

# Material data sheet CUFER

Status: 10.10.2008

## Cladding composite: CUFER

(Low carbon steel, single- or double side cladded with copper)

### Brief description

CUFER is a single- or double side cold rolled cladded composite material combining the forming and strength properties of low carbon deep drawing steel with the physical and decorative properties of copper.

### Standard-Raw materials

Position	Material	Description	Material No.	Norm
Core	Unalloyed deep drawing steel	DD14	1.0389	DIN EN 10111
Cladding layer	Pure copper	Cu-DHP (SF-Cu)	2.0090	DIN EN 1652
		Cu-HCP (SE-Cu)	2.0070	DIN EN 13599

### Chemical composition (%)

Steel	C	Mn	P	S	Al
DD14	0,08	0,35	0,025	0,025	0,015 0,070

Copper	Cu	O	P	Pb	Bi	Other Elements
Cu-DHP	99,90	-	0,015	-	-	-
	-	-	0,040	-	-	-
Cu-HCP	99,95	-	0,002	-	-	-
	-	-	0,007	0,005	0,0005	0,03

### Deliverable (standard-) sizes

Strip thickness: 0,2 – 3,2 mm  
Strip width: 20 – 650 mm  
Cut-to-length: 1.000 – 2.000 mm

### Cladded layer and Adhesion

Nominal layer thickness: Double-side 3/3, 5/5, 10/10 or 15/15% of strip thickness, single-side or difference cladding on request alternatively as well

Adhesion: Not possible to strip off the cladded layer from the steel core

Measuring of layer thickness: Magnetic force, microscopic or gravimetric

### Surface quality

Type/Description	Characteristics	Roughness Ra
bright	Bright, metallicly clean surface. Pittings, grooves and scratches are permitted as long as the uniform smooth appearance is not essentially impaired when viewed with the naked eye.	< 0,10 µm
regular	Metallicly clean surface. Pittings, minimal defects and scratches are acceptable in a scale not impairing the technical function of the outside layers of the composite material.	0,15 – 0,80 µm
isotropic		1,0 – 2,0 µm

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## Mechanical properties

Cladded layer Cu (%)	Surface type	Strength condition <sup>1)</sup>	Yield stress R <sub>p0,2</sub> (N/mm <sup>2</sup> )	Tensile strength R <sub>m</sub> (N/mm <sup>2</sup> )	Elongation A <sub>80</sub> (%)
5/5 10/10 15/15	regular isotropic	LC	max. 240	max. 360	min.34
5/5 10/10 15/15	bright regular isotropic	LC+	200-300 180-280 160-260	300-370 290-360 280-350	min. 30
5/5 10/10 15/15	regular	C330 C320 C310	min. 300 min. 280 min. 260	330-400 320-390 310-380	min. 12
5/5 10/10 15/15	regular	C380 C370 C360	--- --- ---	380-450 370-440 360-430	min. 4

<sup>1)</sup> Description LC und Cxxx following to DIN EN 10139

## Tolerances

- Size limits of thickness - according to classes A,B,C of DIN EN 10140  
 Size limits of width - according to classes A,B of DIN EN 10140  
 Size limits of length - according to classes A,B of DIN EN 10140

## Edge type

GK, NK according to DIN EN 10140

## Delivering types

Strips, sheets

## Ordering example

Every order should be specified in consideration of the following information based on this material data sheet:

Product feature	Example 1	Example 2
Cladding composite	CUFER	CUFER
Layer material	Cu-DHP	Cu-HCP
Cladded layer P(side1-side2) (%)	P(05-05)	P(10-00)
Strength condition	LC	C380
Surface quality	bright	regular
Edge type	GK	GK
Delivering type	Strips	Sheets
Thickness (tolerance) x width (tolerance)x length (tolerance) (mm)	0,80 (+/- 0,025) x 100 (+/-0,13) mm	1,20 (+/-0,030) x 420 (+/-0,30) x1.500 (-0/+6) mm

## Miscellaneous

All information in this material data sheet is referring to CUFER-materials based on a standard production.

Further product features on request.