

Special Metals INCONEL® Alloy 625

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

Material Notes:

Niobium content includes tantalum. A nickel-chromium-molybdenum alloy with an addition of niobium that acts with the molybdenum to stiffen the alloy's matrix and thereby provide high strength without a strengthening heat treatment. The alloy resists a wide range of severely corrosive environments and is especially resistant to pitting and crevice corrosion. Used in chemical processing, aerospace and marine engineering, pollution-control equipment, and nuclear reactors. Standard product forms are round, flats, forging stock, extruded section, pipe, tube, plate, sheet, strip, 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-625.php

Physical Properties	Metric	English	Comments
Density	8.44 g/cc	0.305 lb/in ³	

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	880 MPa	128000 psi	Annealed
	760 MPa @Temperature 650 Â°C	110000 psi @Temperature 1200 Â°F	Annealed prior to test
Tensile Strength, Yield	460 MPa	66700 psi	Annealed
	290 MPa @Temperature 650 Â°C	42100 psi @Temperature 1200 Â°F	Annealed prior to test
Elongation at Break	50 %	50 %	Annealed prior to test.
	55 % @Temperature 650 Â°C	55 % @Temperature 1200 Â°F	Annealed prior to test.

Thermal Properties	Metric	English	Comments
CTE, linear	12.8 Âµm/m-Â°C	7.11 Âµin/in-Â°F	
	@Temperature 20.0 - 100 Â°C	@Temperature 68.0 - 212 Â°F	
Specific Heat Capacity	0.410 J/g-Â°C	0.0980 BTU/lb-Â°F	
Thermal Conductivity	9.80 W/m-K	68.0 BTU-in/hr-ftÂ²- Â°F	
Melting Point	1290 - 1350 Â°C	2350 - 2460 Â°F	

Thermal Properties	Metric °C	English °F	Comments
Liquidus	1350 Â°C	2460 Â°F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	<= 0.40 %	<= 0.40 %	
Carbon, C	<= 0.10 %	<= 0.10 %	
Chromium, Cr	20 - 23 %	20 - 23 %	
Cobalt, Co	<= 1.0 %	<= 1.0 %	
Iron, Fe	<= 5.0 %	<= 5.0 %	
Manganese, Mn	<= 0.50 %	<= 0.50 %	
Molybdenum, Mo	8.0 - 10 %	8.0 - 10 %	
Nickel, Ni	>= 58 %	>= 58 %	
Niobium, Nb (Columbium, Cb)	3.15 - 4.15 %	3.15 - 4.15 %	Includes Ta
Phosphorous, P	<= 0.015 %	<= 0.015 %	
Silicon, Si	<= 0.50 %	<= 0.50 %	
Sulfur, S	<= 0.015 %	<= 0.015 %	
Titanium, Ti	<= 0.40 %	<= 0.40 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000129 ohm-cm	0.000129 ohm-cm	
Magnetic Permeability	1.0006	1.0006	at 200 oersted (15.9 kA/m)
Curie Temperature	<= -196 Â°C	<= -321 Â°F	

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