

sarbak



## TECHNICAL DATA SHEET

CW713R - CuZn37Mn3Al2PbSi

S713

RODS / HOLLOW RODS

Product Code	EN Symbol	EN No	ASTM		Cu	Zn	Pb	Sn	Fe	Ni	Al	Si	Mn	Others Total
S713	CuZn37Mn3Al2PbSi	CW713R	C67420	Min (%)	57,0	Rest	0,2	-	-	-	1,3	0,3	1,5	-
				Max (%)	59,0	Rest	0,8	0,3	1,0	1,0	2,3	1,3	3,0	0,3

## Features And Applications

CW713R alloy has high mechanical properties, good resistance to wear under heavy loads stable, resistant to atmospheric agents.

Also this alloy compliance with RoHS II and REACH directives.

## Area of Usage

Bearings for high loads, sliding parts, valves, pistons and guides.

## Range of Products

S713 alloy 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.

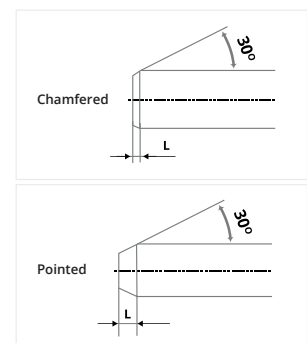
## TECHNICAL SPECIFICATIONS

Structure	$\beta$	Melting Point	875-910 °C
Machinability	%50	Hot Forming	600-700 °C
Density	8,12 g/cm <sup>3</sup>	Soft Annealing	500-650 °C
Electrical Conductivity	7,8 MS/m, 13,4 %IACS	Soft Annealing Time	1-3 Hours
Thermal Conductivity	63 W/(m.K)	Stress Relieving	250-400 °C
Elasticity Module	93 GPa	Stress Relieving Time	1-3 Hours
Coeff. of Thermal Expansion	20,3 10 <sup>-6</sup> /K	Max. Depth of Dezincification	-

## INDICATIVE SHAPED ENDS DIMENSIONS

Nominal Diameter or Width		Type A - Chamfer Length (L)		Type B - Point Length (L)	
Over	Up to and including	Min (mm)	Max (mm)	Min (mm)	Max (mm)
8 <sup>inc.</sup>	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 <sup>inc.</sup>	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/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							
R540	8	65	8	55	540	280	-	-	12	15	-	-
H130	8	65	8	55	-	-	-	-	-	-	130	170
R590	8	50	8	40	590	370	-	-	8	10	-	-
H150	8	50	8	40	-	-	-	-	-	-	150	220

### EN 12168 - Hollow Rods for Free Machining

Material Condition	Wall Thickness (mm)		Tensile Strength Rm 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							
R540	10	30	540	280	-	15	-	-	-	-
H130	10	30	-	-	-	-	130	170	140	180
R590	5	10	590	320	-	10	-	-	-	-
H150	5	10	-	-	-	-	150	190	160	200

### 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	
H130	8	65	130	170

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 A	Class B	-
8	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 -0,21	±0,42	-	+0,84 -0
23	26	0 -0,08	0 -0,052	0 -0,13	±0,30	±0,17	-	0 -0,21	±0,42	-	+0,84 -0
26	30	0 -0,08	0 -0,052	0 -0,13	±0,30	±0,17	-	0 -0,21	±0,42	-	+0,84 -0
30	50	0 -0,16	-	0 -0,16	±0,60	±0,20	-	0 -0,25	±0,80	-	+1,6 -0
50	55	0 -0,19	-	0 -0,19	±0,70	±0,37	-	0 -0,46	±0,95	-	-
55	65	0 -0,19	-	-	±0,70	±0,37	±0,60	0 -0,46	±0,95	-	-
65	80	-	-	-	±0,70	-	±0,60	0 -0,46	-	-	-
80	110	-	-	-	±2	-	-	-	-	-	-

**For Hollow Rods**

Minimum wall thickness is 4 mm. Eccentricity: %8 (max).

Minimum wall thickness is 5 mm over 65 mm.

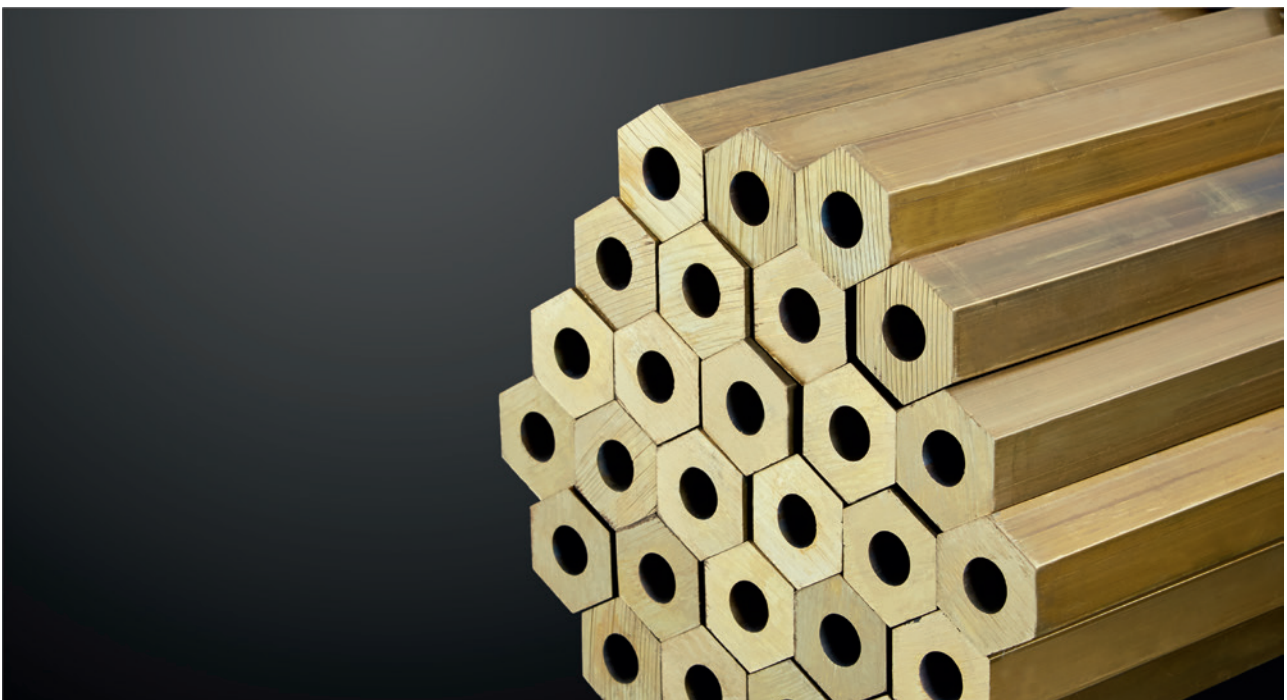
**"For hollows, maximum outer diameter is Ø78 mm and maximum producible weight is 28 kg in 1 meter."**

**Outer Cold Drawn - Internal Extruded**

Outer Class B - Hole Class A tolerance

**Inner-Outer Extruded**

Outer Class A - Hole Class A tolerance





#### Headquarter

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