ALMAG

DATA SHEET:
CZ-NL CW511L

HOT FORGING

HUG

CZ-NL CW511L

Certified to NSF/ANSI/CAN 372

Antidezincifying alloy with Pb <0,1 %

Compliant with the requirements of the USA market with limits placed on lead for materials in contact with water for human consumption. Its NSF372 certification is a guarantee of compliance with American standards. The good hot deformability and the high copper content makes the CZ-NL alloy an excellent material for stamping with truly modest dezincification

NAME OF ALLOY

UNI EN: CW511L - CuZn38As | **ASTM:** C27493

CHEMICAL COMPOSITION UNI EN 12165:2024

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 %	diff.	≤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

SOLUBILIZATION OF RESIDUAL β PHASE

To improve the corrosion resistance of the alloy a thermal treatment between 500°C and 550°C for 2 hours with cooling outside the furnace is required. This treatment after hot stamping enhances the solubilization of the residual beta phase to grant material resistant to dezincification.
The omission of this treatment impairs the anti-dezincification performance that the material is designed for.

STRESS RELIEVING

Enables the redistribution of tensions induced by mechanical processing or 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.

TECHNOLOGICAL PROPERTIES

low ▯▯▯▯▯▯▯ excellent

Structure	α	**Machinability**	■▯▯▯▯▯▯
Density	8.4 kg/cm^2	**Weldability**	■■■■▯▯▯
Electrical conductivity	28% IACS	**Hot forming**	■■■■▯▯▯
Coeff. of thermal expansion	20.4 10^{-6}/K	**Cold forming**	■■■■■■▯
Thermal conductivity*	125 W/(m K)	**Corrosion resistance****	<100 µm
Specific heat	376 J/(kg K)		
Elasticity module	100 kN/mm^2		
Melting point	880-910 °C		

*at room temperature
**value detectable only after heat treatment

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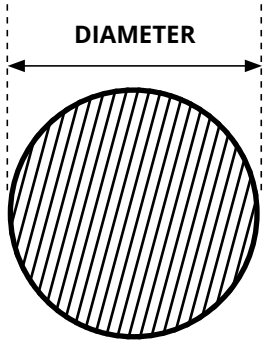

MECHANICAL PROPERTIES UNI EN 12165:2024

Condition of material	Diameter mm		Hardness HBW	
	from	to (included)	min.	max
M	All		As a product	

Any special hardness values must be defined when ordering

Rm N/mm²	$Rp_{0.2}$ N/mm²	A%
320-360*	200-250*	20-25*

*The values shown are not regulated and are only indicative

DIMENSIONS, TOLERANCES, AND STRAIGHTNESS UNI EN 12165:2024

Nominal diameter (mm)		TOLERANCES		Diameter mm		Length of bar	Tolerance mm
		Class A	Class B				
10	18	+/- 0.25	+/- 0.14	10	30	3.0 - 5.0	+/- 100
18	30	+/- 0.30	+/- 0.17	30	50	3.0 - 5.0	+/- 200
30	50	+/- 0.60	+/- 0.20	50	80	3.0	+/- 300
50	80	+/- 0.70	+/- 0.37				
80	120	+/- 2					

The standard “Extruded calibrated” product is produced in Class B up to and including Ø80 mm
Semi-finished products over Ø45 mm can be supplied in the “pressed” and “rolled” forms with Class A tolerance

Diameter (mm)		Deviation from straightness in mm	
		Every 400 mm	Every m of length L ≥ 1
10	60	3.0	6.0 x L

BAR FINISHING AND PACKAGING

Bar ends	finishing with saw cut and chamfer
Bar surface	not pickled
Packaging	1000 kg bundle – 3/5 metal straps different bundle packagings and quantities are possible upon request
Identification	adhesive label on bundle strap

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