

Kennametal Stellite Nucalloy® 488V High-Silicon Nickel-Base Hardfacing Alloy

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

Material Notes:

Applications include diesel engine valves, and injection mold screws. Nucalloy® alloys are unique, patented, high-silicon, nickel-base hardfacing alloys that are designed to have optimum combinations of hardness and toughness, similar to the cobalt base alloys. Because of the unique microstructure features, they are less crack sensitive than the conventional nickel-base hardfacing alloys, such as, NiCr-A and NiCr-B, during welding. The Nucalloy alloys have a matrix consisting of, essentially, nickel solid solution, a binary eutectic and ternary eutectic. The binary eutectic is composed of nickel solid solution and nickel silicide (Ni₃Si); whereas the ternary eutectic consists of nickel solid solution, nickel boride (Ni₃B) and nickel silicide (Ni₃Si). There are also carbide and boride particles dispersed in the matrix. The microstructures of these alloys differ from those of the conventional self-fluxing nickel alloys in that the brittle binary eutectic of nickel solid solution and nickel boride does not form because of the intentionally controlled high silicon to boron ratios. The high silicon and low boron in these alloys results in high fractions of nickel silicide, which is resistant to certain corrosive media due to the tendency to form a high-silicon film on the surface. 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-Nucalloy-488V-High-Silicon-Nickel-Base-Hardfacing-Alloy.php

Physical Properties	Metric	English	Comments
Density	8.10 g/cc	0.293 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell C	45	45	
Hardness, Vickers	484	484	
	362	362	
	@Temperature 700 Â°C	@Temperature 1290 Â°F	
	406	406	
	@Temperature 600 Â°C	@Temperature 1110 Â°F	
	421	421	
	@Temperature 500 Â°C	@Temperature 932 Â°F	
	430	430	
	@Temperature 400 Â°C	@Temperature 752 Â°F	
Tensile Strength, Ultimate	945 MPa	137000 psi	
	834 MPa	121000 psi	

Mechanical Properties	Metric	English	Comments
	931 MPa	135000 psi	
	@Temperature 400 Â°C	@Temperature 752 Â°F	
Charpy Impact Unnotched	6.50 J/cmÂ²	30.9 ft-lb/inÂ²	
	@Temperature 20.0 Â°C	@Temperature 68.0 Â°F	
	7.50 J/cmÂ²	35.7 ft-lb/inÂ²	
	@Temperature 400 Â°C	@Temperature 752 Â°F	
	8.00 J/cmÂ²	38.1 ft-lb/inÂ²	
	@Temperature 600 Â°C	@Temperature 1110 Â°F	

Thermal Properties	Metric	English	Comments
CTE, linear	11.0 Âµm/m-Â°C	6.11 Âµin/in-Â°F	
	@Temperature 20.0 - 100 Â°C	@Temperature 68.0 - 212 Â°F	
	11.6 Âµm/m-Â°C	6.44 Âµin/in-Â°F	
	@Temperature 20.0 - 200 Â°C	@Temperature 68.0 - 392 Â°F	
	12.0 Âµm/m-Â°C	6.67 Âµin/in-Â°F	
	@Temperature 20.0 - 300 Â°C	@Temperature 68.0 - 572 Â°F	
	12.3 Âµm/m-Â°C	6.83 Âµin/in-Â°F	
	@Temperature 20.0 - 400 Â°C	@Temperature 68.0 - 752 Â°F	
	12.5 Âµm/m-Â°C	6.94 Âµin/in-Â°F	
	@Temperature 20.0 - 500 Â°C	@Temperature 68.0 - 932 Â°F	
	12.7 Âµm/m-Â°C	7.06 Âµin/in-Â°F	
	@Temperature 20.0 - 600 Â°C	@Temperature 68.0 - 1110 Â°F	
Melting Point	1075 - 1220 Â°C	1967 - 2230 Â°F	
Solidus	1075 Â°C	1967 Â°F	
Liquidus	1220 Â°C	2230 Â°F	

Component Elements Properties	Metric	English	Comments
Boron, B	1.0 %	1.0 %	
Carbon, C	0.30 %	0.30 %	
Chromium, Cr	20.5 %	20.5 %	
Iron, Fe	7.5 %	7.5 %	
Nickel, Ni	63 %	63 %	As Remainder
Silicon, Si	6.0 %	6.0 %	
Tungsten, W	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