Haynes HR-160Â® alloy, plate, aged 1000 hours at 760Â°C (1400Â°F)

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

Material Notes:

Outstanding resistance to various forms of high-temperature corrosion attack, excellent resistance to sulfidation and chloride attack in both reducing and oxidizing atmospheres. Excellent forming and welding characteristics. Applications include a variety of fabricated components in municipal, industrial, hazardous, and nuclear waste heat recovery systems. Also suitable for utility boilers, sulfur plants, high-temperature furnaces, kilns, calciners, resource recovery units, cement kilns, pulp and paper recovery boilers, coal gasification systems, and fluidized-bed-combustion systems.Data provided by the manufacturer, Haynes International, Inc.

Order this product through the following link:
http://www.lookpolymers.com/polymer_Haynes-HR-160-alloy-plate-aged-1000-hours-at-760C-1400F.php

Physical Properties	Metric	English	Comments
Density	8.08 g/cc	0.292 lb/inÂ³	at RT

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	793 MPa	115000 psi	
Tensile Strength, Yield	320 MPa @Strain 0.200 %	46400 psi @Strain 0.200 %	
Elongation at Break	36 %	36 %	in 50.8 mm
Reduction of Area	28 %	28 %	
Modulus of Elasticity	211 GPa	30600 ksi	RT
	137 GPa @Temperature 980 Â°C	19900 ksi @Temperature 1800 Â°F	
	145 GPa @Temperature 925 Â°C	21000 ksi @Temperature 1700 Â°F	
	150 GPa @Temperature 870 Â°C	21800 ksi @Temperature 1600 Â°F	
	154 GPa @Temperature 815 Â°C	22300 ksi @Temperature 1500 Â°F	
	158 GPa @Temperature 760 Â°C	22900 ksi @Temperature 1400 Â°F	

Mechanical Properties	Metric	English	Comments
	163 GPa @Temperature 705 Â°C	23600 ksi @Temperature 1300 Â°F	
	168 GPa @Temperature 650 Â°C	24400 ksi @Temperature 1200 Â°F	
	173 GPa @Temperature 595 Â°C	25100 ksi @Temperature 1100 Â°F	
	177 GPa @Temperature 540 Â°C	25700 ksi @Temperature 1000 Â°F	
	180 GPa @Temperature 480 Â°C	26100 ksi @Temperature 896 Â°F	
	183 GPa @Temperature 425 Â°C	26500 ksi @Temperature 797 Â°F	
	187 GPa @Temperature 370 Â°C	27100 ksi @Temperature 698 Â°F	
	192 GPa @Temperature 315 Â°C	27800 ksi @Temperature 599 Â°F	
	197 GPa @Temperature 260 Â°C	28600 ksi @Temperature 500 Â°F	
	201 GPa @Temperature 205 Â°C	29200 ksi @Temperature 401 Â°F	
	204 GPa @Temperature 150 Â°C	29600 ksi @Temperature 302 Â°F	
	208 GPa @Temperature 90.0 Â°C	30200 ksi @Temperature 194 Â°F	
	210 GPa @Temperature 40.0 Â°C	30500 ksi @Temperature 104 Â°F	
Charpy Impact	37.0 J	27.3 ft-lb	aged 1000 hours at 760Â°C (1400Â°F)

Thermal Properties	Metric	English	Comments
CTE, linear	13.0 Âµm/m-Â°C @Temperature 25.0 - 95.0 Â°C	7.22 Âµin/in-Â°F @Temperature 77.0 - 203 Â°F	
	13.7 Âµm/m-Â°C @Temperature 25.0 - 205 Â°C	7.61 Âµin/in-Â°F @Temperature 77.0 - 401 Â°F	
	14.0 Âµm/m-Â°C @Temperature 25.0 - 315 Â°C	7.78 Âµin/in-Â°F @Temperature 77.0 - 599 Â°F	
	14.4 Âµm/m-Â°C @Temperature 25.0 - 425 Â°C	8.00 Âµin/in-Â°F @Temperature 77.0 - 797 Â°F	
	14.9 Âµm/m-Â°C @Temperature 25.0 - 540 Â°C	8.28 Âµin/in-Â°F @Temperature 77.0 - 1000 Â°F	
	15.5 Âµm/m-Â°C @Temperature 25.0 - 600 Â°C	8.61 Âµin/in-Â°F @Temperature 77.0 - 1110 Â°F	
	15.7 Âµm/m-Â°C @Temperature 25.0 - 700 Â°C	8.72 Âµin/in-Â°F @Temperature 77.0 - 1290 Â°F	
	16.6 Âµm/m-Â°C @Temperature 25.0 - 800 Â°C	9.22 Âµin/in-Â°F @Temperature 77.0 - 1470 Â°F	
	17.1 Âµm/m-Â°C @Temperature 25.0 - 900 Â°C	9.50 Âµin/in-Â°F @Temperature 77.0 - 1650 Â°F	
Specific Heat Capacity	0.462 J/g-Â°C	0.110 BTU/lb-Â°F	RT
	0.653 J/g-Â°C @Temperature 700 Â°C	0.156 BTU/lb-Â°F @Temperature 1290 Â°F	
	0.672 J/g-Â°C @Temperature 800 Â°C	0.161 BTU/lb-Â°F @Temperature 1470 Â°F	
	0.689 J/g-Â°C	0.165 BTU/lb-Â°F @Temperature 1650	

Thermal Properties	Metric	English	Comments
	@Temperature 900 Â°C	Â°F	
	0.719 J/g-Â°C	0.172 BTU/lb-Â°F	
	@Temperature 1100 Â°C	@Temperature 2010 Â°F	
	0.732 J/g-Â°C	0.175 BTU/lb-Â°F	
	@Temperature 1200 Â°C	@Temperature 2190 Â°F	
	0.784 J/g-Â°C	0.187 BTU/lb-Â°F	
	@Temperature 1000 Â°C	@Temperature 1830 Â°F	
Thermal Conductivity	10.9 W/m-K	75.6 BTU-in/hr-ftÂ²-Â°F	RT
	21.8 W/m-K	151 BTU-in/hr-ftÂ²-Â°F	
	@Temperature 600 Â°C	@Temperature 1110 Â°F	
	24.7 W/m-K	171 BTU-in/hr-ftÂ²-Â°F	
	@Temperature 700 Â°C	@Temperature 1290 Â°F	
	26.1 W/m-K	181 BTU-in/hr-ftÂ²-Â°F	
	@Temperature 800 Â°C	@Temperature 1470 Â°F	
	26.9 W/m-K	187 BTU-in/hr-ftÂ²-Â°F	
	@Temperature 900 Â°C	@Temperature 1650 Â°F	
	28.7 W/m-K	199 BTU-in/hr-ftÂ²-Â°F	
	@Temperature 1000 Â°C	@Temperature 1830 Â°F	
	31.1 W/m-K	216 BTU-in/hr-ftÂ²-Â°F	
	@Temperature 1100 Â°C	@Temperature 2010 Â°F	
	32.9 W/m-K	228 BTU-in/hr-ftÂ²-Â°F	
	@Temperature 1200 Â°C	@Temperature 2190 Â°F	
Melting Point	1293 - 1370 Â°C	2359 - 2500 Â°F	
Solidus	1293 Â°C	2359 Â°F	
Liquidus	1370 Â°C	2500 Â°F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.050 %	0.050 %	
Chromium, Cr	28 %	28 %	
Cobalt, Co	30 %	30 %	
Iron, Fe	<= 3.5 %	<= 3.5 %	
Manganese, Mn	0.50 %	0.50 %	
Molybdenum, Mo	<= 1.0 %	<= 1.0 %	
Nickel, Ni	37 %	37 %	
Niobium, Nb (Columbium, Cb)	<= 1.0 %	<= 1.0 %	
Silicon, Si	2.75 %	2.75 %	
Titanium, Ti	0.50 %	0.50 %	
Tungsten, W	<= 1.0 %	<= 1.0 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0001112 ohm-cm	0.0001112 ohm-cm	RT
	0.0001231 ohm-cm @Temperature 700 Â°C	0.0001231 ohm-cm @Temperature 1290 Â°F	
	0.0001238 ohm-cm @Temperature 800 Â°C	0.0001238 ohm-cm @Temperature 1470 Â°F	
	0.0001245 ohm-cm @Temperature 900 Â°C	0.0001245 ohm-cm @Temperature 1650 Â°F	
	0.0001252 ohm-cm @Temperature 1000 Â°C	0.0001252 ohm-cm @Temperature 1830 Â°F	
	0.0001259 ohm-cm @Temperature 1100 Â°C	0.0001259 ohm-cm @Temperature 2010 Â°F	
	0.0001267 ohm-cm @Temperature 1200 Â°C	0.0001267 ohm-cm @Temperature 2190 Â°F	

Contact Songhan Plastic Technology Co.,Ltd.

Website : www.lookpolymers.com

Email : sales@lookpolymers.com

Tel : +86 021-51131842

Mobile : +86 13061808058

Skype : lookpolymers

Address : United North Road 215,Fengxian District, Shanghai City,China