microtools

Nanoimprint and Injection Mould Inserts
with Micro- and Nanostructures

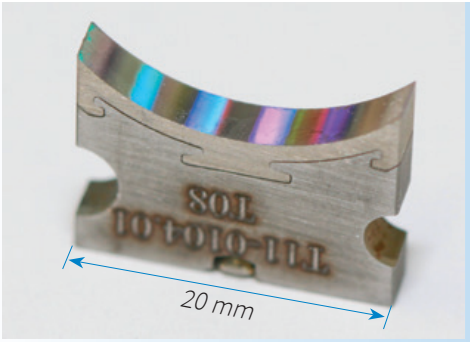
temicon
micronano solutions

Injection Mould Inserts

Tools for micro replication

We offer customised injection mould inserts for the replication of micro- and nanostructures into polymer components. These inserts allow highest flexibility in injection mould design.

The micro- and nanostructures can be designed by customer demands for unique functions and applications. We offer UV lithography and laser interference lithography in house. Furthermore we use Laser or e-beam written structures and nano imprint lithography. We can also handle 3rd party masters made by micromachining, laser ablation and other technologies.



Curved mould insert

Applications and markets

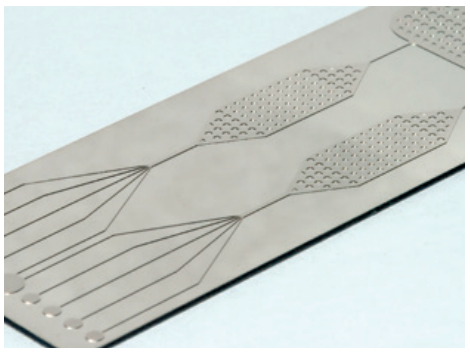
The mould inserts are used to replicate different kinds of micro- and nanostructures by injection moulding or even hot embossing for various markets and applications:

- **Lighting**
  Optical elements for LED, OLED, diffractive optical elements
- **Displays**
  Optical films for mobile devices, touch displays, e-books, automotive (antireflection, antiglare, light guides, diffusors)
- **Life Science**
  Functional structures (e.g. lab-on-chip), antibacterial surfaces, microfluidics
- **Security**
  Product designation against piracy

Injection mould insert with hole (feed point)

Our technology

Starting with the origination of the desired pattern by means of UV-Lithography, Laser Interference Lithography or e-beam writing, we make a thick nickel electroforming of the inverse structure. This nickel mould, up to 4mm thick, can already be used as a mould insert, once it is machined to final dimension. Alternatively we make hybrid tools combining these nickel mould onto a steel support. In this way, custom-built mould inserts with several centimetres thickness are feasible, which are tailored very precisely by means of wire cutting. Within certain limits also curved surfaces can be provided with micro- and nanostructures. For extended lifecycle of the moulds we offer hard NiP coatings.



Microfluidic embossing tool

Specifications

Size	up to 200 mm diameter
Thickness	several centimetres
Material	pure nickel hybrid: nickel on steel
Surface	on request: NiP hard coating 3D curved profiles possible
Cutting	precision wire cut

To get an overview of possible micro and nanostructures please refer to our homepage **www.temicon.com**

temicon GmbH

Konrad-Adenauer-Allee 11
44263 Dortmund
Germany

☏ +49.231.47730-550
✆ +49.231.47730-555

info@temicon.com
www.temicon.com

temicon GmbH – holotools
design & mastering

Wiesentalstraße 29
79115 Freiburg
Germany

☏ +49.761.137 3155-0
✆ +49.761.137 3155-66

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