CuZn30 BlueBrass®

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Comparable standards: UNS C26000 • EN CW505L • JIS C2600

Aurubis designations: PNA 374

Description

BlueBrass® PNA374 is a special CuZn30 alloy, well suited for decorative parts with high surface requirements, especially after electroplating with Gold, Palladium and Rhodium. The alloy is suitable for diamontage and therefore dedicated for the watch industry, especially hands, dials and other decorative parts. CuZn30 is a solid solution strengthened copper alloy containing 30% zinc (brass). The alloy has very good cold forming properties.

Composition

Cu [%]	Fe [%]	Pb [%]	Zn [%]	S [%]	Ni [%]	Sn [%]
69-71	0.015 max	0.0035 max	rem	0.0012 max.	0.015 max	0.015 max

Composition of this alloy is in accordance with RoHS for electric & electronic components and ELV for the automotive industry.

Physical properties

Melting point [°C]	Density [g/cm³]	c_p @ 20°C [kJ/kgK]	Young's modulus [GPa]	Thermal cond. [W/mK]	Electrical cond. [MS/m]	Electrical cond. [%IACS]	α @20-300°C [10^{-6}/K]
954	8.53	0.377	110	121	≥ 16	≥28	20

Note: The specified conductivity applies to the soft condition only.

c_p specific heat capacity

α coefficient of thermal expansion

Mechanical properties

	Tensile Strength [MPa]	Yield Strength [MPa]	Elongation [%]	Hardness HV [-]	Bend ratio 90° [r] GW	Bend ratio 90° [r] BW
R270	270-350	≤ 160	≥ 40	55-90	0	0
R350	350-430	≥ 170	≥ 21	95-125	0	0
R410	410-490	≥ 260	≥ 9	120-155	0	0
R480	480-560	≥ 430	≥ 4	150-180	0	1
R550	550-640	≥ 530	≥ 2	170-200	0.5	2
R630	≥ 630	≥ 610	-	≥190	1	3

r = x * t (thickness t ≤ 0.5mm)

GW bend axis transverse to rolling direction. BW bend axis parallel to rolling direction.

Fabrication properties

Cold formability	excellent
Hot formability	fair
Soldering	excellent
Brazing	excellent
Oxyacetylene welding	good
Gas shielded arc welding	good
Resistance welding	fair
Machinability	fair

Electrical conductivity

The electrical conductivity depends on chemical composition, the level of cold deformation and the grain size. A high level of deformation as well as a small grain size decrease the conductivity.

Corrosion Resistance	Brass is resistant to: Natural, industrial and salt bearing atmospheres, drinking water, alkaline and neutral saline solutions. Brass is not resistant to: Acids, ammonia, halogenide, cyanide and hydrogen sulfide solutions and atmospheres as well as sea water (especially at high flow rates). Under certain circumstances (high Cl content and low carbon-hardness) dezincification can be an issue with CuZn30. The alloy also has a certain sensitivity to stress corrosion cracking when exposed to certain environments (e.g. ammonia, amine or sal ammoniac). The alloy should be stress relieved if stress corrosion cracking might be an issue.
Typical uses	Decorative parts for watch industry, jewelry.

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