Cu-DHP

Material number

EN	DIN	ASTM/UNS	BS	JIS
CW024A	SF-Cu	C12200	C106	C1220

Description & Characteristics

Cu-DHP is a phosphorus-deoxidized copper with a limited, high amount of residual Phosphorus. It has excellent welding and soldering properties and is resistant against hydrogen embrittlement. It can be deformed excellent, either hot or cold.

Material Temper

Soft Annealed	Half Hard	Hard	Hard As Rolled
R220/H040	R240/H065	R290/H090	R360/H110

Dimensions

AML supply copper foil and strip in a wide range of thicknesses and widths.

Typical Dimensions	
Thickness range	0.1 to 0.3 mm
Width range	5 to 540 mm
Inner diameters	According to customer requirements.
Outer diameters	max 800 / 1000 mm according to copper temper

Note: a few sizes wounded on /DIN/ reels.
Other dimensions on request.

Typical uses & Applications

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

Composition

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

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 [°C]	Density [g/cm³]	c_p @ 20°C [kJ/kgK]	Young's modulus [GPa]	Thermal cond. [W/mK]	α @ 20°C [10^{-6}/K]
1083	8.9	0.377	132	340	17.6

Note: The specified conductivity applies to the soft condition only

c_p specific heat capacity
α coefficient of thermal expansion

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).

Mechanical properties

Material Temper [EN] STANDARDS	Tensile Strength [MPa]	Yielding Strength [MPa]	Elongation A_{50} [%]	Hardness HV [-]	Bend ratio 90° [r]	
					GW	BW
R220/H040	220-260	≤140	≥33	40-65	0	0
R240/H065	240-300	≥180	≥8	65-95	0	0
R290/H090	290-360	≥250	≥4	90-110	0	0
R360/H110	≥360	≥320	≥2	≥110	0	0.5

≤ maximum
≥ minimum

r=x*t (thickness t ≤ 0.5mm)
GW bend axis transverse to rolling direction.
BW bend axis parallel to rolling direction.

Electrical properties

Conductivity (soft temper)	
MS/m	[%IACS]
≥47	≥79

Electrical conductivity is strongly influenced by chemical composition. A high level of cold deformation and small grain size decrease the electrical conductivity moderately. Minimum conductivity level can be specified.

Fabrication properties

Process	Rating
Cold formability	excellent
Hot formability	excellent
Soldering	excellent
Brazing	excellent
Oxyacetylene welding	good
Gas shielded arc welding	excellent
Resistance welding	Less suitable
Machinability	Less suitable