

<b>PZT Actuators</b>
PZT Flexure NanoPositioners
PZT Active Optics / Steering Mirrors
Tutorial: Piezoelectrics...
Capacitive Position Sensors
PZT Control Electronics
MicroPositioners / Hexapod Systems
Photonics Alignment & Packaging Systems
Motor Controllers
Index

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**Accessories**

**P-176.30**

Magnetic Adapter, see page 1-40

Extension cables & connectors: see page 6-43 in the "PZT Control Electronics" section.

**P-820**

**Small-Load Open-Loop LVPZT Translators**

**Application Examples**

- Static and low-level dynamic positioning of small parts
- Fiber alignment
- Laser tuning

For more examples see page 1-3

**Ordering Information**

**P-820 Small-Load Open-Loop LVPZT Translators**

**P-820.10**

15 μm

**P-820.20**

30 μm

**P-820.30**

45 μm

Custom Designs for Volume Buyers



P-820.10 and P-820.30 PZT Actuators

**Notes**

See "PZT Control Electronics" section for our comprehensive line of low-noise modular and OEM control electronics for computer and manual control.

For mounting guidelines see page 1-7.

- **Displacement to 45 μm**
- **Pushing Forces to 50 N**
- **Pulling Forces to 10 N**
- **Sub-msec Response**
- **Sub-nm Resolution**
- **Options: Ball Tip**

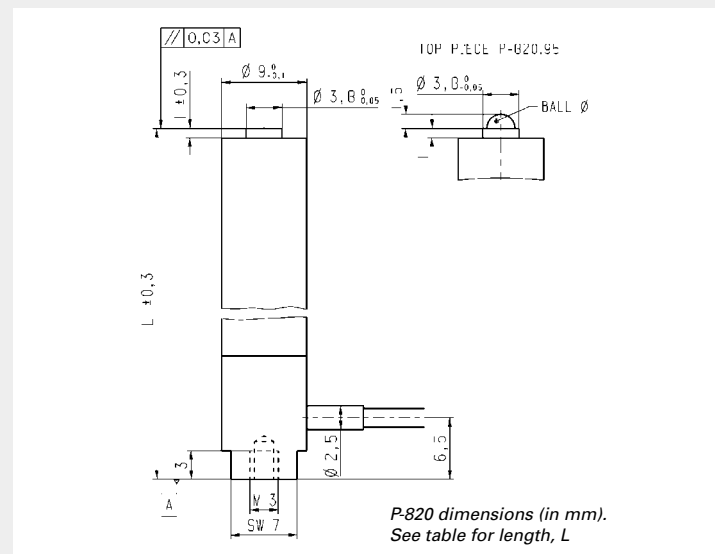
P-820 Small-load PZT translators are high-resolution linear actuators for static and low-frequency dynamic applications. They provide sub-millisecond response and sub-nanometer resolution. The translators are equipped with highly reliable multilayer PZT ceramic stacks protected by a non-magnetic stainless steel case with internal spring preload. The standard translator tip is a stainless steel flat.

Due to the small dimensions of the PZT ceramics, P-820 translators are sensitive to bending and lateral forces. Select the P-820.95 ball tip option to help decouple off-axis and torque loads from the translator. For push/pull forces up to 3 N the translator can be mounted by clamping around the case. For

larger forces the translator must be mounted by the base. For positioning of magnetic parts the P-176.30 Magnetic Adapter can be glued onto the translator tip.

**Factory Installed Options P-820.95**

Ball Tip (see page 1-40)



P-820 dimensions (in mm). See table for length, L

**Technical Data**

Models	P-820.10	P-820.20	P-820.30	Units	Notes see p. 1-41
Open-loop travel @ 0 to 100 V	15	30	45	μm ±20%	A2
* Open-loop resolution <	0.15	0.3	0.45	nm	C1
**Static large-signal stiffness	13	7	4	N/μm ±20%	D1
Push/pull force capacity	50 / 10	50 / 10	50 / 10	N	D3
Torque limit (at tip)	0.08	0.08	0.08	Nm	D6
Electrical capacitance	0.45	0.9	1.35	μF ±20%	F1
Dynamic operating current coefficient (DOCC)	3.75	3.75	3.75	μA/(Hz x μm)	F2
Unloaded resonant frequency (f <sub>0</sub> )	22	15	12	kHz ±20%	G2
Standard operating temperature range	-20 to +80	-20 to +80	-20 to +80	°C	
Voltage connection	VL	VL	VL		J1
Weight	8	11	14	g ±5%	K
Material case, end pieces	N-S	N-S	N-S		L
Length L	26	44	62	mm ±0.3	
Recommended Amplifier/ Controller (codes explained p. 6-46)	A, C, G	A, C, G	A, C, G		

\* Resolution of PZT actuators is not limited by friction or stiction. Noise equivalent motion with E-503 amplifier  
 \*\* Dynamic small-signal stiffness ~30% higher