

MIPOS 20

Piezoelectrical objective/lens positioning system

Concept:

The systems of the MIPOS 20 series offer a nano positioning and scanning range up to 20 μ m in open loop operation, as well as 16 μ m in closed loop. They can be assembled with objectives that have a diameter of up to 30 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 20 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 20 series to be universally applicable. Parfocal tube extensions for each threading type are available as accessories as well.

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



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Product highlights:

- 20 µm focusing range
- compact design
- high resonant frequency
- easy to attach on microscopes
- universal use by thread adapter
- optionally integrated 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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Technical data:

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 in open loop (±10%)* µm - 16 capacitance (±20%)** µm - 16 capacitance (±20%)** µm - - 16 capacitance (±20%)** µm - <th< th=""><th colspan="2">MIPOS series</th><th>unit</th><th>MIPOS 20</th><th>MIPOS 20 SG</th></th<>	MIPOS series		unit	MIPOS 20	MIPOS 20 SG
Part no. for thread M26x0.75 Go-385-00 O-385-01 M27x0.75 O-386-00 O-386-01 axis - Z motion in open loop (±10%)* µm 20 motion in closed loop (±0,2%)* µm - 16 capacitance (±20%)** µF 0.7 strain gauge resolution open loop*** nm 0.04 resolution open loop*** nm 0.04 resolution closed loop*** nm - 1	part no. for thread	M25x0.75	-	O-383-00	O-383-01
M26x0.75		W0.8x1/36" (RMS)	-	O-384-00	O-384-01
axis - Z motion in open loop (±10%)* μm 20 motion in closed loop (±0,2%)* μm - 16 capacitance (±20%)*** μF 0.7 1 integrated measurement system - - strain gauge resolution open loop*** nm - 1 typ. repeatability nm - 1 typ. repeatability nm - 5 resonant frequency Hz 950 950 additional load = 80 g Hz 950 950 additional load = 105 g Hz 450 450 additional load = 300 g Hz 240 450 stiffness N/μm 4.0 40 rotational error (full motion) μrad <		M26x0.75	-	O-385-00	O-385-01
motion in open loop (±10%)* μm 20 motion in closed loop (±0,2%)* μm - 16 capacitance (±20%)** μF 0.7 integrated measurement system - - strain gauge resolution open loop**** nm 0.04 resolution closed loop**** nm - 1 typ. repeatability nm - 5 resonant frequency Hz 950 additional load = 80 g Hz 520 additional load = 105 g Hz 450 additional load = 300 g Hz 240 stiffness N/μm 4.0 rotational error (full motion) μrad <5		M27x0.75	-	O-386-00	O-386-01
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typ. repeatability nm - 5 resonant frequency Hz 950 additional load = 80 g Hz 520 additional load = 105 g Hz 450 additional load = 300 g Hz 240 stiffness N/μm 4.0 rotational error (full motion) μrad <5	resolution open loop***		nm	0	.04
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additional load = 80 g Hz 520 additional load = 105 g Hz 450 additional load = 300 g 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 material - stainless steel dimensions (LxWxH) mm 54 x 32 x 32.5 weight g 95 115 max. lens diameter mm 30 max. lens weight g 300 option for standard microscopes - yes yes	typ. repeatability		nm	-	5
additional load = 105 g Hz 450 additional load = 300 g Hz 240 stiffness N/μm 4.0 rotational error (full motion) μrad <5	resonant frequency		Hz	!	950
additional load = 300 g Hz 240 stiffness N/μm 4.0 rotational error (full motion) μrad <5	additional load = 80 g		Hz	!	520
stiffness N/μm 4.0 rotational error (full motion) μrad <5	additional load = 105 g		Hz	450	
rotational error (full motion) μrad <5	additional load = 300 g		Hz	:	240
voltage range V -20+130 connector**** voltage sensor - LEMO 0S.302 cable length m 1.0 1.2 material - stainless steel dimensions (LxWxH) mm 54 x 32 x 32.5 weight g 95 115 max. lens diameter mm 30 max. lens weight g 300 option for standard microscopes - yes yes	stiffness		N/µm		4.0
connector**** voltage sensor - LEMO 0S.302 cable length m 1.0 1.2 material - stainless steel dimensions (LxWxH) mm 54 x 32 x 32.5 weight g 95 115 max. lens diameter mm 30 max. lens weight g 300 option for standard microscopes - yes yes	rotational error (full	motion)	μrad		<5
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dimensions (LxWxH)mm54 x 32 x 32.5weightg95115max. lens diametermm30max. lens weightg300option for standard microscopes-yesyes	cable length		m	1.0	1.2
weightg95115max. lens diametermm30max. lens weightg300option for standard microscopes-yesyes	material		-	stainl	ess steel
max. lens diametermm30max. lens weightg300option for standard microscopes-yesyes	dimensions (LxWxH)		mm	54 x 32 x 32.5	
max. lens weight g 300 option for standard microscopes - yes yes	weight		g	95	115
option for standard microscopes - yes yes	max. lens diameter		mm		30
	max. lens weight		g		300
option for inverse microscopes - no no	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)



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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"



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Recommended configurations:

	Product name	Part. No Suffix
Actuator	MIPOS 20	O-308-00E
Amplifier/ Controller	NV 40/1 CLE	E-101-73

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

More details under "MIPOS piezo focus lens positioner" www.piezosystem.com

Microscopy stages for XY axes available under "series-PXY-AP" at www.piezosystem.com

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