G-TECH 1010

SMAW

COBALT ALLOYS
Gr. 1

DESCRIPTION

Hardfacing electrode with rutile-basic coating

Rutile-basic coated electrode with good weldability and easy to remove slag. It is used for recharging parts of rolling mill guides, pump shafts, extrusion dies, etc. subjected to severe metal abrasion and very strong erosion, corrosion and cavitation. The deposit has a certain tendency to crack so preheating temperature of 300-450 °C is necessary and possibly a first pass with Gr.6 or Gr.12. It deposits Co-Cr-W alloy high in carbon for hardfacing resistant to wear and corrosion up to 900 ° C. It retains its hardness, 43-58 HRC, at temperatures up to 760°C. Only machinable by grinding.

SPECIFICATIONS

AWS A5.13	ECoCr-C	**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

52HRC - 54HRC

CHEM. COMP. %	DEFAULT
C	2
Mn	0.5
Ni	1.8
Cr	32
Si	0.7
Fe	2.5
W	12.5

MECHANICAL PROPERTIES	MIN. PER STANDARD	PRODUCT
Tensile strength R_m MPa	-	240
Yield strength $R_{p0.2}$ MPa	0	170
Elongation A (L_0=5d_0) %	0	24
Impact Charpy ISO-V	-	-
Impact Charpy ISO-V	-	-

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	▲ ▲ ▲ △ △
Corrosion	▲ ▲ ▲ ▲ △
Heat	▲ ▲ ▲ ▲ ▲

NOTES

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

DAIKO

Gr. 1

DESCRIPTION

APPLICATION

The alloy, characterized by a high percentage of carbides, offers exceptional wear resistance, although this results in reduced impact and corrosion resistance. Due to the increased hardness, there is a tendency to crack during cooling, which can be minimized by carefully controlling preheating, interpass temperature, and post-heating techniques. Even though cobalt-chromium deposits soften slightly at high temperatures, they are generally considered immune to tempering. The welding metal deposited by the ERCoCr-C electrodes and rods is ideal for components like mixers and rotors, where extreme abrasion and limited impacts occur. Additionally, it is also suitable for pump sleeves, rotary seal rings, wear pads, extrusion screws, and bearing sleeves. The inclusion of tungsten improves high-temperature hardness and matrix toughness, ensuring excellent resistance to solid particle and adhesive erosion wear. It maintains a hardness of 43-58 HRC at temperatures up to 760 °C. Preheating to 300 °C and beyond is generally recommended.

ALLOY TYPE

Cobalt alloy for hardfacing with excellent corrosion and abrasion resistance with low impact.

MICROSTRUCTURE

Primary hypereutectic carbides (approximately 19%) are found in in an austenitic type matrix.

MATERIALS

It bonds well with all steels including stainless.

WELDING & PWHT

Prior to welding, it is essential to meticulously clean the joint surface and adjacent area, removing grease, oil, markings, sulfur compounds, and other impurities. It is advisable to avoid contact with copper or copper-based materials in the joint area. While not mandatory, the alloy yields better results when welded in the solution annealed state. As a rule, preheating is not necessary, provided the base metal is above 0 °C. Interpass temperatures should be kept low. It is effective to delay post-welding to 600 °C and slow down cooling to prevent cracking.