



## Cu Ni 12 Zn24

## NICKEL SILVER

### CHEMICAL COMPOSITION :

Cu	64%
Ni	12%
Zn	24%
Mn max	0.50%

### ALLOY DENOMINATIONS :

MATERIAL N° EN :	CW403 J
WN/MATERIAL N° DIN :	2.0730
ROBERT LAMINAGE :	400
EN :	Cu Ni12 Zn24
DIN :	Cu Ni12 Zn24
AFNOR :	Cu Ni12 Zn24
UNS* :	C 75700

\*Unified Numbering System (USA)

### PHYSICAL PROPERTIES :

Density 20° C	8.67	Kg/dm <sup>3</sup>
Melting point	1000-1060	°C
Modulus of elasticity, longitudinal	125	GPa
Thermal Conductivity	42	W/M . K
Electrical Conductivity	≥ 3	M/Ω mm <sup>2</sup>
Electrical resistivity	≤ 0.333	Ω mm <sup>2</sup> /M
Coefficient of linear expansion from 20 up to 300°C	18 x 10 <sup>-6</sup>	K <sup>-1</sup>
IACS (International Annealed Copper Standard)	≥ 5	%

### WORKABILITY :

Coldworking	Very good
Hotworking	Inappropriate
Machining	Medium
Soldering, brazing	Medium
Tin soldering	Very good
Polishing	Very good
Annealing temperature	450-600 °C
Stress relieving heat treatment temperature	~300 °C

### MAIN APPLICATIONS :

Clock and watchmaking, scientific tool components  
Coining, bending, stamping, pressing, cutting  
Medical instrument components, electronic, etc.

### CONDITIONING :

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

### AVAILABLE SIZES :

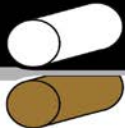
Widths	from 2 up to 350mm
Thickness	from 0.01up to 3.40 mm

### TOLERANCES :

Depending on product

### QUALITY OF EDGES :

Slit edges



**MECHANICAL PROPERTIES :**

**Cu Ni 12 Zn24**

**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	min	max
R360 H080	0.1	5	360	430	(max 230)	35	45	-	-	-	-
G020 G035			-	-	-	-	-	-	80	110	-
R430 H110	0.2	2	-	-	-	-	-	-	110	0.015	0.030
R490 H150			-	-	-	-	-	-	-	100	0.025
R550 H170	0.1	5	430	510	(min 230)	8	15	-	-	-	-
R620 H190			-	-	-	-	-	-	110	150	-
	0.1	5	490	580	(min 400)	-	8	-	-	-	-
			-	-	-	-	-	-	150	180	-
	0.1	2	550	640	(min 480)	-	-	-	-	-	-
			-	-	-	-	-	-	170	200	-
	0.1	2	620	-	(min 580)	-	-	-	-	-	-
			-	-	-	-	-	-	190	-	-

(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	> 0.1	360	430	max 230	45	40	-	-
H80	< 5	-	-	-	-	-	80	110
F43	≥ 0.1	430	510	min 230	16	13	-	-
H110	≤ 5	-	-	-	-	-	110	150
F51	≥ 0.1	510	590	min 420	8	5	-	-
H150	< 5	-	-	-	-	-	150	180
F56	≥ 0.1	560	650	min 480	-	-	-	-
H170	< 2	-	-	-	-	-	170	200
F65	≥ 0.1	650	-	min 600	-	-	-	-
H200	≤ 2	-	-	-	-	-	200	-

**AFNOR NORM NF A 51-101**

TEMPER	Vickers HARDNESS		Rm (MPa)		Re (MPa)	ELONGATION 0.10 up to 2.5 mm A50 % min
	min	max	min	max		
H11	110	140	410	510	210	27
H12	135	165	470	570	360	8
H13	160	190	560	640	480	4
H14	190	205	640	700	590	~1
H15	> 205		> 700		640	-