DAIKOWT 1006

GTAW

COBALT ALLOYS
Gr. 6

DESCRIPTION

Cobalt-based rod

This solid rod provides resistance to many forms of chemical and mechanical degradation over a wide range of temperatures. It bonds well to weldable steels of all grades, including stainless steel. Suitable for wear-resistant coatings as well as corrosion and oxidation up to 900°C. Used for overlaying valves and valve seats, hot cutting blades, hot and cold forming rolls, hot steel handling equipment, and applications in a wide range of industries, including petrochemical, steel, cement, marine environments, and power generation.

SPECIFICATIONS

AWS A5.21	ERCoCr-A	**Shielding**	I1
Positions	PA, PB, PC, PD, PE, PF	**Current**	DC-
Packaging Type	5kg carton tube		

ASME QUALIFICATIONS

F-No (QW432)	71
A-No (QW442)	-

HARDNESS

39HRC - 41HRC

CHEM. COMP. %

	DEFAULT
C	1.1
Mn	0.35
Ni	2.2
Cr	30
Si	1.3
Fe	2
W	8.6

WELDING PARAMETERS

	2.4 mm	5.0 mm
Ampere	60A - 90A	150A - 200A
Voltage	-	-
Packaging	Ø 2,4÷5,0 mm	Ø 2,4÷5,0 mm
Packaging Type	5kg carton tube	5kg carton tube

ANTI-WEAR CHARACTERISTICS

Adhesive wear	▲▲△△△
Abrasive wear	▲▲△△△
Impact	▲△△△△
Corrosion	▲▲▲▲△
Heat	▲▲▲▲▲

DAIKO

Gr. 6

DESCRIPTION

APPLICATION

Grade 6 is the most common type of cobalt-based alloy, appreciated for its exceptional balance of resistance to abrasion, corrosion, erosion, and thermal shock. This alloy offers excellent resistance to adhesive wear, galling, and compression, maintaining its properties at all operating temperatures. Its structure is hypereutectic, characterized by a network of about 13% eutectic chromium carbide, finely distributed within a solid solution matrix of cobalt-chrome-tungsten. Gr. 6 is widely used for coating valve faces and seats, hot-cutting blades, punches, and dies. It is ideal for ingot tong ends and hot steel-handling equipment. In the **petrochemical** industry, it is applied on gate valves for catalytic crackers. It is also used in many other sectors, including steelworks, cement plants, maritime industry, and power generation. Preheating in the range of 100-300 °C may be required, followed by slow cooling to minimize the risk of cracking, especially with multilayer deposits or under high mechanical restraint conditions. The deposits created are machinable with carbide tools and can be finely finished by grinding. These alloys do not undergo allotropic transformations, preserving their properties even after possible heat treatments on the base metal.

ALLOY TYPE

Cobalt based alloy composed of 27%-32% Chrome, 4%-6% Tungsten, 1%-2% Carbon, 3%-4% Nickel, 1%-2% Silicon and 3%-4% Iron.

MICROSTRUCTURE

In the as-welded condition the microstructure consists of a cobalt based austenite with a number of carbides and other complex phases.

MATERIALS

Used for surfacing mild, low alloy and stainless steels, and also for nickel base alloys. Can also be used for the repair of UNS R30006, Stellite 6 (Deloro Stellite).