C11000

Cu-ETP

Alloy Designation	
EN	Cu-ETP
DIN CEN/TS 13388	CW004A
UNS	C11000

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.

Chemical Composition (Balance) Weight percentage		
Cu	≥ 99.90	%
O	≤ 0.040	%

Main Applications

Electrical: Transformer Coils, Switches, Terminals, Contacts, Radio Parts, Busbars, Terminal Connectors, Conductors, Stranded Conductors, Cable Strip
Industrial: Printed circuit boards, Stamped parts, Pressure Vessels, Chemical Process Equipment, Chlorine Cells, Chimney Cap Screens, Heat Exchangers, Printing Rolls, Anodes, Rotating Bands, Kettles, Pans, Vats, Heat sinks

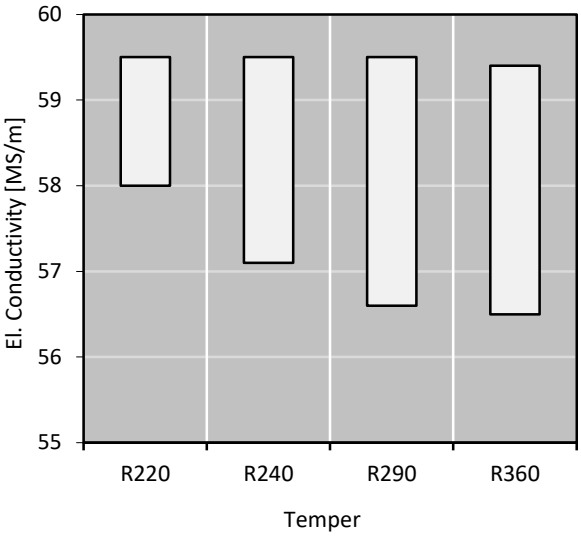
Mechanical Properties (EN 1652)

Temper	Tensile Strength Rm	Yield Strength Minimum $Rp_{0.2}$	Elongation Minimum A_{50mm}	Hardness HV *	Bendability 90° gw rel. Bending radius R/T	Bendability 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	0.5
R360	≥ 360	320	2	≥ 110	1	2

* only for information

Physical Properties Typical values in annealed temper at 20 °C			
Density		8.92	g/cm³
Thermal expansion coefficient	20 .. 300 °C	17.7	10^{-6}/K
Specific heat capacity		0.394	J/(g·K)
Thermal conductivity		394	W/(m·K)
Electrical conductivity	MS/m	58	MS/m
Electrical conductivity	IACS	100	%
Thermal coefficient of electrical resistance	(0 .. 100 °C)	3.7	10^{-3}/K
Modulus of elasticity	GPa	130	GPa

Elektrical 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	Less suitable
Laser Welding	Less suitable

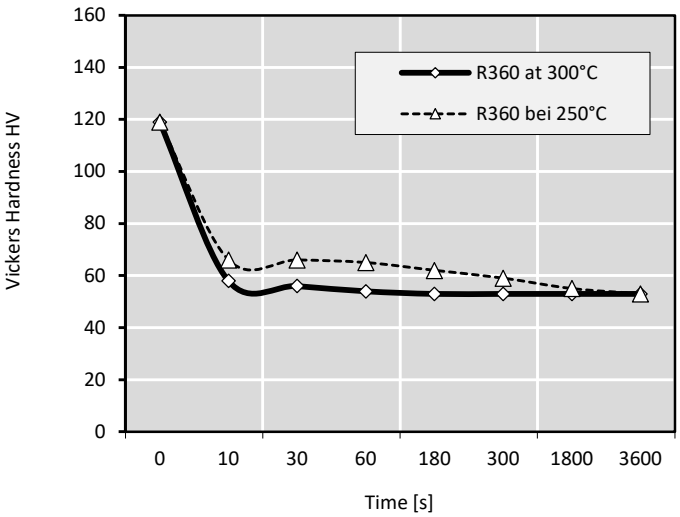
During heating in reducing atmosphere hydrogen can penetrate inside the copper and react with Cu-Oxide to water vapour. Its pressure can cause embrittlement.

* For more details call our technical service

Corrosion Restistance *

Practically resistant against stress corrosion cracking.

Softening Resistance



After short time heat treatment Vickers Hardness is measured. The diagram shows typical values.

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

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