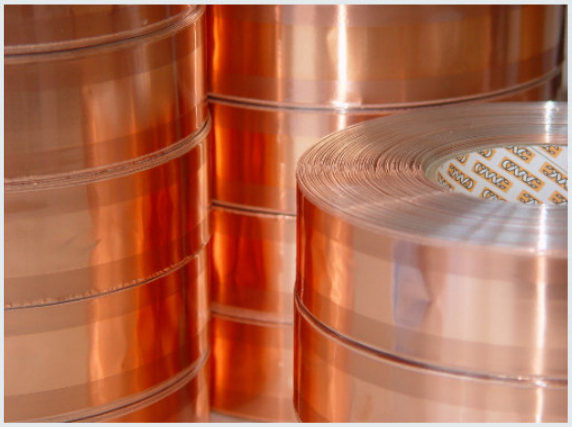
Copper Shielding Tapes

And insulated high-current cables for transformers



Insulated copper tapes for shielding or as a current conductor in transformers and coils, in particular in the field of solar energy and hybrid drive technology (voltage transformers).

Advantages of flat copper wires (copper shielding foils)

- Significantly reduced skin effect below 100 kHz, high current carrying capacity
- Flat copper wires can be wound very densely with high tensile forces. As a result, vibration in the coil body (e.g. 50 Hz hum) can effectively be avoided and the heat loss can be dissipated.
- Low inductive reactance from 5 Hz to 50 kHz As a result of the good conductivity and low skin effect, very good ratio of heat (loss) to output. Significantly greater power density than wire coils.
- A shield can be created very quickly between the input and output winding, as only one winding is required (DIN EN 61558; IEC 60950 Safety of information technology equipment)
- Lower capacitive load than with circular wire windings and outstanding quality (audio applications)
- Prevention of shorted coils when used as a shielding interlayer between primary and secondary winding.

more Information

- Thickness range Copper foil: 35 - 300 µm (other thicknesses on request)
- Electrolyte copper E-Cu 58 is used, soft with a spec. Resistance of 0.017 ohms x mm² / m. A rough current carrying capacity of 2-2.5 A per mm² can be expected (with moderate intrinsic heating).
- On request also with 10µm copper foil - super flat design!
- On request and in appropriate quantities (please enquire), we can also supply blank copper foil, cut to the width required.
- Alternatively, aluminum on request
- Delivery form: roll, 5 - 300 mm width (depending on copper thickness and version)
- Application: EMC protection, insulation according to DIN VDE 551, EN60742, as current winding in power transformers
- also available with double and triple insulation;
- for class F also available with PEN film
- for even better heat dissipation with Kapton® MT insulation
- also with two conductors in parallel for more complex winding designs
- other designs required? Please get in touch with us!

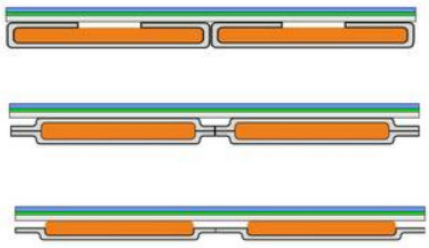
1-side insulation	Polyester	Nomex	Kapton	PEN
	CMC 38181*	CMC 38281*	CMC 38381*	CMC 38481
	CMC 38191*	CMC 38291*	CMC 38391*	CMC 38491
	CMC 38182*	CMC 38282*	CMC 38382*	CMC 38482
	CMC 38190*	CMC 38290*	CMC 38390*	CMC 38490
	CMC 38192*	CMC 38292	CMC 38392	CMC 38492

2-side insulation	Polyester	Nomex	Kapton	PEN
	CMC 38193*	CMC 38293*	CMC 38393*	CMC 38493
	CMC 38194*	CMC 38294*	CMC 38394*	CMC 38494

* UL-recognized - for the version with PET-Insulations is only valid for colorless/transparent PET-insulations

Other design possibility

blue: bundling insulation film (PET, Nomex, Kapton) with adhesive application (green / gray)



Correct handling of CMC 38xxx in production

One of the most important aspects of handling the rolls is protection of the delicate edges. In versions such as the CMC 38190, the very thin but voltage-proof insulation can easily be damaged by putting it down incorrectly. The result is inadequate dielectric strength.

Here you will find written processing instructions, which you can also distribute to your employees.

For power transformers: Copper foil up to 1000 µm

Flat copper conductors up to 1,500 µm. Very large currents are transformed into high voltages or vice versa in solar technology (converters for solar current) and when charging e-vehicles in particular. The solid copper conductors required on the current side are now mainly made with wires in the form of insulated flat copper tapes. When using insulated tapes of this sort, it must be noted that the dielectric strength changes significantly with temperature and, above all, with frequency. In particular pulsed edges with a few nanoseconds of rise time stress the insulation material. Partial discharges must be avoided.

CMC Klebetechnik offers – customised – insulated copper tapes made of electrolytic soft copper up to 1000 µm copper thickness. Get in touch with us!

The information above and our technical advice on applications, whether verbal, written or as the result of experiments, is given to the best of our knowledge but is non-binding. Our advice does not exempt you from checking our latest information – in particular our datasheets and technical information – and our products in relation to their suitability for the intended processes and purposes

Multi-conductor cables by the running meter

For many designs or power supplies, it is beneficial to have several insulated flat copper conductors next to one another on a carrier film. The carrier film "bundles" the individual conductors together to form a cable.

For direct current supplies – e.g. for LED lights – a combination of a copper conductor and a tin-plated copper conductor is available. Polarity reversals are thus a thing of the past (see illustration).

They may comprise up to three insulated flat copper conductors next to one another. Please ask if you have specific requirements!

DC power supply with "polarity protection"

Current carrying capacity

ambient temperature 30°C (self-heating approx. 30°C)

wire cross-section	0,75mm²	1,00mm²	1,5mm²
current carrying capacity duration max.	6A	10A	13A

ambient temperature 40°C (self-heating approx. 30°C)

wire cross-section	0,75mm²	1,00mm²	1,5mm²
current carrying capacity duration max.	4,9A	8,2A	10,7A

ambient temperature 50°C (self-heating approx. 30°C)

wire cross-section	0,75mm²	1,00mm²	1,5mm²
current carrying capacity duration max.	3,5A	5,8A	7,5A

Example:
CMC 91100; 30µm copper foil, 25mm width ➔ 0,03 x 25 = 0,75mm²