



DAIKOWT CuAl9Fe



COPPER ALLOYS
CuAl

DESCRIPTION

Aluminum Copper Rod

Solid rod developed for welding copper to aluminum, copper to silicon, copper to manganese, some copper-nickel alloys, cast iron, tool steels, and galvanized sheets. Also used for welding high-strength brass to achieve a material deposit with properties similar to the base material. Preheating is recommended when working with large pieces. Used in the maritime industry for pumps, propellers, and valves where high corrosion resistance in seawater is required, as well as in the automotive industry for welding galvanized sheets and in construction where high mechanical properties are required.

SPECIFICATIONS

EN ISO 24373	S Cu 6180	AWS A5.7	ERCuAl-A2
DIN 1733	SG-CuAl10Fe	Shielding	11
Positions	PA, PB, PC, PD, PE, PF	Current	DC-
Packaging Type	5kg carton tube		

ASME QUALIFICATIONS

F-No (QW432)	36
A-No (QW442)	-

HARDNESS

140HB

CHEM. COMP. %	DEFAULT	MECHANICAL PROPERTIES	MIN. PER STANDARD	PRODUCT
Mn	0.003	Tensile strength R _m MPa	415	500
Ni	0.002	Yield strength R _{p0.2} MPa	-	200
Cr	0.004	Elongation A (L ₀ =5d ₀) %	0	32
Nb	0.005	Impact Charpy ISO-V	-	-
Al	9.1	Impact Charpy ISO-V	-	-
V	0.002			
P	0.002			
Si	0.003			
Fe	0.9			
		WELDING PARAMETERS	1.6 mm	2.4 mm
		Ampere	110A - 150A	175A - 250A
		Voltage	-	-
		Packaging	Ø 1,6÷4,0 mm	Ø 1,6÷4,0 mm
		Packaging Type	5kg carton tube	5kg carton tube





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APPLICATION

Designed for welding aluminum bronzes with an aluminum content between 5% and 11%, as well as other copper alloys. When used on brass, the weld joint color is similar, and the aluminum in the consumable helps minimize zinc volatilization during welding. It can also be used for overlaying on C-Mn steels and cast iron, providing surfaces that resist wear and corrosion or for connecting these materials to most copper-based alloys. Typical applications include ****corrosion-resistant and non-sparking pumps, ship propellers, machinery components, and heat exchangers used in offshore, marine, and mining environments****.

ALLOY TYPE

9% Al bronze for welding similar 5-11% Al alloys.

MICROSTRUCTURE

In the as-welded condition consists of a duplex $\alpha + \beta$ microstructure.

MATERIALS

Aluminum bronze. Beryllium copper: Cu+ 0.5-2%Be. Brass: Cu-Zn. Aluminum brass: e.g. Yorkalbro Cu-22%Zn-2%Al. Manganese bronze: Cu + 20-45%Zn + 1-3%Mn. Silicon bronze: Cu + 1-3.5%Si.

EN W.Nr.: 2.0916 (CuAl5), 2.0920 (CuAl8), 2.0928 (G-CuAl9), 2.0932 (CuAl8Fe3), 2.0936 (CuAl10Fe3Mn2), 2.0940 (CuAl10Fe2-C), 2.0960 (CuAl9Mn2), 2.0962 (G-CuAl8Mn), 2.0966 (CuAl10Ni5Fe4), 2.0970 (CuAl10Ni3Fe2-C), 2.0978 (CuAl11Ni6Fe5), 2.0980 (CuAl11Fe6Ni6-C)

UNS: C61400

WELDING & PWHT

In the case of aluminum bronze alloys, preheating is not necessary. The maximum interpass temperature should not exceed 200 °C. When welding brass, a preheat of 100-300 °C is recommended for thicker sections, while lower temperatures are indicated for high-zinc brass. Although this wire is suitable for various combinations of copper and iron-based alloys, caution is essential to minimize dilution in the presence of high-chromium alloys, such as stainless steels. The limited tolerance to chromium, resulting from mixing, can cause embrittlement and cracking, especially in bend tests. In such cases, applying a low heat input buttering layer is advantageous.

