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 sytem, the 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 semicon-ductor 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 active 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 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

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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

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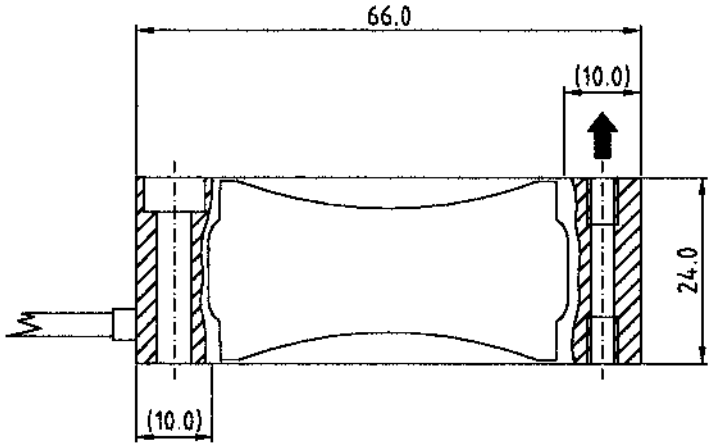

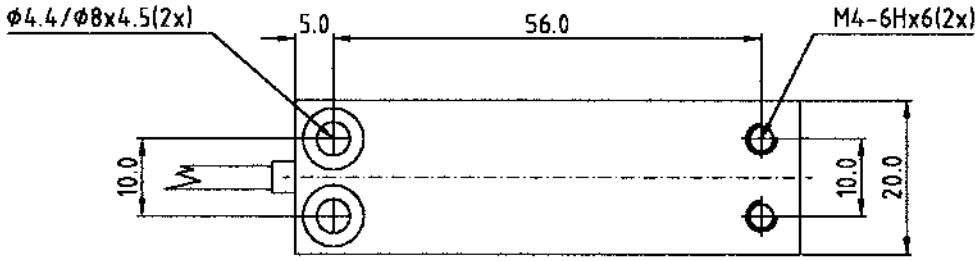

ORIGINAL

part.-no.		part.-name
S-628-00		PZ400
date: 03. APR. 2001		OK / Sign.
file name: PS62800	ÄZ 0	customers drawing: *piezosystem jena*

instructions for using piezoelectrical elements and power supplies

- Piezoelectric actuators from ***piezosystem jena*** are controlled by voltages up to 150V. These values can be quite hazardous. Therefore read the installation instructions carefully and only authorized personal should handle the power supply.
- After transportation, piezoelectric actuators should be allowed to adapt for approximately 2 hours to the room temperature before being switched on.
- Piezoelectric actuators are made from ceramic materials with and without metallic casings. The piezo-ceramic is a relatively brittle material. This should be noted when handling piezoelectrical actuators. All piezo-elements are sensitive to bending or shock forces.
- Due to the piezoelectric effect piezo-actuators can generate electrical charges by changing the mechanical load or the temperature or such actions described above.
- Piezoelectric actuators are able to work under high compressive forces, only actuators with pre-load can be used under tensile loads (these tensile forces must be less than the pre-load, given in the data sheet).
- Please note that the acceleration of the ceramic material (e.g., caused by fall down, discharging or high dynamic application) can cause damage to the actuator.
- Heating of the ceramic material will occur during dynamic operation and is caused by structure conditional loss processes. This may cause failure if the temperature exceeds specified values cited below.
- With increasing temperature, up to the Curie temperature (usual values approx. 140°C - 250°C), the piezoelectric effect disappears.
- Piezoelectric actuators such stacks or various tables work electrically as a capacitance. These elements are able to store electrical energy over a long period (up to some days) and the stored energy may be dangerous.
- If the actuator remains connected to the drive electronics, it is discharged within a second after shutdown and quickly reaches harmless voltage values.
- Piezo-actuators can generate voltages by warming or cooling only. The discharge potential should not be ignored due to the inner capacitance. This effect is insignificant at usual room temperature.
- Piezo-actuators from ***piezosystem jena*** are adjusted and glued. Any opening of the unit will cause misalignment or possible malfunction and the guarantee will be lost.
- Please contact ***piezosystem jena*** or your local representative, if there are any problems with your actuator or power supply.
- **Caution!** Shock forces may damage the built-in ceramic element. Please avoid such forces, and handle the units with care, otherwise the guarantee will be lost.