

Material Datasheet: CuZn36Pb2As (CW602N)

# CuZn36Pb2As

# Dezincification resistant standard alloy for machining

CuZn36Pb2As dezincification resistant alloy combines machining and some cold working properties. For this reason, it suits all the applications where these two characteristics are required simultaneously.

Furthermore, it also has excellent hot working properties, which makes it ideal for parts that need posterior machining operations.

MATERIAL DE	SIGNATION				
ASBW	International	EN	UNS	JIS	Further Restrictions
B10	CuZn36Pb2As	CW602N	C35330	-	-

REFEREN	CE CHE	MICAL	СОМРО	SITION	IN % (M	AIN ELE	<b>MENTS</b>	) *		
Material	Cu	Pb	Ni	Fe	As	Sn	Al	Bi	Zn	Other elements
B10	62,0	2,3	0,2	0,1	0,1	0,1	0,03	-	Rem.	≤ 0.2 %

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

# FABRICATION PROPERTIES\*\*

### **FORMING**

Machinability (CuZn39Pb3 = 100 %)	80 %
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	Excellent
Brazing	Fair

### **POLISHING**

Mechanical	Good
Electrolytic	Fair
Electroplating	Excellent

<sup>\*\*</sup>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	880 - 910 °C
Hot Working	700 - 800 °C
Soft Annealing	450 - 550 °C Duration: 1 - 3 h
Thermal Stress Relieving	230 – 330 °C Duration: 1 – 3 h

PRODUCT STANDARDS	
Rod	EN 12164
Rod	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 $(0 - 300  ^{\circ}\text{C})$ $[10^{6}/\text{K}]$	Modulus of Elasticity [GPa]		
8,47	14,74	24	116	20,4	113		

<sup>\*</sup> Refence values at room temperature

# **Mechanical properties**

Round r	Round rods/polygonal rods acc. to EN 12164								12164			
	Diameter		Width	across	Tensile strength	Yield s	trength		Elongation	ı	Hard	ness
Temper	Dian	ictei	fla	its	Rm	Rp	0.2	A100	A11.3	Α	Н	IB
i cilipei	from	to	from	to	MPa	MPa	MPa	[%]	[%]	[%]		
	[mm]	[mm]	[mm]	[mm]	min.	min.	max.	min.	min.	min.	min.	max.
M	a	III	a	II	as ma	ınufactur	ed – with	out specif	ied mechar	nical prop	erties	
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	ular rods							ac	c. to EN	12167
	Thickness		Thickness Tensile strength Yield strength		trength		Elongation	1	Hardness	
Temper	Tille	KIIC33	Rm	Rp	0.2	A100	A11.3	Α	Н	IB
remper	from	to	MPa	MPa	MPa	[%]	[%]	[%]		
	[mm]	[mm]	min.	min.	max.	min.	min.	min.	min.	max.
М	a	ıll	as ma	nufactur	ed – witho	out specif	ied mechai	nical prop	erties	
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					
Temper	Diameter from to		Hardness HB		
	[mm]	[mm]	min.	max.	
М	al	I	As manı	ıfactured	
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	Adhesive label on bundle strap: customer  - number of customer's order  - EN Standard of the material  - ASBW material code and LOT number ensuring production tracking  - rod length  - ASBW's PO number  - ASBW's Quality Approval Seal

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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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