

Cladding composite **BRONFER**
(low carbon steel, single- or double side clad with bronze)

Brief description

BRONFER is a single or double side cold rolled clad material composite combining forming and strength properties of low carbon deep drawing steel with physical properties of Bronze.

Standard - raw materials

Layer	Material	Description	Material No.	Norm
Core	Unalloyed deep drawing steel	DD14	1.0389	DIN EN 10111
Cladding layer	Bronze	CuSn6	2.1020	DIN EN 1652

Chemical composition [%]

Steel	C	Mn	P	S	Al
DD14	- 0.08	- 0.35	- 0.025	- 0.025	0.015 0.070

Bronze	Cu	Fe	Ni	P	Pb	Sn	Zn	Other Elements
CuSn6 (CW452K)	Rest -	- 0.1	- 0.2	0.01 0.4	- 0.02	5.5 7.0	- 0.20	- 0.2

Standard sizes

Strip thickness: 0.2 - 2.50 mm
Strip width: 20 - 600 mm
Cut-to-length: 500 - 2.000 mm

Clad layers and adhesion

Nominal layer thickness: Double-sided 5/5, 10/10 or 15/15% respectively single-sided 5, 10 or 15% of strip thickness, alternatively difference cladding on request

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

Measuring of the layer thickness: Magnetic force. metallographic or gravimetric

Surface quality

Type/ Description	Characteristics	Roughness Ra
bright	Bright, metallic clean surface. Pitting, 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	Metallic clean surface. Pitting, 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 Bronze [%]	Surface type	Strength condition ¹⁾	Yield stress R _{p0.2} [MPa]	Tensile stress R _m [MPa]	Elongation A ₈₀ [%]
5/5. 5/0 10/10. 10/0 15/15. 15/0	regular isotropic	LC	max. 270	max. 370	min.34
5/5. 5/0 10/10. 10/0 15/15. 15/0	regular	C340	min. 240	340 - 440	min. 12
5/5. 5/0 10/10. 10/0 15/15. 15/0	regular	C390	min. 350	390 - 490	min. 4
5/5. 5/0 10/10. 10/0 15/15. 15/0	regular	C490	Min. 460	490 - 590	---

¹⁾ Description LC and Cxxx according 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	BRONFER	BRONFER
Layer material	CuSn6	CuSn6
Cladded layer P(side1-side2) [%]	P(10-10)	P(15-00)
Strength condition	C390	LC
Surface quality	regular	regular
Edge type	GK	GK
Delivering type	Strips	Sheets
Thickness (tolerance) x width (tolerance) x length (tolerance)	0.80 (+/- 0.025) x 100 (+/-0.13) mm	1.20 (+/-0.030) x 420 (+/-0.30) x 1.500 (-0/+6) mm

Miscellaneous

All information in this material data sheet is referring to BRONFER materials based on a standard production. Further product features on request.

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