CuOFE

CuOFE | C10100

Cu-OFE is an oxygen-free, high-conductivity copper containing a minimum of 99.99% Cu. It offers the advantages of both electrolytic copper (ETP) and phosphorus-deoxidized copper. Its high purity, with less than 5 ppm oxygen and the absence of deoxidants, provides a minimum electrical conductivity of 101% IACS while eliminating susceptibility to hydrogen embrittlement. Cu-OFE features excellent formability, soldering, and welding capabilities, making it superior to Cu-ETP in these aspects.
Its primary application area is the manufacture of parts for critical electrical, electronic, and communication components or vacuum technology.

Comparable Standarts

EN	JIS	UNS
CW009A	C1011	C10100

Chemical Composition %

Cu	O [%]
min 99.99	max 0.0005

Physical Properties

Melting Point	1083	[°C]
Density	8.94	(g/cm³)
Cp @ 20°C	0.394	[kJ/kgK]
Thermal Conductivity	394	(W/mK)
Electrical Conductivity	≥100	%IACS
Modules of Elasticity	127	[GPa]
α @ 20°C	17.7	[10-6/K]

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

Cp specific heat

α thermal expansion coefficent

Fabrication Properties

Cold Formability	excellent
Hot Formability	excellent
Soldering ability	excellent
Oxyacetylene welding	fair
Gas shield arc welding	good
Resistance welding	not recommended
Machining	not recommended
Brazing	excellent

Electrical Conductivity

Electrical conductivity depends on chemical composition, the level of cold deformation, and grain size. High levels of deformation and a small grain size reduce conductivity.

Typcial Uses

Radar components, conductors, contacts and terminals, base plates for power modules, printed circuits, carrier tapes, flat cables, flexible circuits, terminal lugs, copper-ceramic substrates, vacuum technology, electrical components.

Corrosion Resistance

Copper is resistant to natural and industrial atmospheres, as well as marine air, potable and service water, non-oxidizing acids, alkaline solutions, and neutral saline solutions.
Copper has low corrosion resistance to environments containing ammonia, halogenide, cyanide and hydrogen sulfide solutions and atmospheres, oxidizing acids, and seawater (especially at high flow rates).

Mechanical Properties

	Tensile Strength [MPa]	Yield Strangth [MPa]	Elongation A50 [%]	Hardness HV [-]	Bend ratio 90° [r]	
					GW	BW
R220	220-260	≤ 140	≥ 33	40-65	0	0
R220	240-300	≥ 180	≥ 8	65-95	0	0
R290	290-360	≥ 250	≥ 4	90-110	0	0
R360	≥ 360	≥ 320	≥ 2	≥ 110	0	0

Other tempers are available upon request.

r = x * t (thickness t ≤ 0.5mm)

GW bend axis transverse to rolling direction. BW bend axis parallel to rolling direction.

Dimensional Specifications

Thickness (mm)	Width (mm)
0.04-0.20	10-400
0.21-0.50	5-400
0.51-1.00	5-600
1.01-4.00	15-600
4.01-7.00	25-600

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