

CW511L - CuZn38As



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 12163 Bars (General Use)

EN 12164 Bars (Machining)

EN 12165 Forgings

EN 12166 Wire

EN 12167 Profiles and edged bars

EN 12168 Hollow bars

EN 12420 Forgings

UNS C27453

Chemical composition

Cu	61.5 – 63.5	Weight-%
Pb	≤ 0.2	Weight-%
As	0.02-0.15	Weight-%
Zn	Rest	Weight-%

Workability

Machinability					
Hot Forming					
Cold Forming					
Mechanical Polishing					
Soft Solderability					
Hard Solderability					

Physical properties

Density (20°C)	8.43	g/cm ³
Fusion temperature	880-910	°C
Thermal conductivity	123	W/mK
Thermal capacity	376	J/kgK
Electrical conductivity	16 28	MS/m % IACS
Young's modulus (20°C, annealed)	100	GPa
Thermal expansion coefficient	20.4	10 ⁻⁶ K ⁻¹

Microstructure

Heterogeneous structure of α - and β' -mixed crystals. The alloy shows different machining characteristics due to its low lead compared to leaded brass. Due to the great dependence on the machining process, there is no value to provide a machining index.

Corrosion resistance

Depending on the material condition, the area of application, the medium and heat treatment, CW511L is not resistant to acids and humid ammonia, especially in the non-stress-relieved state (stress corrosion cracking).

After an appropriate annealing the alloy is resistant to dezincification.

Application examples

Fittings in sanitary industry

Machined parts

Mechanical properties at room temperature

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

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EN 12168 (Hollow rod for free machining purposes)									
Condition	Diameter mm da - a	Ultimate Tensile Strength R _m	Yield Strength R _{p0,2}		Elonga tion A	Hardness Brinell		Hardness Vickers	
		MPa	MPa		%	HBW		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.