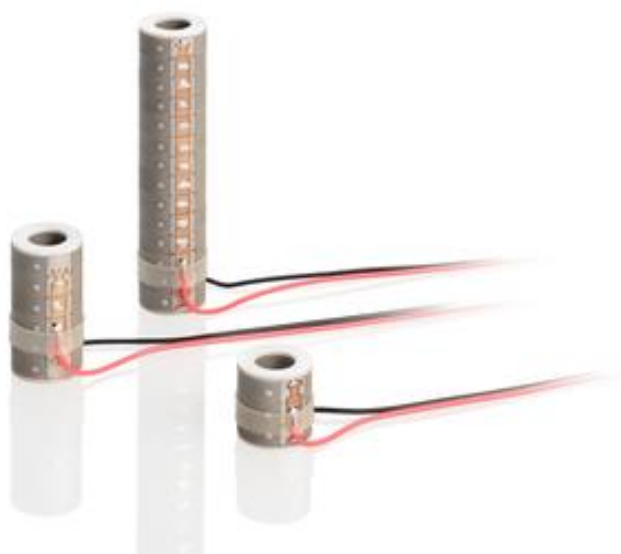


PICMA® Stack Multilayer Ring Actuator

With Inner Hole



P-080

- Inner hole for preload or as aperture for optical applications
- Superior lifetime
- Ideal for dynamic operation
- Microsecond response
- Subnanometer resolution
- UHV-compatible to 10^{-9} hPa

Multilayer stack actuators

Flexible travel range up to 30 μm . Round cross section for easy integration.

UHV-compatible to 10^{-9} hPa, no outgassing, high bakeout temperature.

PICMA® piezo linear actuators

Low operating voltage -20 to 100 V. Ceramic insulation. High reliability, long lifetime.

Possible modifications

Different heights, fast mounting according to customer requirements. Variety of shapes. Precision-ground end plates for reduced tolerances

Fields of application

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

Motion	Unit	Tolerance	P-080.310	P-080.311	P-080.340	P-080.341	P-080.390	P-080.391
Active axes			Z	Z	Z	Z	Z	Z
Travel range in Z, open loop, at 0 to 100 V	μm		5.5	5.5	11	11	25	25

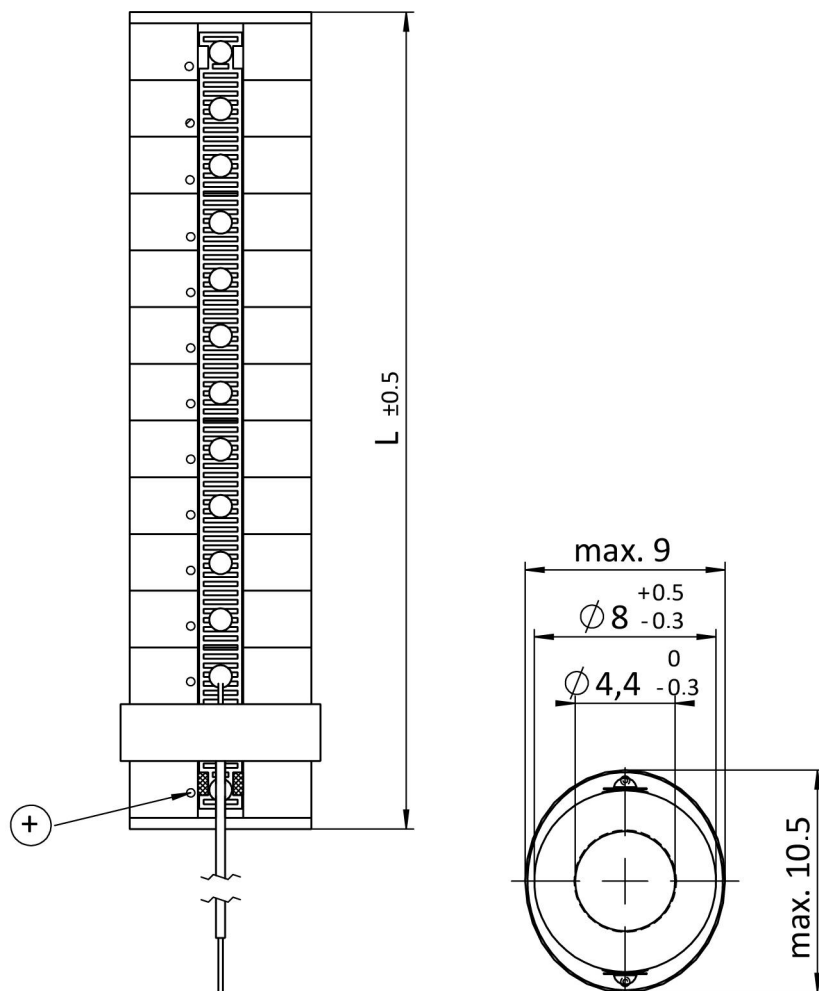
Drive Properties	Unit	Tolerance	P-080.310	P-080.311	P-080.340	P-080.341	P-080.390	P-080.391
Actuator type			Linear actuator	Linear actuator	Linear actuator	Linear actuator	Linear actuator	Linear actuator
Drive type			Piezo actuator/ PICMA® Stack	Piezo actuator/ PICMA® Stack	Piezo actuator/ PICMA® Stack	Piezo actuator/ PICMA® Stack	Piezo actuator/ PICMA® Stack	Piezo actuator/ PICMA® Stack
Operating voltage	V		-20 to 100	-20 to 100	-20 to 100	-20 to 100	-20 to 100	-20 to 100
Electrical capacitance in Z	μF	$\pm 20\%$	0.86	0.86	1.7	1.7	4	4

Mechanical Properties	Unit	Tolerance	P-080.310	P-080.311	P-080.340	P-080.341	P-080.390	P-080.391
Stiffness in Z	N/ μ m		145	145	75	75	34	34
Resonant frequency in Z, unloaded	kHz	$\pm 20\%$	135	135	85	85	40	40
Blocking force in Z	N	$\pm 20\%$	800	800	825	825	850	850
Recommended preload for dynamic operation	MPa		15	15	15	15	15	15
Maximum preload for constant force	MPa		30	30	30	30	30	30
Cross section			annular	annular	annular	annular	annular	annular
Material			Piezo ceramic. Ceramic end surfaces made of Al ₂ O ₃ .	Piezo ceramic. Ceramic end surfaces made of Al ₂ O ₃ .	Piezo ceramic. Ceramic end surfaces made of Al ₂ O ₃ .	Piezo ceramic. Ceramic end surfaces made of Al ₂ O ₃ .	Piezo ceramic. Ceramic end surfaces made of Al ₂ O ₃ .	Piezo ceramic. Ceramic end surfaces made of Al ₂ O ₃ .
Piezo material			PIC252	PIC252	PIC252	PIC252	PIC252	PIC252
Length	mm		8.5	8.5	16	16	36	36
Outer diameter	mm		8	8	8	8	8	8
Inner diameter	mm		4.4	4.4	4.4	4.4	4.4	4.4

Miscellaneous	Unit	Tolerance	P-080.310	P-080.311	P-080.340	P-080.341	P-080.390	P-080.391
Operating temperature range	°C		-40 to 150	-40 to 150	-40 to 150	-40 to 150	-40 to 150	-40 to 150
Vacuum class	hPa		10 ⁻⁹	10 ⁻⁹	10 ⁻⁹	10 ⁻⁹	10 ⁻⁹	10 ⁻⁹
Connector			Solderable contacts	Stranded wires, PTFE isolated, AWG 30, $\varnothing$ 0.61 mm	Solderable contacts	Stranded wires, PTFE isolated, AWG 30, $\varnothing$ 0.61 mm	Solderable contacts	Stranded wires, PTFE isolated, AWG 30, $\varnothing$ 0.61 mm
Cable length	m	± 5 mm		0.1		0.1		0.1
Recommended controllers / drivers			E-610, E-617, E-831, E-836	E-610, E-617, E-831, E-836	E-610, E-617, E-831, E-836	E-610, E-617, E-831, E-836	E-610, E-617, E-831, E-836	E-610, E-617, E-831, E-836

Travel range in Z, open loop: Tolerance $\pm 20\%$ with P-080.31x and P-080.34x models. Tolerance $\pm 10\%$ with P-080.39x models.
 Resonant frequency in Z, unloaded: Measured at 1 V_{pp}, unclamped. The value is halved for unilateral clamping.
 Electrical capacitance: Measured at 1 V_{pp}, 1 kHz, RT.
 All data at 0 to 100 V.
 Ask about customized versions.

Drawings / Images



P-080 PICMA® Stack multilayer ring actuator, dimensions in mm. P-080.31x models: L = 8.5 mm; P-080.34x models: L = 16 mm; P-080.39x models: L = 36 mm.

Order Information

P-080.310

PICMA® Stack multilayer ring actuator; PICMA® piezo actuator drive; 5.5 µm travel range (open loop); 8 mm × 4.4 mm × 8.5 mm (OD × ID × L); 800 N feed force; vacuum-compatible to 10⁻⁹ hPa; solderable contacts

P-080.311

PICMA® Stack multilayer ring actuator; PICMA® piezo actuator drive; 5.5 µm travel range (open loop); 8 mm × 4.4 mm × 8.5 mm (OD × ID × L); 800 N feed force; vacuum-compatible to 10⁻⁹ hPa; connecting wires, PTFE-insulated, AWG 30, Ø 0.61 mm; cable length 0.1 m

Order Information

P-080.340

PICMA® Stack multilayer ring actuator; PICMA® piezo actuator drive; 11 µm travel range (open loop); 8 mm × 4.4 mm × 16 mm (OD × ID × L); 825 N feed force; vacuum-compatible to 10⁻⁹ hPa; solderable contacts

P-080.341

PICMA® Stack multilayer ring actuator; PICMA® piezo actuator drive; 11 µm travel range (open loop); 8 mm × 4.4 mm × 16 mm (OD × ID × L); 825 N feed force; vacuum-compatible to 10⁻⁹ hPa; connecting wires, PTFE-insulated, AWG 30, Ø 0.61 mm; cable length 0.1 m

P-080.390

PICMA® Stack multilayer ring actuator; PICMA® piezo actuator drive; 25 µm travel range (open loop); 8 mm × 4.4 mm × 36 mm (OD × ID × L); 850 N feed force; vacuum-compatible to 10⁻⁹ hPa; solderable contacts

P-080.391

PICMA® Stack multilayer ring actuator; PICMA® piezo actuator drive; 25 µm travel range (open loop); 8 mm × 4.4 mm × 36 mm (OD × ID × L); 850 N feed force; vacuum-compatible to 10⁻⁹ hPa; connecting wires, PTFE-insulated, AWG 30, Ø 0.61 mm; cable length 0.1 m