C10100

Cu-OFE

Alloy Designation	
EN	Cu-OFE
DIN CEN/TS 13604	CW009A
UNS	C10100

Characteristics

Cu-OFE is a high-purity, oxygen-free copper, that does not contain elements that can vaporise in a vacuum environment. It is very thermally and electrically conductive and it also performs extremely well during hot and cold forming. Cu-OFE is corrosion-resistant, especially against atmospheric influences and water, and is also insensitive to stress corrosion cracking.

Chemical Composition (Balance) Weight percentage		
Cu	≥ 99.99	%

Main Applications

Cu-OFE is a popular material in electrical engineering, vacuum engineering and the production of high-frequency cables.

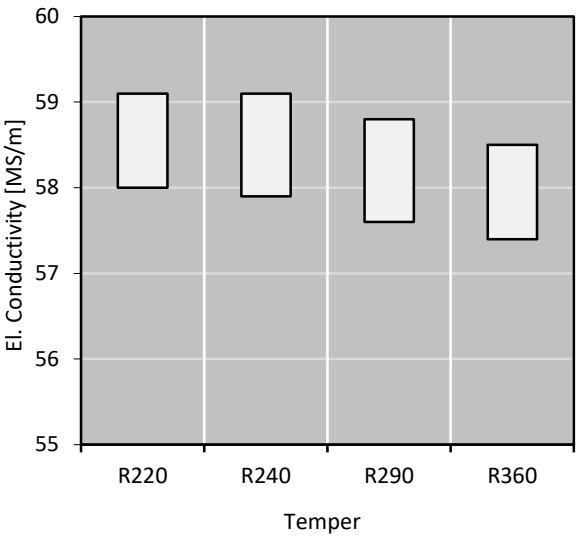
Mechanical Properties (EN 1652)

Temper	Tensile Strength Rm	Yield Strength Minimum $Rp_{0.2}$	Elongation Minimum A_{50mm}	Hardness HV *	Bending 90° gw	Bending 90° bw
					rel. Bending Radius R/T	
	MPa	MPa	%	HV	Strip Thickness ≤ 0.50mm	
R220	220 .. 260	≤ 140 *	33	40 .. 65	0	0
R240	240 .. 300	180	8	65 .. 95	0	0
R290	290 .. 360	250	4	90 .. 110	0	0
R360	≥ 360	320	2	≥ 110	0	0.5

* only for information

Physical Properties Typical values in annealed temper at 20 °C			
Density		8.93	g/cm³
Thermal expansion coefficient	20 .. 300 °C	17.7	10^{-6}/K
Specific heat capacity		0.39	J/(g·K)
Thermal conductivity		394	W/(m·K)
Electrical conductivity	MS/m	58.6	MS/m
Electrical conductivity	IACS	101	%
Thermal coefficient of electrical resistance	(0 .. 100 °C)	3.81	10^{-3}/K
Modulus of elasticity	GPa	130	GPa

Electrical Conductivity



Fabrication Properties *	
Cold Forming Properties	Excellent
Machinability (Rating 20)	Less suitable
Electroplating Properties	Excellent
Hot Tinning Properties	Excellent
Soft Soldering, Brazing	Excellent
Resistance Welding	Less suitable
Gas Shielded Arc Welding	Excellent
Laser Welding	Fair

* For more details call our technical service

Corrosion Resistance *

Cu-OFE is highly corrosion resistant in a natural atmosphere, including sea air environments. It also performs well in industrial and commercial environments, for example for drinking and industrial water, mild alkaline solutions (without oxidants) and with pure water vapour. CU-OFE is also resistant to non-oxidising acids and heat treatments in reducing atmospheres.

Bend Fatigue (at room temperature)

The fatigue strength gives an indication about the resistance to variations in applied tension. It is measured under symmetrical alternating load. The maximum bending load for 10^7 load cycles without crack is measured. Dependent on the temper class it is approximately 1/3 of the tensile strength R_m.

Available delivery forms *
Strips in coils
Traverse-wound coils with drum weights up to 1.5 t
TECSTRIP®_multicoil up to 2.5 t
Hot-Dip-Tinned strips in thickness range 0.10 up to 1.20 mm

* For more details call our sales service