

HP Alloys Alloy C-276, 40% Cold Worked

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

Material Notes:

40% Cold Worked 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-C-276-40-Cold-Worked.php

Physical Properties	Metric	English	Comments
Density	8.90 g/cc	0.322 lb/in ³	

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	1336 MPa	193800 psi	
Tensile Strength, Yield	1261 MPa	182900 psi	
Elongation at Break	9.0 %	9.0 %	
Modulus of Elasticity	205 GPa	29700 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	11.7 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	6.50 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 20.0 - 100 $\text{Å}^\circ\text{C}$	@Temperature 68.0 - 212 $\text{Å}^\circ\text{F}$	
	12.0 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	6.67 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 24.0 - 204 $\text{Å}^\circ\text{C}$	@Temperature 75.2 - 399 $\text{Å}^\circ\text{F}$	
	12.8 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	7.11 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 23.9 - 316 $\text{Å}^\circ\text{C}$	@Temperature 75.0 - 600 $\text{Å}^\circ\text{F}$	
Specific Heat Capacity	13.2 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	7.33 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 23.9 - 427 $\text{Å}^\circ\text{C}$	@Temperature 75.0 - 800 $\text{Å}^\circ\text{F}$	
Thermal Conductivity	13.4 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	7.44 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 24.0 - 538 $\text{Å}^\circ\text{C}$	@Temperature 75.2 - 1000 $\text{Å}^\circ\text{F}$	
Specific Heat Capacity	0.427 J/g- $\text{Å}^\circ\text{C}$	0.102 BTU/lb- $\text{Å}^\circ\text{F}$	
Thermal Conductivity	10.5 W/m-K	72.9 BTU-in/hr-ft ² - $\text{Å}^\circ\text{F}$	

Thermal Properties	Metric 1370 Â°C	English 2500 Â°F	Comments
Solidus	1325 Â°C	2417 Â°F	
Liquidus	1370 Â°C	2500 Â°F	

Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.010 %	<= 0.010 %	
Chromium, Cr	14.5 - 16.5 %	14.5 - 16.5 %	
Cobalt, Co	<= 2.5 %	<= 2.5 %	
Iron, Fe	4.0 - 7.0 %	4.0 - 7.0 %	
Manganese, Mn	<= 1.0 %	<= 1.0 %	
Molybdenum, Mo	15 - 17 %	15 - 17 %	
Nickel, Ni	57 %	57 %	
Phosphorous, P	<= 0.025 %	<= 0.025 %	
Silicon, Si	<= 0.080 %	<= 0.080 %	
Sulfur, S	<= 0.010 %	<= 0.010 %	
Tungsten, W	3.0 - 4.5 %	3.0 - 4.5 %	
Vanadium, V	<= 0.35 %	<= 0.35 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000130 ohm-cm	0.000130 ohm-cm	
Magnetic Permeability	1.0002	1.0002	at 200 oersted (15.9 kA/m)

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