METALLURGICA SAN MARCO

DATA SHEET: CW509L

HOT FORGING

Updated 06 / 23

ALLOY: CW509L

Low lead alloy for hot stamping

ALLOY DESIGNATION

UNI EN: CW509L - CuZn40	**ASTM:** C27450-C28000	**DIN:** 2.0360	**BS:** CZ109	**GOST:** L60

CHEMICAL COMPOSITION UNI EN12165 ED.2016

Cu	Pb	Sn	Fe	Ni*	Al	Zn	Other elements
min. 59.0% max 61.5%	≤0.02 %	≤0.2 %	≤0.2 %	≤0.2 %	≤0.05 %	difference	≤0.2 %

Restrictions according to 4MS. Each unnamed element must be less than 0.02%.
Restriction group of the surface in contact with drinking water according to the «common composition list»: B and D.

HEAT TREATMENTS

STRESS RELIEVING

It specifically allows redistribution of tension induced by machining or cold plastic deformation, reducing the risk of stress corrosion cracking.

TREATMENT: heating of parts at 200°C to 250°C for 2 hours and cooling within the furnace. Validation of stress relief treatment can be performed with the ISO 6957 test.

OTHER TREATMENTS

Other heat treatments are not required

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TECHNOLOGICAL PROPERTIES

Structure	Density	Electrical conductivity	Coeff. of thermal expansion	Thermal conductivity*	Specific heat	Elasticity module	Melting point
α+β	8.4 kg/cm^2	28% IACS	20.8 10^{-6}/K	122 W/(m K)	375 J/(kg K)	105 N/mm^2	880-910 °C

low○○○○○○○ excellent

Machinability: ●○○○○○○
Weldability: ●●●●●●○
Hot forming: ●●●●●○○

Cold Forming: ●●●●○○○
Corrosion resistance**: ○○○○○○○

*at room temperature.
**compatibility with chemical substances should be carefully checked.

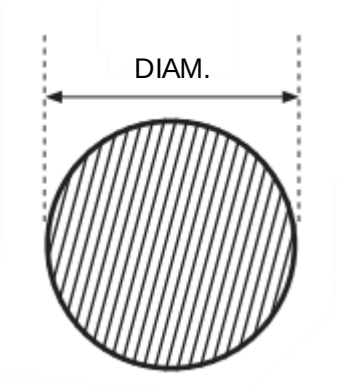
MECHANICAL PROPERTIES UNI EN12165 ED.2016

Condition of material	Diameter in mm		Hardness HB*	
	from	to (included)	min.	max
M	ALL		AS MANUFACTURED	
H070	8	120	70	100

Special hardness values must be defined when ordering.

Rm N/mm^2	Rp0.2 N/mm^2	A%
430-480 *	310-380*	20-30*

Values purely indicative.



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DIMENSIONS, TOLERANCES, AND STRAIGHTNESS UNI EN 12165 ED 2016

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 made in Class B up to and including Ø80 mm.
Semi-finished products larger than 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	50	0.4	1.0 x L

FINISHING AND PACKAGING

Bar ends	Finishing with saw cut.
Bar surface	Not pickled.
Packaging	1000 kg bundle – 3/5 metal straps. Different bundle packaging and quantities are possible on specific request.
Identification	Adhesive label on strap or bar ends.

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TECHNICAL NOTES

Also called "Muntz Metal," it is characterized by its excellent cold and hot deformability qualities. The machinability by chip removal is low. It also complies with the standards of 4MS and the prerogatives of the U.S. regulation for materials in contact with drinkable water.