DAIKOWM 1008

GMAW

COBALT ALLOYS
Gr. 12

DESCRIPTION

Solid cobalt based wire rod

Grade 12 wire rod develops high hardness, abrasion resistance and good corrosion resistance. These properties make this consumable the choice for cutting wood saws and bars and for industrial cutting applications for carpet, plastics, paper and chemical industries. It is non-forgeable and can be machined with difficulty using carbide tools. It bonds well to all weldable grade steels, including stainless.

SPECIFICATIONS

AWS A5.21	ERCoCr-B	**Shielding**	I1, M13
Positions	PA, PB, PC, PD, PE, PF, PG	**Current**	DC+
Packaging Type	Drums, B300, D200 and D100 spools.		

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	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	▲▲▲▲▲

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.