

Special Metals DURANICKEL® 301 (UNS N03301) Annealed and Aged Rod and Bar

Category : Metal , Nonferrous Metal , Nickel Alloy

Material Notes:

Tensile strength (ultimate and yield), compressive strength, hardness, and elongation values reported here are typical for Annealed and Aged Rod and Bar specifically. Other property values are typical of aged DURANICKEL® alloy 301 or the alloy in general. Data provided by the manufacturer, Special Metals.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Special-Metals-DURANICKEL-301-UNS-N03301-Annealed-and-Aged-Rod-and-Bar.php

Physical Properties	Metric	English	Comments
Density	8.19 g/cc	0.296 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	285 - 360	285 - 360	3000 kg
Hardness, Rockwell C	30 - 40	30 - 40	
Tensile Strength, Ultimate	1030 - 1310 MPa	150000 - 190000 psi	
Tensile Strength, Yield	758 - 965 MPa @Strain 0.200 %	110000 - 140000 psi @Strain 0.200 %	
Elongation at Break	20 - 30 %	20 - 30 %	
Modulus of Elasticity	207 GPa	30000 ksi	Tension
Compressive Yield Strength	948.0 MPa	137500 psi	(0.2% Offset)
Poissons Ratio	0.31	0.31	
Shear Modulus	76.0 GPa	11000 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	13.0 Âµm/m-Â°C @Temperature 21.0 - 100 Â°C	7.22 Âµin/in-Â°F @Temperature 69.8 - 212 Â°F	Mean
	14.0 Âµm/m-Â°C @Temperature 21.0 - 300 Â°C	7.78 Âµin/in-Â°F @Temperature 69.8 - 572 Â°F	Mean
	14.7 Âµm/m-Â°C @Temperature 21.0 -	8.17 Âµin/in-Â°F @Temperature 69.8 -	Mean

Thermal Properties	500 Â°C Metric	932 Â°F English	Comments
	16.6 Âµm/m-Â°C	9.22 Âµin/in-Â°F	Mean
	@Temperature 21.0 - 900 Â°C	@Temperature 69.8 - 1650 Â°F	
Thermal Conductivity	23.8 W/m-K	165 BTU-in/hr-ftÂ²-Â°F	
Melting Point	1400 - 1440 Â°C	2550 - 2620 Â°F	
Solidus	1400 Â°C	2550 Â°F	
Liquidus	1440 Â°C	2620 Â°F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	4.0 - 4.75 %	4.0 - 4.75 %	
Carbon, C	<= 0.30 %	<= 0.30 %	
Copper, Cu	<= 0.25 %	<= 0.25 %	
Iron, Fe	<= 0.60 %	<= 0.60 %	
Manganese, Mn	<= 0.50 %	<= 0.50 %	
Nickel, Ni	>= 93 %	>= 93 %	Including Cobalt
Silicon, Si	<= 1.0 %	<= 1.0 %	
Sulfur, S	<= 0.010 %	<= 0.010 %	
Titanium, Ti	0.25 - 1.0 %	0.25 - 1.0 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000424 ohm-cm	0.0000424 ohm-cm	
Magnetic Permeability	9.45	9.45	at 200 Oersted (15.9 kA/m). Aged at 595Â°C/10 h/FC.
Curie Temperature	<= 95.0 Â°C	<= 203 Â°F	

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