

Datasheet: EN CuBe2 / CW101C Less than 5 % alloying elements Profiles and bars for general purposes Alumeco ApS 23-05-2025				Internal alloy name: CW101C Metal: Copper Chemical Symbol: CuBe2 EN: EN CuBe2 UNS: C17200 SS: - GB: - DIN: 2.1247 Also known as: Beryllium Copper Alloy type: Engineering Copper			
Main usage: - Bearings - Electrical connectors - Welding electrodes - Corrosion resistant components - Moulds and general cooling inserts Main properties: - High strength - Excellent cold workability - Good hot formability - Good electrical conductivity				Important norms and literature: General Standards EN 12167:2016: Copper and copper alloys – Profiles and bars for general purposes Geometric Tolerance: EN 12167:2016: Copper and copper alloys – Profiles and bars for general purposes			
Chemical composition in %: EN EN 12167:2016							
Cu		Be	Co	Fe	Ni	Other elements	
Remaining		1,8 – 2,1	Max. 0,3	Max. 0,2	Max. 0,3	Max. 0,5	
Mechanical properties: EN EN 12167:2016							
Material Condition	Bar thickness mm	Tensile strength R _m Min. MPa	0,2% proof Strength R _m Min. MPa	Elongation			Hardness HBW
				Min. %			
				A _{100 mm}	A _{11,3}	A	
R1150	3 – 30	1150	1000	-	-	2	-
H340	3 – 30	-	-	-	-	-	340 – 410
R1300	3 – 30	1300	1100	-	-	2	-
H350	3 – 30	-	-	-	-	-	350 – 430
* 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	
8,3	875 – 985	27	120	17	750 – 800	135.000	
Properties and information's (3 Excellent; 2 Good; 1 Poor/not recommendable) ¹							
Machinability (Zerspanbarkeitsindex): 50* *(CuZn39Pb3 = 100) Forming Methods: Hot Formability: 2 Cold Formability: 2 Corrosion resistance: Atmosphere: 2 Waters and alkaline: 2 Acids, Ammonia, Seawater: 1				Joining Methods: Soldering: 2 Brazing: 2 Gas-shielded arc welding: 2 MIG/TIG 1-2 Surface Treatment: Polishing: Mechanical: 2 Electrolytic/chemical: 2 Galvanizing: 2			

Tolerances for Bars of CW101C

Dimensions: EN 12167:2016*

Tolerances on width and thickness of bar

Nominal thickness t (mm)	Tolerance on width	Tolerance on thickness for range of thickness (mm)					
		3 < t ≤ 6	6 < t ≤ 10	10 < t ≤ 18	18 < t ≤ 30	30 < t ≤ 50	50 < t ≤ 60
Class A tolerance							
3 ≤ t ≤ 18	± 0,27	± 0,18	± 0,22	± 0,27	-	-	-
18 < t ≤ 30	± 0,33	± 0,18	± 0,22	± 0,27	± 0,33	-	-
30 < t ≤ 50	± 0,62	± 0,22	± 0,27	± 0,33	± 0,45	± 0,62	-
50 < t ≤ 80	± 1,20	± 0,27	± 0,33	± 0,45	± 0,52	± 0,74	± 1,00
80 < t ≤ 120	± 2,20	± 0,33	± 0,45	± 0,52	± 0,74	± 1,00	± 1,20
Class B tolerance							
3 ≤ t ≤ 18	± 0,15	± 0,10	± 0,12	± 0,15	-	-	-
18 < t ≤ 30	± 0,22	± 0,10	± 0,12	± 0,15	± 0,22	-	-
30 < t ≤ 50	± 0,30	± 0,13	± 0,15	± 0,18	± 0,22	± 0,30	-
50 < t ≤ 80	± 0,37	± 0,16	± 0,18	± 0,22	± 0,30	± 0,37	-
80 < t ≤ 120	± 0,45	± 0,18	± 0,22	± 0,27	± 0,35	± 0,45	-
Class C tolerance							
3 ≤ t ≤ 18	± 0,10	± 0,07	± 0,09	± 0,10	-	-	-
18 < t ≤ 30	± 0,15	± 0,07	± 0,09	± 0,10	± 0,15	-	-
30 < t ≤ 50	± 0,20	± 0,09	± 0,10	± 0,12	± 0,15	± 0,20	-
50 < t ≤ 80	± 0,25	± 0,11	± 0,12	± 0,15	± 0,20	± 0,25	-
80 < t ≤ 120	± 0,30	± 0,12	± 0,15	± 0,18	± 0,23	± 0,35	-

* Values are referred from Table 17 of EN 12167:2016

Dimensions: EN 12167:2016*

Tolerances on length of bar

Nominal width w (mm)	Preferred (available) lengths (mm)	Tolerance on length (mm)
3 ≤ w ≤ 18	3000, 4000	± 50
18 < w ≤ 30	3000, 4000	± 100
30 < w ≤ 50	2000, 3000, 4000	± 150
50 < w ≤ 80	2000, 3000	± 200
80 < w ≤ 120	1000, 2000	± 200

* Values are referred from Table 18 of EN 12167:2016

Dimensions: EN 12167:2016*

Tolerances on straightness of bar, for widths 10 mm and over

Tolerance class	Maximum deviation from straightness (mm)	
	Localized over any 400 mm length	Over whole length L of bar in metres (L ≥ 1m)
A	2,4	6,0 * L
B	1,6	4,0 * L
C	0,8	2,0 * L

* Values are referred from Table 19 of EN 12167:2016

Dimensions: EN 12167:2016*

Maximum twist of bar

Nominal width w (mm)	Maximum permitted twist V in any 1000 mm length of bar (See Figure 2 in EN 12167:2016)		
	Class A	Class B	Class C
3 ≤ w ≤ 18	2,0	1,5	1,0
18 < w ≤ 30	3,0	2,3	1,5
30 < w ≤ 50	4,0	3,0	2,0
50 < w ≤ 80	6,0	4,5	3,0
80 < w ≤ 120	9,0	9,0	4,5

For bar of total length greater than 2000 mm, the permitted twist over the total length shall be twice the appropriate maximum given in the table for "in any 1000 mm".

* Values are referred from Table 20 of EN 12167:2016

Dimensions: EN 12167:2016*
Corner radii of bar

Nominal thickness t (mm)	Radii of corners	
	Sharp max.	Rounded range
$3 \leq t \leq 6$	0,3	0,3 – 0,5
$6 < t \leq 10$	0,4	0,4 – 0,8
$10 < t \leq 18$	0,5	0,5 – 1,2
$18 < t \leq 30$	0,6	0,6 – 1,8
$30 < t \leq 40$	0,7	0,7 – 2,8
$40 < t \leq 60$	0,8	0,8 – 4,0

NOTE: A bar having rounded corners of radius greater than those covered by this table is considered to be a profile

* Values are referred from Table 21 of EN 12167:2016