

PICA Power Piezo Actuators

Preloaded High-Load Piezo Actuators (HVPZT) with Sensor Option



P-235

- Extremely high stiffness
- Push force capacity to 30000 N
- Pull force capacity to 3500 N
- Travel range to 180 µm
- Options: Vacuum, high-temperature versions, waterproof housing

Fields of application

- Active vibration absorber
- Adaptive mechanics
- Precision mechanics / micromechanics
- Optics
- Measuring technology / interferometry
- Adaptive systems technology
- Switching
- Laser tuning
- Force generation / materials testing
- Nanotechnology

PICA Power piezo actuators for high loads

PICA Power high-load stack actuators are reliable and offer long travel ranges with large loads. The actuators are suitable for demanding loads with high temperatures.

Suitable for sophisticated vacuum applications

Piezo actuators do not require lubrication and do not cause abrasion. Versions are available for vacuum to 10^{-9} hPa and for particularly high or low operating temperatures.

Specifications

	P-235.10	P-235.20	P-235.40	P-235.80	P-235.90	Unit	Tolerance
Operating voltage range	0 to 1000	0 to 1000	0 to 1000	0 to 1000	0 to 1000	V	
Motion and positioning							
Travel range, closed loop*	15	30	60	120	180	μm	
Resolution, closed loop*	0.3	0.6	1.2	2.4	3.6	nm	typ.
Resolution, open loop**	0.15	0.3	0.6	1.2	1.8	nm	typ.
Linearity error*	0.2	0.2	0.2	0.2	0.2	%	typ.
Mechanical properties							
Static large-signal stiffness in motion direction***	860	600	380	210	150	N/μm	±20 %
Resonant frequency, no load	14	10	7	4	2.8	kHz	±20 %
Push/pull force capacity in motion direction	30000 / 3500	30000 / 3500	30000 / 3500	30000 / 3500	30000 / 3500	N	max.
Shear load	707	420	232	147	147	N	max.
Torque on tip	2	2	2	2	2	Nm	max.
Drive properties							
Piezo ceramic	PICA Power	PICA Power	PICA Power	PICA Power	PICA Power		
Electrical capacitance	550	1100	2400	5100	7800	nF	±20 %
Miscellaneous							
Operating temperature range	-40 to 80	-40 to 80	-40 to 80	-40 to 80	-40 to 80	°C	
Mass	580	690	940	1400	1900	g	±5 %
Recommended electronics	E-462, E-464, E-470 • E-472 • E-421, E-481, E-482, E-508	E-462, E-464, E-470 • E-472 • E-421, E-481, E-482, E-508	E-462, E-464, E-470 • E-472 • E-421, E-481, E-482, E-508	E-462, E-464, E-470 • E-472 • E-421, E-481, E-482, E-508	E-462, E-464, E-470 • E-472 • E-421, E-481, E-482, E-508		

* Requires integrated strain gauge sensor. These versions are shipped with a performance report.

** 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. 50 % higher.

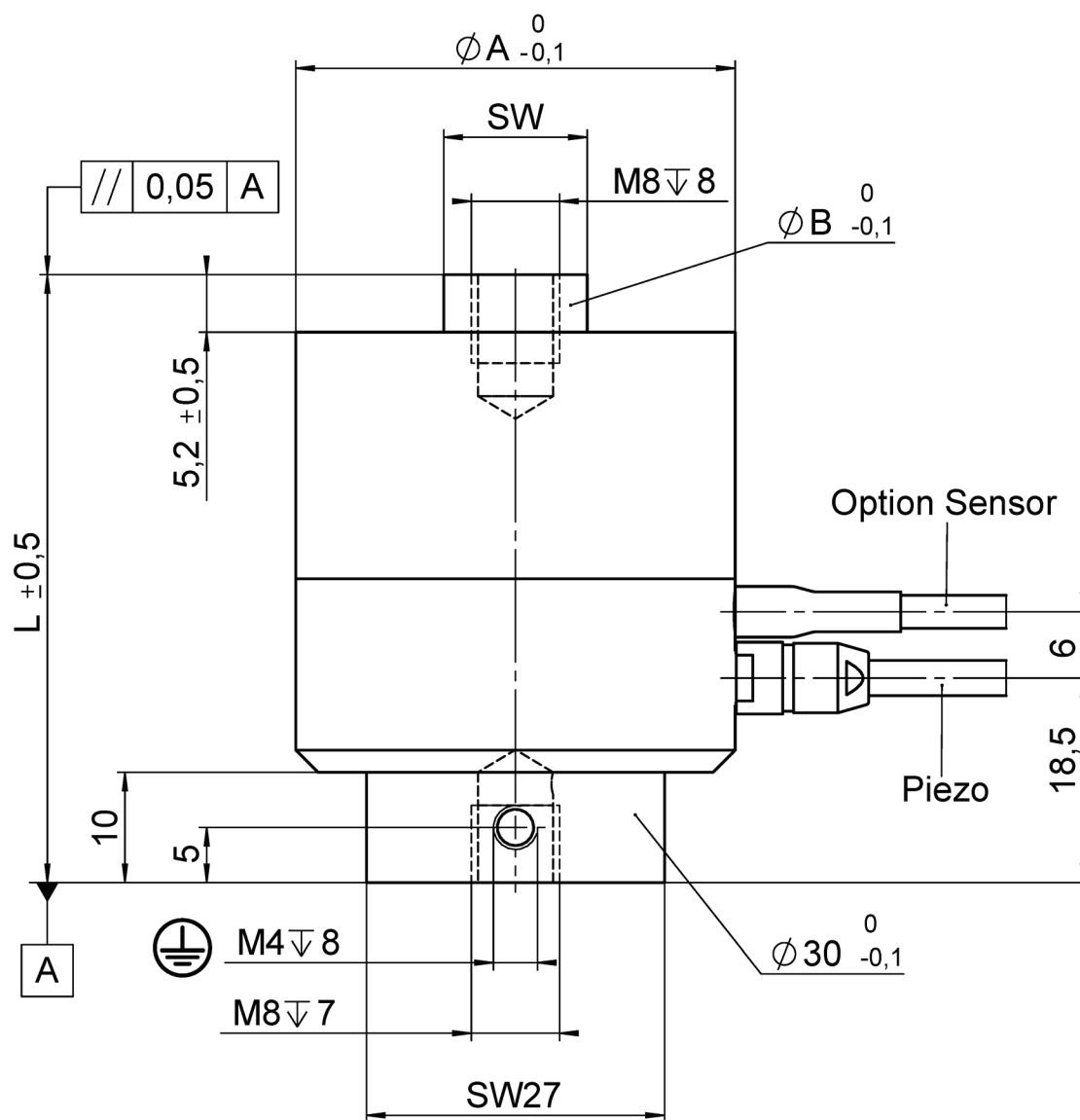
The operating voltage should not exceed 750 V in continuous operation.

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

Specifications for vacuum versions can differ.

Ask about customized versions.

Drawings / Images



	L [mm]	ϕA [mm]	ϕB [mm]	SW
P-235.1x	55	49,8	20	17
P-235.2x	68	49,8	20	17
P-235.4x	94	49,8	20	17
P-235.8x	147	49,8	20	17
P-235.9x	199	49,8	20	17

P-235, dimensions in mm

Ordering Information

Actuators without sensor

P-235.10

Preloaded high-load piezo actuator, 15 µm, 1000 V, 30000 N

P-235.20

Preloaded high-load piezo actuator, 30 µm, 1000 V, 30000 N

P-235.40

Preloaded high-load piezo actuator, 60 µm, 1000 V, 30000 N

P-235.80

Preloaded high-load piezo actuator, 120 µm, 1000 V, 30000 N

P-235.90

Preloaded high-load piezo actuator, 180 µm, 1000 V, 30000 N

Actuators without sensor, vacuum compatible

P-235.10V

Preloaded high-load piezo actuator, 15 µm, 1000 V, 30000 N, high temperature / vacuum

P-235.20V

Preloaded high-load piezo actuator, 30 µm, 1000 V, 30000 N, high temperature / vacuum

P-235.40V

Preloaded high-load piezo actuator, 60 µm, 1000 V, 30000 N, high temperature / vacuum

P-235.80V

Preloaded high-load piezo actuator, 120 µm, 1000 V, 30000 N, high temperature / vacuum

P-235.90V

Preloaded high-load piezo actuator, 180 µm, 1000 V, 30000 N, high temperature / vacuum

Actuators with sensor

P-235.1S

Preloaded high-load piezo actuator, 15 µm, 1000 V, 30000 N, SGS

P-235.2S

Preloaded high-load piezo actuator, 30 µm, 1000 V, 30000 N, SGS

P-235.4S

Preloaded high-load piezo actuator, 60 µm, 1000 V, 30000 N, SGS

P-235.8S

Preloaded high-load piezo actuator, 120 µm, 1000 V, 30000 N, SGS

P-235.9S

Preloaded high-load piezo actuator, 180 µm, 1000 V, 30000 N, SGS

Actuators with sensor, vacuum compatible

P-235.1SV

Preloaded high-load piezo actuator, 15 μm , 1000 V, 30000 N, SGS, high temperature / vacuum

P-235.2SV

Preloaded high-load piezo actuator, 30 μm , 1000 V, 30000 N, SGS, high temperature / vacuum

P-235.4SV

Preloaded high-load piezo actuator, 60 μm , 1000 V, 30000 N, SGS, high temperature / vacuum

P-235.8SV

Preloaded high-load piezo actuator, 120 μm , 1000 V, 30000 N, SGS, high temperature / vacuum

P-235.9SV

Preloaded high-load piezo actuator, 180 μm , 1000 V, 30000 N, SGS, high temperature / vacuum