

Kennametal Stellite Stellite® 25 Cobalt Chromium Cast Alloy

Category : Metal , Nonferrous Metal , Cobalt Alloy , Superalloy

Material Notes:

Stellite alloy 25 forms a protective oxide film during hot metal-on metal wear which prevents metal transfer and damage due to adhesion. The alloy is resistant to thermal cracking and surface fatigue. Since the micro-structure is relatively free of carbide reinforcement, it is not recommended for low stress or low angle particle erosion service. Stellite alloy 25 is resistant to oxidation and carburization up to 1900°F. The alloy resists wet chlorine at ambient temperatures and is resistant to nitric and hydrochloric acids under certain conditions. Exposure testing is recommended to verify performance. Applications include metal working tools where a combination of metal-on-metal wear, thermal fatigue and hot corrosion resistance are required, such as piercing points, forming tools, and extrusion dies. Also used for furnace hardware. The alloy is normally used in the as-cast condition, but can be age hardened in the 1300° to 1500°F range for 4 to 50 hours. Solution annealing involves quenching or forced air cooling from 2175° to 2225°F. Information provided by Deloro Stellite Inc. Product of former Deloro Stellite Inc.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Kennametal-Stellite-Stellite-25-Cobalt-Chromium-Cast-Alloy.php

Physical Properties	Metric	English	Comments
Density	8.31 g/cc	0.300 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	350	350	
	130	130	
	@Temperature 900 °C	@Temperature 1650 °F	
	280	280	
	@Temperature 500 °C	@Temperature 932 °F	
Hardness, Rockwell C	10 - 35	10 - 35	
Tensile Strength, Ultimate	925 MPa	134000 psi	
Tensile Strength, Yield	895 MPa	130000 psi	
Elongation at Break	5.0 %	5.0 %	
Reduction of Area	7.0 %	7.0 %	
Modulus of Elasticity	207 GPa	30000 ksi	
Charpy Impact	8.70 J	6.42 ft-lb	V Notch

Thermal Properties	Metric	English	Comments
	12.9 µm/m-°C	7.17 µin/in-°F	

CTE linear Thermal Properties	Metric @ Temperature 20.0 - 205 °C	English @ Temperature 68.0 - 401 °F	Comments
	14.4 µm/m-°C	8.00 µin/in-°F	
	@Temperature 20.0 - 538 °C	@Temperature 68.0 - 1000 °F	
	14.8 µm/m-°C	8.22 µin/in-°F	
	@Temperature 20.0 - 650 °C	@Temperature 68.0 - 1200 °F	
	16.2 µm/m-°C	9.00 µin/in-°F	
	@Temperature 20.0 - 877 °C	@Temperature 68.0 - 1610 °F	
	16.9 µm/m-°C	9.39 µin/in-°F	
	@Temperature 20.0 - 982 °C	@Temperature 68.0 - 1800 °F	
Thermal Conductivity	9.40 W/m-K	65.2 BTU-in/hr-ft²-°F	
Melting Point	1329 - 1410 °C	2424 - 2570 °F	
Solidus	1329 °C	2424 °F	
Liquidus	1410 °C	2570 °F	
Maximum Service Temperature, Air	1038 °C	1900 °F	Oxidation resistant

Component Elements Properties	Metric	English	Comments
Boron, B	0.00 %	0.00 %	
Carbon, C	<= 0.45 %	<= 0.45 %	
Chromium, Cr	20 %	20 %	
Cobalt, Co	51 %	51 %	As remainder
Iron, Fe	2.0 %	2.0 %	
Manganese, Mn	1.5 %	1.5 %	
Nickel, Ni	10 %	10 %	
Silicon, Si	0.70 %	0.70 %	
Tungsten, W	15 %	15 %	

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