

# Cu-DHP

20 03

Comparable standards: UNS C12200 • EN CW024A • JIS C1220

Aurubis designations: C122 • PNA 219 • DHP • SM 0028

## Description

Cu-DHP is a deoxidized, oxygen-free copper with a residual phosphorus content. It combines very good formability and joining properties, whereas the conductivity is reduced due to the residual phosphorus content.

Fields of application are components of electrical engineering, the production of pipes, roofing, wall cladding and process equipment manufacture.

## Composition

Cu	P
[%]	[%]
min 99.90	0.015-0.040

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

## Physical properties

Melting point	Density	c <sub>p</sub> @ 20°C	Young's modulus	Thermal cond.	Electrical cond.		α @20-300°C
					[MS/m]	[%IACS]	
[°C]	[g/cm <sup>3</sup> ]	[kJ/kgK]	[GPa]	[W/mK]			[10 <sup>-6</sup> /K]
1083	8.9	0.377	132	340	≥ 46	≥79	17.6

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

c<sub>p</sub> specific heat capacity

α coefficient of thermal expansion

## Mechanical properties

	Tensile Strength	Yield Strength	Elongation A <sub>50</sub>	Hardness HV	Bend ratio 90° [r]	
	[MPa]	[MPa]	[%]	[-]	GW	BW
R220	220-260	≤ 140	≥ 33	40-65	0	0
R240	240-300	≥ 180	≥ 8	65-95	0	0
R290	290-360	≥ 250	≥ 4	90-110	0	0
R360	≥ 360	≥ 320	≥ 2	≥ 110	0	0.5

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	excellent
Soldering	excellent
Brazing	excellent
Oxyacetylene welding	good
Gas shielded arc welding	excellent
Resistance welding	not recommended
Machinability	not recommended

## 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**

Copper is resistant to: Natural and industrial atmospheres as well as maritime air, drinking and service water (if the flow rate is not excessive), non oxidizing acids, alkaline solutions and neutral saline solutions.

Copper is not resistant to: Ammonia, halogenide, cyanide and hydrogen sulfide solutions and atmospheres, oxidizing acids and sea water (especially at high flow rates).

**Typical uses**

Architecture, roofing, apparatus engineering, components of electrical engineering, air-, hydraulic- and oil-pipes, flexible pipes, air conditioner, heat exchanger

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