

nanoX 200 series

High speed piezo translation stages

concept:

The one-axis linear positioning stages *nanoX 200* are a development within the ultra-fast *nanoX®*-line. Due to FEA-optimization these stages achieve the highest dynamical performance and excellent guiding accuracy even under high loads.

The positioning stages of the *nanoX 200 series* are temperature compensated – while changing the environmental temperature the stage keeps its position.

specials:

The highest positioning accuracy, stability, linearity and reproducibility are achieved in closed loop operation when used in combination with the high resolution capacitive direct measuring feedback system from *piezosystem jena*.

mounting:

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



image: nanoX 200

product highlights:

- 240µm range of motion
- highest dynamical performance
- excellent guidance accuracy
- 0.4 nm resolution
- Ø 3mm central aperture
- vacuum and cryogenic versions available
- body material variations of invar, superinvar, aluminium or titanium available
- external sensor preamplifier optional

applications:

- machine tools
- laser optics
- life science
- scanning systems

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technical data:

series nanoX	unit	nanoX 200	nanoX 200 SG	nanoX 200 CAP
part no.	-	T-106-20	T-106-21	T-106-26
axes	-		x	
motion open loop ($\pm 10\%$)*	μm	240		240
motion closed loop ($\pm 0,2\%$)*	μm	-		200
capacitance ($\pm 20\%$ **)	μF		2x2.6	
integrated measurement system	-	-	SG	capacitive
resolution***	<i>open loop</i>		0.4	
	<i>closed loop</i>		4	1
typ. repeatability	nm	-	50	10
typ. non-linearity	%	-	0.1	0.02
resonant frequency	Hz		700	
	<i>additional load = 50g</i>		600	
	<i>additional load = 100g</i>		400	
	<i>additional load = 300g</i>		250	
stiffness	N/ μm		1.1	
max. push/pull force open loop	N		100/100	
max. push/pull force closed loop ****	N	-		100/100
max. load	N		100	
lateral force limit	N		100	
rotational error	<i>x/y/z</i> μrad		5/5/5	
voltage range	V		-20 ... +130	
connector	<i>voltage</i>	-	ODU Serie L 3pol.	
	<i>sensor</i>	-	LEMO 0S.304	LEMO 0S.650
cable length	m	1	1.2	1.6
material	-	stainless steel/aluminium		
dimensions (l x w x h)	mm	52 x 52 x 22	52 x 70 x 22	
central aperture	mm		$\emptyset 3$	
weight	g	175	190	300

* 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.

****max. force, with which the system operates in closed loop within the specification

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recommended configurations:

actuator	nanoX 200	T-106-20
amplifier/controller	30V300 nanoX	E-468-011
actuator	nanoX 200 SG	T-106-21
amplifier/controller	ENV 40 SG nanoX	E-248-100
power supply unit	ENT 40/20	E-103-13
PC-interface	EDA 4	E-202-40
casing for all modules	42 TE	E-103-97
actuator	nanoX 200 CAP digital	T-106-26D
amplifier/controller	EVD 50 CL	E-720-300
casing for d-Drive		E-751-000

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