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DATA SHEET:
CZ-NL CW511L

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FREE MACHINING



Standard anti dezincification alloy lead free.

Standard alloy resistant to dezincification which, thanks to the reduced lead content, finds applications in the US market. The modest release of lead makes it usable in contact with drinking water; it is in fact among the alloys approved by 4MS and included in the "Positive List".

NAME OF ALLOY

UNI EN: CW511L - CuZn38As

ASTM: C27453

CHEMICAL COMPOSITION UNI EN 12164 ED.2016

Cu	Pb	Sn	Fe	Ni	Al	Mn*	As	Zn	Other elements
min. 61.5 max. 63.5 %	≤0.1 %	≤0.1 %	≤0.1 %	≤0.3 %	≤0.05 %	≤0.1 %	0.02 0.15 %	difference	≤0.2 %

*Limitation according 4MS. Elements not listed must be ≤0.02 %.
Group of restriction of the surface in contact with drinking water: B,D.

HEAT TREATMENTS

STRESS RELIEVING

Enables the redistribution of tensions induced by mechanical processing of cold plastic deformation, reducing the risk of stress corrosion cracking. The treatment consists of heating the items to 200°C - 250°C for 2 hours and cooling within the furnace. The validation of the stress relieving treatment can be performed with the ISO 6957 test.

SOLUBILIZATION OF RESIDUAL β PHASE

For the drawn products this treatment is performed by Almag Spa to eliminate the remaining beta phase left over from the extrusion. This treatment optimizes dezincification resistance for the alloy.

MECHANICAL PROPERTIES UNI EN 12164 ED.2016

Condition of material	Diameter in mm		Hardness HB*		Rm	Rp _{0.2} N/mm ²		Lengthening %	
	from	to (included)	min.	max.	min.	min.	max.	min.	
M	All		As a product						
R280	6 (5)	80 (60)	-	-	280	-	200	30	
H070	6 (5)	80 (60)	70	110	-	-	-	-	
R320	6 (5)	60 (50)	-	-	320	200	-	20	
H090	6 (5)	60 (50)	90	135	-	-	-	-	
R400	4	15 (13)	-	-	400	250	-	8	
H105	4	15 (13)	105	-	-	-	-	-	

*the hardness value is determined in the mid-range
The values in brackets refer to the hexagonal section bar.
The standard condition produced by Almag is R320 for Rm or H090 for hardness.
Any other conditions must be requested when ordering - subject to feasibility request.

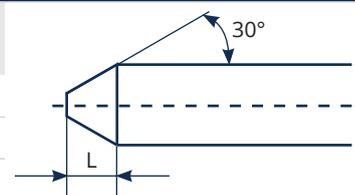
TECHNOLOGICAL PROPERTIES		low	excellent
Structure	α		
Density	8.4 kg/cm ³		
Electrical conductivity	28% IACS		
Coeff. of thermal expansion	20.4 10 ⁻⁶ /K		
Thermal conductivity*	125 W/(m K)	Corrosion resistance** <100 μm	
Specific heat	376 J/(kg K)		
Elasticity module	100 kN/mm ²	*at room temperature **use care to ascertain compatibility with chemical substances	
Melting point	880-910 °C		

DIMENSIONS, TOLERANCES, AND STRAIGHTNESS					UNI EN 12164 ED.2016		
ROUND section bar				HEXAGONAL and SQUARE			
Nominal diameter (mm)		TOLERANCES			Nominal key (mm)		Tolerance mm
from	to included	Class A	Class B	Class C	from	to included	
6	10	0 - 0.06	0 - 0.036	0 - 0.025	6	10	0 - 0.09
10	18	0 - 0.07	0 - 0.043		10	18	0 - 0.11
18	30	0 - 0.08	0 - 0.052		18	30	0 - 0.13
30	50	0 - 0.16			30	50	0 - 0.16
50	80	0 - 0.19			50	60	0 - 0.19

The standard tolerance for the round bar is Class A. Any different tolerances must be agreed upon when ordering
Semi-finished products can be supplied from Ø63 to Ø80 mm with Class A tolerances

Diameter (mm)	Length of bar (mm)	Tolerance (mm)	Diameter or Key (mm)	Deviation from straightness in mm	
				Every 400 mm	Every m of length L ≥ 1
2	30	3000 o 4000	+/- 50		
30	50	3000 o 4000	+/- 100		
50	80	3000	+/- 100		
Round section bar					
10	50		0.4	1.0 x L	
Hexagonal and square section bar					
10	50		0.6	1.5 x L	

BAR FINISHING AND PACKAGING					
Diameter or Key (mm)		Chamfer Length L mm		Tip Length L mm	
5	10	0.2	1.5	2	7
10	20	0.2	2	3	10
20	30	0.2	3	4	12



Unless otherwise specified by the buyer, the shape of the ends of products larger than 30 mm is up to the supplier

Ends of round bars	finishing with chamfer and tip up to and including Ø40 mm finishing with chamfer and cut greater than Ø40 mm
Ends of hexagonal bars	finishing with chamfer and cut
Bar surface	pickled
Packaging	1000 kg bundle – 3/5 metal straps different bundle packagings and quantities are possible upon request
Identification	adhesive label on bundle strap
Stress relieving	the polygonal bar was subjected to stress relieving treatment

COMPANY WITH
MANAGEMENT SYSTEM
CERTIFIED BY DNV GL
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