

## MIPOS 250

### Microscope objective/ lens positioning system

#### Concept:

The systems in the MIPOS 250 series offer a nano positioning and scanning range up to 250  $\mu\text{m}$  in open loop operation, as well as 200  $\mu\text{m}$  in closed loop. They can be assembled with objectives that have a diameter of up to 40 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 250 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 series to be universally applicable. Parfocal tube extensions for each



Image: MIPOS 250

#### Product highlights:

- 250  $\mu\text{m}$  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



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 for the extended optical path and flex adapters for all common threads are available

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### Technical data:

MIPOS series	unit	MIPOS 250	MIPOS 250 SG	MIPOS 250 CAP	
<b>part no. for thread</b>	<b>M25x0.75</b>	-	O-370-00	O-370-01	O-370-06
	<b>W0.8x1/36" (RMS)</b>	-	O374-00	O-374-01	O-374-06
	<b>M26x0.75</b>	-	O-375-00	O-375-01	O-375-06
	<b>M27x0.75</b>	-	O-376-00	O-376-01	O-376-06
	<b>M32x0.75</b>	-	O-377-00	O-377-01	O-377-06
<b>axis</b>	-		Z		
<b>motion in open loop (<math>\pm 10\%</math>)*</b>	$\mu\text{m}$		250		
<b>motion in closed loop (<math>\pm 0,2\%</math>)*</b>	$\mu\text{m}$	-		200	
<b>capacitance (<math>\pm 20\%</math>)**</b>	$\mu\text{F}$		10.2		
<b>integrated measurement system</b>	-	-	strain gage	capacitive	
<b>resolution open loop***</b>	nm		0.5		
<b>resolution closed loop***</b>	nm	-	5.0	1.0	
<b>typ. repeatability</b>	nm	-	9	8	
<b>resonant frequency</b>	Hz		320		
<b>additional load = 80 g</b>	Hz		250		
<b>additional load = 105 g</b>	Hz		230		
<b>additional load = 300 g</b>	Hz		155		
<b>stiffness</b>	N/ $\mu\text{m}$		0.4		
<b>rotational error (full motion)</b>	$\mu\text{rad}$		<10	<6	
<b>voltage range</b>	V		-20...+130		
<b>connector</b>	<b>voltage</b>	-		LEMO 0S.302	
	<b>sensor</b>	-	-	LEMO 0S.304	LEMO 0S.650
<b>cable length</b>	m	1.0	1.2	1.6	
<b>material</b>	-		stainless steel		
<b>dimensions (LxWxH)</b>	mm	60.7 x 50 x 23.5	60.5 x 50 x 35.3	60.2 x 50 x 34.5	
<b>weight</b>	g	255	255	350	
<b>max. lens diameter</b>	mm		40		
<b>max. lens weight</b>	g		500		
<b>option for standard microscopes</b>	-	yes	yes	yes	
<b>option for inverse microscopes</b>	-	yes	yes	yes	

\* typical value measured with NV 40/3 CLE

\*\* 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 Configuration:

	Product name	Part. No Suffix.
<b>Actuator</b>	MIPOS 250 SG	O-307x-01E
<b>Amplifier/ Controller</b>	NV 40/1 CLE	E-101-73

The MIPOS series of micro lens and objective positioning systems offers a travel range from 20  $\mu\text{m}$  up to 500  $\mu\text{m}$  in z-axis. Available for standard and inverted microscopes.

More details under "z-axis-lens-positioning" [www.piezosystem.com](http://www.piezosystem.com)

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