

MEMS-based micropositioning systems

Visualization of a 2D micropositioning system with central platform (logo) and drive units (green)

Micropositioning systems generally perform translatory movements in one or more spatial directions. The drive succeeds via microactuators connected to the platform. The microactuators can be managed in particular by bending transducers. Electrostatic bending transducers are being developed at Fraunhofer IPMS for this purpose. They are used in the micropositioning systems as direct drives.

The research at Fraunhofer IPMS in this field focuses on dynamics, damping, reliability, tribology, electrostatics, control, as well as assembly and interconnection technology.

Applications of our micropositioning platforms can be found, for example, in analytics for sample placement and micromanipulation or as apertures for beam modulation in optics.

Parameters	
Deflection	hundreds of micrometers
Precision	nanometers with closed loop control
Directions	one and two dimensional in the plane
Dynamic	quasistatic up to a few kilohertz

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