

Preloaded Piezo Actuators

For High Loads and Forces



P-844

- Outstanding lifetime due to PICMA® piezo actuators
- Travel range to 90 µm
- Push force capacity to 3000 N
- Pull force capacity to 700 N
- Microsecond response
- Subnanometer resolution
- Vacuum versions, optional water-resistant housing

Fields of application

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

Suitable for sophisticated vacuum applications

Piezo actuators do not require lubrication and do not cause abrasion. The all-ceramic isolated PICMA® actuators also do not require polymer isolation and are therefore ideal for vacuum applications.

Specifications

	P-844.10	P-844.20	P-844.30	P-844.40	P-844.60	Unit	Tolerance
Travel range at 0 to 100 V	15	30	45	60	90	μm	±20 %
Resolution*	0.15	0.3	0.45	0.6	0.9	nm	
Static large-signal stiffness**	225	107	75	57	38	N/μm	±20 %
Push force capacity	3000	3000	3000	3000	3000	N	
Pull force capacity	700	700	700	700	700	N	
Torque on tip	1	1	1	1	1	Nm	max.
Electrical capacitance	6	12	18	24	36	μF	±20 %
Resonant frequency f_0 (no load)	16	12	9	7.5	5.5	kHz	±20 %
Operating temperature range	-40 to 80	-40 to 80	-40 to 80	-40 to 80	-40 to 80	°C	
Mass without cable	84	108	132	156	204	g	±5 %
Length L	47	65	83	101	137	mm	
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	

* 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.

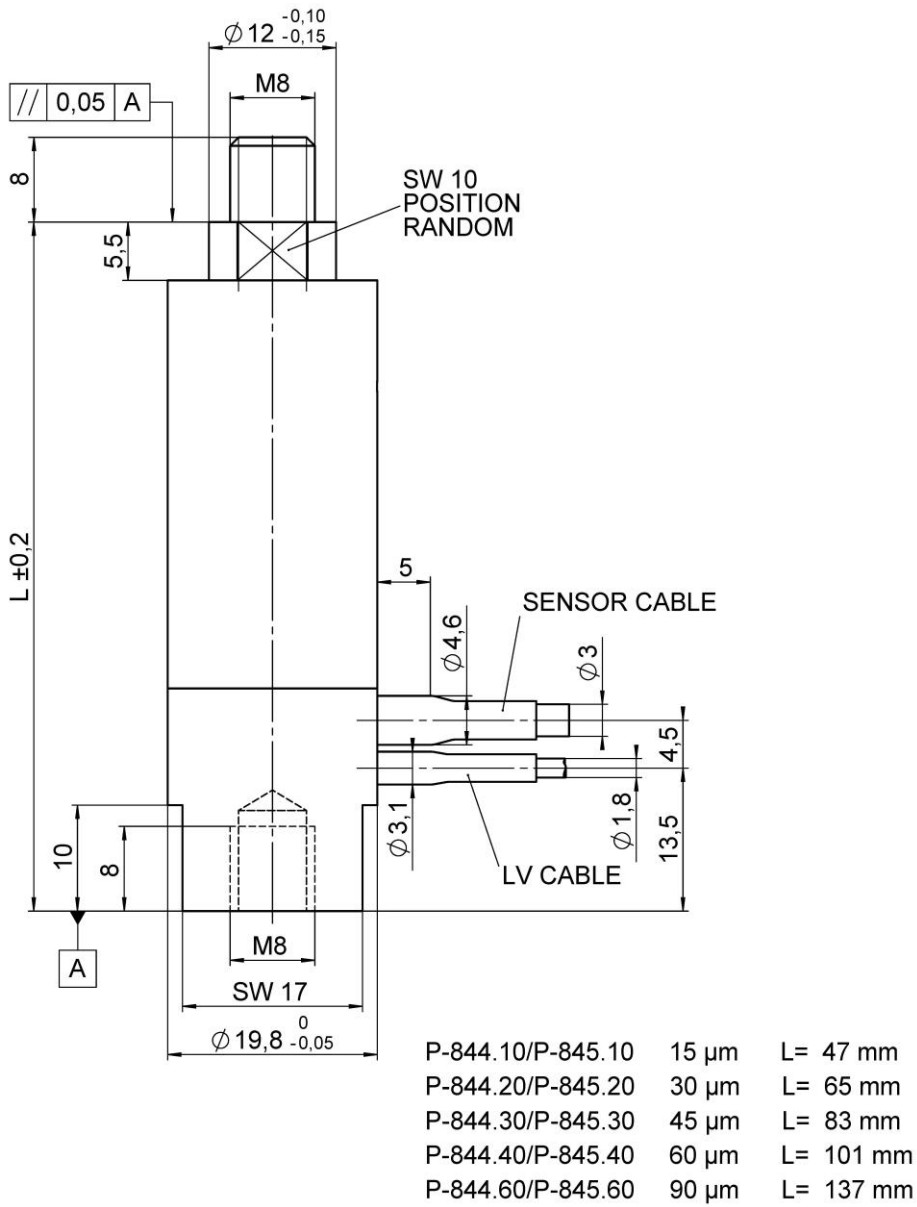
Voltage connection: LEMO FFA.00.250. Coaxial cable RG 178, 1 m.

Housing / tip material: Stainless steel.

Vacuum versions to 10^{-6} hPa are available under the following ordering number: P-844.x0V.

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

Drawings / Images



P-844 / P-845, dimensions in mm. Sensor included only with P-845.

Ordering Information

Actuators without sensor

P-844.10

Preloaded piezo actuator, 15 µm travel range, 3000 N / 700 N

P-844.20

Preloaded piezo actuator, 30 µm travel range, 3000 N / 700 N

P-844.30

Preloaded piezo actuator, 45 µm travel range, 3000 N / 700 N

P-844.40

Preloaded piezo actuator, 60 µm travel range, 3000 N / 700 N

P-844.60

Preloaded piezo actuator, 90 µm travel range, 3000 N / 700 N

Actuators without sensor, vacuum-compatible

P-844.10V

Preloaded piezo actuator, 15 µm travel range, 3000 N / 700 N, vacuum compatible to 10^{-6} hPa

P-844.20V

Preloaded piezo actuator, 30 µm travel range, 3000 N / 700 N, vacuum compatible to 10^{-6} hPa

P-844.30V

Preloaded piezo actuator, 45 µm travel range, 3000 N / 700 N, vacuum compatible to 10^{-6} hPa

P-844.40V

Preloaded piezo actuator, 60 µm travel range, 3000 N / 700 N, vacuum compatible to 10^{-6} hPa

P-844.60V

Preloaded piezo actuator, 90 µm travel range, 3000 N / 700 N, vacuum compatible to 10^{-6} hPa

Actuators with position sensor available under P-845.