

CuZn36

Comparable standards: Aurubis designations: UNS C27000 • EN CW507L C270 • PNA 248

Description

CuZn36 is a solid solution strengthened copper alloy (brass) with 36% zinc. The alloy has good cold forming properties and is economically interesting due to the high zinc content. CuZn36 can be brazed and soldered, welding processes need to be executed with care, due to the high zinc content.

As the zinc content increases in the alloy, the strength improves, yet conductivity and ductility are reduced. Moreover it should be noted that, as the zinc content rises, the tentdency to stress corrosion cracking increases in the event of exposure to an ammonia atmosphere. This type of corrosion can, however, be countered in many cases by the removal of internal stress.

Fields of application are deep drawn parts, metal ware, electronic industry, connectors, mechanical engineering, signs and decoration as well as musical instruments.

Composition

Cu	Fe	Pb	Zn	AI	Ni	Sn	
[%]	[%]	[%]	[%]	[%]	[%]	[%]	
63.5-65.5	0.05 max	0.05 max	rem	0.02 max	0.3 max	0.1 max	

This alloy is in accordance with RoHS 2002/96/CE for electric & electronic components and 2002/53/CE for the automotive industry.

Physical properties	Melting point	Density	с _р @ 20°С	Electrical cond.	Thermal cond.	Young's α modulus @ 20°C [GPa] [10 ⁻⁶ /K]				
	[°C]	[g/cm ³]	[kJ/kgK]	[%IACS]	[W/mK]			[10 ⁻⁶ /K]		
	920	8.4	0.377	≥28	116	110 20.3).3	
	Note: The specified conductivity applies to the c _p specific heat capacity soft condition only. α coefficient of thermal expansion									
Mechanical		Tensile	Yield	Elongation	Hardness	Bend ratio		Bend ratio		
properties		Strength	Strength	A ₅₀	HV	90° [r] 180° [r]			° [r]	
		[MPa]	[MPa]	[%]	[-]	GW	BW	GW	BW	
	R300	300-370	≤ 180	≥ 38	55-95	0	0	0	0	
	R350	350-440	≥ 170	≥ 19	95-125	0	0	0	0	
	R410	410-490	≥ 300	≥ 8	120-155	0	0	0	0	
	R480	480-560	≥ 430	≥ 3	150-180	0.5	1	1	2	
	R550	≥ 550	≥ 500	-	≥ 170	1	2	5	6	
	Other tempers are available upon request.						$r = x * t$ (thickness $t \le 0.5$ mm)			
	GW bend a direction. B rolling direc						l axis tran BW benc ection.	axis transverse to rolling 3W bend axis parallel to ction.		

Fabrication properties

Cold formability excellent Hot formability not recommended Soldering excellent excellent Brazing **Oxyacetylene welding** good Gas shielded arc welding fair **Resistance welding** good **Machinability** fair

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Electrical 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 conductivity. Brass is resistant to: Natural, industrial and salt bearing atmospheres, drinking water, Corrosion Resistance 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 CI content and low carbon-hardness) dezincification can be an issue with β - phase bearing alloys. 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 usesMetal ware, components of electrical and mechanical engineering, connectors, electric
brackets, clips & contacts, radiator cores & tanks, holloware base metal, lamps, bowls,
trays, flashlight socket shells, grommets, eyelets, fasteners, bead chain, hardware items as
knobs, roses, hinges, stencils, springs, cartridge & shell cases, hose couplings, decorative
pots and planters, musical instruments

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