

MIPOS 20

Piezoelectrical objective/ lens positioning system

Concept:

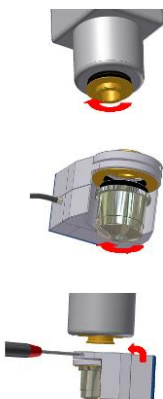
The systems of the MIPOS 20 series offer a nano positioning and scanning range up to 20 μm in open loop operation, as well as 16 μm in closed loop. They can be assembled with objectives that have a diameter of up to 30 mm. **piezosystem jena's** successful parallelogram design guarantees high parallel motion without influencing the optical path.

Positioning repeatability can be guaranteed by the use of an integrated measurement system. The design which includes integrated pre-load of the actuator offers high resonant frequency and highly parallel motion. Due to the unique features of the MIPOS 20 series fast scanning applications can be accurately realized with the shortest settling times.

Specials:

Adapter thread rings for the nose piece are available separately. They allow for fast mounting and exchanging of the MIPOS system on the microscope without removing other objectives. These Flex-Adapters are available for all standard microscopes and allow the MIPOS 20 series to be universally applicable. Parfocal tube extensions for each threading type are available as accessories as well.

Interfaces:

- 
1. Screw the objective into the MIPOS
 2. Screw the Flex-Adapter into the microscope
 3. Clamp the MIPOS on the Flex-Adapter using the attachment screw



Product highlights:

- 20 μm focusing range
- compact design
- high resonant frequency
- easy to attach on microscopes
- universal use by thread adapter
- optionally integrated feedback sensor

Applications:

- surface scanning and analysis
- AFM microscopy
- biotechnology (e.g. cell scanning)
- beam focusing for printing processes
- semiconductor test equipment

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Technical data:

| MIPOS series | unit | MIPOS 20 | MIPOS 20 SG | |
|--|-------------------------|----------|-----------------|----------|
| part no. for thread | M25x0.75 | - | O-383-00 | O-383-01 |
| | W0.8x1/36" (RMS) | - | O-384-00 | O-384-01 |
| | M26x0.75 | - | O-385-00 | O-385-01 |
| | M27x0.75 | - | O-386-00 | O-386-01 |
| axis | - | | Z | |
| motion in open loop ($\pm 10\%$)* | μm | | 20 | |
| motion in closed loop ($\pm 0,2\%$)* | μm | - | 16 | |
| capacitance ($\pm 20\%$)** | μF | | 0.7 | |
| integrated measurement system | - | - | strain gauge | |
| resolution open loop*** | nm | | 0.04 | |
| resolution closed loop*** | nm | - | 1 | |
| typ. repeatability | nm | - | 5 | |
| resonant frequency | Hz | | 950 | |
| additional load = 80 g | Hz | | 520 | |
| additional load = 105 g | Hz | | 450 | |
| additional load = 300 g | Hz | | 240 | |
| stiffness | N/ μm | | 4.0 | |
| rotational error (full motion) | μrad | | <5 | |
| voltage range | V | | -20...+130 | |
| connector**** | voltage | - | LEMO 0S.302 | |
| | sensor | - | LEMO 0S.304 | |
| cable length | m | 1.0 | 1.2 | |
| material | - | | stainless steel | |
| dimensions (LxWxH) | mm | | 54 x 32 x 32.5 | |
| weight | g | 95 | 115 | |
| max. lens diameter | mm | | 30 | |
| max. lens weight | g | | 300 | |
| option for standard microscopes | - | yes | yes | |
| option for inverse microscopes | - | no | no | |

* typical value measured with NV 40/3 amplifier (closed loop: NV 40/3 CLE amplifier)

** typical value for small electrical field strength

*** the resolution is only limited by the noise of the power amplifier and metrology

**** in combination with a digital controller unit, the system comes with a sub-D 15 connector. The part number is extended by the suffix "D"

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Recommended configurations:

| | Product name | Part. No Suffix |
|----------------------------------|--------------|-----------------|
| Actuator | MIPOS 20 | O-308-00E |
| Amplifier/ Controller | NV 40/1 CLE | E-101-73 |

The MIPOS series of micro lens and objective positioning systems offers a travel range up to 500 μm in z-axis. Available for standard and inverted microscopes.

More details under "MIPOS piezo focus lens positioner" www.piezosystem.com

Microscopy stages for XY axes available under "series-PXY-AP" at www.piezosystem.com

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