



## Cu Ni 18 Zn27

## NICKEL SILVER

### CHEMICAL COMPOSITION :

Ni	18%
Zn	27%
Cu	balance

### ALLOY DENOMINATIONS :

MATERIAL N° EN :	CW410 J
WN/MATERIAL N° DIN :	2.0742
ROBERT LAMINAGE :	455
EN :	Cu Ni18 Zn27
DIN :	Cu Ni18 Zn27
AFNOR :	Cu Ni18 Zn27
UNS* :	C 77000

\*Unified Numbering System (USA)

### PHYSICAL PROPERTIES :

Density 20° C	8.64	Kg/dm <sup>3</sup>
Melting point	1060-1110	°C
Modulus of elasticity, longitudinal	140	GPa
Thermal Conductivity	26	W/M . K
Electrical Conductivity	≥ 2	M/Ω mm <sup>2</sup>
Electrical resistivity	≤ 0.50	Ω mm <sup>2</sup> /M
Coefficient of linear expansion from 20 up to 300°C	17.7 x 10 <sup>-6</sup>	K <sup>-1</sup>
IACS (International Annealed Copper Standard)	≥ 3	%

### WORKABILITY :

Coldworking	Very good
Hotworking	Inappropriate
Machining	Medium
Soldering, brazing	Good
Tin soldering	Very good
Polishing	Very good
Annealing temperature	600-700 °C
Stress relieving heat treatment temperature	~300 °C

### MAIN APPLICATIONS :

Springs  
Pressing, folding, stamping  
Component for precision instruments, electronic, optics.

### AVAILABLE SIZES :

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

### CONDITIONING :

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

### TOLERANCES :

Depending on product

### QUALITY OF EDGES :

Slit edges



**MECHANICAL PROPERTIES :**

**Cu Ni 18 Zn27**

**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		
R390	0.1	5	390	470	(max 280)	30	40	-	-	-	-
H090			-	-	-	-	-	-	90	120	-
R470	0.1	5	470	540	(min 280)	11	20	-	-	-	-
H120			-	-	-	-	-	-	120	170	-
R540	0.1	2	540	630	(min 450)	3	-	-	-	-	-
H170			-	-	-	-	-	-	170	200	-
R600	0.1	2	600	700	(min 550)	-	-	-	-	-	-
H190			-	-	-	-	-	-	190	220	-
R700	0.1	2	700	800	(min 660)	-	-	-	-	-	-
H220			-	-	-	-	-	-	220	250	-

(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
F39	> 0.1	390	470	max 280	40	35	-	-
H90	< 5	-	-	-	-	-	90	120
F47	≥ 0.1	470	540	min 280	20	15	-	-
H120	≤ 5	-	-	-	-	-	120	170
F54	≥ 0.1	540	620	min 440	7	-	-	-
H170	< 2	-	-	-	-	-	170	200
F60	≥ 0.1	600	700	min 500	-	-	-	-
H190	< 2	-	-	-	-	-	190	220
F70	≥ 0.1	700	-	min 650	-	-	-	-
H220	≤ 2	-	-	-	-	-	220	-

**AFNOR NORM NF A 51-107**

TEMPER	Vickers HARDNESS		Rm (MPa)		Re (MPa)	ELONGATION 0.10 up to 2.5 mm A50 % min
	min	max	min	max		
H11	130	160	470	550	280	22
H12	155	185	530	610	430	11
H13	180	210	600	680	500	6
H14	210	225	680	760	580	~2
H15	>225		>760		650	-

CERTIFIÉ ISO 9001: 2008