

MIPOS 100

Microscope objective/lens positioning system

concept:

The systems of the MIPOS 100 series are available in two different variations. The MIPOS 100 offers a nano positioning and scanning range up to 100 μm in open loop operation, and 80 μm in closed loop. The MIPOS 100 is characterized by a compact size and an outstanding resonant frequency of 890 Hz.

The MIPOS 100 PL series has a travel range up to 140 μm in open loop mode, and 80 μm in closed loop mode. They can be assembled with objectives that have a diameter of up to 40 mm. Both systems are well suited for high precision positioning applications with nanometer resolution.

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 high parallel motion. Due to the unique features of the MIPOS 100 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 100 series to be universally applicable. Parfocal tube extensions for each threading type are available as an accessory.



image: MIPOS 100 SG

product highlights:

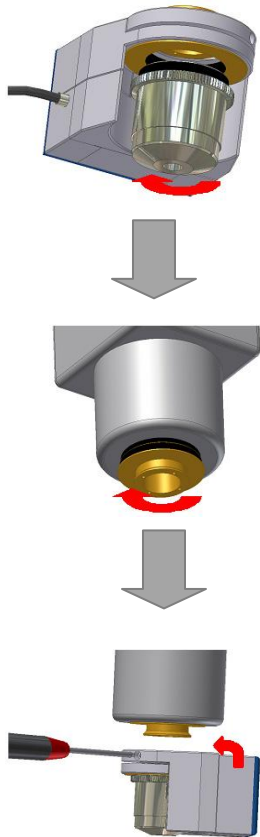
- 100 μm focusing range
- compact design
- high resonant frequency
- easy to attach on microscopes
- flexible use by Flex-Adapter
- optional with feedback sensor

applications:

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

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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*



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

MIPOS 100

Technical data:

MIPOS series	unit	MIPOS 100	MIPOS 100 UD	MIPOS 100 SG	MIPOS 100 SG UD
part no. for thread	M25X0.75	-	O-303-00	O-313-00	O-303-01
	W0.8X1/36" (RMS)	-	O-304-00	O-314-00	O-304-01
	M26X0.75	-	O-305-00	O-315-00	O-305-01
	M27X0.75	-	O-306-00	O-316-00	O-306-01
axis	-			Z	
motion in open loop ($\pm 10\%$)*	μm			100	
motion in closed loop ($\pm 0,2\%$)*	μm	-	-		80
capacitance ($\pm 20\%$)**	μF			7.2	
integrated measurement system	-	-	-		strain gage
resolution open loop ***	nm			0.2	
resolution closed loop***	nm	-	-		2
typ. repeatability	nm	-	-	6	5
resonant frequency	Hz			890	
additional load = 80 g	Hz			390	
additional load = 105 g	Hz			330	
additional load = 300 g	Hz			240	
stiffness	N/ μm			1.4	
rotational error (full motion)	μrad			<20	
voltage range	V			-20...+130	
connector****	voltage	-		LEMO 0S.302	
	sensor	-	-		LEMO 0S.304
cable length	m		1		1.2
min. bend radius of cable	mm			>15	
material	-			stainless steel	
dimensions (LxWxH)	mm		48 x 40 x 16.5		48 x 40 x 29
weight	g		105		150
max. lens diameter	mm			30	
max. lens weight	g			300	
for standard microscopes	-	yes	no	yes	no
for inverse microscopes	-	no	yes	no	yes

* 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. That part number is extended by the suffix "D"



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MIPOS_100_ds_Rev03_2014_01_23.doc

MIPOS 100

Technical data:

Series MIPOS 100 PL	unit	MIPOS 100 PL	MIPOS 100 PL SG	MIPOS 100 PL CAP
M25X0.75	-	O-323-00	O-323-01	O-323-06
W0.8X1/36" (RMS)	-	O-324-00	O-324-01	O-324-06
part no. for thread				
M26X0.75	-	O-325-00	O-325-01	O-325-06
M27X0.75	-	O-326-00	O-326-01	O-326-06
M32x0.75	-	O-327-00	O-327-01	O-327-06
axis	-		Z	
motion in open loop ($\pm 10\%$)*	μm		140	
motion in closed loop ($\pm 0,2\%$)*	μm	-		100
capacitance ($\pm 20\%$)**	μF		3.4	
integrated measurement system	-	-	strain gage	capacitive
resolution open loop ***	nm		0.3	
resolution closed loop***	nm	-	4	1
typ. repeatability	nm	-	7	6
resonant frequency	Hz		410	
additional load = 80 g	Hz		300	
additional load = 105 g	Hz		270	
additional load = 300 g	Hz		210	
stiffness	N/ μm		1.2	
rotational error (full motion)	μrad		<4	
voltage range	V		-20...+130	
connector****				
voltage	-		LEMO 0S.302	
sensor	-	-	LEMO 0S.304	LEMO 0S.650
cable length	m	1	1.2	1.6
min. bend radius of cable	mm		>15	
material	-		stainless steel	
dimensions (LxWxH)	mm	60.7x50x23.5	60.5x50x35.3	60.2x50x34.5
weight	g	105	150	210
max. lens diameter	mm		40	
max. lens weight	g		500	
for standard microscopes	-	yes	yes	yes
for inverse microscopes	-	yes	yes	yes

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

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Recommended configuration MIPOS series:

	product name	part. no suffix.
actuator	MIPOS 100 SG	O-303-01E
amplifier/ controller	NV 40/1 CLE	E-101-73

Recommended configuration MIPOS 100 PL series:

	product name	part. no suffix.
actuator	MIPOS 100 PL SG	O-323-01E
amplifier/ controller	NV 40/1 CLE	E-101-73

The MIPOS series of micro lens and objective positioning systems offers a travel range from 20 μm up to 500 μm in z-axis. Available for standard and inverted microscopes.

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

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