

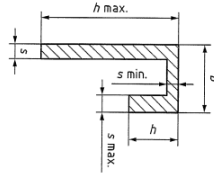
Datasheet: EN Cu-ETP / CW004A 99,9% Pure Copper Profile for general electrical purposes Alumeco ApS 21-03-2025		Internal alloy name: CW004A Metal: Copper Chemical Symbol: Cu-ETP EN: EN Cu-ETP UNS: C11000 SS: 5010 GB: TU00 / C10100 JIS: C1100 Also known as: - Alloy type: Electrical conducting					
Main usage: <ul style="list-style-type: none"> Automotive Cables and wires Clamps, connectors and fasteners Electrical installations Electronic products Lightning rods and grounding 		Important norms and literature: General Standards EN 13605:2013: Copper and copper alloys – Copper profiles and profiled wire for electrical purposes Geometric Tolerance: EN 13605:2013: Copper and copper alloys – Copper rod, bar and wire for general electrical purposes					
Main properties: <ul style="list-style-type: none"> High thermal and electrical conductivity Excellent forming properties 							
Chemical composition in %: EN 13605:2013							
Cu	Bi	Pb	O	Other elements			
99,90	Max. 0,0005	Max. 0,005	Max. 0,040	Each	Together		
				-	0,03		
Mechanical properties: EN 13605:2013							
Material Condition	Rectangular		Tensile strength R_m MPa Min.	0,2% proof strength $R_{p0,2}$ MPa	Elongation		Hardness HBW
	Thickness Max.	Width Max.			Min. % A_{100mm}	A	
D	50	180			As Drawn		
R200	50	180	200	Max. 120	25	35	-
H065	10	150	-	-	-	-	65 – 90
R240	10	150	240	Min. 160	-	15	-
R280	5	100	280	Min. 240	-	8	-
* Information values only;							
Physical properties:							
Density (20 °C) g/cm ³	Solidification range °C	Material condition	Electrical conductivity % IACS Min.	Volume resistivity $\frac{\Omega \times mm^2}{m}$ Max.	Mass resistivity $\frac{\Omega \times g}{m^2}$ Max.	Thermal conductivity (20 °C) W/m K	E – modulus (20 °C) N / mm ²
8,93	1083	D	96,6	0,01786	0,1588	394	110.000
		R200	100	0,01724	0,1533		
		R240, H065	98,3	0,01754	0,1559		
		R280	96,6	0,01786	0,1588		
Properties and information's (3 Excellent; 2 Good; 1 Poor/not recommendable)¹							
Machinability (Zerspanbarkeitsindex): 20* *(CuZn39Pb3 = 100)		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							
¹ Information extracted from Kupferverband;							

Tolerances for Profiles of CW004A

Dimensions: EN 13605:2013*

Tolerances for dimensions b and h , ration $b_{max.}$ or $h_{max.}$ to $s_{min.} < 20:1$

Values in millimetres



Nominal dimensions b and h	Tolerances for dimensions b and h within a circumscribing circle		
	≤ 50	$50 < b/h \leq 120$	$120 < b/h \leq 180$
$b/h \leq 10$	$\pm 0,11$	$\pm 0,18$	$\pm 0,29$
$10 < b/h \leq 18$	$\pm 0,14$	$\pm 0,22$	$\pm 0,35$
$18 < b/h \leq 30$	$\pm 0,17$	$\pm 0,26$	$\pm 0,42$
$30 < b/h \leq 50$	$\pm 0,20$	$\pm 0,31$	$\pm 0,50$
$50 < b/h \leq 80$	-	$\pm 0,37$	$\pm 0,60$
$80 < b/h \leq 120$	-	$\pm 0,44$	$\pm 0,70$
$120 < b/h \leq 180$	-	-	$\pm 0,80$

* Values are referred from Table 5 of EN 13605:2013

Dimensions: EN 13605:2013*

Tolerances for dimensions b and h , ration $b_{max.}$ or $h_{max.}$ to $s_{min.} \geq 20:1$

Values in millimetres

Nominal dimensions b and h	Tolerances for dimensions b and h within a circumscribing circle		
	≤ 50	$50 < b/h \leq 120$	$120 < b/h \leq 180$
$b/h \leq 10$	$\pm 0,18$	$\pm 0,29$	$\pm 0,45$
$10 < b/h \leq 18$	$\pm 0,22$	$\pm 0,35$	$\pm 0,55$
$18 < b/h \leq 30$	$\pm 0,26$	$\pm 0,42$	$\pm 0,65$
$30 < b/h \leq 50$	$\pm 0,31$	$\pm 0,50$	$\pm 0,80$
$50 < b/h \leq 80$	-	$\pm 0,60$	$\pm 0,95$
$80 < b/h \leq 120$	-	$\pm 0,70$	$\pm 1,10$
$120 < b/h \leq 180$	-	-	$\pm 1,25$

* Values are referred from Table 6 of EN 13605:2013

Dimensions: EN 13605:2013*

Thickness tolerances

Values in millimetres

Nominal thickness	Thickness tolerances within a circumscribing circle	
	$t \leq 50$	$50 < t \leq 180$
$t \leq 3$	$\pm 0,13$	$\pm 0,20$
$3 < t \leq 6$	$\pm 0,15$	$\pm 0,24$
$6 < t \leq 10$	$\pm 0,18$	$\pm 0,29$
$10 < t \leq 18$	$\pm 0,22$	$\pm 0,35$
$18 < t \leq 30$	$\pm 0,26$	$\pm 0,42$
$30 < t \leq 50$	-	$\pm 0,50$

* Values are referred from Table 7 of EN 13605:2013

Dimensions: EN 13605:2013*

Radius tolerances

Nominal radius mm	Normal tolerances	Close tolerances
$r \leq 5$	$\pm 15\%$ ($\pm 0,4$ mm min.)	$\pm 10\%$ ($\pm 0,3$ mm min.)
$r > 5$	$\pm 10\%$ ($\pm 0,75$ mm min.)	$\pm 8\%$ ($\pm 0,5$ mm min.)

* Values are referred from Table 8 of EN 13605:2013

Dimensions: EN 13605:2013*

Thickness tolerances

Values in millimetres

Sharp corners	Maximum radii	
	normal	reduced
External/internal	0,8 mm	0,5 mm

NOTE: If sharp corners are not essential, for ease of production and for tool life it is desirable to produce the largest radius possible, particularly on internal corners (values of 1,5 mm or more facilitate the production process).

* Values are referred from Table 9 of EN 13605:2013

Dimensions: EN 13605:2013* Twist tolerances – coefficient <i>f</i>			Values in millimetres
Diameter of the circumscribing circle	Coefficient <i>f</i> for twist tolerance <i>v</i>		
	per 1 m length	on total length <i>l</i> greater than 2 m	
$15 \leq D \leq 50$	0,08	0,15	
$50 < D \leq 120$	0,05	0,10	
$120 < D \leq 180$	0,04	0,08	

* Values are referred from Table 10 of EN 13605:2013

Dimensions: EN 13605:2013* Straightness tolerances for profiles				Values in millimetres
Diameter of the circumscribing circle mm	Maximum deviation from straightness			
	h_2 in any length l_2 of 400 mm	h_1 for total length l_1 $1 \text{ m} < l_1 \leq 4 \text{ m}$	h_1 for total length l_1 $> 4 \text{ m}$	
$15 < D \leq 180$	1,2 mm	3,0 mm $\times l_1$	to be agreed	

* Values are referred from Table 11 of EN 13605:2013

Dimensions: EN 13605:2013* Tolerances on “manufactured” lengths				Values in millimetres
Nominal length	Diameter of the circumscribing circle		Tolerance on length ^a	
	$D >$	$D \leq$		
3000, 3500, 4000, 4500, 5000, 5500, 6000	-	50	± 200	
by agreement	50	120	± 300	
	120	180	± 500	

a. 10 % if the number of profiles of a consignment may be shorter than the tolerance given, but not less than 50 % of the nominal length.

* Values are referred from Table 12 of EN 13605:2013

Dimensions: EN 13605:2013* Tolerances on “fixed” lengths				Values in millimetres
Diameter of the circumscribing circle	Tolerances on length for fixed lengths			
	$L \leq 1000$	$1000 < L \leq 2000$	$2000 < L \leq 6000$	
$D \leq 50$	+ 4 0	+ 5 0	+ 8 0	
$50 < D \leq 120$	+ 5 0	+ 6 0	+ 9 0	
$120 < D \leq 180$	+ 6 0	+ 7 0	+ 10 0	

* Values are referred from Table 13 of EN 13605:2013

Dimensions: EN 13601:2013* Sampling rate	
Mass per unit length kg/m	Mass of inspection lot for one test sample kg
$\rho \leq 1$	≤ 500
$1 < \rho \leq 5$	≤ 1000
$5 < \rho \leq 20$	≤ 1500
$20 < \rho \leq 50$	≤ 2000

NOTE: Larger masses require sampling in proportion, up to a maximum of five test samples.

* Values are referred from Table 14 of EN 13605:2013