

HP Alloys Alloy B-2, Solution Treated, 20% Cold Worked

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

Material Notes:

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

Order this product through the following link:

http://www.lookpolymers.com/polymer_HP-Alloys-Alloy-B-2-Solution-Treated-20-Cold-Worked.php

Physical Properties	Metric	English	Comments
Density	9.22 g/cc	0.333 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	346	346	Estimated from Rockwell C
Hardness, Knoop	413	413	Estimated from Rockwell C
Hardness, Rockwell A	69.5	69.5	Estimated from Rockwell C
Hardness, Rockwell C	38	38	
Hardness, Vickers	362	362	Estimated from Rockwell C
Modulus of Elasticity	189 GPa	27400 ksi	(Heat treated at 1066 ^o C (1950 ^o F), rapid quenched, plate)
	@Thickness 12.7 mm, Temperature 538 ^o C	@Thickness 0.500 in, Temperature 1000 ^o F	
	196 GPa	28400 ksi	(Heat treated at 1066 ^o C (1950 ^o F), rapid quenched, plate)
	@Thickness 12.7 mm, Temperature 427 ^o C	@Thickness 0.500 in, Temperature 800 ^o F	
	202 GPa	29300 ksi	(Heat treated at 1066 ^o C (1950 ^o F), rapid quenched, plate)
	@Thickness 12.7 mm, Temperature 316 ^o C	@Thickness 0.500 in, Temperature 600 ^o F	
	217 GPa	31500 ksi	(Heat treated at 1066 ^o C (1950 ^o F), rapid quenched, plate)
	@Thickness 12.7 mm, Temperature 21.1 ^o C	@Thickness 0.500 in, Temperature 70.0 ^o F	

Thermal Properties	Metric	English	Comments
CTE, linear	10.3 $\mu\text{m/m-}^{\circ}\text{C}$	5.72 $\mu\text{in/in-}^{\circ}\text{F}$	
	@Temperature 20.0 - 93.0 ^o C	@Temperature 68.0 - 199 ^o F	
	10.8 $\mu\text{m/m-}^{\circ}\text{C}$	6.00 $\mu\text{in/in-}^{\circ}\text{F}$	

Thermal Properties	Metric @Temperature 20.0 - 204 Â°C	English @Temperature 68.0 - 399 Â°F	Comments
	11.2 Âµm/m-Â°C	6.22 Âµin/in-Â°F	
	@Temperature 20.0 - 316 Â°C	@Temperature 68.0 - 601 Â°F	
	11.5 Âµm/m-Â°C	6.39 Âµin/in-Â°F	
	@Temperature 20.0 - 427 Â°C	@Temperature 68.0 - 801 Â°F	
	11.7 Âµm/m-Â°C	6.50 Âµin/in-Â°F	
	@Temperature 20.0 - 538 Â°C	@Temperature 68.0 - 1000 Â°F	
Specific Heat Capacity	0.373 J/g-Â°C	0.0891 BTU/lb-Â°F	
	@Temperature 0.000 Â°C	@Temperature 32.0 Â°F	
	0.389 J/g-Â°C	0.0930 BTU/lb-Â°F	
	@Temperature 100 Â°C	@Temperature 212 Â°F	
	0.406 J/g-Â°C	0.0970 BTU/lb-Â°F	
	@Temperature 200 Â°C	@Temperature 392 Â°F	
	0.423 J/g-Â°C	0.101 BTU/lb-Â°F	
	@Temperature 300 Â°C	@Temperature 572 Â°F	
	0.431 J/g-Â°C	0.103 BTU/lb-Â°F	
	@Temperature 400 Â°C	@Temperature 752 Â°F	
	0.444 J/g-Â°C	0.106 BTU/lb-Â°F	
	@Temperature 500 Â°C	@Temperature 932 Â°F	
	0.456 J/g-Â°C	0.109 BTU/lb-Â°F	
	@Temperature 600 Â°C	@Temperature 1110 Â°F	
Thermal Conductivity	11.1 W/m-K	77.0 BTU-in/hr-ftÂ²- Â°F	
	@Temperature 0.000 Â°C	@Temperature 32.0 Â°F	
	12.2 W/m-K	84.7 BTU-in/hr-ftÂ²- Â°F	
	@Temperature 100 Â°C	@Temperature 212 Â°F	
	13.4 W/m-K	93.0 BTU-in/hr-ftÂ²- Â°F	
	@Temperature 200 Â°C	@Temperature 392 Â°F	

Thermal Properties	Metric	English	Comments
	14.6 W/m-K	101 BTU-in/hr-ft ² -°F	
	@Temperature 300 °C	@Temperature 572 °F	
	16.0 W/m-K	111 BTU-in/hr-ft ² -°F	
	@Temperature 400 °C	@Temperature 752 °F	
	17.3 W/m-K	120 BTU-in/hr-ft ² -°F	
	@Temperature 500 °C	@Temperature 932 °F	
	18.7 W/m-K	130 BTU-in/hr-ft ² -°F	
	@Temperature 600 °C	@Temperature 1110 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.010 %	0.010 %	
Chromium, Cr	1.0 %	1.0 %	
Cobalt, Co	<= 1.0 %	<= 1.0 %	
Iron, Fe	<= 2.0 %	<= 2.0 %	
Manganese, Mn	<= 1.0 %	<= 1.0 %	
Molybdenum, Mo	28 %	28 %	
Nickel, Ni	69 %	69 %	
Silicon, Si	<= 0.10 %	<= 0.10 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000137 ohm-cm	0.000137 ohm-cm	
	@Temperature 0.000 °C	@Temperature 32.0 °F	
	0.000138 ohm-cm	0.000138 ohm-cm	
	@Temperature 100 °C	@Temperature 212 °F	
	0.000138 ohm-cm	0.000138 ohm-cm	
	@Temperature 200 °C	@Temperature 392 °F	
	0.000139 ohm-cm	0.000139 ohm-cm	
	@Temperature 300 °C	@Temperature 572 °F	
	0.000139 ohm-cm	0.000139 ohm-cm	
	@Temperature 400 °C	@Temperature 752 °F	

Electrical Properties	Metric	English	Comments
	0.000146 ohm-cm	0.000146 ohm-cm	
	@Temperature 500 Â°C	@Temperature 932 Â°F	
	0.000146 ohm-cm	0.000146 ohm-cm	
	@Temperature 600 Â°C	@Temperature 1110 Â°F	

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