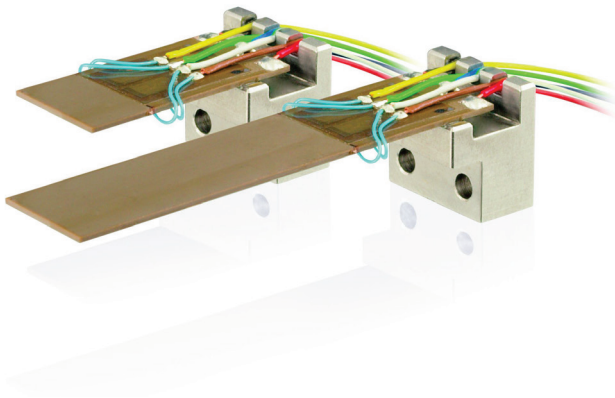


# PICMA® Multilayer Bending Actuators

With Position Sensor



## P-871

- Position sensor for high accuracy
- Nanometer resolution
- Displacement to 2 mm
- All-ceramic insulated for extended lifetime
- Ideal for scanning applications
- Vacuum-compatible versions
- Low operating voltage
- Mounting hardware included
- Special OEM and benchtop amplifiers available

### Fields of application

- Wire bonders
- Pneumatic valves
- Fiber optic positioning / switches
- Laser beam steering
- Micromanipulation
- Micropositioning
- Nanotechnology

### Outstanding lifetime thanks to PICMA® piezo actuators

The patented PICMA® piezo actuators are all-ceramic insulated. This protects them against humidity and failure resulting from an increase in leakage current. PICMA® actuators offer an up to ten times longer lifetime than conventional polymer-insulated actuators. 100 billion cycles without a single failure are proven.

	P-871.112	P-871.122	P-871.127	P-871.128	P-871.140	Unit	Tolerance
Operating voltage range	0 to 60 (±30)	0 to 60 (±30)	0 to 60 (±30)	0 to 60 (±30)	0 to 60 (±30)	V	
Travel range, closed loop	±100	±310	±450	±450	±1000	µm	
Integrated position sensor	SGS	SGS	SGS	SGS	SGS		
Linearity error, closed loop	0.5	0.5	0.5	0.5	0.5	%	
Static large-signal stiffness	0.02	0.01	0.003	0.002	0.0007	N/µm	
Blocking force	±2.1	±1.25	±1.1	±0.55	±0.5	N	±20 %
Electrical capacitance*	2 × 1.1	2 × 2.5	2 × 3.4	2 × 1.2	2 × 4.1	µF	±20 %
Resonant frequency, no load**	1800	600	420	360	160	Hz	±20 %
Resonant frequency, under load, 6.5 g	480	220	145	100	60	Hz	±20 %
Operating temperature range	-20 to 150	-20 to 85	-20 to 85	-20 to 150	-20 to 85	°C	
Cable length	>1	>1	>1	>1	>1	m	
Sensor and voltage connection	LEMO	LEMO	LEMO	LEMO	LEMO		
Recommended electronics	E-651 • E-614	E-651 • E-614	E-651 • E-614	E-651 • E-614	E-651 • E-614		

\* Electrical capacitance: Measured at 1 V<sub>pp</sub>, 1 kHz, RT, tolerance ±20 %.

\*\* Resonant frequency: Measured at 1 V<sub>pp</sub>, unloaded.

The resolution of the system is only limited by the noise of the amplifier and measuring technology because PI piezo actuators are free of friction.

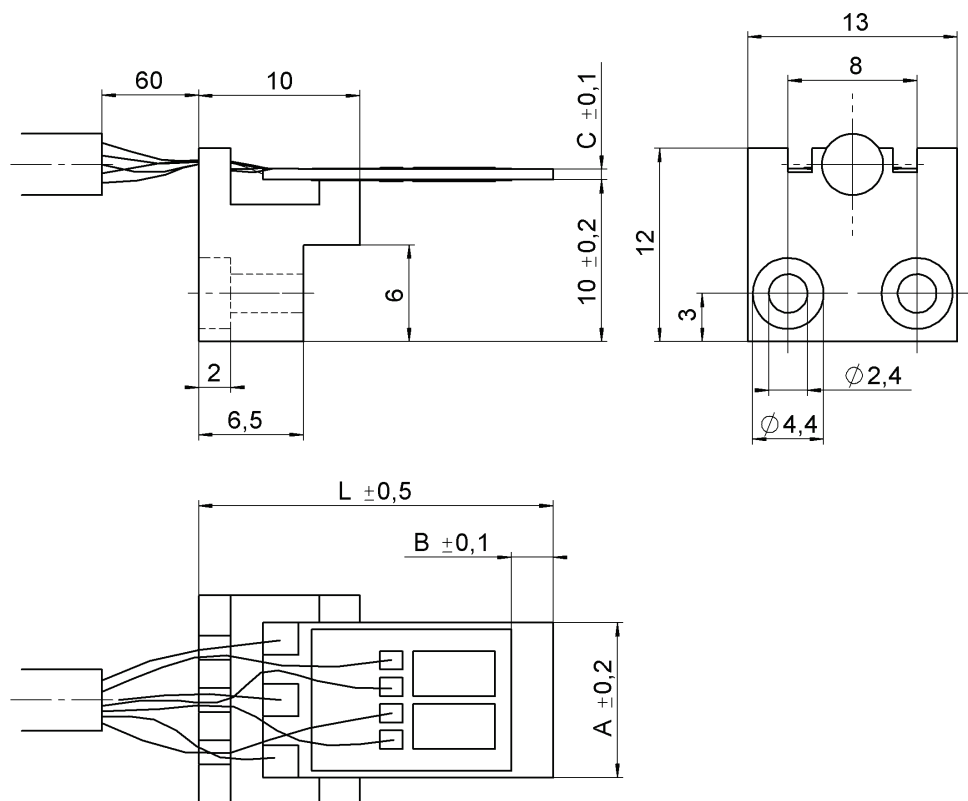
All specifications depend on actual clamping conditions and mechanical load applied.

All specifications based on room temperature (22 °C ±3 °C).

Different specifications on request.

Ask about customized versions.

## Drawings / Images



	L	A	B	C
P-871.112	22	9,6	2,6	0,65
P-871.122	29	9,6	9,6	0,65
P-871.127	35	9,6	15,6	0,65
P-871.128	40	6,25	17	0,75
P-871.140	49	11	29,1	0,60

*P-871, dimensions in mm.*

## Ordering Information

### **P-871.112**

PICMA® multilayer piezo bending actuator, 200 µm, 9.6 mm width, strain gauge sensor

### **P-871.122**

PICMA® multilayer piezo bending actuator, 620 µm, 9.6 mm width, strain gauge sensor

### **P-871.127**

PICMA® multilayer piezo bending actuator, 900 µm, 9.6 mm width, strain gauge sensor

### **P-871.128**

PICMA® multilayer piezo bending actuator, 900 µm, 6.3 mm width, strain gauge sensor

### **P-871.140**

PICMA® multilayer piezo bending actuator, 2000 µm, 11 mm width, strain gauge sensor