



## EMH-Copper Tubes in Cu-DHP

**Cu-DHP** is a deoxidized copper with limited residual phosphorus content possessing excellent welding and hard soldering properties as well as resistance to hydrogen embrittlement. It also has excellent formability and is used where requirements for electrical conductivity are not high.

### Chemical Composition \*

Cu	≥ 99,9 %
P	0.015 – 0.04 %

deoxidized and oxygen-free

\* Standard values in % by weight

### Material Description

EN	Cu-DHP, CW024A
UNS	C12200
DIN*	SF-Cu, 2.0090
BS*	C106
NF*	Cu-b1

\* former national standards

### Physical Properties \*

#### Electrical conductivity

MS/m	> 45
% IACS	> 77

#### Thermal conductivity

W/(m*K)	> 330
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#### Thermal expansion coefficient

(0 – 300 °C) 10 <sup>-6</sup> /K	17.7
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#### Density

g/cm <sup>3</sup>	8.94
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#### Modulus of elasticity

GPa	132
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\* Standard values at room temperature  
1 GPa = 1 kN/mm<sup>2</sup>  
1 MS/m = 1 m/Ω • mm

### Processing Properties

#### Forming

Machinability (CuZn39Pb3 = 100%)	20 %
Cold forming	excellent
Hot forming	good

#### Joining

Resistance welding	good
Inert gas shielded arc welding	excellent
Hard soldering	excellent
Soft soldering	excellent

#### Surface Treatment

##### Polishing

mechanical	good
electrolytical	excellent

##### Electroplating

excellent

### Heat Treatment

Melting point	1,083 °C
Hot forming	750 – 950 °C
Soft annealing	350 – 500 °C, 1-3 h
Thermal stress-relieving	150 – 200 °C, 1-3 h

### Corrosion Resistance

Resistant to industrial atmosphere, industrial and drinking water (max. flow rate approx. 1,5-2 m/s), pure water vapour, non oxidizing acids, alkalis (except for compounds containing ammoniac and cyanide), neutral saline solutions.

Not resistant to oxidizing acids, moist ammonia and halogenated gases, hydrogen sulphide, seawater.

### Mechanical Properties (attainable values, depending on the dimension and form)

Standard values	from (soft)	to (hard)
R <sub>m</sub> [MPa]	200	440
R <sub>p 0,2</sub> [MPa]	60	420
A <sub>5</sub> [%]	40	2
HB	35	115

