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nanoX 400

High-load Piezo Translation Stages

- 480 µm of travel range
- Resolution down to 0.4 nm
- Central aperture of 3 mm
- Vacuum and cryogenic compatible version

The piezo based nanoX® 400 is our ultra fast and high load positioning stage. It provides a positioning and scanning range of up to 480 micrometers. The centrally located free aperture allows laser optical applications through the stage. This is also possible when stacking them in an X, Y configuration. Due to FEA-optimization, the nanoX® 400 provides the highest dynamical performance and excellent guiding accuracy. This is accomplished even with high mass loads in a very compact package. The nanoX series is made for nano-positioning tasks in the field of semiconductor, laser & optics and test & measurement.

Our piezo stage optimization also incorporates excellent temperature compensation properties for the trajectory of the nanopositioning stage. The sophisticated monolithic guidance design of the solid flexure hinges means the trajectory is free of mechanical play and friction – a feature of all piezo stages and nano-positioners.

Variants:

- nanoX 400
- nanoX 400 SG
- nanoX 400 CAP

Recommended Controller:

NV200/D Net

E-730-820

Applications

- Automation
- Laser optics
- Life science
- Scanning systems

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nanoX 400
Technical Data

		Unit	nanoX 400	nanoX 400 SG	nanoX 400 CAP
Part no		-	T-108-20	T-108-21	T-108-26
Axes		-	x		
Motion	Open-loop (±20%)	µm	480		
	Closed-loop (±0.2%)*		-	400	
Capacitance (±0.2%)**		µF	10.2		
Feedback sensors		-	-	SG	capacitive
Resolution*	Open-loop	nm	0.8		
	Closed-loop		-	8	2
Typ. repeatability		nm	-	80	20
Typ. non-linearity		%	-	0.1	0.02
Resonant frequency	unloaded	Hz	400		
	additional load = 50g		300		
	additional load = 100g		250		
	additional load = 300g		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	x/y/z	µrad	5/5/5		
Voltage range		V	-20 ... +130		
Connector		-	LEMO	LEMO/ODU (analog) or D-Sub (digital)	
Cable length		m	1	2	2
Material		-	stainless steel/alumunium		
Temperature range		°C	-20 … +80		
Dimension (l x w x h)		mm	52 x 32 x 52	52 x 32 x 70	
Central aperture		mm	Ø3		
Weight		g	250	270	370

Rights reserved to change specifications as progress occurs without notice!

* typical value measured with ENV 40 nanoX amplifier and the resolution is only limited by the noise of the power amplifier and metrology
** typical value for small electrical field strength
*** max. force, with which the system operates in closed-loop within the specification

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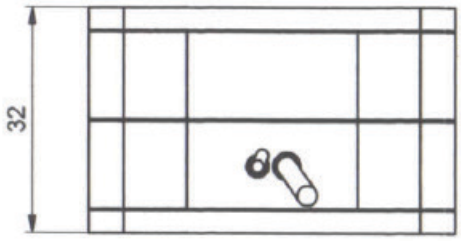
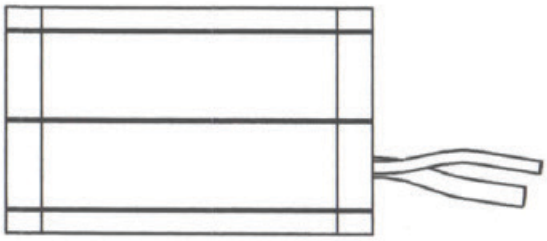
nanoX 400 SG

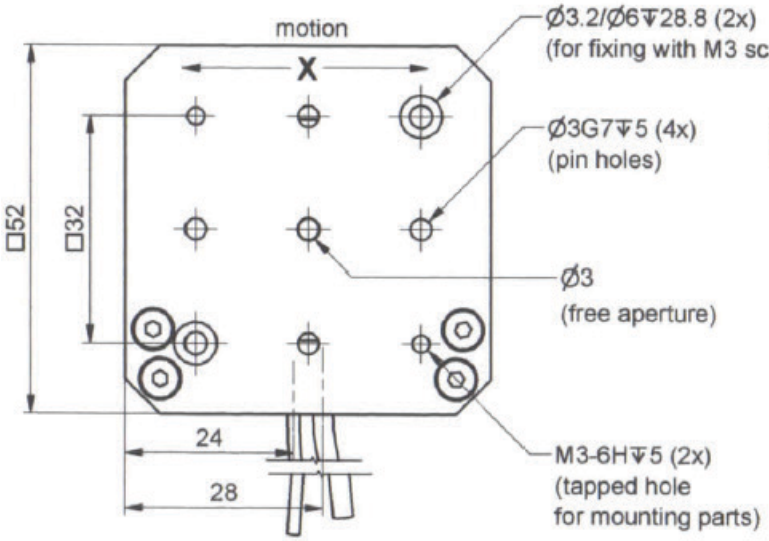
Part Drawing

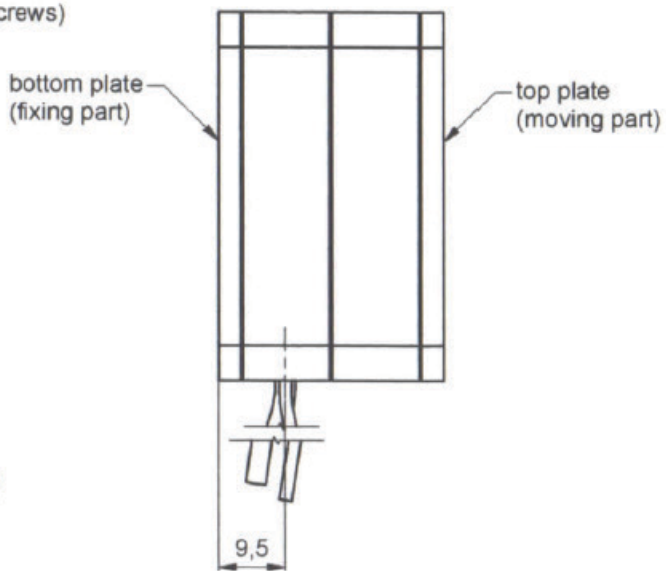




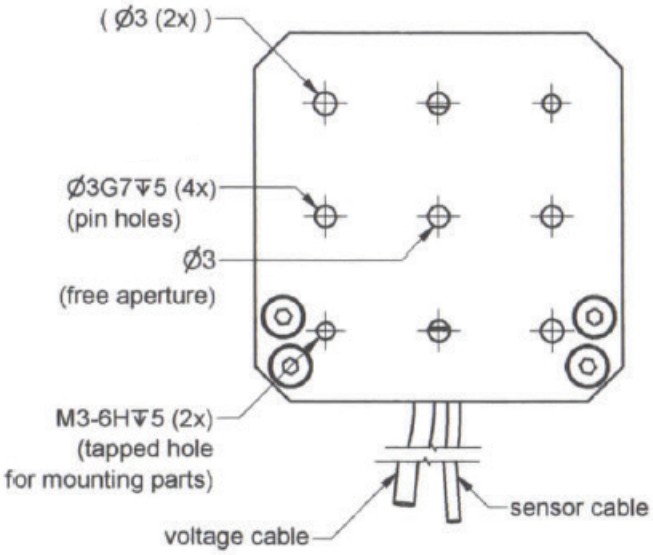
top view

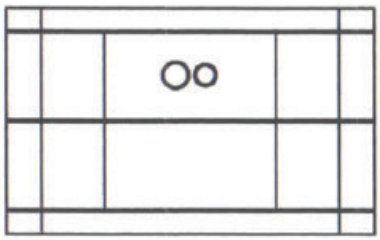
side view



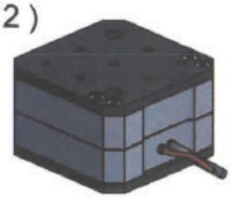


bottom view





model (1 : 2)



Dimensions given in mm.

pin hole tolerance ± 0.02
tapped hole tolerance ±0.05

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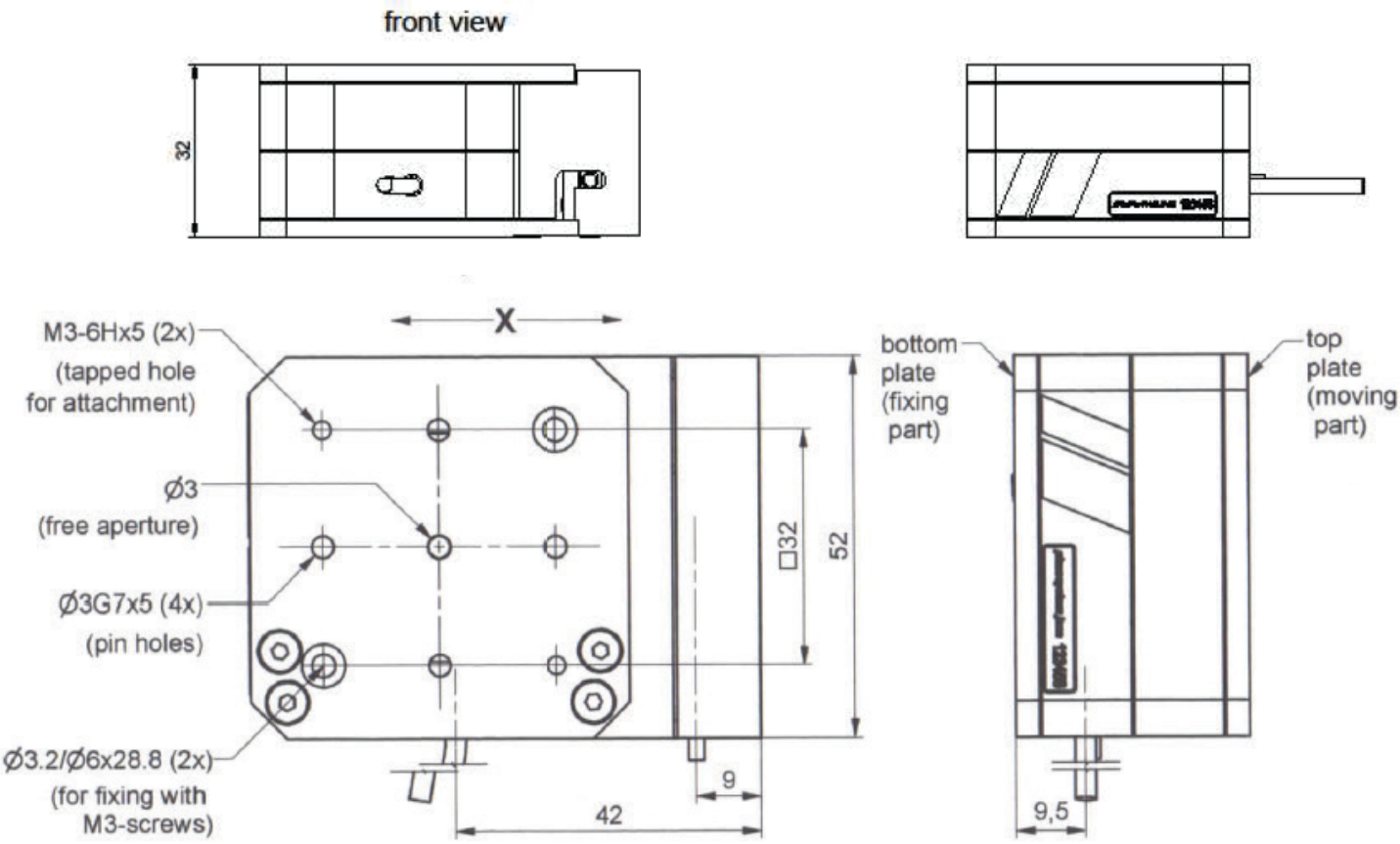
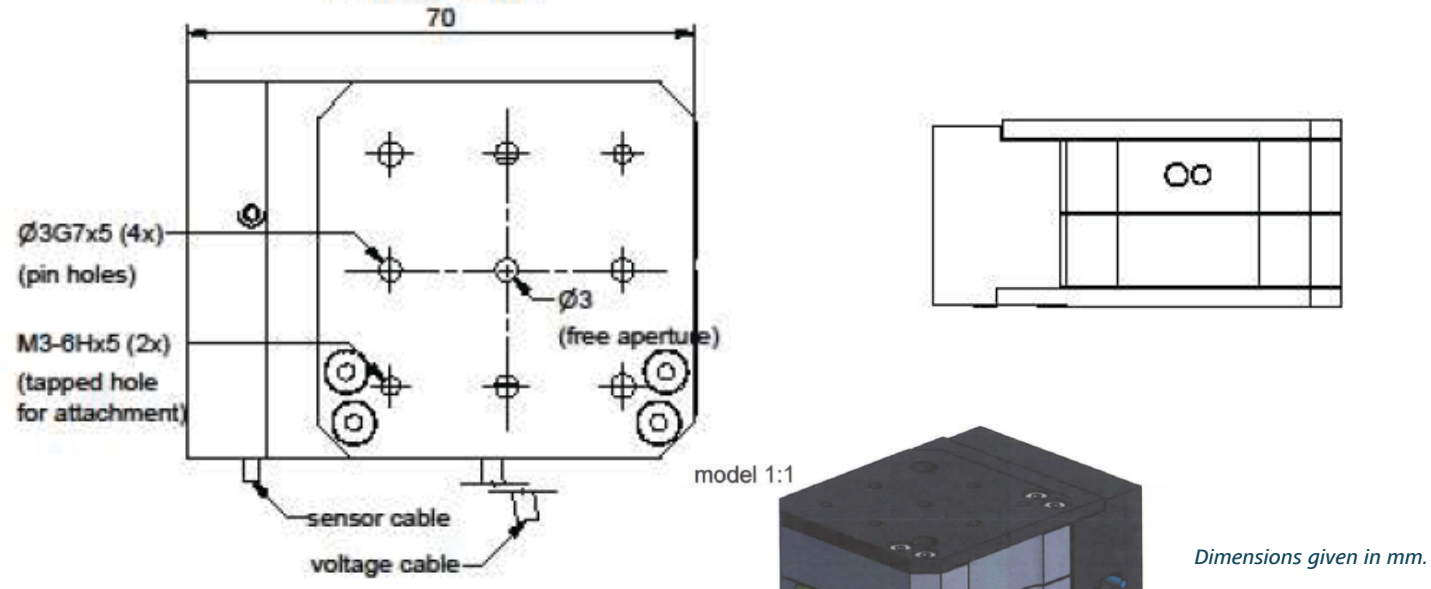
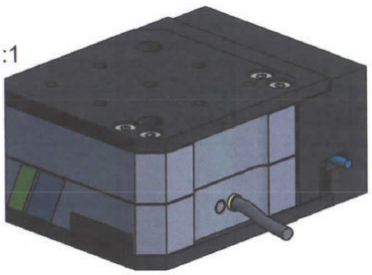
nanoX 400 CAP

Part Drawing





model 1:1



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