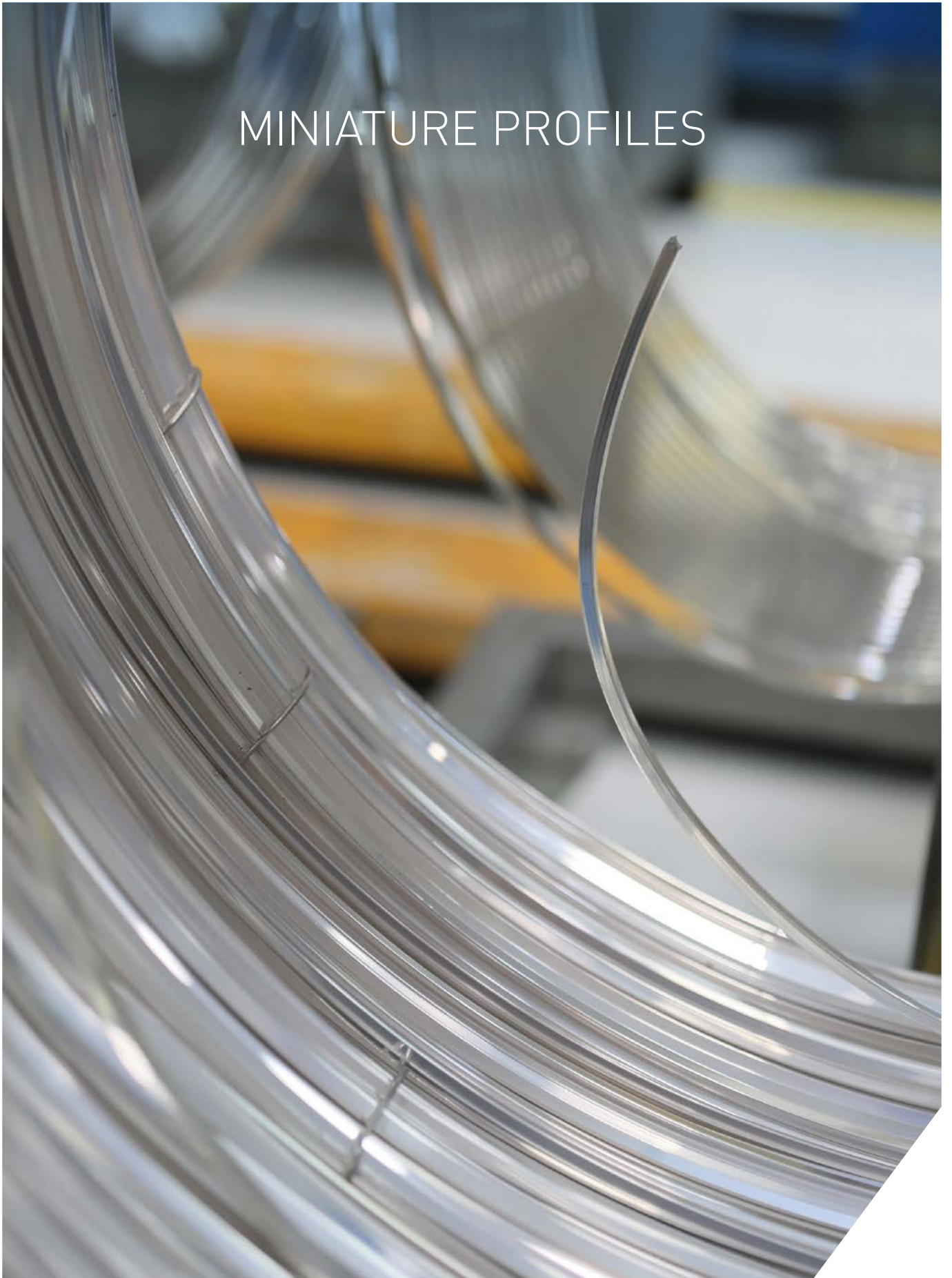


MINIATURE PROFILES



/ FORMS OF SUPPLY

Miniature profiles, also called mini-profiles or welding tapes, are used in relays, switches, push buttons, miniature motors and actuators as reliable contact components. They consist of a solid contact material or are composed of multiple precious metal and base metal layers.

The use of mini-profiles has the following advantages:

• Precious metal savings

Optimum control of contact size and layer thickness of the contact material within small dimensional tolerances

• Design options

Mini-profiles can closely match the application with shape and contact material combinations

• Economics

Mini-profiles can be used for seam-welding in rolling direction of carrier strip material or for horizontal welding of profile/tape segments

Profile designs

The schematics show different design shapes for mini-profiles. Deciding on a specific mini-profile design, its dimensions and shape, is determined by requirements given from the electromechanical component.

Base materials

Selecting the base material of the profile serves the same purpose as the detailed design of the pattern on the very bottom surface. The welding heat should be concentrated in the transition of profile to carrier material. For this the base materials exhibit a comparably low electrical and thermal conductivity. During manufacturing of the mini-profile the different cold working properties of the base and contact materials have to be considered.

• Typical contact materials:

Ag alloys, AgNi, Ag/SnO₂, Ag/ZnO or AgC

• Typical base materials:

Cu, CuSn6, CuNi9Sn2, CuNi44 or CuNi18Zn20

Mini-profiles can also be coated on the bottom side with a brazing alloy, preferably CuP284 (BCuP5) with a final thickness of ≥ 0.015 mm. With this coating added, a high percentage of bond area between carrier and profile can be achieved.

Profile bottom surface

Miniature profiles are attached to the carrier materials by resistance welding or short-term brazing. The two most useful bottom profile designs are:

- Welding rails and
- Diamond pattern.

Dimensions and tolerances

The following are typical guidance values for the base width and thickness of DODUCO miniature profiles:

- Profile width $\geq 0.50 \leq 15.0$ mm
- Profile height $\geq 0.25 \leq 3.5$ mm

The thickness of gold contact layers deposited by PVD is depending on requirements in the range of 0.2 to 5.0 μm with a thickness tolerance of approximately $\pm 10\%$.

