

Kennametal Stellite Stellite® 3 PM with P/M Processing

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-with-PM-Processing.php

Physical Properties	Metric	English	Comments
Density	8.40 g/cc	0.303 lb/in ³	P/M (97%); 8.64 g/cc theoretical

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	533	533	Converted from Rockwell C hardness.
	271	271	Converted from Rockwell C hardness
	@Temperature 760 Â°C	@Temperature 1400 Â°F	
	354	354	Converted from Rockwell C hardness
@Temperature 649 Â°C	@Temperature 1200 Â°F		
Hardness, Knoop	427	427	Converted from Rockwell C hardness
	@Temperature 538 Â°C	@Temperature 1000 Â°F	
	643	643	
Hardness, Rockwell A	321	321	Converted from Rockwell C hardness
	@Temperature 760 Â°C	@Temperature 1400 Â°F	
	424	424	Converted from Rockwell C hardness
	@Temperature 649 Â°C	@Temperature 1200 Â°F	
Hardness, Rockwell A	513	513	Converted from Rockwell C hardness
	@Temperature 538 Â°C	@Temperature 1000 Â°F	
Hardness, Rockwell A	77	77	Converted from Rockwell C hardness.
	64	64	Converted from Rockwell C hardness
		@Temperature 1400	

Mechanical Properties	@Temperature 760 Å°C Metric	Å°F English	Comments
	70	70	
	@Temperature 649 Å°C	@Temperature 1200 Å°F	Converted from Rockwell C hardness
	73	73	
	@Temperature 538 Å°C	@Temperature 1000 Å°F	Converted from Rockwell C hardness
Hardness, Rockwell C	54	54	Hot hardness.
	28	28	
	@Temperature 760 Å°C	@Temperature 1400 Å°F	Hot hardness.
	39	39	
	@Temperature 649 Å°C	@Temperature 1200 Å°F	Hot hardness.
	46	46	
	@Temperature 538 Å°C	@Temperature 1000 Å°F	Hot hardness.
Hardness, Vickers	575	575	Converted from Rockwell C hardness.
	280	280	
	@Temperature 760 Å°C	@Temperature 1400 Å°F	Converted from Rockwell C hardness
	372	372	
	@Temperature 649 Å°C	@Temperature 1200 Å°F	Converted from Rockwell C hardness
	454	454	
	@Temperature 538 Å°C	@Temperature 1000 Å°F	Converted from Rockwell C hardness
Tensile Strength, Ultimate	863 MPa	125000 psi	
	621 MPa	90100 psi	
	@Temperature 760 Å°C	@Temperature 1400 Å°F	
	690 MPa	100000 psi	
	@Temperature 649 Å°C	@Temperature 1200 Å°F	
	725 MPa	105000 psi	
	@Temperature 538 Å°C	@Temperature 1000 Å°F	

Mechanical 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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