

microscope objective / lens positioning system

nanoMIPOS 400

- 400µm focusing range and sub-nm step width
- max. lens diameter 39mm
- temperature compensated
- shortest settling times due to high stiffness
- universal use by thread adapter
- optional integrated capacitive feedback sensor
- applicable for standard and inverse microscopy

applications:

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



fig.: nanoMIPOS 400 CAP

Concept	Specials	Mounting/Installation
<p>The nanoMIPOS 400 offers a nano positioning and scanning range up to 400µm in open loop operation as well as 320µm in closed loop. The system can be assembled with objectives of up to 39mm diameter.</p> <p>The sophisticated monolithic guidance design consisting of solid flexure hinges means the trajectory is free of mechanical play and friction – a feature of all piezosystem jena stages. The advanced nanoMIPOS 400 design is FEA optimized to show an outstanding minimum of lateral and rotational components as well as excellent guidance accuracy while offering robustness against off center and lateral loads.</p> <p>To avoid drift and hysteresis, the nanoMIPOS 400 can be equipped with a capacitive measurement system. In combination with the piezosystem jena controller the system offers in closed loop operation high stability, linearity, repeatability and accuracy.</p>	<p>The nanoMIPOS 400 design is temperature compensated, while changing the environmental temperature the stage keeps its position. Because of the bidirectional gear design, guidance and preload are separated. With this nanoX design the system offers equal and highest set and reset forces. This is essential for nanoscan applications that require short settling times and minimized overshooting.</p> <p>The nanoMIPOS 400 is suited for upside down use in inverted microscopes. Parfocal tube extensions for each threading type are available as an accessory.</p> <p>Vacuum, cryogenic or nonmagnetic versions are available on demand.</p>	<p>1. Screw the objective into the MIPOS</p> <p>2. Screw the Flex-Adapter into the microscope</p> <p>3. Clamp the MIPOS on the Flex-Adapter using the attachment screw</p> <p>Spacer rings to compensate the extended optical path are available and flex adapters for all common threads.</p>

technical data:

series nanoMIPOS		unit	nanoMIPOS 400	nanoMIPOS 400 CAP
part no. for thread ...	M25x0.75	-	O-543-00	O-543-06
	W0.8x1/36" (RMS)	-	O-544-00	O-544-06
	M26x0.75	-	O-545-00	O-545-06
	M27x0.75	-	O-546-00	O-546-06
	M32x0.75	-	O-547-00	O-547-06
axis		-	Z	
motion open loop ($\pm 10\%$)*		μm	400	
motion closed loop ($\pm 0,2\%$)*		μm	-	320
capacitance ($\pm 20\%$)**		μF	6	
integrated measurement system		-	-	capacitive
resolution open loop***		nm	0.8	
resolution closed loop***		nm	-	1
typ. repeatability		nm	-	10
resonant frequency		Hz	300	
additional load = 80g		Hz	250	
additional load = 100g		Hz	220	
additional load = 300g		Hz	140	
stiffness		N/ μm	0.3	
blocking force		N	120	
max. load		N	10	10
rotational error		μrad	<5	
voltage range		V	-20 ... +130	
connector****	voltage	-	ODU series L 3pin	
	sensor	-	-	LEMO 0S.650
cable length		m	1	1.6
min. bend radius of cable		mm	>15	
material		-	stainless steel / aluminum	
dimensions (l x w x h)		mm ³	65 x 45 x 40	
weight		g	300	315
max. lens diameter		mm	39	
max. lens weight		kg	1	
option for standard microscopes		-	yes	
option for inverse microscopes		-	yes	

* typical value measured with 30V300 nanoX 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	nanoMIPOS 400 CAP digital	O-543-06D
amplifier/controller	30DV50	E-754-000

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.piezojena.com.

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

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