Haynes 617 Nickel Alloy Plate

Category : Metal , Nonferrous Metal , Nickel Alloy

Material Notes:

Haynes 617 alloy is a nickel-chromium-cobalt-molybdenum alloy with a good combination of metallurgical stability, strength, and oxidation resistance at high temperatures. The alloy is readily formed and welded by conventional techniques. Haynes 617 alloy is used in applications such as gas turbines for combustion cans, ducting, and transition lines.Data provided by the manufacturer, Haynes International, Inc.

Order this product through the following link:
http://www.lookpolymers.com/polymer_Haynes-617-Nickel-Alloy-Plate.php

Physical Properties	Metric	English	Comments
Density	8.36 g/cc	0.302 lb/in³	

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	79.0 MPa @Temperature 1095 °C	11500 psi @Temperature 2003 °F	
	155 MPa @Temperature 980 °C	22500 psi @Temperature 1800 °F	
	286 MPa @Temperature 870 °C	41500 psi @Temperature 1600 °F	
	483 MPa @Temperature 760 °C	70100 psi @Temperature 1400 °F	
	618 MPa @Temperature 540 °C	89600 psi @Temperature 1000 °F	
	627 MPa @Temperature 650 °C	90900 psi @Temperature 1200 °F	
	779 MPa @Temperature 25.0 °C	113000 psi @Temperature 77.0 °F	
Tensile Strength, Yield	58.0 MPa @Strain 0.200 %, Temperature 1095 °C	8410 psi @Strain 0.200 %, Temperature 2003 °F	
	111 MPa @Strain 0.200 %, Temperature 980 °C	16100 psi @Strain 0.200 %, Temperature 1800 °F	

Mechanical Properties	Metric	English	Comments
	207 MPa @Strain 0.200 %, Temperature 870 °C	30000 psi @Strain 0.200 %, Temperature 1600 °F	
	239 MPa @Strain 0.200 %, Temperature 650 °C	34700 psi @Strain 0.200 %, Temperature 1200 °F	
	245 MPa @Strain 0.200 %, Temperature 760 °C	35500 psi @Strain 0.200 %, Temperature 1400 °F	
	254 MPa @Strain 0.200 %, Temperature 540 °C	36800 psi @Strain 0.200 %, Temperature 1000 °F	
	367 MPa @Strain 0.200 %, Temperature 25.0 °C	53200 psi @Strain 0.200 %, Temperature 77.0 °F	
Elongation at Break	52 % @Temperature 25.0 °C	52 % @Temperature 77.0 °F	2-inch (51 mm) sample
	67 % @Temperature 540 °C	67 % @Temperature 1000 °F	2-inch (51 mm) sample
	67 % @Temperature 650 °C	67 % @Temperature 1200 °F	2-inch (51 mm) sample
	91 % @Temperature 1095 °C	91 % @Temperature 2003 °F	2-inch (51 mm) sample
	92 % @Temperature 760 °C	92 % @Temperature 1400 °F	2-inch (51 mm) sample
	93 % @Temperature 980 °C	93 % @Temperature 1800 °F	2-inch (51 mm) sample
	99 % @Temperature 870 °C	99 % @Temperature 1600 °F	2-inch (51 mm) sample
Rupture Strength	9.70 MPa @Temperature 1095 °C, Time 3.60e+6 sec	1410 psi @Temperature 2003 °F, Time 1000 hour	
	17.0 MPa @Temperature 1095 °C, Time 360000 sec	2470 psi @Temperature 2003 °F, Time 100 hour	

Mechanical Properties	Metric	English	Comments
	@Temperature 1040 °C, Time 3.60e+6 sec	@Temperature 1900 °F, Time 1000 hour	
	17.0 MPa @Temperature 980 °C, Time 3.60e+7 sec	2470 psi @Temperature 1800 °F, Time 10000 hour	
	28.0 MPa @Temperature 1040 °C, Time 360000 sec	4060 psi @Temperature 1900 °F, Time 100 hour	
	28.0 MPa @Temperature 980 °C, Time 3.60e+6 sec	4060 psi @Temperature 1800 °F, Time 1000 hour	
	46.0 MPa @Temperature 980 °C, Time 360000 sec	6670 psi @Temperature 1800 °F, Time 100 hour	
	47.0 MPa @Temperature 870 °C, Time 3.60e+7 sec	6820 psi @Temperature 1600 °F, Time 10000 hour	
	67.0 MPa @Temperature 870 °C, Time 3.60e+6 sec	9720 psi @Temperature 1600 °F, Time 1000 hour	
	90.0 MPa @Temperature 870 °C, Time 360000 sec	13100 psi @Temperature 1600 °F, Time 100 hour	
	100 MPa @Temperature 760 °C, Time 3.60e+7 sec	14500 psi @Temperature 1400 °F, Time 10000 hour	
	134 MPa @Temperature 760 °C, Time 3.60e+6 sec	19400 psi @Temperature 1400 °F, Time 1000 hour	
	200 MPa @Temperature 760 °C, Time 360000 sec	29000 psi @Temperature 1400 °F, Time 100 hour	
	231 MPa @Temperature 650 °C, Time 3.60e+7 sec	33500 psi @Temperature 1200 °F, Time 10000 hour	
	303 MPa	43900 psi	

Mechanical Properties	Metric	English	Comments
	@Temperature 650 °C, Time 3.60e+6 sec	@Temperature 1200 °F, Time 1000 hour	
	379 MPa @Temperature 650 °C, Time 360000 sec	55000 psi @Temperature 1200 °F, Time 100 hour	
Modulus of Elasticity	139 GPa @Temperature 1000 °C	20200 ksi @Temperature 1830 °F	Dynamic
	149 GPa @Temperature 900 °C	21600 ksi @Temperature 1650 °F	Dynamic
	157 GPa @Temperature 800 °C	22800 ksi @Temperature 1470 °F	Dynamic
	166 GPa @Temperature 700 °C	24100 ksi @Temperature 1290 °F	Dynamic
	173 GPa @Temperature 600 °C	25100 ksi @Temperature 1110 °F	Dynamic
	188 GPa @Temperature 400 °C	27300 ksi @Temperature 752 °F	Dynamic
	201 GPa @Temperature 200 °C	29200 ksi @Temperature 392 °F	Dynamic
	211 GPa @Temperature 20.0 °C	30600 ksi @Temperature 68.0 °F	Dynamic

Thermal Properties	Metric	English	Comments
CTE, linear	13.6 µm/m-°C @Temperature 20.0 - 430 °C	7.56 µin/in-°F @Temperature 68.0 - 806 °F	
	13.8 µm/m-°C @Temperature 20.0 - 540 °C	7.67 µin/in-°F @Temperature 68.0 - 1000 °F	
	14.4 µm/m-°C @Temperature 20.0 - 650 °C	8.00 µin/in-°F @Temperature 68.0 - 1200 °F	
	15.1 µm/m-°C @Temperature 20.0 - 760 °C	8.39 µin/in-°F @Temperature 68.0 - 1400 °F	

Thermal Properties	Metric	English	Comments
	15.6 µm/m-°C @Temperature 20.0 - 870 °C	8.67 µin/in-°F @Temperature 68.0 - 1600 °F	
	16.1 µm/m-°C @Temperature 20.0 - 980 °C	8.94 µin/in-°F @Temperature 68.0 - 1800 °F	
Thermal Conductivity	16.1 W/m-K @Temperature 200 °C	112 BTU-in/hr-ft²-°F @Temperature 392 °F	
	19.5 W/m-K @Temperature 430 °C	135 BTU-in/hr-ft²-°F @Temperature 806 °F	
	21.2 W/m-K @Temperature 540 °C	147 BTU-in/hr-ft²-°F @Temperature 1000 °F	
	23.0 W/m-K @Temperature 650 °C	160 BTU-in/hr-ft²-°F @Temperature 1200 °F	
	24.7 W/m-K @Temperature 760 °C	171 BTU-in/hr-ft²-°F @Temperature 1400 °F	
	26.4 W/m-K @Temperature 870 °C	183 BTU-in/hr-ft²-°F @Temperature 1600 °F	
Melting Point	1330 - 1375 °C	2430 - 2507 °F	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000122 ohm-cm @Temperature 20.0 °C	0.000122 ohm-cm @Temperature 68.0 °F	
	0.000126 ohm-cm @Temperature 200 °C	0.000126 ohm-cm @Temperature 392 °F	
	0.000128 ohm-cm @Temperature 400 °C	0.000128 ohm-cm @Temperature 752 °F	
	0.000131 ohm-cm @Temperature 600 °C	0.000131 ohm-cm @Temperature 1110 °F	
	0.000133 ohm-cm @Temperature 700 °C	0.000133 ohm-cm @Temperature 1290 °F	
	0.000134 ohm-cm	0.000134 ohm-cm	

Electrical Properties	Metric	English	Comments
	@Temperature 800 °C	@Temperature 1470 °F	
	0.000134 ohm-cm	0.000134 ohm-cm	
	@Temperature 900 °C	@Temperature 1650 °F	

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