

Kennametal Stellite Stellite® 250

Category : Metal , Nonferrous Metal , Cobalt Alloy , Superalloy

Material Notes:

Resistant to heat, thermal shock, thermal cycling, oxidation, and hot corrosion from flue gas, slags, and molten copper. Not recommended for use in abrasive wear. Applications: heat treatment furnaces, metallurgical industrial furnaces such as copper smelters, baskets, grates, tray, slab skids, reheat furnaces, gas and pulverized coal burners, discharge rolls and channels, radiant tube supports, and parts in contact with molten slags and molten copper. Corrosion: Good resistance to oxidation by air or air SO₂ mixtures, and corrosive resistance by H₂S up to 1249°C (2280°F). Not corroded by molten copper, but it is attacked by molten zinc and aluminum. In aqueous media, withstands attack by dilute sulfuric acid and by boiling concentrated nitric acid, but is attacked by reducing acids such as HCl. Machinability: Has tendency to work harden, can be machined with grade C² or C³ tungsten carbide tools. A stress relief treatment of 935°C (1650°F) for 4 hours and slow cooling will aid machining. Data provided by the manufacturer, Deloro Stellite, Inc. Product of former Deloro Stellite Inc. Similar alloys include Stellite 251, Stellite 238, UMCO-50/51, Haynes 150, Esco 72

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http://www.lookpolymers.com/polymer_Kennametal-Stellite-Stellite-250.php

Physical Properties	Metric	English	Comments
Density	8.05 g/cc	0.291 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	263	263	
	55	55	
	@Temperature 950 °C	@Temperature 1740 °F	
	107	107	
	@Temperature 800 °C	@Temperature 1470 °F	
Hardness, Knoop	163	163	
	@Temperature 700 °C	@Temperature 1290 °F	
Hardness, Rockwell A	180	180	
	@Temperature 600 °C	@Temperature 1110 °F	
Hardness, Knoop	271	271	Converted from Rockwell C hardness.
Hardness, Rockwell A	46	46	Converted from Rockwell C
Hardness, Rockwell B	101	101	Converted from Rockwell C
Hardness, Rockwell C	18 - 29	18 - 29	

Mechanical Properties	Metric	English	Comments
Tensile Strength, Yield	314 MPa	45500 psi	
Elongation at Break	8.0 %	8.0 %	
Modulus of Elasticity	217 GPa	31500 ksi	
Charpy Impact	36.6 J	27.0 ft-lb	Charpy V-notch at RT

Thermal Properties	Metric	English	Comments
CTE, linear	16.8 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$ @Temperature 20.0 - 1000 $\text{Å}^\circ\text{C}$	9.33 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$ @Temperature 68.0 - 1830 $\text{Å}^\circ\text{F}$	
Thermal Conductivity	9.10 W/m-K	63.2 BTU-in/hr-ft $\text{Å}^2\cdot\text{Å}^\circ\text{F}$	
Melting Point	1380 - 1395 $\text{Å}^\circ\text{C}$	2520 - 2543 $\text{Å}^\circ\text{F}$	
Solidus	1380 $\text{Å}^\circ\text{C}$	2520 $\text{Å}^\circ\text{F}$	
Liquidus	1395 $\text{Å}^\circ\text{C}$	2543 $\text{Å}^\circ\text{F}$	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.10 %	0.10 %	
Chromium, Cr	28 %	28 %	
Cobalt, Co	49.9 %	49.9 %	As remainder
Iron, Fe	20.5 %	20.5 %	
Manganese, Mn	0.75 %	0.75 %	
Silicon, Si	0.75 %	0.75 %	

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