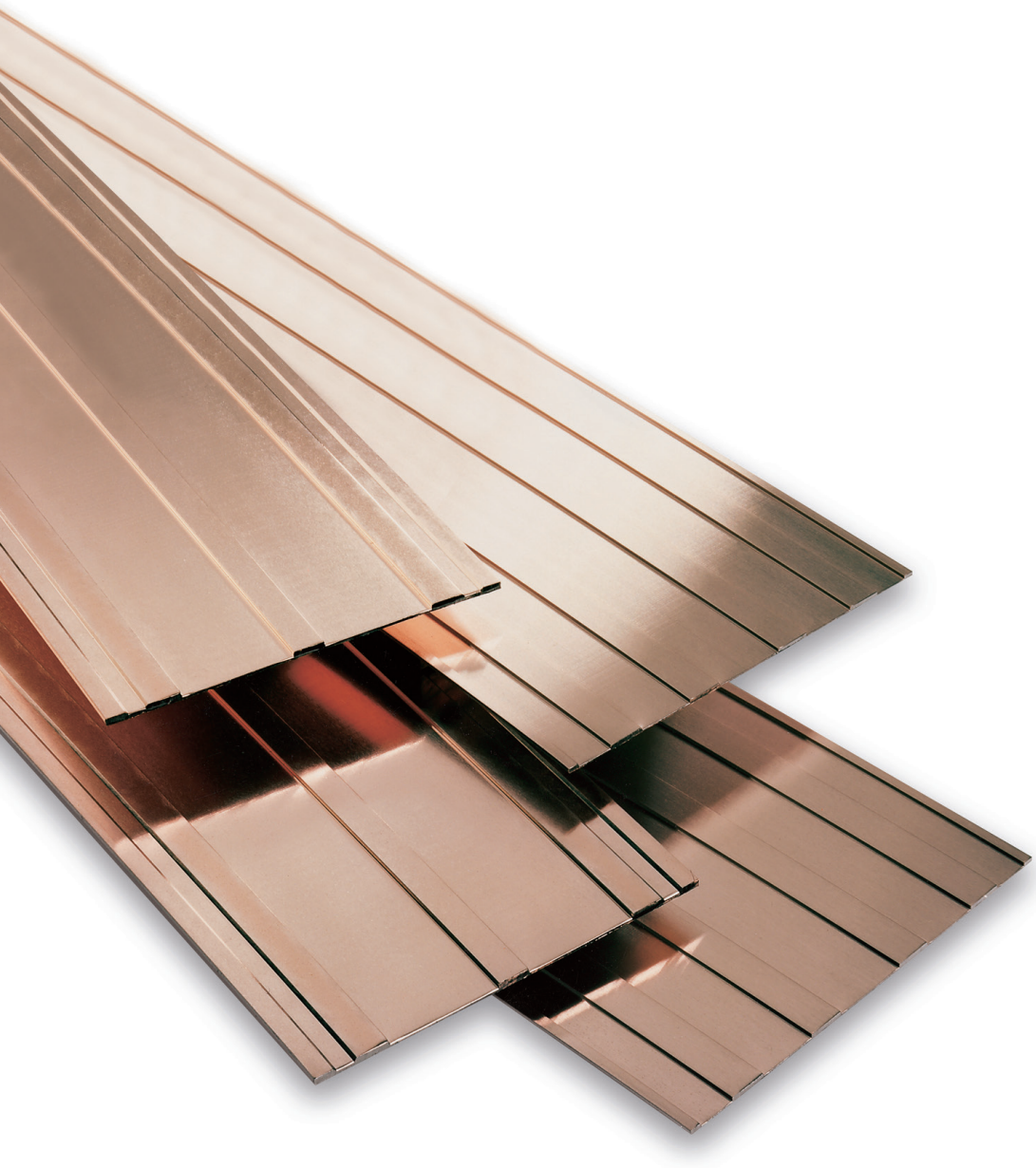
wieland

Multi-gauge strip



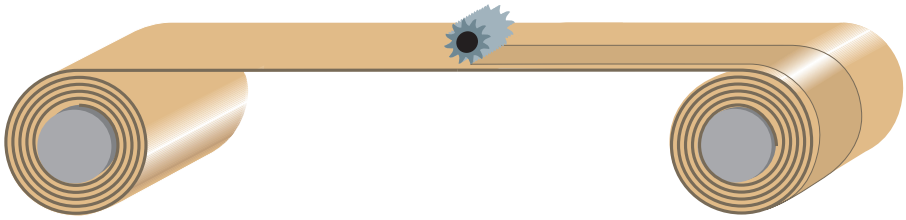
Why multi-gauge strip?

The flexible cross-section means that expensive process steps after stamping can be avoided and opens up new possibilities for producing electrical and electronic components: Components no longer have to be assembled from two or more stampings but can be manufactured from a single stamped part using multi-gauge strip.

Stamping multi-gauge strip is more cost-effective than stamping with simultaneous thickness reduction by means of embossing:

- lower stamping forces
- simpler and lighter stamping tool
- higher stamping speed

A major advantage in transferring current from thick to thin strip is that no crimping or welding interferes with current transmission.

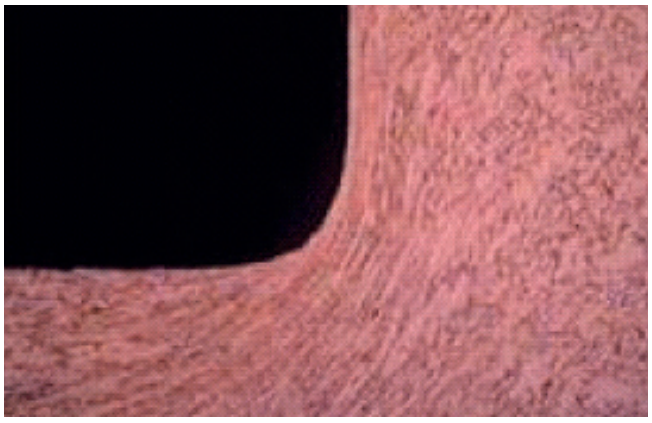


Why milling?

Strip with multiple gauges can be produced by rolling, hammering or milling. Especially for electromechanical applications or discrete semiconductor devices, multi-gauge strip made by milling are preferred for various reasons:

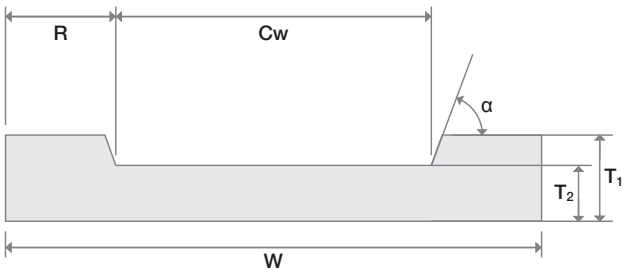
– High thickness reduction is possible, thus thinner residual wall thicknesses are feasible.
– Multiple channels are possible.
– Channels can be milled on both sides of the strip.
– Milling avoides internal stresses because no forming takes place during production.

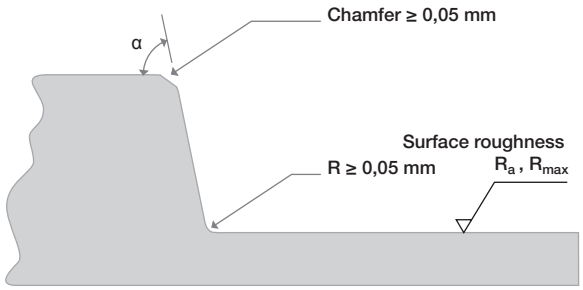
Strip with milled channels, stress-free structure.



Strip with a channel produced by forming, structure contains internal stresses.

Dimensions and tolerances





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

Other dimensions on request

Typical tolerances	
C_W	±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

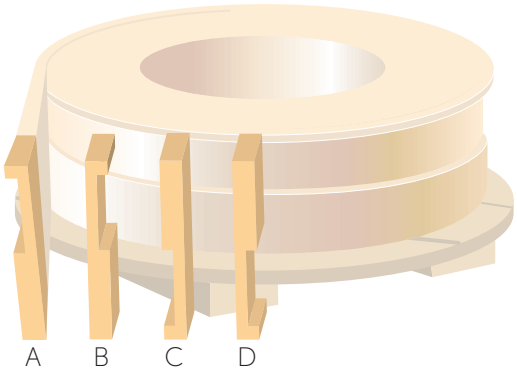
Delivery formats

Pancake coils are the simplest and therefore most economical delivery format for strip. They are packed horizontally on square or round pallets whos 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. For simple profiles and widths below 35 mm, delivery on drums is also possible.

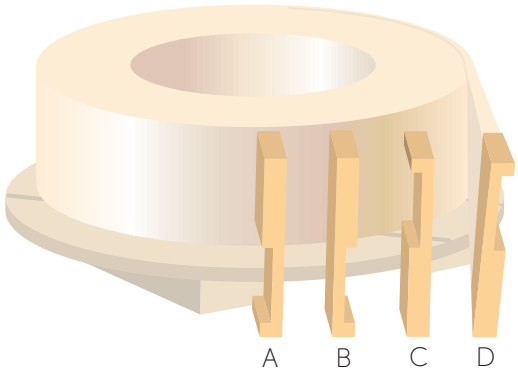
Coated milled strip

Electroplating of multi-gauge strip is possible without any problems. Full-surface coatings of nickel (common for power transistor strip), and tin or silver (common for connectors) as well as selective partial precious metal plating of silver or gold for contact areas of electromechanical components are used.

In-plant hot dip tinning is also possible before milling. In these cases, the milled area is bare.



Unwinding direction counterclockwise.

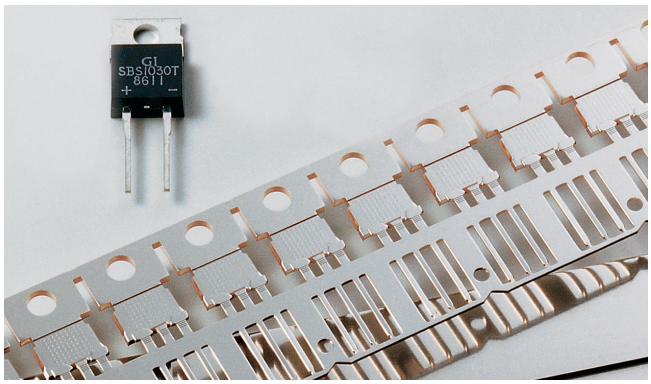


Unwinding direction clockwise.

Applications

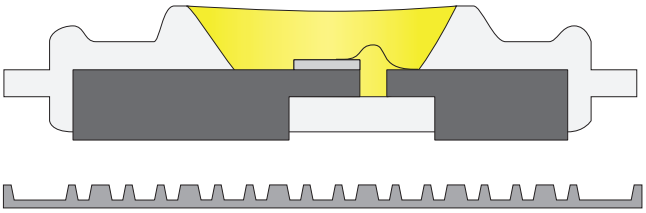
Power discrete packages and power ICs

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



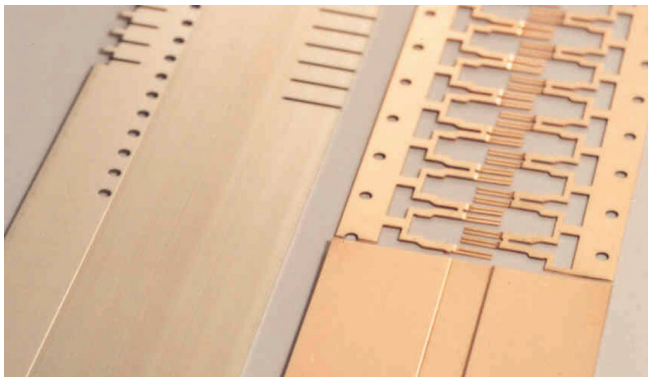
Power LED

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.



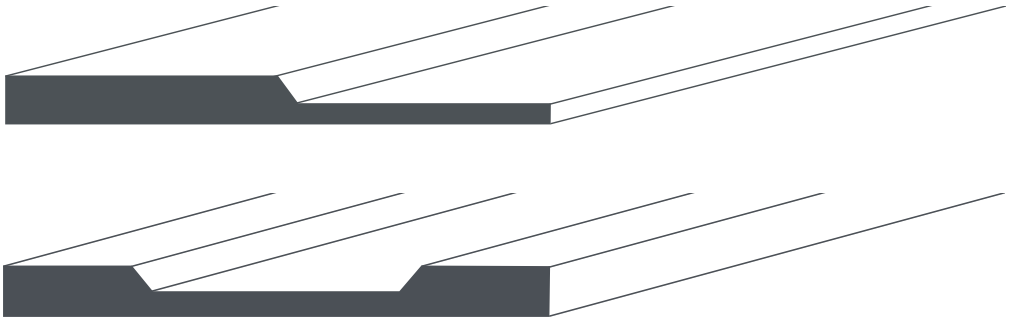
Connectors, switches and relays

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.

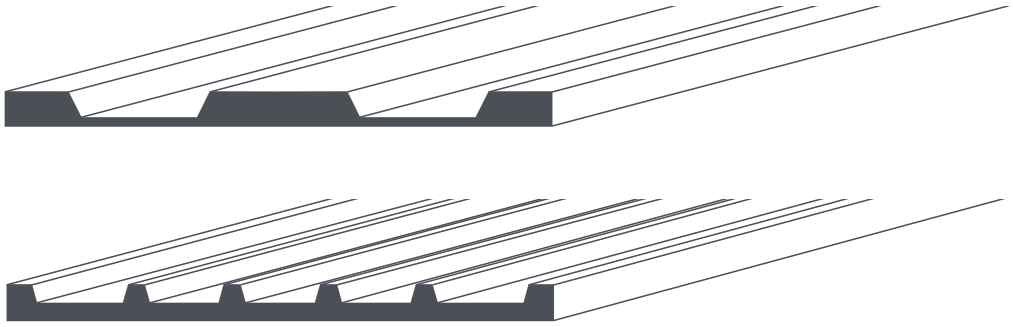


Geometries (Examples)

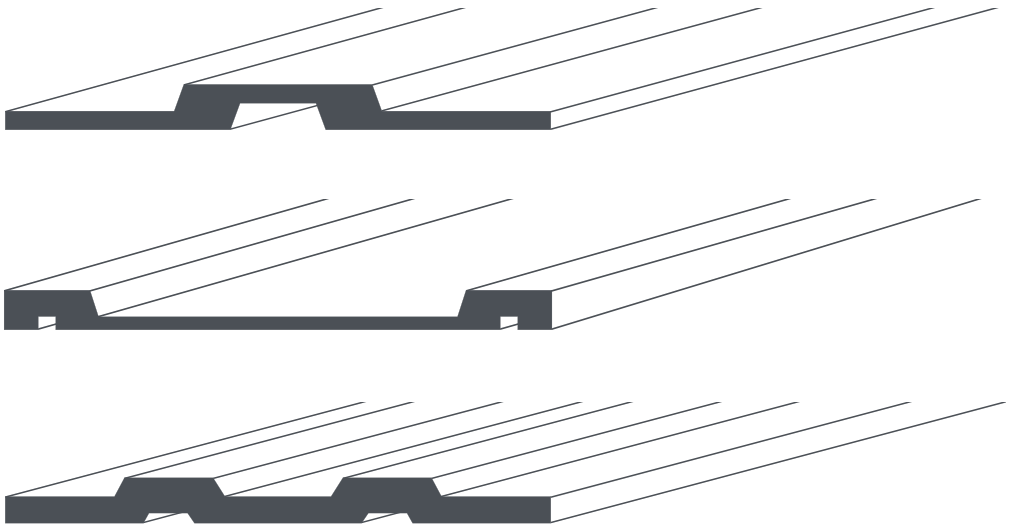
Single-channel milled strip

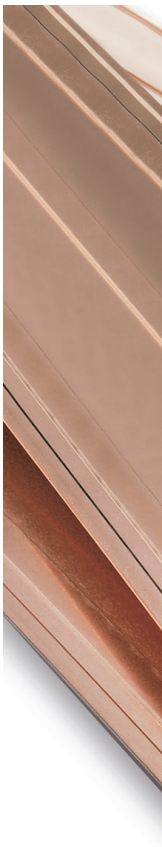


Multi-channel milled strip



Double-sided single and multi-channel milled strip





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04/2021 RP.TMA.UL/Zr 0,0 (MC.ED.UL/Bo)