DAIKOWT CuAl9Fe

GTAW

COPPER ALLOYS
CuAl

DESCRIPTION

Copper-aluminum solid rod

Wire rod for welding copper-aluminum, copper-silicon, copper-manganese, some copper-nickel alloys, cast irons, tool steels and galvanized sheets. Used in welding high-strength brass to guarantee a deposit of material with similar proper-ties of the base material. Pre-heating is recommended on large pieces. Used in shipbuilding industry for pumps, propellers and valves when a high sea water corrosion resistance is required as well as in automotive industry in galvanized sheet welding and in construction industry where high mechanical properties are required.

SPECIFICATIONS

ISO 24373	S Cu 6180	**AWS A5.7**	ERCuAl-A2
DIN 1733	SG-CuAl10Fe	**Werkstoff Number**	-
Certifications	-	**Shielding**	I1
Positions	PA, PB, PC, PD, PE, PF	**Current**	DC-

ASME QUALIFICATIONS

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

FERRITE

-

PREN

-

HARDNESS

140HB

CHEM. COMP. %

	DEFAULT
Mn	0.003
Ni	0.002
Cr	0.004
Nb	0.005
Al	9.1
V	0.002
P	0.002
Si	0.003
Fe	0.9

MECHANICAL PROPERTIES

	MIN	VARIANT
Tensile strength R_m MPa	415	500
Yield strength $R_{p0.2}$ MPa	-	200
Elongation A (L_0=5d_0) %	0	32
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

CuAl

DESCRIPTION

APPLICATION

This welding consumable is designed for welding 5-11% aluminum bronzes and various other copper alloys. In the case of brasses, the weld color closely matches, and the inclusion of aluminum in the filler effectively suppresses zinc volatilization during welding. Moreover, it proves versatile for overlaying carbon-manganese steels and cast irons, providing durable bearing surfaces resistant to wear and corrosion. Additionally, it facilitates the joining of these materials to a wide range of copper-based alloys. Applications for this consumable span a variety of industries, including the manufacturing of corrosion-resistant and spark-resistant pumps, castings, machinery parts, and heat exchangers. Its utility extends to offshore, marine, and mining equipment, where its capability to deliver wear and corrosion resistance makes it an excellent choice for demanding operational 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.

PROPRIETARY: Alloy D (Hastelloy).

WELDING & PWHT

Aluminum bronze alloys do not necessitate preheating, and the maximum interpass temperature should be maintained at 200°C. For welding brass, a preheat ranging from 100-300°C is recommended for thicker sections, with lower preheat temperatures applicable to high-zinc brasses. While the wire is suitable for various dissimilar combinations of copper and ferrous alloys, caution is essential to minimize dilution by high chromium alloys like stainless steels. The limited tolerance to chromium pick-up may lead to embrittlement and cracking, particularly when subjected to bend tests. Employing low heat input buttering proves beneficial in such scenarios.

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