

Technical Specifications

CW511L

Alloy	
EN Symbol	CuZn38As
EN No	CW511L
ASTM	C27453
DIN	50930-6

CW511L Chemical Composition								
	Cu	Pb	Sn	Fe	Ni	Al	As	Zn
Min	61,50	-	-	-	-	-	0,02	-
Max	63,50	0,20	0,10	0,10	0,30	0,05	0,15	Kalan

Applications and Features

An alloy characterized by high resistance to dezincification, it is used in parts where water flows through and dezincification resistance is required.

It is also classified as a lead-free brass due to its low lead content.

It complies with ISO 6509 dezincification resistance criteria. Approved for drinking water applications according to the 4MS and UBA material lists. Material limitation category: 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
Annealing	450 – 550 °C	1 – 2 hours

Technical Properties		
Structure		α
Density	g/cm ³	8,41
Coefficient of Thermal Expansion	10-6/K	00021,7
Electrical Conductivity (%)	IACS	00025,40
Thermal Conductivity	W/(m K)	00114
Elastic Modulus	GPa	00100
Melting Temperature	°C	850-900

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

Corrosion Resistance
High Dezincification and 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)	
	Abv.	Inc.	Abv.	Inc.	Min	Min	Max	Min	Min	Min	Min	max
M	All		All		As produced							
R280	10	80	8	55	280	-	200	-	25	30	-	-
H070	10	80	8	55	-	-	-	-	-	-	70	110
R320	10	60	8	50	320	200	-	-	15	20	-	-
H90	10	60	8	50	-	-	-	-	-	-	90	135
R400	10	15	8	13	400	250	-	-	5	8	-	-
H105	10	15	8	13	-	-	-	-	-	-	105	-

* Please contact us for R280 Condition.

EN 12165:2024 - Forging Stock Standard Mechanical Properties

Material Condition	Diameter (mm)		Hardness	
	(mm)		(HBW)	
	Above	Included	Min	max
M	All		As produced	
H070	8	110	70	110

* 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	Included	Min	Min	Max	Min	Min	Min
M	All		As produced					
R280	3	All	280	-	200	30	-	-
H070	3	All	-	-	-	-	70	120
R320	3	20	320	200	-	20	-	-
H90	3	20	-	-	-	-	90	145
R400	3	8	400	250	-	8	-	-
H105	3	8	-	-	-	-	105	-

* 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)		Tolerances(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)		Tolerances(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 Tolerances(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

* Please contact us for hollow tube orders.

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.

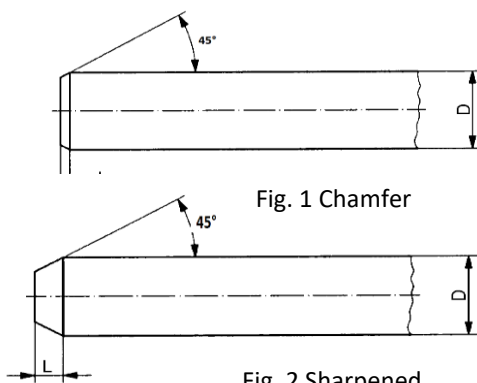


Fig. 1 Chamfer

Fig. 2 Sharpened

Stress Relieving

According to the EN 12167 standard, stress relieving annealing is not performed unless a special request is specified.

Packaging

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.