



DAIKOWT 1010

GTAW

COBALT ALLOYS

Gr. 1

DESCRIPTION

Solid cobalt based wire rod

Grade 1 wire rod has the highest hardness of the cobalt alloys and is used to elevate temperature wear applications. Machine with carbide tools or grinding. It bonds well with stainless and other weldable grades of steel.

SPECIFICATIONS

ISO	-	AWS A5.21	ERCoCr-C
DIN	-	Werkstoff Number	-
Certifications	-	Shielding	I1
Positions	PA, PB, PC, PD, PE, PF	Current	DC-

ASME QUALIFICATIONS

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

FERRITE

-

PREN

-

HARDNESS

52HRC - 54HRC

CHEM. COMP. %

DEFAULT

C	2.2
Mn	0.3
Ni	2.2
Cr	29
Si	0.8
Fe	2.2
W	12

MECHANICAL PROPERTIES

MIN

VARIANT

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

2.4 mm

5 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	▲ ▲ ▲ ▲ ▲
Corrosion	▲ ▲ ▲ ▲ ▲
Heat	▲ ▲ ▲ ▲ ▲

V 01/2024



The information in this datasheet is the result of detailed research and is considered accurate as of the publication date. However, we cannot guarantee its complete accuracy, and it is subject to change without notice. Actual results may vary due to many factors like welding procedures, material composition, temperature conditions, bevel configuration, and specific manufacturing techniques. We accept no liability for any errors or omissions in this datasheet. For the most current information, please visit www.daikowelding.com.





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APPLICATION

The high percentage of carbides gives the alloy higher wear resistance accompanied by reductions in the impact and corrosion resistance. The higher hardness also means a greater tendency to check during cooling. The checking tendency may be minimized by closely monitoring preheating, interpass temperature, and postheating techniques. While the cobalt-chromium deposits soften somewhat at elevated temperatures, they normally are considered immune to tempering. Weld metal deposited by ERCoCr-C electrodes and rods is used to build-up items such as mixers, rotors, or wherever harsh abrasion and low impact are encountered. Suitable also for applications such as pump sleeves, rotary seal rings, wear pads, expeller screws and bearing sleeves. The addition of tungsten enhances high temperature hardness and matrix toughness for excellent adhesive and solid particle erosion wear resistance. It retains its hardness, 43-58 HRC, at temperatures up to 760°C. Preheat at 300°C and over in general.

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

Ensure thorough cleaning of both the joint surface and its adjacent area prior to welding, diligently removing any contaminants such as grease, oil, crayon marks, sulfur compounds, and other foreign matter. Exercise caution to avoid any contact between the joint area and copper or copper-bearing materials. While it is preferable, albeit not mandatory, for the alloy to be in a solution-annealed condition during welding, preheating is typically deemed unnecessary as long as the base metal temperature remains above 0°C. Throughout the welding process, maintain consistently low interpass temperatures for optimal results. For further enhancement, it is advisable to implement postheating at 600°C and facilitate a slow cooling process after welding to effectively prevent the occurrence of cracking.

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