

### Brief description

Inox-Cu-Inox is a double side, cold rolled clad material combining high electrical and thermal conductivity of Copper with high strength, stiff, weldable and corrosion resistant Stainless Steel.

### Standard - raw materials

Position	Material	Description	Material No.	Norm
Core	Copper	Cu-OF OF Grade 2	CW007A C10200	DIN EN13599 ASTM B152
		Cu-PHC OFXLP	CW020A C 10300	DIN EN13599 ASTM B152
Cladding layer	Stainless Steel	X2 CrNiMo 17-12-2	2.0090	EN 10088-2 ASTM 240
		X4 CrNi18-12	2.0070	EN 10088-2 ASTM 240

### Chemical composition [%]

Copper	Standard	Cu	P	Bi	PB	O
Cu-OF CW007A	EN 13599	min. 99.95	max. 0.005	max. 0.0005	max. 0.005	-
OF Grade 2 C10200	ASTM B152	min. 99.95 incl. Ag	-	-	-	10 ppm max
Cu-PHC CW020 A	EN 13599	min. 99.95	max. 0.005	max. 0.0005	max. 0.005	-
OFXLP C10300	ASTM B152	min. 99.95 incl Ag and P	0.001 - 0.005	-	-	-

Stainless Steel	Standard	C	Si	Mn	P	S	Ni	Cr	N
X2 CrNiMo 17-12-2 1.4404	EN 10088-2	max. 0.03	max. 1.0	max. 2.0	max. 0.045	max. 0.015	16.5 - 18.5	10.0 - 13.0	2.00 - 2.50
316 L	ASTM A240	max. 0.03	max. 0.75	max. 2.0	max. 0.045	max. 0.03	16.0 - 18.0	10.0 - 14.0	2.00 - 3.00
X4 CrNi18-12 1.4303	EN 10088-2	min. 0.06	max. 1.0	max. 2.0	max. 0.045	max. 0.015	17.0 - 19.0	11.0 - 13.0	-
305	ASTM A240	min. 0.12	max. 0.75	max. 2.0	max. 0.045	max. 0.03	17.0 - 19.0	10.5 - 13.0	-

All information in this material data sheet are referring to Inox-Cu-Inox based on a standard production. Modified product parameters and properties on further request. Further product properties like layer thickness variation, cross-section hardness, surface roughness, flatness, straightness, microstructure, etc., to be discussed.

### Mechanical properties a) annealed and stretch levelled

Layer ratios	15-75-15 %	20-60-20 %	25-50-25 %	30-40-30 %
Yield stress $R_{p0,2}$ [MPa]	120 - 200	120 - 220	140 - 240	160 - 260
Tensile strength $R_m$ [MPa]	310 - 410	340 - 440	370 - 470	400 - 500
Elongation $A_{80}$ [%]	min. 45	min. 45	min. 45	min. 45

### b) temper rolled and stretch levelled <sup>(1)</sup>

Layer ratios	15-75-15 %	20-60-20 %	25-50-25 %	30-40-30 %
Yield stress <sup>(2)</sup> $R_{p0,2}$ [MPa]	170 - 690	200 - 720	230 - 750	260 - 780
Tensile strength <sup>(2)</sup> $R_m$ [MPa]	390 - 740	420 - 770	450 - 800	480 - 830
Elongation $A_{80}$ [%]	min. 5 - 35	min. 5 - 35	min. 5 - 35	min. 5 - 35

### Physical properties

(estimated nominal values)

<sup>(1)</sup> Actual values depending on temper rolling degree

<sup>(2)</sup> Range of min. 100 MPa required based on a defined temper rolling degree

Layer ratios	15-75-15 %	20-60-20 %	25-50-25 %	30-40-30 %
Density [kg/dm <sup>3</sup> ]	8.66	8.56	8.47	8.37
Spec. electrical conductivity [m/(Ohm • mm <sup>2</sup> )]	41	35.8	29.5	24
Spec. thermal conductivity [W/(m • K)]	274	237	200	163
Thermal expansion coefficient (in plane) [10(-6)/K]	16.58	16.47	16.37	16.28
E-Modulus [GPa]	146	154	162	169

### Dimensions and Tolerances

Thickness:	0.15 - 0.30 mm	Tolerance:	+/- 5 % of thickness
Width:	10 - 580 mm	Tolerance:	+/- 0.10 mm
			+/- 0.15 mm
			+/- 0.20 mm

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