

CW603N - CuZn36Pb3



Very good machinability, good cold forming,
good hot forming

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 12166 Wire

EN 12167 Profiles and edged bars

EN 12168 Hollow bars

ASTM B16 (UNS C36000)

Chemical composition

Cu	60.0-61.0	Weight-%
Pb	2.5 – 3.5	Weight-%
Zn	Rest	Weight-%

Workability

Machinability					
Hot Forming					
Cold Forming					
Mechanical Polishing					
Soft Solderability					
Hard Solderability					

Physical properties

Density (20°C)	8.50	g/cm ³
Fusion temperature	870 - 895	°C
Thermal conductivity	120	W/mK
Thermal capacity	380	J/kgK
Electrical conductivity	13.0 22	MS/m % IACS
Young's modulus (20°C, annealed)	102	GPa
Thermal expansion coefficient	20.6	10 ⁻⁶ K ⁻¹

Microstructure

Heterogenous 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, CW603N is not resistant to acids and humid ammonia, especially in the non-stress-relieved state (stress corrosion cracking).

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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 mm da - a	Width across- flats mm da - a	Ultimate Tensile Strength R _m MPa min.	Yield Strength R _{p 0,2} MPa		Elongation A _{100mm} A _{11,3} A			Hardness Brinell	
				min.	max.	%	%	%	HBW	
						min.	min.	min.	min.	max.
M	all dimensions		as manufactured							
R340	10 - 80	10 - 60	340		280			20		
H070									70	120
R400	2 - 25	2 - 20	400	200		4	8	12		
H100									100	140
R480	2-14	2 - 10	480	350		3	5	8		
H125									125	

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 A _{100mm} A _{11,3} A			Hardness Brinell		
			min.	max.	%	%	%	HBW		
					min.	min.	min.	min.	max.	
M	all	as manufactured								
R340	0,5 - 20	340		280	10	15	20			
H080	1,5 - 20							80	130	
R400	0,5 - 14	400	200		4	8	12			
H100	1,5 - 14							100	150	
R480	0,5 - 8	480	350			2	5			
H135	1,5 - 8							135		

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 HBW	
					A _{100mm}	A _{11,3}	A		
			%	%	%				
			min.	min.	min.	min.	max.		
M	all	as manufactured							
R340	3 - 20	340		280	10	15	20		
H070							70	120	
R400	3 - 10	400	200		4	8	12		
H100								100	140
R480	3 - 10	480	350		2	5	8		
H125								125	

EN 12168 (Hollow rod for free machining purposes)									
Condition	Diameter mm da - a	Ultimate Tensile Strength R _m MPa min.	Yield Strength R _{p0,2} MPa		Elonga tion A % min.	Hardness Brinell HBW		Hardness Vickers HV	
			min.	max.		min.	max.	min.	max.
M	all	as manufactured							
R340	2 - 20	340		280	20				
H070						70	120	80	130
R400	2 - 10	400	200		12				
H100						100	140	110	150
R480	2 - 7	480	350		8				
H125						125		135	

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