

Kennametal Stellite Nucalloy® 466 High-Silicon Nickel-Base Hardfacing Alloy

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

Material Notes:

Applications include components of chemical processing. 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.

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http://www.lookpolymers.com/polymer_Kennametal-Stellite-Nucalloy-466-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	43	43	

Component Elements Properties	Metric	English	Comments
Boron, B	0.50 %	0.50 %	
Carbon, C	0.85 %	0.85 %	
Chromium, Cr	25 %	25 %	
Iron, Fe	7.0 %	7.0 %	
Nickel, Ni	58 %	58 %	As Remainder
Silicon, Si	7.0 %	7.0 %	
Tungsten, W	2.0 %	2.0 %	

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