**Cu Ni 13 Zn 24 Pb****LEADED NICKEL SILVER****CHEMICAL COMPOSITION :**

Nickel	13%
Zinc	23%
Pb	1%
Copper	balance

**ALLOY DENOMINATIONS :**

MATERIAL N° EN :	CW 404 J
WN/MATERIAL N° DIN :	Not normalised
ROBERT LAMINAGE :	490
EN :	CuNi12 Zn24 Pb
DIN :	Not normalised
AFNOR :	CuNi13Zn23 Pb1
UNS* :	C 79200

\*Unified Numbering System (USA)

**PHYSICAL PROPERTIES :**

Density 20° C	8.65	Kg/dm <sup>3</sup>
Melting point	1020	°C
Modulus of elasticity, longitudinal	130	Gpa
Thermal Conductivity	33	W/M . K
Electrical Conductivity	≥ 4.35	M/Ω mm <sup>2</sup>
Electrical resistivity	≤ 0.23	Ω mm <sup>2</sup> /M
Coefficient of linear expansion from 20 up to 300°C	16 x 10 <sup>-6</sup>	K <sup>-1</sup>
IACS (International Annealed Copper Standard)	≥ 7.5	%

**WORKABILITY :**

Coldworking	Good
Hotworking	Unsuitable
Machining	Very good
Soldering, brazing	Very good
Tin soldering	Unsuitable
Polishing	Excellent
Annealing temperature	620-700 °C
Stress relieving heat treatment temperature	450 °C

**MAIN APPLICATIONS :**

Stamped components for heavy machining,  
Machining of reels, watch parts, base plate,  
Turning, drilling, milling

**CONDITIONING :**

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

**AVAILABLE SIZES :**

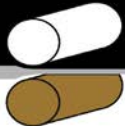
Widths	from 2 up to 350mm
Thickness	from 0.01up to 3.4 mm

**TOLERANCES :**

Depending on product

**QUALITY OF EDGES :**

Slit edges



**MECHANICAL PROPERTIES :**

**Cu Ni 13 Zn 24 Pb**

**EN NORM 1652**

TEMPER	THICKNESS		Rm (MPa)		Rp 0.2 (Mpa)	ELONGATION		DURETÉ Vickers		GRAIN SIZE	
			min	max		0.10 up to 2.5 mm A50 % min	above 2.5 mm A100 % min	min	max		
R380	0.5	4	380	470	(min 260)	15	-	-	-	-	-
H110			-	-	-	-	-	-	110	140	-
R460	0.5	4	460	540	(min320)	6	-	-	-	-	-
H130			-	-	-	-	-	-	130	160	-
R530	0.5	4	530	610	(min 420)	3	-	-	-	-	-
H155			-	-	-	-	-	-	155	185	-
R620	0.5	4	620	700	(min 530)	-	-	-	-	-	-
H180			-	-	-	-	-	-	180	210	-
R700	0.5	4	700	-	(min 630)	-	-	-	-	-	-
H200			-	-	-	-	-	-	200	-	-

(For reference only)

**AFNOR NORM**

TEMPER	Vickers HARDNESS		Rm (MPa)		ELONGATION
	min	max	min	max	A 100 %
annealed 0	≤ 90		≤ 425		≥ 35
1/2 hard H12	145	175	470	570	≥ 10
Hard H14	≥175		570	780	≥ 3