Kennametal Stellite Stellite® 6B solution heat-treated at 1232°C, air cooled, 11.1 mm thick plate, aged 3 hours at 816°C

Category : Metal , Nonferrous Metal , Cobalt Alloy , Superalloy

Material Notes:

Machined with tungsten-carbide tools. Inherent wear resistance, resistant to the wearing effects of hard, sharp particles such as in screw conveyors, rock crushing rollers, tile-making machines, and cement and steel-mill equipment. Resistant to the effects of seizing or galling, low coefficient of friction alloys sliding contact with other metals. Used in equipment where no lubricants are used. Outstanding resistance to cavitation-erosion. Combines wear and corrosion resistance with good impact strength and resistance to thermal shock. Retains high hardness, even at red heat. Electrical conductivity 1.90% compared to Copper. 2360 MPa average modulus of rupture of sheet at room temperature. 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-6B-solution-heat-treated-at-1232C-air-cooled-111-mm-thick-plate-aged-3-hours-at-816C.php

Physical Properties	Metric	English	Comments
Density	8.387 g/cc	0.3030 lb/in³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	102 @Temperature 871 °C	102 @Temperature 1600 °F	Mutual indentation method
	167 @Temperature 760 °C	167 @Temperature 1400 °F	Mutual indentation method
	203 @Temperature 649 °C	203 @Temperature 1200 °F	Mutual indentation method
	226 @Temperature 538 °C	226 @Temperature 1000 °F	Mutual indentation method
Hardness, Knoop	220	220	
Hardness, Rockwell A	55	55	Converted from Rockwell C hardness.
Hardness, Rockwell B	91	91	Converted from Rockwell C hardness.
Hardness, Rockwell C	10	10	Converted from Brinell hardness. Value below normal HRC range, for comparison purposes only.
Hardness, Vickers	208	208	
Tensile Strength, Ultimate	1012 MPa	146800 psi	
	664 MPa	96300 psi	

Mechanical Properties	Metric	English	Comments
Tensile Strength, Yield @Strain 0.200 %		@Strain 0.200 %	
Elongation at Break	5.0 %	5.0 %	in 50.8 mm
Modulus of Elasticity	214 GPa	31000 ksi	sheet at RT
	210 GPa @Diameter 15.9 mm, Temperature 23.0 °C	30500 ksi @Diameter 0.626 in, Temperature 73.4 °F	bar
Izod Impact Unnotched	84.0 J @Thickness 12.7 mm	62.0 ft-lb @Thickness 0.500 in	plate solution heat-treated at 1232°C (2250°F), air cooled, tested at RT.
Charpy Impact	8.00 J @Temperature 23.0 °C	5.90 ft-lb @Temperature 73.4 °F	Longitudinal
	20.0 J @Temperature 538 - 816 °C	14.8 ft-lb @Temperature 1000 - 1500 °F	Longitudinal
Charpy Impact, Unnotched	88.0 J	64.9 ft-lb	Transverse
	98.0 J @Temperature 22.2 °C	72.3 ft-lb @Temperature 72.0 °F	Longitudinal
	110 J @Temperature 538 °C	81.1 ft-lb @Temperature 1000 °F	Longitudinal
	157 J @Temperature 677 °C	116 ft-lb @Temperature 1250 °F	Longitudinal
	171 J @Temperature 816 °C	126 ft-lb @Temperature 1500 °F	Longitudinal

Thermal Properties	Metric	English	Comments
CTE, linear	13.9 µm/m-°C @Temperature 0.000 - 100 °C	7.72 µin/in-°F @Temperature 32.0 - 212 °F	
	14.1 µm/m-°C @Temperature 0.000 - 200 °C	7.83 µin/in-°F @Temperature 32.0 - 392 °F	
	14.5 µm/m-°C @Temperature 0.000 - 300 °C	8.06 µin/in-°F @Temperature 32.0 - 572 °F	

Thermal Properties	Metric	English	Comments
	14.7 µm/m-°C @Temperature 0.000 - 400 °C	8.17 µin/in-°F @Temperature 32.0 - 752 °F	
	15.0 µm/m-°C @Temperature 0.000 - 500 °C	8.33 µin/in-°F @Temperature 32.0 - 932 °F	
	15.3 µm/m-°C @Temperature 0.000 - 600 °C	8.50 µin/in-°F @Temperature 32.0 - 1110 °F	
	15.8 µm/m-°C @Temperature 0.000 - 700 °C	8.78 µin/in-°F @Temperature 32.0 - 1290 °F	
	16.3 µm/m-°C @Temperature 0.000 - 800 °C	9.06 µin/in-°F @Temperature 32.0 - 1470 °F	
	16.9 µm/m-°C @Temperature 0.000 - 900 °C	9.39 µin/in-°F @Temperature 32.0 - 1650 °F	
	17.4 µm/m-°C @Temperature 0.000 - 1000 °C	9.67 µin/in-°F @Temperature 32.0 - 1830 °F	
Specific Heat Capacity	0.423 J/g-°C	0.101 BTU/lb-°F	at RT (calculated)
Thermal Conductivity	14.85 W/m-K	103.1 BTU-in/hr-ft²-°F	
Melting Point	1265 - 1354 °C	2309 - 2469 °F	
Solidus	1265 °C	2309 °F	
Liquidus	1354 °C	2469 °F	

Optical Properties	Metric	English	Comments
Reflection Coefficient, Visible (0-1)	0.57 - 0.70	0.57 - 0.70	reflecting power

Component Elements Properties	Metric	English	Comments
Carbon, C	0.90 - 1.4 %	0.90 - 1.4 %	
Chromium, Cr	28 - 32 %	28 - 32 %	
Cobalt, Co	50 - 67 %	50 - 67 %	As remainder
Iron, Fe	<= 3.0 %	<= 3.0 %	

Component Elements Properties	Metric	English	Comments
Manganese, Mn	<= 0.5 %	<= 0.5 %	
Molybdenum, Mo	<= 1.5 %	<= 1.5 %	
Nickel, Ni	<= 3.0 %	<= 3.0 %	
Silicon, Si	<= 2.0 %	<= 2.0 %	
Tungsten, W	3.5 - 5.5 %	3.5 - 5.5 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000910 ohm-cm @Temperature 22.0 °C	0.0000910 ohm-cm @Temperature 71.6 °F	
Magnetic Permeability	<= 1.20 @Temperature 22.0 °C	<= 1.20 @Temperature 71.6 °F	200 Oersted (15.900 A/m)

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