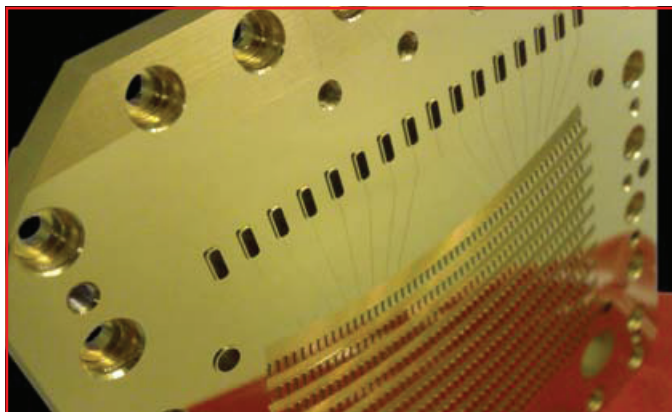


Replication-Tools

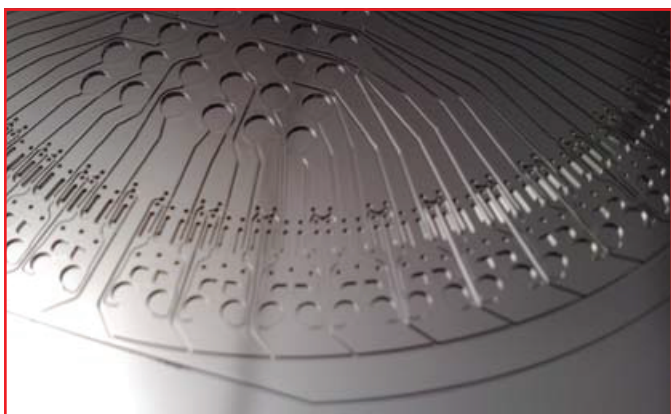
Microstructured Nickel-stamps of highest quality for microoptics and microfluidics.

applied microSWISS is an innovative manufacturer of Nickel-stamps for hot-embossing and inserts for injection-moulding for more than 20 years. Our tools are shipped ready-to-use.

We are your partner for your micro- / nanostructured tools. We have profound experience and solutions for features-sizes from 50nm to 500µm. We can manufacture micropattern with adjustable sidewall draft angle for efficient demolding and anti-sticking coatings.



Detail of 2-level microfluidic Ni-insert with wire-cut through-holes and mounting features.



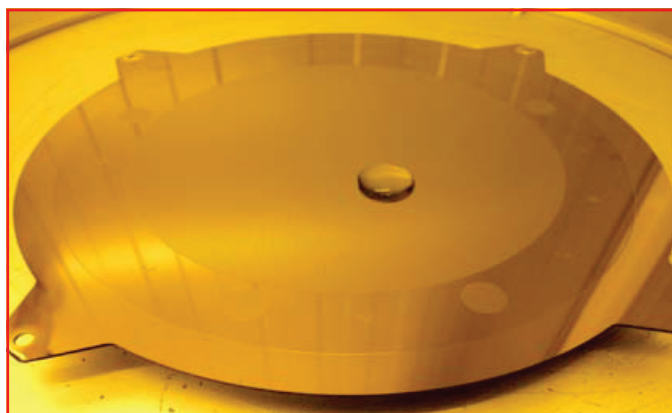
Detail of 2-level microfluidic Ni-insert with wire-cut

Specification highlights

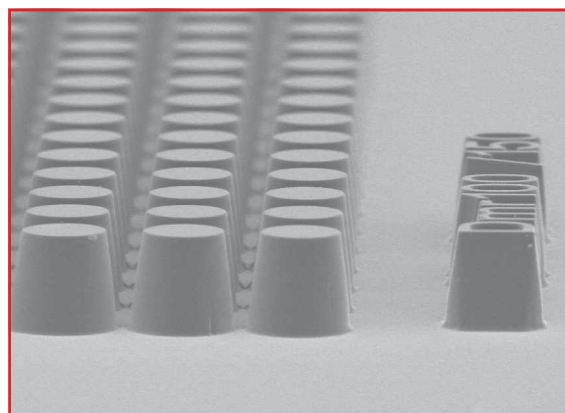
- Structural range = 50nm - 500µm
- Step height uniformity = 3–5 %
- Manufacturing according to LiGA-process
- Number of patterned levels = 4
- Alignment-precision level-to-level $\leq 3\mu\text{m}$
- Alignment-precision micropattern to machined features $\leq 20\mu\text{m}$
- Extraordinary tool flatness $< 10\mu\text{m}$
- Parallelism to lapped backside $\leq 10\mu\text{m}$
- Stamp thickness: 0.5–12mm
- Robust handling
- Integration of mounting features
- Ready-to-use stamps according to customer drawing
- Contour wire-electrodischarge machined
- Compatibility to EVG, Obducat, Jenoptik and more
- Available antisticking-coating (fluoro-based)
- Available wear-protection coating (TiN)

Exclusive

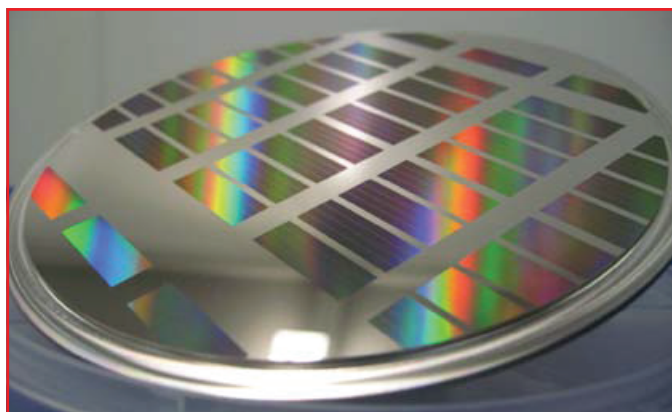
Adjustable drafted sidewalls ($< 15^\circ$)
(easy mold release)



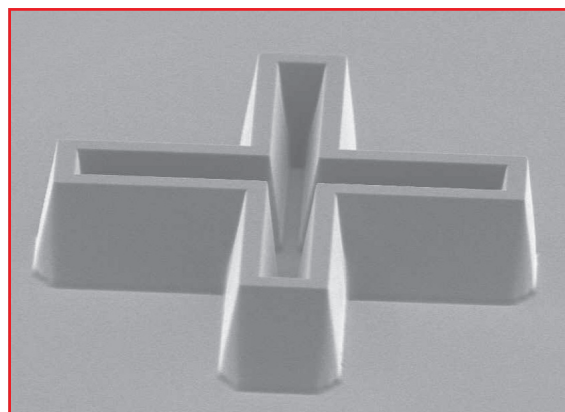
Hot-embossing stamp for microoptic-replication, coated with teflon-like antisticking-layer



SEM-picture of micropattern with drafted sidewalls

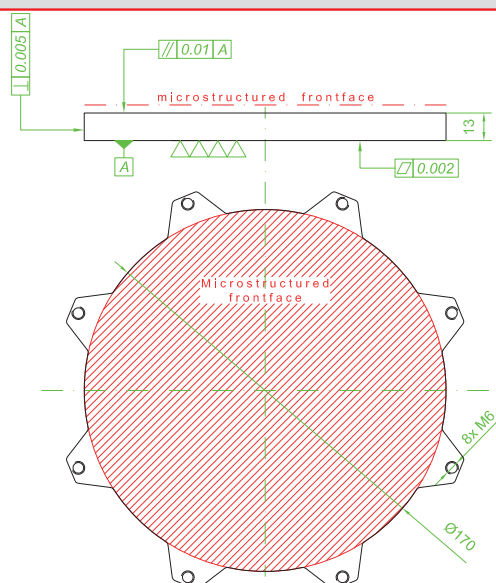


Ready-to use hot-embossing stamp (ø 120 x 3 mm)



SEM-picture of micropattern with drafted sidewalls

Technical data and remarks on tolerances



A

A is the reference plane for measuring the parallelism of the opposite, microstructured face of the Nickel-tool. Surface A is lapped.

0.01 A

The microstructure frontface will be measured with respect to the reference plane A.
Maximal thickness variation of the Ni-tool ≤ 0.01 mm.

0.005 A

The maximal run-off measured on the sidewalls of the outside contour is ≤ 0.005 mm with respect to reference plane A.
Side surfaces are wire-electrodischarge machined.

0.002

The lapped backside of the tool has a flatness of ≤ 0.002 mm and thus guarantees optimal thermal conductivity.