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

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**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.
Specifications

<table>
<thead>
<tr>
<th></th>
<th>P-080.311</th>
<th>P-080.341</th>
<th>P-080.391</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions OD × ID × L</td>
<td>8 × 4.5 × 8.5</td>
<td>8 × 4.5 × 16</td>
<td>8 × 4.5 × 36</td>
<td>mm</td>
</tr>
<tr>
<td>Nominal travel range</td>
<td>5.5 ±20 %</td>
<td>11 ±20 %</td>
<td>25 ±10 %</td>
<td>µm</td>
</tr>
<tr>
<td>Blocking force</td>
<td>800</td>
<td>825</td>
<td>850</td>
<td>N</td>
</tr>
<tr>
<td>Stiffness</td>
<td>145</td>
<td>75</td>
<td>34</td>
<td>N/µm</td>
</tr>
<tr>
<td>Electrical capacitance</td>
<td>0.86</td>
<td>1.7</td>
<td>4.0</td>
<td>µF</td>
</tr>
<tr>
<td>Resonant frequency</td>
<td>135 ±20 %</td>
<td>85 ±20 %</td>
<td>40 ±20 %</td>
<td>kHz</td>
</tr>
</tbody>
</table>

All data at 0 to 100 V.
Axial resonant frequency: Measured at 1 V_p-p, unloaded, unclamped. The value is halved for unilateral clamping.
Electrical capacitance: Measured at 1 V_p-p, 1 kHz, RT, tolerance ±20 %.
Piezo ceramic type: PIC252. Ceramic end surfaces made of Al₂O₃.
Standard connections: PTFE-insulated stranded wires, UHV compatible, 100 mm, AWG 30, Ø 0.61 mm. For optional solderable contacts without stranded wires, change the last digit of the product number to 0 (e.g., P-080.310).
Operating voltage range: -20 to 100 V.
Operating temperature range: -40 to 150 °C.
Recommended preload for dynamic operation: 15 MPa.
Maximum preload for constant force: 30 MPa.
Ask about custom designs!

Drawings / images

P-080 PICMA® Stack multilayer ring actuator, dimensions in mm. Length L, see data table.
Ordering Information

Actuators with PTFE-insulated stranded wires

**P-080.311**
PICMA® Stack multilayer ring actuator with inner hole, 5.5 µm travel range, OD 8 mm × ID 4.5 mm × L 8.5 mm, stranded wires

**P-080.341**
PICMA® Stack multilayer ring actuator with inner hole, 11 µm travel range, OD 8 mm × ID 4.5 mm × L 16 mm, stranded wires

**P-080.391**
PICMA® Stack multilayer ring actuator with inner hole, 25 µm travel range, OD 8 mm × ID 4.5 mm × L 36 mm, stranded wires

Actuators with solderable contacts

**P-080.310**
PICMA® Stack multilayer ring actuator with inner hole, 5.5 µm travel range, OD 8 mm × ID 4.5 mm × L 8.5 mm

**P-080.340**
PICMA® Stack multilayer ring actuator with inner hole, 11 µm travel range, OD 8 mm × ID 4.5 mm × L 16 mm

**P-080.390**
PICMA® Stack multilayer ring actuator with inner hole, 25 µm travel range, OD 8 mm × ID 4.5 mm × L 36 mm

Ask about custom designs!