

CuZn40Pb1 – CW627N



Machining alloy, good machinability, very good hot working properties

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 ISO 12164 Bars

EN ISO 12165 Forgings

EN ISO 12166 Wire

EN ISO 12167 Profiles and edged bars

EN ISO 12168 Hollow bars

EN ISO 12420 Forgings

Chemical Composition

Cu	57.0-59.0	Weight-%
Pb	0.8-1.6	Weight-%
Zn	Rest	Weight-%

Workability

Machinability					
Hot Forming					
Cold Forming					
Mechanical Polishing					
Soft Solderability					
Hard Solderability					

Physical Properties

Density (20°C)	8.41	g/cm ³
Fusion temperature	880 - 895	°C
Thermal conductivity	113	W/mK
Thermal capacity	380	J/kgK
Electrical conductivity	14 24	MS/m % IACS
Young's modulus (20°C, annealed)	96	GPa
Thermal expansion coefficient	21.1	10 ⁻⁶ K ⁻¹

Microstructure

Heterogeneous structure of α - and β' -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

Depending on the material condition, the area of application, the medium and heat treatment, CW627N is not resistant to acids and humid ammonia, especially in the non-stress-relieved state (stress corrosion cracking).

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Potential Application Examples

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

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							
R360	6 - 80	5 - 60	360		350		15	20		
H090								90	125	
R430	2 - 40	2 - 35	430	220		6	8	10		
H110								110	160	
R500	2-14	2 - 10	500	350			3	5		
H135								135		

EN 12166 (Wire 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 HBW min. max.	
					A _{100mm}	A _{11,3}	A		
			%	%	%				
			min.	min.	min.				
M	all	as manufactured							
R360	6 - 20	360		320		15	20		
H095							95	130	
R430	0,5 - 14	430	220		6	8	10		
H115	1,5 - 14							115	170
R500	0,5 - 8	500	350			2	5		
H145	1,5 - 8							145	

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EN 12167 (Profile sand bares for general purposes)									
Condition	Diameter mm da - a	Ultimate Tensile Strength R _m MPa min.	Yield Strength R _{p0,2} MPa		Elongation			Hardness Brinell	
					A _{100mm}	A _{11,3}	A	HBW	
			min.	max.	% min.	% min.	% min.	min.	max.
M	all	as manufactured							
R360	6 - 40	360		320		15	20		
H090								90	125
R430	3 - 20	430	220		6	8	10		
H110								110	160
R500	3 - 10	500	350		2	5	8		
H135								135	

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							
R360	2 - 40	360		320	20				
H090						90	125	100	135
R430	2 - 15	430	220		10				
H110						110	160	120	170
R500	2 - 7	500	350		8				
H135						135		145	

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