

sarbak



## TECHNICAL DATA SHEET

**CW612N - CuZn39Pb2**

S612 - S612DW  
RODS / HOLLOW RODS

Product Code	EN Symbol	EN No	ASTM		Cu	Zn	Pb	Sn	Fe	Ni	Al	Si	Others Total
S612	CuZn39Pb2	CW612N	C37700	Min (%)	59,0	Rem.	1,6	-	-	-	-	-	-
				Max (%)	60,0	Rem.	2,5	0,3	0,3	0,3	0,05	-	0,2
(*) S612DW	CuZn39Pb2-DW	CW612N-DW	C37700	Min (%)	59,0	Rem.	1,6	-	-	-	-	-	-
				Max (%)	60,0	Rem.	2,2	0,3	0,3	0,1	0,05	0,03	0,2

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

## Features And Applications

It is an alloy with excellent hot forging features due to high copper content, and very good machinability with lead content. It has good ductility Also this alloy compliance with RoHS II and REACH directives. CW612N-DW alloy be used suitable for 4MS vs UBA list for drinking water applications.

4MS and UBA Hygienic list group for CW612N-DW alloy: B, C, D

## Area of Usage

Automotive, electrical components, screws, clamps .

## TECHNICAL SPECIFICATIONS

Structure	$\alpha+\beta$	Hot Forming	650-800 °C
Machinability	% 90	Soft Annealing	450-600 °C
Density	8,44 g/cm <sup>3</sup>	Soft Annealing Time	1-3 hours
Electrical Conductivity	13,9 MS/m, 24 %IACS	Stress Relieving	200-300 °C
Thermal Conductivity	109 W/(m·K)	Stress Relieving Time	1-3 hours
Elasticity Module	102 GPa		
Coeff. of Thermal Expansion	21,1 10 <sup>-6</sup> /K		
Melting Point	880-895 °C		

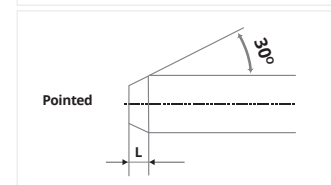
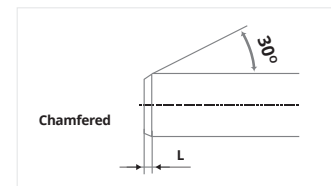
## Range of Products

S612 and S612-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				
5	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		
8 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) Min	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> (%)	A <sub>11,3</sub> (%)	A (%)	Min	Max
M	All		All		As manufactured							
R360	8	80	8	55	360	-	300	-	15	20	-	-
H070	8	80	8	55	-	-	-	-	-	-	70	100
R410	8	40	8	35	410	230	-	8	10	12	-	-
H100	8	40	8	35	-	-	-	-	-	-	100	145
R500	8	14	8	10	500	350	-	3	5	8	-	-
H120	8	14	8	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) Min	0,2 % Proof Strength N/mm <sup>2</sup> (MPa)		Elongation A (%) Min	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	-
7	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 -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 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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