Cu-OF

Material Numbers

EN	DIN	ASTM/UNS	BS	JIS
CW008A	OF-Cu	C10200	C103	C1020

Description & Characteristics

Cu-OF is an oxygen-free, high conductivity copper. The high purity and absence of deoxidizers accounts for 100% IACS electrical conductivity as well as no susceptibility to hydrogen embrittlement. Cu-OF has a very good formability and can be soldered and welded. The main field of application are very critical electrical, electronic and communication components.

Material Temper

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

Dimensions

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

Typical Dimensions	
Thickness range	0.03 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

Brazed plate heat exchangers, radar components, components of electrical engineering, conductors, contacts and terminals, printed circuits, carrier tapes, flat-type cables, flexible circuits, terminal lugs, copper ceramic substrates

Composition

Cu [%]	Bi [%]	Pb [%]	O [%]
min 99.95	max 0.0005	max 0.005	max 0.001

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_ρ @ 20°C [kJ/kgK]	Young's Modulus [GPa]	Thermal cond. [W/mK]	α @ 20°C [10^{-6}/K]
1083	8.94	0.394	127	394	17.7

Note: The specified conductivity applies to the soft condition only

c_ρ 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, 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]	Yield 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

≤ 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

Material Temper	Resistivity	Conductivity	
	[(Ωxmm²) /m]	[MS/m]	[%IACS]
R220/H040	max 0,01724	≥58	≥100
R240/H065	max 0,01754	≥57	≥98.3
R290/H090	max 0,01754	≥57	≥98.3
R360/H110	max 0,01786	≥56	≥96.6

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	suitable
Gas shielded arc welding	good
Resistance welding	Less suitable
Machinability	Less suitable