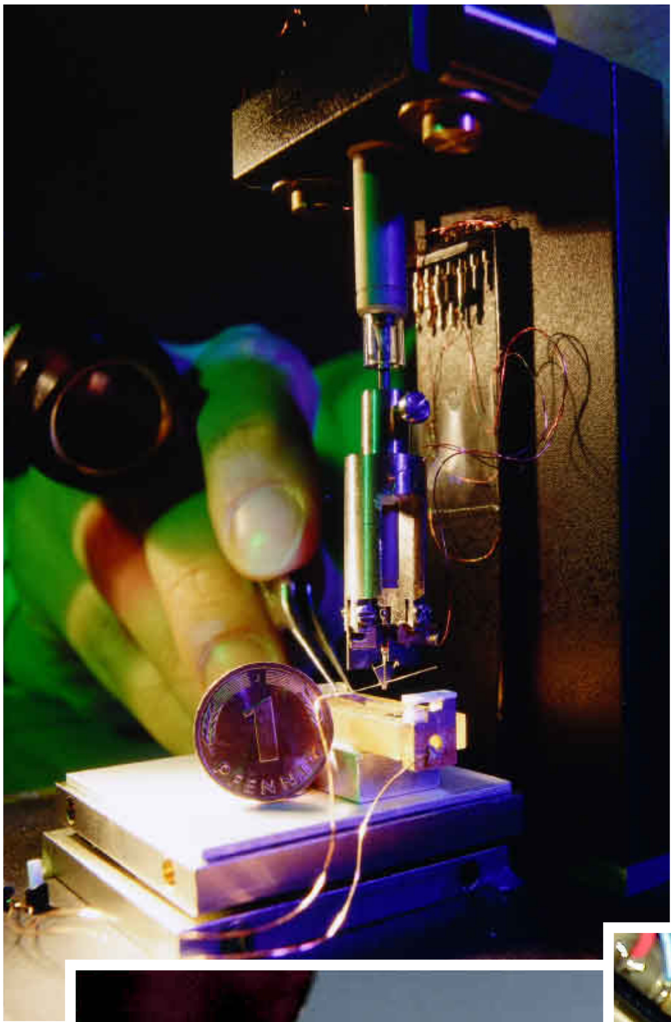
The Microgrippers

Microassembly With One Nanometer Resolution



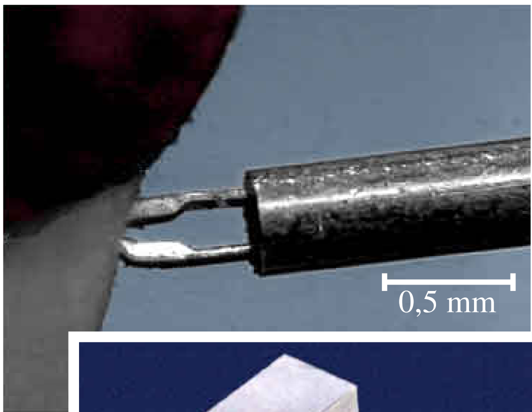
Microassembly benefits from a precise gripper

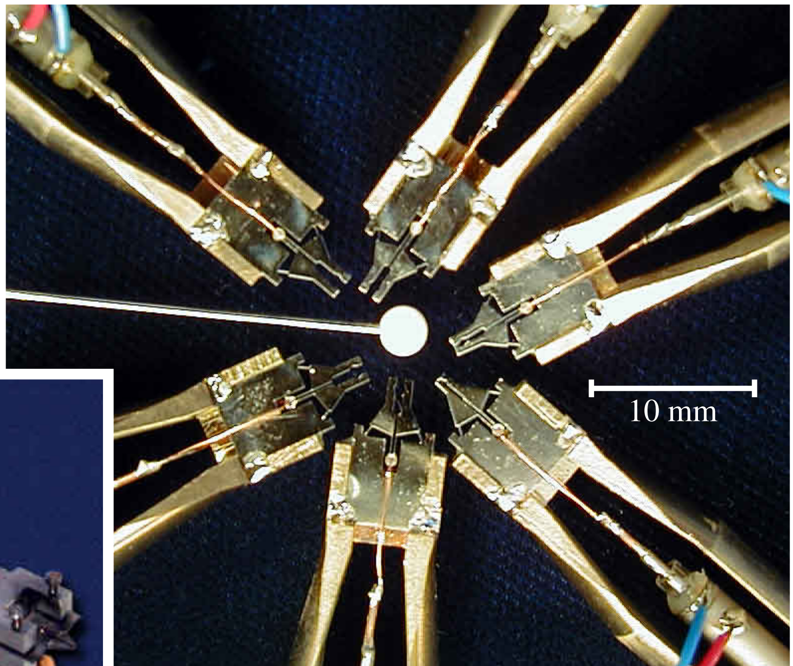
Klocke Nanotechnik has developed a series of different Nanomotor driven grippers operating with one nanometer resolution. Thus gripping forces can be increased extremely sensitivly when gripping a micropart. A resolution down to a few nanometers is necessary to avoid the microparts snapping out of the gripper since smallest movements cause the forces to increase rapidly.

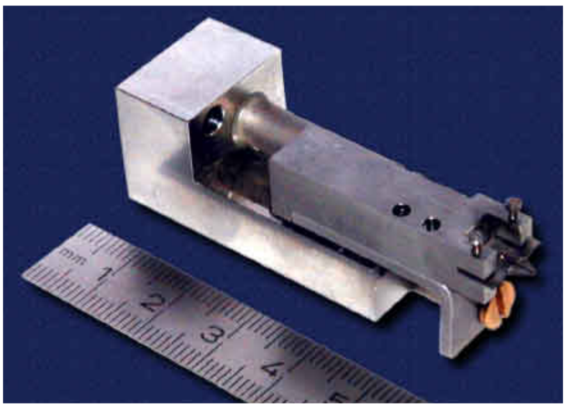
The gripper structures are produced in our microtechnology network (IVAM) which has great experience in materials and processes. The design of the gripper tips shape can be suited to customers needs.

The grippers can be combined with our positioners and manipulators to form assembly, handling and interconnection stages with many degrees of freedom (e.g. left picture). All these devices can be controlled by the same electronics and software.

If you are thinking about microassembly: Contact us!



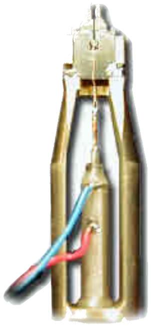


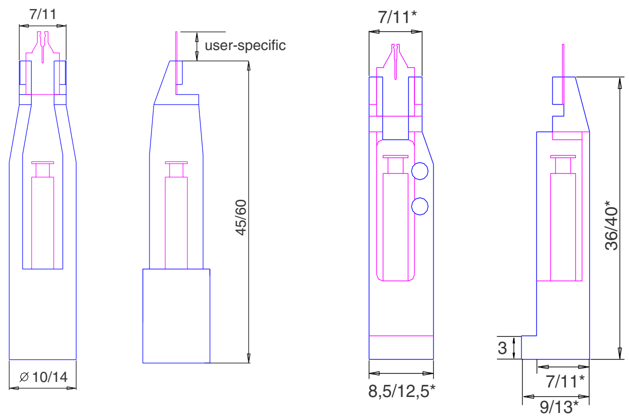


Klocke
Nanotechnik

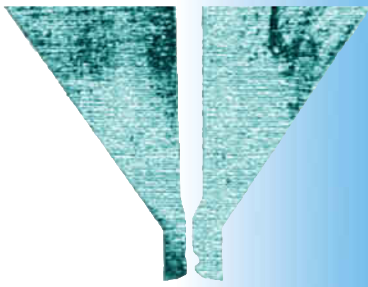
The Microgrippers

Planar Gripper

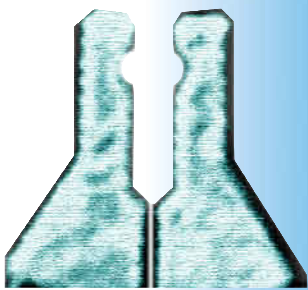




Cylindrical version *Small / Big Square version



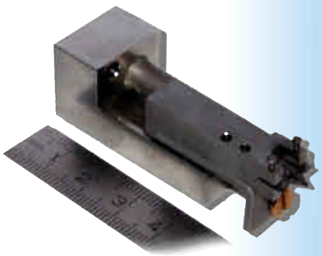
User-specific gripper tips are available to handle objects of different size.



Type	max. Stroke [mm]	Gripping Force [mN]	Resolution [nm]	Available Mountings	Size of Objects [mm]
NM-Small	0.7	20	1	cylindrical or square	0.02-5
NM-Big	1.5	150	1	cylindrical or square	0.1-10

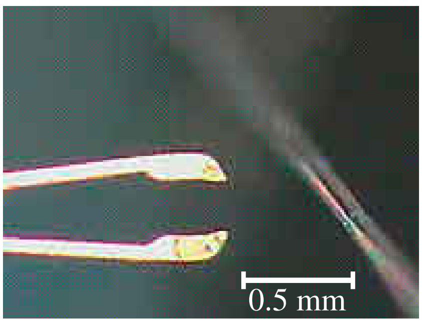
A typical combination

A square-shaped Planar Gripper is mounted on a Nanomotor driven z-table to lift microparts with a stroke of e.g. 10 mm and a resolution of 10 nm.



Cannula Gripper

- Driven by one “Small” Nanomotor
- Stroke: 0.2 mm
- Resolution: 1 nm
- Gripping force: 10 mN
- Diameter of cannula: 0.8 mm



Precision made in Aachen:

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