

Special Metals INCONEL® HX Nickel Superalloy

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

Material Notes:

Data provided by the manufacturer, Special Metals.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Special-Metals-INCONEL-HX-Nickel-Superalloy.php

Physical Properties	Metric	English	Comments
Density	8.22 g/cc	0.297 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell B	90	90	Sheet
Tensile Strength, Ultimate	793 MPa	115000 psi	Sheet
Tensile Strength, Yield	345 MPa @Strain 0.200 %	50000 psi @Strain 0.200 %	Sheet
Elongation at Break	45.5 %	45.5 %	Sheet
Modulus of Elasticity	205 GPa	29700 ksi	
Poissons Ratio	0.32	0.32	
Shear Modulus	80.0 GPa	11600 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	13.3 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$ @Temperature 20.0 - 100 $\text{Å}^\circ\text{C}$	7.39 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$ @Temperature 68.0 - 212 $\text{Å}^\circ\text{F}$	Mean
	14.3 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$ @Temperature 20.0 - 300 $\text{Å}^\circ\text{C}$	7.94 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$ @Temperature 68.0 - 572 $\text{Å}^\circ\text{F}$	Mean
	14.7 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$ @Temperature 20.0 - 500 $\text{Å}^\circ\text{C}$	8.17 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$ @Temperature 68.0 - 932 $\text{Å}^\circ\text{F}$	Mean
	16.7 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$ @Temperature 20.0 - 1000 $\text{Å}^\circ\text{C}$	9.28 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$ @Temperature 68.0 - 1830 $\text{Å}^\circ\text{F}$	Mean
Specific Heat Capacity	0.461 J/g- $\text{Å}^\circ\text{C}$	0.110 BTU/lb- $\text{Å}^\circ\text{F}$	

Thermal Properties	Metric	English	Comments
Melting Point	1260 - 1355 Â°C	2300 - 2471 Â°F	
Solidus	1260 Â°C	2300 Â°F	
Liquidus	1355 Â°C	2471 Â°F	
Maximum Service Temperature, Air	1200 Â°C	2190 Â°F	exceptional strength to 1200Â°C

Component Elements Properties	Metric	English	Comments
Carbon, C	0.10 %	0.10 %	
Chromium, Cr	21.8 %	21.8 %	
Cobalt, Co	1.5 %	1.5 %	
Iron, Fe	18.5 %	18.5 %	
Manganese, Mn	0.50 %	0.50 %	
Molybdenum, Mo	9.0 %	9.0 %	
Nickel, Ni	47.5 %	47.5 %	
Silicon, Si	0.50 %	0.50 %	
Tungsten, W	0.60 %	0.60 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000116 ohm-cm	0.000116 ohm-cm	
Magnetic Permeability	1.01096	1.01096	at 200 Oersted (15.9 kA/m)
Magnetic Susceptibility	0.0000409	0.0000409	Mass Susceptibility at 1000 gauss
	0.000342	0.000342	Volume Susceptibility at 1000 gauss

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