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**DATA SHEET:
CZ-NL CW511L**

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FREE MACHINING

The logo for HUG, featuring the word "HUG" in a bold, white, sans-serif font, enclosed within a white circular border.

HUG

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 values. The reduced lead release when in contact with water makes the alloy compliant with 4MS indications and its hygiene 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	[Progressive bar]					excellent
Structure	α	Machinability	[Progressive bar]					
Density	8.4 kg/cm ³	Weldability	[Progressive bar]					
Electrical conductivity	28% IACS	Hot forming	[Progressive bar]					
Coeff. of thermal expansion	20.4 10 ⁻⁶ /K	Cold forming	[Progressive bar]					
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
**use care to ascertain compatibility with chemical substances

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
= ISO 9001 =
= ISO 14001 =
= OHSAS 18001 =



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