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 tyo provide a preheating of approx. 300 °C and a slow cooling.

SPECIFICATIONS

ISO	-	AWS A5.13	ECoCr-A
DIN 8555	E 20-UM-55-CTZ	Werkstoff Number	-
Certifications	-	Shielding	-
Positions	PA, PB, PC, PD, PF	Current	DC+

ASME QUALIFICATIONS

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

FERRITE

-

PREN

-

HARDNESS

42HRC

CHEM. COMP. %

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

MECHANICAL PROPERTIES

	MIN	VARIANT
Tensile strength R_m MPa	-	-
Yield strength $R_{p0.2}$ MPa	0	-
Elongation A (L_0=5d_0) %	0	-
Impact Charpy ISO-V	-	-
Impact Charpy ISO-V	-	-

WELDING PARAMETERS

	2.5 mm	3.2 mm	4 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	▲▲▲▲▲

Gr. 6

DESCRIPTION

APPLICATION

This cobalt-based alloy is widely recognized as the most extensively used type, offering abrasion resistance, along with robust defenses against corrosion, erosion, and thermal shock. It excels in resisting galling, sliding friction, and compression across various temperatures. The alloy's distinctive features include a hypereutectic structure comprising roughly 13% eutectic chromium carbides distributed within a solid solution matrix of cobalt, chromium, and tungsten. It is extensively employed for surfacing valves, valve seats, hot shear blades, punches and dies, ingot tong ends, and equipment utilized in handling hot steel. Noteworthy applications include its use for cat cracker slide valves in the petrochemical industry, as well as across a broad spectrum of sectors such as steel, cement, marine, and power generation. Preheating within the range of 100-300°C, or even higher, along with slow cooling, may be necessary to mitigate the risk of cracking in multi-run deposits and/or highly restrained conditions. The deposits are machinable using carbide tools and can be refined through grinding as needed. Importantly, these alloys remain impervious to allotropic transformation, ensuring that their properties endure even after subsequent heat treatment of 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).

V 01/2024

DAIKO