DAIKOWT CuAl8

GTAW

COPPER ALLOYS
CuAl

DESCRIPTION

Aluminum-bronze copper rod

Solid rod developed for the welding of copper alloys, particularly aluminum-bronze alloys. It is also suitable for welding steel and cast iron and is porosity-free. Preheating is recommended when working on large pieces. Also suitable for spray metallization with wear-resistant surface treatments and for welding galvanized steel sheets. Used in the naval 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 6100	**AWS A5.7**	ERCuAl-A1
DIN 1733	SG-CuAl8	**Shielding**	I1
Positions	PA, PB, PC, PD, PE, PF	**Current**	DC-
Packaging Type	5kg carton tube		

ASME QUALIFICATIONS

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

HARDNESS

100HB

CHEM. COMP. %	DEFAULT
Mn	0.003
Ni	0.003
Cr	0.004
Nb	0.003
Al	8.2
V	0.002
P	0.001
Si	0.003
Fe	0.01

MECHANICAL PROPERTIES	MIN. PER STANDARD	PRODUCT
Tensile strength R_m MPa	380	450
Yield strength $R_{p0.2}$ MPa	-	190
Elongation A (L_0=5d_0) %	0	38
Impact Charpy ISO-V	-	-
Impact Charpy ISO-V	-	-

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

DAIKO

CuAl

DESCRIPTION

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.