Datasheet:

EN CuZn40Pb2Al / CW618N
Brass with Lead
Profiles and bars for general purposes

Alumeco ApS
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Internal alloy name:	**CW618N**
Metal:	**Brass**
Chemical Symbol:	**CuZn40Pb2Al**
EN:	**EN CuZn40Pb2Al**
UNS:	**C38000**
SIS:	**-**
GB:	**-**
JIS:	**C3801**
Also known as:	**-**
Alloy type:	**Brass with lead**

Main usage:

- Sanitary, heating and industrial fixtures
- Machined parts, screws, gears, nuts and bolts
- Components for watches, glass hinges, bike valves
- Furniture fittings

Main properties:

- Excellent machinability
- Great hot formability properties
- Good for soldering

Important norms and literature:

General Standards
EN 13388:2015: Copper and copper alloys – Compendium of compositions and products

Geometric Tolerance
EN 12167:2016: Copper and copper alloys – Profiles and bars for general purposes

Chemical composition in %: EN 13388:2015

Cu	Al	As	Fe	Ni	Pb	Sn	Zn	Others
57,0 – 59,0	0,05 – 0,5	-	Max. 0,3	Max. 0,3	1,6 – 3,0	Max. 0,3	Remaining	Max. 0,2

Mechanical properties: EN 12167

Material Condition	Bar thickness mm	Tensile Strength R_m Min. MPa	0,2% Proof Strength $Rp_{0,2}$ MPa	Elongation Min. % A_{100mm}	$A_{11,3}$	A	Hardness HBW	Tolerance Class
R360	6 – 40	360	Max. 320	-	15	20	-	B
H090		-	-	-	-	-	90 – 125	
R430	3 – 20	430	Min. 220	6	8	10	-	
H110		-	-	-	-	-	110 – 160	
R500	3 – 10	500	Min. 350	2	5	8	-	
H135		-	-	-	-	-	Min. 135	

*** Information values only;**

Physical properties:

Density (20 °C) g/cm³	Solidification range °C	Electrical conductivity %IACS	Thermal conductivity (20 °C) W/m K	Thermal expansion (20 - 300 °C) µm m^{-1} K^{-1}	Annealing temperature ºC	E – modulus (20 °C) N / mm²
8,3	880 – 895	26	113	26,0	450 - 650	97000

Properties and information's (3 Excellent; 2 Good; 1 Poor/not recommendable)

Machinability(Zerspanbarkeitsindex): 90*
*(CuZn39Pb3 = 100)

Forming Methods:

Hot Formability:	2
Cold Formability:	1

Corrosion resistance:

Atmosphere:	2
Waters and alkaline:	1-2
Acids, Ammonia, Seawater etc.:	1

Joining Methods:

Soldering:	3
Brazing:	2
Oxy-acetylene welding:	1
Gas-shielded arc welding:	1
TIG welding:	1
MIG welding:	1
Gluing/adhesion:	2

Surface Treatment:

Polishing:	
Mechanical:	2
Electrolytic/chemical:	1
Galvanizing:	3
Hot Dipping:	3

Tolerances for Bars of CW618N

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 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	-

* 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 ≤ *t* ≤ 6	0,3	0,3 – 0,5
6 < *t* ≤ 10	0,4	0,4 – 0,8
10 < *t* ≤ 18	0,5	0,5 – 1,2
18 < *t* ≤ 30	0,6	0,6 – 1,8
30 < *t* ≤ 40	0,7	0,7 – 2,8
40 < *t* ≤ 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