

CW602N - CuZn36Pb2As

Good machinability, good cold forming,
good resistance against dezincification
Available in bars / hollow bars / wire

All data are reference values and are not to be used as a basis for constructive stress calculation.

Designations

EN 12164 Bars
EN 12165 Forgings
EN 12166 Wire
EN 12167 Profiles and edged bars
EN 12168 Hollow bars
EN 12420 Forgings
UNS C35330

Chemical composition

Cu	61.0 - 63.0	Weight-%
Pb	1.6 - 2.2	Weight-%
As	0.02 - 0.05	Weight-%
Zn	Rest	Weight-%

Workability

Machinability					
Hot Forming					
Cold Forming					
Mechanical Polishing					
Soft Solderability*					
Hard Solderability*					

* see also Corrosion resistance

Physical properties

Density (20°C)	8.44	g/cm ³
Fusion temperature	880-910	°C
Thermal conductivity	109	W/mK
Thermal capacity	377	J/kgK
Electrical conductivity	13.9 24	MS/m % IACS
Young's modulus (20°C, annealed)	103	GPa
Thermal expansion coefficient	20.3	10 ⁻⁶ K ⁻¹

Microstructure

Homogeneous structure predominantly of α -mixed crystals. Lead is insoluble in this alloy and precipitates in finely distributed form at the grain boundaries. Lead has a grain refining effect on the microstructure and improves machinability.

Corrosion resistance

Depends on the material condition, the area of application, the medium and heat treatment. Good resistance against seawater and aggressive media. Minor additions of arsenic improve the resistance to dezincification. Particular care must be taken when working with increased temperature (>600°C) as in soldering as this could deteriorate the corrosion resistance of the alloy.

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Application examples

Fittings, sanitary industry
Shaped turned parts
Electrical engineering
Mechanical and vehicle engineering

Mechanical properties at room temperature

EN 12164 (Rod for free machining purposes)										
Condition	Diameter	Width across-flats	Ultimate Tensile Strength R _m	Yield Strength R _{p 0,2}		Elongation			Hardness Brinell	
						A _{100mm}	A _{11,3}	A		
	mm	mm	MPa	MPa	%	%	%	HBW		
	da - a	da - a	min.	min.	max.	min.	min.	min.	min.	max.
M	all dimensions		as manufactured							
R280	6 - 80	5 - 60	280		200		25	30		
H070								70	110	
R320	6 - 60	5 - 50	320	200			15	20		
H090								90	135	
R400	4-15	4 - 13	400	250			5	8		
H105								105		

EN 12167 (Profile sand bares for general purposes)									
Condition	Diameter mm da - a	Ultimate Tensile Strength R _m MPa min.	Yield Strength R _{p 0,2} MPa		Elongation			Hardness Brinell	
					A _{100mm}	A _{11,3}	A		
					%	%	%		
			min.	max.	min.	min.	min.	min.	max.
M	all	as manufactured							
R280	3 - 20	280		200	20	25	30		
H070								70	100
R320	3 - 20	320	200		10	15	20		
H090								90	135
R400	3 - 10	400	250		2	5	8		
H105								105	

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EN 12168 (Hollow rod for free machining purposes)									
Condition	Diameter mm da - a	Ultimate Tensile Strength R _m MPa	Yield Strength R _{p0,2} MPa		Elongatio n A %	Hardness Brinell HBW		Hardness Vickers HV	
		min.	min.	max.	min.	min.	max.	min.	max.
M	all	as manufactured							
R280	2 - all	280		200	30				
H070						70	110	80	120
R320	2 - 20	320	200		20				
H090						90	135	100	145
R400	2 - 8	400	250		8				
H105						105		115	

This data sheet is for general information only and is not subject to revision.