

# C10300

## Cu-HCP

### Alloy Designation

EN	Cu-HCP
DIN CEN/TS 13388	CW021A
UNS	C10300

### Characteristics

**Cu-HCP** is a high purity, low level residual phosphorus, deoxidized copper. It has a very high electrical and thermal conductivity, good welding and soldering properties as well as resistance to hydrogen. It has excellent hot and cold forming properties, and a good corrosion resistance in water and especially in atmosphere (including industrial atmosphere).

### Main Applications

**Electrical:** High Frequency Cable, Submarine Cable Strips, Wave Guide Tubing, Standard material for longitudinally welded cables, Commutators, Applications Requiring High Conductivity, Tubular Bus, Electrical Conductors, Clad Products, Busbars, Terminals, Thermostatic Control Tubing

**Industrial:** Applications Requiring Good Brazing, Applications Requiring Good Weldability, Pressure Vessels, Billet Mold Tube, Extrusion Cans for Powder Metallurgy

### Chemical Composition (Balance)

Weight percentage

Cu	≥ 99.95	%
P	≤ 0.004	%

### Mechanical Properties (EN 1652)

Temper	Tensile Strength	Yield Strength Minimum	Elongation Minimum	Hardness	Bending 90°	
	R <sub>m</sub>	R <sub>p0.2</sub>	A <sub>50mm</sub>	HV *	gw rel. Bending Radius R/T	bw
	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

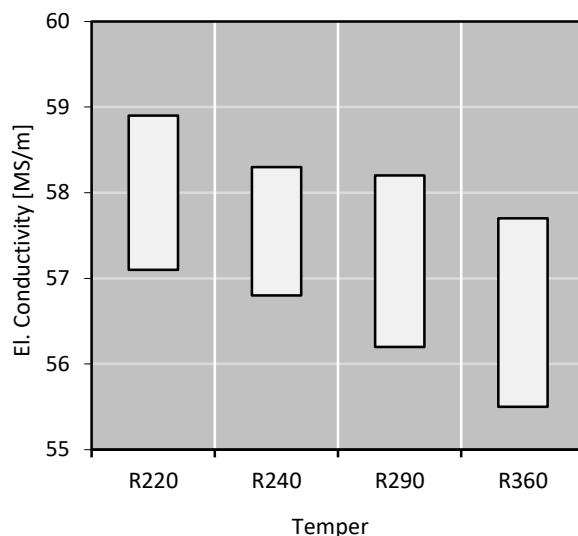
\* only for information

### Physical Properties

Typical values in annealed temper at 20 °C

Density		8.92	g/cm <sup>3</sup>
Thermal expansion coefficient	20 .. 300 °C	16.9	10 <sup>-6</sup> /K
Specific heat capacity		0.385	J/(g·K)
Thermal conductivity		385	W/(m·K)
Electrical conductivity	MS/m	57	MS/m
Electrical conductivity	IACS	98	%
Thermal coefficient of electrical resistance	(0 .. 100 °C)	3.7	10 <sup>-3</sup> /K
Modulus of elasticity	GPa	130	GPa

### Electrical Conductivity



### Fabrication Properties \*

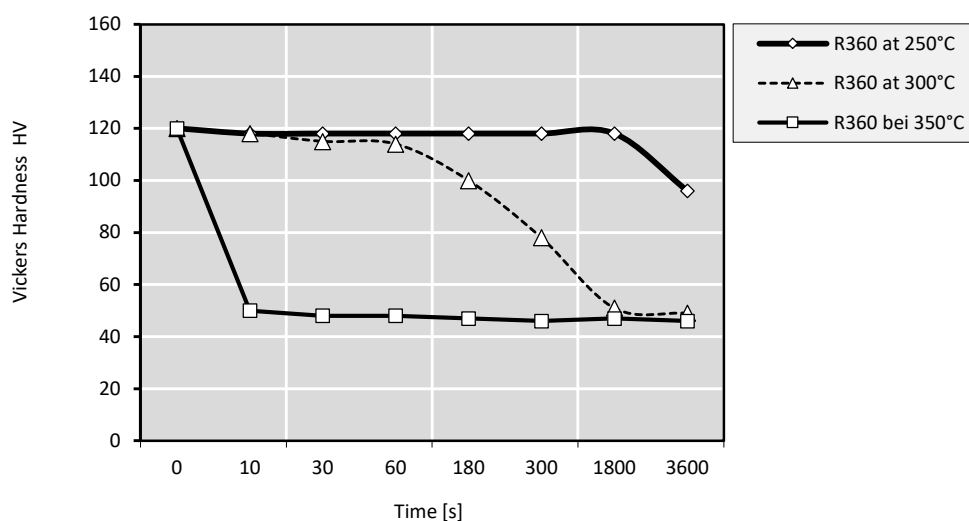
Cold Forming Properties	Excellent
Machinability (Rating 20)	Less suitable
Electroplating Properties	Excellent
Hot Tinning Properties	Excellent
Soft Soldering, Brazing	Excellent
Resistance Welding (Spot / But)	Less suitable / Good
Gas Shielded Arc Welding	Excellent
Laser Welding	Fair

\* For more details call our technical service

### Corrosion Resistance \*

Insensible to 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