

Technical Specifications

CW510L

Alloy	
EN Symbol	CuZn42
EN No	CW510L
ASTM	C28500
DIN	

CW510L Chemical Composition								
	Cu	Pb	Sn	Fe	Ni	Al	Si	Zn
Min	57,00	-	-	-	-	-	-	-
Max	59,00	0,20	0,30	0,30	0,30	0,05	-	Kalan

CW510L-DW Chemical Composition								
	Cu	Pb	Sn	Fe	Ni	Al	Si	Zn
Min	57,00	-	-	-	-	-	-	-
Max	59,00	0,20	0,30	0,30	0,20	0,05	-	Kalan

Applications and Features

It is used in sectors such as automotive, contruction, gas and food etc. It is low lead so it is also used in potable water sectors.

Due to its low lead content it is referred to as lead free brass.

It is suitable for potable water directive. It is on the list of 4MS Postive List. To CW510L-DW 4MS and UBA material product group is B-D.

Production Standard	
Solid Bar for Machining (Chamfered)	EN 12164
Solid Bar for Forging	EN 12165
Hollow Bar for Machining (Chamfered upon request)	EN 12168
Profile for Machining	EN 12167

Heat Treatment		
Annealing	450 – 550 °C	1 – 2 hours
Stress Relieving Annealing	200 – 320 °C	1 – 2 hours

Technical Properties		
Structure		$\alpha+\beta$
Density	g/cm ³	8,37
Coefficient of Thermal Expansion	10-6/K	00022
Electrical Conductivity (%)	IACS	00031
Thermal Conductivity	W/(m K)	00139
Elastic Modulus	GPa	00085
Melting Temperature	°C	850-900

Machining Properties	
Machinability	Good
Hot Forming (700-800 °C)	Very Good
Cold Forming	Poor

Corrosion Resistance	
Low Corrosion Resistance	

EN 12164:2024 - Free Machining Rod Standard Mechanical Properties

Material Condition	Diameter		Parallel Surface (mm)		Tensile Strength Rm	0,2 % Yield Strength Rp 0,2		Elongation			Hardness	
	(mm)		(mm)		N/mm2 (MPa)	N/mm2 (MPa)		A100 mm (%)	A11,3 (%)	A (%)	(HBW)	
	Above	Including	Abv.	Inc.	Min	Min	Max	Min	Min	Min	Min	max
M	All		All		As produced							
R360	4	60	5	55	360	-	350	-	15	20	-	-
H090	4	60	5	55	-	-	-	-	-	-	90	125
R430	4	60	5	40	430	220	-	6	8	10	-	-
H110	4	60	5	40	-	-	-	-	-	-	110	160
R500	4	20	5	10	500	350	-	-	3	5	-	-
H135	4	20	5	10	-	-	-	-	-	-	135	-

* Please contact us for R360 condition.

EN 12165:2024 - Forging Stock Standard Mechanical Properties

Material Condition	Diameter (mm)		Hardness	
	(mm)		(HBW)	
	Above	Including	Min	max
M	All		As produced	
H090	5	110	90	125

* Mechanical properties are referenced according to the EN 12164 standard.

EN 12168:2024 - Free Machining Hollow Rod Standard Mechanical Properties

Material Condition	Wall Thickness		Tensile Strength Rm	0,2 % Yield Strength Rp 0,2		Elongation	Hardness	
	(mm)		N/mm2 (MPa)	N/mm2 (MPa)		A (%)	(HBW)	
	Above	Including	Min	Min	Max	Min	Min	Min
M	All		As produced					
R360	4	25	360	-	320	20	-	-
H090	4	25	-	-	-	-	90	125
R430	4	15	430	220	-	10	-	-
H110	4	15	-	-	-	-	110	160
R500	4	7	500	350	-	8	-	-
H135	4	7	-	-	-	-	135	-

* Hollow tubes are produced in M condition. Please contact us for special requests.

EN 12164:2024 - Free Machining Rod Standard Dimensional Tolerances

Dimensional tolerances of the round bar (including deviation from roundness)					Dimensional tolerances of the width between parallel surfaces of regular polygon bars
Nominal Diameter (mm)		Tolerance (mm)			
Above	Up to and including...	Class A	Class B	Class C	Tolerance (mm)
2	3	-0,04	-0,025	-0,015	-0,06
3	6	-0,05	-0,03	-0,020	-0,08
6	10	-0,06	-0,036	-0,025	-0,09
10	18	-0,07	-0,043	-	-0,11
18	30	-0,08	-0,052	-	-0,13
30	50	-0,16	-	-	-0,016
50	55	-0,19	-	-	-0,19

* Please contact us for Class C tolerances.

EN 12164:2024 - Free Machining Rod Length Standard

Length tolerance (mm) for bars in nominal lengths			
Nominal diameter or width between parallel surfaces		Preferred (Available) Lengths	Length Tolerances
Above	Up to and including...		
2	30	3000 or 4000	±0,50
30	50	3000 or 4000	±0,100
50	60	3000	±0,100

EN 12165:2024 - Round Forging Stock Diameter Tolerance

Nominal Diameter (mm)		Tolerance (mm)	
Above	Up to and including...	Class A	Class B
10	18	±0,25	±0,14
18	30	±0,30	±0,17
30	50	±0,60	±0,20
50	65	±0,70	±0,37
65	80	±0,70	-
80	110	±2	-

* For forged stocks, length and length tolerance are determined mutually. If no request is specified, the manufacturer will decide on the length.

EN 12168:2024 - Free Machining Hollow Rod Standard Dimensional Tolerances

Outer diameter or width between parallel surfaces tolerances					Wall Thickness Tolerance		Wall Thickness Tolerance %	Bore Diameter Tolerances			
Nominal outer diameter or distance between parallel surfaces (mm)		Tolerances (mm)			Nominal Wall Thickness (mm)			Nominal Bore Diameter (mm)		Bore Diameter Tolerance(mm)	
Abv.	Inc.	Class A	Class B	Class C	Abv.	Inc.		Abv.	Inc.	Class A	Class B
17	18	-	-0,18	-0,11	2a	3	±12*Wall Thickness	10	18	±35	±14
18	30	-	-0,21	-0,13	3	6	±10* Wall Thickness	18	30	±42	±17
30	50	±0,31	-0,25	-0,16	6	10	±9* Wall Thickness	30	50	±80	±20
50	80	±0,60	-0,46	-0,30	10	-	±8* Wall Thickness	50	70	±95	±37

*For hollow tubes;

- 1- The minimum outer diameter is produced as 19mm.
- 2- Minimum wall thickness is 3mm.
- 3- Maximum diameter is 89mm.

EN 12168:2024 - Free Machining Hollow Rod Length Standard
Length Tolerance (mm) for Bars in Nominal Lengths

Nominal Diameter or Width Between Parallel Surfaces		Preferred (Available) Lengths	Length Tolerances
Above	Up to and including...		
18	30	2700 - 4000	±0,50
30	50	2500 - 3500	±0,100
50	80	2000 - 3000	±0,100

Chamfer
Determining Shaped End Dimensions (mm)

Nominal Diameter D or Distance Between Parallel Surfaces W		Figure 1 – Chamfer, Length L		Figure 2 – Sharpened, Length L	
Above	Up to and including...	Min.	Max.	Min.	Max.
5	10	0,2	1,5	2,0	7,0
10	20	0,2	2,0	3,0	10,0
20	30	0,2	3,0	4,0	12,0

*Chamfering is done to remove burrs.

*Tapering is done for easy feeding of bars into automatic feeding devices.

*Please contact us for chamfering on products over 50mm.

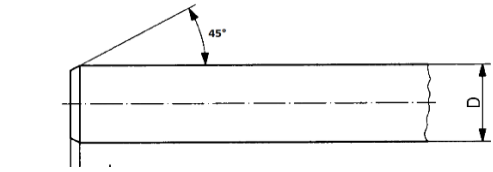


Fig. 1 Chamfer

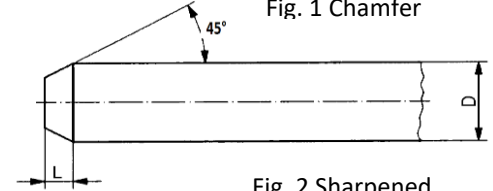


Fig. 2 Sharpened

Stress Relieving

According to the EN 12164 standard, stress relieving annealing is not performed unless a special request is specified.

Stress relieving annealing is performed on all products that have undergone cold forming according to the EN 12168 standard.

Packing

After chamfering, all products according to the EN 12164 and EN 12168 standards are packaged in thick nylon.

Bundles range from 500 to 1000 kg.

If there is a special request, the products are shipped in wooden crates.