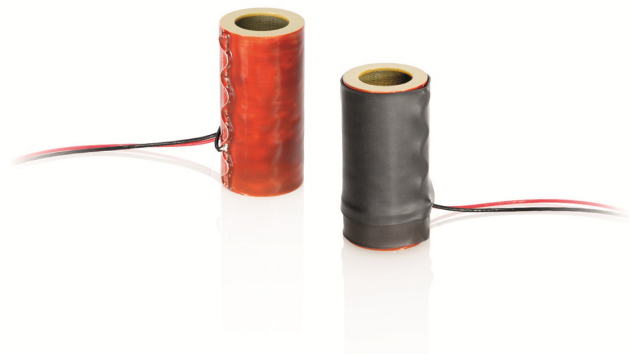


Ring Actuators

High-Load Piezo Actuators with Inner Hole

PICA Thru

- High load capacity
- Extreme reliability: $>10^9$ cycles
- Microsecond response time
- Subnanometer resolution
- Flexible thanks to wide range of designs



Stacked piezo linear actuator

Operating voltage 0 to 1000 V. Long lifetime without loss of performance. High specific displacement. A mechanical preload can be applied via inner holes.

Possible modifications

- Strain gauge sensors for positional stability
- Piezoceramic material
- Operating voltage range, displacement, layer thickness
- Load capacity, force generation
- Geometric shapes: round, rectangular, various diameters
- Endpiece: flat
- Integrated piezoelectric force detector layers
- Extended temperature range
- UHV-compatible versions to 10^{-9} hPa
- Nonmagnetic versions
- Reduced length tolerances

Application fields

Industry and research. For optics, precision mechanics and manufacturing, laser tuning.

Specifications

	Travel range	Diameter OD	Diameter ID	Length L	Blocking force	Stiffness	Electrical capacitance	Resonant frequency
	μm	mm	mm	mm	N	$\text{N}/\mu\text{m}$	nF	kHz
P-010.00H	5	10	5	7	1200	230	15	144
P-010.10H	15	10	5	15	1700	110	40	67
P-010.20H	30	10	5	27	1800	59	82	39
P-010.40H	60	10	5	54	1800	29	180	21
P-016.00H	5	16	8	7	2900	580	42	144
P-016.10H	15	16	8	15	4100	270	120	67
P-016.20H	30	16	8	27	4500	150	230	39
P-016.40H	60	16	8	52	4700	78	490	21
P-025.10H	15	25	16	16	7400	490	220	63
P-025.20H	30	25	16	27	8700	290	430	39
P-025.40H	60	25	16	51	9000	150	920	22
P-025.50H	80	25	16	66	9600	120	1200	17

Travel range: at 0 to 1000 V, tolerance -10/20 %

Length L: tolerance ± 0.5 mm

Blocking force: at 0 to 1000 V

Electrical capacitance: measured at $1 V_{pp}$, 1 kHz, RT, tolerance ± 20 %

Resonant frequency: measured at $1 V_{pp}$, unloaded, unclamped. The value is halved for unilateral clamping.

Piezoceramics: PIC151

Standard connections: FEP-insulated connecting wires, 100 mm, AWG 24, \varnothing 1.15 mm Operating voltage range: 0 V to 1000 V

Operating temperature range: -20 to 85 °C

Standard tips: ceramic rings (passive PZT)

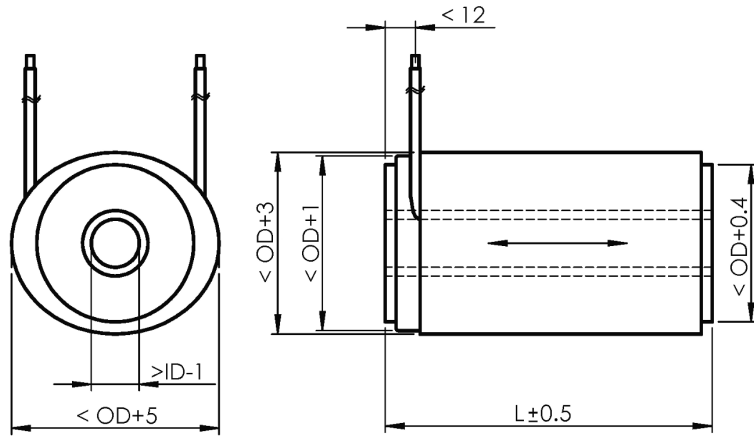
Lateral surface: polyolefin shrink tube, black (outside); epoxy resin (inside)

Recommended preload for dynamic operation: 15 MPa

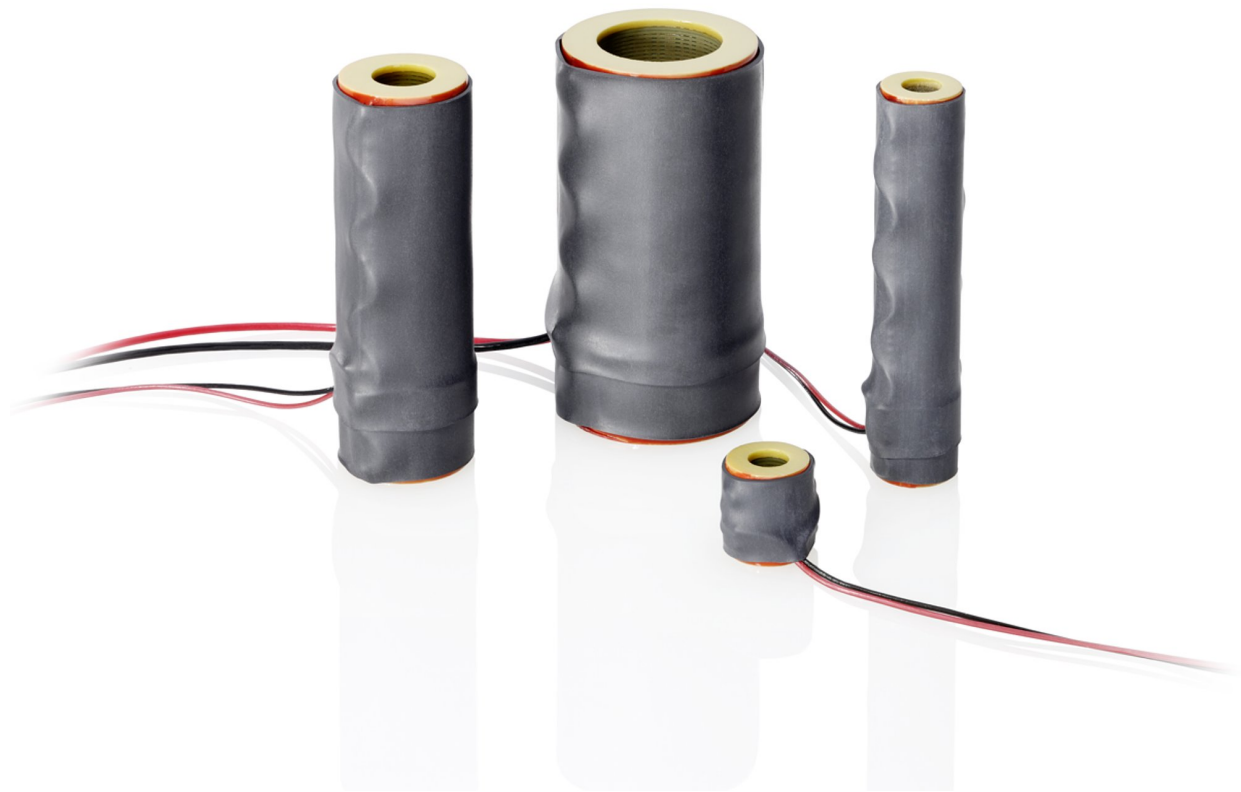
Maximum preload for constant force: 30 MPa

Custom versions or different specifications are available on request.

Drawings and images



PICA Thru, dimensions in mm. For length L, outer diameter OD, and inner diameter ID, see data table.



PICA Thru is manufactured in various sizes. Standard versions are delivered with connecting wires and are covered in black. Customized versions are available on request

Ordering information

P-010.00H

PICA Thru piezo actuator, 5 μ m travel range, OD 10 mm \times ID 5 mm \times L 7 mm

P-010.10H

PICA Thru piezo actuator, 15 μ m travel range, OD 10 mm \times ID 5 mm \times L 15 mm

P-010.20H

PICA Thru piezo actuator, 30 μ m travel range, OD 10 mm \times ID 5 mm \times L 27 mm

P-010.40H

PICA Thru piezo actuator, 60 μ m travel range, OD 10 mm \times ID 5 mm \times L 54 mm

P-016.00H

PICA Thru piezo actuator, 5 μ m travel range, OD 16 mm \times ID 8 mm \times L 7 mm

P-016.10H

PICA Thru piezo actuator, 15 μ m travel range, OD 16 mm \times ID 8 mm \times L 15 mm

P-016.20H

PICA Thru piezo actuator, 30 μ m travel range, OD 16 mm \times ID 8 mm \times L 27 mm

P-016.40H

PICA Thru piezo actuator, 60 μ m travel range, OD 16 mm \times ID 8 mm \times L 52 mm

P-025.10H

PICA Thru piezo actuator, 15 μ m travel range, OD 25 mm \times ID 16 mm \times L 16 mm

P-025.20H

PICA Thru piezo actuator, 30 μ m travel range, OD 25 mm \times ID 16 mm \times L 27 mm

P-025.40H

PICA Thru piezo actuator, 60 μ m travel range, OD 25 mm \times ID 16 mm \times L 51 mm

P-025.50H

PICA Thru piezo actuator, 80 μm travel range, OD 25 mm \times ID 16 mm \times L 66 mm

Custom versions or different specifications are available on request.