

series PA

pre-loaded piezo actuators

concept:

The PA series actuators are based on stack type actuators made by using multilayer technology. The PA series stack type actuators are internally pre-loaded by a mechanical spring, making them ideal for dynamic applications.

The ability to generate a large force, and be subjected to high mass loading, make them particularly useful for machine tools and dynamic scanning systems. These actuators have a uniform diameter of 14mm.

mounting:

Actuators should be fastened with screws or clamps on the bottom plate of the actuator. During the installation and use, it is important not to subject the actuator tip to non-axial forces.



image: piezo actuator series PA

product highlights:

- excellent dynamic properties due to high resonant frequencies
- integrated mechanical preload
- tensile forces up to 150 N
- motion up to 145 μm
(larger ranges of motion available)
- high stiffness of up to 190 N/ μm
- vacuum and low temperature versions on request
- flat or round head pieces available

applications:

- nan positioning
- scanning microscopy
- micromanipulation
- microinjection
- optical adjustment
- laser fine tuning
- mirror adjustment
- mirror positioning
- vibration generation and cancellation

series PA

technical data:

series PA	unit	PA 8/14	PA 16/14	PA 25/14	PA 35/14	PA 45/14	PA 50/14	PA 60/14	PA 70/14	PA 80/14	PA 90/14	PA 100/14	
part no.	-	B-201-00	B-202-00	B-203-00	B-204-00	B-205-00	B-206-00	B-207-00	B-208-00	B-209-00	B-210-00	B-211-00	
motion (-10/+20%)	µm	10	20	30	40	50	60	70	80	90	100	110	
capacitance (±20%)⁽¹⁾	µF	0.8	1.8	2.6	3.6	4.4	5.4	6.2	7.2	8.0	9.0	9.8	
resolution⁽²⁾	nm	0.02	0.04	0.06	0.08	0.10	0.12	0.15	0.17	0.19	0.21	0.23	
series PA SG with integrated strain gauge measurement system		PA 8/14 SG	PA 16/14 SG	PA 25/14 SG	PA 35/14 SG	PA 45/14 SG	PA 50/14 SG	PA 60/14 SG	PA 70/14 SG	PA 80/14 SG	PA 90/14 SG	PA 100/14 SG	
part no.	-	B-201-01	B-202-01	B-203-01	B-204-01	B-205-01	B-206-01	B-207-01	B-208-01	B-209-01	B-210-01	B-211-01	
motion (±0.2%)	µm	8	16	24	32	40	48	56	64	72	80	88	
integrated measurement system	-	SG											
resolution in closed loop	nm	0.1	0.3	0.5	0.7	0.9	1.0	1.3	1.6	1.8	2.0	2.2	
typ. repeatability	nm	1.2	1.2	1.4	1.5	1.5	2	1.6	2.3	3.6	2.6	6.7	
series PA und PA SG													
resonance frequency	kHz	40	22	15	12	8.8	8	7	6	5.2	4	4.4	
stiffness	N/µm	85	43	28	21	17	14	12	11	9	9	8	
blocking force	N	850	850	850	850	850	850	850	850	850	850	850	
pre-load	N	150	150	150	150	150	150	150	150	150	150	150	
operating voltage	V	-20...+130											
connector/voltage	-	LEMO/ODU											
cable length	m	1											
housing length	mm	26	35	44	53	62	71	80	89	98	107	116	
dimen- sions	total length	mm	28	37	46	55	64	73	82	91	100	109	118
	diameter	mm	14	14	14	14	14	14	14	14	14	14	

⁽¹⁾ typical value for small electrical field strength

⁽²⁾ Resolution is limited only by the noise of control signal.

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series PA	unit	PA 105/14	PA 110/14	PA 120/14	PA 130/14	PA 140/14	PA 150/14	PA 160/14	PA 170/14	PA 180/14	PA 190/14	PA 200/14	
part no.	-	B-212-00	B-213-00	B-214-00	B-215-00	B-216-00	B-217-00	B-218-00	B-219-00	B-220-00	B-221-00	B-222-00	
motion (-10/+20%)	µm	120	130	140	150	160	170	180	190	200	210	220	
capacitance (±20%)⁽¹⁾	µF	10.8	11.6	12.6	13.4	14.4	15.2	16.2	17.0	18.0	18.8	19.8	
resolution⁽²⁾	nm	0.25	0.27	0.29	0.31	0.33	0.35	0.37	0.39	0.42	0.44	0.46	
series PA SG with integrated strain gauge measurement system		PA 105/14 SG	PA 110/14 SG	PA 120/14 SG	PA 130/14 SG	PA 140/14 SG	PA 150/14 SG	PA 160/14 SG	PA 170/14 SG	PA 180/14 SG	PA 190/14 SG	PA 200/14 SG	
part no.	-	B-212-01	B-213-01	B-214-01	B-215-01	B-216-01	B-217-01	B-218-01	B-219-01	B-220-01	B-221-01	B-222-01	
motion (±0.2%)	µm	96	104	112	120	128	136	144	152	160	168	176	
integrated measurement system	-						SG						
resolution in closed loop	nm	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.9	4.1	4.3	4.5	
typ. repeatability	nm	9	12	12	20	25	31	38	46	55	65	76	
series PA und PA SG													
resonance frequency	kHz	4	3.8	3	3.3	3.1	3	2.8	2.7	2.6	2.5	2.4	
stiffness	N/µm	7	7	6	6	5	5	5	4	4	4	4	
blocking force	N	850	850	850	850	850	850	850	850	850	850	850	
pre-load	N	150	150	150	150	150	150	150	150	150	150	150	
operating voltage	V							-20...+130					
connector/ voltage	-							LEMO/ODU					
cable length	m							1					
dimen- sions	housing length	mm	125	134	143	152	161	170	179	188	197	206	215
	total length	mm	127	136	145	154	163	172	181	190	199	208	217
	diameter	mm	14	14	14	14	14	14	14	14	14	14	14

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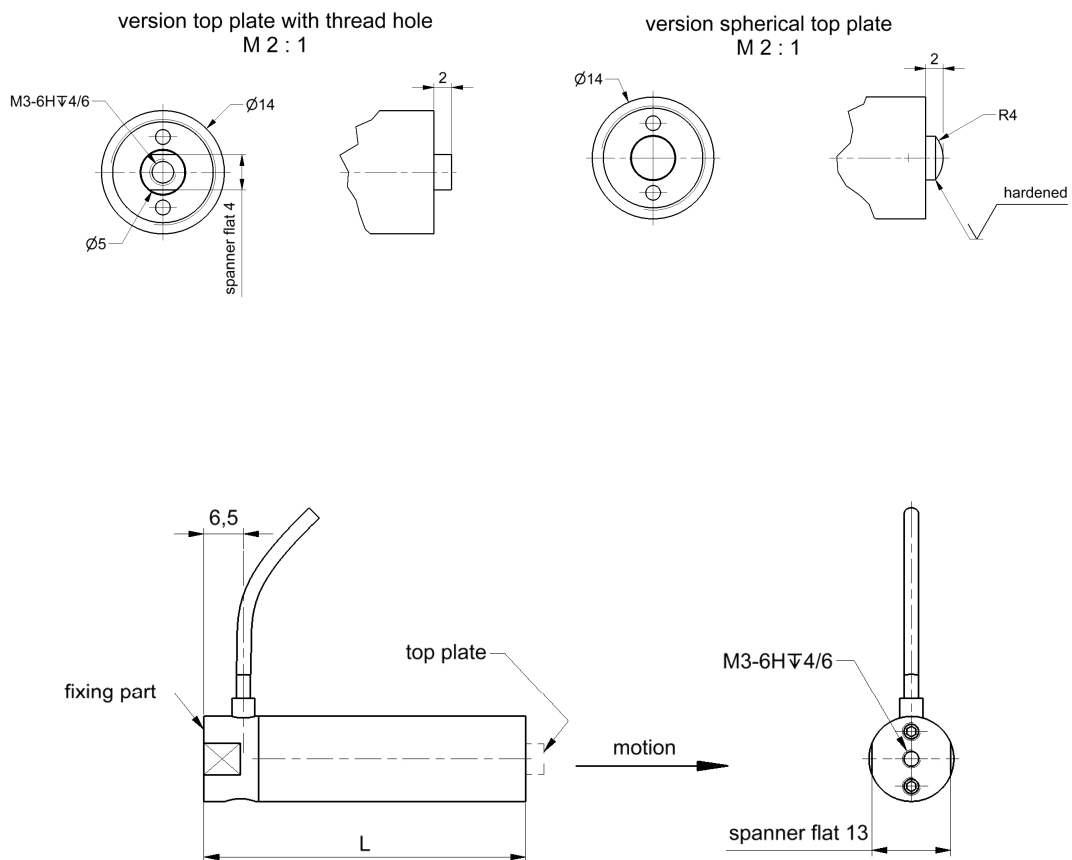
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options:

- head piece M3 thread: part-no. B-299-65
round: part-no. B-299-66
- vacuum and low temperature application on request

drawings:



Specifications subject to change without notice!