P-280

Modular Piezo Flexure Nanopositioning Stages

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P-280 Flexure NanoPositioners

- **Frictionless Precision Flexure Guiding System**
- **Very Compact**
- **Low Cost**
- **Travel to 100 µm**
- **XY and XYZ Combinations**

P-280 Piezo flexure stages are compact and cost effective positioners and scanners. They are available in three different sizes, with displacements of 30, 50 and 100 µm. P-280 stages can be mounted in either a vertical or horizontal position, to easily adapt to specific mounting requirements.

Working Principle

P-280 positioners are equipped with high-voltage piezoelectric contraction strip actuators integrated into a flexure guiding system. The force exerted by the piezo moves a flexure parallelogram. The wire-EDM-cut flexures are FEA modeled for zero stiction/friction and ultra-high resolution.

P-280 flexure stages can be combined to form XY and XYZ combinations (see page 2-31). Cable mounting positions can be specified (either A, B or C, see drawing) to suit your application. If not specified, the stages are delivered with cable position A. A spacer plate for ease of mounting is provided with the stages.

Notes

See the "Piezo Drivers & Nanopositioning Controllers" section, p. 6-8 *ff.* for our comprehensive line of low-noise control electronics. See the "Selection Guide" on p. 2-14 *ff.* for comparison with other nanopositioning systems.

Ordering Information

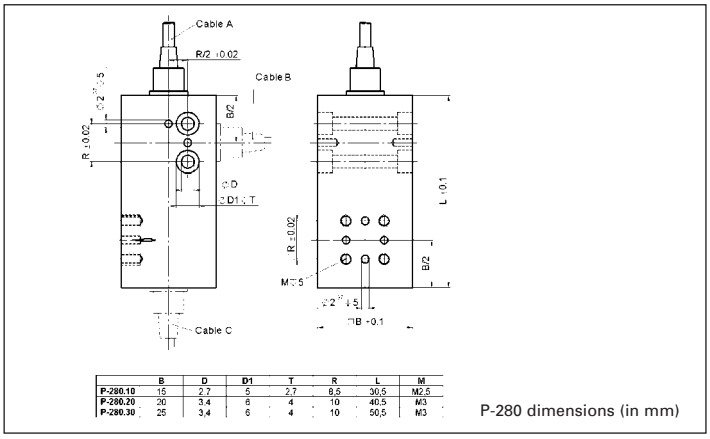
P-280.10*
Piezo Flexure Stage, 30 µm

P-280.20*
Piezo Flexure Stage, 50 µm

P-280.30*
Piezo Flexure Stage, 100 µm

* = A, B or C depending on cable-position

Ask about custom designs!



	B	D	D1	T	R	L	M
P-280.10	15	2.7	5	2.7	8.5	30.5	M2.5
P-280.20	20	3.4	6	4	10	40.5	M3
P-280.30	25	3.4	6	4	10	50.5	M3

P-280 dimensions (in mm)

Technical Data

Models	P-280.10	P-280.20	P-280.30	Units	Notes see p. 2-84
Active axes	X	X	X		
Open-loop travel @ 0 to -1000 V	30	50	100	µm ±20%	A4
* Open-loop resolution	0.3	0.5	1	nm	C0
Stiffness	1.4	1.3	0.5	N/µm ±20%	D1
Push/pull force capacity (in operating direction)	50/50	50/50	50/50	N	D3
Max. (±) normal load	50	50	50	N	D4
Tilt (θ_Y, θ_Z) (typ.)	3	7	9	µrad	E1
Lateral runout (Z) (typ.)	0.3	0.6	1.4	µm	E2
Electrical capacitance	20	27	70	nF ±20%	F1
** Dynamic operating current coefficient (DOCC)	0.83	0.68	0.88	µA / (Hz 3 µm)	F2
Unloaded resonant frequency	2200	1300	660	Hz ±20%	G2
Operating temperature range	- 40 to 80	- 40 to 80	- 40 to 80	°C	H2
Voltage connection	VH	VH	VH		J1
Weight (with cables)	37	56	92	g ±5%	
Body material	Al	Al	Al		L
Recommended Amplifier/ Controller (codes explained p. 2-17)	B, I	B, I	B, I		

* For further information see p. 2-8. Resolution of PI piezo nanopositioners is not limited by friction or stiction. The value given is noise equivalent motion with E-507 amplifier.
** Dynamic Operating Current Coefficient in µA per Hz and µm. Example (P-280.30): Sinusoidal scan of 30 µm at 10 Hz requires approximately 0.26 mA drive current.

Application Examples

- Photonics packaging
- Nanopositioning
- Biomedical applications
- Patch clamping
- Electro-physiology
- Fiber alignment electro-physiology