NanoCube® XYZ Piezo Stage

COMPACT MULTI- AXIS PIEZO SYSTEM FOR NANOPOSITIONING AND FIBER ALIGNMENT

P-611.3

- Travel range to 120 µm × 120 µm × 120 µm
- Ultra- compact: 44 mm × 44 mm × 44 mm
- Resolution to 0.2 nm
- Rapid response
- Frictionless, high- precision flexure guiding system
- Outstanding lifetime due to PICMA® piezo actuators
- For fast scanning
- Version with integrated fiber adapter interface
- Especially cost- effective systems

Specifications

	P-611.3S P-611.3SF	P-611.3O P-611.3OF	Unit	Tolerance
Active axes	X, Y, Z	X, Y, Z		
Motion and positioning				
Integrated sensor	SGS			
Open- loop travel, -20 to 120 V	120 / axis	120 / axis	µm	min. (20 % / -0%)
Closed- loop travel	100 / axis	–	µm	
Open- loop resolution	0.2	0.2	nm	typ.
Closed- loop resolution	1	–	nm	typ.
Linearity error	0.1	–	%	typ.
Repeatability	<10	–	nm	typ.
Pitch in X, Y	±5	±5	µrad	typ.
Runout θ_X (motion in Z)	±10	±10	µrad	typ.
Yaw in X	±20	±20	µrad	typ.
Yaw in Y	±10	±10	µrad	typ.
Runout θ_Y (motion in Z)	±10	±10	µrad	typ.
Mechanical properties				
Stiffness	0.3	0.3	N/ µm	±20 %
Unloaded resonant frequency X / Y / Z	350 / 220 / 250	350 / 220 / 250	Hz	±20 %
Resonant frequency at 30 g in X / Y / Z	270 / 185 / 230	270 / 185 / 230	Hz	±20 %
Resonant frequency at 100 g in X / Y / Z	180 / 135 / 200	180 / 135 / 200	Hz	±20 %

Push / pull force capacity in motion direction	15 / -10	15 / -10	N	max.
Load capacity	15	15	N	max.
Drive properties				
Ceramic type	PICMA® P-885	PICMA® P-885		
Electrical capacitance	1.5	1.5	µF	±20 %
Dynamic operating current coefficient	1.9	1.9	µA/ (Hz × µm)	±20 %
Miscellaneous				
Operating temperature range	-20 to 80	-20 to 80	°C	
Material	Aluminum, steel	Aluminum, steel		
Dimensions	44 mm × 44 mm × 43.2 mm SF version: 44 mm × 50 mm × 44.2 mm	44 mm × 44 mm × 43.2 mm OF version: 44 mm × 50 mm × 44.2 mm		
Mass	0.32	0.32	kg	±5 %
Cable length	1.5	1.5	m	±10 mm
Sensor connection	Sub- D connector	–		
Voltage connection	Sub- D connector	Sub- D connector		
Recommended controller / amplifier	E-664 NanoCube® Controller	3 × E-610.00F OEM amplifier modules; E-663 3- channel amplifier, bench- top		

The resolution of PI piezo nanopositioners is not limited by friction or stiction. Value is given noise equivalent motion with E-503 amplifier.
Dynamic Operating Current Coefficient in µA per Hz and µm. Example: Sinusoidal scan of 50 µm at 10 Hz requires approximately 0.8 mA drive current.
Adapter cable with LEMO connectors for sensor and operating voltage available.

Ask about custom designs!

Order Information

P-611.3S
NanoCube® XYZ Nanopositioning System, 100 µm ×100 µm × 100 µm, Strain Gauge Sensors
P-611.3O
NanoCube® XYZ Nanopositioning System, 100 µm × 100 µm ×100 µm, Open- Loop
P-611.3SF
NanoCube® XYZ Nanopositioning System, 100 µm ×100 µm × 100 µm, Strain Gauge Sensors, Fiber Adapter Interface
P-611.3OF
NanoCube® XYZ Nanopositioning System, 100 µm × 100 µm ×100 µm, Open- Loop, Fiber Adapter Interface

Ask about custom designs!

Controllers / Drivers / Amplifiers

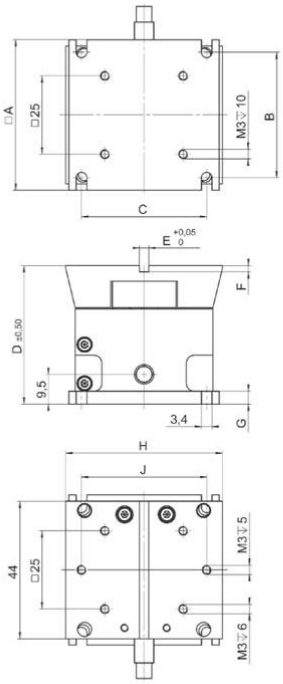
E-664 NanoCube® Piezo Controller
E-663 Three- Channel Piezo Driver

Related Products

P-363 PicoCube XY(Z) Piezo Scanner
P-612.2 XY Piezo Nanopositioning System
P-620.2 – P-629.2 PIHera XY Piezo Stage

Drawings / Images

P-611.3,
Abmessungen in mm



	A	B	C	D	E	F	G	H	J
P-611.3O	44	38,2	37,8	43,2	-	-	3,5	44	-
P-611.3S	44	38,2	37,8	43,2	-	-	3,5	44	-
P-611.3OF	44	38,2	37,8	44,2	3	2	3,5	50	40
P-611.3SF	48	40	40	44,2	3	2	4,1	50	40