

Haynes 625 alloy, 20% cold reduction

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-20-cold-reduction.php

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

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	342	342	Converted from Rockwell C hardness.
Hardness, Knoop	371	371	Converted from Rockwell C hardness.
Hardness, Rockwell C	37	37	
Hardness, Vickers	358	358	Converted from Rockwell C hardness.
Tensile Strength, Ultimate	1165 MPa	169000 psi	
Tensile Strength, Yield	965 MPa @Strain 0.200 %	140000 psi @Strain 0.200 %	
Elongation at Break	16 %	16 %	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	

Mechanical Properties	Metric	English	Comments
	171 GPa @Temperature 600 Â°C	24800 ksi @Temperature 1110 Â°F	
	179 GPa @Temperature 500 Â°C	26000 ksi @Temperature 932 Â°F	
	186 GPa @Temperature 400 Â°C	27000 ksi @Temperature 752 Â°F	
	192 GPa @Temperature 300 Â°C	27800 ksi @Temperature 572 Â°F	
	199 GPa @Temperature 200 Â°C	28900 ksi @Temperature 392 Â°F	
	201 GPa @Temperature 100 Â°C	29200 ksi @Temperature 212 Â°F	

Thermal Properties	Metric	English	Comments
CTE, linear	12.8 Âµm/m-Â°C @Temperature 25.0 - 100 Â°C	7.11 Âµin/in-Â°F @Temperature 77.0 - 212 Â°F	
	13.1 Âµm/m-Â°C @Temperature 25.0 - 200 Â°C	7.28 Âµin/in-Â°F @Temperature 77.0 - 392 Â°F	
	13.4 Âµm/m-Â°C @Temperature 25.0 - 300 Â°C	7.44 Âµin/in-Â°F @Temperature 77.0 - 572 Â°F	
	13.8 Âµm/m-Â°C @Temperature 25.0 - 400 Â°C	7.67 Âµin/in-Â°F @Temperature 77.0 - 752 Â°F	
	14.2 Âµm/m-Â°C @Temperature 25.0 - 500 Â°C	7.89 Âµin/in-Â°F @Temperature 77.0 - 932 Â°F	
	14.8 Âµm/m-Â°C @Temperature 25.0 - 600 Â°C	8.22 Âµin/in-Â°F @Temperature 77.0 - 1110 Â°F	
	15.4 Âµm/m-Â°C @Temperature 25.0 - 700 Â°C	8.56 Âµin/in-Â°F @Temperature 77.0 - 1290 Â°F	

Thermal Properties	Metric	English	Comments
	@Temperature 25.0 - 800 Å°C	@Temperature 77.0 - 1470 Å°F	
	16.7 Åµm/m-Å°C	9.28 Åµin/in-Å°F	
	@Temperature 25.0 - 900 Å°C	@Temperature 77.0 - 1650 Å°F	
	17.4 Åµm/m-Å°C	9.67 Åµin/in-Å°F	
	@Temperature 25.0 - 1000 Å°C	@Temperature 77.0 - 1830 Å°F	
Specific Heat Capacity	0.410 J/g-Å°C	0.0980 BTU/lb-Å°F	RT
	0.428 J/g-Å°C	0.102 BTU/lb-Å°F	
	@Temperature 100 Å°C	@Temperature 212 Å°F	
	0.455 J/g-Å°C	0.109 BTU/lb-Å°F	
	@Temperature 200 Å°C	@Temperature 392 Å°F	
	0.477 J/g-Å°C	0.114 BTU/lb-Å°F	
	@Temperature 300 Å°C	@Temperature 572 Å°F	
	0.503 J/g-Å°C	0.120 BTU/lb-Å°F	
	@Temperature 400 Å°C	@Temperature 752 Å°F	
	0.527 J/g-Å°C	0.126 BTU/lb-Å°F	
	@Temperature 500 Å°C	@Temperature 932 Å°F	
	0.552 J/g-Å°C	0.132 BTU/lb-Å°F	
	@Temperature 600 Å°C	@Temperature 1110 Å°F	
	0.576 J/g-Å°C	0.138 BTU/lb-Å°F	
	@Temperature 700 Å°C	@Temperature 1290 Å°F	
	0.600 J/g-Å°C	0.143 BTU/lb-Å°F	
	@Temperature 800 Å°C	@Temperature 1470 Å°F	
	0.625 J/g-Å°C	0.149 BTU/lb-Å°F	
	@Temperature 900 Å°C	@Temperature 1650 Å°F	
	0.648 J/g-Å°C	0.155 BTU/lb-Å°F	
	@Temperature 1000 Å°C	@Temperature 1830 Å°F	

Thermal Properties	Metric	English	Comments
	10.9 W/m-K @Temperature 100 °C	75.6 BTU-in/hr-ft ² - °F @Temperature 212 °F	
	12.5 W/m-K @Temperature 200 °C	86.8 BTU-in/hr-ft ² - °F @Temperature 392 °F	
	13.9 W/m-K @Temperature 300 °C	96.5 BTU-in/hr-ft ² - °F @Temperature 572 °F	
	15.3 W/m-K @Temperature 400 °C	106 BTU-in/hr-ft ² - °F @Temperature 752 °F	
	16.9 W/m-K @Temperature 500 °C	117 BTU-in/hr-ft ² - °F @Temperature 932 °F	
	18.3 W/m-K @Temperature 600 °C	127 BTU-in/hr-ft ² - °F @Temperature 1110 °F	
	19.8 W/m-K @Temperature 700 °C	137 BTU-in/hr-ft ² - °F @Temperature 1290 °F	
	21.5 W/m-K @Temperature 800 °C	149 BTU-in/hr-ft ² - °F @Temperature 1470 °F	
	23.4 W/m-K @Temperature 900 °C	162 BTU-in/hr-ft ² - °F @Temperature 1650 °F	
	25.6 W/m-K @Temperature 1000 °C	178 BTU-in/hr-ft ² - °F @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 %	

Component Elements Properties	Metric	English	Comments
Chromium, Cr	21 %	21 %	
Cobalt, Co	<= 1.0 %	<= 1.0 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000129 ohm-cm	0.000129 ohm-cm	RT
	0.000132 ohm-cm	0.000132 ohm-cm	
	@Temperature 100 Â°C	@Temperature 212 Â°F	
	0.000134 ohm-cm	0.000134 ohm-cm	
	@Temperature 200 Â°C	@Temperature 392 Â°F	
	0.000135 ohm-cm	0.000135 ohm-cm	
	@Temperature 300 Â°C	@Temperature 572 Â°F	
	0.000135 ohm-cm	0.000135 ohm-cm	
	@Temperature 1000 Â°C	@Temperature 1830 Â°F	
	0.000136 ohm-cm	0.000136 ohm-cm	
	@Temperature 900 Â°C	@Temperature 1650 Â°F	
	0.000136 ohm-cm	0.000136 ohm-cm	
	@Temperature 400 Â°C	@Temperature 752 Â°F	
	0.000137 ohm-cm	0.000137 ohm-cm	
	@Temperature 500 Â°C	@Temperature 932 Â°F	
	0.000137 ohm-cm	0.000137 ohm-cm	
	@Temperature 800 Â°C	@Temperature 1470 Â°F	
	0.000138 ohm-cm	0.000138 ohm-cm	
	@Temperature 600 Â°C	@Temperature 1110 Â°F	
	0.000138 ohm-cm	0.000138 ohm-cm	
	@Temperature 700 Â°C	@Temperature 1290 Â°F	

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