

nanoSXY 120

Ultra fast XY piezo positioning stage

Concept:

The **nanoSXY 120** offers a long travel scanning range, combined with a central aperture of 12.5 mm in a compact design. Dynamic performance with a high load capacity, supreme stiffness and a high resonant frequency are major advantages of the **nanoSXY 120**. The **nanoSXY 120** is also available with a capacitive measurement system.

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

The durability of the **nanoSXY 120** makes this series of stages an excellent choice for permanent use in industrial applications.

Specials:

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

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

Mounting:

The **nanoSXY 120** can easily be fixed via four rectangular arranged through holes into any application or mechanical setup.



Image: **nanoSXY 120**, vacuum version

Product highlights:

- travel range 120/100 μm open/closed loop
- sub-nm resolution
- excellent guidance accuracy
- high Z-axis stiffness
- 12.5 mm central aperture
- compact design

Application examples:

- nano positioning
- scanning
- microscopy
- metrology
- alignment

Options:

- vacuum version / cryogenic version
- special material
- cable for high load requirements, e. g. 5 million cycles of bending

nanoSXY 120

Technical data

| | Unit | nanoSXY 120 | nanoSXY 120 CAP |
|-------------------------------------|------------------|-------------|--------------------|
| Part no. | - | T-232-00 | T-223-06 |
| axis | - | | X,Y |
| motion open loop ($\pm 10\%$)* | μm | 120 | |
| motion closed loop ($\pm 0.2\%$)* | μm | - | 100 |
| capacitance ($\pm 20\%$ **) | μF | | 1.5 |
| resolution | open loop*** | nm | 0.24 |
| | closed loop*** | nm | - |
| typ. repeatability | nm | | 2.5 |
| typ. non-linearity | % | - | 0.02 |
| resonant frequency 50g X/Y | Hz | 350/380 | 300/320 |
| resonant frequency 100g X/Y | Hz | 280/300 | 250/280 |
| resonant frequency 300g X/Y | Hz | 165/170 | 160/105 |
| stiffness X/Y/Z | N/ μm | 0.6/0.6/2.5 | |
| max. push/pull force X/Y | N | 65/65 | 12/12 |
| max. load | N | | 100 |
| rotational error X/Y/Z | μrad | | 1.5/2.5/0.5 |
| dimensions (LxWxH) | mm | 60x60x20 | 60x87x30 |
| central aperture | mm | | \varnothing 12.5 |
| voltage range | V | -20... +130 | |
| connector | voltage | - | ODU L 3 pin |
| | sensor | - | LEMO 05.605 |
| weight | g | 250 | 350 |

* typical value measured with 30V300 nanoX amplifier

** typical value for small signal electrical field strength

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

60x82x30mm