

## Cu-DHP / SF-CU

## COPPER

### CHEMICAL COMPOSITION :

Cu min	99.90%
P	0.015-0.040%

### ALLOY DENOMINATIONS :

MATERIAL N° EN :	CW024 A
WN/MATERIAL N° DIN :	2.0090
ROBERT LAMINAGE :	140
EN :	CU -DHP
DIN :	SF- Cu
AFNOR :	CU-b1
UNS* :	C 12200

\*Unified Numbering System (USA)

### PHYSICAL PROPERTIES :

Density 20° C	8.93	Kg/dm <sup>3</sup>
Melting point	1083	°C
Modulus of elasticity, longitudinal	132	GPa
Thermal Conductivity	310	W/M . K
Electrical Conductivity	≥ 46.4	M/Ω mm <sup>2</sup>
Electrical resistivity	≤ 0.02155	Ω mm <sup>2</sup> /M
Coefficient of linear expansion from 20 up to 300°C	17.6 x 10 <sup>-6</sup>	K <sup>-1</sup>
IACS (International Annealed Copper Standard)	≥ 80	%

### WORKABILITY :

Coldworking	Very good
Hotworking	Good (750-950°C)
Machining	Poor
Soldering, brazing	Very good
Tin soldering	Good
Polishing	Good
Annealing temperature	350-500°C
Stress relieving heat treatment temperature	150-200°C

### MAIN APPLICATIONS :

Various electrical components,  
Collector strips, conductors  
Deep drawing, stamping

### CONDITIONING :

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

### AVAILABLE SIZES :

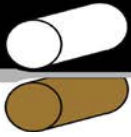
Widths	from 2 up to 350mm
Thickness	from 0.01up to 2.5mm

### TOLERANCES :

Depending on product

### QUALITY OF EDGES :

Slit edges



**MECHANICAL PROPERTIES :**

**Cu-DHP / SF-CU**

**EN NORM**

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	
R220 H040	0.2	5	220	260	(max 140)	33	42	-	-	-
			-	-	-	-	-	-	40	65
R240 H065	0.2	15	240	300	(min 180)	8	15	-	-	-
			-	-	-	-	-	-	65	95
R290 H090	0.2	15	290	360	(min 250)	4	6	-	-	-
			-	-	-	-	-	-	90	110
R360 H110	0.2	2	360	-	(min 320)	2	-	-	-	-
			-	-	-	-	-	-	110	-

(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
F20	> 5	200	250	max 100	42	36	-	-
H40	< 15	-	-	-	-	-	-	-
F22	≥ 0.2	220	260	min 140	42	36	-	-
H40	≤ 5	-	-	-	-	-	40	70
F24	≥ 0.2	240	300	min 180	15	12	-	-
H70	≤ 15	-	-	-	-	-	70	95
F29	≥ 0.2	290	360	min 250	6	-	-	-
H90	≤ 10	-	-	-	-	-	90	110
F36	≥ 0.2	360	-	min 320	-	-	-	-
H110	≤ 2	-	-	-	-	-	110	-

**AFNOR NORM NF 51-101**

TEMPER	Vickers HARDNESS		Rm (MPa)		Rp 0.2 (Mpa)	ELONGATION
	min	max	min	max		0.10 up to 2.5 mm A50 % min
Annealed	46	60	200	270	< 120	30
H12	75	105	260	320	> 250	10
H14.1	105	125	340	430	> 300	1

CERTIFIÉ ISO 9001: 2008