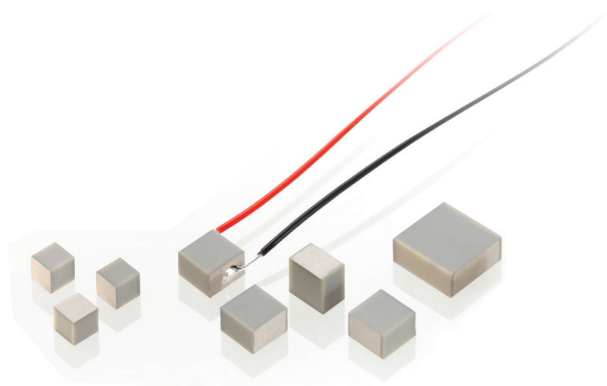


## PICMA® Chip Actuators

### Miniature Multilayer Piezo Actuators



### PLOxx

- Superior lifetime
- Ultra-compact: From 2 mm × 2 mm × 2 mm
- Ideal for dynamic operation
- Microsecond response
- Subnanometer resolution
- UHV-compatible to 10<sup>-9</sup> hPa

#### Piezo linear actuator with PICMA® multilayer technology

Operating voltage -20 to 100 V. Ceramic insulation, polymer free. Humidity resistance. UHV-compatible to 10<sup>-9</sup> hPa, no outgassing, high bakeout temperature. Flexible thanks to numerous designs. Versions with rectangular, round or annular cross section.

#### Possible modifications

PTFE-insulated wire leads. Various geometric shapes, inner hole. Precision-ground ceramic end plates.

#### Fields of application

Industry and research. For laser tuning, microdispensing, life sciences.

## Specifications

	PL022.3x	PL033.3x	PL055.3x	PL088.3x	Unit	Tolerance
Side length (A)	2 ±0.10	3 ±0.10	5 ±0.15	10 ±0.20	mm	
Side length (B)	2 ±0.10	3 ±0.10	5 ±0.15	10 ±0.20	mm	
Height (TH)	2 ±0.10	2 ±0.10	2 ±0.10	2 ±0.10	mm	
Travel range*	2.2	2.2	2.2	2.2	µm	±20 %
Blocking force**	>120	>300	>500	>2000	N	
Electrical capacitance***	25	75	250	1100	nF	±20 %
Axial resonant frequency****	>600	>600	>600	>600	KHz	
Piezo ceramic	PIC252	PIC252	PIC252	PIC252		
Operating voltage range	-20 to 100	-20 to 100	-20 to 100	-20 to 100	V	
Operating temperature range	-40 to 150	-40 to 150	-40 to 150	-40 to 150	°C	
Recommended preload for dynamic operation	15	15	15	15	MPa	
Maximum preload for constant force	30	30	30	30	MPa	
Recommended electronics	E-610, E-617, E-831	E-610, E-617, E-831	E-610, E-617, E-831	E-610, E-617, E-831		

Standard connections: PL0xx.31: PTFE-insulated stranded wires, UHV compatible, 100 mm, AWG 32, Ø 0.49 mm; PL0xx.30: Solderable contacts

\* At 0 to 100 V. The values refer to the unattached component and can be lower when glued on.

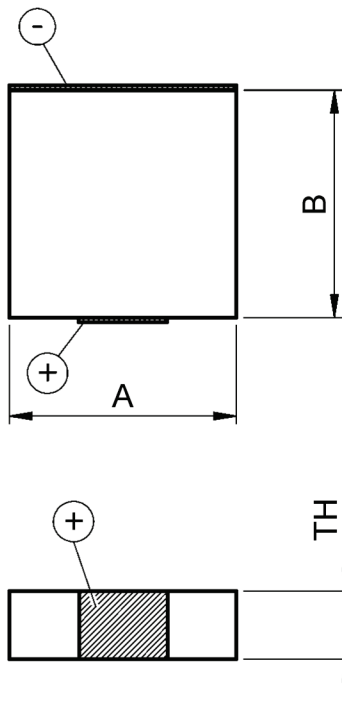
\*\* At 0 to 100 V

\*\*\* Measured at 1 V<sub>pp</sub>, 1 kHz, RT

\*\*\*\* Measured at 1 V<sub>pp</sub>, no load, unclamped. The value is halved for unilateral clamping. Depending on the installation situation, the lateral resonant frequencies can be lower than the axial resonant frequencies.

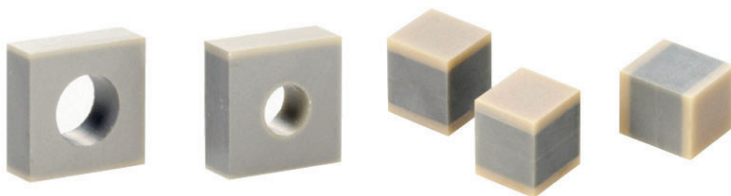
Ask about custom designs!

## Drawings / Images



*PL0xx: Dimensions*

Model	Length A	Length B	Height TH	Unit
PL022.3x	2 ( $\pm 0.10$ )	2 ( $\pm 0.10$ )	2 ( $\pm 0.10$ )	mm
PL033.3x	3 ( $\pm 0.10$ )	3 ( $\pm 0.10$ )	2 ( $\pm 0.10$ )	mm
PL055.3x	5 ( $\pm 0.15$ )	5 ( $\pm 0.15$ )	2 ( $\pm 0.10$ )	mm
PL088.3x	10 ( $\pm 0.20$ )	10 ( $\pm 0.20$ )	2 ( $\pm 0.10$ )	mm



On request, PICMA® Chip piezo actuators can be manufactured with all-ceramic insulated inner hole (left) or with precision-ground ceramic end plates (right).

## Ordering Information

### PICMA® Chip actuators

#### **PL088.30**

PICMA® Chip miniature piezo actuator, 2.2 µm travel range, 10 mm × 10 mm × 2 mm

#### **PL055.30**

PICMA® Chip miniature piezo actuator, 2.2 µm travel range, 5 mm × 5 mm × 2 mm

#### **PL033.30**

PICMA® Chip miniature piezo actuator, 2.2 µm travel range, 3 mm × 3 mm × 2 mm

#### **PL022.30**

PICMA® Chip miniature piezo actuator, 2.2 µm travel range, 2 mm × 2 mm × 2 mm

### PICMA® Chip actuators with PTFE-insulated stranded wires

#### **PL088.31**

PICMA® Chip miniature piezo actuator, 2.2 µm travel range, 10 mm × 10 mm × 2 mm, stranded wires

#### **PL055.31**

PICMA® Chip miniature piezo actuator, 2.2 µm travel range, 5 mm × 5 mm × 2 mm, stranded wires

#### **PL033.31**

PICMA® Chip miniature piezo actuator, 2.2 µm travel range, 3 mm × 3 mm × 2 mm, stranded wires

#### **PL022.31**

PICMA® Chip miniature piezo actuator, 2.2 µm travel range, 2 mm × 2 mm × 2 mm, stranded wires

Ask about custom designs!