

Crucible Steel 304L Chromium-Nickel Steel

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

Material Notes:

Crucible 304L is a non-hardenable, low carbon austenitic chromium-nickel steel designed for special applications. It is particularly suitable for applications requiring welding operations where it is not practical to anneal after welding . 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-304L-Chromium-Nickel-Steel.php

Physical Properties	Metric	English	Comments
Specific Gravity	7.94 g/cc	7.94 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	60 %	60 %	in 2"
Reduction of Area	70 %	70 %	
Modulus of Elasticity	193 GPa	28000 ksi	Tension
Izod Impact Unnotched	149 J	110 ft-lb	

Thermal Properties	Metric	English	Comments
CTE, linear	17.3 $\mu\text{m}/\text{m}\cdot\text{C}$ @Temperature 0.000 - 100 $^{\circ}\text{C}$	9.60 $\mu\text{in}/\text{in}\cdot\text{F}$ @Temperature 32.0 - 212 $^{\circ}\text{F}$	
	17.8 $\mu\text{m}/\text{m}\cdot\text{C}$ @Temperature 0.000 - 316 $^{\circ}\text{C}$	9.90 $\mu\text{in}/\text{in}\cdot\text{F}$ @Temperature 32.0 - 600 $^{\circ}\text{F}$	
	18.7 $\mu\text{m}/\text{m}\cdot\text{C}$ @Temperature 0.000 - 649 $^{\circ}\text{C}$	10.4 $\mu\text{in}/\text{in}\cdot\text{F}$ @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	16.25 W/m-K	112.8 BTU-in/hr-ft ² -°F	
	@Temperature 93.3 °C	@Temperature 200 °F	
	21.6 W/m-K	150 BTU-in/hr-ft ² -°F	
	@Temperature 538 °C	@Temperature 1000 °F	
Melting Point	1400 - 1420 °C	2550 - 2590 °F	
Solidus	1400 °C	2550 °F	
Liquidus	1420 °C	2590 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.030 %	<= 0.030 %	
Chromium, Cr	18 - 20 %	18 - 20 %	
Iron, Fe	>= 64.895 %	>= 64.895 %	As Remainder
Manganese, Mn	<= 2.0 %	<= 2.0 %	
Nickel, Ni	8.0 - 12 %	8.0 - 12 %	
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	0.0000720 ohm-cm	0.0000720 ohm-cm	
	@Temperature 23.0 °C	@Temperature 73.4 °F	

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