

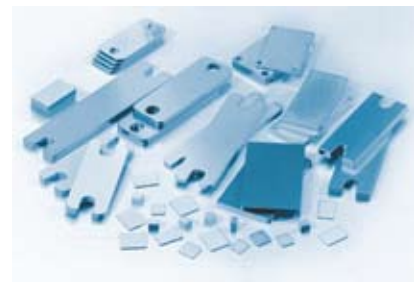
Cu-MoCu-Cu Laminate



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The Cu-MoCu-Cu laminate is a rolled 3-layer sandwich material, which consists of an intermediate layer made out of the composite material Mo-30Cu [wt%] and outer layers made of Cu-OFHC. The lateral structure of the layers is symmetrical with a thickness ratio of 1:4:1. Cu-MoCu-Cu laminate sheet and foil is well suited for the production of heat sinks, base plates and contacts for the electronic industry because of its high thermal conductivity and relatively low coefficient of thermal expansion. The delivery program includes semi finished materials, i.e. sheet and foil, thermal management components and packages for various electronic applications.



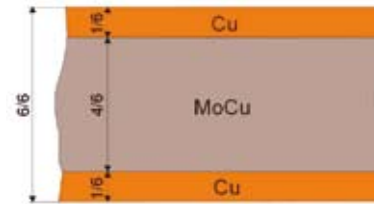
Physical and mechanical properties

Density ³	20 °C [g/cm ³]	9.5	
Thermal conductivity ²	20 °C [W/mK]	≥ 260 in plane	≥ 170 through plane
Thermal conductivity of Cu layer ²	20 °C [W/mK]	≥ 380	
CTE ¹	20 °C [10 ⁻⁶ /K]	8.0 – 10.0	
Vickers' hardness of Cu layer ⁴	20 °C [HV _{0,1}]	80 – 120	
Young's modulus ⁵	20 °C [GPa]	195	
0,2%-yield strength ⁵	20 °C [MPa]	630	

¹ acc. to DIN 51045, ² acc. to ASTM 1461-01, ³ acc. to DIN 3369, ⁴ acc. to ISO 6507-1, ⁵ acc. to EN 10002-1

Structure and chemical composition

Substrate	[wt%]	Mo-30Cu
Plating		Cu-OFHC
Thickness ratio		1:4:1



MoCu-Substrate (R 750)

Element	[wt%]
Mo	70 ± 3
Cu	30 ± 3
Element	[µg/g]
O	≤ 1000
Others	≤ 500

Cu layer (Cu-OFHC)

Element	[µg/g]
Cu	balance
Bi	≤ 5
Pb	≤ 50
O	≤ 10
Others	≤ 300

Material no. 2.0040 acc. to DIN EN 13599

Certificates acc. to EN 10 204 can be provided on demand.

Other laminate structures e.g. 2:3:2 and compositions of the substrate material, e.g. Mo-50Cu [wt%] on demand.

Standard dimensions and tolerances

Laminate thickness	[mm]	1.000 ± 0,040	1.610 ± 0.040
Thickness of Cu layers	[mm]	0.170 ± 0.019	0.268 ± 0.020
Length	[mm]	750 ± 150	800 ± 150
Width	[mm]	175 ± 0.5	175 ± 0.5

Other sheet thicknesses of 0,07 - 3,00 mm and dimensions available on request.

Surface quality and flatness

Surface roughness	$R_a \leq 0,2 \mu\text{m}$
Flatness	max. 1%, determined acc. to ASTM B 386
Coatings	Ni, Ni/Au, Ni/Ag, Ru (other coatings on request)

Ordering information

- Material (Cu/MoCu/Cu-Laminat)
 - › Substrate material, thickness ratio
- Delivery form (e.g. sheet, foil, heat sink, etc.)
- Specification (if applicable)
- Drawing (if applicable)
- Delivery quantity
- Requested certificates
- Required labeling
- Special packing (if applicable)

Packing and storage

Standard packing: Sheets and foils will be packed with paper or cardboard underliner in a package. **Special packing** on request.

The laminate sheet and foil should be stored dry and protected against mechanical damage. The material should remain in the original packing until usage.

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