



G-TECH 1006

SMAW

COBALT ALLOYS
Gr. 6

DESCRIPTION

Hardfacing electrode with rutile-basic coating

Electrode with rutile-basic coating, good weldability and easy to remove slag. It is used for surfacings subjected to medium abrasion, medium to strong mechanical impacts, shocks medium thermal, severe erosion and corrosion, cavitation, high temperature up to 650°C, friction metal to metal and compression. It is widely used for reloading hot shear blades, foundry tools, valve seats, pumps, extrusion screw etc. For large thicknesses to be surfaced it's necessary to provide a preheating of approx. 300 °C and a slow cooling.

SPECIFICATIONS

| | | | |
|-----------|---------|----------------|--------------------|
| AWS A5.13 | ECoCr-A | DIN 8555 | E 20-UM-55-CTZ |
| Shielding | - | Positions | PA, PB, PC, PD, PF |
| Current | DC+ | Packaging Type | Carton box |

ASME QUALIFICATIONS

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

HARDNESS

42HRC

CHEM. COMP. %

DEFAULT

| | |
|----|-----|
| C | 0.9 |
| Mn | 0.8 |
| Ni | 2.5 |
| Cr | 29 |
| Si | 1 |
| Fe | 3 |
| W | 4.7 |

WELDING PARAMETERS

| | 2.5 mm | 3.2 mm | 4.0 mm |
|----------------|------------|-------------|-------------|
| Ampere | 80A - 120A | 100A - 140A | 150A - 200A |
| Voltage | - | - | - |
| Packaging | pcs/kg | pcs/kg | pcs/kg |
| Packaging Type | Carton box | Carton box | Carton box |

ANTI-WEAR CHARACTERISTICS

| | |
|---------------|-----------|
| Adhesive wear | ▲ ▲ ▲ ▲ ▲ |
| Abrasive wear | ▲ ▲ ▲ ▲ ▲ |
| Impact | ▲ ▲ ▲ ▲ ▲ |
| Corrosion | ▲ ▲ ▲ ▲ ▲ |
| Heat | ▲ ▲ ▲ ▲ ▲ |

NOTES

Pcs/kg is indicative, actual number may vary ± 5%.



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DESCRIPTION

COBALT ALLOYS

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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).

