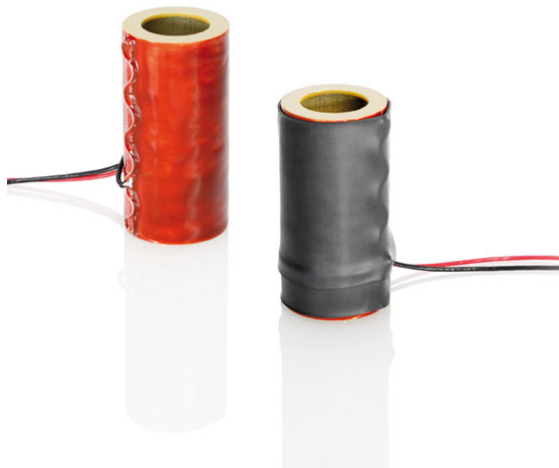


# PICA Thru Ring Actuators

HIGH- LOAD PIEZO ACTUATORS WITH INNER HOLE

## P-010.xxH – P-025.xxH



- + High load capacity
- + Extreme reliability: >10<sup>9</sup> cycles
- + Microsecond response
- + Sub- nanometer resolution
- + Large choice of designs

### Stacked piezo linear actuator

Operating voltage 0 to 1000 V. Long lifetime without derating. High specific displacement. A mechanical preload can be attached via inner holes

#### Available options

- SGS sensors for positional stability
- PZT ceramic material
- Operating voltage range, displacement, layer thickness
- Load capacity, force generation
- Geometric shapes: round, rectangular, various cross sections
- Mechanical interface: flat
- Integrated piezoelectric detector layers
- Special high / low temperature versions
- UHV- compatible versions up to 10<sup>-9</sup> hPa
- Non- magnetic versions
- Extra- tight length tolerances

#### Fields of application

Research and industry. For optics, precision mechanics and machining, laser tuning

### Specifications

|           | Displacement  | Diameter OD | Diameter ID | Length L    | Blocking force | Stiffness              | Electrical capacitance | Resonant frequency |
|-----------|---------------|-------------|-------------|-------------|----------------|------------------------|------------------------|--------------------|
|           | $\mu\text{m}$ | $\text{mm}$ | $\text{mm}$ | $\text{mm}$ | $\text{N}$     | $\text{N}/\mu\text{m}$ | $\text{nF}$            | $\text{kHz}$       |
| 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  $\pm 0.5$  mm.

Blocking force: at 0 to 1000 V.  
 Electrical capacitance: Tolerance  $\pm 20\%$ , measured at  $1 V_{pp}$ , 1 kHz, RT.  
 Resonant frequency at  $1 V_{pp}$ , unloaded, unclamped. The value is halved for unilateral clamping.

Piezo ceramic type: PIC151.  
 Standard connections: FEP- insulated wire leads, 100 mm, AWG 24,  $\varnothing$  1.15 mm.  
 Operating voltage: 0 to 1000 V.  
 Operating temperature range: -20 to 85 °C.  
 Standard mechanical interfaces: ceramic rings (passive PZT).  
 Outer surface: polyolefin shrink sleeving, black (outside); epoxy resin (inside).  
 Recommended preload for dynamic operation: 15 MPa.  
 Maximum preload for constant force: 30 MPa.

Custom designs or different specifications on request.

## Order Information

**P-010.00H**  
 PICA Thru Piezo Actuator, 5  $\mu$ m Travel Range, OD 10 mm  $\times$  ID 5 mm  $\times$  L 7 mm

**P-010.10H**  
 PICA Thru Piezo Actuator, 15  $\mu$ m Travel Range, OD 10 mm  $\times$  ID 5 mm  $\times$  L 15 mm

**P-010.20H**  
 PICA Thru Piezo Actuator, 30  $\mu$ m Travel Range, OD 10 mm  $\times$  ID 5 mm  $\times$  L 27 mm

**P-010.40H**  
 PICA Thru Piezo Actuator, 60  $\mu$ m Travel Range, OD 10 mm  $\times$  ID 5 mm  $\times$  L 54 mm

**P-016.00H**  
 PICA Thru Piezo Actuator, 5  $\mu$ m Travel Range, OD 16 mm  $\times$  ID 8 mm  $\times$  L 7 mm

**P-016.10H**  
 PICA Thru Piezo Actuator, 15  $\mu$ m Travel Range, OD 16 mm  $\times$  ID 8 mm  $\times$  L 15 mm

**P-016.20H**  
 PICA Thru Piezo Actuator, 30  $\mu$ m Travel Range, OD 16 mm  $\times$  ID 8 mm  $\times$  L 27 mm

**P-016.40H**  
 PICA Thru Piezo Actuator, 60  $\mu$ m Travel Range, OD 16 mm  $\times$  ID 8 mm  $\times$  L 52 mm

**P-025.10H**  
 PICA Thru Piezo Actuator, 15  $\mu$ m Travel Range, OD 25 mm  $\times$  ID 16 mm  $\times$  L 16 mm

**P-025.20H**  
 PICA Thru Piezo Actuator, 30  $\mu$ m Travel Range, OD 25 mm  $\times$  ID 16 mm  $\times$  L 27 mm

**P-025.40H**  
 PICA Thru Piezo Actuator, 60  $\mu$ m Travel Range, OD 25 mm  $\times$  ID 16 mm  $\times$  L 51 mm

**P-025.50H**  
 PICA Thru Piezo Actuator, 80  $\mu$ m Travel Range, OD 25 mm  $\times$  ID 16 mm  $\times$  L 66 mm

Custom designs or different specifications on request.

## Controllers / Drivers / Amplifiers

[E-481 PICA Piezo High- Power Amplifier / Controller](#)  
[E-482 PICA High- Power Piezo Driver / Servo Controller](#)  
[E-470 • E-472 • E-421 PICA Piezo Controller](#)  
[E-508 PICA Piezo Amplifier Module](#)  
[E-464 PICA Piezo Driver / Amplifier](#)  
[E-462 PICA Piezo Driver](#)

## Accessories

[P-177.50 Temperature Sensor and Protective Air Connection for PICA HVPZT](#)

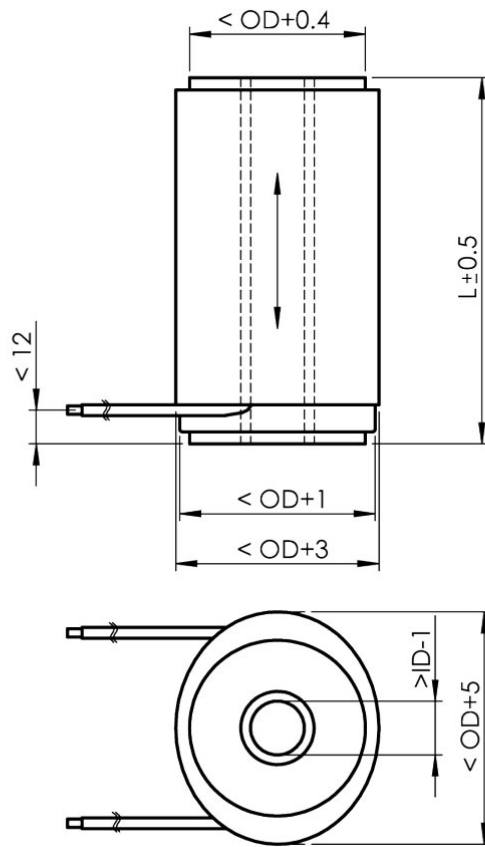
## Related Products

[P-007 – P-056 PICA Stack Piezo Actuators](#)  
[P-010.xxP – P-056.xxP PICA Power Piezo Actuators](#)  
[P-212 PICA Power Piezo Actuator](#)  
[P-225 PICA Power Piezo Actuators](#)  
[PT120 – PT140 Piezo Tubes](#)

## Technology

[Piezo Elements Made by Pressing Technology | For stacked piezo actuators, the piezo ceramic powder is pressed into compacts and then glued together as piezo stacks. Read more on the production process using pressing technology. Learn more ...](#)

**Drawings / Images**



PICA Thru, dimensions in mm



PICA Thru are manufactured in various sizes Standard versions are delivered with stranded wires and are covered in black Custom designs are available on request