

Haynes 214® alloy, hot rolled solution annealed plate 12.7 mm (1/2 in.) thick

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

Material Notes:

Intended principally for use at temperatures of 955°C and above, exhibits resistance to oxidation that exceeds virtually all conventional heat-resistant wrought alloys. Applications include mesh belts, trays, and fixtures for firing of pottery and fine china, and the heat treatment of electronic devices and technical grade ceramics, used for foil construction honeycomb seals, combustor splash plates, and other static oxidation- limited parts, catalytic converter internals, burner cup material in auxiliary heaters for military vehicles, refractory anchors, furnace flame hoods, and rotary calciners for processing chloride compounds, and as hospital waste incinerator internals. Data provided by the manufacturer, Haynes International, Inc.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Haynes-214-alloy-hot-rolled-solution-annealed-plate-127-mm-12-in-thick.php

Physical Properties	Metric	English	Comments
Density	8.05 g/cc	0.291 lb/in ³	at RT

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	960 MPa	139000 psi	
	34.0 MPa	4930 psi	
	@Temperature 1205 °C	@Temperature 2201 °F	
	46.0 MPa	6670 psi	
	@Temperature 1150 °C	@Temperature 2100 °F	
	62.0 MPa	8990 psi	
	@Temperature 1095 °C	@Temperature 2003 °F	
	115 MPa	16700 psi	
	@Temperature 980 °C	@Temperature 1800 °F	
	460 MPa	66700 psi	
	@Temperature 870 °C	@Temperature 1600 °F	
	670 MPa	97200 psi	
	@Temperature 760 °C	@Temperature 1400 °F	
	790 MPa	115000 psi	
		@Temperature 1200	

Mechanical Properties	@Temperature 650 Â°C Metric	Â°F English	Comments
Tensile Strength, Yield	825 MPa	120000 psi	
	@Temperature 540 Â°C	@Temperature 1000 Â°F	
	565 MPa	81900 psi	
	@Strain 0.200 %	@Strain 0.200 %	
	10.0 MPa	1450 psi	
	@Strain 0.200 %, Temperature 1205 Â°C	@Strain 0.200 %, Temperature 2201 Â°F	
	14.0 MPa	2030 psi	
	@Strain 0.200 %, Temperature 1150 Â°C	@Strain 0.200 %, Temperature 2100 Â°F	
	29.0 MPa	4210 psi	
	@Strain 0.200 %, Temperature 1095 Â°C	@Strain 0.200 %, Temperature 2003 Â°F	
	58.0 MPa	8410 psi	
	@Strain 0.200 %, Temperature 980 Â°C	@Strain 0.200 %, Temperature 1800 Â°F	
	345 MPa	50000 psi	
	@Strain 0.200 %, Temperature 870 Â°C	@Strain 0.200 %, Temperature 1600 Â°F	
	495 MPa	71800 psi	
	@Strain 0.200 %, Temperature 540 Â°C	@Strain 0.200 %, Temperature 1000 Â°F	
	505 MPa	73200 psi	
	@Strain 0.200 %, Temperature 760 Â°C	@Strain 0.200 %, Temperature 1400 Â°F	
	525 MPa	76100 psi	
	@Strain 0.200 %, Temperature 650 Â°C	@Strain 0.200 %, Temperature 1200 Â°F	
Elongation at Break	42.8 %	42.8 %	in 31.8 mm
	23.1 %	23.1 %	in 31.8 mm
	@Temperature 760 Â°C	@Temperature 1400 Â°F	
	33 %	33 %	in 31.8 mm
	@Temperature 650 Â°C	@Temperature 1200 Â°F	

Mechanical Properties	Metric	English	Comments
	@Temperature 870 Â°C	73.6 % @Temperature 1600 Â°F	in 31.8 mm
	47.8 % @Temperature 540 Â°C	47.8 % @Temperature 1000 Â°F	in 31.8 mm
	86.4 % @Temperature 980 Â°C	86.4 % @Temperature 1800 Â°F	in 31.8 mm
	88.6 % @Temperature 1095 Â°C	88.6 % @Temperature 2003 Â°F	in 31.8 mm
	91.5 % @Temperature 1205 Â°C	91.5 % @Temperature 2201 Â°F	in 31.8 mm
	99.4 % @Temperature 1150 Â°C	99.4 % @Temperature 2100 Â°F	in 31.8 mm
Modulus of Elasticity	218 GPa	31600 ksi	RT
	137 GPa @Temperature 1000 Â°C	19900 ksi @Temperature 1830 Â°F	
	151 GPa @Temperature 900 Â°C	21900 ksi @Temperature 1650 Â°F	
	162 GPa @Temperature 800 Â°C	23500 ksi @Temperature 1470 Â°F	
	170 GPa @Temperature 700 Â°C	24700 ksi @Temperature 1290 Â°F	
	177 GPa @Temperature 600 Â°C	25700 ksi @Temperature 1110 Â°F	
	184 GPa @Temperature 500 Â°C	26700 ksi @Temperature 932 Â°F	
	190 GPa	27600 ksi	

Mechanical Properties	Metric @ Temperature 400 Â°C	English @ Temperature 752 Â°F	Comments
	199 GPa	28900 ksi	
	@Temperature 300 Â°C	@Temperature 572 Â°F	
	204 GPa	29600 ksi	
	@Temperature 200 Â°C	@Temperature 392 Â°F	
	210 GPa	30500 ksi	
	@Temperature 100 Â°C	@Temperature 212 Â°F	

Thermal Properties	Metric	English	Comments
CTE, linear	13.3 Âµm/m-Â°C	7.39 Âµin/in-Â°F	
	@Temperature 25.0 - 200 Â°C	@Temperature 77.0 - 392 Â°F	
	13.6 Âµm/m-Â°C	7.56 Âµin/in-Â°F	
	@Temperature 25.0 - 300 Â°C	@Temperature 77.0 - 572 Â°F	
	14.1 Âµm/m-Â°C	7.83 Âµin/in-Â°F	
	@Temperature 25.0 - 400 Â°C	@Temperature 77.0 - 752 Â°F	
	14.6 Âµm/m-Â°C	8.11 Âµin/in-Â°F	
	@Temperature 25.0 - 500 Â°C	@Temperature 77.0 - 932 Â°F	
	15.2 Âµm/m-Â°C	8.44 Âµin/in-Â°F	
	@Temperature 25.0 - 600 Â°C	@Temperature 77.0 - 1110 Â°F	
	15.8 Âµm/m-Â°C	8.78 Âµin/in-Â°F	
	@Temperature 25.0 - 700 Â°C	@Temperature 77.0 - 1290 Â°F	
	16.6 Âµm/m-Â°C	9.22 Âµin/in-Â°F	
	@Temperature 25.0 - 800 Â°C	@Temperature 77.0 - 1470 Â°F	
	17.6 Âµm/m-Â°C	9.78 Âµin/in-Â°F	
	@Temperature 25.0 - 900 Â°C	@Temperature 77.0 - 1650 Â°F	
	18.6 Âµm/m-Â°C	10.3 Âµin/in-Â°F	
	@Temperature 25.0 - 1000 Â°C	@Temperature 77.0 - 1830 Â°F	

Specific Heat Capacity Thermal Properties	0.452 J/g-Â°C Metric	0.108 BTU/lb-Â°F English	RT Comments
	0.470 J/g-Â°C	0.112 BTU/lb-Â°F	
	@Temperature 100 Â°C	@Temperature 212 Â°F	
	0.493 J/g-Â°C	0.118 BTU/lb-Â°F	
	@Temperature 200 Â°C	@Temperature 392 Â°F	
	0.515 J/g-Â°C	0.123 BTU/lb-Â°F	
	@Temperature 300 Â°C	@Temperature 572 Â°F	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0001359 ohm-cm	0.0001359 ohm-cm	RT
	0.0001209 ohm-cm	0.0001209 ohm-cm	
	@Temperature 1050 Â°C	@Temperature 1920 Â°F	
	0.000121 ohm-cm	0.000121 ohm-cm	
	@Temperature 1100 Â°C	@Temperature 2010 Â°F	
	0.0001216 ohm-cm	0.0001216 ohm-cm	
	@Temperature 1000 Â°C	@Temperature 1830 Â°F	
	0.0001219 ohm-cm	0.0001219 ohm-cm	
	@Temperature 1150 Â°C	@Temperature 2100 Â°F	
	0.0001229 ohm-cm	0.0001229 ohm-cm	
	@Temperature 1200 Â°C	@Temperature 2190 Â°F	
	0.0001249 ohm-cm	0.0001249 ohm-cm	
	@Temperature 900 Â°C	@Temperature 1650 Â°F	
	0.0001292 ohm-cm	0.0001292 ohm-cm	
	@Temperature 800 Â°C	@Temperature 1470 Â°F	
	0.0001337 ohm-cm	0.0001337 ohm-cm	
	@Temperature 700 Â°C	@Temperature 1290 Â°F	
	0.0001368 ohm-cm	0.0001368 ohm-cm	
	@Temperature 600 Â°C	@Temperature 1110	

Electrical Properties	Metric	^{°F} English	Comments
	0.0001369 ohm-cm	0.0001369 ohm-cm	
	@Temperature 100 Â°C	@Temperature 212 Â°F	
	0.0001369 ohm-cm	0.0001369 ohm-cm	
	@Temperature 200 Â°C	@Temperature 392 Â°F	
	0.0001369 ohm-cm	0.0001369 ohm-cm	
	@Temperature 300 Â°C	@Temperature 572 Â°F	
	0.0001369 ohm-cm	0.0001369 ohm-cm	
	@Temperature 300 Â°C	@Temperature 572 Â°F	
	0.0001377 ohm-cm	0.0001377 ohm-cm	
	@Temperature 400 Â°C	@Temperature 752 Â°F	
	0.0001379 ohm-cm	0.0001379 ohm-cm	
	@Temperature 500 Â°C	@Temperature 932 Â°F	

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