

Crucible Steel 321 Chromium-Nickel Steel

Category : Metal , Ferrous Metal , Austenitic , Stainless Steel , T 300 Series Stainless Steel

Material Notes:

Crucible 321 is a non-hardenable, low carbon austenitic chromium-nickel steel which is particularly adaptable for parts fabricated by welding without postweld annealing for use at temperatures between 800 and 1500°F. This grade is non magnetic in annealed condition but slightly magnetic when cold worked. Information provided by Crucible Specialty Metals. Composition: Titanium content is 5xC minimum

Order this product through the following link:

http://www.lookpolymers.com/polymer_Crucible-Steel-321-Chromium-Nickel-Steel.php

Physical Properties	Metric	English	Comments
Specific Gravity	7.89 g/cc	7.89 g/cc	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	160	160	
Tensile Strength, Ultimate	586 MPa	85000 psi	
	103 MPa	15000 psi	
	@Temperature 927 °C	@Temperature 1700 °F	
	252 MPa	36500 psi	
	@Temperature 704 °C	@Temperature 1300 °F	
Tensile Strength, Yield	241 MPa	35000 psi	
	@Strain 0.200 %	@Strain 0.200 %	
Elongation at Break	55 %	55 %	in 2"
Reduction of Area	65 %	65 %	
Creep Strength	5.8605 MPa	850.00 psi	
	@Temperature 816 °C	@Temperature 1500 °F	
	124.11 MPa	18001 psi	
	@Temperature 538 °C	@Temperature 1000 °F	
Modulus of Elasticity	193 GPa	28000 ksi	Tension
Izod Impact Unnotched	136 J	100 ft-lb	

Thermal Properties	Metric	English	Comments
CTE, linear	17.1 µm/m-°C	9.50 µin/in-°F	
	@Temperature 0.000 -	@Temperature 32.0 -	

Thermal Properties	100 °C Metric	212 °F English	Comments
	18.5 µm/m-°C	10.3 µin/in-°F	
	@Temperature 0.000 - 316 °C	@Temperature 32.0 - 600 °F	
	19.3 µm/m-°C	10.7 µin/in-°F	
	@Temperature 0.000 - 649 °C	@Temperature 32.0 - 1200 °F	
Specific Heat Capacity	0.502 J/g-°C	0.120 BTU/lb-°F	
	@Temperature 0.000 - 100 °C	@Temperature 32.0 - 212 °F	
Thermal Conductivity	16.08 W/m-K	111.6 BTU-in/hr-ft ² -°F	
	@Temperature 93.3 °C	@Temperature 200 °F	
	21.96 W/m-K	152.4 BTU-in/hr-ft ² -°F	
	@Temperature 538 °C	@Temperature 1000 °F	
Melting Point	1230 - 1430 °C	2250 - 2600 °F	
Solidus	1230 °C	2250 °F	
Liquidus	1430 °C	2600 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.080 %	<= 0.080 %	
Chromium, Cr	17 - 19 %	17 - 19 %	
Iron, Fe	>= 65.44 %	>= 65.44 %	As Remainder
Manganese, Mn	<= 2.0 %	<= 2.0 %	
Nickel, Ni	9.0 - 12 %	9.0 - 12 %	
Phosphorous, P	<= 0.45 %	<= 0.45 %	
Silicon, Si	<= 1.0 %	<= 1.0 %	
Sulfur, S	<= 0.030 %	<= 0.030 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000720 ohm-cm	0.0000720 ohm-cm	
	@Temperature 23.0 °C	@Temperature 73.4 °F	

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