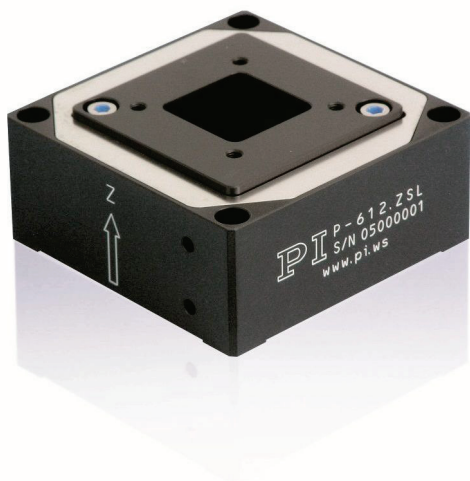


Piezo Z Stage

Compact Nanopositioner with Aperture



P-612.Z

- Travel range 100 μm
- Resolution to 0.2 nm
- Linearity error 0.2 %
- Compact: Surface 60 mm \times 60 mm
- Particularly inexpensive systems (mechanics and controller)
- Zero-play, high-precision flexure guide system
- Outstanding lifetime due to PICMA[®] piezo actuators

Fields of application

- Interferometry
- Microscopy
- Nanopositioning
- Biotechnology
- Test procedures and quality assurance
- Semiconductor technology

Outstanding lifetime thanks to PICMA[®] piezo actuators

The patented PICMA[®] piezo actuators are all-ceramic insulated. This protects them against humidity and failure resulting from an increase in leakage current. PICMA[®] actuators offer an up to ten times longer lifetime than conventional polymer-insulated actuators. 100 billion cycles without a single failure are proven.

High guiding accuracy due to zero-play flexure guides

Flexure guides are free of maintenance, friction, and wear, and do not require lubrication. Their stiffness allows high load capacity and they are insensitive to shock and vibration. They are 100 % vacuum compatible and work in a wide temperature range.

Specifications

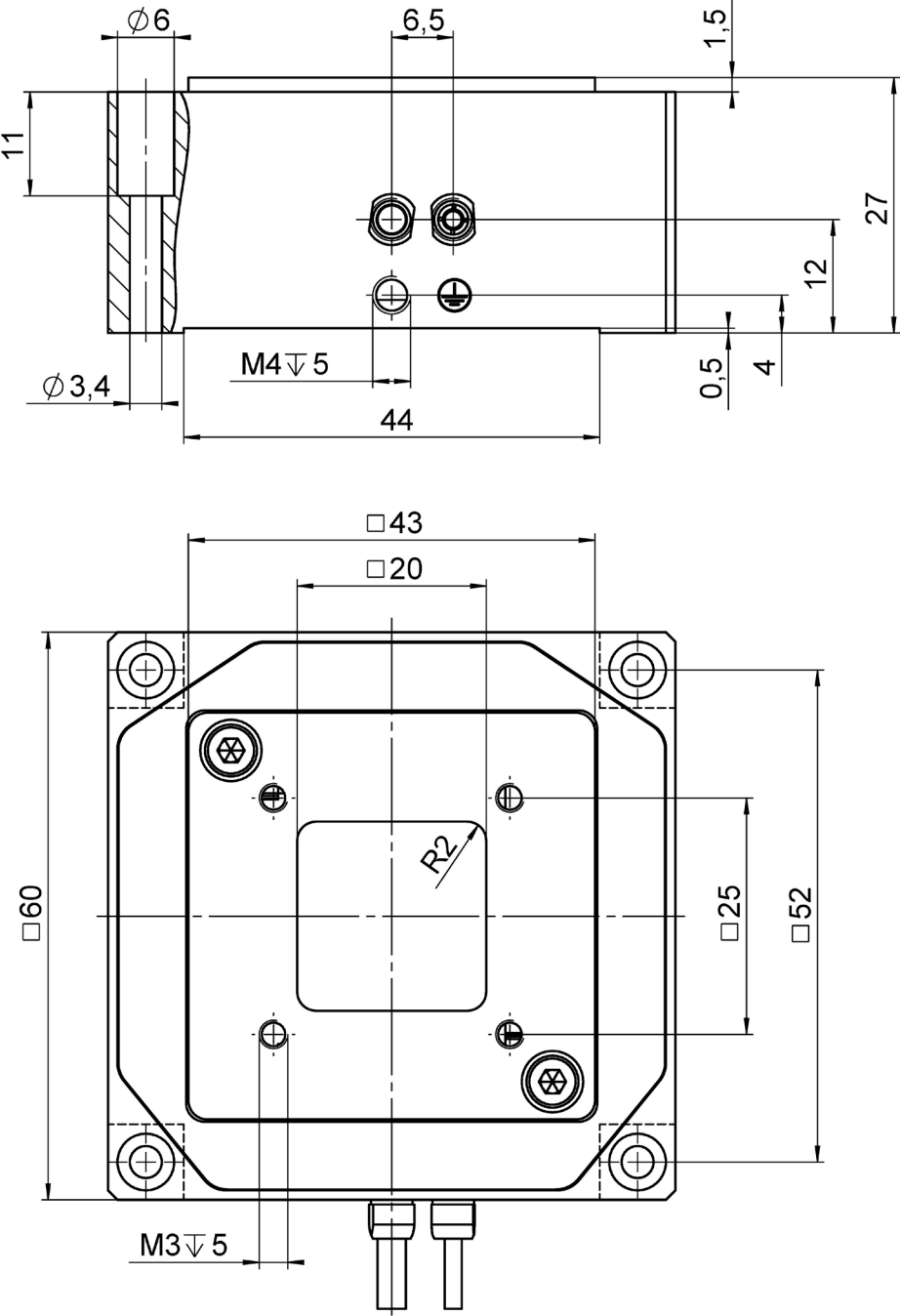
	P-612.ZSL	P-612.Z0L	Unit	Tolerance
Active axes	Z	Z		
Motion and positioning				
Integrated sensor	SGS	-		
Travel range at -20 to +120 V, open loop	110	110	μm	+20 % / -0 %
Travel range, closed loop	100	-	μm	
Resolution, open loop	0.2	0.2	nm	typ.
Resolution, closed loop	1.5	-	nm	typ.
Linearity error, closed loop	0.2	-	%	typ.
Repeatability	±4	-	nm	typ.
Tilt θ_x, θ_y	±10	±10	μrad	typ.
Crosstalk in X, Y	±20	±20	nm	typ.
Mechanical properties				
Stiffness in motion direction	0.63	0.63	N/μm	±20 %
Resonant frequency, no load	490	490	Hz	±20 %
Resonant frequency under load	420 (30 g)	420 (30 g)	Hz	±20 %
Load capacity	15 / 10	15 / 10	N	max.
Drive properties				
Ceramic type	PICMA® P-885	PICMA® P-885		
Electrical capacitance	3	3	μF	±20 %
Miscellaneous				
Operating temperature range	-20 to 80	-20 to 80	°C	
Material	Aluminum	Aluminum		
Mass	0.28	0.275	kg	±5 %
Cable length	1.5	1.5	m	±10 mm
Sensor/voltage connection	LEMO	LEMO (no sensor)		
Recommended electronics	E-610, E-621, E-625, E-665	E-610, E-621, E-625, E-665		

The resolution of the system is limited only by the noise of the amplifier and the measuring technology because PI piezo nanopositioning systems are free of friction.

All specifications based on room temperature (22 °C ±3 °C).

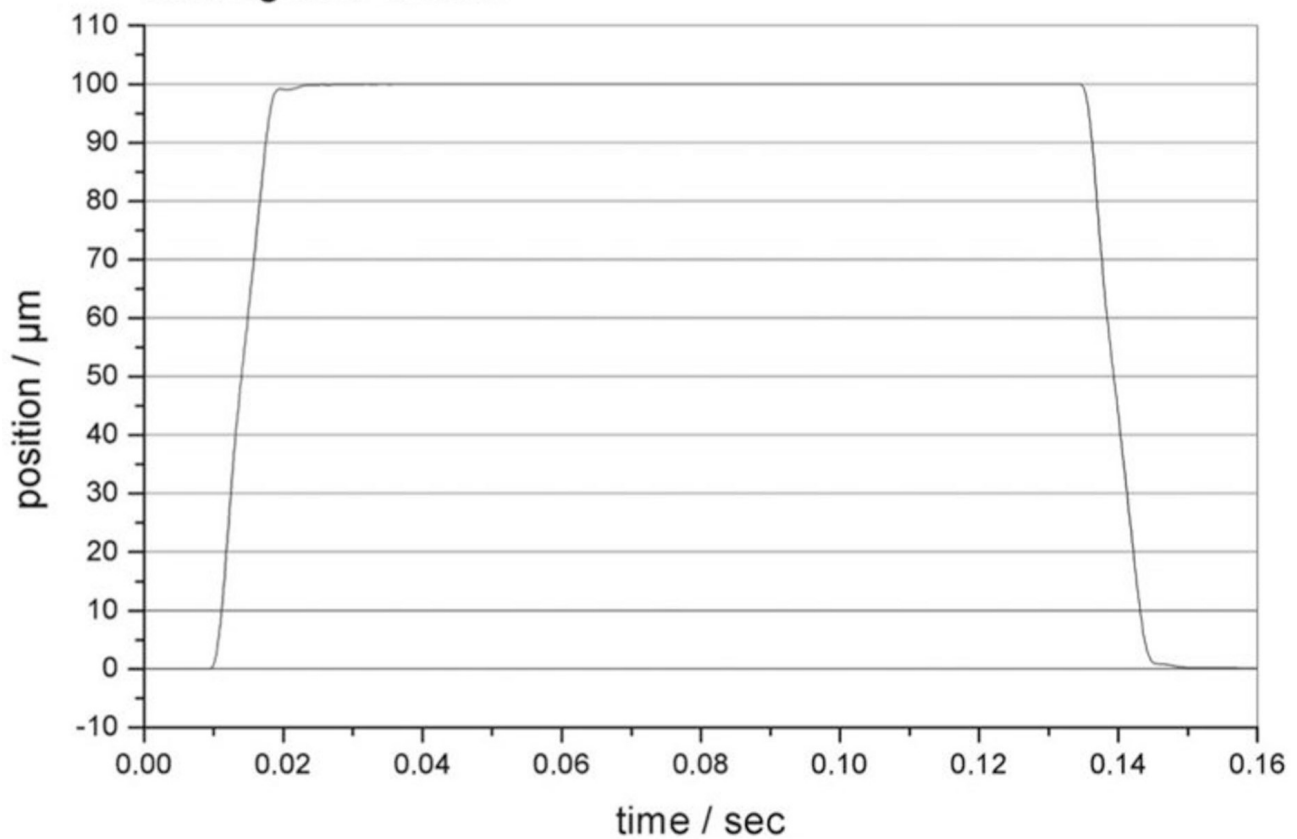
Ask about customized versions.

Drawings / Images



P-612.Z, dimensions in mm

P-612.ZSL 100 μm Step Settling time 9.5 ms



With active control, the settling time is less than 10 ms over the entire travel range.

Ordering Information

P-612.Z0L

Vertical nanopositioning stage, 110 μm , aperture 20 mm \times 20 mm, open loop

P-612.ZSL

Vertical nanopositioning stage, 100 μm , aperture 20 mm \times 20 mm, strain gauge sensor