

Product description

Cu-9%Al-5%Ni bronze for welding similar nickel aluminium bronze alloys.

Specifications

AWS A5.7	ERCuNiAl
BS EN ISO 24373	S Cu 6328 / CuAl9Ni5Fe3Mn2
BS 2901 pt 3	(C26 - C20 also similar)
DIN 1733	(SG-CuAl8Ni6)

ASME IX Qualification

QW432 F-No 37

Materials to be welded

ASTM	C63200, C63000 (CA630), C95800 (cast), C95500 (cast), C95520 (cast).
BS	CA104, CA105, AB2 (cast), Alloy E.
DIN	2.0966 (CuAl10Ni), 2.0978 (CuAl11Ni), 2.0970 (G-CuAl10Ni), 2.0980 (G-CuAl11Ni).
MoD	DGS 1043 Grade 2.

Applications

This wire deposits nickel aluminium bronze and is suitable for welding wrought and cast parent materials of similar composition. These alloys have high strength and resistance to stress corrosion, cavitation erosion, corrosion fatigue, and attack by acids and chlorides.

Applications include **corrosion resistant** and **spark resistant pumps, ship propellers, heat exchangers for offshore, marine and mining equipment.**

Microstructure

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

Welding guidelines

For aluminium bronze alloys preheat is not required and maximum interpass temperature should be 150°C.

Resistance to hot cracking in thick sections with high restraint is said to be inferior to plain aluminium bronze. An alternative is to fill with higher ductility aluminium bronze (data sheet E-36) and cap with 80CuNiAl.

Composition (wire wt %)

	Cu	Al	Ni	Fe	Mn	Si	Zn	Pb
min	bal	8.50	4.0	3.0	0.60	--	--	--
max	bal	9.50	5.5	5.0	3.50	0.10	0.10	0.02
typ	82	9.3	4.2	3.3	0.8	<0.01	<0.01	<0.01

All-weld mechanical properties

Typical as welded	TIG
Tensile strength	MPa 740
0.2% Proof stress	MPa 400
Elongation on 4d	% 19
Reduction of area	% 23
Hardness	HV 220

Typical parameters

	TIG	MIG
Shielding	Ar	Ar, He or Ar-He
Current	AC	Pulsed
Diameter	2.4mm	1.2mm
Parameters	250A, 15V	235A, 25V (mean)

Packaging data

ø mm	TIG	MIG
1.2	--	15kg spool
2.4	2.5kg tube	--

Storage

Recommended ambient storage conditions: < 60% RH, >18°C.

Fume data

Fume composition, wt % typical:

Fe	Mn	Cr	Ni	Mo	Cu	OES (mg/m ³)
6	4	<0.1	3	<0.1	75	0.3