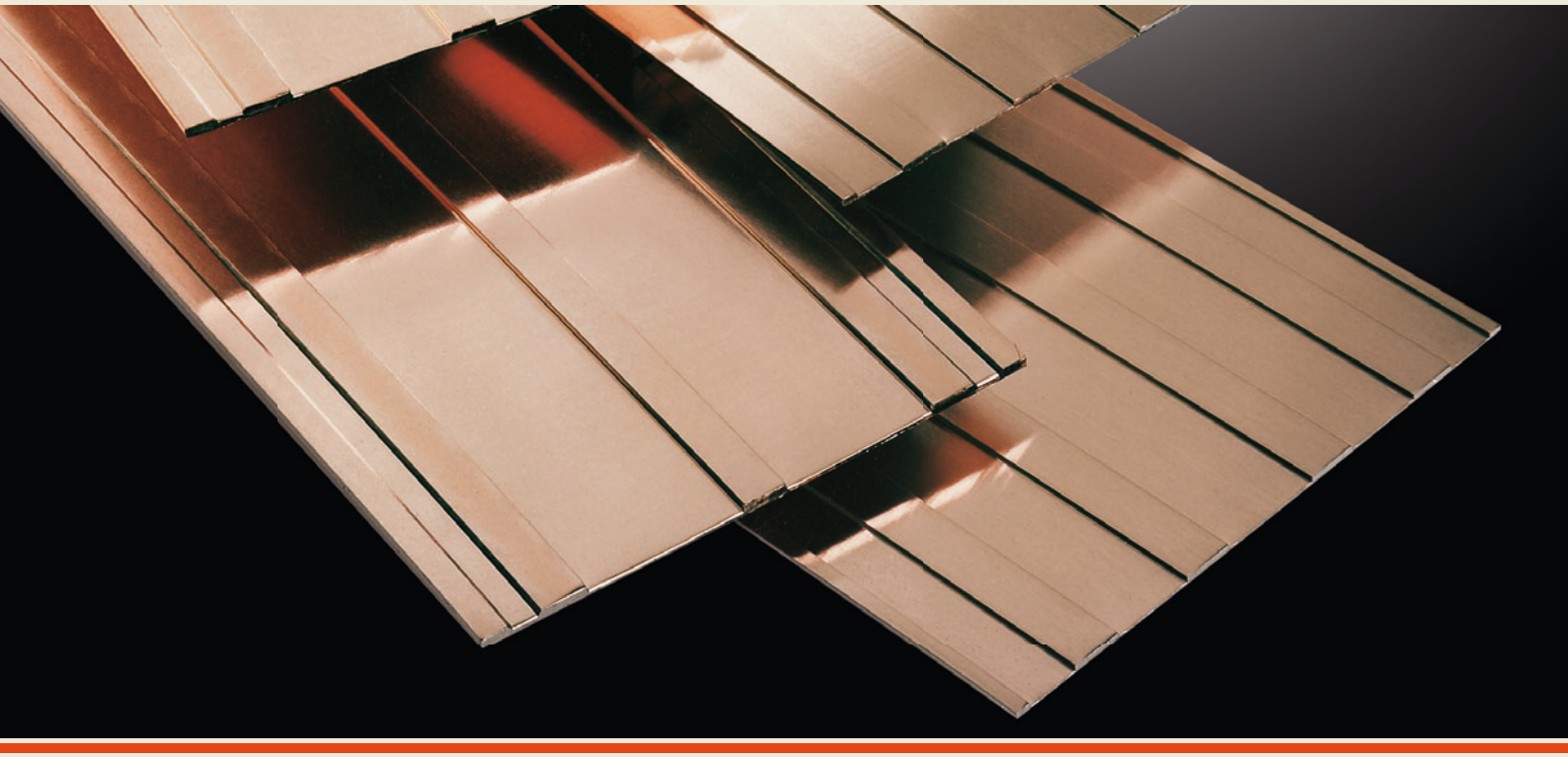
Wieland

Multi-gauge strip



Multi-gauge strip

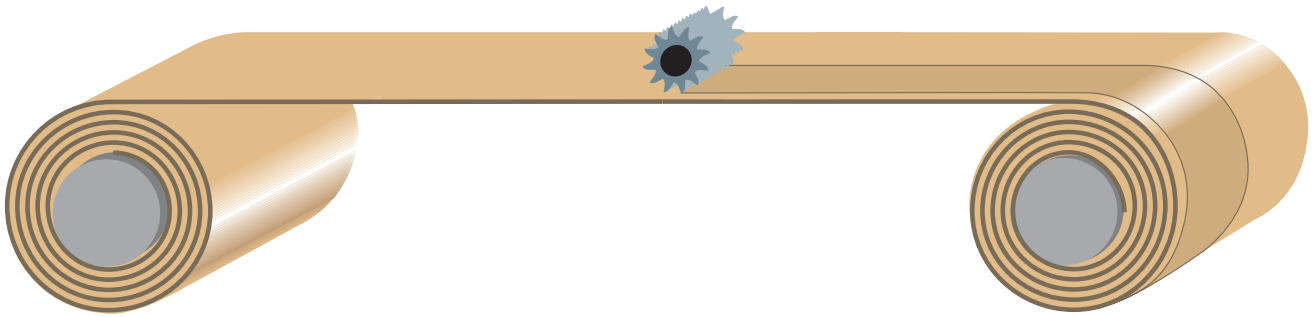
The Wieland Group headquartered in Ulm, Germany, is one of the world's leading manufacturers of semi-finished and special products in copper and copper alloys: strip, sheet, tube, rod, wire and sections as well as slide bearings, finned tubes and heat exchangers. In more than 30 locations worldwide, the companies of the Wieland Group have about 6,500 employees of which over 4,000 are employed at Wieland-Werke AG in Germany.

Multi-gauge strip is longitudinally milled and offers a large variety of cross sections. It is produced at rolling mills in Germany and Singapore. Already in 1997 Wieland started to mill strip and today is the leading copper-alloy mill for this product.

Wieland-Werke AG, Vöhringen plant

Wieland-Werke AG, Langenberg plant

Wieland Metals Singapore (Pte.) Ltd.



Why multi-gauge strip?

Multi-gauge strip can eliminate costly manufacturing operations after stamping, and it opens up new ways to produce electrical and electronic components: Components, which used to be assembled from two or more parts, can be obtained from a multi-gauge strip in one single stamping operation.

An important advantage of multi-gauge strip used for electrical applications is the fact that there is no need of joints with possibly increased electrical resistivity.

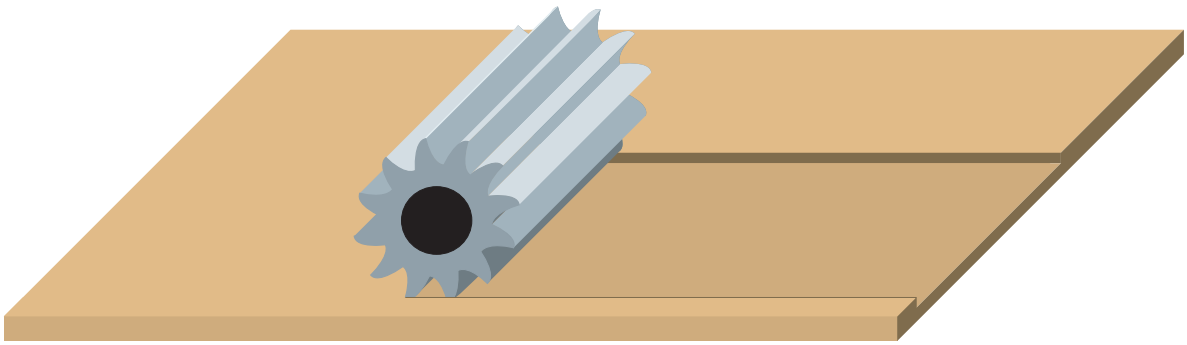
Stamping multi-gauge strip is more cost-effective than stamping single-gauge strip and coining certain areas in order to reduce their thickness:

- lower stamping forces
- less complicated and lighter die
- higher stamping speed.

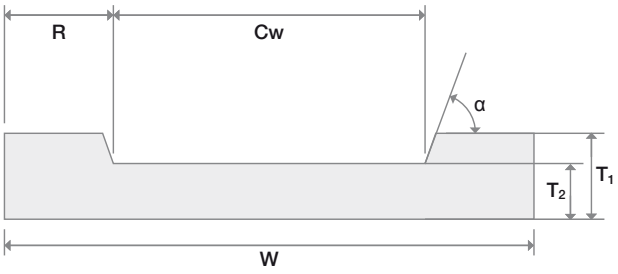
Why milling?

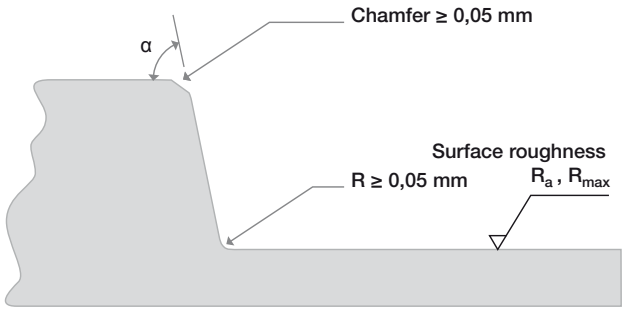
Other ways to produce multi-gauge strip material are rolling or forging. However, producers of electrical connectors or leadframes for discrete semiconductors appreciate the milling technique because of a number of reasons:

- Hardly any limits for the cross section, including multiple channels.
- Prevention of internal stresses because the strip is not deformed during contouring.
- Low tool costs. This is important for small production lots and a quick market launch of new products.



Dimensions and tolerances





Dimensions	
W	20–150 mm
T_1	0.3–3.0 mm
T_2	≥ 0.15 mm
Cw	0.35–100 mm
α	≤ 88°

Typical tolerances	
Cw	±0.02 mm
R	±0.03 mm
T_2	±0.01 mm
α	±1°
Unmilled surface R_a/R_{max}	≤ 0.20 / 1.5 µm
Milled surface R_a/R_{max}	≤ 0.40 / 2.5 µm

Delivery formats

Pancake coils

Pancake coils are the simplest and therefore most economical delivery format for strip. They are packed horizontally on square or round pallets whose size is matched to the outer diameter of the coils. For stamping so-called pallet decoilers are recommended. For these Wieland offers round pallets with diameters up to 1.500 mm. Please specify one of the decoiling options according to the drawing.

Traverse-wound coils

Wieland supplies up to 35 mm wide multi-gauge strip on drums with flanges. They are made of plastic, steel or wood. Several drum sizes and weights up to 900 kg are available.

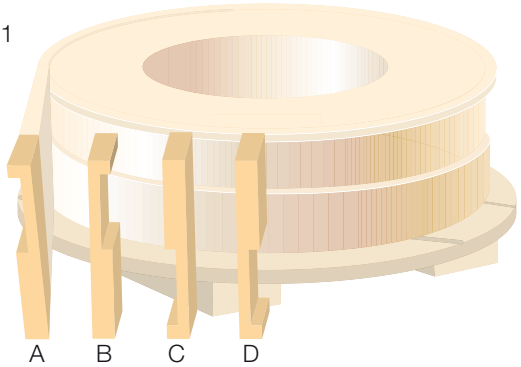
Electroplated multi-gauge strip

Multi-gauge strip can be supplied with full or selective Ni, Ag, Au or Sn plating. This is often required for power semiconductors. But also for electromechanical components and other applications the use of plated strip can be advantageous – especially if it proves to be more economic than plating after stamping.

Tinned multi-gauge strip

Wieland offers multi-gauge strip plated with Sn. The tin layers are between 1 and 10 µm thick. Because the milling takes place after tinning the milled sections have no Sn coating.

1



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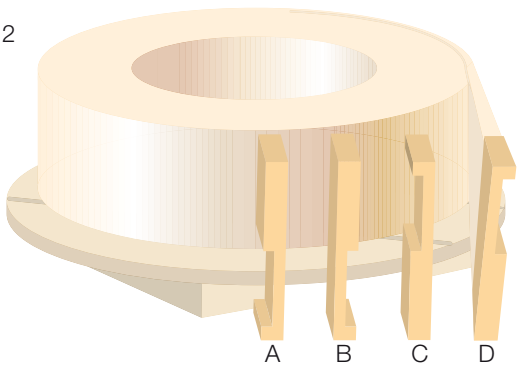
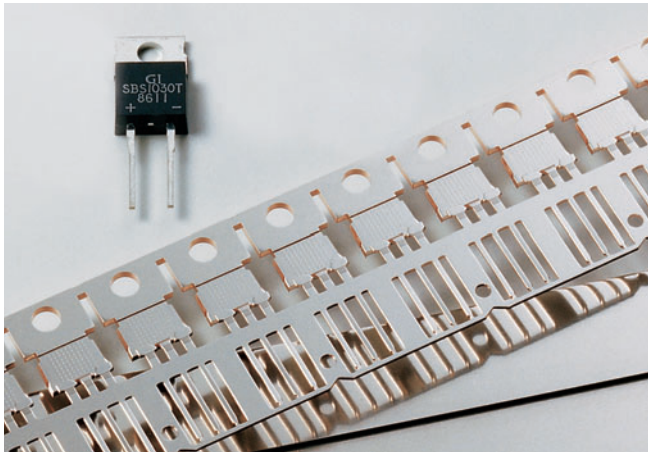


Positions of milled face within coil:
1 Decoiling counterclockwise
2 Decoiling clockwise

Applications

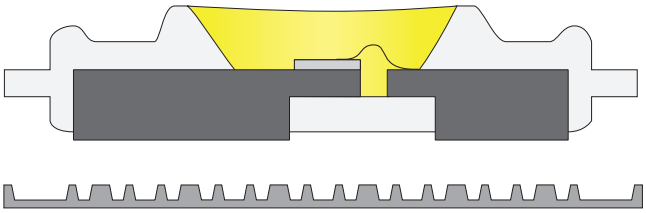
Power Transistors

Leadframes for power transistors typically combine thin gauge leads with thicker heatsinks. To economically stamp, plate and assemble power transistors multi-gauge strip is widely used within the industry.



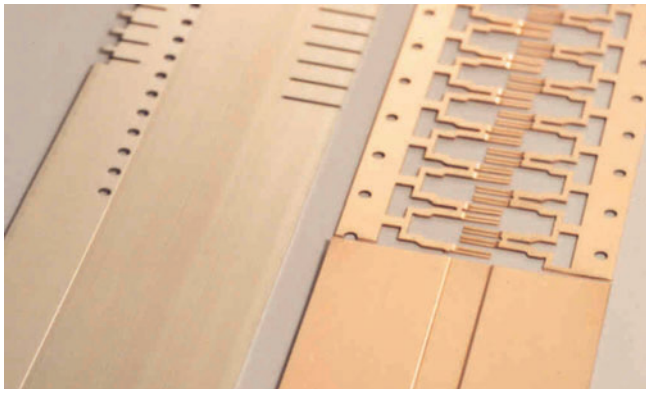
Power LED

Multi-gauge strip offers a variety of functional solutions to design the packaging of power LED. Within limited space leadframes made from multi-gauge strip provide current supply and good heat dissipation at the same time in one stamped part.



Connectors, switches and relays

Stamped parts for electromechanical components have to combine high electrical conductivity with rigidity, formability and good elasticity. In many cases multi-gauge strip is the most cost effective solution to achieve these properties within a limited space.



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