

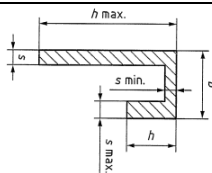
<b>Datasheet:</b>  <b>EN Cu-HCP / CW021A</b> <b>99,95% Pure Copper</b> <b>Profile for general electrical purposes</b>  <b>Alumeco ApS</b> 21-03-2025		<b>Internal alloy name:</b> CW021A <b>Metal:</b> Copper  <b>Chemical Symbol:</b> Cu-HCP  <b>EN:</b> EN Cu-HCP <b>UNS:</b> C10300 <b>SIS:</b> - <b>GB:</b> TU0.003 / C10300 <b>JIS:</b> -  <b>Also known as:</b> - <b>Alloy type:</b> Electrical conducting					
<b>Main usage:</b> <ul style="list-style-type: none"> <li>Electrical conductors</li> <li>Industrial applications – e.g. boilers, pressure tanks, piping etc.</li> <li>Components for impact extrusion</li> </ul>		<b>Important norms and literature:</b>  <b>General Standards</b> EN 13605:2013: Copper and copper alloys – Copper profiles and profiled wire for electrical purposes  <b>Geometric Tolerance:</b> EN 13605:2013: Copper and copper alloys – Copper rod, bar and wire for general electrical purposes					
<b>Main properties:</b> <ul style="list-style-type: none"> <li>High thermal and electrical conductivity</li> <li>Good atmospheric corrosion resistance</li> <li>Good welding and soldering properties as well as resistance to hydrogen</li> </ul>							
<b>Chemical composition in %: EN 13605:2013</b>							
<b>Cu</b>	<b>Bi</b>	<b>Pb</b>	<b>Pb</b>	<b>Other elements</b>			
Min. 99,95	Max. 0,0005	0,002 – 0,007	Max. 0,005	Each - Together 0,03			
<b>Mechanical properties: EN 13605:2013</b>							
Material Condition	Rectangular		Tensile strength R <sub>m</sub>	0,2% proof strength R <sub>p0,2</sub>	Elongation		Hardness HBW
	Thickness Max.	Width/Height Max.	MPa Min.	MPa	Min. % A <sub>100mm</sub>	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;							
<b>Physical properties:</b>							
Density (20 °C)	Solidification range	Material condition	Electrical conductivity	Volume resistivity	Mass resistivity	Thermal conductivity (20 °C)	E – modulus (20 °C)
g/cm <sup>3</sup>	°C		% IACS Min.	$\frac{\Omega \times \text{mm}^2}{\text{m}}$ Max.	$\frac{\Omega \times \text{g}}{\text{m}^2}$ Max.	W/m K	N / mm <sup>2</sup>
8,94	1083	D	94,8	0,01818	0,1616	385	115.000
		R200	98,3	0,01754	0,1559		
		R240, H065	96,6	0,01786	0,1588		
		R280	94,8	0,01818	0,1616		
<b>Properties and information's (3 Excellent; 2 Good; 1 Poor/not recommendable)<sup>1</sup></b>							
<b>Machinability (Zerspanbarkeitsindex): 20*</b> *(CuZn39Pb3 = 100)		<b>Joining Methods:</b> Soldering: 3 Brazing: 3 Laser welding: 1-2 Gas-shielded arc welding: 1 TIG welding: 2-3 MIG welding: 2-3 Spot/seam welding: 1 Butt welding: 2 Gluing/adhesion: 2			<b>Surface Treatment:</b> <u>Polishing:</u> Mechanical: 3 Electrolytic: 3  <u>Galvanizing:</u> 3  <u>Hot Dipping:</u> 3		
<b>Forming Methods:</b> Hot Formability: 2 Cold Formability: 3							
<b>Corrosion resistance:</b> Atmosphere: 2 Waters and alkaline: 2 Acids, Ammonia, Seawater etc.: 1							
*Information extracted from Kupferverband;							

## Tolerances for Profiles of CW0021A

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		
	$\leq 50$	$50 < b/h \leq 120$	$120 < b/h \leq 180$
$b/h \leq 10$	$\pm 0,11$	$\pm 0,18$	$\pm 0,29$
$10 < b/h \leq 18$	$\pm 0,14$	$\pm 0,22$	$\pm 0,35$
$18 < b/h \leq 30$	$\pm 0,17$	$\pm 0,26$	$\pm 0,42$
$30 < b/h \leq 50$	$\pm 0,20$	$\pm 0,31$	$\pm 0,50$
$50 < b/h \leq 80$	-	$\pm 0,37$	$\pm 0,60$
$80 < b/h \leq 120$	-	$\pm 0,44$	$\pm 0,70$
$120 < b/h \leq 180$	-	-	$\pm 0,80$

\* 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		
	$\leq 50$	$50 < b/h \leq 120$	$120 < b/h \leq 180$
$b/h \leq 10$	$\pm 0,18$	$\pm 0,29$	$\pm 0,45$
$10 < b/h \leq 18$	$\pm 0,22$	$\pm 0,35$	$\pm 0,55$
$18 < b/h \leq 30$	$\pm 0,26$	$\pm 0,42$	$\pm 0,65$
$30 < b/h \leq 50$	$\pm 0,31$	$\pm 0,50$	$\pm 0,80$
$50 < b/h \leq 80$	-	$\pm 0,60$	$\pm 0,95$
$80 < b/h \leq 120$	-	$\pm 0,70$	$\pm 1,10$
$120 < b/h \leq 180$	-	-	$\pm 1,25$

\* 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 $f$		
Diameter of the circumscribing circle	Coefficient $f$ for twist tolerance $v$	
	per 1 m length	on total length $l$ 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			
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 $l_1$	
		$1 \text{ m} < l_1 \leq 4 \text{ m}$	$> 4 \text{ m}$
$15 < D \leq 180$	1,2 mm	$3,0 \text{ mm} \times l_1$	to be agreed

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

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

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			
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	+ 5	+ 8
	0	0	0
$50 < D \leq 120$	+ 5	+ 6	+ 9
	0	0	0
$120 < D \leq 180$	+ 6	+ 7	+ 10
	0	0	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
$\rho \leq 1$	$\leq 500$
$1 < \rho \leq 5$	$\leq 1000$
$5 < \rho \leq 20$	$\leq 1500$
$20 < \rho \leq 50$	$\leq 2000$

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