

MIPOS 250

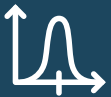
Lens Positioning System



250 μm Focusing Range



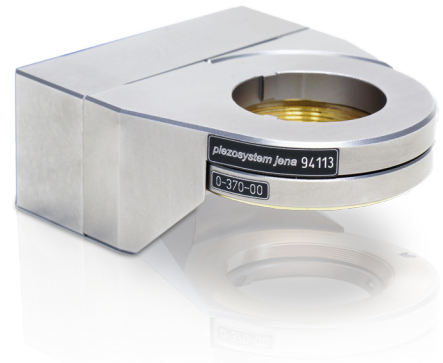
**Typ. Step Resolution 5 nm
in closed-loop**



**Resonant Frequency up to
320 Hz**



High Stiffness 0.4 N/ μm



The lens positioner MIPOS 250 offers a travel range of 250 μm with sub-nanometer resolution. The resolution of the MIPOS 250 is very high, and in practice is only limited by the voltage noise of the power supply. The MIPOS 250 (CAP) has excellent parallelism, offering less than 6 urad of out-of-plane motion (CAP).

All kinds of standard threads for Zeiss, Leica, Nikon, Olympus etc. are available for the top and bottom sides of the MIPOS system. Mounting this system onto the microscope is very easy – screw the flex-adaptor thread ring into the microscope and mount the MIPOS 250 for piezo focus fine adjustment on this ring with a screw. Because the MIPOS objective positioner is small, it will not block using the other objectives on the microscope.

To avoid drift and hysteresis there is the option of equipping the MIPOS with an integrated strain gauge measurement system. The MIPOS 250 can be used in inverse microscopes in an upside-down position.

Variants:

- With strain gauge (SG) for dynamic closed-loop control
- With capacitive sensor (CAP) for highest resolution and performance

Recommended Controller:

NV200/D Net

Applications

- Surface scanning and analysis
- AFM microscopy
- Biotechnology (e.g. cell scanning)
- Semiconductor testing
- Beam focusing

MIPOS 250

Technical Data

| | | Unit | MIPOS 250 | MIPOS 250SG | MIPOS 250 CAP |
|-----------------------------------|------------------------|------|--------------|--------------|---------------|
| Part # for thread | M25x0.75 | - | O-370-00 | O-370-01 | O-370-06 |
| | W0.8x1/36" (RMS) | - | O-374-00 | O-374-01 | O-374-06 |
| | M26x0.75 | - | O-375-00 | O-375-01 | O-375-06 |
| | M27x0.75 | - | O-376-00 | O-376-01 | O-376-06 |
| | M32x0.75 | - | O-377-00 | O-377-01 | O-377-06 |
| Axis | | - | | Z | |
| Motion in open-loop (±10%)* | | µm | | 250 | |
| Motion in closed-loop (±0,2%)* | | µm | - | | 200 |
| Capacitance (±20%)** | | µF | | 10.2 | |
| Integrated Measurement System | | - | - | strain gauge | CAP |
| Resolution open-loop*** | | nm | | 0.5 | |
| Resolution closed-loop*** | | nm | - | 5.0 | 1.0 |
| typ. Repeatability | | nm | - | 9 | 8 |
| Resonant Frequency | unloaded | | | 320 | |
| | additional load = 80g | | | 250 | |
| | additional load = 105g | | | 230 | |
| | additional load = 300g | | | 155 | |
| Stiffness | | N/µm | | 0.4 | |
| Rotational Error (full motion) | | µrad | <10 | | <6 |
| Voltage Range | | V | | -20...+130 | |
| Connector **** | Voltage | | | LEMO 0S.302 | |
| | Sensor | | - | LEMO 0S.304 | LEMO 0S.650 |
| Cable Length | | m | 1.0 | 1.2 | 1.6 |
| Dimensions (LxWxH) | | mm | 60.7x50x23.5 | 60.5x50x35.3 | 60.2x50x34.5 |
| Weight | | g | | 255 | 350 |
| Max. Lens Diameter | | mm | | 40 | |
| Max. Lens Weight | | g | | 500 | |
| Option for Standard Microscopes | | | | yes | |
| Option for Inverse Microscopes | | | | yes | |

* typical value measured with 0.3mV Controller

** typical value for small electrical field strength

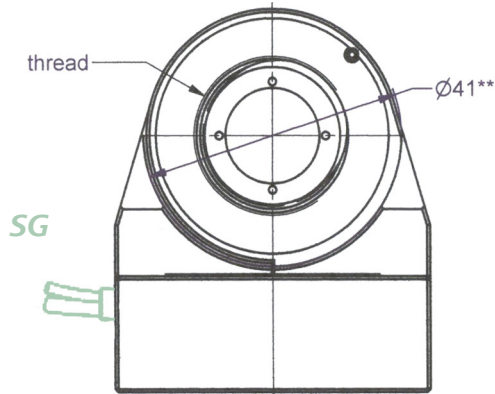
*** the resolution is only limited by the noise of the power amplifier and metrology

**** 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"

MIPOS 250

Technical Drawing

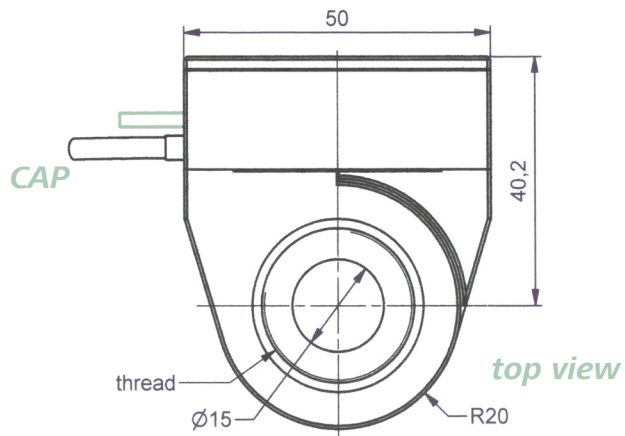
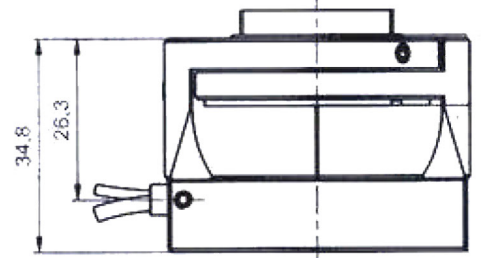
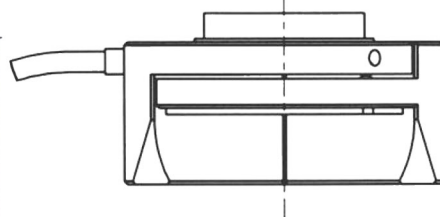
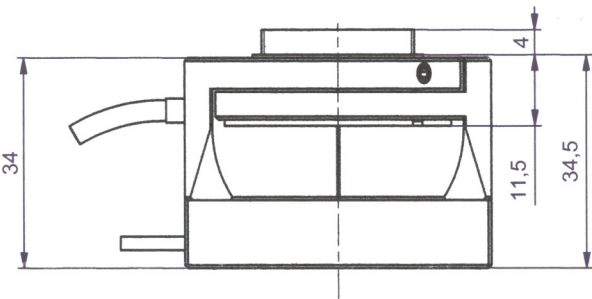
bottom view



CAP

Standard

SG

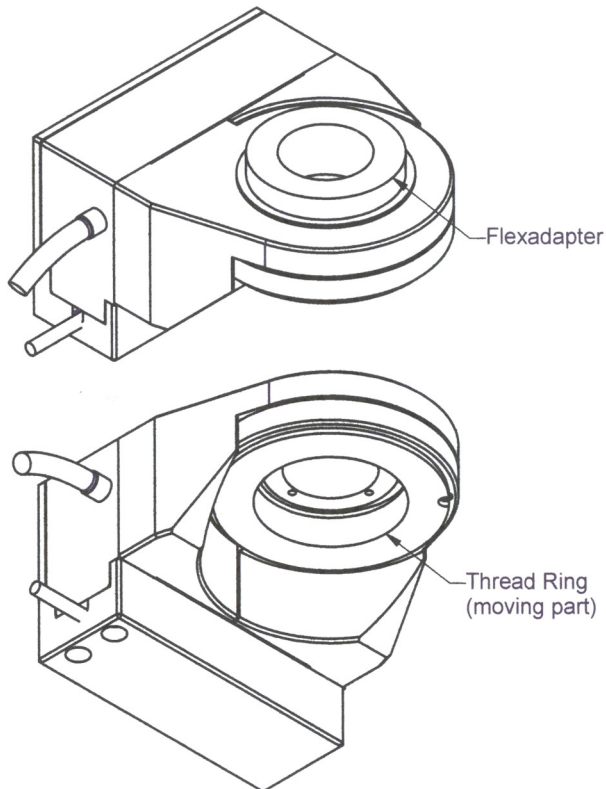


top view

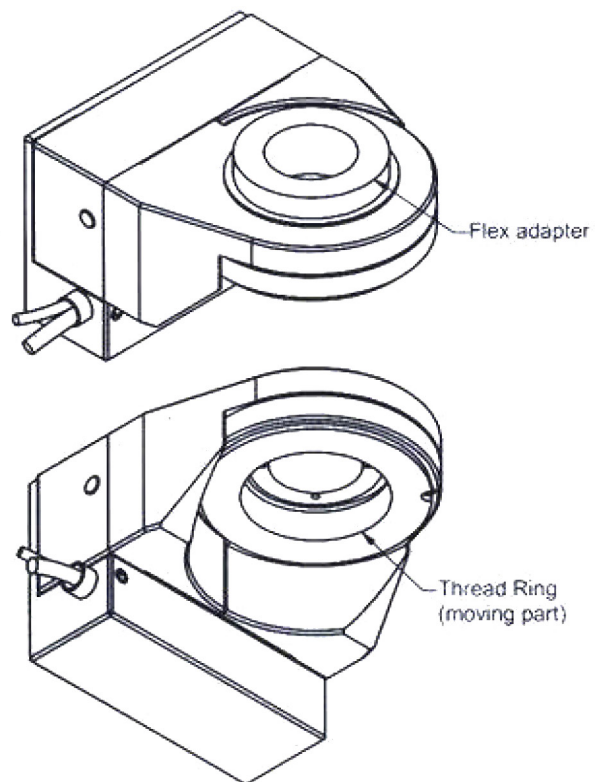
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Technical Drawing

CAP



SG



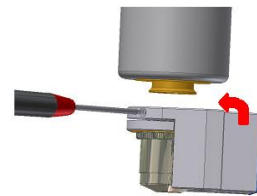
Dimensions given in mm.



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

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