Haynes 75 Nickel Alloy Sheet, Annealed at 1925Â°F (1050Â°C)

Category : Metal , Nonferrous Metal , Nickel Alloy

Material Notes:

Haynes alloy 75 is a solution-strengthened nickel-chromium alloy with moderate strength to 1200Â°F (650Â°C). It is principally used in low stress elevated temperature applications requiring reasonable oxidation resistance, and is approximately equivalent to alloy 600 in performance. Alloy 75 is used in a number of fabricated part applications in the gas turbine and aerospace industries in Europe, and is also employed in general industrial heating uses. The alloy is readily formed and fabricated using conventional techniques.Data provided by the manufacturer, Haynes International, Inc.

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http://www.lookpolymers.com/polymer_Haynes-75-Nickel-Alloy-Sheet-Annealed-at-1925F-1050C.php

Physical Properties	Metric	English	Comments
Density	8.37 g/cc	0.302 lb/inÂ³	

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	66.0 MPa @Temperature 980 Â°C	9570 psi @Temperature 1800 Â°F	
	286 MPa @Temperature 760 Â°C	41500 psi @Temperature 1400 Â°F	
	439 MPa @Temperature 870 Â°C	63700 psi @Temperature 1600 Â°F	
	473 MPa @Temperature 650 Â°C	68600 psi @Temperature 1200 Â°F	
	726 MPa @Temperature 540 Â°C	105000 psi @Temperature 1000 Â°F	
	792 MPa @Temperature 25.0 Â°C	115000 psi @Temperature 77.0 Â°F	
Tensile Strength, Yield	31.0 MPa @Strain 0.200 %, Temperature 980 Â°C	4500 psi @Strain 0.200 %, Temperature 1800 Â°F	
	68.0 MPa	9860 psi	

Mechanical Properties	Metric	English	Comments
	@Strain 0.200 %, Temperature 870 Â°C	@Strain 0.200 %, Temperature 1600 Â°F	
	152 MPa @Strain 0.200 %, Temperature 760 Â°C	22000 psi @Strain 0.200 %, Temperature 1400 Â°F	
	275 MPa @Strain 0.200 %, Temperature 650 Â°C	39900 psi @Strain 0.200 %, Temperature 1200 Â°F	
	363 MPa @Strain 0.200 %, Temperature 540 Â°C	52600 psi @Strain 0.200 %, Temperature 1000 Â°F	
	407 MPa @Strain 0.200 %, Temperature 25.0 Â°C	59000 psi @Strain 0.200 %, Temperature 77.0 Â°F	
Elongation at Break	27 % @Temperature 540 Â°C	27 % @Temperature 1000 Â°F	2-inch (51 mm) sample
	31 % @Temperature 25.0 Â°C	31 % @Temperature 77.0 Â°F	2-inch (51 mm) sample
	32 % @Temperature 650 Â°C	32 % @Temperature 1200 Â°F	2-inch (51 mm) sample
	75 % @Temperature 760 Â°C	75 % @Temperature 1400 Â°F	2-inch (51 mm) sample
	90 % @Temperature 870 Â°C	90 % @Temperature 1600 Â°F	2-inch (51 mm) sample
	91 % @Temperature 980 Â°C	91 % @Temperature 1800 Â°F	2-inch (51 mm) sample
Rupture Strength	8.30 MPa @Temperature 870 Â°C, Time 3.60e+6 sec	1200 psi @Temperature 1600 Â°F, Time 1000 hour	Typical Stress-Rupture
	14.0 MPa @Temperature 870 Â°C,	2030 psi @Temperature 1600 Â°F,	Typical Stress-Rupture

Mechanical Properties	Metric	English	Comments
	Time 360000 sec	Time 100 hour	
	15.0 MPa @Temperature 815 Â°C, Time 3.60e+6 sec	2180 psi @Temperature 1500 Â°F, Time 1000 hour	Typical Stress-Rupture
	25.0 MPa @Temperature 870 Â°C, Time 36000 sec	3630 psi @Temperature 1600 Â°F, Time 10.0 hour	Typical Stress-Rupture
	26.0 MPa @Temperature 815 Â°C, Time 360000 sec	3770 psi @Temperature 1500 Â°F, Time 100 hour	Typical Stress-Rupture
	26.0 MPa @Temperature 760 Â°C, Time 3.60e+6 sec	3770 psi @Temperature 1400 Â°F, Time 1000 hour	Typical Stress-Rupture
	40.0 MPa @Temperature 815 Â°C, Time 36000 sec	5800 psi @Temperature 1500 Â°F, Time 10.0 hour	Typical Stress-Rupture
	41.0 MPa @Temperature 760 Â°C, Time 360000 sec	5950 psi @Temperature 1400 Â°F, Time 100 hour	Typical Stress-Rupture
	47.0 MPa @Temperature 705 Â°C, Time 3.60e+6 sec	6820 psi @Temperature 1300 Â°F, Time 1000 hour	Typical Stress-Rupture
	66.0 MPa @Temperature 760 Â°C, Time 36000 sec	9570 psi @Temperature 1400 Â°F, Time 10.0 hour	Typical Stress-Rupture
	70.0 MPa @Temperature 705 Â°C, Time 360000 sec	10200 psi @Temperature 1300 Â°F, Time 100 hour	Typical Stress-Rupture
	83.0 MPa @Temperature 650 Â°C, Time 3.60e+6 sec	12000 psi @Temperature 1200 Â°F, Time 1000 hour	Typical Stress-Rupture
	110 MPa	16000 psi	

Mechanical Properties	Metric	English	Comments
	@Temperature 705 Â°C, Time 36000 sec	@Temperature 1300 Â°F, Time 10.0 hour	Typical Stress-Rupture
	130 MPa @Temperature 650 Â°C, Time 360000 sec	18900 psi @Temperature 1200 Â°F, Time 100 hour	Typical Stress-Rupture
	185 MPa @Temperature 650 Â°C, Time 36000 sec	26800 psi @Temperature 1200 Â°F, Time 10.0 hour	Typical Stress-Rupture
Modulus of Elasticity	140 GPa @Temperature 1000 Â°C	20300 ksi @Temperature 1830 Â°F	Dynamic
	153 GPa @Temperature 900 Â°C	22200 ksi @Temperature 1650 Â°F	Dynamic
	165 GPa @Temperature 800 Â°C	23900 ksi @Temperature 1470 Â°F	Dynamic
	173 GPa @Temperature 700 Â°C	25100 ksi @Temperature 1290 Â°F	Dynamic
	181 GPa @Temperature 600 Â°C	26300 ksi @Temperature 1110 Â°F	Dynamic
	197 GPa @Temperature 400 Â°C	28600 ksi @Temperature 752 Â°F	Dynamic
	210 GPa @Temperature 200 Â°C	30500 ksi @Temperature 392 Â°F	Dynamic
	221 GPa @Temperature 20.0 Â°C	32100 ksi @Temperature 68.0 Â°F	Dynamic

Thermal Properties	Metric	English	Comments
CTE, linear	14.3 Âµm/m-Â°C @Temperature 20.0 - 500 Â°C	7.94 Âµin/in-Â°F @Temperature 68.0 - 932 Â°F	
	15.0 Âµm/m-Â°C	8.33 Âµin/in-Â°F	

Thermal Properties	Metric	English	Comments
	@Temperature 20.0 - 600 Â°C	@Temperature 68.0 - 1110 Â°F	
	15.4 Âµm/m-Â°C @Temperature 20.0 - 700 Â°C	8.56 Âµin/in-Â°F @Temperature 68.0 - 1290 Â°F	
	16.5 Âµm/m-Â°C @Temperature 20.0 - 800 Â°C	9.17 Âµin/in-Â°F @Temperature 68.0 - 1470 Â°F	
	17.1 Âµm/m-Â°C @Temperature 20.0 - 900 Â°C	9.50 Âµin/in-Â°F @Temperature 68.0 - 1650 Â°F	
	18.2 Âµm/m-Â°C @Temperature 20.0 - 1000 Â°C	10.1 Âµin/in-Â°F @Temperature 68.0 - 1830 Â°F	
Thermal Conductivity	18.6 W/m-K @Temperature 400 Â°C	129 BTU-in/hr-ftÂ²-Â°F @Temperature 752 Â°F	
	22.7 W/m-K @Temperature 600 Â°C	158 BTU-in/hr-ftÂ²-Â°F @Temperature 1110 Â°F	
	24.7 W/m-K @Temperature 700 Â°C	171 BTU-in/hr-ftÂ²-Â°F @Temperature 1290 Â°F	
	26.5 W/m-K @Temperature 800 Â°C	184 BTU-in/hr-ftÂ²-Â°F @Temperature 1470 Â°F	
	28.4 W/m-K @Temperature 900 Â°C	197 BTU-in/hr-ftÂ²-Â°F @Temperature 1650 Â°F	
	30.1 W/m-K @Temperature 1000 Â°C	209 BTU-in/hr-ftÂ²-Â°F @Temperature 1830 Â°F	
Melting Point	1340 - 1380 Â°C	2440 - 2520 Â°F	
Solidus	1340 Â°C	2440 Â°F	
Liquidus	1380 Â°C	2520 Â°F	

Electrical Properties	Metric	English	Comments

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000112 ohm-cm @Temperature 200 Â°C	0.000112 ohm-cm @Temperature 392 Â°F	
	0.000115 ohm-cm @Temperature 600 Â°C	0.000115 ohm-cm @Temperature 1110 Â°F	
	0.000115 ohm-cm @Temperature 700 Â°C	0.000115 ohm-cm @Temperature 1290 Â°F	
	0.000115 ohm-cm @Temperature 800 Â°C	0.000115 ohm-cm @Temperature 1470 Â°F	
	0.000115 ohm-cm @Temperature 900 Â°C	0.000115 ohm-cm @Temperature 1650 Â°F	
	0.000116 ohm-cm @Temperature 1000 Â°C	0.000116 ohm-cm @Temperature 1830 Â°F	
	0.000117 ohm-cm @Temperature 400 Â°C	0.000117 ohm-cm @Temperature 752 Â°F	

Processing Properties	Metric	English	Comments
Annealing Temperature	1052 Â°C	1925 Â°F	

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