

Kennametal Stellite Stellite® 19

Category : Metal , Nonferrous Metal , Cobalt Alloy , Superalloy

Material Notes:

Can be machined with carbide tipped tools, but when hardness exceeds Rc55 it is best to grind. Applications include cutting tools, bearing races, guide rolls, and nozzle discs. Excellent resistance to hot abrasion and adhesive wear, low coefficient of friction. Resistant to atmospheric oxidation and forms only a thin adherent scale at red heat. Resists attack from wet chlorine and acetic acid (boiling), excellent resistance to 10% boiling nitric, and 10% sulfuric acid at room temperature. Fair resistance to concentrated nitric boiling and 10% boiling sulfuric. Poor resistance to 77% sulfuric boiling and reducing acids. 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-19.php

Physical Properties	Metric	English	Comments
Density	8.36 g/cc	0.302 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell C	45 - 60	45 - 60	
Tensile Strength, Ultimate	724 MPa	105000 psi	(Tensile Yield Strength near U.T.S.)
Elongation at Break	<= 1.0 %	<= 1.0 %	
Modulus of Elasticity	234 GPa	33900 ksi	
Ultimate Compressive Strength	2137 MPa	309900 psi	
Izod Impact Unnotched	4.75 J	3.50 ft-lb	

Thermal Properties	Metric	English	Comments
CTE, linear	12.8 Åµm/m-Å°C	7.11 Åµin/in-Å°F	
	@Temperature 20.0 - 100 Å°C	@Temperature 68.0 - 212 Å°F	
	13.7 Åµm/m-Å°C	7.61 Åµin/in-Å°F	
	@Temperature 20.0 - 300 Å°C	@Temperature 68.0 - 572 Å°F	
CTE, linear	14.2 Åµm/m-Å°C	7.89 Åµin/in-Å°F	
	@Temperature 20.0 - 500 Å°C	@Temperature 68.0 - 932 Å°F	
CTE, linear	14.2 Åµm/m-Å°C	7.89 Åµin/in-Å°F	
	@Temperature 20.0 - 600 Å°C	@Temperature 68.0 - 1110 Å°F	

Thermal Properties	Metric	English	Comments
	14.8 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	5.22 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 20.0 - 700 $\text{Å}^\circ\text{C}$	@Temperature 68.0 - 1290 $\text{Å}^\circ\text{F}$	
	15.1 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	8.39 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 20.0 - 800 $\text{Å}^\circ\text{C}$	@Temperature 68.0 - 1470 $\text{Å}^\circ\text{F}$	
	16.9 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	9.39 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 20.0 - 1000 $\text{Å}^\circ\text{C}$	@Temperature 68.0 - 1830 $\text{Å}^\circ\text{F}$	
Thermal Conductivity	14.7 W/m-K	102 BTU-in/hr-ft $\text{Å}^2\cdot\text{Å}^\circ\text{F}$	
Melting Point	1239 - 1299 $\text{Å}^\circ\text{C}$	2262 - 2370 $\text{Å}^\circ\text{F}$	
Solidus	1239 $\text{Å}^\circ\text{C}$	2262 $\text{Å}^\circ\text{F}$	
Liquidus	1299 $\text{Å}^\circ\text{C}$	2370 $\text{Å}^\circ\text{F}$	

Component Elements Properties	Metric	English	Comments
Carbon, C	1.8 %	1.8 %	
Chromium, Cr	31 %	31 %	
Cobalt, Co	52.2 %	52.2 %	As remainder
Iron, Fe	2.5 %	2.5 %	
Nickel, Ni	1.0 %	1.0 %	
Silicon, Si	1.0 %	1.0 %	
Tungsten, W	10.5 %	10.5 %	

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