CuZn37In0.2Pb0.01 BlueBrass®

January 2021

Comparable standards:

Aurubis designations: PNA 375

Description

BlueBrass® is a brass alloy with approximately 37% zinc which offers good mechanical properties combined with good machinability and good cold forming properties. PNA 375 has a reduced zinc content, compared to other alloys of the BlueBrass® family, which makes it especially suited for applications where machinability and very good cold formability are required.The alloy has been optimized with the addition of indium for mechanical processing in machining processes. PNA375 has a very low lead content making the alloy suitable for jewelery applications according to REACH standards. Fields of application are the watch industry, jewelry, automotive as well as components for electrical and mechanical engineering.

Composition

Cu [%]	Pb [%]	In [%]	Fe [%]	Ni [%]	Sn [%]	Si [%]
62.0-64.0	< 0.01	0.1-0.3	0.1-0.5	0.1-0.5	0.1-0.5	0.1 max

Mn [%]	Zn [%]
0.1 max	rem.

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]
920	8.4	0.377	110	116	≥ 16	≥ 28	20.5

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

c_p specific heat capacity

α coefficient of thermal expansion

Mechanical properties

	Diameter [mm]	Tensile Strength [MPa]	Yield Strength [MPa]	Elongation A [%]	Hardness HV [-]
		350-700	150-650	5-35	120-200

Other tempers are available upon request.

Fabrication properties

Machinability	fair
Cold formability	excellent
Hot formability	good
Resistance welding	excellent
Oxyacetylene welding	fair
Inert gas shield arc welding	fair
Brazing	excellent
Soldering	excellent

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 Cu-content and low carbon-hardness) dezincification can be an issue with CuZn37. 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.
The stress cracking corrosion resistance (inspected in accordance with EN 14977:2006) and the dezincification resistance (inspected in accordance with DIN EN ISO 6509:1995) are comparable to those of conventional CuZn39Pb3.

Typical uses

Machined parts of any kind, components for electrical and mechanical engineering, connector pins, screws, clamps