

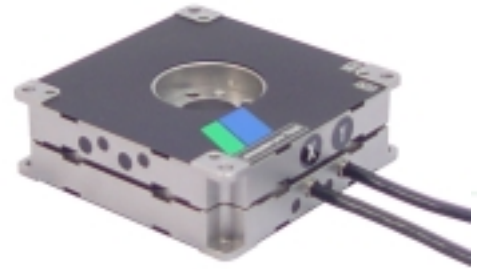
nanoSXY 120

ultra fast xy piezo positioning stage

- ◆ *120microns range of motion in XY*
- ◆ *sub-nm-resolution*
- ◆ *excellent guidance accuracy*
- ◆ *12.5mm free clearance aperture*
- ◆ *high z-axes stiffness for high load capability*
- ◆ *flat design*
- ◆ *compact package*

application:

- high precision positioning with sub-nm accuracy for application in the field of scanning, microscopy, metrology and alignment



pic: nanoSXY120

Design

piezosystem jena now complete the new nanoX stage series with an XY two axes stage design nanoSXY. The nanoSXY series offers a long travel scanning range, combined with a centrally free aperture of 12.5mm. Dynamic performance with a high load capacity and supreme stiffness are major advantages when compared with other systems available on the market.

The FEA designed actuating system based on flexure hinges guarantees excellent guidance accuracy without parasitic motion.

The durability of the nanoSXY makes this series of stages an excellent choice for permanent use in industrial applications.

Specials

The sophisticated gear design of the series nanoSX and nanoX® developed by **piezosystem jena** with bi-directional actuation design features an active push/pull-force.

Basic feature of these high performance piezo actuators is the very high stiffness and the resonance frequency. So even high loads can be moved in a highly dynamic manner.

The overshooting behavior is actively minimized by controllable set and reset-forces.

Defined positions can be approached with nanometer accuracy even with full load when the actuator is equipped with a measurement system. This is a very substantial criteria especially for high speed scanning applications.

The bi-directional gear design makes the system very robust and makes it non-sensitive against external forces.

Mounting Instructions

The mounting area is based on 4 threads arranged in raster order. By using of two stages for a XY configuration both stages will be mounted on top of each other. All cable come out on one side only. Because of the high z-axis stiffness the stages are very robust. Vacuum and cryogenic performances are available on demand as well, body material variations of invar, superinvar, aluminum or titanium too.



technical data		unit	nanoSXY 120	nanoSXY 120 CAP
part no.		-	T-223-00	T-223-06
active axes		-	X,Y	
free aperture		mm	12.5	
motion open loop* / closed loop		µm	120 / -	120/100
hysteresis open loop*		%	15	
integrated feedback sensor		-	-	kapazitiv
resolution** open loop/closed loop		nm	0.25 / -	0.25/1
repeatability****		%	-	±3
electr. capacitance per axis***		µF	1.5	
voltage range		V	-20..130	
stiffness*** (X/Y/Z)		N/µm	0.6 / 0.6 / 2.5	
max. load		N	100	
push- / pull force capacity (X/Y/Z)		N	65 / 65 / -	12 / 12 / -
resonances*** @ load (X/Y)	50g	Hz	350 / 380	300 / 320
	100g	Hz	280 / 300	250 / 280
	300g	Hz	165 / 170	160 / 105
rotational error (X/Y/Z)		µrad	1.5 / 2.5 / 0.5	
connector	power	-	ODU 3pin serial:L	
	sensor	-	-	LEMO 0S.605
cable length		m	1.0	1.6
temperature range	operating	°C	0..80	
	non operating	°C	-40..120	
material		-	stainless steel	
total mass		g	250	350
* typical value for open loop @ -20...130V (±10%)				
** measured with amplifier E-103-18				
*** typical for small signal strength				
**** typical value for closed loop control measured with amplifier E-278-100				

dimensions [mm]

