

# Material Datasheet: CuZn42 (CW510L)

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**MACHINING / STAMPING BRASS RODS** 

Reviewed in 07/2018

# CuZn42

Low Lead Alloy for both machining and hot stamping rods CuZn42 alloy integrates the 4MS Composition List of accepted metallic materials to be in contact with drinking water. It has good characteristics for machining operations, allowing to obtain optimum results through free cutting operations. These characteristics allied to its satisfactory behavior when cold and hot forming operations, make this the standard alloy among the low lead alloys.

MATERIAL DE	SIGNATION				
ASBW	International	EN	UNS	JIS	Further Restrictions
B17	CuZn42	CW510L	C28500	-	4 MS Common Approach, Part B

<b>REFERENCE CHEMICAL COMPOSITION IN % (MAIN ELEMENTS) *</b>										
Material	Cu	Pb**	Ni**	Fe**	As	Sn**	Al**	Bi	Zn	Other elements
B17	58,0	0,2	0,2	0,2	-	0,2	0,05	-	Rem.	<b>≤</b> 0.2 %

 $^*$  Deviations from these values may occur within the restrictions of the relevant standard specifications. Elements not listed must be < 0.02 %

\*\* ASBW / B17 complies with the restrictions to the chemical composition of the signed materials in the table, according to the specified in the 4 MS Common Composition List.

## FABRICATION PROPERTIES

#### FORMING

Machinability (CuZn39Pb3 = 100 %)	50 %
Cold Workability	Poor
Hot Workability	Good

#### JOINING

Resistance Welding (Butt Welding)	Fair
Inert Gas Shielded Arc Welding	Fair
Gas Welding (Most Commonly Oxyacetylene)	Not Recommended
Hard Soldering	Good
Soft Soldering	Excellent
Brazing	Good

#### POLISHING

Mechanical	Good
Electrolytic	Poor
Electroplating	Excellent

HEAT TREATMENT	
Melting Range	860 - 890 °C
Hot Working	630 - 730 °C
Soft Annealing	420 - 630 °C Duration: 1 - 3 h
Thermal Stress Relieving	160 - 280 ℃ Duration: 1 - 3 h

PRODUCT STANDARDS			
Rod	EN 12164 EN 12165		
Section	EN 12167		

## CORROSION RESISTANCE

Machining brass has a poor resistance to organic substances and also neutral or alkaline compounds. 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/cm³]	Electrical Conductivity [MS/m] [% IACS]		Thermal Conductivity [W/(m.K)]	Thermal Expansion Coefficient (0 - 300 °C) [10 <sup>6</sup> /K]	Modulus of Elasticity [GPa]			
8,43	16,89	29	136	21,6	106			

\* Refence values at room temperature

Mechar	Mechanical properties											
Round rods/polygonal rods acc. to EN 12164												
	Dian	neter	Width	across	Tensile strength	ensile strength Yield strength			Elongation	Hardness		
Temper	Dian	ietei	fla	ats	Rm	Rp	0.2	A100	A11.3	Α	Н	IB
remper	from [mm]	to [mm]	from [mm]	to [mm]	MPa min.	MPa min.	MPa max.	[%] min.	[%] min.	[%] min.	min.	max.
М				all as manufactured – without specified mechanical proper						max.		
R360	6	80	5	60	360	-	320	-	15	20	-	-
H090	6	80	5	60	-	-	_	_	_	-	90	125
R430	2	40	2	35	430	220	-	6	8	10	-	-
H110	2	40	2	35	-	-	-	-	-	-	110	160
R500	2	14	2	10	500	350	-	-	3	5	-	-
H135	2	14	2	10	-	_	_	_	_	-	135	_

Rectang	Rectangular rods acc. to EN 12167									
	Thickness		Tensile strength	strength Yield strength			Elongation		Hardness	
Temper		Ciress	Rm	Rp	0.2	A100 A11.3 A		Α	HB	
remper	from [mm]	to [mm]	MPa min.	MPa min.	MPa max.	[%] min.	[%] min.	[%] min.	min.	max.
М	a	11	as manufactured - without specified mechanical propertie					erties		
R360	6	40	360	-	320	-	15	20	-	-
H090	6	40	-	-	-	-	-	-	90	125
R430	3	20	430	220	-	6	8	10	-	-
H110	3	20	-	-	-	-	-	-	110	160
R500	3	10	500	350	-	2	5	8	-	-
H135	3	10	-	-	-	-	-	-	135	-

<b>FINISHING AND</b>	PACKAGING
Bar ends	Marked according to customer's specification
Bar surface	Standard machining rods: bright, stripped surface
	Standard stamping rods: Dark and uniform surface
Packaging	Size range up to 10 mm:
	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.
	Size range > 10 mm:
	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 costumer'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
Identification	Adhesive label on bundle strap:
	- customer
	- number of customer's order
	- EN Standard of the material
	- ASBW material code
	- rod length - ASBW's PO number
	- ASBW's Quality Approval Seal

The technical information within this datasheet is provided by **ASBW** without any surcharge. The end use of this content is up to the user discretion and risk. 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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