

HP Alloys HPA COBALT Alloy 6B, Wear Resistant, (Co-Cr-W) (UNS R30016)

Category : Metal , Nonferrous Metal , Cobalt Alloy , Superalloy

Material Notes:

Cobalt 6B is a cobalt based chromium, tungsten alloy for wear environments where seizing, galling and abrasion are present. 6B is resistant to seizing and galling and with its low coefficient of friction, allows sliding contact with other metals without damage by metal pick up in many cases. Seizing and galling can be minimized in applications without lubrication or where lubrication is impractical. Metal seizing is similar to one metal piece building heat against another and they become "welded" together. Galling is when these "weld" areas break off and form an abrasive debris which creates additional abrasion problems. Alloy 6B has outstanding resistance to most types of wear. Its wear resistance is inherent and not the result of cold working, heat treating or any other method. This inherent property reduces the amount of heat treating and post machining. 6B has outstanding resistance to cavitation erosion. Steam turbine erosion shields from 6B have protected the blades of turbines for years of continuous service. 6B has good impact and thermal shock resistance resists heat and oxidation, retains high hardness even at red heat (then cooled, recovers full original hardness) and has resistance to a variety of corrosive media. 6B is useful where both wear and corrosion resistance are needed. Applications: Steam turbine erosion shields, Chain saw guide bars, High temperature bearings, Furnace fan blades, Valve stems, Food processing equipment, Needle valves, Centrifuge liners, Hot extrusion dies, Forming dies, Nozzles, Extruder screws, & many other Misc. wear surfaces. End uses for alloy 6B include half sleeves and half bushings in screw conveyors, tile making machines, rock crushing rollers and cement and steel mill equipment. Alloy 6B is well suited for valve parts, pump plungers. Data provided by High Performance Alloys, Inc.

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http://www.lookpolymers.com/polymer_HP-Alloys-HPA-COBALT-Alloy-6B-Wear-Resistant-Co-Cr-W-UNS-R30016.php

Physical Properties	Metric	English	Comments
Density	8.39 g/cc	0.303 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	346	346	Estimated from Rockwell C
Hardness, Knoop	413	413	Estimated from Rockwell C
Hardness, Rockwell A	69.5	69.5	Estimated from Rockwell C
Hardness, Rockwell C	36 - 40	36 - 40	
Hardness, Vickers	362	362	Estimated from Rockwell C
Tensile Strength, Ultimate	1000 MPa	145000 psi	
Tensile Strength, Yield	621 MPa	90100 psi	
Elongation at Break	12 %	12 %	

Thermal Properties	Metric	English	Comments
Specific Heat Capacity	0.420 J/g-°C	0.100 BTU/lb-°F	

Thermal Properties	Metric W/m-K	English BTU-in/hr-ft ² -°F	Comments
Thermal Conductivity	@Temperature 0.000 - 100 °C	@Temperature 32.0 - 212 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.90 - 1.4 %	0.90 - 1.4 %	
Chromium, Cr	28 - 32 %	28 - 32 %	
Cobalt, Co	65 %	65 %	As remainder
Iron, Fe	<= 3.0 %	<= 3.0 %	
Manganese, Mn	<= 2.0 %	<= 2.0 %	
Molybdenum, Mo	<= 1.5 %	<= 1.5 %	
Nickel, Ni	<= 3.0 %	<= 3.0 %	
Tungsten, W	3.5 - 5.5 %	3.5 - 5.5 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000120 ohm-cm	0.000120 ohm-cm	

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