

Kennametal Stellite Stellite® 3 PM cast

Category : Metal , Nonferrous Metal , Cobalt Alloy , Superalloy

Material Notes:

Typical applications include (aerospace) vane plugs, fuel metering pins, spacer bushings, (bearings) ball blanks, race blanks, (valve seat inserts) diesel engine exhaust, fluid valve seats, saw cutter inserts, miscellaneous wear parts. Adhesive wear test data: P/M 0.10, Cast 0.24.

Data provided by the manufacturer, Deloro Stellite Inc.Product of former Deloro Stellite Inc.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Kennametal-Stellite-Stellite-3-PM-cast.php

Physical Properties	Metric	English	Comments
Density	8.64 g/cc	0.312 lb/in ³	theoretical

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	533	533	Converted from Rockwell C hardness.
	265	265	Converted from Rockwell C hardness
	@Temperature 760 Â°C	@Temperature 1400 Â°F	
	345	345	Converted from Rockwell C hardness
	@Temperature 649 Â°C	@Temperature 1200 Â°F	
Hardness, Knoop	415	415	Converted from Rockwell C hardness
	@Temperature 538 Â°C	@Temperature 1000 Â°F	
	643	643	Converted from Rockwell C hardness.
	313	313	Converted from Rockwell C hardness
	@Temperature 760 Â°C	@Temperature 1400 Â°F	
Hardness, Rockwell A	413	413	Converted from Rockwell C hardness
	@Temperature 649 Â°C	@Temperature 1200 Â°F	
	499	499	Converted from Rockwell C hardness
	@Temperature 538 Â°C	@Temperature 1000 Â°F	
Hardness, Rockwell C	77	77	Converted from Rockwell C hardness.
	64	64	Converted from Rockwell C hardness
		@Temperature 1400	

Mechanical Properties	@Temperature 760 Â°C Metric	Â°F English	Comments
	69	69	
	@Temperature 649 Â°C	@Temperature 1200 Â°F	Converted from Rockwell C hardness
	73	73	
	@Temperature 538 Â°C	@Temperature 1000 Â°F	Converted from Rockwell C hardness
Hardness, Rockwell C	54	54	Hot hardness.
	27	27	
	@Temperature 760 Â°C	@Temperature 1400 Â°F	Hot hardness.
	38	38	
	@Temperature 649 Â°C	@Temperature 1200 Â°F	Hot hardness.
	45	45	
	@Temperature 538 Â°C	@Temperature 1000 Â°F	Hot hardness.
Hardness, Vickers	575	575	Converted from Rockwell C hardness.
	274	274	
	@Temperature 760 Â°C	@Temperature 1400 Â°F	Converted from Rockwell C hardness
	362	362	
	@Temperature 649 Â°C	@Temperature 1200 Â°F	Converted from Rockwell C hardness
	441	441	
	@Temperature 538 Â°C	@Temperature 1000 Â°F	Converted from Rockwell C hardness
Tensile Strength, Ultimate	545 MPa	79000 psi	
	483 MPa	70100 psi	
	@Temperature 649 Â°C	@Temperature 1200 Â°F	
	483 MPa	70100 psi	
	@Temperature 760 Â°C	@Temperature 1400 Â°F	
	497 MPa	72100 psi	
	@Temperature 538 Â°C	@Temperature 1000 Â°F	

Mechanical Properties	Metric	English	Comments
Thermal Properties	Metric	English	Comments
CTE, linear	12.3 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	6.83 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 0.000 - 100 $\text{Å}^\circ\text{C}$	@Temperature 32.0 - 212 $\text{Å}^\circ\text{F}$	
	12.5 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	6.94 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 0.000 - 200 $\text{Å}^\circ\text{C}$	@Temperature 32.0 - 392 $\text{Å}^\circ\text{F}$	
	12.7 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	7.06 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 0.000 - 300 $\text{Å}^\circ\text{C}$	@Temperature 32.0 - 572 $\text{Å}^\circ\text{F}$	
	12.9 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	7.17 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 0.000 - 400 $\text{Å}^\circ\text{C}$	@Temperature 32.0 - 752 $\text{Å}^\circ\text{F}$	
	13.0 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	7.22 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 0.000 - 500 $\text{Å}^\circ\text{C}$	@Temperature 32.0 - 932 $\text{Å}^\circ\text{F}$	
	13.1 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	7.28 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 0.000 - 600 $\text{Å}^\circ\text{C}$	@Temperature 32.0 - 1110 $\text{Å}^\circ\text{F}$	
	13.4 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	7.44 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 0.000 - 700 $\text{Å}^\circ\text{C}$	@Temperature 32.0 - 1290 $\text{Å}^\circ\text{F}$	
	13.7 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	7.61 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 0.000 - 800 $\text{Å}^\circ\text{C}$	@Temperature 32.0 - 1470 $\text{Å}^\circ\text{F}$	
	14.5 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	8.06 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 0.000 - 900 $\text{Å}^\circ\text{C}$	@Temperature 32.0 - 1650 $\text{Å}^\circ\text{F}$	
	16.0 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	8.89 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 0.000 - 1000 $\text{Å}^\circ\text{C}$	@Temperature 32.0 - 1830 $\text{Å}^\circ\text{F}$	
Melting Point	1213 - 1285 $\text{Å}^\circ\text{C}$	2215 - 2345 $\text{Å}^\circ\text{F}$	
Solidus	1213 $\text{Å}^\circ\text{C}$	2215 $\text{Å}^\circ\text{F}$	
Liquidus	1285 $\text{Å}^\circ\text{C}$	2345 $\text{Å}^\circ\text{F}$	

Component Elements Properties	Metric	English	Comments
Boron, B	<= 1.0 %	<= 1.0 %	
Carbon, C	2.4 %	2.4 %	
Chromium, Cr	31 %	31 %	
Cobalt, Co	44 %	44 %	As remainder
Iron, Fe	<= 3.0 %	<= 3.0 %	
Manganese, Mn	<= 1.0 %	<= 1.0 %	
Nickel, Ni	<= 3.0 %	<= 3.0 %	
Other	<= 1.0 %	<= 1.0 %	
Silicon, Si	<= 1.0 %	<= 1.0 %	
Tungsten, W	12.5 %	12.5 %	

Electrical Properties	Metric	English	Comments
Magnetic Permeability	<= 1.20 @Temperature 22.0 Â°C	<= 1.20 @Temperature 71.6 Â°F	200 Oersted

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