

microscopel objective / lens positioning system

MIPOS 500

- 500µm focusing range
- compact design
- high resonant frequency
- easy to attach on microscopes
- flexible use by Flex-Adapter
- optionally integrated measurement system

applications:

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



fig.: MIPOS 500

Concept

The systems in the MIPOS 500 series offer a nano positioning and scanning range up to $500\mu m$ in open loop operation, as well as $400\mu m$ in closed loop. They can be assembled with objectives that have up to a 40mm diameter.

The successful parallelogram design of *piezosystem jena* guarantees high parallel motion without influencing the optical path.

The precise positioning repeatability of the series MIPOS 500 can be guaranteed by an optionally integrated measurement system.

The design with integrated preload of the actuator offers the following advantages:

- high resonant frequency
- highly parallel motion
- upside-down version for inverted microscopes

Based on these features, fast scanning applications can be accurately realized with the shortest settling times.

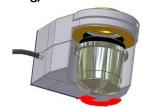
Specials

Adapter thread rings for the nose piece are available separately. They allow for fast mounting and exchanging of the MIPOS system on the microscope. Other objectives no longer need to be removed.

These Flex-Adapters are available for all standard microscopes, and allow the MIPOS series to be universally applicable.

Parfocal tube extensions for each threading type are available as an accessory.

Mounting/Installation



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





Spacer rings to compensate the extended optical path are available and flex adapters for all common threads.





technical data:

| series MIPOS | | | unit | MIPOS 500 | MIPOS 500 UD | MIPOS 500 SG | MIPOS 500 SG UD | |
|---------------------------------|------------------|---------|------|-----------------|------------------|------------------|-----------------|--|
| part no. | M25x0.75 | | - | O-350-00 | O-360-00 | O-350-01 | O-360-01 | |
| | W0.8x1/36" (RMS) | | - | O-354-00 | O-364-00 | 0-354-01 | 0-364-01 | |
| for | M26x0.75 | | - | O-355-00 | O-365-00 | 0-355-01 | O-365-01 | |
| thread | M27x0.75 | | - | O-356-00 | O-366-00 | 0-356-01 | 0-366-01 | |
| | M32x0.75 | | - | O-357-00 | 0-367-00 | 0-357-01 | 0-367-01 | |
| axis | | | - | Z | | | | |
| motion open loop (±10%)* | | | μm | 500 | | | | |
| motion closed loop (±0,2%)* | | | μm | - 400 | | | | |
| capacitance (±20%)** | | | μF | 21.0 | | | | |
| integrated measurement system | | | - | ı | - | strain gage | | |
| resolution open loop*** | | | nm | 0.9 | | | | |
| resolution closed loop*** | | | nm | - | - | 12 | | |
| typ. repeatability | | | nm | - | - | 17 | 12 | |
| resonant frequency | | | Hz | 230 | | | | |
| additional load = 80g | | | Hz | 180 | | | | |
| additional load = 105g | | | Hz | 170 | | | | |
| additional load = 300g | | | Hz | 110 | | | | |
| stiffness | | | N/µm | 0.27 | | | | |
| rotational error (full motion) | | | μrad | <20 | | | | |
| voltage range | | | V | -20 +130 | | | | |
| connector*** | | voltage | - | LEMO 0S.302 | | | | |
| | | sensor | - | - | - | LEM | O 0S.304 | |
| cable length | | m | 1.0 | 1.0 | 1.2 | | | |
| min. bend radius of cable | | | mm | >15 | | | | |
| material | | | - | stainless steel | | | | |
| dimensions (I x w x h) | | | mm | 60.5x50x36.4 | 60.2 x 50 x 35.5 | 60.5 x 50 x 40.1 | 62 x 50 x 41.5 | |
| weight | | | g | 370 | | | | |
| max. lens diameter | | | mm | 40 | | | | |
| max. lens weight | | | g | 500 | | | | |
| option for standard microscopes | | | - | yes | no | yes | no | |
| option for inverse microscopes | | | - | no | yes | no | yes | |
| | | • | 1 | | • | | · | |

^{*} typical value measured with NV 40/3 CLE amplifier

recommended configurations:

actuator MIPOS 500 SG O-35X-01E amplifier/controller NV 40/1 CLE E-101-73

The series of micro lens and objective positioning systems MIPOS offers a travel range from 20 μ m up to 500 μ m in z-axis. Available for standard and inverted microscopes More details under "z-axis-lens-positioning" www.piezojena.com .

Additional microscopy stages for XY axes available under "series-PXY-AP" www.piezojena.com

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^{**} 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".