



# SIGMAclad & SIGMAclad light

## SIGMAclad

SIGMAclad is a 5-layer clad material made of Ni-SS-Cu-SS-Ni, which was specially developed for the electrical connection of Li-Ion round cells and battery packs. It has superior properties compared to other materials used in these applications, such as nickel or nickel-plated steel. The copper layer offers optimal electrical and thermal conductivity for heat dissipation. The stainless steel layers serve as a thermal barrier during joining and an alloy barrier between copper and nickel. They reduce significantly the energy input during joining, e.g. laser or resistance welding. Furthermore, they increase the welding strength. The outer layers of nickel allow easy soldering and offer improved corrosion resistance.

SIGMAclad is ideally suited for large series (stamping and forming) and for small series (production by etching, wire EDM, laser or water-jet cutting). The assembly / joining process can be resistance welded, laser welded, ultrasonic welded and wire bonded. A cell protection can be laid out and attached to the material through structural design.

## SIGMAclad light

If you use laser welding in your process and have no increased requirements for corrosion protection, the alternative SIGMAclad light is suitable. The product is a 3-layer clad material, consisting of SS-Cu-SS. The clad composite has high strength properties and is superior to pure stainless steel in terms of its thermal conductivity.

SIGMAclad + SIGMAclad light are already used in round cells, fuel cells and Smart phones.

## Our Cladding solutions

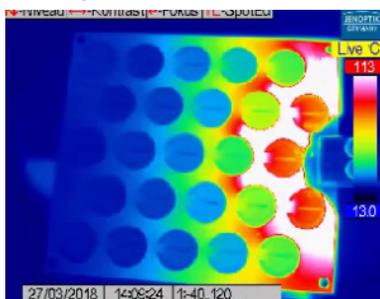


**SIGMAclad**  
Nickel  
Stainless Steel  
Copper  
Stainless Steel  
Nickel

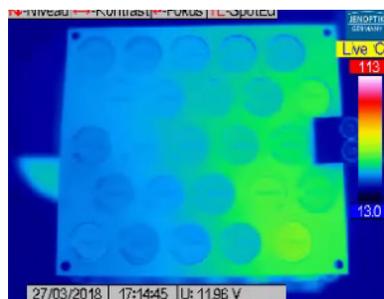


**SIGMAclad „light“**  
Stainless Steel  
Copper  
Stainless Steel

### Nickel-plated Steel



### SIGMAclad



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### Cell connector solutions

**SIGMAclad (Nickel-Stainless Steel-Copper-Stainless Steel-Nickel)**

**+ SIGMAclad „light“  
(Stainless Steel-Copper-Stainless Steel)**

### Advantages:

- > Significantly higher electrical conductivity than nickel
- > Very good joining options
- > Good punching and forming properties
- > Very good corrosion resistance