

Special Metals INCONEL® Alloy X-750

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

Material Notes:

A nickel-chromium alloy similar to INCONEL alloy 600 but made precipitation hardenable by additions of aluminum and titanium. The alloy has good resistance to corrosion and oxidation along with high tensile and creep-rupture properties at temperatures to about 1300°F (700°C). Its excellent relaxation resistance is useful for high-temperature springs and bolts. Used in gas turbines, rocket engines, nuclear reactors, pressure vessels, tooling, and aircraft structures. Standard product forms are round, flats, extruded section, forging stock, plate, sheet, strip, pipe, tube, and wire. Data provided by the manufacturer, Special Metals.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Special-Metals-INCONEL-Alloy-X-750.php

Physical Properties	Metric	English	Comments
Density	8.28 g/cc	0.299 lb/in ³	

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	1120 MPa	162000 psi	Precipitation Hardened prior to test
	@Temperature 550 °C	@Temperature 1020 °F	
Tensile Strength, Yield	1250 MPa	181000 psi	Precipitation Hardened. Value at room temperature
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Tensile Strength, Yield	850 MPa	123000 psi	Precipitation Hardened. Value at room temperature
	@Strain 0.200 %	@Strain 0.200 %	
Elongation at Break	760 MPa	110000 psi	Precipitation Hardened prior to test
	@Strain 0.200 %, Temperature 550 °C	@Strain 0.200 %, Temperature 1020 °F	
Elongation at Break	30 %	30 %	Precipitation Hardened
	22 %	22 %	
	@Temperature 550 °C	@Temperature 1020 °F	Precipitation Hardened prior to test.

Thermal Properties	Metric	English	Comments
CTE, linear	12.6 Åµm/m-Å°C	7.00 Åµin/in-Å°F	
	@Temperature 20.0 - 100 Å°C	@Temperature 68.0 - 212 Å°F	
Specific Heat Capacity	0.431 J/g-Å°C	0.103 BTU/lb-Å°F	

Thermal Properties	Metric	English	Comments
Melting Point	1390 - 1430 Â°C	2530 - 2610 Â°F	
Solidus	1390 Â°C	2530 Â°F	
Liquidus	1430 Â°C	2610 Â°F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	0.40 - 1.0 %	0.40 - 1.0 %	
Carbon, C	<= 0.080 %	<= 0.080 %	
Chromium, Cr	14 - 17 %	14 - 17 %	
Cobalt, Co	<= 1.0 %	<= 1.0 %	
Copper, Cu	<= 0.50 %	<= 0.50 %	
Iron, Fe	5.0 - 9.0 %	5.0 - 9.0 %	
Manganese, Mn	<= 1.0 %	<= 1.0 %	
Nickel, Ni	>= 70 %	>= 70 %	Including Cobalt
Niobium, Nb (Columbium, Cb)	0.70 - 1.2 %	0.70 - 1.2 %	Includes Ta
Silicon, Si	<= 0.50 %	<= 0.50 %	
Sulfur, S	<= 0.010 %	<= 0.010 %	
Titanium, Ti	2.25 - 2.75 %	2.25 - 2.75 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000122 ohm-cm	0.000122 ohm-cm	
Magnetic Permeability	1.0035	1.0035	at 200 oersted (15.9 kA/m)
Curie Temperature	-125 Â°C	-193 Â°F	

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