

PICA Power Piezo Actuator

Preloaded Piezo Actuators (HVPZT) with Sensor Option



P-216

- Travel range to 180 µm
- Push force capacity to 4500 N
- Pull force capacity to 500 N
- Sub-ms response time
- Subnanometer resolution
- Optional: Suitable for vacuum, high temperature

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-216.1S	P-216.2S	P-216.4S	P-216.8S	P-216.9S	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*	210	140	80	50	32	N/μm	±20 %
Resonant frequency, no load	17	12	7	4.5	3	kHz	±20 %
Push/pull force capacity in motion direction	4500 / 500	4500 / 500	4500 / 500	4500 / 500	4500 / 500	N	max.
Shear load	60	36	23	23	23	N	max.
Torque on tip	1	1	1	1	1	Nm	max.
Drive properties							
Piezo ceramic	PICA Power	PICA Power	PICA Power	PICA Power	PICA Power		
Electrical capacitance	130	250	500	1000	1500	nF	±20 %
Miscellaneous							
Operating temperature range	-40 to 80	-40 to 80	-40 to 80	-40 to 80	-40 to 80	°C	
Mass	170	200	250	370	480	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	E-462, E-464, E-470 • E-472 • E-421, E-481, E-482, E-508	

* Dynamic small-signal stiffness is approx. 50 % higher.

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.

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

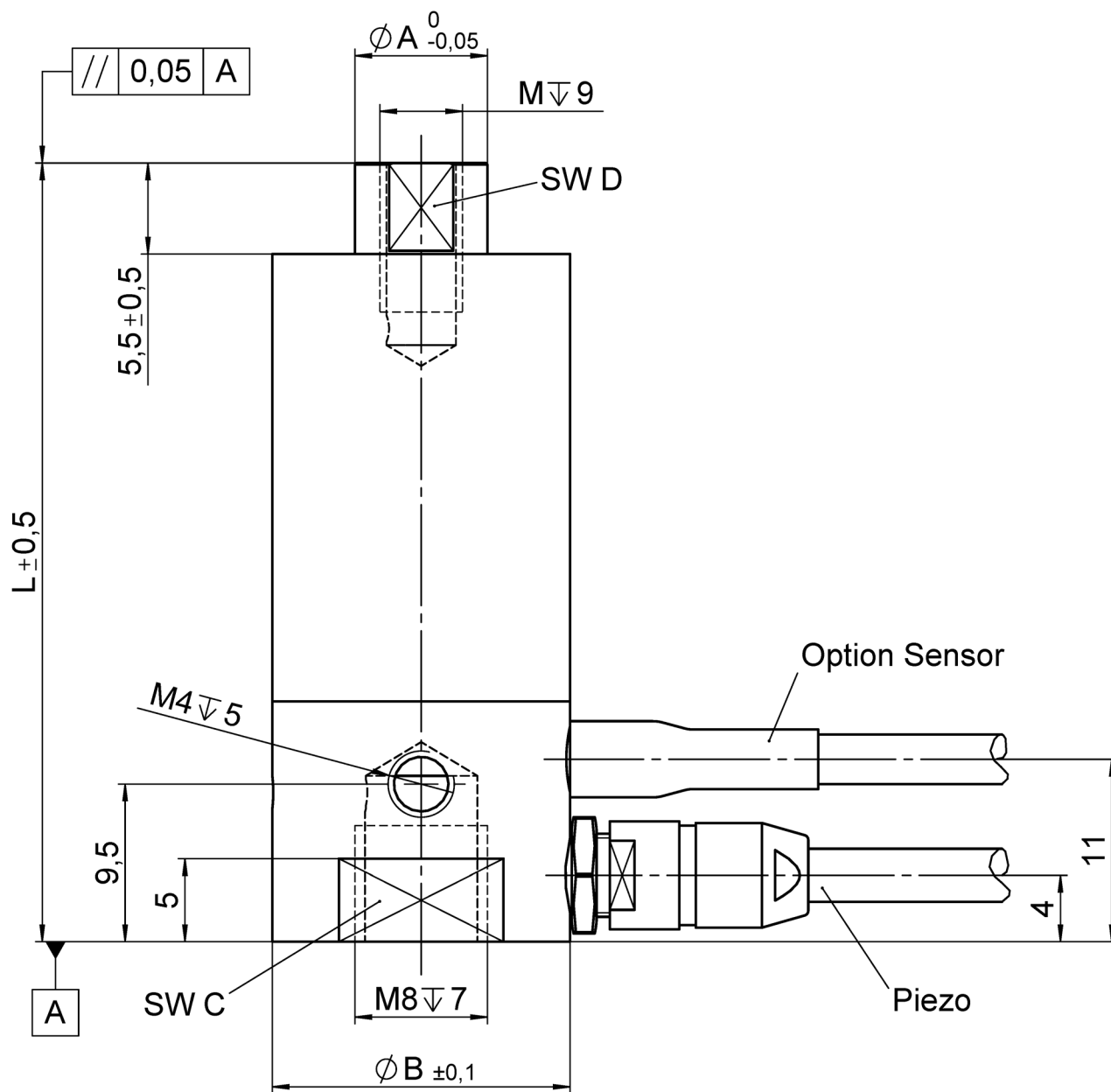
Versions without sensor are available under the P-216.x0 and P-216.x0V order numbers.

Vacuum versions are available under the P-216.xxV order numbers.

Specifications for vacuum versions can differ.

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

Drawings / Images



	L	A	B	C	D	M
P-216.1x	47	10	25	22	8	6
P-216.2x	60	10	25	22	8	6
P-216.4x	86	10	25	22	8	6
P-216.8x	139	10	25	22	8	6
P-216.9x	191	10	25	22	8	6

P-216, dimensions in mm

Ordering Information

Actuators without sensor

P-216.10

Preloaded piezo actuator, 15 μm , 1000 V, 4500 N

P-216.20

Preloaded piezo actuator, 30 μm , 1000 V, 4500 N

P-216.40

Preloaded piezo actuator, 60 μm , 1000 V, 4500 N

P-216.80

Preloaded piezo actuator, 120 μm , 1000 V, 4500 N

P-216.90

Preloaded piezo actuator, 180 μm , 1000 V, 4500 N

Actuators without sensor, vacuum compatible

P-216.10V

Preloaded piezo actuator, 15 μm , 1000 V, 4500 N, high temperature / vacuum

P-216.20V

Preloaded piezo actuator, 30 μm , 1000 V, 4500 N, high temperature / vacuum

P-216.40V

Preloaded piezo actuator, 60 μm , 1000 V, 4500 N, high temperature / vacuum

P-216.80V

Preloaded piezo actuator, 120 μm , 1000 V, 4500 N, high temperature / vacuum

P-216.90V

Preloaded piezo actuator, 180 μm , 1000 V, 4500 N, high temperature / vacuum

Actuators with sensor

P-216.1S

Preloaded piezo actuator, 15 μm , 1000 V, 4500 N, SGS

P-216.2S

Preloaded piezo actuator, 30 μm , 1000 V, 4500 N, SGS

P-216.4S

Preloaded piezo actuator, 60 μm , 1000 V, 4500 N, SGS

P-216.8S

Preloaded piezo actuator, 120 μm , 1000 V, 4500 N, SGS

P-216.9S

Preloaded piezo actuator, 180 μm , 1000 V, 4500 N, SGS

Actuators with sensor, vacuum compatible

P-216.1SV

Preloaded piezo actuator, 15 μm , 1000 V, 4500 N, SGS, high temperature / vacuum

P-216.2SV

Preloaded piezo actuator, 30 μm , 1000 V, 4500 N, SGS, high temperature / vacuum

P-216.4SV

Preloaded piezo actuator, 60 μm , 1000 V, 4500 N, SGS, high temperature / vacuum

P-216.8SV

Preloaded piezo actuator, 120 μm , 1000 V, 4500 N, SGS, high temperature / vacuum

P-216.9SV

Preloaded piezo actuator, 180 μm , 1000 V, 4500 N, SGS, high temperature / vacuum