

sarbak



## TECHNICAL DATA SHEET

**CW509L - CuZn40**

S509 - S509DW  
RODS / HOLLOW RODS

Product Code	EN Symbol	EN No	ASTM		Cu	Zn	Pb	Sn	Fe	Ni	Al	Si	Others Total
S509	CuZn40	CW509L	C27450	Min (%)	59,0	Rem.	-	-	-	-	-	-	-
				Max (%)	61,5	Rem.	0,2	0,2	0,2	0,3	0,05	-	0,2
(*) S509DW	CuZn40-DW	CW509L-DW	C27450	Min (%)	59,5	Rem.	-	-	-	-	-	-	-
				Max (%)	61,5	Rem.	0,2	0,2	0,2	0,2	0,05	0,02	0,2

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

## Features And Applications

Chips and parts can be mixed with MS58 group alloys. Also this alloy compliance with RoHS II and REACH directives. CW509L-DW alloy be used suitable for 4MS vs UBA list for drinking water applications.

4MS and UBA Hygienic list group for CW509L-DW alloy: B, C, D

## Area of Usage

Construction, automotive, gas, food, health, aviation, electrical, electronics, plumbing, drinking water products, accessories and fittings. Also this alloy suitable for drinking water application in USA and Canada Markets because of the lead content below 0.2%.

## TECHNICAL SPECIFICATIONS

Structure	$\alpha+\beta$	Hot Forming	650-750 °C
Machinability	% 50	Soft Annealing	450-550 °C
Density	8,4 g/cm <sup>3</sup>	Soft Annealing Time	1-3 hours
Electrical Conductivity	28 %IACS	Stress Relieving	200-250 °C
Thermal Conductivity	122 W/(m·K)	Stress Relieving Time	1-3 hours
Elasticity Module	105 GPa		
Coeff. of Thermal Expansion	20,8 10 <sup>-6</sup> /K		
Melting Point	880-910 °C		

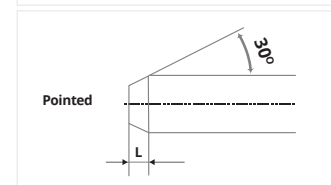
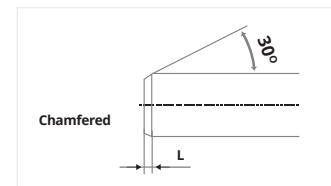
## Range of Products

S509L and S509L-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 Length (L)		Type B - Point Length (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.



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	80	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 R <sub>m</sub> N/mm <sup>2</sup> (MPa) <b>Min</b>	0,2 % Proof Strength N/mm <sup>2</sup> (MPa)		Elongation			Hardness (HBW)	
	Over	Up to and inc.	Over	Up to and inc.		Min	Max	A <sub>100mm</sub> (%) Min	A <sub>11,3</sub> (%) Min	A (%) Min	Min	Max
M	All		All		As manufactured							
R360	10	80	10	55	360	-	300	-	15	20	-	-
H070	10	80	10	55	-	-	-	-	-	-	70	100
R410	10	40	10	35	410	230	-	8	10	12	-	-
H100	10	40	10	35	-	-	-	-	-	-	100	145
R500	10	14	10	10	500	350	-	3	5	8	-	-
H120	10	14	10	10	-	-	-	-	-	-	120	-

### EN 12168 - Hollow Rods for Free Machining

Material Condition	Wall Thickness (mm)		Tensile Strength R <sub>m</sub> N/mm <sup>2</sup> (MPa) <b>Min</b>	0,2 % Proof Strength N/mm <sup>2</sup> (MPa)		Elongation A (%) <b>Min</b>	Hardness (HBW)		Hardness (HV)		
	Over	Up to and inc.		Min	Max		Min	Max	Min	Max	
M	All		As manufactured								
R360	4	20	360	-	300	20	-	-	-	-	
H070	4	20	-	-	-	-	70	100	80	110	
R410	4	10	410	250	-	12	-	-	-	-	
H100	4	10	-	-	-	-	100	145	110	155	
R500	4	7	500	350	-	8	-	-	-	-	
H120	4	7	-	-	-	-	120	-	130	-	

### 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	8	80	70	100

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 -0,019	±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 -0,19	-	-	±0,70	±0,37	±0,60	0 -0,46	0 -0,30	±0,95	-	-
80	120	-	-	-	±2	-	-	-	-	-	-	-
120	140	-	-	-	±2,5	-	-	-	-	-	-	-

**For Hollow Rods**

Minimum wall thickness is 3-4 mm. Eccentricity : %10 (max.)

**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



**Headquarter**

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