

## Material Datasheet: CuZn35Pb1.5AlAs (CW625N)

**MACHINING / HOT STAMPING BRASS RODS** 

# CuZn35Pb1.5AIAs

### Dezincification resistant alloy for machining

CuZn35Pb1.5AIAs alloy integrates the 4MS Composition List of accepted metallic materials to be in contact with drinking water. It is also dezincification resistant due to its content in arsenic, thus it is ideal for manufacturing parts to be in contact with drinking for which dezincification resistance is also a requirement.

MATERIAL DESIGNATION							
ASBW	International	EN	UNS	JIS	Further Restrictions**		
B02	CuZn35Pb1.5AlAs	CW625N	-	-	4 MS Common Approach, Part B		

REFERENCE CHEMICAL COMPOSITION IN % (MAIN ELEMENTS) *										
Material	Cu	Pb	Ni	Fe	As	Sn	AI	Bi	Zn	Other elements
B02	63,0	1,4	0,1	0,2	0,1	0,2	0,6	-	Rem.	<b>≤</b> 0.2 %

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

\*\* ASBW / B02 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, on customer request.

#### FABRICATION PROPERTIES\*\*\*

#### FORMING

Machinability (CuZn39Pb3 = 100 %)	55 %
Cold Workability	Good
Hot Workability	Good

#### JOINING

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

\*\*\*Dezincification resistance is achieved through a β-phase-free microstructure. Therefore, a 550 °C/4h heat treatment of the parts is recommended after stamping or any other operation that require an exposure of the brass rods to high temperatures.

HEAT TREATMENT	
Melting Range	875 – 900 °C
Hot Working	700 - 800 °C
Soft Annealing	450 - 550 ℃ Duration: 1 - 3 h
Thermal Stress Relieving	230 - 330 ℃ Duration: 1 - 3 h

PRODUCT STANDARDS	
Rod	EN 12164
Kou	EN 12165
Section	EN 12167

#### CORROSION RESISTANCE

Machining brass is quite resistant to organic substances and to 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. On manufactured parts a soft annealing may be necessary to ensure optimal dezincification resistance.

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]	
8,46	14,74	22	108	20,9	107	

\* Refence values at room temperature

Mechan	Mechanical properties											
Round r	ods/p	olygon	al rod	s						ac	c. to EN	12164
	Dian	Diameter Width across		Tensile strength	Yield s	trength		Elongation	Hard	ness		
Temper	Diali	letei	fla	ats	Rm	Rp0.2		A100	A11.3	А	Н	В
remper	from	to	from	to	MPa	MPa	MPa	[%]	[%]	[%]		
	[mm]	[mm]	[mm]	[mm]	min.	min.	max.	min.	min.	min.	min.	max.
М	a	.11	a	.11	as ma	as manufactured - without specified mechanical properties						
R280	6	80	5	60	280	-	200	-	25	30	-	-
H070	6	80	5	60	-	-	-	-	-	-	70	110
R320	6	60	5	50	320	200	-	-	15	20	-	-
H090	6	60	5	50	-	-	-	-	-	-	90	135
R400	4	15	2	13	400	250	-	-	5	8	-	-
H105	4	15	2	13	-	-	-	-	-	-	105	-

Rectang	Rectangular rods acc. to EN 12167										
	Thickness		Tensile strength Yield stren		trength	th Elongation				Hardness	
Temper		Thickness		Rp	0.2	A100	A11.3	А	н	В	
remper	from	to	MPa	MPa MPa		[%]	[%]	[%]			
	[mm]	[mm]	min.	min.	max.	min.	min.	min.	min.	max.	
М	all		as manufactured - without specified mechanical properties								
R280	3	20	280	-	200	20	25	30	-	-	
H070	3	20	-	-	-	-	-	-	70	110	
R320	3	20	320	200	-	10	15	20	-	-	
H090	3	20	-	-	-	-	-	-	90	135	
R400	3	10	400	250	-	2	5	8	-	-	
H105	3	10	-	-	-	-	-	-	105	-	

Rods			acc. to EN 12165		
	Diame	meter Hardness			
Temper	Diamo		НВ		
	from [mm]	to [mm]	min.	max.	
М	all		As man	ufactured	
H070	8	120	70	110	

FINISHING AND	D 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	<ul> <li>Adhesive label on bundle strap: customer</li> <li>number of customer's order</li> <li>EN Standard of the material</li> <li>ASBW material code and LOT number ensuring production tracking</li> <li>rod length</li> <li>ASBW's PO number</li> <li>ASBW's Quality Approval Seal</li> </ul>

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