C37700

CuZn39Pb2

Alloy Designation	
EN	CuZn39Pb2 CW612N
DIN CEN/TS 13388	2.0380
JIS	C3771
BS	CZ120
UNS	C37700

Chemical Composition (Balance) Weight percentage		
Cu	59 .. 60	%
Zn	Rest	%
Pb	1.6..2.5	%
Ni	0.3	%
Sn	0.2	%

Characteristics

CuZn39Pb2 is the most used alloy for machining operations. It has excellent hot working and forging properties. Cold forming is possible only to a minor extend.

Main Applications

Architecture: Ornamental Trim.
Consumer: Jewelry, Emblems, Plaques, Medallions.
Electrical: Components for the Electrical Industry, Connectors, Rotor Bars, AC Motors.
Fasteners Industrial: Metal Goods, Base for Vitreous Enamel, Base for Gold Plate.
Ordnance: Primers, Small Arm Ammunition: Primer Caps, Bullet Jackets, Fuse Caps, Firing Pin Support Shells, Bullet.
Other: Coins, Tokens, Medals.

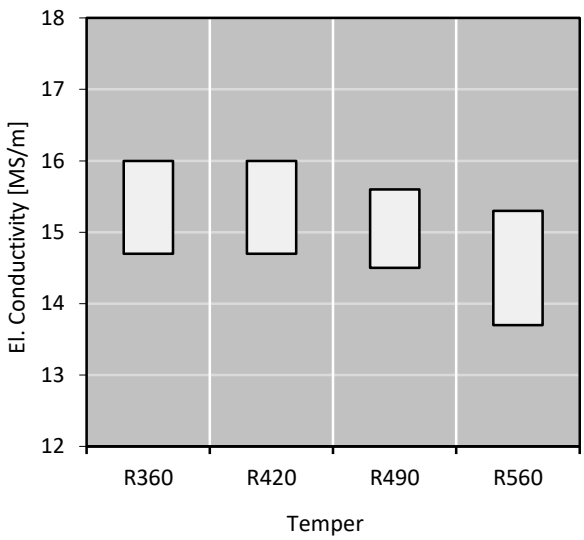
Mechanical Properties (EN 1652)

Temper	Tensile Strength Rm	Yield Strength Minimum $Rp_{0.2}$	Elongation Minimum A_{50mm}	Grain Size	Hardness HV *
	MPa	MPa	%		HV
R360	360 .. 440	≤ 270 *	≥ 30	≤ 15 15 .. 30 20 .. 40 35 .. 70	90 .. 120
R420	420 .. 500	≥ 270 *	≥ 12		120 .. 150
R490	490 .. 570	≥ 420 *			150 .. 150
R560	≥ 510	≥ 510 *			≥ 175

* only for information

Physical Properties Typical values in annealed temper at 20 °C			
Density		8.45	g/cm³
Thermal expansion coefficient	20 .. 300 °C	21.0	10^{-6}/K
Specific heat capacity		0.377	J/(g·K)
Thermal conductivity		117	W/(m·K)
Electrical conductivity	MS/m	14	MS/m
Electrical conductivity	IACS	24	%
Thermal coefficient of electrical resistance	(0 .. 100 °C)	1.6	10^{-3}/K
Modulus of elasticity	GPa	102	GPa

Electrical Conductivity



C37700

CuZn39Pb2

Fabrication Properties *	
Cold Forming Properties	Fair
Machinability (Rating 20)	Excellent
Electroplating Properties	Excellent
Hot Tinning Properties	Excellent
Soft Soldering, Brazing	Excellent/Fair
Resistance Welding	Fair
Gas Shielded Arc Welding	Less Suitable
Laser Welding	Fair

* For more details call our technical service

Corrosion Resistance *

Resistant to:

CuZn39Pb2 ha s a good resistance to water, water vapour, different saline solutions, many organic liquids.
Land, sea and industrial atmosphere.

Not resistant to:

Under certain conditions (water with high chlorine-content and low carbonate-hardness) a form of corrosion called “dezincification” can occur.

Furthermore this alloy tends in cold-formed temper under internal and/or external tensile stress when aggressive agents like ammoniac, amine ammonia-salts are present to “stress corrosion cracking”. Tensile stress can be applied after fabrication during assembly or installation.

A heat treatment can help to avoid stress corrosion cracking. Semi-finished products can get a stress relieving annealing treatment or softening treatment.

Bend Fatigue (at room temperature)

The fatigue strength gives an indication about the resistance to variations in applied tension. It is measured under symmetrical alternating load. The maximum bending load for 10^7 load cycles without crack is measured. Dependent on the temper class it is approximately 1/3 of the tensile strength R_m.

Available delivery forms *
Strips in coils
Traverse-wound coils with drum weights up to 1.5 t
TECSTRIP®_multicoil up to 2.5 t
Hot-Dip-Tinned strips in thickness range 0.10 up to 1.20 mm

* For more details call our sales service