @Temperature 400 °C	27000 ksi @Temperature 752 °F	

Mechanical Properties	192 GPa Metric	27800 ksi English	Comments
	@Temperature 300 °C	@Temperature 572 °F	
	199 GPa	28900 ksi	
	@Temperature 200 °C	@Temperature 392 °F	
	201 GPa	29200 ksi	
	@Temperature 100 °C	@Temperature 212 °F	

Thermal Properties	Metric	English	Comments
CTE, linear	12.8 µm/m-°C	7.11 µin/in-°F	
	@Temperature 25.0 - 100 °C	@Temperature 77.0 - 212 °F	
	13.1 µm/m-°C	7.28 µin/in-°F	
	@Temperature 25.0 - 200 °C	@Temperature 77.0 - 392 °F	
	13.4 µm/m-°C	7.44 µin/in-°F	
	@Temperature 25.0 - 300 °C	@Temperature 77.0 - 572 °F	
	13.8 µm/m-°C	7.67 µin/in-°F	
	@Temperature 25.0 - 400 °C	@Temperature 77.0 - 752 °F	
	14.2 µm/m-°C	7.89 µin/in-°F	
	@Temperature 25.0 - 500 °C	@Temperature 77.0 - 932 °F	
	14.8 µm/m-°C	8.22 µin/in-°F	
	@Temperature 25.0 - 600 °C	@Temperature 77.0 - 1110 °F	
	15.4 µm/m-°C	8.56 µin/in-°F	
	@Temperature 25.0 - 700 °C	@Temperature 77.0 - 1290 °F	
	16.0 µm/m-°C	8.89 µin/in-°F	
	@Temperature 25.0 - 800 °C	@Temperature 77.0 - 1470 °F	
	16.7 µm/m-°C	9.28 µin/in-°F	
	@Temperature 25.0 - 900 °C	@Temperature 77.0 - 1650 °F	
	17.4 µm/m-°C	9.67 µin/in-°F	

Thermal Properties	@Temperature 25.0 - Metric 1000 °C	@Temperature 77.0 - English 1800 °F	Comments
Specific Heat Capacity	0.410 J/g-°C	0.0980 BTU/lb-°F	RT
	0.428 J/g-°C	0.102 BTU/lb-°F	
	@Temperature 100 °C	@Temperature 212 °F	
	0.455 J/g-°C	0.109 BTU/lb-°F	
	@Temperature 200 °C	@Temperature 392 °F	
	0.477 J/g-°C	0.114 BTU/lb-°F	
	@Temperature 300 °C	@Temperature 572 °F	
	0.503 J/g-°C	0.120 BTU/lb-°F	
	@Temperature 400 °C	@Temperature 752 °F	
	0.527 J/g-°C	0.126 BTU/lb-°F	
	@Temperature 500 °C	@Temperature 932 °F	
	0.552 J/g-°C	0.132 BTU/lb-°F	
	@Temperature 600 °C	@Temperature 1110 °F	
	0.576 J/g-°C	0.138 BTU/lb-°F	
	@Temperature 700 °C	@Temperature 1290 °F	
	0.600 J/g-°C	0.143 BTU/lb-°F	
	@Temperature 800 °C	@Temperature 1470 °F	
	0.625 J/g-°C	0.149 BTU/lb-°F	
	@Temperature 900 °C	@Temperature 1650 °F	
	0.648 J/g-°C	0.155 BTU/lb-°F	
	@Temperature 1000 °C	@Temperature 1830 °F	
Thermal Conductivity	9.80 W/m-K	68.0 BTU-in/hr-ft ² -°F	RT
	10.9 W/m-K	75.6 BTU-in/hr-ft ² -°F	
	@Temperature 100 °C	@Temperature 212 °F	
	12.5 W/m-K	86.8 BTU-in/hr-ft ² -°F	
	@Temperature 200 °C	@Temperature 392 °F	
	13.9 W/m-K	96.5 BTU-in/hr-ft ² -°F	
	@Temperature 300 °C	@Temperature 572 °F	
	15.3 W/m-K	106 BTU-in/hr-ft ² -°F	

Thermal Properties	@Temperature 400 °C Metric	@Temperature 752 °F English	Comments
	16.9 W/m-K	117 BTU-in/hr-ft ² -°F	
	@Temperature 500 °C	@Temperature 932 °F	
	18.3 W/m-K	127 BTU-in/hr-ft ² -°F	
	@Temperature 600 °C	@Temperature 1110 °F	
	19.8 W/m-K	137 BTU-in/hr-ft ² -°F	
	@Temperature 700 °C	@Temperature 1290 °F	
	21.5 W/m-K	149 BTU-in/hr-ft ² -°F	
	@Temperature 800 °C	@Temperature 1470 °F	
	23.4 W/m-K	162 BTU-in/hr-ft ² -°F	
	@Temperature 900 °C	@Temperature 1650 °F	
	25.6 W/m-K	178 BTU-in/hr-ft ² -°F	
	@Temperature 1000 °C	@Temperature 1830 °F	
Melting Point	1290 - 1350 °C	2350 - 2460 °F	
Solidus	1290 °C	2350 °F	
Liquidus	1350 °C	2460 °F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	<= 0.40 %	<= 0.40 %	
Carbon, C	<= 0.10 %	<= 0.10 %	
Chromium, Cr	21 %	21 %	
Cobalt, Co	<= 1.0 %	<= 1.0 %	
Iron, Fe	<= 5.0 %	<= 5.0 %	
Manganese, Mn	<= 0.50 %	<= 0.50 %	
Molybdenum, Mo	9.0 %	9.0 %	
Nickel, Ni	62 %	62 %	As Remainder
Niobium, Nb (Columbium, Cb)	3.7 %	3.7 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000129 ohm-cm	0.000129 ohm-cm	RT
	0.000132 ohm-cm	0.000132 ohm-cm	

Electrical Properties	Metric	English	Comments
	0.000134 ohm-cm @Temperature 100 °C	0.000134 ohm-cm @Temperature 212 °F	
	@Temperature 200 °C	@Temperature 392 °F	
	0.000135 ohm-cm @Temperature 300 °C	0.000135 ohm-cm @Temperature 572 °F	
	0.000135 ohm-cm @Temperature 1000 °C	0.000135 ohm-cm @Temperature 1830 °F	
	0.000136 ohm-cm @Temperature 900 °C	0.000136 ohm-cm @Temperature 1650 °F	
	0.000136 ohm-cm @Temperature 400 °C	0.000136 ohm-cm @Temperature 752 °F	
	0.000137 ohm-cm @Temperature 500 °C	0.000137 ohm-cm @Temperature 932 °F	
	0.000137 ohm-cm @Temperature 800 °C	0.000137 ohm-cm @Temperature 1470 °F	
	0.000138 ohm-cm @Temperature 600 °C	0.000138 ohm-cm @Temperature 1110 °F	
	0.000138 ohm-cm @Temperature 700 °C	0.000138 ohm-cm @Temperature 1290 °F	

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