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**Material Datasheet:**  
**CuZn37Mn3Al2PbSi**  
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**MACHINING / HOT STAMPING BRASS RODS**

# CuZn37Mn3Al2PbSi

Standard high strength and wear resistance alloy

CuZn37Mn3Al2PbSi is a high tensile strength brass with very good wear resistance. Commonly used for slide bearings, valve guides, pump shafts and construction components in mechanical engineering that requires high mechanical strength and wear resistance.

## MATERIAL DESIGNATION

ASBW	International	EN	UNS	JIS	Further Restrictions**
B24	CuZn37Mn3Al2PbSi	CW713R	-	C6782	-

## REFERENCE CHEMICAL COMPOSITION IN % (MAIN ELEMENTS) \*

Material	Cu	Pb	Ni	Fe	As	Sn	Al	Bi	Zn	Other elements
B24	58,0	0,6	0,5	0,5	-	0,2	1,8	-	Rem.	≤ 0.3 %

\* Deviations from these values may occur within the restrictions of the relevant standard specifications.

## FABRICATION PROPERTIES

### FORMING

Machinability (CuZn39Pb3 = 100 %)	55%
Cold Workability	Poor
Hot Workability	Excellent

### JOINING

Resistance Welding (Butt Welding)	Good
Inert Gas Shielded Arc Welding	Fair
Gas Welding (Most Commonly Oxyacetylene)	Fair
Hard Soldering	Poor
Soft Soldering	Poor
Brazing	Fair

### POLISHING

Mechanical	Good
Electrolytic	Poor
Electroplating	Good

## HEAT TREATMENT

Melting Range	870 – 915 °C
Hot Working	600 – 700 °C
Soft Annealing	480 – 650 °C Duration: 1 – 3 h
Thermal Stress Relieving	350 – 450 °C Duration: 1 – 3 h

## PRODUCT STANDARDS

Rod	EN 12164 EN 12165
Section	EN 12167

## CORROSION RESISTANCE

This high strength brass is quite resistant to organic substances and to neutral or alkaline compounds due to alloying additions.

In comparison, homogeneous  $\alpha$ -brass has a much more satisfactory corrosion resistance due to its microstructure. As for the stress corrosion cracking and dezincification, specially under conditions as warm, acidic waters and ammoniacal atmospheres, they should be taken into consideration, even more when the material is not under a stress relieved condition.

## Physical properties\*

Material Density [g/cm <sup>3</sup> ]	Electrical Conductivity		Thermal Conductivity [W/(m.K)]	Thermal Expansion Coefficient (0 – 300 °C) [10 <sup>-6</sup> /K]	Modulus of Elasticity [GPa]
	[MS/m]	[% IACS]			
8,10	8,0	14	65	20,5	95

\* Refence values at room temperature

## Mechanical properties

### Round rods/polygonal rods acc. To EN 12164

Temper	Diameter		Width across flats		Tensile strength	Yield strength		Elongation			Hardness	
	from [mm]	to [mm]	from [mm]	to [mm]	Rm Mpa min.	Rp0.2 Mpa min.    Mpa max.		A100 [%] min.	A11.3 [%] min.	A [%] min.	HB min.    max.	
M	all		all		as manufactured – without specified mechanical properties							
R540	5	80	5	60	540	280	–	–	12	15	–	–
H130	5	80	5	60	–	–	–	–	–	–	130	170
R590	5	50	5	40	590	370	–	–	8	10	–	–
H150	5	50	5	40	–	–	–	–	–	–	150	220

Rectangular rods										acc. To EN 12167	
Temper	Thickness			Tensile strength Rm Mpa min.	Yield strength Rp0.2		Elongation			Hardness HB	
	from [mm]	over	to [mm]		Mpa min.	Mpa max.	A100 [%] min.	A11.3 [%] min.	A [%] min.	min.	max.
M	all			as manufactured – without specified mechanical properties							
R540	-	10	20	540	280	-	-	-	15	-	-
H130	-	10	20	-	-	-	-	-	-	130	170
R590	3	-	10	590	370	-	5	8	10	-	-
H150	3	-	10	-	-	-	-	-	-	150	220

Rods				acc. to EN 12165	
Temper	Diameter		Hardness HB		
	from [mm]	to [mm]	min.	max.	
M	all		As manufactured		
H130	8	80	130	170	

## FINISHING AND PACKAGING

Bar ends	<b>Marked according to customer's specification</b>
Bar surface	<b>Standard machining rods: bright, stripped surface</b> <b>Standard stamping rods: Uniform surface</b>
Packaging	<b>Size range up to 10 mm:</b> <b>The rods are packed loose in a wooden box and protected with oiled paper (net weight of approx. 500 kg). Each box is strapped with 4 steel straps to ensure material integrity during shipping.</b>  <b>Size range &gt; 10 mm:</b> <b>ASBW machining rods are supplied by standard in bundles either of approximately 1.000 kg or 500 kg. Different bundle weights are also possible upon customer's request. Each bundle is steel strapped three times on cardboard and both ends are protected with litter, to ensure the material integrity during the transportation</b>
Identification	<b>Adhesive label on bundle strap: customer</b> - <b>number of customer's order</b> - <b>EN Standard of the material</b> - <b>ASBW material code and LOT number ensuring production tracking</b> - <b>rod length</b> - <b>ASBW's PO number</b> - <b>ASBW's Quality Approval Seal</b>

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For further detailing on technical aspects such as material condition, machining, mechanical data, temper  
selection through contact to our technical personal.



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