

Datasheet: EN Cu-ETP / CW004A 99,90% Pure Copper Cold & Hot Rolled Products Alumeco ApS 21-03-2025		Internal alloy name: CW004A Metal: Copper Chemical Symbol: Cu-ETP EN: EN Cu-ETP UNS: C11000 SS: 5010 GB: TU00 / C10100 JIS: C1100 Also known as: - Alloy type: Electrical conducting					
Main usage: <ul style="list-style-type: none"> Automotive Cables and wires Clamps, connectors, fasteners and nozzles Electrical installations Electronic products Industrial applications – Beverage & Chemical Lightning rods and grounding 		Important norms and literature: General Standards EN 13599:2014: Copper and copper alloys – Copper plate, sheet and strip for electrical purposes Geometric Tolerance: EN 13599:2014: Copper and copper alloys – Copper plate, sheet and strip for electrical purposes					
Main properties: <ul style="list-style-type: none"> High thermal and electrical conductivity Excellent forming properties 							
Chemical composition in %: EN 13599:2014							
Cu	Bi	Pb	O	Other elements			
99,9	Max. 0,0005	Max. 0,005	Max. 0,040	Each together - 0,03			
Mechanical properties: EN 13599:2014							
Material Condition	Thickness range mm	Tensile strength R _m MPa	0,2% proof strength R _{p0,2} MPa	Elongation Min. %		Hardness HV	
				A _{50mm}	A		
M	10 – 25	as manufactured					
R200	0,20 – 10	200 – 250	Max. 100	-	42	-	
R220	0,10 – 5	220 – 260	Max. 140	33	42	-	
H040	0,10 – 10	-	-	-	-	40 – 65	
R240	0,10 – 10	240 – 300	Min. 180	8	15	-	
H065	0,10 – 10	-	-	-	-	65 – 95	
R290	0,10 – 10	290 – 360	Min. 250	4	6	-	
R360	0,10 – 2	Min. 360	Min. 320	-	2	-	
* Information values only;							
Physical properties:							
Density (20 °C) g/cm ³	Solidification range °C	Material condition	Electrical conductivity % IACS Min.	Volume resistivity $\frac{\Omega \times \text{mm}^2}{\text{m}}$ Max.	Mass resistivity $\frac{\Omega \times \text{g}}{\text{m}^2}$ Max.	Thermal conductivity (20 °C) W/m K	E – modulus (20 °C) N / mm ²
8,93	1083	M	98,3	0,01754	0,1588	394	110.000
		R200, R220, H040	100	0,01724	0,1533		
		R240, H065, R290	98,3	0,01754	0,1559		
		R360	96,6	0,01786	0,1588		
Properties and information's (3 Excellent; 2 Good; 1 Poor/not recommendable)¹							
Machinability (Zerspanbarkeitsindex): 20* <small>*(CuZn39Pb3 = 100)</small>		Joining Methods: Soldering: 3 Brazing: 2 Oxy-acetylene welding: 1 Gas-shielded arc welding: 1 TIG welding: 1 MIG welding: 1 Spot/seam welding: 1 Butt welding: 2 Gluing/adhesion: 2			Surface Treatment: <u>Polishing:</u> Mechanical: 2 Electrolytic/chemical: 3 <u>Galvanizing:</u> 3 <u>Hot Dipping:</u> 3		
Forming Methods: Hot Formability: 2 Cold Formability: 3							
Corrosion resistance: Atmosphere: 2 Waters and alkaline: 2 Acids, Ammonia, Seawater: 1							
*Information extracted from Kupferverband;							

Tolerances for Rolled Products of CW004A

Dimensions: EN 13599:2014*						
Tolerances on thickness of plate, sheet and strip						
Values in millimetres						
Nominal thickness t (mm)	Tolerance on thickness for nominal widths w (mm)					
	10 < w ≤ 200 normal	10 < w ≤ 200 special	200 < w ≤ 350	350 < w ≤ 700	700 < w ≤ 1000	1000 < w ≤ 1250
0,1 < t ≤ 0,2	± 0,010	± 0,007	± 0,015	-	-	-
0,2 < t ≤ 0,3	± 0,015	± 0,010	± 0,020	± 0,03	± 0,04	-
0,3 < t ≤ 0,4	± 0,018	± 0,012	± 0,022	± 0,04	± 0,05	± 0,07
0,4 < t ≤ 0,5	± 0,020	± 0,015	± 0,025	± 0,05	± 0,06	± 0,08
0,5 < t ≤ 0,8	± 0,025	± 0,018	± 0,030	± 0,06	± 0,07	± 0,09
0,8 < t ≤ 1,2	± 0,030	± 0,022	± 0,040	± 0,07	± 0,09	± 0,10
1,2 < t ≤ 1,8	± 0,035	± 0,028	± 0,06	± 0,08	± 0,10	± 0,11
1,8 < t ≤ 2,5	± 0,045	± 0,035	± 0,07	± 0,09	± 0,11	± 0,13
2,5 < t ≤ 3,2	± 0,055	± 0,040	± 0,08	± 0,10	± 0,13	± 0,17
3,2 < t ≤ 4,0	-	-	± 0,10	± 0,12	± 0,15	± 0,20
4,0 < t ≤ 5,0	-	-	± 0,12	± 0,14	± 0,17	± 0,23
5,0 < t ≤ 6,0	-	-	± 0,14	± 0,16	± 0,20	± 0,26
6,0 < t ≤ 7,0	-	-	± 0,16	± 0,19	± 0,23	± 0,29
7,0 < t ≤ 8,0	-	-	± 0,18	± 0,22	± 0,26	± 0,32
8,0 < t ≤ 9,0	-	-	± 0,20	± 0,25	± 0,29	± 0,35
9,0 < t ≤ 10,0	-	-	± 0,22	± 0,28	± 0,32	± 0,38
10,0 < t ≤ 25,0	-	-	± 0,25	± 0,30	± 0,35	± 0,45

* Values are referred from Table 4 of EN 13599:2014

Dimensions: EN 13599:2014*							
Tolerances on width of strip							
Values in millimetres							
Nominal thickness t (mm)	Tolerance on thickness for nominal widths w (mm)						
	w ≤ 50	50 < w ≤ 100	100 < w ≤ 200	200 < w ≤ 350	350 < w ≤ 500	500 < w ≤ 700	700 < w ≤ 1250
0,1 < t ≤ 1,0	+0,2 0	+0,3 0	+0,4 0	+0,6 0	+1,0 0	+1,5 0	+2,0 0
1,0 < t ≤ 2,0	+0,3 0	+0,4 0	+0,5 0	+1,0 0	+1,2 0	+1,5 0	+2,0 0
2,0 < t ≤ 2,5	+0,5 0	+0,6 0	+0,7 0	+1,2 0	+1,5 0	+2,0 0	+2,5 0
2,5 < t ≤ 3,0	+1,0 0	+1,1 0	+1,2 0	+1,5 0	+2,0 0	+2,5 0	+3,0 0
3,0 < t ≤ 5,0	+2,0 0	+2,3 0	+2,5 0	+3,0 0	+4,0 0	+5,0 0	+6,0 0

* Values are referred from Table 5 of EN 13599:2014

Dimensions: EN 13599:2014*		
Tolerances on width of plate and sheet		
Values in millimetres		
Nominal thickness t (mm)	Tolerance on thickness for nominal widths w (mm)	
	w ≤ 350	350 < w ≤ 1250
0,05 < t ≤ 2,0	+2,0 0	+6,0 0
2,0 < t ≤ 5,0	+4,0 0	+8,0 0
5,0 < t ≤ 10,0	+8,0 0	+10,0 0
10,0 < t ≤ 25,0	+10,0 0	+12,0 0

* Values are referred from Table 6 of EN 13599:2014

Dimensions: EN 13599:2014*		
Tolerances on length of plate, sheet and strip cut for lengths up to 5000 mm		
Values in millimetres		
Length	Nominal thickness (mm)	Tolerance on length
As Manufactured (ML)	t ≤ 25	± 50
Fixed length (FL)	t ≤ 5,0	+10 0
	5,0 < t ≤ 10,0	+15 0
	10,0 < t ≤ 25,0	+20 0

* Values are referred from Table 7 of EN 13599:2014

Dimensions: EN 13599:2014*			
Squariness of cut plate and sheet			Dimensions in millimetres
Nominal width <i>w</i> (mm)	Maximum allowable differences between diagonals, for lengths <i>l</i> (mm)		
	1000 < <i>l</i> ≤ 2000	2000 < <i>l</i> ≤ 3000	3000 < <i>l</i>
350 < <i>w</i> ≤ 700	6	7	8
700 < <i>w</i> ≤ 1250	8	9	10

* Values are referred from Table 8 of EN 13599:2014

Dimensions: EN 13599:2014*					
Edgewise curvature <i>c</i>					Dimensions in millimetres
Nominal width <i>w</i> (mm)	Maximum edgewise curvature <i>c</i> for thicknesses <i>t</i> (mm)				
	<i>t</i> ≤ 0,5	0,5 < <i>t</i> ≤ 1,2	1,2 < <i>t</i> ≤ 2,5	2,5 < <i>t</i> ≤ 3,2	3,2 < <i>t</i> ≤ 5
10 < <i>w</i> ≤ 15	7	10	-	-	-
15 < <i>w</i> ≤ 30	4	6	8	-	-
30 < <i>w</i> ≤ 50	3	4	6	7	By agreement
50 < <i>w</i> ≤ 1250	2	3	4	5	

* Values are referred from Table 9 of EN 13599:2014