

Cu-ETP

Material number	EN	DIN	ASTM/UNS	BS	JIS
	CW004A	E-Cu58	C11000	C101	C1100

Description & Characteristics Cu-ETP is an oxygen containing copper which has a very high electrical and thermal conductivity. It has excellent forming properties. Due to its oxygen content soldering and welding properties are limited.

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 wound on /DIN/ reels.
Other dimensions on request.

Typical uses & Applications Architectural metal-work, gutters, flashing, roofing, downspouts, perforated metal screens, automotive and industrial radiators, electrical conductors, contacts, terminals, chemical process equipment, kitchen needs, electric percolator bodies, lamps, dishes and planters for home and office

Composition	Cu [%]	Bi [%]	Pb [%]	O [%]
	min 99.90	max 0.0005	max 0.005	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/cm ³]	c _p @ 20°C [kJ/kgK]	Young's modulus [GPa]	Thermal cond. [W/mK]	α @ 20°C [10 ⁻⁶ /K]
	1083	8.9	0.394	127	390	17.7

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, 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).
Due to the oxygen content Cu-ETP is not resistant to hydrogen embrittlement in reducing atmospheres at elevated temperatures

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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	0.5
R360/H110	≥360	≥320	≥2	≥110	1	2

≤ maximum

≥ minimum

 $r=x*t$ (thickness $t \leq 0.5\text{mm}$)

GW bend axis transverse to rolling direction.

BW bend axis parallel to rolling direction.

Electrical properties

Material Temper	Resistivity	Conductivity	
	[(Ωmm^2) /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	good
Oxyacetylene welding	Less suitable
Gas shielded arc welding	suitable
Resistance welding	Less suitable
Machinability	Less suitable

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