HP Alloys Alloy 718, 20% Cold Worked, Aged

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

Material Notes:

20% Cold Worked, Aged applies to tensile and/or hardness; other properties are typical of this alloy.Data provided by High Performance Alloys, Inc., Allvac, Inco Alloys International, and Haynes International.

Order this product through the following link:
http://www.lookpolymers.com/polymer_HP-Alloys-Alloy-718-20-Cold-Worked-Aged.php

Physical Properties	Metric	English	Comments
Density	8.20 g/cc	0.296 lb/in³	

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	1551 MPa	225000 psi	
Tensile Strength, Yield	1455 MPa	211000 psi	
Elongation at Break	17 %	17 %	
Reduction of Area	40 %	40 %	
Modulus of Elasticity	200 GPa	29000 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	12.9 µm/m-°C @Temperature 20.0 - 100 °C	7.17 µin/in-°F @Temperature 68.0 - 212 °F	
	13.5 µm/m-°C @Temperature 25.0 - 200 °C	7.50 µin/in-°F @Temperature 77.0 - 392 °F	
	14.3 µm/m-°C @Temperature 25.0 - 500 °C	7.94 µin/in-°F @Temperature 77.0 - 932 °F	
	17.2 µm/m-°C @Temperature 25.0 - 900 °C	9.56 µin/in-°F @Temperature 77.0 - 1650 °F	
Specific Heat Capacity	0.435 J/g-°C	0.104 BTU/lb-°F	
Thermal Conductivity	11.4 W/m-K	79.1 BTU-in/hr-ft²-°F	
Melting Point	1260 - 1336 °C	2300 - 2437 °F	

Thermal Properties	Metric	English	Comments
Solidus	1260 °C	2300 °F	
Liquidus	1336 °C	2437 °F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	0.20 - 0.80 %	0.20 - 0.80 %	
Boron, B	<= 0.0060 %	<= 0.0060 %	
Carbon, C	<= 0.080 %	<= 0.080 %	
Chromium, Cr	17 - 21 %	17 - 21 %	
Cobalt, Co	<= 1.0 %	<= 1.0 %	
Copper, Cu	<= 0.30 %	<= 0.30 %	
Iron, Fe	17 %	17 %	
Manganese, Mn	<= 0.35 %	<= 0.35 %	
Molybdenum, Mo	2.8 - 3.3 %	2.8 - 3.3 %	
Nickel, Ni	50 - 55 %	50 - 55 %	
Niobium, Nb (Columbium, Cb)	4.75 - 5.5 %	4.75 - 5.5 %	
Phosphorous, P	<= 0.015 %	<= 0.015 %	
Silicon, Si	<= 0.35 %	<= 0.35 %	
Sulfur, S	<= 0.015 %	<= 0.015 %	
Titanium, Ti	0.65 - 1.15 %	0.65 - 1.15 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000123 ohm-cm	0.000123 ohm-cm	
Magnetic Permeability	1.0011	1.0011	at 200 oersted (15.9 kA/m)
Curie Temperature	-112 °C	-170 °F	

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