Haynes 188 alloy, plate at RT after 8000 hours at 760Â°C (1400Â°F)

Category : Metal , Nonferrous Metal , Cobalt Alloy , Superalloy

Material Notes:

Excellent high temperature strength and very good resistance to oxidizing environments up to 1095Â°C for prolonged exposure, and excellent resistance to sulfate deposit hot corrosion. Readily fabricated and formed, excellent resistance to molten chloride salts, and good resistance to gaseous sulfidation. Applications include a variety of fabricated component applications in the aerospace industry, commercial gas turbine engines for combustion cans, transition ducts and afterburner components.Data provided by the manufacturer, Haynes International, Inc.

Order this product through the following link:
http://www.lookpolymers.com/polymer_Haynes-188-alloy-plate-at-RT-after-8000-hours-at-760C-1400F.php

Physical Properties	Metric	English	Comments
Density	8.98 g/cc	0.324 lb/inÂ³	at RT.

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	1020 MPa	148000 psi	
Tensile Strength, Yield	510 MPa @Strain 0.200 %	74000 psi @Strain 0.200 %	
Elongation at Break	10.8 %	10.8 %	in 51 mm
Modulus of Elasticity	232 GPa	33600 ksi	RT
	153 GPa @Temperature 1000 Â°C	22200 ksi @Temperature 1830 Â°F	
	161 GPa @Temperature 900 Â°C	23400 ksi @Temperature 1650 Â°F	
	169 GPa @Temperature 800 Â°C	24500 ksi @Temperature 1470 Â°F	
	176 GPa @Temperature 700 Â°C	25500 ksi @Temperature 1290 Â°F	
	184 GPa @Temperature 600 Â°C	26700 ksi @Temperature 1110 Â°F	
	193 GPa	28000 ksi	

Mechanical Properties	Metric	English	Comments
	@Temperature 500 Â°C	@Temperature 932 Â°F	
	201 GPa @Temperature 400 Â°C	29200 ksi @Temperature 752 Â°F	
	209 GPa @Temperature 300 Â°C	30300 ksi @Temperature 572 Â°F	
	217 GPa @Temperature 200 Â°C	31500 ksi @Temperature 392 Â°F	
	225 GPa @Temperature 100 Â°C	32600 ksi @Temperature 212 Â°F	
Charpy Impact	4.00 J	2.95 ft-lb	after 8000 hours at 760Â°C

Thermal Properties	Metric	English	Comments
CTE, linear	11.9 Âµm/m-Â°C @Temperature 25.0 - 100 Â°C	6.61 Âµin/in-Â°F @Temperature 77.0 - 212 Â°F	
	12.6 Âµm/m-Â°C @Temperature 25.0 - 200 Â°C	7.00 Âµin/in-Â°F @Temperature 77.0 - 392 Â°F	
	13.2 Âµm/m-Â°C @Temperature 25.0 - 300 Â°C	7.33 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	
	14.5 Âµm/m-Â°C @Temperature 25.0 - 500 Â°C	8.06 Âµin/in-Â°F @Temperature 77.0 - 932 Â°F	
	15.2 Âµm/m-Â°C @Temperature 25.0 - 600 Â°C	8.44 Âµin/in-Â°F @Temperature 77.0 - 1110 Â°F	
	15.8 Âµm/m-Â°C @Temperature 25.0 - 700 Â°C	8.78 Âµin/in-Â°F @Temperature 77.0 - 1290 Â°F	
	16.5 Âµm/m-Â°C @Temperature 25.0 -	9.17 Âµin/in-Â°F @Temperature 77.0 -	

Thermal Properties	Metric	English	Comments
	800 Â°C	1470 Â°F	
	17.1 Âµm/m-Â°C @Temperature 25.0 - 800 Â°C	9.50 Âµin/in-Â°F @Temperature 77.0 - 1470 Â°F	
	17.9 Âµm/m-Â°C @Temperature 25.0 - 1000 Â°C	9.94 Âµin/in-Â°F @Temperature 77.0 - 1830 Â°F	
Specific Heat Capacity	0.403 J/g-Â°C	0.0963 BTU/lb-Â°F	RT
	0.423 J/g-Â°C @Temperature 100 Â°C	0.101 BTU/lb-Â°F @Temperature 212 Â°F	
	0.444 J/g-Â°C @Temperature 200 Â°C	0.106 BTU/lb-Â°F @Temperature 392 Â°F	
	0.465 J/g-Â°C @Temperature 300 Â°C	0.111 BTU/lb-Â°F @Temperature 572 Â°F	
	0.486 J/g-Â°C @Temperature 400 Â°C	0.116 BTU/lb-Â°F @Temperature 752 Â°F	
	0.502 J/g-Â°C @Temperature 500 Â°C	0.120 BTU/lb-Â°F @Temperature 932 Â°F	
	0.523 J/g-Â°C @Temperature 600 Â°C	0.125 BTU/lb-Â°F @Temperature 1110 Â°F	
	0.540 J/g-Â°C @Temperature 700 Â°C	0.129 BTU/lb-Â°F @Temperature 1290 Â°F	
	0.557 J/g-Â°C @Temperature 800 Â°C	0.133 BTU/lb-Â°F @Temperature 1470 Â°F	
	0.573 J/g-Â°C @Temperature 900 Â°C	0.137 BTU/lb-Â°F @Temperature 1650 Â°F	
	0.590 J/g-Â°C @Temperature 1000 Â°C	0.141 BTU/lb-Â°F @Temperature 1830 Â°F	
Thermal Conductivity	10.4 W/m-K	72.2 BTU-in/hr-ftÂ²-Â°F	RT

Thermal Properties	Metric	English	Comments
	12.2 W/m-K @Temperature 100 Â°C	84.7 BTU-in/hr-ftÂ²-Â°F @Temperature 212 Â°F	
	14.3 W/m-K @Temperature 200 Â°C	99.2 BTU-in/hr-ftÂ²-Â°F @Temperature 392 Â°F	
	15.9 W/m-K @Temperature 300 Â°C	110 BTU-in/hr-ftÂ²-Â°F @Temperature 572 Â°F	
	17.5 W/m-K @Temperature 400 Â°C	121 BTU-in/hr-ftÂ²-Â°F @Temperature 752 Â°F	
	19.3 W/m-K @Temperature 500 Â°C	134 BTU-in/hr-ftÂ²-Â°F @Temperature 932 Â°F	
	21.1 W/m-K @Temperature 600 Â°C	146 BTU-in/hr-ftÂ²-Â°F @Temperature 1110 Â°F	
	23.0 W/m-K @Temperature 700 Â°C	160 BTU-in/hr-ftÂ²-Â°F @Temperature 1290 Â°F	
	24.8 W/m-K @Temperature 800 Â°C	172 BTU-in/hr-ftÂ²-Â°F @Temperature 1470 Â°F	
	25.5 W/m-K @Temperature 900 Â°C	177 BTU-in/hr-ftÂ²-Â°F @Temperature 1650 Â°F	
	27.6 W/m-K @Temperature 1000 Â°C	192 BTU-in/hr-ftÂ²-Â°F @Temperature 1830 Â°F	
Melting Point	1315 - 1410 Â°C	2399 - 2570 Â°F	
Solidus	1315 Â°C	2399 Â°F	
Liquidus	1410 Â°C	2570 Â°F	
Maximum Service Temperature, Air	1095 Â°C	2003 Â°F	

Component Elements Properties	Metric	English	Comments
Boron, B	<= 0.015 %	<= 0.015 %	
Carbon, C	0.050 - 0.15 %	0.050 - 0.15 %	

Component Elements Properties	Metric	English	Comments
Cobalt, Co	42 %	42 %	As remainder
Iron, Fe	<= 3.0 %	<= 3.0 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000101 ohm-cm	0.000101 ohm-cm	RT
	0.000103 ohm-cm @Temperature 100 Â°C	0.000103 ohm-cm @Temperature 212 Â°F	
	0.000105 ohm-cm @Temperature 200 Â°C	0.000105 ohm-cm @Temperature 392 Â°F	
	0.0001077 ohm-cm @Temperature 300 Â°C	0.0001077 ohm-cm @Temperature 572 Â°F	
	0.0001105 ohm-cm @Temperature 400 Â°C	0.0001105 ohm-cm @Temperature 752 Â°F	
	0.0001127 ohm-cm @Temperature 500 Â°C	0.0001127 ohm-cm @Temperature 932 Â°F	
	0.0001148 ohm-cm @Temperature 600 Â°C	0.0001148 ohm-cm @Temperature 1110 Â°F	
	0.0001164 ohm-cm @Temperature 700 Â°C	0.0001164 ohm-cm @Temperature 1290 Â°F	
	0.0001175 ohm-cm @Temperature 800 Â°C	0.0001175 ohm-cm @Temperature 1470 Â°F	
	0.0001183 ohm-cm @Temperature 900 Â°C	0.0001183 ohm-cm @Temperature 1650 Â°F	
	0.0001191 ohm-cm @Temperature 1000 Â°C	0.0001191 ohm-cm @Temperature 1830 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