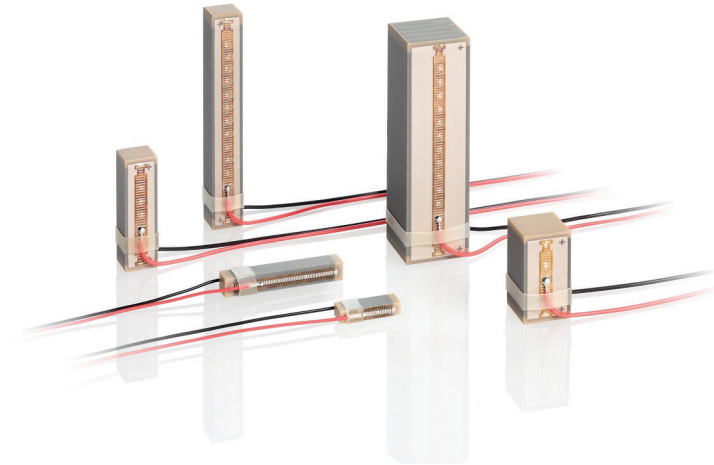


PICMA® Stack Multilayer Piezo Actuators

Ceramic-Insulated High-Power Actuators



P-882 – P-888

- Superior lifetime
- High stiffness
- Microsecond response
- Subnanometer resolution
- UHV-compatible to 10^{-9} hPa

PICMA® Stack multilayer piezo actuators with high reliability

Operating voltage -20 to 120 V. Ceramic insulation, polymer free. Humidity resistance. Excellent temperature stability. UHV-compatible to 10^{-9} hPa, no outgassing, high bakeout temperature. Ideal for dynamic operation. Flexible thanks to numerous designs. Encapsulated versions for operation in splash water or oil.

Custom designs with modified specifications

- For high operating temperature up to 200 °C
- Special electrodes for currents of up to 20 A
- Variable geometry: Inner hole, round, rectangular
- Ceramic or metal tips in many versions
- Applied SGS sensors for positional stability

Fields of application

Industry and research. Cryogenic environment with reduced displacement. For high-speed switching, precision positioning, active and adaptive systems.

Specifications

	Dimensions A × B × L	Nominal travel range	Max. travel range	Blocking force	Stiffness	Electrical capacitance	Resonant frequency
		μm	μm	N	$\text{N}/\mu\text{m}$	μF	kHz
P-882.11	3 mm × 2 mm × 9 mm	6.5	8	190	24	0.15	135
P-882.31	3 mm × 2 mm × 13.5 mm	11	13	210	16	0.27	90
P-882.51	3 mm × 2 mm × 18 mm	15*	18*	210	12	0.31	70
P-883.11	3 mm × 3 mm × 9 mm	6.5	8	290	36	0.21	135
P-883.31	3 mm × 3 mm × 13.5 mm	11	13	310	24	0.35	90
P-883.51	3 mm × 3 mm × 18 mm	15*	18*	310	18	0.48	70
P-885.11	5 mm × 5 mm × 9 mm	6.5	8	800	100	0.6	135
P-885.31	5 mm × 5 mm × 13.5 mm	11	13	870	67	1.1	90
P-885.51	5 mm × 5 mm × 18 mm	15*	18*	900	50	1.5	70
P-885.91	5 mm × 5 mm × 36 mm	32*	38*	950	25	3.1	40
P-887.31	7 mm × 7 mm × 13.5 mm	11	13	1700	130	2.2	90
P-887.51	7 mm × 7 mm × 18 mm	15*	18*	1750	100	3.1	70
P-887.91	7 mm × 7 mm × 36 mm	32*	38*	1850	50	6.4	40
P-888.31	10 mm × 10 mm × 13.5 mm	11	13	3500	267	4.3	90
P-888.51	10 mm × 10 mm × 18 mm	15*	18*	3600	200	6.0	70
P-888.91	10 mm × 10 mm × 36 mm	32*	38*	3800	100	13.0	40

Nominal travel range: At 0 to 100 V, tolerance $\pm 20\%$, * $\pm 10\%$.

Maximum travel range: At 0 to 120 V, tolerance $\pm 20\%$, * $\pm 10\%$.

Blocking force: At 0 to 120 V.

Electrical capacitance: Measured at 1 V_{pp} , 1 kHz, RT, tolerance $\pm 20\%$.

Resonant frequency: Measured at 1 V_{pp} , unloaded, unclamped. The value is halved for unilateral clamping, tolerance $\pm 20\%$.

Piezo ceramic type: PIC252.

Standard connections: P-882, P-883: PTFE-insulated stranded wires, UHV compatible, 100 mm, AWG 32, $\varnothing$ 0.49 mm. P-885, P-887, P-888: PTFE-insulated stranded wires, UHV compatible, 100 mm, AWG 30, $\varnothing$ 0.61 mm. For optional solderable contacts without stranded wires, change the last digit of the product number to 0 (e.g., P-882.10).

Operating voltage range: -20 to 120 V.

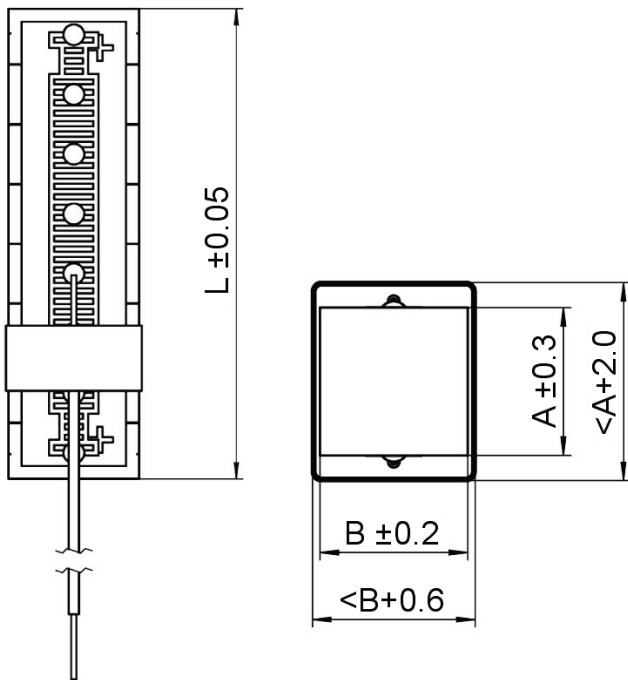
Operating temperature range: -40 to 150 °C.

Recommended preload for dynamic operation: 15 MPa.

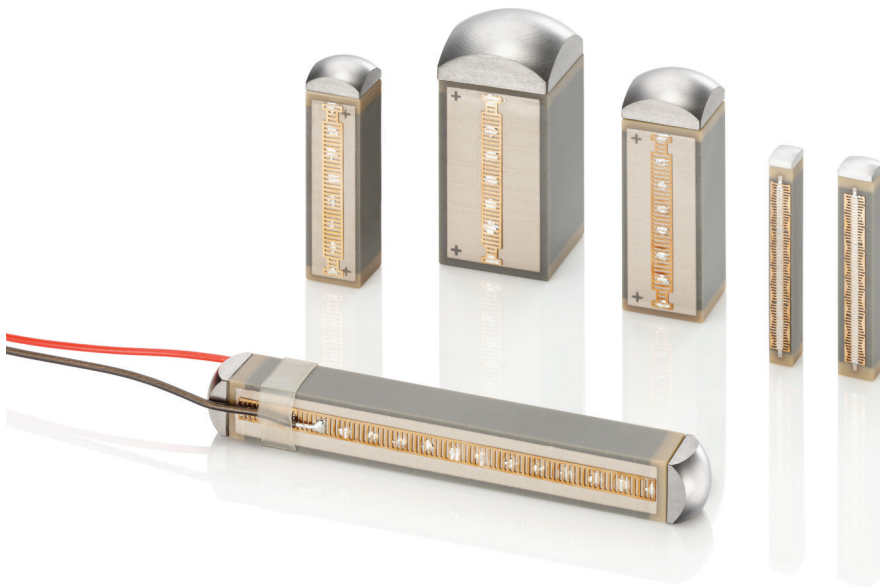
Maximum preload for constant force: 30 MPa.

Custom designs or different specifications on request.

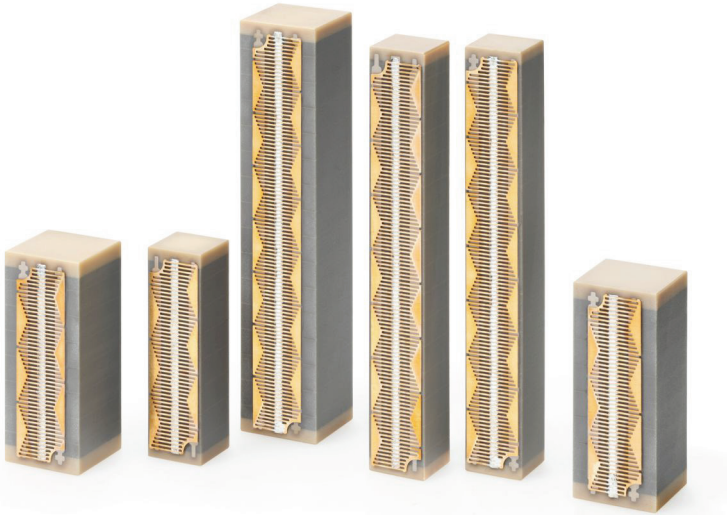
Drawings / images



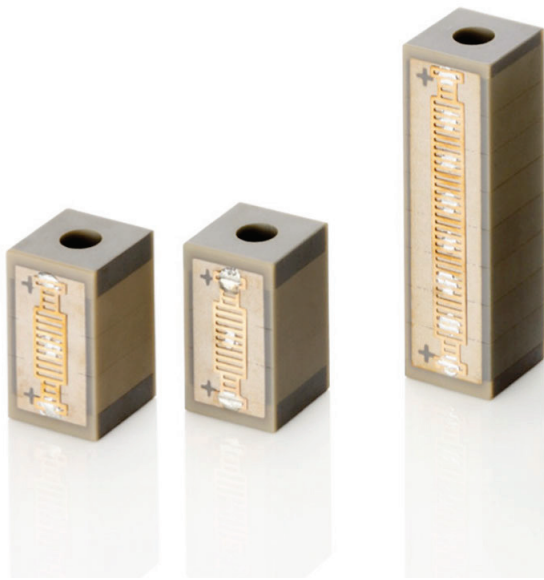
PICMA® Stack actuators, dimensions in mm. L, A, B, see data table.



Specific tips (tips and bases) can be mounted for mechanical coupling of the actuators. Possible designs are flat or spherical tips made of metal, ceramics, glass or sapphire. Application-specific tips can be manufactured on request.



For high dynamics applications, the multilayer actuators are equipped with electrodes for especially high currents of up to 20°A. Together with a high-power piezo amplifier such as the E-618, high operating frequencies in the kHz range can be attained. The rise times for the nominal displacement are a few tens of microseconds.



PICMA® multilayer actuators with all-ceramic insulated inner hole

Ordering Information

PICMA® Stack actuators with PTFE-insulated stranded wires

P-882.11

PICMA® piezo actuator, 6.5 µm travel range, 3 mm × 2 mm × 9 mm, stranded wires

P-882.31

PICMA® piezo actuator, 11 µm travel range, 3 mm × 2 mm × 13.5 mm, stranded wires

P-882.51

PICMA® piezo actuator, 15 µm travel range, 3 mm × 2 mm × 18 mm, stranded wires

P-883.11

PICMA® piezo actuator, 6.5 µm travel range, 3 mm × 3 mm × 9 mm, stranded wires

P-883.31

PICMA® piezo actuator, 11 µm travel range, 3 mm × 3 mm × 13.5 mm, stranded wires

P-883.51

PICMA® piezo actuator, 15 µm travel range, 3 mm × 3 mm × 18 mm, stranded wires

P-885.11

PICMA® piezo actuator, 6.5 µm travel range, 5 mm × 5 mm × 9 mm, stranded wires

P-885.31

PICMA® piezo actuator, 11 µm travel range, 5 mm × 5 mm × 13.5 mm, stranded wires

P-885.51

PICMA® piezo actuator, 15 µm travel range, 5 mm × 5 mm × 18 mm, stranded wires

P-885.91

PICMA® piezo actuator, 32 µm travel range, 5 mm × 5 mm × 36 mm, stranded wires

P-887.31

PICMA® piezo actuator, 11 µm travel range, 7 mm × 7 mm × 13.5 mm, stranded wires

P-887.51

PICMA® piezo actuator, 15 µm travel range, 7 mm × 7 mm × 18 mm, stranded wires

P-887.91

PICMA® piezo actuator, 32 µm travel range, 7 mm × 7 mm × 36 mm, stranded wires

P-888.31

PICMA® piezo actuator, 11 µm travel range, 10 mm × 10 mm × 13.5 mm, stranded wires

P-888.51

PICMA® piezo actuator, 15 µm travel range, 10 mm × 10 mm × 18 mm, stranded wires

P-888.91

PICMA® piezo actuator, 32 µm travel range, 10 mm × 10 mm × 36 mm, stranded wires

PICMA® Stack actuators with solderable contacts

P-882.10

PICMA® piezo actuator, 6.5 µm travel range, 3 mm × 2 mm × 9 mm

P-882.30

PICMA® piezo actuator, 11 µm travel range, 3 mm × 2 mm × 13.5 mm

P-882.50

PICMA® piezo actuator, 15 µm travel range, 3 mm × 2 mm × 18 mm

P-883.10

PICMA® piezo actuator, 6.5 µm travel range, 3 mm × 3 mm × 9 mm

P-883.20

PICMA® piezo actuator, 8.5 µm travel range, 3 mm × 3 mm × 11 mm

P-883.30

PICMA® piezo actuator, 11 µm travel range, 3 mm × 3 mm × 13.5 mm

P-883.50

PICMA® piezo actuator, 15 µm travel range, 3 mm × 3 mm × 18 mm

P-885.10

PICMA® piezo actuator, 6.5 µm travel range, 5 mm × 5 mm × 9 mm

P-885.20

PICMA® piezo actuator, 8.5 µm travel range, 5 mm × 5 mm × 11 mm

P-885.30

PICMA® piezo actuator, 11 µm travel range, 5 mm × 5 mm × 13.5 mm

P-885.50

PICMA® piezo actuator, 15 µm travel range, 5 mm × 5 mm × 18 mm

P-885.90

PICMA® piezo actuator, 32 µm travel range, 5 mm × 5 mm × 36 mm

P-887.30

PICMA® piezo actuator, 11 µm travel range, 7 mm × 7 mm × 13.5 mm

P-887.50

PICMA® piezo actuator, 15 µm travel range, 7 mm × 7 mm × 18 mm

P-887.90

PICMA® piezo actuator, 32 µm travel range, 7 mm × 7 mm × 36 mm

P-888.30

PICMA® piezo actuator, 11 µm travel range, 10 mm × 10 mm × 13.5 mm

P-888.50

PICMA® piezo actuator, 15 µm travel range, 10 mm × 10 mm × 18 mm

P-888.90

PICMA® piezo actuator, 32 µm travel range, 10 mm × 10 mm × 36 mm

Custom designs or different specifications on request.