

Special Metals DURANICKEL® 301 (UNS N03301) Cold-Drawn 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 Cold-Drawn 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-Cold-Drawn-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	300 - 380	300 - 380	3000 kg
Hardness, Rockwell C	32 - 42	32 - 42	
Tensile Strength, Ultimate	1170 - 1450 MPa	170000 - 210000 psi	
Tensile Strength, Yield	862 - 1210 MPa @Strain 0.200 %	125000 - 175000 psi @Strain 0.200 %	
Elongation at Break	15 - 25 %	15 - 25 %	
Modulus of Elasticity	207 GPa	30000 ksi	Tension
Compressive Yield Strength	1045 MPa	151500 psi	(0.2% Offset)
Poissons Ratio	0.31	0.31	
Fatigue Strength	382 MPa @# of Cycles 1.00e+8	55400 psi @# of Cycles 1.00e+8	rotating beam (Aging - 595°C/16 h F.C. to 540°C, AC)
Shear Modulus	76.0 GPa	11000 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	13.0 Åµm/m-Å°C	7.22 Åµin/in-Å°F	Mean
	@Temperature 21.0 - 100 Å°C	@Temperature 69.8 - 212 Å°F	
	14.0 Åµm/m-Å°C	7.78 Åµin/in-Å°F	Mean
	@Temperature 21.0 - 300 Å°C	@Temperature 69.8 - 572 Å°F	

Thermal Properties	Metric $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	English $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	Comments
	@Temperature 21.0 - 500 Å°C	@Temperature 69.8 - 932 Å°F	Mean
	16.6 Å $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	9.22 Å $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	Mean
	@Temperature 21.0 - 900 Å°C	@Temperature 69.8 - 1650 Å°F	
Thermal Conductivity	23.8 W/m-K	165 BTU-in/hr-ftÅ²-Å°F	
Melting Point	1400 - 1440 Å°C	2550 - 2620 Å°F	
Solidus	1400 Å°C	2550 Å°F	
Liquidus	1440 Å°C	2620 Å°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	
Curie Temperature	<= 95.0 Å°C	<= 203 Å°F	

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