

Crucible Steel 416 Plus Chromium Steel

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

Material Notes:

Crucible 416 Plus is a hardenable chromium steel to which elements have been added to improve machinability and non-galling characteristics. Better machinability than that of standard AISI Type 416 stainless is obtained by the use of special manufacturing methods and balanced chemistry. This grade is magnetic in all conditions. Typical applications are screw machine products and all machined parts requiring good corrosion resistance. Information provided by Crucible Specialty Metals.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Crucible-Steel-416-Plus-Chromium-Steel.php

Physical Properties	Metric	English	Comments
Specific Gravity	7.75 g/cc	7.75 g/cc	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	155	155	
Tensile Strength, Ultimate	517 MPa	75000 psi	
	62.1 MPa	9000 psi	
	@Temperature 760 °C	@Temperature 1400 °F	
Tensile Strength, Yield	310 MPa	45000 psi	
	276 MPa	40000 psi	
	@Temperature 538 °C	@Temperature 1000 °F	
	@Strain 0.200 %	@Strain 0.200 %	
Elongation at Break	30 %	30 %	in 2"
Reduction of Area	60 %	60 %	
Creep Strength	6.8947 MPa	999.99 psi	
	64.43 MPa	9345 psi	
	@Temperature 704 °C	@Temperature 1300 °F	
	@Temperature 538 °C	@Temperature 1000 °F	
Modulus of Elasticity	200 GPa	29000 ksi	Tension
Shear Modulus	72.4 GPa	10500 ksi	

Thermal Properties	Metric	English	Comments
	9.90 μm/m-°C	5.50 μin/in-°F	

CTE linear Thermal Properties	Metric	English	Comments
	@ Temperature 0.000 - 100 °C	@ Temperature 32.0 - 212 °F	
	10.1 µm/m-°C	5.60 µin/in-°F	
	@ Temperature 0.000 - 316 °C	@ Temperature 32.0 - 600 °F	
	11.7 µm/m-°C	6.50 µin/in-°F	
	@ Temperature 0.000 - 649 °C	@ Temperature 32.0 - 1200 °F	
Specific Heat Capacity	0.460 J/g-°C	0.110 BTU/lb-°F	
	@ Temperature 0.000 - 100 °C	@ Temperature 32.0 - 212 °F	
Thermal Conductivity	24.90 W/m-K	172.8 BTU-in/hr-ft ² -°F	
	@ Temperature 93.3 °C	@ Temperature 200 °F	
	28.5 W/m-K	198 BTU-in/hr-ft ² -°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	12 - 14 %	12 - 14 %	
Iron, Fe	>= 82.79 %	>= 82.79 %	As Remainder
Manganese, Mn	<= 1.25 %	<= 1.25 %	
Molybdenum, Mo	<= 0.60 %	<= 0.60 %	
Phosphorous, P	<= 0.060 %	<= 0.060 %	
Silicon, Si	<= 1.0 %	<= 1.0 %	
Sulfur, S	>= 0.15 %	>= 0.15 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000568 ohm-cm	0.0000568 ohm-cm	
	@ Temperature 23.0 °C	@ Temperature 73.4 °F	

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