

Piezo Actuators

For Light and Medium Loads



P-810 • P-830

- Outstanding lifetime due to PICMA® piezo actuators
- Travel range to 60 µm
- Push force capacity to 1000 N
- Pull force capacity to 5 N
- Microsecond response
- Subnanometer resolution

Fields of application

- Static and dynamic precision positioning
- Fiber positioning
- Laser tuning
- Patch clamp
- 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.

Specifications

	P-810.10	P-810.20	P-810.30	P-830.10	P-830.20	P-830.30	P-830.40	Unit	Tolerance	
Travel range at 0 to 100 V	15	30	45	15	30	45	60	μm	±20 %	
Resolution*	0.15	0.3	0.45	0.15	0.3	0.45	0.6	nm		
Static large-signal stiffness**	14	7	4	57	27	19	15	N/μm	±20 %	
Push force capacity	50	50	50	1000	1000	1000	1000	N		
Pull force capacity	1	1	1	5	5	5	5	N		
Torque on tip	0.08	0.08	0.08	0.2	0.2	0.2	0.2	Nm	max.	
Electrical capacitance	0.3	0.7	1	1.5	3	4.5	6	μF	±20 %	
Resonant frequency f_0 (no load)	22	15	12	23	14	10	8.5	kHz	±20 %	
Operating temperature range	-20 to 80	-20 to 80	-20 to 80	-20 to 80	-20 to 80	-20 to 80	-20 to 80	°C		
Mass	4	6	8	10	16	21	27	g	±5 %	
Length L	20	38	56	22	40	58	76	mm	±0.3	
Recommended electronics	E-503, E-505, E-610, E-617, E-621, E-625, E-663, E-709, E-831	E-503, E-505, E-610, E-617, E-621, E-625, E-663, E-709, E-831	E-503, E-505, E-610, E-617, E-621, E-625, E-663, E-709, E-831	E-503, E-505, E-610, E-617, E-621, E-625, E-663, E-709, E-831	E-503, E-505, E-610, E-617, E-621, E-625, E-663, E-709, E-831	E-503, E-505, E-610, E-617, E-621, E-625, E-663, E-709, E-831	E-503, E-505, E-610, E-617, E-621, E-625, E-663, E-709, E-831	E-503, E-505, E-610, E-617, E-621, E-625, E-663, E-709, E-831		

* 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.

** Dynamic small-signal stiffness is approx. 30 % higher.

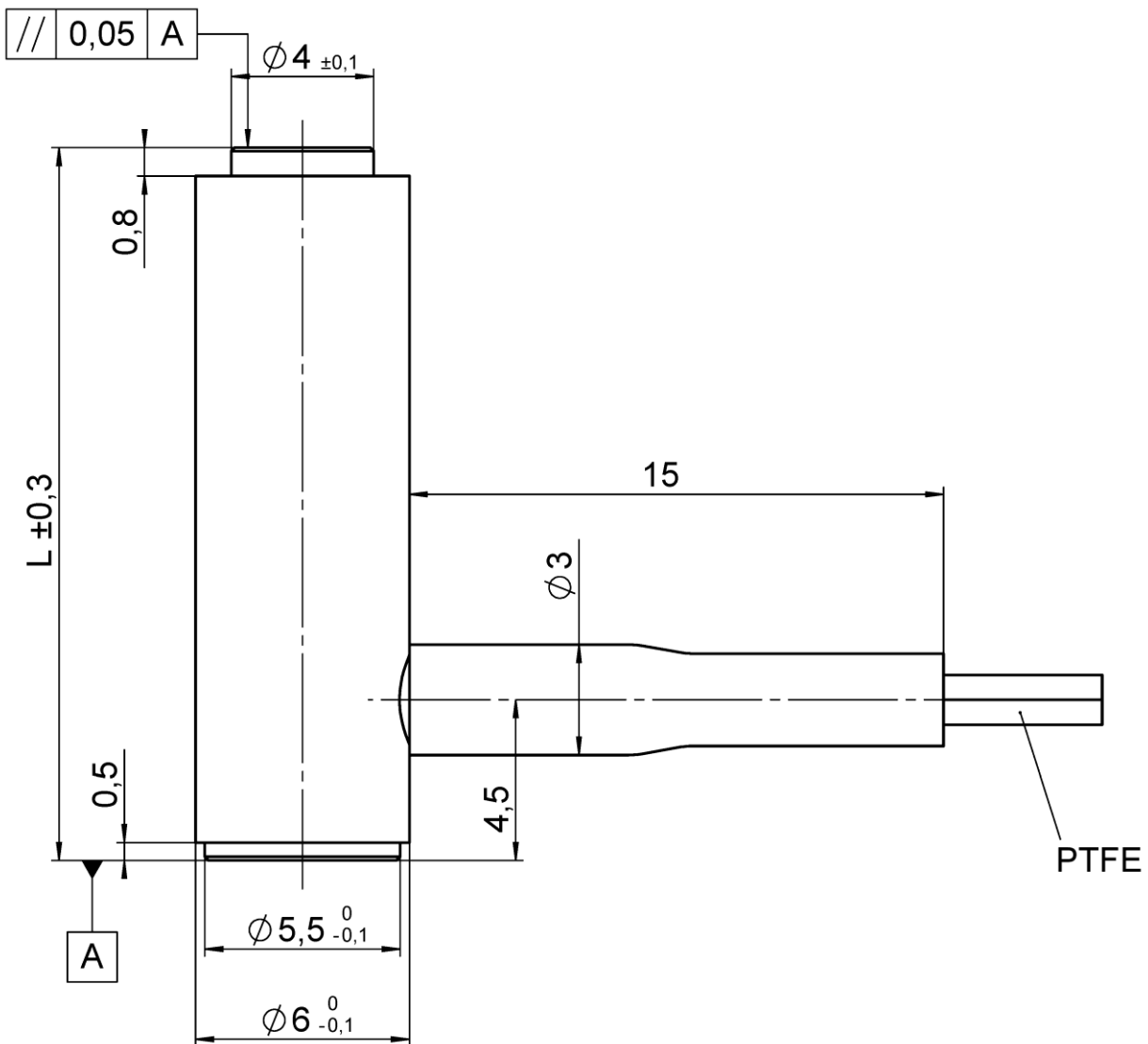
Housing: Nonmagnetic stainless steel. Tips: Stainless steel.

Recommended preload for dynamic operation: 10 to 20 MPa.

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

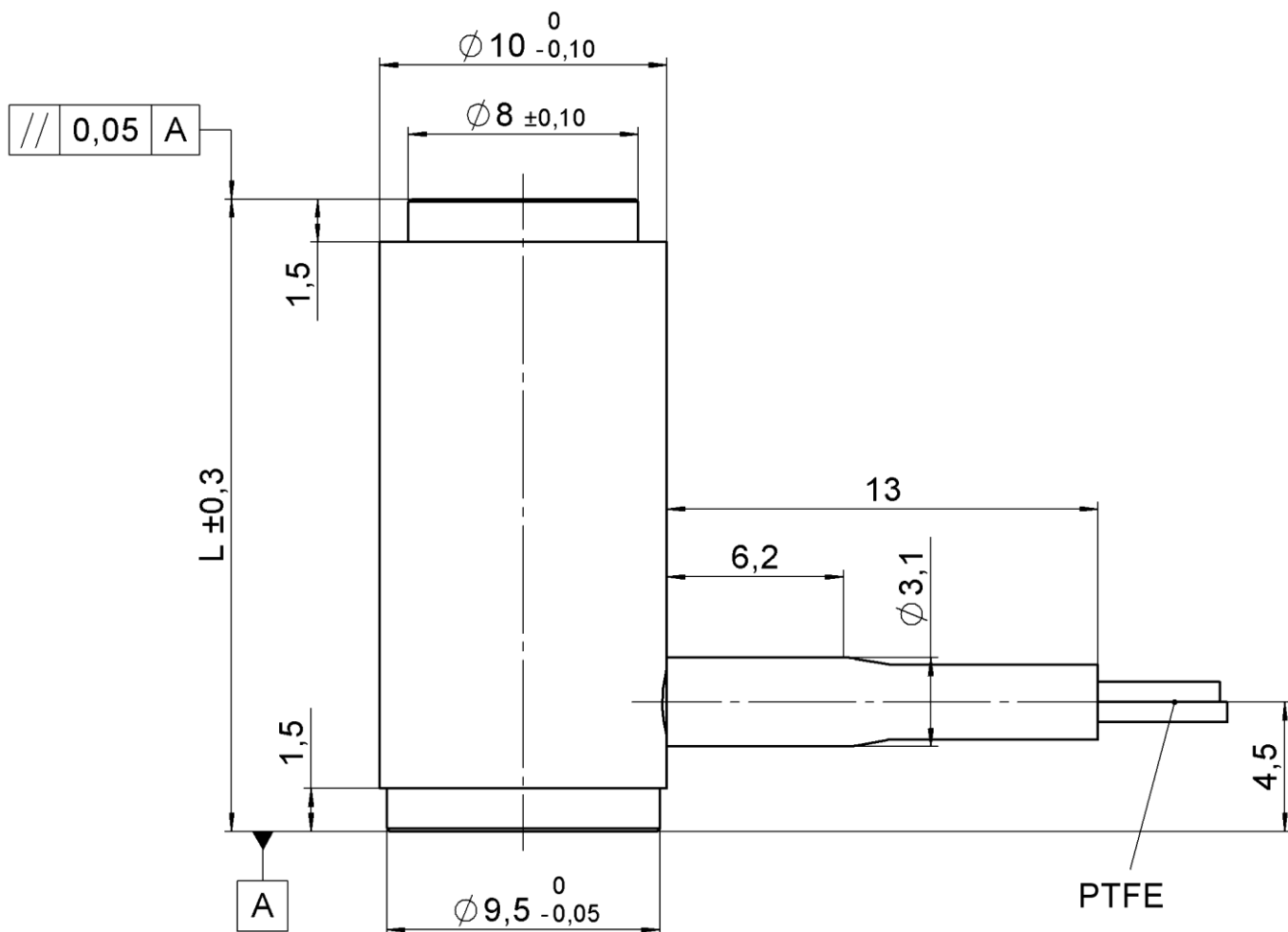
Ask about customized versions.

Drawings / Images



P-810.10	15 μ m	L=20
P-810.20	30 μ m	L=38
P-810.30	45 μ m	L=56

P-810, dimensions in mm. Voltage connection via PTFE-insulated stranded wires (length: 0.1 m).



P-830.10	15 μm	L= 22 mm
P-830.20	30 μm	L= 40 mm
P-830.30	45 μm	L= 58 mm
P-830.40	60 μm	L= 76 mm

P-830, dimensions in mm. Voltage connection via PTFE-insulated stranded wires (length: 0.1 m).

Ordering Information

P-810.10

Piezo actuator, 15 μm travel range, 50 N / 1 N

P-810.20

Piezo actuator, 30 μm travel range, 50 N / 1 N

P-810.30

Piezo actuator, 45 μm travel range, 50 N / 1 N

P-830.10

Piezo actuator, 15 μm travel range, 1000 N / 5 N

P-830.20

Piezo actuator, 30 μm travel range, 1000 N / 5 N

P-830.30

Piezo actuator, 45 μm travel range, 1000 N / 5 N

P-830.40

Piezo actuator, 60 μm travel range, 1000 N / 5 N