

Crucible Steel 316L Chromium-Nickel Steel

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

Material Notes:

Crucible 316L is a non-hardenable, low carbon austenitic chromium-nickel steel with superior corrosion and heat resisting qualities. Crucible 316L is designed for special applications requiring resistance to sensitization and intergranular corrosion. This grade is non magnetic in annealed condition but slightly magnetic when cold worked. Typical applications are screw machine products and all machined parts requiring good corrosion resistance or non-magnetic properties. Information provided by Crucible Specialty Metals.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Crucible-Steel-316L-Chromium-Nickel-Steel.php

Physical Properties	Metric	English	Comments
Specific Gravity	7.91 g/cc	7.91 g/cc	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	160	160	
Tensile Strength, Ultimate	552 MPa	80000 psi	
Tensile Strength, Yield	207 MPa @Strain 0.200 %	30000 psi @Strain 0.200 %	
Elongation at Break	55 %	55 %	in 2"
Reduction of Area	65 %	65 %	
Modulus of Elasticity	193 GPa	28000 ksi	Tension
Izod Impact Unnotched	136 J	100 ft-lb	

Thermal Properties	Metric	English	Comments
CTE, linear	16.0 $\mu\text{m}/\text{m}\cdot\text{C}$ @Temperature 0.000 - 100 $^{\circ}\text{C}$	8.90 $\mu\text{in}/\text{in}\cdot\text{F}$ @Temperature 32.0 - 212 $^{\circ}\text{F}$	
	16.2 $\mu\text{m}/\text{m}\cdot\text{C}$ @Temperature 0.000 - 316 $^{\circ}\text{C}$	9.00 $\mu\text{in}/\text{in}\cdot\text{F}$ @Temperature 32.0 - 600 $^{\circ}\text{F}$	
	18.5 $\mu\text{m}/\text{m}\cdot\text{C}$ @Temperature 0.000 - 649 $^{\circ}\text{C}$	10.3 $\mu\text{in}/\text{in}\cdot\text{F}$ @Temperature 32.0 - 1200 $^{\circ}\text{F}$	
Specific Heat Capacity	0.502 J/g- $^{\circ}\text{C}$ @Temperature 0.000 -	0.120 BTU/lb- $^{\circ}\text{F}$ @Temperature 32.0 -	

Thermal Properties	100 °C Metric	212 °F English	Comments
Thermal Conductivity	16.08 W/m-K	111.6 BTU-in/hr-ft ² -°F	
	@Temperature 93.3 °C	@Temperature 200 °F	
	21.44 W/m-K	148.8 BTU-in/hr-ft ² -°F	
	@Temperature 538 °C	@Temperature 1000 °F	
Melting Point	1370 - 1400 °C	2500 - 2550 °F	
Solidus	1370 °C	2500 °F	
Liquidus	1400 °C	2550 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.030 %	<= 0.030 %	
Chromium, Cr	16 - 18 %	16 - 18 %	
Iron, Fe	>= 61.895 %	>= 61.895 %	As Remainder
Magnesium, Mg	>= 3.0 %	>= 3.0 %	
Manganese, Mn	<= 2.0 %	<= 2.0 %	
Molybdenum, Mo	<= 2.0 %	<= 2.0 %	
Nickel, Ni	10 - 14 %	10 - 14 %	
Phosphorous, P	<= 0.045 %	<= 0.045 %	
Silicon, Si	<= 1.0 %	<= 1.0 %	
Sulfur, S	<= 0.030 %	<= 0.030 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.00007239 ohm-cm	0.00007239 ohm-cm	
	@Temperature 23.0 °C	@Temperature 73.4 °F	

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