DAIKOWT 1008

GTAW

COBALT ALLOYS
Gr. 12

DESCRIPTION

Cobalt-based rod

The full grade 12 rod develops high hardness, abrasion resistance, and good corrosion resistance. These properties make this rod the ideal choice for saw blades for wood and bars, as well as for industrial cutting applications for carpets, plastics, paper, and the chemical industry. Non-forgeable and can be worked with difficulty using carbide tools. It bonds well with weldable steels of all grades, including stainless steel.

SPECIFICATIONS

AWS A5.21	ERCoCr-B	**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

46HRC - 50HRC

CHEM. COMP. %	DEFAULT
C	1.1
Ni	2.2
Cr	30
B	0.2
Si	1.3
Fe	2
W	8.6

MECHANICAL PROPERTIES	MIN. PER STANDARD	PRODUCT
Tensile strength R_m MPa	-	490
Yield strength $R_{p0.2}$ MPa	0	350
Elongation A (L_0=5d_0) %	0	25
Impact Charpy ISO-V	-	-
Impact Charpy ISO-V	-	-

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. 12

DESCRIPTION

APPLICATION

Gr. 12 consumables combine exceptional metal-to-metal wear resistance with remarkable corrosion, erosion, and thermal shock resistance. Ideal for service temperatures up to 800 °C, they consist of chromium, nickel, and molybdenum alloys. These confer excellent mechanical properties, enhancing corrosion and wear resistance, and produce a weld deposit characterized by good creep resistance, suitable for high-temperature environments. The ferrite content in the joint makes these consumables particularly suitable for applications such as heavy structural constructions, oil platforms, boilers, pressure vessels, and cryogenic storage tanks. They also offer superior impact values at low temperatures compared to similar consumables. They are used for rebuilding valves and valve seats in the oil and gas industry, conveyors and augers for rubber and plastic, saw teeth for the wood industry, cams, shafts, tappets, and push rods for engines, etc.

ALLOY TYPE

Similar in composition to deposits made using ERCoCr-A electrodes and rods except for a slightly higher percentage of carbides.

MICROSTRUCTURE

Chromium and tungsten carbides (approximately 16%) in an austenitic type matrix.

MATERIALS

It is used to surface valves and valve seats for oil& gas industries, screw conveyors and augers for rubber and plastic, saw teeth for wood industries, cams, shafts, tappets and push rods for engines, etc.

WELDING & PWHT

It is essential to thoroughly clean the joint surface and adjacent area before welding, ensuring the removal of all grease, oil, marker marks, sulfur compounds, and other contaminants. Avoid contact with copper or copper-containing materials in the joint area. It is preferable, but not essential, for the alloy to be in the solution annealed condition during welding. Normally, preheating is not necessary, provided the base metal to be welded is at a temperature above 0 °C. Generally, it is advisable to keep interpass temperatures low.