

Datasheet: EN Cu-ETP / CW004A 99,9% Pure Copper Rod for general purposes Alumeco ApS 13-01-2025				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: - Automotive - Cables and wires - Clamps, connectors and fasteners - Electrical installations - Electronic products - Industrial applications – Food & Chemical - Lightning rods and grounding				Important norms and literature: General Standards EN 12163:2024: Copper and copper alloys – Rod for general purposes Geometric Tolerance: EN 12163:2024: Copper and copper alloys – Rod for general purposes					
Main properties: - High thermal and electrical conductivity - Excellent forming properties									
Chemical composition in %: EN 12163:2024									
Cu		Bi		Pb		O		Other elements	
								Each	together
99,9		Max. 0,0005		Max. 0,005		Max. 0,040		-	0,03
Mechanical properties: EN 12163:2024									
Material Condition	Round, Square & Hexagonal	Thickness Range	Width range	Rm	Rp _{0,2}	A _{100mm}	A	Hardness HBW	Hardness HV
	mm	mm	mm	MPa	MPa	%	%		
D	2 - 160	0,5 - 40	1 - 200	COLD WORKED WITHOUT SPECIFIED PROPERTIES					
R250 (F25)	2 - 10	1 - 10	5 - 200	250	Min. 200	Min. 8	Min. 12	-	-
R280 (F30)	2 - 10	1 - 10	5 - 200	280	Min. 240	-	Min. 10	83 - 100	90 - 110
* Information values only;									
Physical properties:									
Density (20 °C)	Solidification range	Electrical conductivity	Thermal conductivity (20 °C)	Thermal expansion (20 - 300 °C)	Annealing temperature	E – modulus (20 °C)			
g/cm ³	°C	%IACS	W/m K	µm m ⁻¹ K ⁻¹	°C	N / mm ²			
8,93	1083	96,6 – 100	394	17	-	110.000			
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: Polishing: Mechanical: 2 Electrolytic/chemical: 3 Galvanizing: 3 Hot Dipping: 3		
Forming Methods: Hot Formability: 2 Cold Formability: 3									
Corrosion resistance: Atmosphere: 2 Waters and alkaline: 2 Acids, Ammonia, Seawater: 1									
¹Information extracted from Kupferverband;									

Tolerances for Rods of CW004A

Dimensions: EN 12163:2024*

Dimensional tolerances for rod

Nominal diameter or width across-flats	Tolerances	
	Class A	Class B
$1,6 \leq d/w \leq 3$	$\pm 0,10$	$\pm 0,05$
$3 < d/w \leq 6$	$\pm 0,15$	$\pm 0,08$
$6 < d/w \leq 10$	$\pm 0,20$	$\pm 0,11$
$10 < d/w \leq 18$	$\pm 0,25$	$\pm 0,14$
$18 < d/w \leq 30$	$\pm 0,30$	$\pm 0,17$
$30 < d/w \leq 50$	$\pm 0,60$	$\pm 0,20$
$50 < d/w \leq 80$	$\pm 0,70$	$\pm 0,37$

* Values are referred from Table 17 of EN 12163:2024

Dimensions: EN 12163:2024*

Tolerances on straightness of rod

Nominal diameter or width across-flats	Maximum deviation from straightness (See Figure 1 in EN 12163:2024)	
	h_2 depth of arch in any length l_2 of 400 mm	h_1 depth of arch in any length l_1 of 1000 mm
$10 \leq d/w \leq 50$	2,5	6,0

* Values are referred from Table 18 of EN 12163:2024

Dimensions: EN 12163:2024*

Corner radii for square and polygonal rod

Nominal width across-flats	Radii for sharp and rounded corners	
	Sharp max.	Rounded range
$1,6 \leq w \leq 3$	0,2	0,2 – 0,3
$3 < w \leq 6$	0,3	0,3 – 0,5
$6 < w \leq 10$	0,4	0,4 – 0,8
$10 < w \leq 18$	0,5	0,5 – 1,2
$18 < w \leq 30$	0,6	0,6 – 1,8
$30 < w \leq 50$	0,7	0,7 – 2,8
$50 < w \leq 80$	0,8	0,8 – 4,0

* Values are referred from Table 19 of EN 12163:2024

Dimensions: EN 12163:2024*

Maximum twist of square and polygonal rod

Nominal width across-flats w	Maximum permitted twist V in any 1 m length of rod
$10 \leq w \leq 18$	2,0
$18 < w \leq 30$	3,0
$30 < w \leq 60$	4,0

* Values are referred from Table 20 of EN 12163:2024

Dimensions: EN 12163:2024*

Sampling rate

Nominal width across-flats w (mm)	Mass of inspection lot for one test sample kg
$w \leq 25$	≤ 1000
$25 < w$	≤ 2000

* Values are referred from Table 21 of EN 12163:2024