G-TECH 401

SMAW

COPPER ALLOYS
CuAl

DESCRIPTION

Special basic coated electrode

Electrode for welding Cu-Al alloys such as bronze-aluminum. Excellent for recharging components subject to wear and for corrosion resistant coatings. Applications include tube sheets, pickling hooks, impellers, valves, chemical plants, paper mills, etc with corrosion and wear. It is excellent for cladding components undergoing metal to metal wear and for corrosion resistant surfaces. Excellent weldability with a spatter free arc, self-releasing slag producing a very smooth bead appearance.

SPECIFICATIONS

AWS A5.6	ECuAl-B	**DIN 1733**	EL-CuAL8
Shielding	-	**Positions**	PA, PB, PC, PD, PF
Current	DC+	**Packaging Type**	Carton box

ASME QUALIFICATIONS

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

HARDNESS

130HB

CHEM. COMP. %	DEFAULT
Mn	0.5
Al	8.1
Fe	1.2

MECHANICAL PROPERTIES	MIN. PER STANDARD	PRODUCT
Tensile strength R_m MPa	450	470
Yield strength $R_{p0.2}$ MPa	-	190
Elongation A (L_0=5d_0) %	20	25
Impact Charpy ISO-V	-	-
Impact Charpy ISO-V	-	-

WELDING PARAMETERS	2.5 mm	3.2 mm	4.0 mm
Ampere	55A - 60A	80A - 90A	100A - 120A
Voltage	-	-	-
Packaging	pcs/kg	pcs/kg	pcs/kg
Packaging Type	Carton box	Carton box	Carton box

NOTES

Pcs/kg is indicative, actual number may vary ± 5%.

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.