

Crucible Steel 440C Chromium Steel

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

Material Notes:

Crucible 440C is a hardenable chromium steel. It has one of the highest attainable hardnesses of the corrosion and heat resisting grades.

This grade is magnetic at all times. Information provided by Crucible Industries

Order this product through the following link:

http://www.lookpolymers.com/polymer_Crucible-Steel-440C-Chromium-Steel.php

Physical Properties	Metric	English	Comments
Density	7.64 g/cc	0.276 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	230	230	
Hardness, Rockwell C	59	59	as quenched
	51	51	
	@Tempering Temp. 538 °C	@Tempering Temp. 1000 °F	
	54	54	
	@Tempering Temp. 316 °C	@Tempering Temp. 600 °F	
	55	55	
	@Tempering Temp. 427 °C	@Tempering Temp. 800 °F	
	56	56	
	@Tempering Temp. 204 °C	@Tempering Temp. 400 °F	
	59	59	
	@Tempering Temp. 100 °C	@Tempering Temp. 212 °F	
Tensile Strength, Ultimate	758 MPa	110000 psi	
Tensile Strength, Yield	448 MPa	65000 psi	
Elongation at Break	14 %	14 %	in 2"
Reduction of Area	25 %	25 %	
Modulus of Elasticity	200 GPa	29000 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	10.3 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	5.70 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	
	@Temperature 0.000 - 100 $^{\circ}\text{C}$	@Temperature 32.0 - 212 $^{\circ}\text{F}$	
	10.8 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	6.00 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	
	@Temperature 0.000 - 316 $^{\circ}\text{C}$	@Temperature 32.0 - 600 $^{\circ}\text{F}$	
Specific Heat Capacity	0.460 J/g- $^{\circ}\text{C}$	0.110 BTU/lb- $^{\circ}\text{F}$	
Thermal Conductivity	2.02 W/m-K	14.0 BTU-in/hr-ft ² - $^{\circ}\text{F}$	
Melting Point	1370 - 1480 $^{\circ}\text{C}$	2500 - 2700 $^{\circ}\text{F}$	
Solidus	1370 $^{\circ}\text{C}$	2500 $^{\circ}\text{F}$	
Liquidus	1480 $^{\circ}\text{C}$	2700 $^{\circ}\text{F}$	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.95 - 1.2 %	0.95 - 1.2 %	
Chromium, Cr	16 - 18 %	16 - 18 %	
Iron, Fe	>= 79.1 %	>= 79.1 %	as balance
Manganese, Mn	<= 1.0 %	<= 1.0 %	
Molybdenum, Mo	<= 0.75 %	<= 0.75 %	
Phosphorous, P	<= 0.40 %	<= 0.40 %	
Silicon, Si	<= 1.0 %	<= 1.0 %	
Sulfur, S	<= 0.030 %	<= 0.030 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000599 ohm-cm	0.0000599 ohm-cm	

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