

NanoX 400

High speed positioner

Concept:

The **NanoX400** linear stage is a development within our ultrafast **NanoX®-line**. It provides a long positioning and scanning range as well as a central aperture. Due to FEA-optimization of these stages you meet highest dynamical performance and excellent guiding accuracy. This is accomplished even with high mass loads in a compact package. Our optimization also incorporates excellent temperature compensation properties. The sophisticated monolithic guidance design of the solid flexure hinges means the trajectory is free of mechanical play and friction. The **NanoX400** is also available with strain gauge or capacitive measurement systems.

Specials:

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

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 **NanoX400** into any application or mechanical setup.



Image: NanoX 400

Product highlights:

- travel range 480/400 µm open/closed loop
- sub-nm resolution
- highest dynamical performance
- excellent guidance accuracy
- central aperture of \varnothing 3 mm

Application examples:

- automation
- laser optics
- life science
- scanning systems

Options:

- vacuum version
- cryogenic version
- special materials

NanoX 400

Technical data

	Unit	NanoX 400	NanoX 400 SG	NanoX 400 CAP
Part no.	-	T-108-20	T-108-21	T-108-26
axis	-	X		
motion open loop ($\pm 20\%$)*	μm	480		
motion closed loop ($\pm 0.2\%$)*	μm	-	400	
capacitance ($\pm 20\%$ **)	μF	10.2		
feedback sensor	-	-	strain gauge	capacitive
resolution open loop***	nm	0.8	0.8	0.8
resolution closed loop****	nm	-	8	2
typ. repeatability	nm	-	80	20
typ. non-linearity	%	-	0.1	0.02
resonant frequency	Hz	400		
additional load 50 g	Hz	300		
additional load 100 g	Hz	250		
additional load 300 g	Hz	150		
stiffness	N/ μm	0.4		
max. push/pull force open loop	N	100/100		
max. push pull force closed loop	N	-	16/16	
max. load	N	50		
lateral force limit	N	100		
rotational error	μrad	5 (about all axes)		
dimensions w x h x d	mm	52 x 32 x 52		52 x 32 x 70
central aperture	mm	$\varnothing 3$		
voltage range	V	-20... +130		
connector	voltage	-	ODU series L 3 pol.	
	sensor	-	LEMO 0S.304	LEMO 0S.650
temperature range	$^{\circ}\text{C}$	-20... +80		
material	-	stainless steel/aluminum		
weight	g	250	270	370

* typical value measured with ENV40 nanoX amplifier

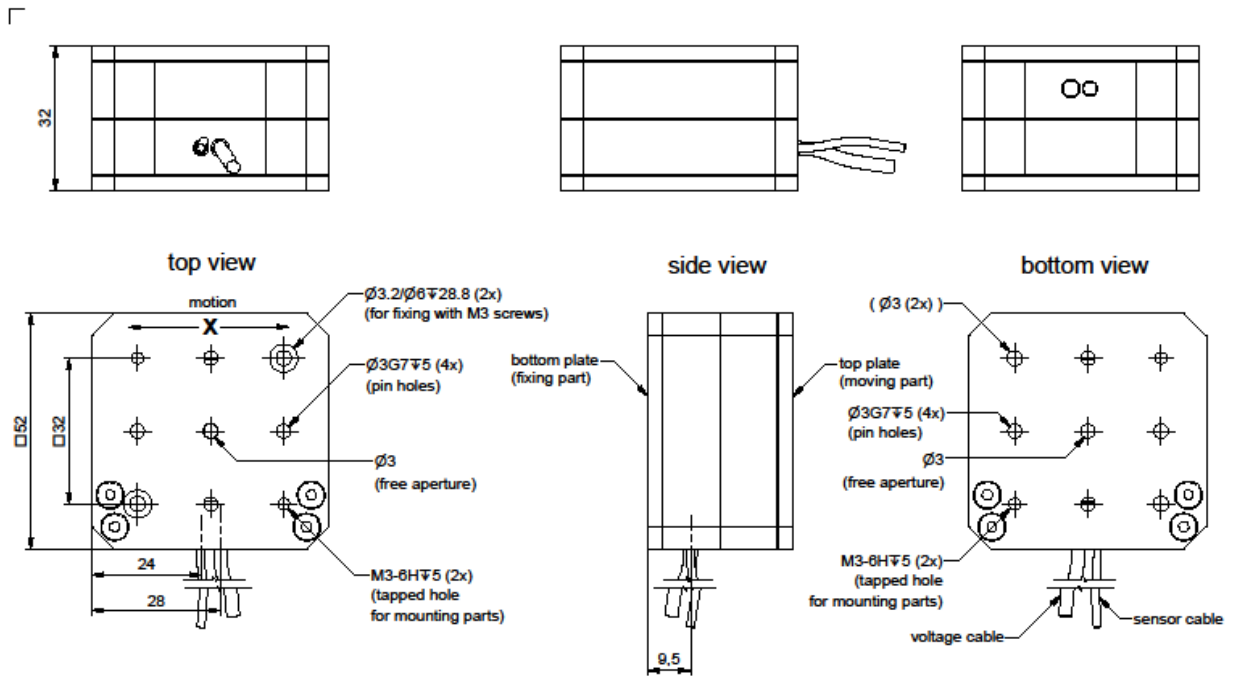
** typical value for small electric field strength

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

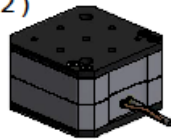
**** max. force, with which the system operates in closed loop within the specification

NanoX 400

Drawing NanoX 400 (SG)



model (1 : 2)



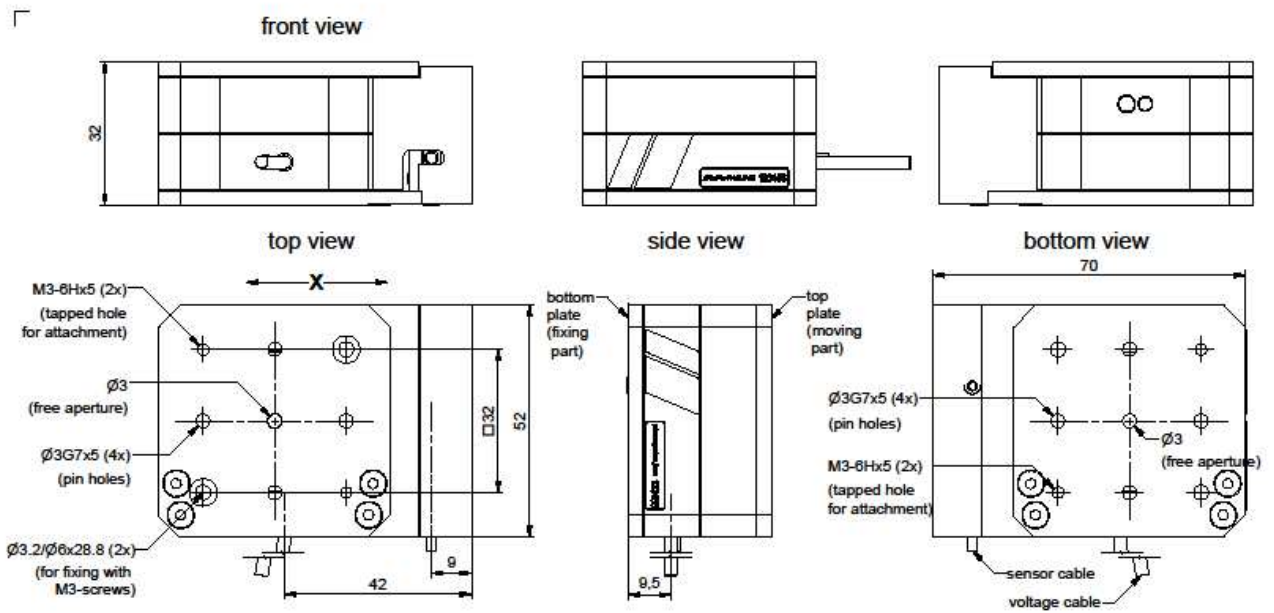
open loop version without sensor cable, standard cable length 1m
closed loop version with standard cable length 1.2m (EXT/DIG 2m)

unit [mm]
pin hole tolerance ± 0.02
tapped hole tolerance ± 0.05

part-no.	T-108-2x	part-name	nanoX 400 (SG)
file name	PT10821	OK: date/sign.	
		scale	1:1
		customers drawing piezosystem jena	

NanoX 400

Drawing NanoX 400 CAP



model 1:1



standard cable length 1.6m (EXT/DIG 2m)

unit [mm]
pin hole tolerance ± 0.02
tapped hole tolerance ± 0.05

part-no.	T-108-26	part-name	nanoX 400 CAP
file name	PT10826ÄZ1	OK: date/sign.	
	rev.02	scale	1:1
		customers drawing piezosystem jena	