METALLURGICA SAN MARCO

DATA SHEET: CW611N

HOT FORGING

Updated 06 / 23

ALLOY: CW611N

Lead alloy for hot stamping

ALLOY DESIGNATION

UNIEN: CW611N - CuZn39Pb1	**GOST:** LS59-1 LS59-1V	**GB:** HPb59-1	**JIS:** C3710

CHEMICAL COMPOSITION UNI EN12165 ED.2016

Cu	Pb	Sn	Fe	Ni	Al	Zn	Other elements
Min 59.0% max 60.0%	0.8% 1.6%	≤0.3 %	≤0.3 %	≤0.3 %	≤0.05 %	difference	≤0.2 %

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	21.2 10^{-6}K	120 W/(m K)	377 J/(kg K)	98 KN/mm^2	885-900 °C

low○○○○○○○ excellent

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

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

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

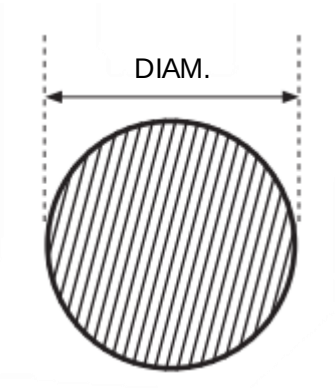
MECHANICAL PROPERTIES UNI EN12165 ED.2016

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%
410-450*	290-340*	20-30*

Values purely indicative.



ALLOY: CW509L

Low lead alloy for hot stamping

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	60	1.5	3.0 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

Excellent hot plastic deformation characteristics are combined with good machinability at the tool due to the low lead content. The alloy has a high percentage of copper, which gives it excellent mechanical properties.