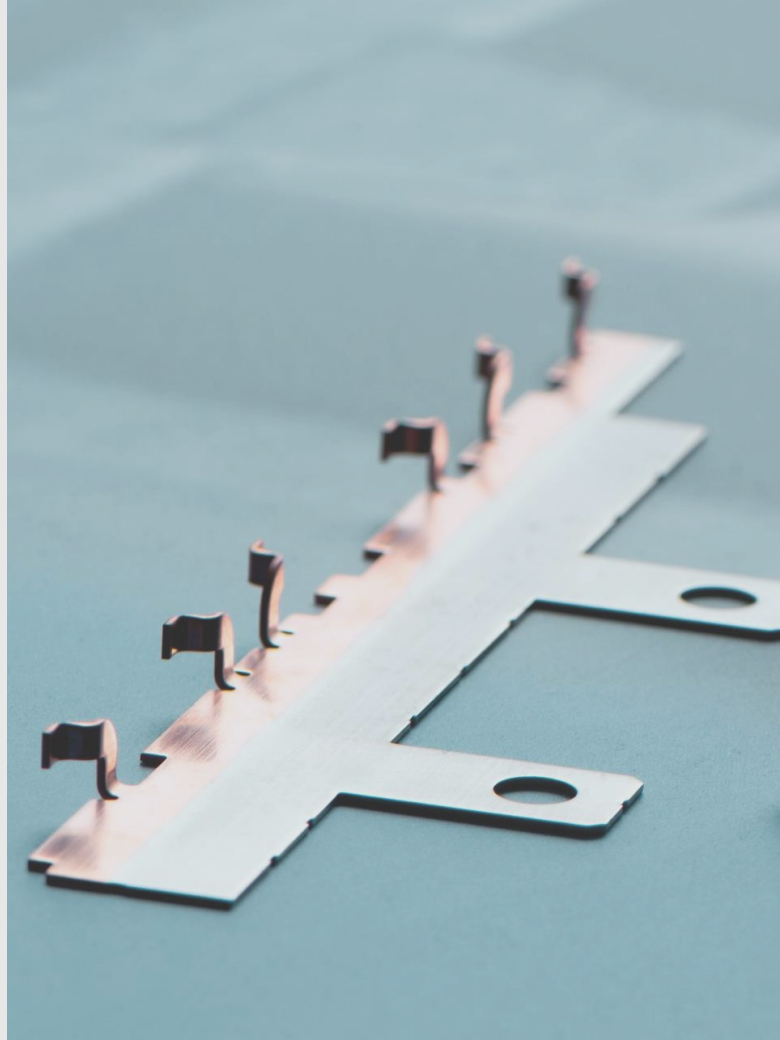




KLEINER BUSBARS & INSULATIONS





KLEINER BUSBARS

MATERIAL

Copper and copper alloys (Cu-, Al-alloys)

DIMENSIONS

Material thickness: up to 0.5 mm

Width: up to 320 mm

COATING

Coating: all-round or selective Ni ; Sn ; Ag

Coating thickness: < 10 μm

Strip electroplating: thickness up to 0.2 mm and width up to 180 mm

Rack electroplating: up to 400 mm length



OUR REFERENCE PARTS



USE

Power modules for renewable energies such as wind power and solar energy. The power modules convert alternating current into direct current. Thus, the modules can be driven with low current and pass on a large output.

ADVANTAGES

One mold for three load connection options. The selectively coated raw material can be used for all 3 variants. Multiple articles are produced per punching stroke (multiple falling).

MATERIAL / COATING

Se-Cu58 (Cu-PHC) selectively nickel-plated





OUR REFERENCE PARTS

USE

E-booster for Porsche Taycan (first car with 800 volt battery voltage).

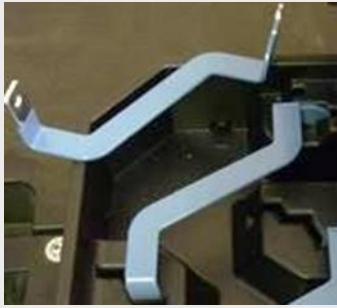
ADVANTAGES

Shorter charging times as well as the same power at twice the voltage. This means at the same time thinner and therefore lighter cables.

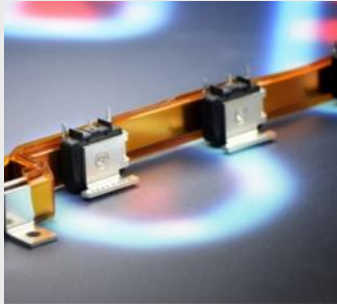
MATERIAL / COATING

CU-ETP silver plated





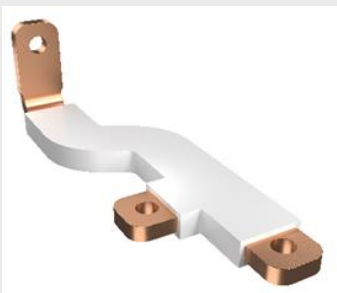
Powder Coating



Polyimid Foil



**Lateral Foil
Overlapping &
Lamination**



**3D-Filament-
Insulation**



OUR INSULATION PORTFOLIO



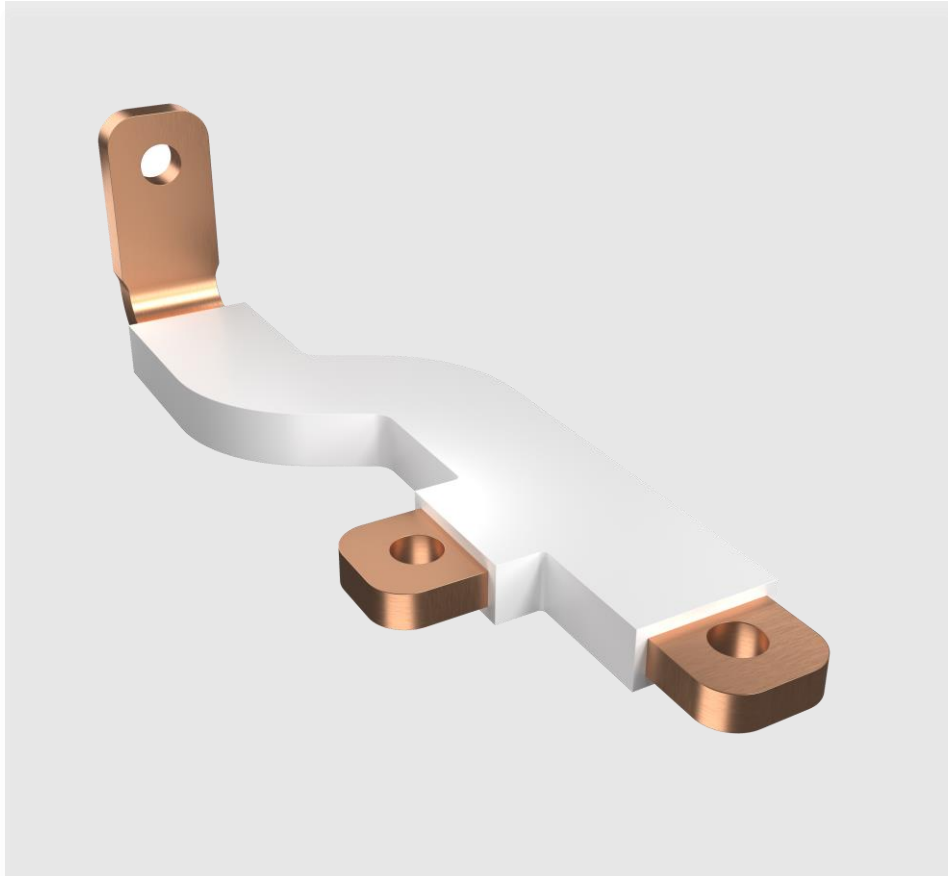


BUSBARS WITH POWDER COATING

Approval for electrical insulation of epoxy powder according to UL746 B; UL 1446 or E35075

Applicable up to 130°C

Stacking structure 300 to 380 μm Dielectric strength according to manufacturer's specifications 39,4 kV/mm





BUSBARS WITH FOIL INSULATION

Busbars with polyimide foil for application in test bench inverter.

PHASE CURRENTS:

$I_{rms}=330$ A (duration)

$I_{rms}=450$ A (approx. 10s)

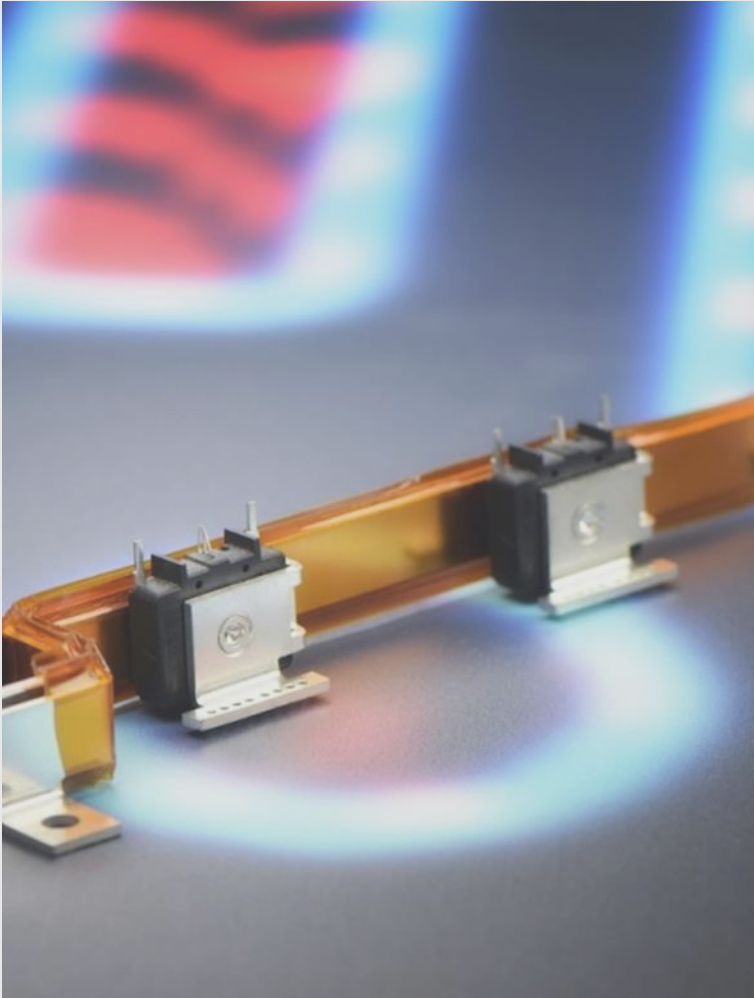
TEMPERATUR:

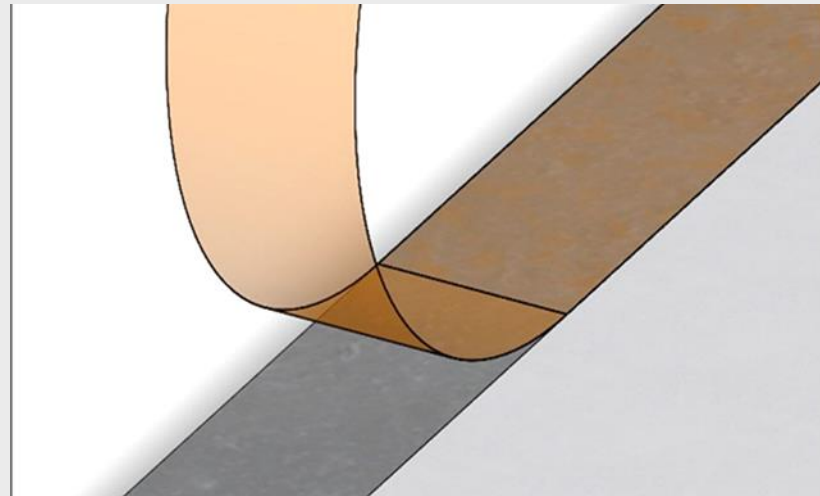
$T_U=105$ °C (duration)

$T_U=125$ °C (short -duration)

INSULATION RESISTANCE:

$R_{Iso}=5$ M Ω

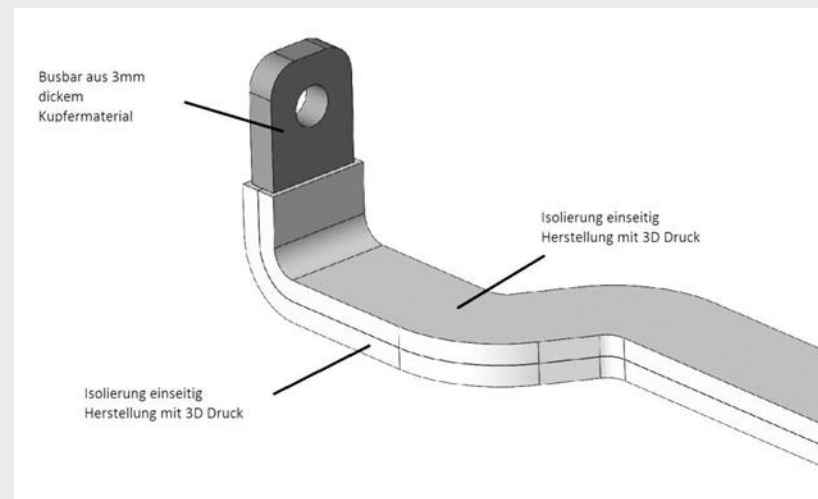




Selective insulation
with
3D printed filaments

KLEINER ISOLATION WITH FOIL INSULATION OR 3D-PRINT

Selective coating of
strip material by
one-sided self-
adhesive foil as
insulation before
stamping process





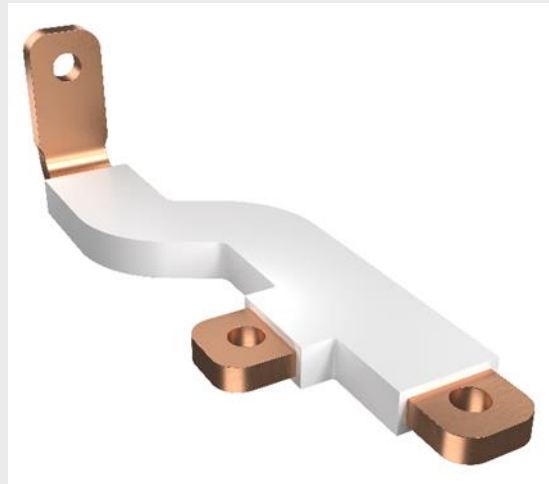
High temperature
Resistance

Automated
assembly + low
thickness structure

3D-PRINTED INSULATION FOR BUSBARS

High insulation
resistance

Insulation filament
made with HP 3D
printer jet fusion
4200





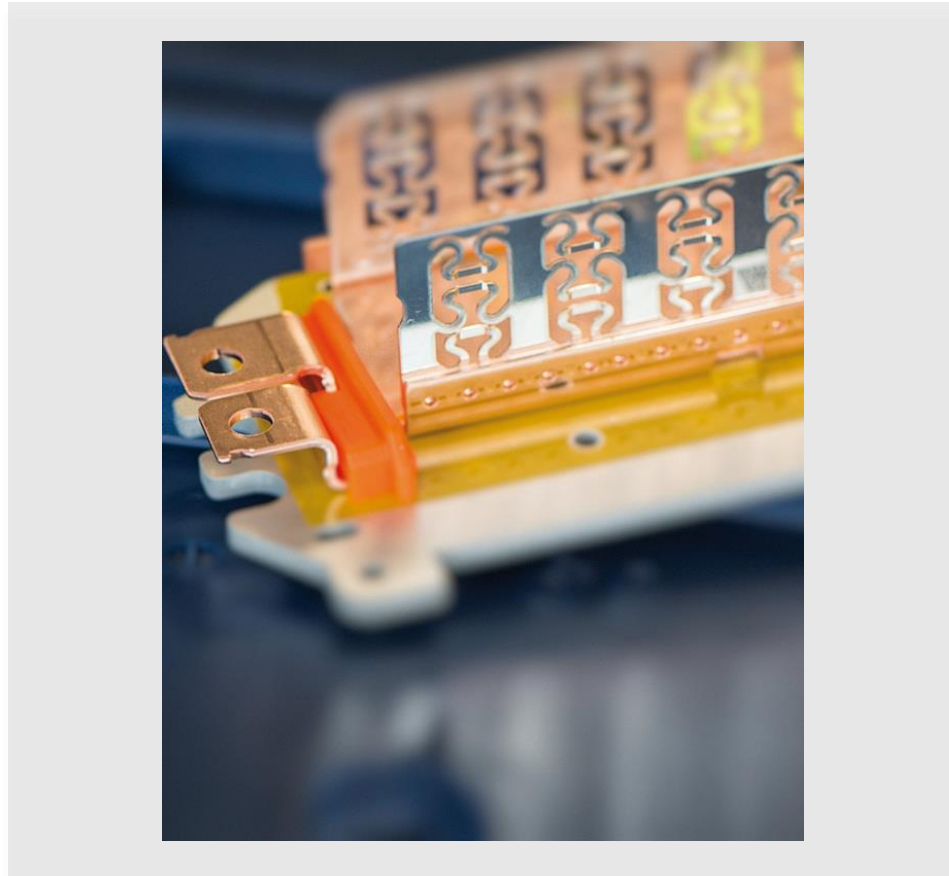
Dielectric strength
510kV/mm

Temperature up to
130°C

Polyester foil as
intermediate layer
UI94

BUSBARS WITH POLYESTER FOIL





KLEINER

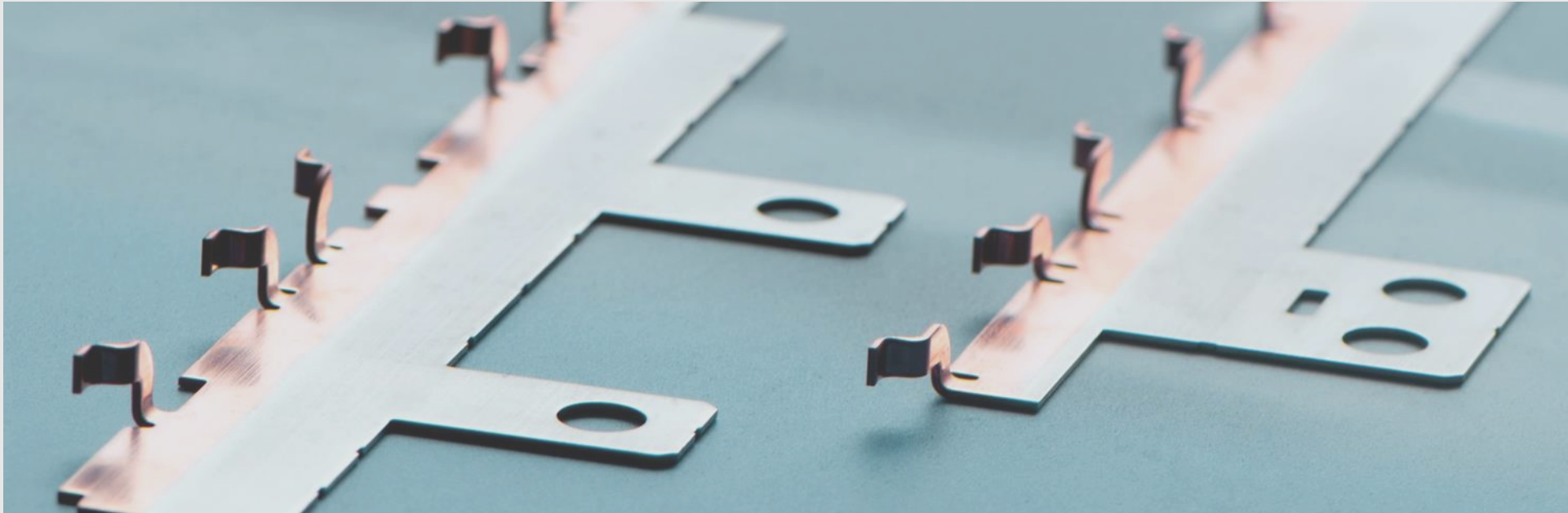
ASSEMBLY PRODUCTION

Assembly production at KLEINER encompasses all of the key technical areas within our company – development – toolmaking – stamping technology – automation – and fitting. Cleaning, mechanical assembly, and fully automated film adhesion are well-established serial processes in our company. Plastic or silicone parts are integrated and delivered as fully tested assemblies – HV and partial discharge tested.



Inverter assembly
with insulation foils





HAVE YOU VISITED OUR NEW WEBSITE YET?

www.busbars.de





KLEINER – WE THINK SOLUTIONS:

WWW.KLEINER-GMBH.DE

