

Kennametal Stellite Stellite® 6B solution heat-treated at 1232°C, air cooled, 3.2 mm thick sheet

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-32-mm-thick-sheet.php

Physical Properties	Metric	English	Comments
Density	8.387 g/cc	0.3030 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	102	102	Mutual indentation method
	@Temperature 871 °C	@Temperature 1600 °F	
	167	167	
	@Temperature 760 °C	@Temperature 1400 °F	
Hardness, Knoop	203	203	Mutual indentation method
	@Temperature 649 °C	@Temperature 1200 °F	
	226	226	
	@Temperature 538 °C	@Temperature 1000 °F	
Hardness, Rockwell A	69	69	Converted from Rockwell C hardness.
Hardness, Rockwell C	37	37	
Hardness, Vickers	358	358	
Tensile Strength, Ultimate	998 MPa	145000 psi	
Tensile Strength, Yield	619 MPa	89800 psi	

Mechanical Properties	@Strain 0.200 % Metric	@Strain 0.200 % English	Comments
Elongation at Break	11 %	11 %	in 50.8 mm
Modulus of Elasticity	214 GPa	31000 ksi	sheet at RT
	210 GPa	30500 ksi	bar
	@Diameter 15.9 mm, Temperature 23.0 Â°C	@Diameter 0.626 in, Temperature 73.4 Â°F	
Izod Impact Unnotched	84.0 J	62.0 ft-lb	plate, solution heat-treated at 1232Â°C (2250Â°F), air cooled, tested at RT.
	@Thickness 12.7 mm	@Thickness 0.500 in	
Charpy Impact	8.00 J	5.90 ft-lb	Longitudinal
	@Temperature 23.0 Â°C	@Temperature 73.4 Â°F	
	20.0 J	14.8 ft-lb	Longitudinal
	@Temperature 538 - 816 Â°C	@Temperature 1000 - 1500 Â°F	
Charpy Impact, Unnotched	88.0 J	64.9 ft-lb	Transverse
	98.0 J	72.3 ft-lb	Longitudinal
	@Temperature 22.2 Â°C	@Temperature 72.0 Â°F	
	110 J	81.1 ft-lb	Longitudinal
	@Temperature 538 Â°C	@Temperature 1000 Â°F	
	157 J	116 ft-lb	Longitudinal
	@Temperature 677 Â°C	@Temperature 1250 Â°F	
	171 J	126 ft-lb	Longitudinal
	@Temperature 816 Â°C	@Temperature 1500 Â°F	

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

Thermal Properties	Metric @Temperature 0.000 - 300 Â°C	English @Temperature 32.0 - 572 Â°F	Comments
	14.7 Âµm/m-Â°C @Temperature 0.000 - 400 Â°C	8.17 Âµin/in-Â°F @Temperature 32.0 - 752 Â°F	
	15.0 Âµm/m-Â°C @Temperature 0.000 - 500 Â°C	8.33 Âµin/in-Â°F @Temperature 32.0 - 932 Â°F	
	15.3 Âµm/m-Â°C @Temperature 0.000 - 600 Â°C	8.50 Âµin/in-Â°F @Temperature 32.0 - 1110 Â°F	
	15.8 Âµm/m-Â°C @Temperature 0.000 - 700 Â°C	8.78 Âµin/in-Â°F @Temperature 32.0 - 1290 Â°F	
	16.3 Âµm/m-Â°C @Temperature 0.000 - 800 Â°C	9.06 Âµin/in-Â°F @Temperature 32.0 - 1470 Â°F	
	16.9 Âµm/m-Â°C @Temperature 0.000 - 900 Â°C	9.39 Âµin/in-Â°F @Temperature 32.0 - 1650 Â°F	
	17.4 Âµm/m-Â°C @Temperature 0.000 - 1000 Â°C	9.67 Âµin/in-Â°F @Temperature 32.0 - 1830 Â°F	
Specific Heat Capacity	0.423 J/g-Â°C	0.101 BTU/lb-Â°F	at RT (calculated)
Thermal Conductivity	14.85 W/m-K	103.1 BTU-in/hr-ftÂ²-Â°F	
Melting Point	1265 - 1354 Â°C	2309 - 2469 Â°F	
Solidus	1265 Â°C	2309 Â°F	
Liquidus	1354 Â°C	2469 Â°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 %	

Component Elements Properties	Metric	English	Comments
Iron, Fe	<= 3.0 %	<= 3.0 %	
Manganese, Mn	<= 2.0 %	<= 2.0 %	
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 Â°C	0.0000910 ohm-cm @Temperature 71.6 Â°F	
Magnetic Permeability	<= 1.20 @Temperature 22.0 Â°C	<= 1.20 @Temperature 71.6 Â°F	200 Oersted (15.900 A/m)

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