

Kennametal Stellite Delcrome® 93

Category : Metal , Ferrous Metal , Cast Iron , Alloy Cast Iron , White Cast Iron

Material Notes:

Information provided by Deloro Stellite, Inc. Typical data, not guaranteed as a maximum or minimum. Highly alloyed white cast iron, abrasion resistant. Carbides in a martensitic matrix offer high hardness and wear resistance. Mo and Co content make heat resistance better than other irons. Processing: Anneal: 6 hours/790°C (1450°F), furnace cool; Harden: 2 hours/1065°C (1950°F), air cooled. Temper: 2 hours/190°C (375°F). As cast preferable, should be ground to size or E.D.M. Annealing for other machining operations is not reliable. Difficult to anneal and harden. Corrosion Resistance: Generally superior to mild steel, but worse than 410 stainless steel. Significant corrosion in weak acids and will pit in the presence of chloride. Applications: Abrasive metal-on-metal applications below 590°C (1100°F); agricultural implements, sealrings, brick making die parts, cement feed shoes, ice scraper blades, sand mixers, drill collars, and other low impact applications. Forms: Simple cast shapes, preferably chill cast, comparable hardfacing consumables. Product of former Deloro Stellite Inc. Similar to Delfer B

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http://www.lookpolymers.com/polymer_Kennametal-Stellite-Delcrome-93.php

Physical Properties	Metric	English	Comments
Density	7.77 g/cc	0.281 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	650 - 807	650 - 807	
	113	113	Hot Hardness
	@Temperature 900 Â°C	@Temperature 1650 Â°F	
	476	476	Hot Hardness
	@Temperature 600 Â°C	@Temperature 1110 Â°F	
	612	612	Hot Hardness
	@Temperature 400 Â°C	@Temperature 752 Â°F	
Hardness, Knoop	729 - 906	729 - 906	Converted from Brinell hardness
Hardness, Rockwell C	58 - 65	58 - 65	
Hardness, Vickers	700 - 871	700 - 871	Converted from Brinell hardness.
Tensile Strength, Ultimate	414 MPa	60000 psi	
Elongation at Break	<= 1.0 %	<= 1.0 %	much less than 1%
Modulus of Elasticity	240 GPa	34800 ksi	

Mechanical Properties	Metric	English	Comments
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Thermal Properties	Metric	English	Comments
CTE, linear	7.75 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	4.31 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 20.0 - 100 $\text{Å}^\circ\text{C}$	@Temperature 68.0 - 212 $\text{Å}^\circ\text{F}$	
	10.0 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	5.56 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 20.0 - 900 $\text{Å}^\circ\text{C}$	@Temperature 68.0 - 1650 $\text{Å}^\circ\text{F}$	
	10.2 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	5.67 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 20.0 - 300 $\text{Å}^\circ\text{C}$	@Temperature 68.0 - 572 $\text{Å}^\circ\text{F}$	
	11.1 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	6.17 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 20.0 - 500 $\text{Å}^\circ\text{C}$	@Temperature 68.0 - 932 $\text{Å}^\circ\text{F}$	
	11.5 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	6.39 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 20.0 - 700 $\text{Å}^\circ\text{C}$	@Temperature 68.0 - 1290 $\text{Å}^\circ\text{F}$	
Thermal Conductivity	11.3 W/m-K	78.4 BTU-in/hr-ft $\text{Å}^2\cdot\text{Å}^\circ\text{F}$	
Melting Point	1138 - 1220 $\text{Å}^\circ\text{C}$	2080 - 2220 $\text{Å}^\circ\text{F}$	
Solidus	1138 $\text{Å}^\circ\text{C}$	2080 $\text{Å}^\circ\text{F}$	
Liquidus	1215 $\text{Å}^\circ\text{C}$	2219 $\text{Å}^\circ\text{F}$	

Component Elements Properties	Metric	English	Comments
Carbon, C	3.3 %	3.3 %	
Chromium, Cr	18 %	18 %	
Cobalt, Co	6.3 %	6.3 %	
Iron, Fe	53.5 %	53.5 %	
Molybdenum, Mo	16 %	16 %	
Silicon, Si	0.90 %	0.90 %	
Vanadium, V	2.0 %	2.0 %	

Contact Songhan Plastic Technology Co.,Ltd.

Website : www.lookpolymers.com

Email : sales@lookpolymers.com

Tel : +86 021-51131842

Mobile : +86 13061808058

Skype : lookpolymers

Address : United North Road 215, Fengxian District, Shanghai City, China