

microscope objective / lens positioning system

MIPOS 20



- 20µm focusing range
- compact design
- high resonant frequency
- easy to mount on microscopes
- universal use by Flex-Adapter
- optionally feedback sensor

applications

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



fig.: MIPOS 20

Concept	Specials	Mounting/Installation
<p>The systems of the MIPOS 20 series offer a nano positioning and scanning range up to 20µm in open loop operation, as well as 16µm in closed loop. They can be assembled with objectives that have a diameter of up to 35mm.</p> <p>The successful parallelogram design of <i>piezosystem jena</i> guarantees high parallel motion without influencing the optical path.</p> <p>The positioning repeatability can be guaranteed by an integrated measurement system.</p> <p>The design with integrated pre-load of the actuator offers the following advantages:</p> <ul style="list-style-type: none"> • high resonant frequency • highly parallel motion <p>Based on these features, fast scanning applications can be accurately realized with the shortest settling times.</p>	<p>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.</p> <p>These Flex-Adapters are available for all standard microscopes, and allow the MIPOS 20 series to be universally applicable.</p> <p>Parfocal tube extensions for each threading type are available as an accessory.</p>	<p>Mounting/Installation</p>  <ol style="list-style-type: none"> 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  <p>Spacer rings to compensate the extended optical path are available and flex adapters for all common threads.</p>

technical data:

series MIPOS		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 open loop ($\pm 10\%$)*		μm	20	
motion closed loop ($\pm 0.2\%$)*		μm	-	16
capacitance ($\pm 20\%$)**		μF	0.7	
integrated measurement system		-	-	strain gage
resolution open loop***		nm	0.04	
resolution closed loop***		nm	-	1
typ. repeatability		nm	-	5
resonant frequency		Hz	950	
additional load = 80g		Hz	520	
additional load = 105g		Hz	450	
additional load = 300g		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
min. bend radius of cable		mm	>15	
material		-	stainless steel	
dimensions (l x w x h)		mm	54 x 32 x 32.5	
weight		g	95	115
max. lens diameter		mm	35	
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".

recommended configurations:

actuator	MIPOS 20 SG	O-383-01E
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 μm up to 500 μm in z-axis. Available for standard and inverted microscopes
 More details under „z-axis-lens-positioning“ www.piezोजना.com .**

Additional microscopy stages for XY axes available under “series-PXY-AP” www.piezोजना.com

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