

Series PA/T

Stack Type Actuators with Outside Threading



Excellent dynamic behavior by integrated preload



Motion up to 105 μm



Tensile forces up to 150 N



High stiffness of up to 20 $\text{N}/\mu\text{m}$



Very small and compact design



Concept

The series PA/T based on stack type actuators in multilayer design. They are mechanically preloaded to make them ideal for dynamic applications. The series PA/T have an M14 outside threading that can be used to mount the actuator; it also helps to lock in the position precisely. The ball tip head piece allows movement of components without shear stress on the ceramic inside. Therefore these series of actuators are well suited for high precision mirror adjustment or for integration into optical systems to realize beam steering in real time. A threaded head piece is optionally available.

Specials:

The series PA/T can handle loads up to 850 N. The housing of the actuator, in combination with built-in springs, allows a motion without mechanical play. Maximum motions up to 105 μm are available depending on model. To overcome the effect of drift and hysteresis, the actuator can be equipped with a high resolution strain gage feedback sensor. The typical accuracy is 0.5% of the used motion.

Product Highlights:

- Excellent dynamic behavior by integrated preload
- Versatile use by outside threading
- Ball tip head piece
- Optional: threaded head piece
- Very small and compact design
- Tensile forces up to 150 N
- Motion up to 105 μm
- High stiffness up to 20 $\text{N}/\mu\text{m}$

Mounting

A Special feature is the outside threading of M14 to mount the actuator. It also helps to adjust the position precisely.

These actuators are mechanically preloaded to make them ideal for dynamic applications. The ball tip head piece allows movement of components without shear stress on the ceramic inside.

The given preload does not exceed while the actuator is used dynamical.

Applications

- Nanopositioning
- Laser fine tuning
- Mirror positioning
- Optical adjustment
- Mirror adjustment

Series PA/T

Technical Data

series PA		Unit	PA 35/T14	PA 50/T14	PA 80/T14	PA 100/T14	PA 120/T14	
Part no.	-		P-354-00	P-355-00	P-357-00	P-358-00	P-360-00	
Motion (-10/+20%)*	µm		42	63	84	105	125	
Capacitance (±20%)**	µF		3.6	5.4	7.2	9.0	10.8	
Resolution***	nm		0.08	0.12	0.17	0.21	0.25	
Series PA/T SG			PA 35/T14 SG	PA 50/T14 SG	PA 80/T14 SG	PA 100/T14 SG	PA 120/T14 SG	
Part no.	-		P-354-01	P-355-01	P-357-01	P-358-01	P-360-01	
Motion (-10/+20%)	µm		34	50	67	84	100	
Integrated Measurement System	-				SG			
Resolution in Closed Loop	nm		0.7	1.0	1.0	1.0	1.0	
Typ. Repeatability	nm		1.2	1.2	1.4	1.5	1.5	
Resonant frequency	kHz		12	8	5	4	4	
Stiffness	N/µm		20	13	10	8	7	
Blocking forces	N				850			
Preload	N				150			
Operating Voltage	V				-20 ... +130			
Connector/Voltage	-				LEMO 05.302			
Cable length	m				1			
Dimensions	Outside threading	mm	M14x1					
	Length		53	71	89	107	125	
	Diameter		Ø 14					

* typ. value measured with NV40/3 (regulated NV 40/3 CLE)

** typ. value for small electrical field strength

*** typ. values, measured at -20 V ... +130 V

Options:

- vacuum version
- cryogenic temperature version
- threaded head piece
- further options available upon request

Rights reserved to change specifications as progress occurs without notice.

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