



## Cu Zn 39 Pb 2

## LEADED BRASS

### CHEMICAL COMPOSITION :

Cu	59-60 %
Pb	1.60-2.50 %
Zn	balance

### ALLOY DENOMINATIONS :

MATERIAL N° EN :	CW612 N
WN/MATERIAL N° DIN :	2.0380
ROBERT LAMINAGE :	397
EN :	CU ZN39 Pb2
DIN :	CU ZN39 Pb2
AFNOR :	CU ZN39 Pb2
UNS* :	C 37700

\*Unified Numbering System (USA)

### PHYSICAL PROPERTIES :

Density 20° C	8.4	Kg/dm <sup>3</sup>
Melting point	885-910	°C
Modulus of elasticity, longitudinal	102	GPa
Thermal Conductivity	109	W/M . K
Electrical Conductivity	13.9	M/Ω mm <sup>2</sup>
Electrical resistivity	0.07	Ω mm <sup>2</sup> /M
Coefficient of linear expansion from 20 up to 300°C	21.1 x 10 <sup>-6</sup>	K <sup>-1</sup>
IACS (International Annealed Copper Standard)	24	%

### WORKABILITY :

Coldworking	Poor
Hotworking	Very good (700-760 °C)
Machining	Very good
Soldering, brazing	Medium
Tin soldering	Very good
Polishing	Good
Annealing temperature	400-600 °C
Stress relieving heat treatment temperature	200-300 °C

### MAIN APPLICATIONS :

Stamped components for heavy machining,  
Machining of cogs, watch parts, base plate,  
turning, drilling, milling

### CONDITIONING :

- In coils
- Cut to length, from 0.5 up to 3 m

### AVAILABLE SIZES :

Widths from 2 up to 350mm  
Thicknes: from 0.01up to 3.40mm

### TOLERANCES :

Depending on product

### QUALITY OF EDGES :

Slit edges



**MECHANICAL PROPERTIES :**

**Cu Zn 39 Pb 2**

**EN NORM 1652**

TEMPER	THICKNESS		Rm (MPa)		Rp 0.2 (Mpa)	ELONGATION		Vickers HARDNESS		GRAIN SIZE
			min	max		0.10 up to 2.5 mm A50 % min	above 2.5 mm A100 % min	min	max	
R360 H090	0.3	5	360	440	(max 270)	30	40	-	-	-
			-	-	-	-	-	-	90	120
R420 H120	0.3	5	420	500	(min 270)	12	20	-	-	-
			-	-	-	-	-	-	120	150
R490 H150	0.3	5	490	570	(min 420)	-	9	-	-	-
			-	-	-	-	-	-	150	180
R560 H175	0.3	2	560	-	(min 510)	-	-	-	-	-
			-	-	-	-	-	-	175	-

(For reference only)

**DIN NORM 17670**

TEMPER	THICKNESS	Rm (MPa)		Rp 0.2 (Mpa)	ELONGATION		Vickers HARDNESS	
		min	max		0.10 up to 2.5 mm A50 % min	above 2.5 mm A100 % min	min	max
F36	> 0.3	min	360	max 270	40	35	-	-
H85	< 5	-	-	-	-	-	85	120
F43	≥ 0.3	min	430	min 270	20	17	-	-
H120	≤ 5	-	-	-	-	-	120	150
F49	≥ 0.3	min	490	min 420	9	6	-	-
H150	< 5	-	-	-	-	-	150	175
F59	≥ 0.3	min	590	min 590	-	-	-	-
H175	≤ 2	-	-	-	-	-	175	-

**AFNOR NORM NF A 51-101**

TEMPER	Vickers HARDNESS		Rm (MPa)	
	min	max	min	max
H12	135	160	400	500
H13	145	170	450	550
H14	150	180	500	600
H15	170	195	550	650