

## nanoSX 400

### High speed piezo translation stages

#### Concept:

The **nanoSX400** translation stage offers a large travel range, a central aperture and temperature compensation in a compact design. A high stiffness and trajectory trueness even at higher loads are major advantages compared to competitive systems available on the market.

Vacuum and cryogenic versions are available on demand as well as body material variations of invar, super invar, aluminum or titanium.

#### Specials:

The **nanoSX400** systems can be easily combined to a system with a longer travel range or to a two axes system. For more information please contact our staff.

An optional external sensor preamplifier (version "EXTERN"/"DIGITAL") offers independence from cable length.

#### Mounting:

The raster tapped and thru holes allow easy integration of the **nanoSX400** into any application or mechanical setup.



Image: nanoSX400

#### Product highlights:

- travel range 450/400  $\mu\text{m}$  open/closed loop
- sub-nm resolution
- 12.5 mm central aperture
- high load capability

#### Application examples:

- nano positioning
- scanning
- surface analysis
- metrology
- alignment

#### Options:

- vacuum version
- cryogenic temperatures
- special materials

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### Technical data

nanoSX 400 series	Unit	nanoSX 400	nanoSX 400 CAP	nanoSX 400 CAP EXTERN	nanoSX 400 CAP DIGITAL
part number	-	T-124-00	T-124-06	T-124-06E	T-124-06D
axis	-	X			
motion open loop $\pm 10\%$ *	$\mu\text{m}$	450			
motion closed loop $\pm 0.2\%$ *	$\mu\text{m}$	-	350		
capacitance $\pm 20\%$ **	$\mu\text{F}$	2x3.5			
feedback sensor	-	-	capacitive		
resolution open loop***	nm	0.8	0.8		
resolution closed loop***	nm	-	1		
typ. repeatability	nm	-	20		
typ. nonlinearity	%	-	0.2		
resonant frequency	Hz	450	400		
additional load 50 g	Hz	300			
additional load 100 g	Hz	260			
additional load 300 g	Hz	125			
stiffness (X/Y/Z)	N/ $\mu\text{m}$	0.35/5/5			
max. push/pull force	N	100/100			
max. load	N	100			
tilt	$\mu\text{rad}$	$\leq 3$ (about all axes)			
voltage range	V	-20 ... +130			
connector	voltage	-	ODU3 pin		D-Sub 15
	sensor	-	LEMO 05-650	ODU 4 pin	D-Sub 15
material	-	stainless steel/aluminum			
dimensions (w x h x d)	mm	60 x 10 x 60	60 x 20 x 75		
central aperture	mm	$\varnothing 12.5$			
weight	g	150	260		

\* typical value measured with 30V300 nanoX amplifier

\*\* typical value for small electrical field strength

\*\*\* The resolution is only limited by the noise of the amplifier and metrology.