



EMH-Brass Tubes in CuZn28Sn1As

CuZn28Sn1As is a special brass with excellent corrosion resistance due to the addition of tin and arsenic.

The material is primarily used for condenser tubes and finned tubes for river and domestic water applications.

In the oil producing industry this alloy is used because of its good mechanical strength and resistance.

Chemical Composition *

Cu	71 %
Sn	1.2 %
As	0.03 %
Zn	balance

* Standard values in % by weight

Material Description

EN	CuZn28Sn1As, CW706R
UNS	C44300
DIN*	CuZn28Sn1, 2.0470
BS*	CZ111
NF*	Cu-Zn29Sn1

* former national standards

Physical Properties *

Electrical conductivity

MS/m	14.1
% IACS	24

Thermal conductivity

W/(m*K)	109
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Thermal expansion coefficient

(0 – 300 °C) 10 ⁻⁶ /K	19.5
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Density

g/cm ³	8.56
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Modulus of elasticity

GPa	110
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* Standard values at room temperature
1 GPa = 1 kN/mm²
1 MS/m = 1 m/Ω · mm

Processing Properties

Forming

Machinability (CuZn39Pb3 = 100%)	30 %
Cold forming	good
Hot forming	fair

Joining

Resistance welding	good
Inert gas shielded arc welding	fair
Hard soldering	fair
Soft soldering	good

Surface Treatment

Polishing

mechanical	excellent
electrolytical	poor

Electroplating

	excellent
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Heat Treatment

Melting point	890 – 945 °C
Hot forming	750 – 850 °C
Soft annealing	450 – 600 °C, 1-3 h
Thermal stress-relieving	200 – 300 °C, 1-3 h

Corrosion Resistance

Special brass generally has excellent corrosion resistance due to alloying additions. This alloy has good resistance to river or domestic water which is not too heavily polluted. In addition it is resistant to seawater and not susceptible to dezincification.

Mechanical Properties (attainable values, depending on the dimension and form)

Standard values	from (soft)	to (hard)
R _m [MPa]	340	630
R _{p 0.2} [MPa]	110	580
A ₅ [%]	60	10
HB	70	140

