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TECHNICAL DATA SHEET

CW511L - CuZn38As

S511 - S511DW

RODS / HOLLOW RODS

CW511L - CuZn38As

Product Code	EN Symbol	EN No	ASTM		Cu	Zn	Pb	Sn	Fe	Ni	Al	As	Others Total
S511	CuZn38As	CW511L	C27453	Min (%)	61,5	Rem.	-	-	-	-	-	0,02	-
				Max (%)	63,5	Rem.	0,2	0,1	0,1	0,3	0,05	0,15	0,2
(*) S511DW	CuZn38As-DW	CW511L-DW	C27453	Min (%)	61,5	Rem.	-	-	-	-	-	0,02	-
				Max (%)	63,5	Rem.	0,2	0,1	0,1	0,3	0,05	0,15	0,2

(*) Each of the other elements< 0,02 %

Features And Applications

CW511L alloy is standard dezincification resistant brass with low lead content. Chips and parts can be mixed with CW602N alloy. CW511L meets ISO 6509 requirements regarding the dezincification resistance. Approximately 2 hours annealing at around 500 °C is recommended for EN ISO 6509 standard compliance after hot forging process. Depending on the process conditions, temperature and time can also change.
Also these alloy compliance with RoHS II and REACH directives. CW511L-DW alloy be used suitable for 4MS vs UBA list for drinking water applications.

4MS and UBA Hygienic list group for CW511L-DW alloy: B, C, D

Area of Usage

This alloy suitable for drinking water application in USA and Canada Markets because of the lead content below 0.2%. Thanks to a good dezincification resistance properties, it is suitable for the manufacture of parts used in aggressive (corrosive) water.

TECHNICAL SPECIFICATIONS

Structure	α	**Melting Point**	850-900 °C
Machinability	% 40	**Hot Forming**	600-800 °C
Density	8,41 g/cm³	**Soft Annealing**	450-550 °C
Electrical Conductivity	14,7 MS/m, 25,4 %IACS	**Soft Annealing Time**	1-3 hours
Thermal Conductivity	114 W/(m·K)	**Stress Relieving**	200-250 °C
Elasticity Module	100 kN/mm²	**Stress Relieving Time**	1-3 hours
Coeff. of Thermal Expansion	21,7 10^{6}/K	**Max. Depth of Dezincification**	<100 µm

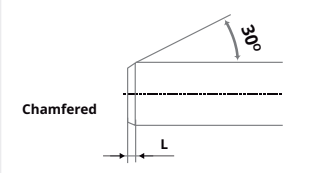
Range of Products

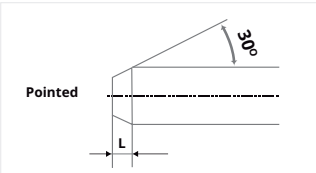
S511L and S511L-DW alloys can be produced in our extrusion and cold drawing unit as rods, hollows and profiles suitable for both forging and machining. Please contact us for other technical informations.

INDICATIVE SHAPED ENDS DIMENSIONS

Nominal Diameter or Width		Type A – Chamfer Lenght (L)		Type B – Point Lenght (L)	
Across-flats (mm)		**Min** (mm)	**Max** (mm)	**Min** (mm)	**Max** (mm)
Over	Up to and including				
-	10	0,2	1,5	2	7
10	20	0,2	2	3	10
20	30	0,2	3	4	12

Unless otherwise specified by the buyer, the shape of the ends of products larger than 30 mm is up to the supplier.





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Nominal Diameter or Width Across-flats (mm)		Preferred (available) Lengths (mm)	Tolerance on Length (mm)
Over	Up to and including		
10 Inc.	30	3.000 - 4.000	±50
30	65	3.000 - 4.000	±100

Stress Relieving The polygonal rods and hollow rods are subjected to stress relieving treatment

Packaging 500 or 1000 kg bundle – 3/5 metal straps different bundle packagings, up to 10 mm dimension products are packed with wooden case

EN 12164 - Rods for Free Machining

Material Condition	Nominal Diameter (mm)		Width Across-flats (mm)		Tensile Strength Rm N/mm² (MPa)	0,2 % Proof Strength N/mm² (MPa)		Elongation			Hardness (HBW)	
	Over	Up to and inc.	Over	Up to and inc.	Min	Min	Max	A_{100mm} (%) Min	$A_{11,3}$ (%) Min	A (%) Min	Min	Max
M	All		All		As manufactured							
R280	10	65	10	55	280	-	200	-	25	30	-	-
H070	10	65	10	55	-	-	-	-	-	-	70	110
R320	10	60	10	50	320	200	-	-	15	20	-	-
H090	10	60	10	50	-	-	-	-	-	-	90	135
R400	10	15	10	13	400	250	-	-	5	8	-	-
H105	10	15	10	13	-	-	-	-	-	-	105	-

EN 12168 - Hollow Rods for Free Machining

Material Condition	Wall Thickness (mm)		Tensile Strength Rm N/mm² (MPa)	0,2 % Proof Strength N/mm² (MPa)		Elongation A (%)	Hardness (HBW)		Hardness (HV)	
	Over	Up to and inc.	Min	Min	Max	Min	Min	Max	Min	Max
M	All		As manufactured							
R280	4	All	280	-	200	30	-	-	-	-
H070	4	All	-	-	-	-	70	110	80	120
R320	4	20	320	200	-	20	-	-	-	-
H090	4	20	-	-	-	-	90	135	100	145
R400	4	8	400	250	-	8	-	-	-	-
H105	4	8	-	-	-	-	105	-	115	-

EN 12165 - Wrought and Unwrought Forging Stocks

Material Condition	Nominal Diameter (mm)		Hardness (HBW)	
	Over	Up to and including	Min	Max
M	All		As manufactured	
H070	10	65	70	110

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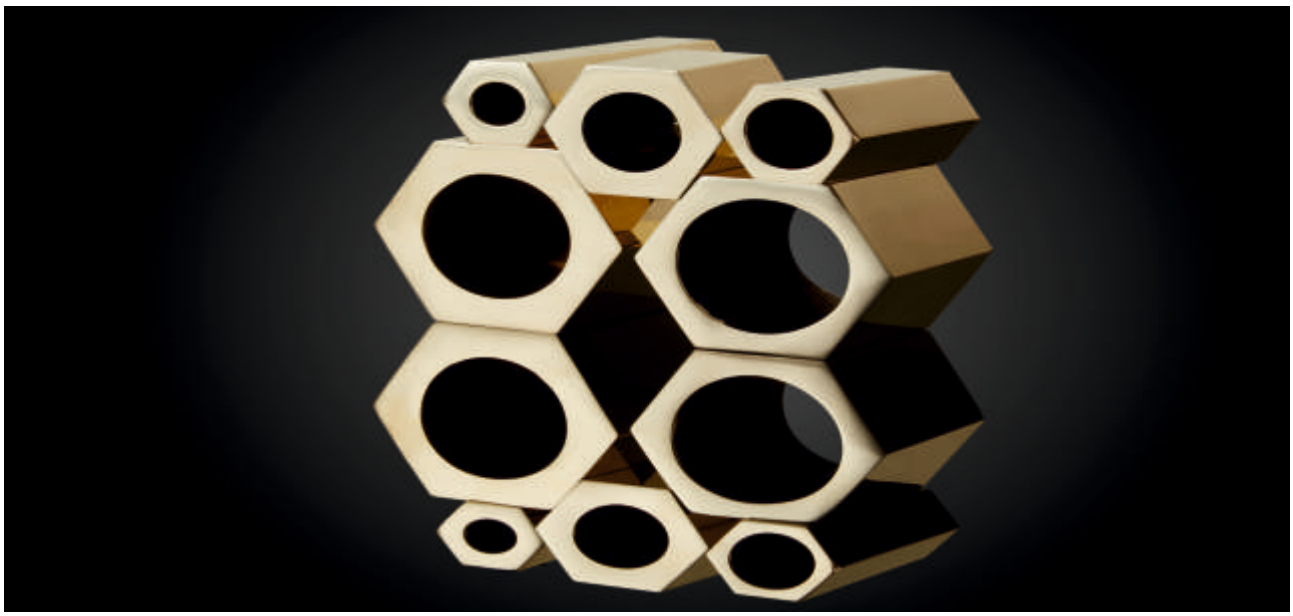
STANDARD		EN 12164			EN 12165		EN 12168					
Dimension Range		Round Rod		Hexagonal, Square	Round Rod		Round and Hexagonal Hollow Rod, Outer Dim. Tol.			Hole Tolerance Round		Hole Tol. Hexagonal
Over	Up to & inc.	Class A	Class B	Rod	Class A	Class B	Class A	Class B	Class C	Class A	Class B	-
-	10	0 -0,06	0 -0,036	0 -0,09	±0,25	±0,14	-	-	-	-	-	-
10	13	0 -0,07	0 -0,043	0 -0,11	±0,25	±0,14	-	-	-	-	-	-
13	18	0 -0,07	0 -0,043	0 -0,11	±0,25	±0,14	-	-	-	±0,35	-	+0,70 -0
18	20	0 -0,08	0 -0,052	0 -0,13	±0,30	±0,17	-	-	-	±0,42	-	+0,84 -0
20	23	0 -0,08	0 -0,052	0 -0,13	±0,30	±0,17	-	-	-	±0,42	±0,17	+0,84 -0
23	26	0 -0,08	0 -0,052	0 -0,13	±0,30	±0,17	-	0 -0,21	-	±0,42	±0,17	+0,84 -0
26	30	0 -0,08	0 -0,052	0 -0,13	±0,30	±0,17	-	0 -0,21	0 -0,13	±0,42	±0,17	+0,84 -0
30	50	0 -0,16	-	0 -0,16	±0,60	±0,20	-	0 -0,25	0 -0,16	±0,80	±0,20	+1,6 -0
50	55	0 -0,19	-	0 -0,19	±0,70	±0,37	-	0 -0,46	0 -0,30	±0,95	±0,37	-
55	65	0 -0,19	-	-	±0,70	±0,37	±0,60	0 -0,46	0 -0,30	±0,95	-	-
65	80	-	-	-	±0,70	-	±0,60	0 -0,46	0 -0,30	±0,95	-	-
80	110	-	-	-	±2	-	-	-	-	-	-	-

For Hollow Rods
Minimum wall thickness is 4 mm. Eccentricity : % 8 (max.)
Minimum wall thickness is 5 mm over 65 mm
" For hollows, maximum outer diameter is 78 mm and maximum producible weight 28 kg in 1 meter."

Outer Cold Drawn - Internal Extruded
Outer Class B - Hole Class A tolerance

Inner-Outer Cold Drawn
Outer Class C - Hole Class B tolerance

Inner-Outer Extruded
Outer Class A - Hole Class A tolerance



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