

PIFOC Specimen Z Positioners

With Large Aperture and Low Profile



P-737

- Travel ranges to 500 μm
- Wide aperture 128.5 mm \times 86.5 mm to accommodate well plates
- Low profile 20 mm

Application fields

- Super-resolution microscopy
- Light disk microscopy
- Confocal microscopy
- 3-D imaging
- Screening
- Interferometry
- Measuring technology
- Autofocus systems
- Biotechnology
- Semiconductor tests

Outstanding lifetime thanks to PICMA® piezo actuators

The PICMA® piezo actuators are all-ceramic insulated. This protects them against humidity and failure resulting from an increase in leakage current. PICMA® actuators offer an up to ten times longer lifetime than conventional polymer-insulated actuators. 100 billion cycles without a single failure are proven.

High guiding accuracy due to zero-play flexure guides

Flexure guides are free of maintenance, friction, and wear, and do not require lubrication. Their stiffness allows high load capacity and they are insensitive to shock and vibration. They work in a wide temperature range.

Motion	Unit	Tolerance	P-737.1SL	P-737.2SL	P-737.5SL
Active axes			Z	Z	Z
Travel range in Z	μm		100	250	500
Travel range in Z, open loop, at -20 to 120 V	μm	+20 / -0 %	150	280	550
Linearity error, closed loop	%	Typ.	0.2	0.5	0.8
Yaw (Rotational crosstalk in θ_X with motion in Z)	μrad	Typ.	± 36	± 36	± 36
Pitch (Rotational crosstalk in θ_Y with motion in Z)	μrad	Typ.	± 36	± 100	± 100

Positioning	Unit	Tolerance	P-737.1SL	P-737.2SL	P-737.5SL
Unidirectional repeatability in Z	nm	Typ.	± 6	± 12	± 15
Resolution in Z, open loop	nm	Typ.	0.8	1	1.6
Integrated sensor			SGS, indirect position measuring	SGS, indirect position measuring	SGS, indirect position measuring
System resolution in Z	nm	Typ.	2.5	4	5

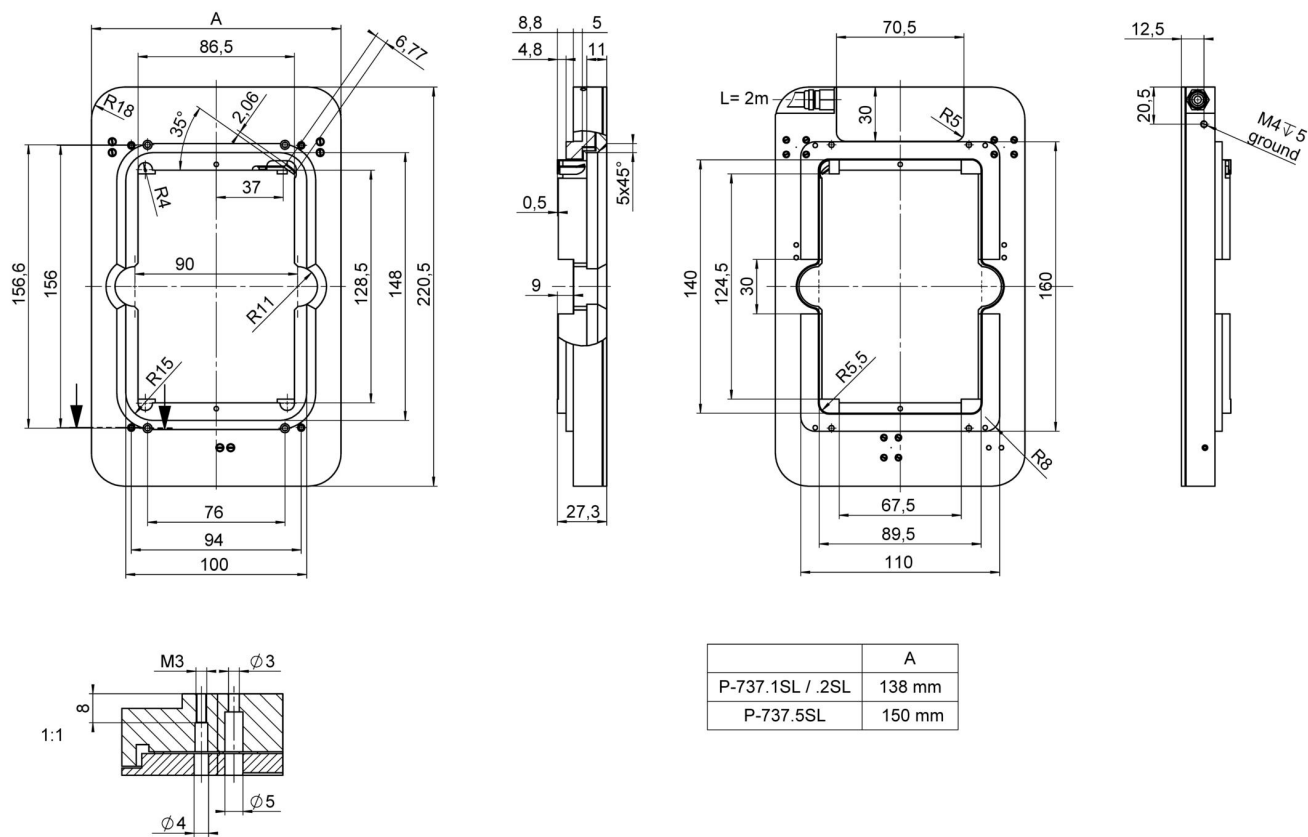
Drive Properties	Unit	Tolerance	P-737.1SL	P-737.2SL	P-737.5SL
Drive type			PICMA®	PICMA®	PICMA®
Electrical capacitance in Z	µF	±20%	6.3	9.3	13.8

Mechanical Properties	Unit	Tolerance	P-737.1SL	P-737.2SL	P-737.5SL
Resonant frequency in Z, unloaded	Hz	±20%	270	210	122
Resonant frequency in Z, under load with 100 g	Hz	±20%	230	180	115
Resonant frequency in Z, under load with 200 g	Hz	±20%	210	155	100
Permissible push force in Z	N	Max.	50	50	50
Permissible pull force in Z	N	Max.	20	20	20
Guide			Flexure guide with lever amplification	Flexure guide with lever amplification	Flexure guide with lever amplification
Overall mass	g	±5%	700	700	850
Material			Aluminum	Aluminum	Aluminum

Miscellaneous	Unit	Tolerance	P-737.1SL	P-737.2SL	P-737.5SL
Operating temperature range	°C		-20 to 80	-20 to 80	-20 to 80
Connector			LEMO FFS.00.250.CTCE24	LEMO FFS.00.250.CTCE24	LEMO FFS.00.250.CTCE24
Sensor connector			LEMO FFA.0S.304.CLAC32	LEMO FFA.0S.304.CLAC32	LEMO FFA.0S.304.CLAC32
Cable length	m	±10 mm	2	2	2
Recommended controllers / drivers			E-503, E-625, E-665, E-709	E-503, E-625, E-665, E-709	E-503, E-625, E-665, E-709

The resolution of the system is limited only by the noise of the amplifier and the measuring technology because PI piezo nanopositioning systems are free of friction. Versions with directly measuring, high-resolution capacitive sensors on request.

Drawings / Images



P-737, dimensions in mm. Note that a comma is used in the drawings instead of a decimal point.

Order Information

P-737.1SL

PIFOC Z specimen positioner; 100 µm travel range; SGS, indirect position measuring; LEMO connectors; 2 m cable length

P-737.2SL

PIFOC Z specimen positioner; 250 µm travel range; SGS, indirect position measuring; LEMO connectors; 2 m cable length

P-737.5SL

PIFOC Z specimen positioner; 500 µm travel range; SGS, indirect position measuring; LEMO connectors; 2 m cable length