

PZ 200 OEM / PZ 400 OEM

compact 1-axis translation stage

Concept:

The systems in the series PZ OEM are a special version of the PZ stages. These elements have a simplistic design without bottom and top plate and are easily adapted to other systems. Due to the FEA optimized design as a flexure guidance system, they offer very accurate motion up to 400µm without any mechanical play.

They are ideally suited for nm-precise positioning of optic components such as mirrors and laser diodes, adjustment and mounting in semiconductor technologies and electronics, and applications in measurement technologies and quality assurance as well as microbiology.

The PZ OEM series stages can be easily combined with other elements of the piezosystem jena series of piezo electric modules to give positioning in all degrees of freedom.

Specials:

The PZ OEM systems have very low masses and therefore reach high resonant frequencies. Based on the pre-loaded structure dynamic work is possible. Optionally they can be equipped with strain gage or capacitive sensors to achieve extremely accurate repeatability.

Interfaces:

The elements in the PZ OEM series suit industrial needs very well, which is proven by the fact that numerous systems work reliably in various industrial applications. For easy integration into existing systems, threading holes are installed.



image: PZ 200 OEM

Product highlights

- accurate parallel motion because of flexure guidance system
- up to 400µm motion range
- motion without mechanical play
- easily combined with other piezo electrical systems
- high dynamic because of mechanically pre-loaded design

Applications:

- optics and fiber positioning
- printing technology
- scanning systems
- micro-manipulation
- AFM technology

PZ 200 OEM / PZ 400 OEM

Technical data:

Z-axis positioning system	unit	PZ 200 O EM	PZ 200 SG OEM	PZ 400 OEM	PZ 400 SG OEM
part no.:		S-626-00	S-626-01	S-628-00	S-628-01
axis	-	Z	Z	Z	Z
motion in open(±10%)/closed loop (±0.2%)*	µm	200/ -	200/160	400/ -	400/320
capacitance (±20%)**	µF	2.5	2.5	13.6	13.6
resolution (open/closed loop)***	nm	0.4/ -	0.4/4	0.8/ -	0.8/ 8
integrated measurement system	-	-	strain gage	-	strain gage
typ. repeatability	nm	-	±4	-	±10
typ. non-linearity	%	-	0.012	-	0.06
resonant frequency (unloaded)	Hz	625	625	295	295
max. push/pull forces	N	60/6	60/6	148/15	148/15
stiffness	N/µm	0.6	0.6	0.8	0.8
voltage range	V	-20...130V	-20...130V	-20...130V	-20...130V
connector (additional variation please see table below) ****	-	LEMO 0S.302	LEMO 0S.302 LEMO 0S 304	LEMO 0S.302	LEMO 0S.302 LEMO 0S 304
cable length	m	1	1.2	1	1.2
min. bend radius of cable	mm	15	15	15	15
temperature range	°C	-20°C ... +80°C	-20°C ... +80°C	-20°C ... +80°C	-20°C ... +80°C
material	-	stainless steel	stainless steel	stainless steel	stainless steel
dimensions (LxWxH)	mm	50x16x17	50x16x21	66x20x24	66x20x27.5
weight	g	140	165	155	175

* typical value measured with NV 40/3 amplifier (closed loop: NV 40/3 CLE amplifier)

** typical value for small electrical field strength

*** the resolution is only limited by the noise of the power amplifier and metrology

**** additional connector configurations (Examples)

Product name	Description	Specials	Part. No Suffix.
PZ 400 OEM Digital	Version for digital controller series d-Drive and 30DV50 and nano box USB; in combination with additional functionalities	Connector Sub-D 15	S-628-00D
PZ 200 SG OEM Extern	Version with sensor pre-amplifier for the use with „CLE” amplifier units and with the additional functionalities: Interchangeability, ASI	Connector Sensor: ODU 4pin	S-626-01E

Rights reserved to change specifications as progress occurs without notice!.

one-dimensional translation stages **PZ 200 OEM**

- accurate parallel motion in one direction because of parallelogram principles
- easy adjustment
- motion without any mechanical play because of solid state hinges
- integrated lever transmission
- motion up to 200 μm
- easily combined with other piezoelectric systems (especially xy and tilting systems)
- easily combined with mechanical positioning systems
- precision pin holes for accurate adjustment



applications:

- optics, fiber positioning,
- laser optics
- scanning systems
- micro manipulation

Due to the nature of the solid state flexure and parallelogram construction, the travel of these stages is without mechanical play. A much higher resolution, achievable with mechanical or electromechanical systems, is possible. The PZ series stages can be easily combined with XY-elements of the XYZ series or with tilting piezoelectric modules of the series PSH to give positioning in all degrees of freedom. Dynamic work is possible.

The elements of the series PZ can be equipped with measurement systems (strain gauge or capacitive sensors) that overcome the effect of hysteresis.

series PZ OEM part no.		unit	PZ 200 S-626-00	PZ 200 SG S-626-01	PZ 400 S-628-00	PZ 400 SG S-628-01
motion**	open loop	μm	200	200	400	400
	closed loop	μm	-	160	-	320
integrated feed back system		-	-	strain gauge	-	strain gauge
max. load		N	100	100	100	100
max. voltage		V	150	150	150	150
capacitance each dir. *** (20%)		nF	2500	2500	14400	14400
resolution	open loop*	nm	0.3	0.3	0.75	0.75
	closed loop*	nm	-	3.0	-	7.5
typ. repeatability		nm	-	45	-	47
typ. non-linearity		%	-	0.05	-	0.06
resonant frequency		Hz	625	625	295	295
stiffness		N/ μm	0.3	0.3	0.37	0.37
force generation		N	75	75	100	100
dimensions	length L	mm	50	50	66	66
	width B	mm	16	16	20	20
	height H	mm	17	17	24	24
thread		mm	M4-6H x 5	M4-6H x 5	M4-6H x 6	M4-6H x 6
connector	voltage	-	LEMO 0S.302	LEMO 0S.302	LEMO 0S.302	LEMO 0S.302
	sensor	-	-	LEMO 0S.304	-	LEMO 0S.304
weight		g	140	165	155	175

* measured with E-103-18 amplifier

** typical value measured with -10 to +150 V

*** typical value for small electrical field strength