

Crucible Steel 410 Chromium Steel

Category : Metal , Ferrous Metal , Stainless Steel , T 400 Series Stainless Steel

Material Notes:

Crucible 410 is a hardenable chromium steel which is adaptable for general purpose corrosion resisting and heat resisting applications.

This grade is magnetic at times. Information provided by Crucible Specialty Metals.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Crucible-Steel-410-Chromium-Steel.php

Physical Properties	Metric	English	Comments
Specific Gravity	7.70 g/cc	7.70 g/cc	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	155	155	
Tensile Strength, Ultimate	517 MPa	75000 psi	
Tensile Strength, Yield	310 MPa @Strain 0.200 %	45000 psi @Strain 0.200 %	
Elongation at Break	30 %	30 %	in 2"
Reduction of Area	75 %	75 %	
Modulus of Elasticity	200 GPa	29000 ksi	Tension
Poissons Ratio	0.32	0.32	Calculated
Shear Modulus	75.8 GPa	11000 ksi	
Izod Impact Unnotched	122 J	90.0 ft-lb	

Thermal Properties	Metric	English	Comments
CTE, linear	9.90 $\mu\text{m}/\text{m}\cdot\text{C}$ @Temperature 0.000 - 100 $^{\circ}\text{C}$	5.50 $\mu\text{in}/\text{in}\cdot\text{F}$ @Temperature 32.0 - 212 $^{\circ}\text{F}$	
	10.1 $\mu\text{m}/\text{m}\cdot\text{C}$ @Temperature 0.000 - 316 $^{\circ}\text{C}$	5.60 $\mu\text{in}/\text{in}\cdot\text{F}$ @Temperature 32.0 - 600 $^{\circ}\text{F}$	
	11.7 $\mu\text{m}/\text{m}\cdot\text{C}$ @Temperature 0.000 - 649 $^{\circ}\text{C}$	6.50 $\mu\text{in}/\text{in}\cdot\text{F}$ @Temperature 32.0 - 1200 $^{\circ}\text{F}$	
	24.90 W/m-K	172.8 BTU-in/hr-ft ² - $^{\circ}\text{F}$	

Thermal Properties	Metric	English	Comments
	28.5 W/m-K	198 BTU-in/hr-ft ² -°F	
	@Temperature 93.3 °C	@Temperature 200 °F	
	@Temperature 538 °C	@Temperature 1000 °F	
Melting Point	1480 - 1530 °C	2700 - 2790 °F	
Solidus	1480 °C	2700 °F	
Liquidus	1530 °C	2790 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.15 %	<= 0.15 %	
Chromium, Cr	11.5 - 13.5 %	11.5 - 13.5 %	
Iron, Fe	>= 84.28 %	>= 84.28 %	As Remainder
Manganese, Mn	<= 1.0 %	<= 1.0 %	
Phosphorous, P	<= 0.040 %	<= 0.040 %	
Silicon, Si	<= 1.0 %	<= 1.0 %	
Sulfur, S	<= 0.030 %	<= 0.030 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000569 ohm-cm	0.0000569 ohm-cm	
	@Temperature 23.0 °C	@Temperature 73.4 °F	

Descriptive Properties	Value	Comments
Endurance Limit, ksi	40	

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