DAIKOWM 1025

GMAW

COBALT ALLOYS
Gr. 25

DESCRIPTION

Solid cobalt based wire rod

This wire rod is a cobalt-based alloy, with the addition of chromium, tungsten and nickel to achieve excellent resistance to high temperatures and oxidation as well as sulphiting. It can be used in high temperature oxidizing environments, with operating temperatures up to 1093°C. The material also has good wear and abrasion resistance. This combination of characteristics makes this wire the ideal material for applications in the aeronautical and aerospace sectors, but also for land-based gas turbines.

SPECIFICATIONS

ISO 14700	T Z Co (L 605)	AWS	-
DIN	-	Werkstoff Number	-
Certifications	-	Shielding	I1, M13
Positions	PA, PB, PC, PD, PE, PF, PG	Current	DC+

ASME QUALIFICATIONS

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

FERRITE

-

PREN

-

HARDNESS

38HRC - 40HRC

CHEM. COMP. %

	DEFAULT
C	0.2
Mn	0.8
Ni	11
Cr	21
Fe	2.3
W	15.5

MECHANICAL PROPERTIES

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

WELDING PARAMETERS

	1.2 mm	1.6 mm
Ampere	100A - 250A	140A - 350A
Voltage	16V - 29V	26V - 30V
Packaging	Ø 0,8÷1,6mm	Ø 0,8÷1,6mm
Packaging Type	Drums, B300, D200 and D100 spools.	Drums, B300, D200 and D100 spools.

ANTI-WEAR CHARACTERISTICS

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

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APPLICATION

This filler, derived from the L605 rolled alloy, excels in resisting thermal fatigue. It is used to rebuild tools for hot steel operations like scissors and punches in the steel industry. The non-magnetic weld metal showcases robust mechanical strength and effective oxidation resistance up to 980°C. It resists sulphuration and wear in metal-to-metal bonds, providing reliable "metal-to-metal" resilience against corrosion, abrasion, cavitation, and high impacts, especially at elevated temperatures. It endures in oxidizing and reducing atmospheres, up to 1150°C. Widely applied in molding and die applications for hot forming, it finds versatile use in the petrochemical industry, high-pressure steam control valves, various valves, shear blades, turbine blade recharging, extrusion dies, forging dies and tools, furnace components, and tools designed for working hot steel.

ALLOY TYPE

Cobalt-based alloy with additions of chromium, tungsten and nickel for excellent high temperature strength and oxidation resistance

MICROSTRUCTURE

Chromium and tungsten carbides in an austenitic type matrix.

MATERIALS

It is used for rebuilding and/or hardfacing of tools that work hot steel, such as scissors, punches, etc. for the steel industry.

WELDING & PWHT

Prior to welding, ensure a thorough cleaning of the joint surface and surrounding area to remove contaminants like grease, oil, crayon marks, sulfur compounds, and foreign matter. Avoid any contact between the joint area and copper or copper-bearing materials. While it's preferable for the alloy to be in a solution-annealed condition during welding, preheating is generally unnecessary as long as the base metal temperature stays above 0°C. Maintain low interpass temperatures during welding. For multiple weld passes, use auxiliary cooling methods if needed, ensuring they don't introduce contaminants. Post-weld heat treatment is usually unnecessary under normal conditions.

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