

High- Dynamics Nanopositioning System

1 AXIS WITH LARGE CLEAR APERTURE

P-630



- + Resonant frequency to 3.25 kHz
- + Travel ranges to 80 μm
- + Small footprint and low- profile height
- + Clear aperture with 30 mm diameter

Reference- class nanopositioning system

1 axis. Frictionless flexure- guided design, directly driven. Capacitive position sensor for maximum stability and linearity

PICMA[®] high- performance piezo drive

Piezoceramic actuators with all- ceramic insulation. Longer lifetime, humidity resistance and operating temperatures to 80 °C

Fields of application

Precision positioning of optical elements or objects in the optical path, for micromachining, microstructuring and scanning tasks in research and industry. Available as vacuum option

Specifications

	P-630.XCD	P-631.XCD	Unit
Active axes	X	X	
Motion and positioning			
Integrated sensor	Capacitive	Capacitive	
Open- loop travel, -20 to 120 V	45	90	μm
Closed- loop travel	40	80	μm
Open- loop resolution	0.1	0.1	nm
Closed- loop resolution	0.2	0.2	nm
Closed- loop nonlinearity	0.02	0.02	%
Repeatability over the entire travel range	± 2	± 3	nm
Pitch / yaw	± 5	± 5	μrad
Straightness / flatness	50	50	nm
Mechanical properties			
Stiffness in motion direction	5.5	5	N / μm
Unloaded resonant frequency	3250	2850	Hz
Resonant frequency @ 60 g	1600	1200	Hz
Push / pull force capacity in motion direction	10	10	N
Load capacity	10	10	N
Drive properties			
Piezo ceramic	PICMA [®] P-887	PICMA [®] P-885; P-887	
Electrical capacitance	6.4	12.6	μF
Dynamic operating current coefficient	20	20	$\mu\text{A} / \text{Hz} \times \mu\text{m}$
Miscellaneous			

Operating temperature range	0 to 40	0 to 40	°C
Material	Aluminum	Aluminum	
Dimensions	102 mm × 50 mm × 18 mm	102 mm × 50 mm × 18 mm	
Mass	300	320	g
Cable length	1.5	1.5	m
Sensor / voltage connection	Sub- D special connector (single- axis, capacitive)	Sub- D special connector (single- axis, capacitive)	
Recommended controller / amplifier	E-709.CR cost- efficient digital controller E-709.CHG digital controller for high dynamics and quick step- and- settle E-753.1CD digital controller for high resolution and linearity	E-709.CR cost- efficient digital controller E-709.CHG digital controller for high dynamics and quick step- and- settle E-753.1CD digital controller for high resolution and linearity	

Order Information

P-630.XCD

Linear Piezo Nanopositioning System with Large Aperture, 40 µm, Direct Metrology, Capacitive Sensor

P-631.XCD

Linear Piezo Nanopositioning System with Large Aperture, 80 µm, Direct Metrology, Capacitive Sensor

Ask about custom designs!

Controllers / Drivers / Amplifiers

[E-709.CHG Digital Single Channel Piezo Controller](#)

[E-753 Digital Piezo Controller](#)

[E-709 Compact and Cost- Optimized Digital Piezo Controller](#)

Related Products

[P-763 Compact XY Nanopositioning System](#)

[E-709 Compact and Cost- Optimized Digital Piezo Controller](#)

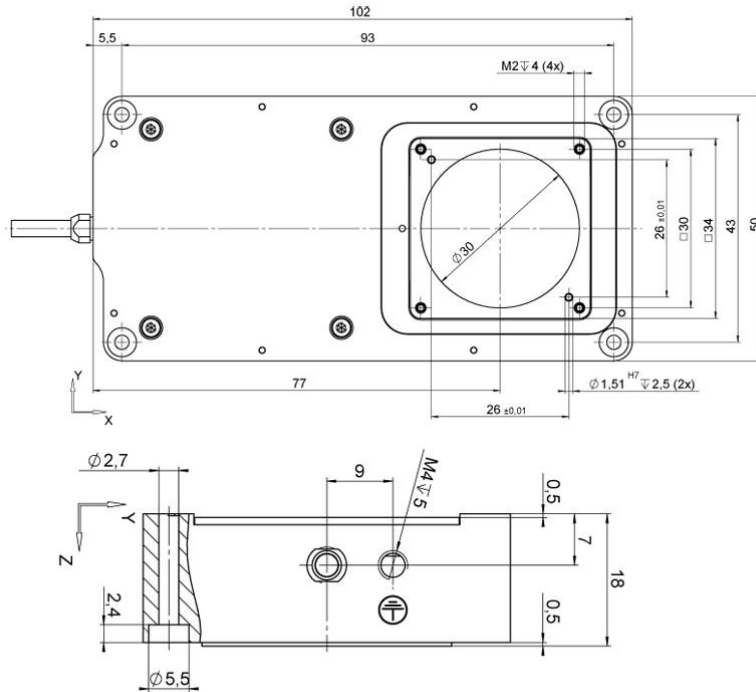
[E-709.CHG Digital Single Channel Piezo Controller](#)

[P-620.1 – P-629.1 PIHera Piezo Linear Stage](#)

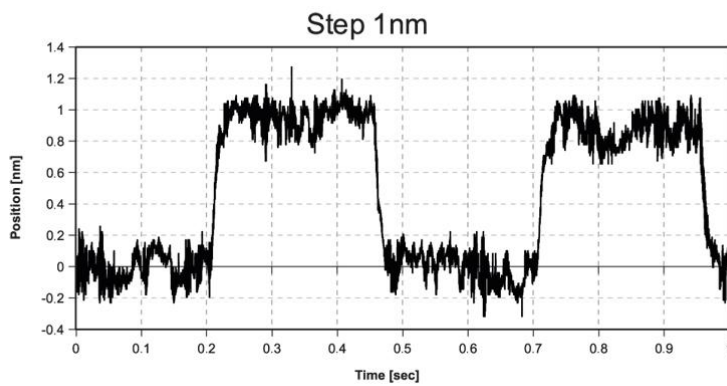
[P-620.2 – P-629.2 PIHera XY Piezo Stage](#)

[P-620.Z – P-622.Z PIHera Precision Z- Stage](#)

Drawings / Images



P-630, dimensions in mm



The smallest resolvable step size of P-630.XCD with E-753.1CD digital controller is below one nm. Measured externally with a laser interferometer.

