

# Linear Slides

*Models	Description	Precision	Max Speed [mm/s]	Load Capacity [kg]	Travel [mm]
 <a href="#">M-663</a>	Smallest stage with linear motor drive and linear encoder, speed to 400 mm/s, 0.1 $\mu$ m resolution. XY-combinations possible.	+++oo	400	0.5	19
 <a href="#">M-511.HD</a> , <a href="#">M-714</a>	Hybrid drive, DC motor & piezo. Extremely accurate, 2 nm linear encoder	+++++	50, 0.2	100, 20	102, 7
 <a href="#">M-511</a> , <a href="#">M-521</a> , <a href="#">M-531</a>	Ballscrew drive, compact, high load capacity and lifetime, optional linear encoder, choice of motors	+++oo/ ++++o	6 to 125	100	102, 204, 306
 <a href="#">M-405</a> , <a href="#">M-410</a> , <a href="#">M-415</a>	Crossed roller bearings, very high resolution, choice of motors	+++oo	1 to 6	50	50, 100, 150
 <a href="#">M-413</a> , <a href="#">M-414</a>	For cost-sensitive precision positioning applications. Choice of leadscrew and ballscrew drive	+oooo/ +++oo	1.5 to 50	50	100-300
 <a href="#">M-403</a> , <a href="#">M-404</a>	Low cost translation stages. Choice of leadscrew and ballscrew drive	+oooo/ +++oo	1.5 to 50	20	25-200

# Linear Slides

	*Models	Description	Precision	Max Speed [mm/s]	Load Capacity [kg]	Travel [mm]
	<a href="#">M-605</a>	Compact integrated linear encoder, very high accuracy, protective bellow.	++++o	50	20	25, 50
	<a href="#">M-126</a>	Compact, crossed roller bearings, very high resolution, choice of motors.	+++oo	1 to 50	20	25
	<a href="#">M-122.2DD</a>	Fast mini translation stage w/ linear encoder, DC direct drive, ballscrew	+++oo	20	5	25
	<a href="#">M-110.1</a> <a href="#">M-111.1</a> <a href="#">M-112.1</a>	Miniature translation stage, choice of DC, stepper, ballscrew, leadscrew	++ooo	to 2	3	5, 15, 25
	<a href="#">N-661</a>	Miniature Linear Stage with NEXACT® Drive, subnanometer resolution	++++o	10		20
	<a href="#">M-664KCEP</a>	High-speed stackable PLine® actuator	++ooo	400	0.5	50
	<a href="#">M-683</a>	Low-profile, high-speed translation stages, 0.1 µm linear encoders.	+++oo	350	5	50
	<a href="#">M-664</a>	Low-profile, high-speed translation stages, 0.1 µm linear encoders.	+++oo	400	0.5	25

# M-664 Linear Slide with Piezo Motor

## Low-Profile High-Speed PLine® Translation Stage with Linearencoder



Fast and compact M-664 piezo translation stage with linear encoder

- Travel Range 25 mm
- Max. Velocity 400 mm/s
- Ultra-Low Profile, 15 mm
- Direct Metrology Linear Encoder with 0.1 µm Resolution
- High Guiding Accuracy with Crossed Roller Bearings
- Compact XY Combinations
- Piezo Linear Motor with 6 N Drive Force
- Self Locking at Rest

M-664 micropositioning systems are low-profile, high-accuracy translation stages with piezo linear encoders. The M-664 stage is next-larger in the series of piezomotor-driven stages of which the M-663 is the smallest.

### Application Examples

- Biotechnology
- Micromanipulation
- Microscopy
- Quality assurance testing
- Metrology
- Mass storage device testing
- R&D
- Photonics packaging

For improved guiding accuracy, the M-664 uses two crossed roller bearings mounted on ground aluminum profiles. The integrated P-664 PLine® linear motor can generate forces up to 6 N and maximum closed-loop velocities to 400 mm/s over a 25 mm travel range.

### Advantages of PLine® Micropositioning Systems

The ultrasonic piezoceramic drives used in PLine® micropositioners have a number of advantages over classical drives:

- Higher Accelerations, up to 10 g
- Speeds up to 500 mm/s
- Small Form Factor
- Self-Locking When Powered Down

- No Shafts, Gears or Other Rotating Parts
- Non-Magnetic and Vacuum-Compatible Drive Principle

### Optimized Controller and Drive Electronics

PLine® motors require a special drive electronics to generate the ultrasonic oscillations for piezoceramic element. For optimum performance the highly specialized C-866 motion controller is recommended. This sophisticated controller also integrates the drive electronics. Furthermore, the controller has a number of special features, including dynamic parameter switching for an optimized high-speed motion and settling behavior to take into account the motion characteristics typical of piezomotors. The broad-band encoder input (35 MHz) supports the outstanding high accelerations and velocities of

### Ordering Information

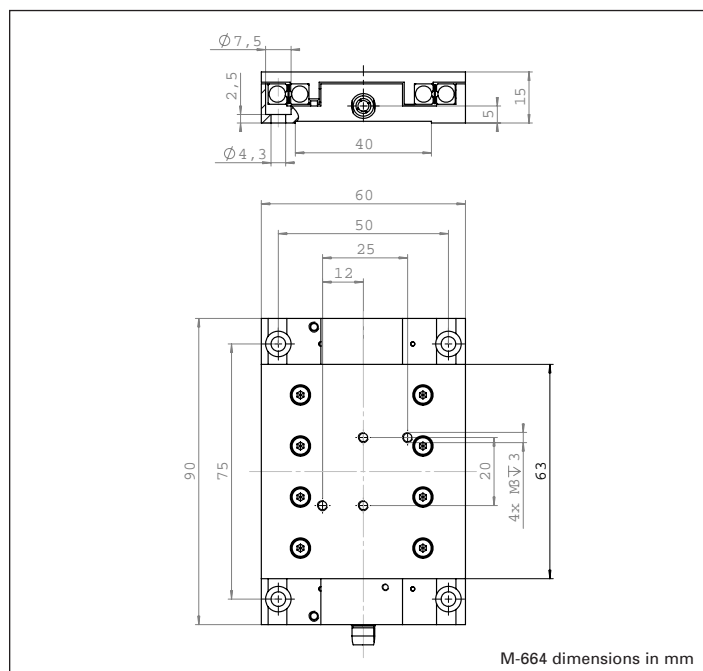
**M-664.164**  
PLine® Micro Positioning Stage with P-664 Piezo Linear Motor, 25 mm, 6 N  
**Ask about custom designs!**

PLine® drives at high resolutions.

Optionally, for use with third party servo controllers, the C-185 analog drive electronic (stand-alone unit) is available. It controls the motor speed by an analog  $\pm 10$  V signal. For optimum performance this driver must be tuned together with the stage and should be ordered at the same time as the motor/stage.

### Notes

The products described in this document are in part protected by the following patents:  
US Pat. No. 6,765,335  
German Patent No. 10154526



# M-663 Linear Slide with Piezo Motor

## PILine® Translation Stages with Ultrasonic Piezomotor and Integrated Linear Encoder



PILine® M-663 micropositioning stages with integrated linear encoder

- **Smallest Translation Stage with Closed-Loop Linear Motor and Encoder**
- **Travel Range 19 mm**
- **Max. Velocity 400 mm/s**
- **Accelerations up to 10 g**
- **Direct-Metrology Linear Encoder**
- **0.1 µm Resolution**
- **XY Combinations Possible**
- **Vacuum-Compatible Versions Available**

PILine® M-663 micropositioning systems offer high velocities of up to 400 mm/s and travel ranges of 19 mm in a compact package. The M-663 is the smallest closed-loop trans-

lation stage with piezomotor drives currently on the market. Its square footprint makes it suitable for use in compact XY configurations.

### Working Principle

PILine® motors have a new, patented, ultrasonic drive developed by PI. The core piece of the system is a piezoceramic plate, which is excited to produce high-frequency eigenmode oscillations. A friction tip attached to the plate moves along an inclined linear path at the eigenmode frequency. Through its contact with the friction bar, the moving part of the mechanics drives forward or backwards. With each oscillatory cycle, the

mechanics execute a step of a few nanometers; the macroscopic result is smooth motion with a virtually unlimited travel range.

### Advantages of PILine® Micropositioning Systems

The ultrasonic piezoceramic drives used in PILine® micropositioners have a number of advantages over classical drives:

- Higher Accelerations, up to 10 g
- Speeds up to 500 mm/s
- Small Form Factor
- Self-Locking When Powered Down
- No Shafts, Gears or Other Rotating Parts
- Non-Magnetic and Vacuum-Compatible Drive Principle

### Optimized Controller and Drive Electronics

PILine® motors require a special drive electronics to generate the ultrasonic oscillations for piezoceramic element. For optimum performance the highly specialized C-866 motion controller is recommended. This sophisticated controller also integrates the drive electronics. Furthermore, the controller has a number of special features, including dynamic parameter switching for an optimized high-speed motion and settling behavior to take into account the motion characteristics typical of piezomotors. The broad-band encoder input (35 MHz) supports the outstanding high accelerations and velocities of PILine® drives at high resolutions.

Optionally, for use with third party servo controllers, the C-185 analog drive electronic (stand-alone unit) is available. It controls the motor speed by an analog ±10 V signal. For optimum performance the driver must be tuned together

### Ordering Information

**M-663.465**  
PILine® Translation Stage, 20 mm, Linear Encoder, 0.1 µm Resolution

**M-663.Y65**  
PILine® Translation Stage, 20 mm, Linear Encoder, 0.1 µm Resolution, turned cable outlet, XY mountable

**M-663.46V**  
PILine® Translation Stage, 20 mm, Linear Encoder, 0.1 µm Resolution, Vacuum Compatible to 10<sup>-6</sup> hPa

### Accessories:

**C-866.161**  
Piezomotor Controller with Drive Electronics, 1 Channel, for PILine® Systems with P-661 Motors

Driver for use with separate controller:

**C-185.161**  
Analog Stand-Alone Drive Electronics with Power Supply for PILine® P-661 Motors

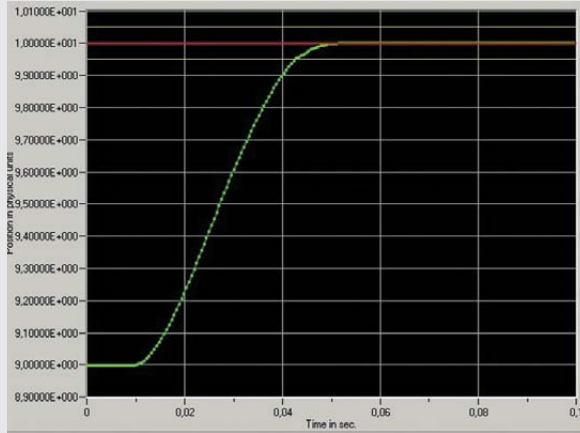
with the stage and should be ordered at the same time as the motor/stage.

### Note

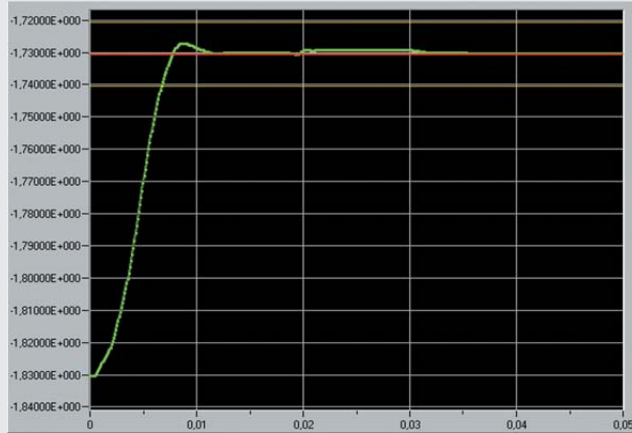
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### Application Examples

- Biotechnology
- Micromanipulation
- Microscopy
- Quality assurance testing
- Metrology
- Mass storage device testing
- R&D
- Photonics packaging



A 1 mm step performed by an M-663 stage with 300 g load controlled by a C-865 controller/driver reaches the end position in less than 40 ms



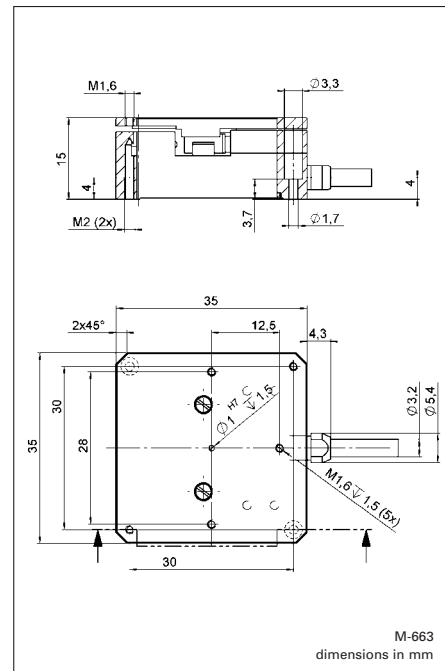
An M-663 with 100 g load settles to 0.1  $\mu\text{m}$  accuracy in 10 ms after a 100  $\mu\text{m}$  step, measured with C-865 Controller/Driver

## Technical Data

Models	M-663.465	Units	Notes, see page 10-28
Active axes	X		
<b>Motion and positioning</b>			
Travel range	19	mm	
Integrated sensor	Linear encoder		
Sensor resolution	0.1	$\mu\text{m}$	
Min. incremental motion	0.1	$\mu\text{m}$	typ.
Backlash	$\pm 0.3$	$\mu\text{m}$	typ.
Unidirectional repeatability	0.2	$\mu\text{m}$	typ.
Pitch	300	$\mu\text{rad}$	typ.
Yaw	300	$\mu\text{rad}$	typ.
Max. velocity	400	mm/s	
Reference switch repeatability	1	$\mu\text{m}$	typ.
<b>Mechanical properties</b>			
Max. load	5	N	
Max. push/pull force	2	N	
Max. holding force	2	N	
<b>Drive properties</b>			
Motor type	P-661 PLine® ultrasonic piezomotor		
Operating voltage	120 (peak-peak)* 42 (RMS)*	V	
Electrical power	5**	W	nominal
Current	400**	mA	
Reference switch	Hall-effect		
<b>Miscellaneous</b>			
Operating temperature range	-20 to +50	$^{\circ}\text{C}$	
Material	Al (black anodized)		
Dimensions	35 x 35 x 15	mm	
Mass	40	g	$\pm 5\%$
Cable length	1.5	m	$\pm 10\text{ mm}$
Connector	MDR, 14-pin		
Recommended controller/driver	C-866.161 Single-axis controller/driver C-185.161 Drive electronics		

\* Power is supplied by the drive electronics

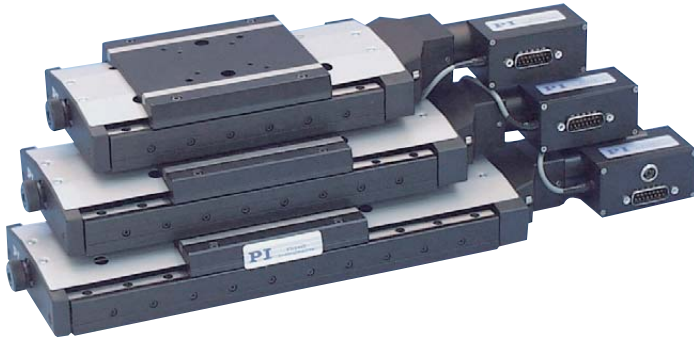
\*\* For drive electronics



XY combination of two M-663s; CD for size comparison

# M-405 · Linear Slide

## High-Precision Translation Stages with Crossed Roller Bearings



M-405.DG, M-410.DG and M-415.PD translation stages

- Travel Ranges to 150 mm
- Stress-Relieved Aluminum Stage Base for Highest Stability
- Crossed Roller Bearings
- Manual, DC-Servo and Stepper-Motor Drives, ActiveDrive™ Option
- Compatible with Leading Industrial Motion Controllers
- Manual Knob for Convenient Position Adjustment
- Non-Contact Direction-Sensing Origin Switch
- Non-Contact Limit Switches

M-400 series translation stages are compact, leadscrew-driven stages with a travel range of 50, 100 and 150 mm. Precision crossed roller bearings guarantee 2 µm/100 mm straightness of travel. The stage base is precision machined from high-density, stress-relieved aluminum for exceptional stability and minimum weight.

All models are equipped with low-friction leadscrews for excellent resolution and repeatability. Four motorized versions are available: Models M-4xx.CG and M-4xx.DG utilize closed-loop DC motors with shaft-mounted position encoders and precision gearheads providing 0.1 µm minimum incremental motion.

### ActiveDrive™

Models M-4xx.PD are equipped with the innovative high-reso-

lution ActiveDrive™. This unique design features a high-efficiency PWM servo-amplifier mounted side-by-side with the DC motor. The ActiveDrive™ provides superior dynamic performance and several other advantages:

- Increased efficiency, by eliminating power losses between the amplifier and motor
- Reduced cost of ownership and improved reliability, because no external driver is required
- Elimination of PWM amplifier noise radiation, by mounting the amplifier and motor together in a single electrically shielded case

Models M-4xx.2S are equipped with direct-drive, 2-phase stepper motors providing 0.1 µm minimum incremental motion with the C-600 controller.

### Non-Contact Limit and Origin Switches

Integrated, non-contact, Hall-effect origin and limit switches, with direction sensing on the origin switch, protect your equipment and increase versatility in automation applications (motorized versions only).

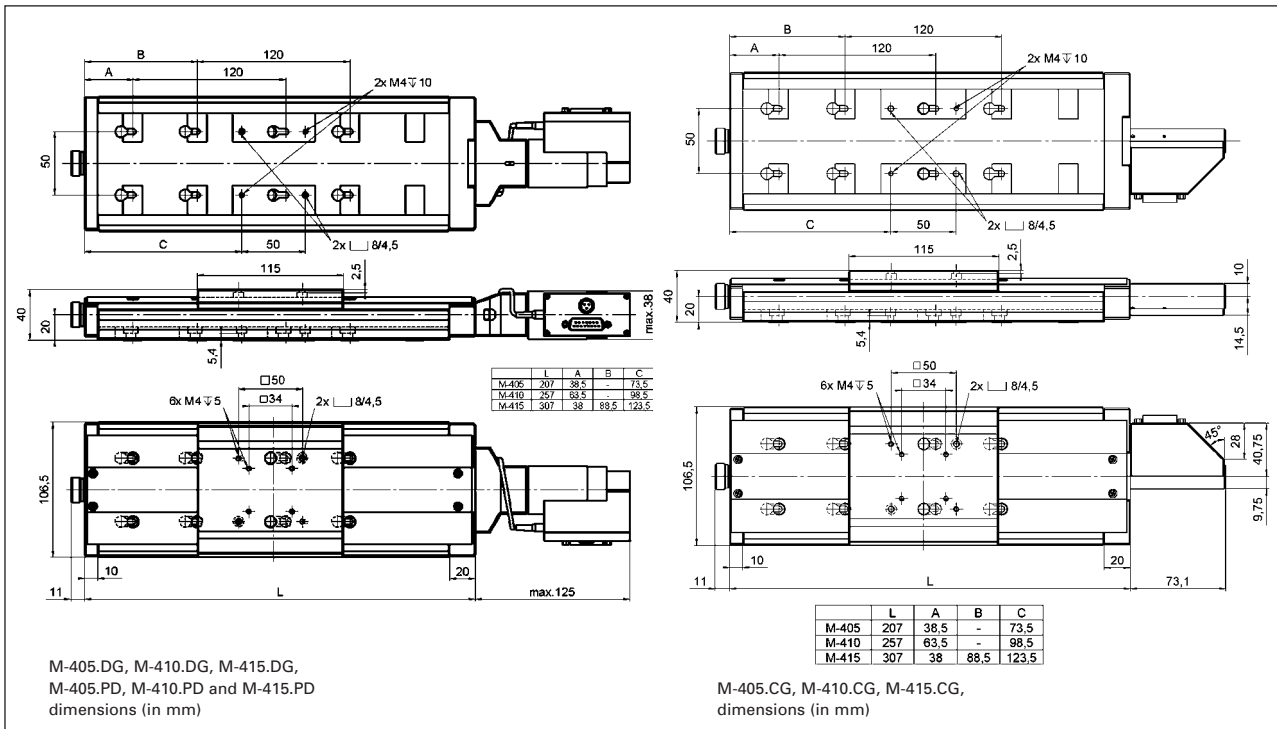
M-400 series stages can be cross stacked and combined with the M-592.00 Z-axis mounting bracket to provide multi-axis motion.

### Notes

See "Accessories", page 7-92 ff. for adapters, brackets, etc.

### Ordering Information

<b>M-405.CG</b>	Translation Stage, 50 mm, DC Motor/Gearhead
<b>M-410.CG</b>	Translation Stage, 100 mm, DC Motor/Gearhead
<b>M-415.CG</b>	Translation Stage, 150 mm, DC Motor/Gearhead
<b>M-405.DG</b>	Translation Stage, 50 mm, DC Motor/Gearhead
<b>M-410.DG</b>	Translation Stage, 100 mm, DC Motor/Gearhead
<b>M-415.DG</b>	Translation Stage, 150 mm, DC Motor/Gearhead
<b>M-405.PD</b>	*Translation Stage, 50 mm, ActiveDrive™ DC Motor
<b>M-410.PD</b>	*Translation Stage, 100 mm, ActiveDrive™ DC Motor
<b>M-415.PD</b>	*Translation Stage, 150 mm, ActiveDrive™ DC Motor
<b>M-405.2S</b>	Translation Stage, 50 mm, 2-phase Stepper Motor
<b>M-410.2S</b>	Translation Stage, 100 mm, 2-phase Stepper Motor
<b>M-415.2S</b>	Translation Stage, 150 mm, 2-phase Stepper Motor
<b>M-405.M0</b>	Translation Stage, 50 mm, Manual, Leadscrew
<b>M-410.M0</b>	Translation Stage, 100 mm, Manual, Leadscrew
<b>M-415.M0</b>	Translation Stage, 150 mm, Manual, Leadscrew
<b>M-592.00</b>	Z-axis Mounting Bracket for Vertical Mount of M-400 Series Stages
	* Includes 24 V Power Supply for ActiveDrive™
<b>Ask about custom designs!</b>	



- Piezo Actuators
- Nanopositioning & Scanning Systems
- Active Optics / Steering Mirrors
- Tutorial: Piezo-electrics in Positioning
- Capacitive Position Sensors
- Piezo Drivers & Nanopositioning Controllers
- Hexapods / Micropositioning**
- Photonics Alignment Solutions
- Motion Controllers
- Ceramic Linear Motors & Stages
- Index

**Technical Data**

Models	M-405.CG	M-410.CG	M-415.CG	M-405.DG	M-410.DG	M-415.DG	M-405.PD	M-410.PD	M-415.PD	M-405.2S	M-410.2S	M-415.2S	Units <sup>#</sup>
Travel range	50	100	150	50	100	150	50	100	150	50	100	150	mm
Design resolution	0.0035	0.0035	0.0035	0.0085	0.0085	0.0085	0.125	0.125	0.125	0.025	0.025	0.025	µm
Min. incremental	0.1	0.1	0.1	0.1	0.1	0.1	0.25	0.25	0.25	0.1	0.1	0.1	µm
Unidirectional	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	µm
Bidirectional	2	2	2	2	2	2	2	2	2	2	2	2	µm
Origin repeatability	1	1	1	1	1	1	1	1	1	1	1	1	µm
Flatness	2	2	3	2	2	3	2	2	3	2	2	3	µm
Pitch (θ <sub>y</sub> )	50	125	150	50	125	150	50	125	150	50	125	150	µrad
Yaw (θ <sub>z</sub> )	50	125	150	50	125	150	50	125	150	50	125	150	µrad
Max. velocity	1	1	1	1.5	1.5	1.5	15*	15*	15*	6	6	6	mm/s
Max. normal	20	20	20	20	20	20	20	20	20	20	20	20	kg
Max. push/pull force	40 / 40	40 / 40	40 / 40	50 / 50	50 / 50	50 / 50	50 / 50	50 / 50	50 / 50	50 / 50	50 / 50	50 / 50	N
Max. lateral force	150	150	150	150	150	150	150	150	150	150	150	150	N
Encoder resolution	2048	2048	2048	2000	2000	2000	4000	4000	4000				counts/rev.
Motor resolution	-	-	-	-	-	-	-	-	-	20,000**	20,000**	20,000**	steps/rev.
Lead screw pitch	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	mm/rev.
Gear ratio	69.12:1	69.12:1	69.12:1	(28/12) <sup>4</sup> :1 ≈29.6:1	(28/12) <sup>4</sup> :1 ≈29.6:1	(28/12) <sup>4</sup> :1 ≈29.6:1	-	-	-	-	-	-	
Nominal motor power	2	2	2	3	3	3	30 ***	30 ***	30 ***	_*	_*	_*	W
Motor voltage	12	12	12	12	12	12	24	24	24	24 **	24 **	24 **	V
Weight	2.0	2.3	2.7	2.1	2.4	2.8	2.1	2.4	2.8	2.1	2.4	2.8	kg
Length L, A	207, 38.5	257, 63.5	307, 88.5	207, 38.5	257, 63.5	307, 88.5	207, 38.5	257, 63.5	307, 88.5	207, 38.5	257, 63.5	307, 88.5	
Body material	Al, St	Al, St	Al, St	Al, St	Al, St	Al, St	Al, St	Al, St	Al, St	Al, St	Al, St	Al, St	L
Recommended motor controller	C-843, C-848, C-862	C-843, C-848, C-862	C-843, C-848, C-862	C-843, C-848, C-862	C-843, C-848, C-862	C-843, C-848, C-862	C-843, C-848, C-862	C-843, C-848, C-862	C-843, C-848, C-862	C-843, C-600, C-630	C-600, C-630	C-600, C-630	

C-815.38 motor cable included: 3 m, sub-D, 15/15 pin (m/f).

\* max. recommended velocity. \*\* 2-phase stepper, 24 V chopper voltage, max. 0.8 A / phase, 20,000 microsteps with C-600, C-630 controllers;

\*\*\* ActiveDrive™ (integrated PWM servo amplifier)

# See page 7-106 for notes and explanations.

# M-403 Linear Slide

## High-Resolution Leadscrew-Driven Translation Stages with Stepper and DC-Motors



M-403 linear stage versions (from left): the M-403.1PD, M-403.2PD, M-403.4PD, M-403.6PD and M-403.8PD provide travel ranges from 25 to 200 mm.

- For Cost-Sensitive Applications
- Modular System M-403, M-404, M-413, M-414
- Preloaded Precision Leadscrew
- Travel Range 25 to 200 mm
- Min. Incremental Motion 0.2 μm
- Resolution to 0.017 μm
- Stress-Relieved Aluminum Base for Highest Stability

The optimum choice from a modular system of high-value, low-cost components makes the M-403 family of linear stages very attractive and economical. These stages are lead-screw-driven and provide a minimum incremental motion to 0.2 μm. They are designed with a precision-machined, high-density, stress-relieved aluminum base for exceptional stability and minimum weight. M-403 stages are available with travel ranges from 25 mm to 200 mm.

### Application Examples

- Quality control
- Semiconductor test equipment
- Precision automation
- Metrology
- Data storage test
- Research & development

### High Load and Maintenance Free

All models of the M-403 family are equipped with high-precision linear guiding rails and recirculating ball bearings. Their high load capacity allows them to carry up to 20 kg and to push/pull up to 50 N. The recirculating ball bearings are maintenance free and immune to the cage migration which can plague crossed roller bearings.

### Three Motor Drives

The top-of-the-line M-403.xPD versions feature the high-performance ActiveDrive™ system. This design, developed by PI, has a high-efficiency PWM servo-amplifier mounted side by side with the DC-Motor and offers several advantages:

- Increased efficiency, by eliminating power losses between the amplifier and motor
- Reduced cost of ownership and improved reliability,

because no external driver is required

- Elimination of PWM amplifier noise radiation, by mounting the amplifier and motor together in a single, electrically shielded case

The M-403.xDG models are equipped with a DC-Motor with zero-backlash gearhead and a shaft-mounted optical encoder, providing a minimum incremental motion of 0.2 μm.

The M-403.x2S models feature a direct-drive, 2-phase stepper motor, providing a resolution of 0.1 μm per step and very smooth operation.

### Direction-Sensing Origin Switch

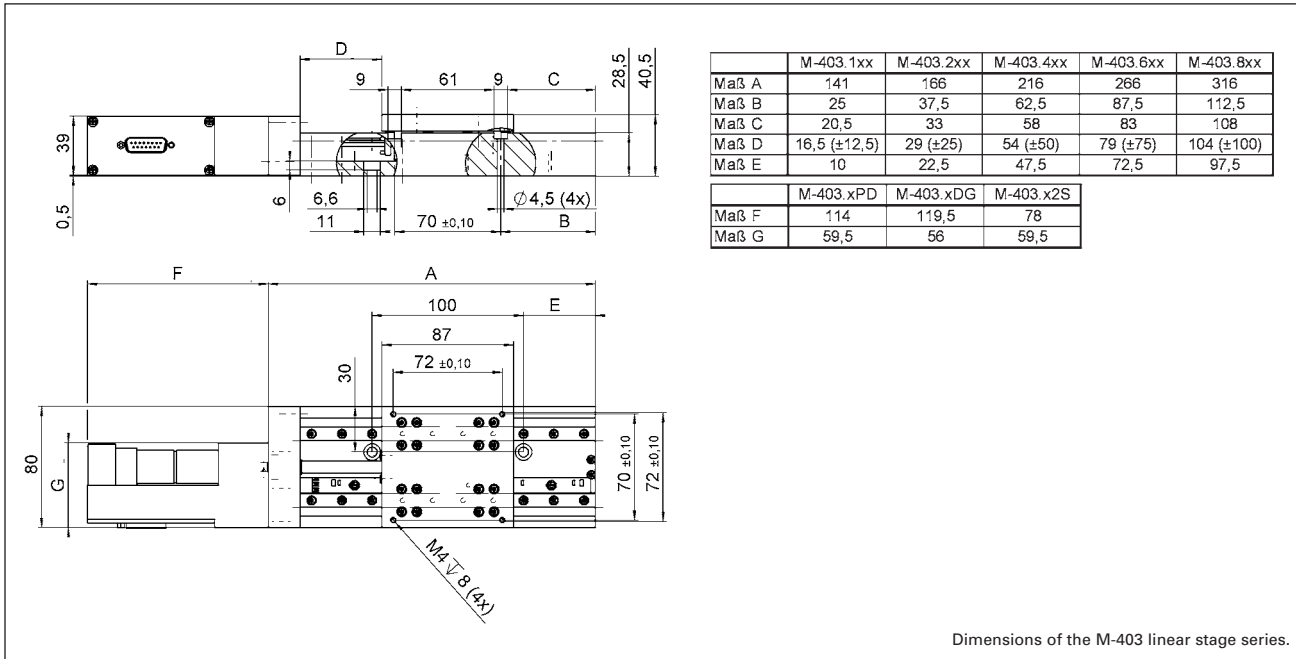
Integrated, high-precision, non-contact Hall-effect origin and limit switches with direction sensing on the origin switch protect your equipment and increase versatility in automation applications.

### Low Cost of Ownership

The combination of these stages with the networkable, single channel C-862 Mercury™ controller offers high performance for a very competitive price in both single and multi-axis configurations.

### Ordering Information

- M-403.1PD**  
Linear Translation Stage, 80 mm Wide, 25 mm Travel Range, DC-Motor/ActiveDrive™
- M-403.1DG**  
Linear Translation Stage, 80 mm Wide, 25 mm Travel Range, DC-Motor
- M-403.12S**  
Linear Translation Stage, 80 mm Wide, 25 mm Travel Range, Stepper Motor
- M-403.2PD**  
Linear Translation Stage, 80 mm Wide, 50 mm Travel Range, DC-Motor/ActiveDrive™
- M-403.2DG**  
Linear Translation Stage, 80 mm Wide, 50 mm Travel Range, DC-Motor
- M-403.22S**  
Linear Translation Stage, 80 mm Wide, 50 mm Travel Range, Stepper Motor
- M-403.4PD**  
Linear Translation Stage, 80 mm Wide, 100 mm Travel Range, DC-Motor/ActiveDrive™
- M-403.4DG**  
Linear Translation Stage, 80 mm Wide, 100 mm Travel Range, DC-Motor
- M-403.42S**  
Linear Translation Stage, 80 mm Wide, 100 mm Travel Range, Stepper Motor
- M-403.6PD**  
Linear Translation Stage, 80 mm Wide, 150 mm Travel Range, DC-Motor/ActiveDrive™
- M-403.6DG**  
Linear Translation Stage, 80 mm Wide, 150 mm Travel Range, DC-Motor
- M-403.62S**  
Linear Translation Stage, 80 mm Wide, 150 mm Travel Range, Stepper Motor
- M-403.8PD**  
Linear Translation Stage, 80 mm Wide, 200 mm Travel Range, DC-Motor/ActiveDrive™
- M-403.8DG**  
Linear Translation Stage, 80 mm Wide, 200 mm Travel Range, DC-Motor
- M-403.82S**  
Linear Translation Stage, 80 mm Wide, 200 mm Travel Range, Stepper Motor



Piezo Actuators

Nanopositioning &amp; Scanning Systems

Active Optics / Steering Mirrors

Tutorial: Piezo-electrics in Positioning

Capacitive Position Sensors

Piezo Drivers &amp; Nanopositioning Controllers

**Hexapods / Micropositioning**

Photonics Alignment Solutions

Motion Controllers

Ceramic Linear Motors &amp; Stages

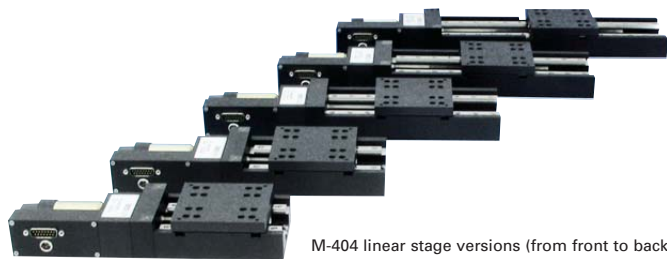
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Different motor versions of the M-403 linear stage family with 100 mm travel range (from left):  
 M-403.4PD (DC-motor/ActiveDrive™),  
 M-403.4DG (DC-motor/gearhead) and  
 M-403.42S (stepper motor).

# M-404 Linear Slide

## High-Precision Ball-Screw-Driven Translation Stages with Stepper and DC-Motors



M-404 linear stage versions (from front to back): the M-403.1PD, M-403.2PD, M-403.4PD, M-403.6PD and M-403.8PD provide travel ranges from 25 to 200 mm.

- **High-Precision Components**
- **Modular System M-403, M-404, M-413, M-414**
- **Recirculating Ball Screw Provides High Speed & Long Lifetime**
- **Travel Range 25 to 200 mm**
- **Min. Incremental Motion 0.1 µm**
- **Resolution to 0.012 µm**
- **Stress-Relieved Aluminum Base for Highest Stability**

The modular M-404 family of linear stages provides high-performance at a very attractive price. The integrated low-friction ball-screws combine high duty-cycles and velocities with minimum incremental motion of 0.1 µm. These stages are designed with a precision-machined, high-density, stress-relieved aluminum base for exceptional stability and minimum weight. Travel ranges from 25 mm to 200 mm are available.

### High Load and Maintenance Free

All models of the M-404 family are equipped with high-precision

linear guiding rails and recirculating ball bearings. Their high load capacity allows them to carry up to 20 kg and to push/pull up to 50 N. The recirculating ball bearings are maintenance free and immune to the cage migration which can plague crossed roller bearings.

### Three Motor Drives

The top-of-the-line M-404.xPD versions feature the high-performance ActiveDrive™ system. This design, developed by PI, has a high-efficiency PWM servo-amplifier mounted side by side with the DC-Motor and offers several advantages:

- Increased efficiency, by eliminating power losses between the amplifier and motor
- Reduced cost of ownership and improved reliability, because no external driver is required
- Elimination of PWM amplifier noise radiation, by mounting the amplifier and motor together in a single, electrically shielded case

The M-404.xDG models are equipped with a DC-Motor with zero-backlash gearhead and a shaft-mounted optical encoder, providing a minimum incremental motion of 0.1 µm.

The M-404.x2S models feature a direct-drive, 2-phase stepper motor with zero vibration, providing a resolution of 0.1 µm steps.

### Direction-Sensing Origin Switch

Integrated, high-precision, non-contact Hall-effect origin and limit switches with direction sensing on the origin switch protect your equipment and increase versatility in automation applications.

### Low Cost of Ownership

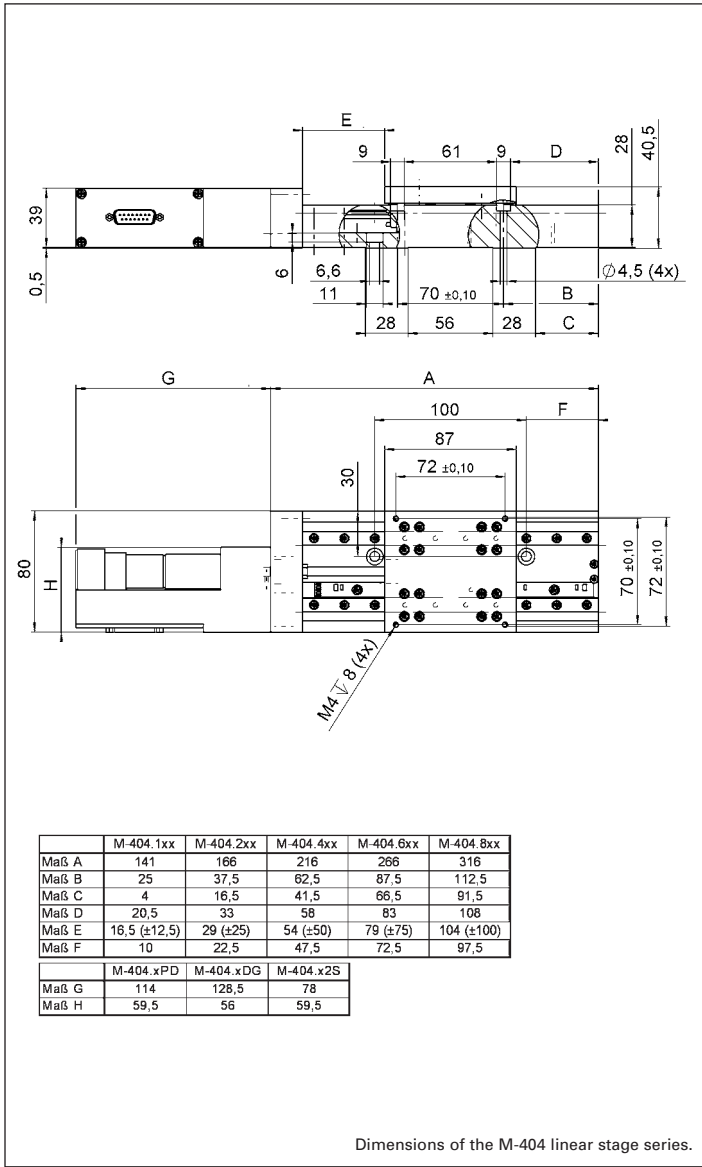
These PI stages are especially cost effective in high performance, high-duty-cycle applications, when combined with the with the networkable C-862 Mercury™ controller.

### Ordering Information

- M-404.1PD**  
Precision-Linear Stage, 80 mm Wide, 25 mm Travel Range, ActiveDrive™
- M-404.1DG**  
Precision-Linear Stage, 80 mm Wide, 25 mm Travel Range, DC-Motor
- M-404.12S**  
Precision-Linear Stage, 80 mm Wide, 25 mm Travel Range, Stepper Motor
- M-404.2PD**  
Precision-Linear Stage, 80 mm Wide, 50 mm Travel Range, ActiveDrive™
- M-404.2DG**  
Precision-Linear Stage, 80 mm Wide, 50 mm Travel Range, DC-Motor
- M-404.22S**  
Precision-Linear Stage, 80 mm Wide, 50 mm Travel Range, Stepper Motor
- M-404.4PD**  
Precision-Linear Stage, 80 mm Wide, 100 mm Travel Range, ActiveDrive™
- M-404.4DG**  
Precision-Linear Stage, 80 mm Wide, 100 mm Travel Range, DC-Motor
- M-404.42S**  
Precision-Linear Stage, 80 mm Wide, 100 mm Travel Range, Stepper Motor
- M-404.6PD**  
Precision-Linear Stage, 80 mm Wide, 150 mm Travel Range, ActiveDrive™
- M-404.6DG**  
Precision-Linear Stage, 80 mm Wide, 150 mm Travel Range, DC-Motor
- M-404.62S**  
Precision-Linear Stage, 80 mm Wide, 150 mm Travel Range, Stepper Motor
- M-404.8PD**  
Precision-Linear Stage, 80 mm Wide, 200 mm Travel Range, ActiveDrive™
- M-404.8DG**  
Precision-Linear Stage, 80 mm Wide, 200 mm Travel Range, DC-Motor
- M-404.82S**  
Precision-Linear Stage, 80 mm Wide, 200 mm Travel Range, Stepper Motor

### Application Examples

- Quality control
- Semiconductor test equipment
- Precision automation
- Metrology
- Data storage test
- Research & development



Piezo Actuators

Nanopositioning & Scanning Systems

Active Optics / Steering Mirrors

Tutorial: Piezo-electrics in Positioning

Capacitive Position Sensors

Piezo Drivers & Nanopositioning Controllers

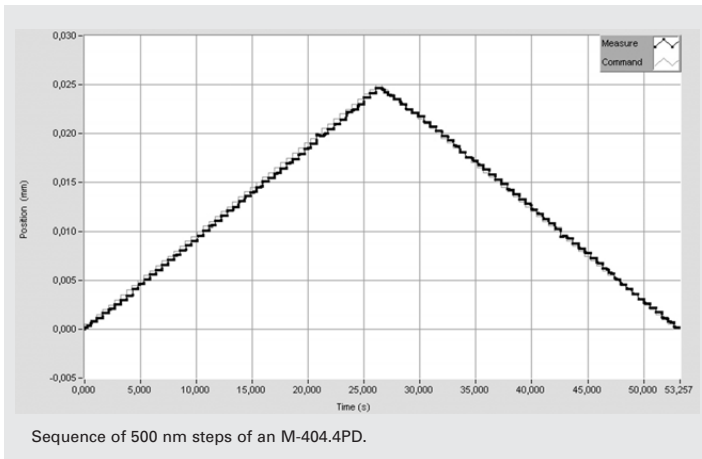
**Hexapods / Micropositioning**

Photonics Alignment Solutions

Motion Controllers

Ceramic Linear Motors & Stages

Index



**Technical Data**

Models	M-403.1PD	M-403.1DG	M-403.12S	M-403.2PD	M-403.2DG	M-403.22S	M-403.4PD	M-403.4DG
Active Axes	X	X	X	X	X	X	X	X
<b>Motion and positioning</b>								
Travel range	25	25	25	50	50	50	100	100
Integrated sensor	Rotary encoder	Rotary encoder		Rotary encoder	Rotary encoder		Rotary encoder	Rotary encoder
Sensor resolution	4000	2000		4000	2000		4000	2000
Design resolution	0.25	0.0175	0.1	0.25	0.0175	0.1	0.25	0.0175
Min. incremental motion	0.25	0.2	0.2	0.25	0.2	0.2	0.25	0.2
Backlash	1	6	2	1	6	2	1	6
Unidirectional repeatability	1	1	1	1	1	1	1	1
Pitch	200	200	200	200	200	200	200	200
Yaw	200	200	200	200	200	200	200	200
Max. velocity	10*	2.5	3	10*	2.5	3	10*	2.5
Origin repeatability	1	1	1	1	1	1	1	1
<b>Mechanical properties</b>								
Spindle pitch	1	1	1	1	1	1	1	1
Gear ratio		28.444			28.444			28.444
Motor resolution			10000**			10000**		
Stiffness in motion direction	3500	3500	3500	3500	3500	3500	3500	3500
Load	200	200	200	200	200	200	200	200
Push-/Pullforce	50	50	50	50	50	50	50	50
Self inhibition	50	50	50	50	50	50	50	50
Lateral force	100	100	100	100	100	100	100	100
<b>Drive Properties</b>								
Drive type	DC-Motor, ActiveDrive™	DC-Motor, gearhead	2-phase stepper-motor	DC-Motor, ActiveDrive™	DC-Motor, gearhead	2-phase stepper-motor	DC-Motor, ActiveDrive™	DC-Motor, gearhead
Operating voltage	24	0-12	24	24	0-12	24	24	0-12
Electrical power	26	2.5		26	2.5		26	2.5
<b>Miscellaneous</b>								
Operating temperature range	-20 to +65	-20 to +65	-20 to +65	-20 to +65	-20 to +65	-20 to +65	-20 to +65	-20 to +65
Material	Al (black anodized)	Al (black anodized)	Al (black anodized)	Al (black anodized)	Al (black anodized)	Al (black anodized)	Al (black anodized)	Al (black anodized)
Mass	1.7	1.7	1.7	1.8	1.8	1.8	2	2
Cable length	3	3	3	3	3	3	3	3
Connector	Sub-D 15 (m)	Sub-D 15 (m)	Sub-D 15 (m)	Sub-D 15 (m)	Sub-D 15 (m)	Sub-D 15 (m)	Sub-D 15 (m)	Sub-D 15 (m)
Recommended controller/driver	C-843; C-862	C-843; C-862	C-630; C-600	C-843; C-862	C-843; C-862	C-630; C-600	C-843; C-862	C-843; C-862
Models	M-404.1PD	M-404.1DG	M-404.12S	M-404.2PD	M-404.2DG	M-404.22S	M-404.4PD	M-404.4DG
Active Axes	X	X	X	X	X	X	X	X
<b>Motion and positioning</b>								
Travel range	25	25	25	50	50	50	100	100
Integrated sensor	Rotary encoder	Rotary encoder		Rotary encoder	Rotary encoder		Rotary encoder	Rotary encoder
Sensor resolution	4000	2000		4000	2000		4000	2000
Design resolution	0.25	0.0116	0.1	0.25	0.0116	0.1	0.25	0.0116
Min. incremental motion	0.25	0.1	0.2	0.25	0.1	0.2	0.25	0.1
Backlash	0.5	2	2	0.5	2	2	0.5	2
Unidirectional repeatability	0.5	1	1	0.5	1	1	0.5	1
Pitch	75	75	75	75	75	75	75	75
Yaw	75	75	75	75	75	75	75	75
Max. velocity	50	1.5	3	50	1.5	3	50	1.5
Origin repeatability	1	1	1	1	1	1	1	1
<b>Mechanical properties</b>								
Spindle pitch	1	1	1	1	1	1	1	1
Gear ratio		42.92063			42.92063			42.92063
Motor resolution			10000**			10000**		
Stiffness in motion direction	3500	3500	3500	3500	3500	3500	3500	3500
Load	200	200	200	200	200	200	200	200
Push-/Pullforce	50	50	50	50	50	50	50	50
Self inhibition	40	50	50	40	50	50	40	50
Lateral force	100	100	100	100	100	100	100	100
<b>Drive Properties</b>								
Drive type	DC-Motor, ActiveDrive™	DC-Motor, gearhead	2-phase stepper-motor	DC-Motor, ActiveDrive™	DC-Motor, gearhead	2-phase stepper-motor	DC-Motor, ActiveDrive™	DC-Motor, gearhead
Operating voltage	24	0-12	24	24	0-12	24	24	0-12
Electrical power	26	2.5		26	2.5		26	2.5
<b>Miscellaneous</b>								
Operating temperature range	-20 to +65	-20 to +65	-20 to +65	-20 to +65	-20 to +65	-20 to +65	-20 to +65	-20 to +65
Material	Al (black anodized)	Al (black anodized)	Al (black anodized)	Al (black anodized)	Al (black anodized)	Al (black anodized)	Al (black anodized)	Al (black anodized)
Mass	1.8	1.8	1.8	1.9	1.9	1.9	2.2	2.2
Cable length	3	3	3	3	3	3	3	3
Connector	Sub-D 15 (m)	Sub-D 15 (m)	Sub-D 15 (m)	Sub-D 15 (m)	Sub-D 15 (m)	Sub-D 15 (m)	Sub-D 15 (m)	Sub-D 15 (m)
Recommended controller/driver	C-843; C-862	C-843; C-862	C-630; C-600	C-843; C-862	C-843; C-862	C-630; C-600	C-843; C-862	C-843; C-862

\* Max. recommendet velocity      \*\* 2-phase stepper; 10,000 microsteps with C-600/C-630 controller

M-403.42S	M-403.6PD	M-403.6DG	M-403.62S	M-403.8PD	M-403.8DG	M-403.82S	Units	Tolerance
X	X	X	X	X	X	X		
100	150	150	150	200	200	200	mm	
	Rotary encoder	Rotary encoder		Rotary encoder	Rotary encoder			
	4000	2000		4000	2000			
0.1	0.25	0.0175	0.1	0.25	0.0175	0.1	µm	typ.
0.2	0.25	0.2	0.2	0.25	0.2	0.2	µm	typ.
2	1	6	2	1	6	2	µm	typ.
1	1	1	1	1	1	1	µm	typ.
200	200	200	200	200	200	200	µrad	typ., over 100 mm
200	200	200	200	200	200	200	µrad	typ., over 100 mm
3	10*	2.5	3	10*	2.5	3	mm/s	
1	1	1	1	1	1	1	µm	typ.
1	1	1	1	1	1	1	mm/rev.	
		28.444			28.444			
10000**			10000**			10000**	Steps/rev.	
3500	3500	3500	3500	3500	3500	3500	N/mm	
200	200	200	200	200	200	200	N	Max.
50	50	50	50	50	50	50	N	
50	50	50	50	50	50	50	N	Min.
100	100	100	100	100	100	100	N	Max.
2-phase stepper-motor	DC-Motor, ActiveDrive™	DC-Motor, gearhead	2-phase stepper-motor	DC-Motor, ActiveDrive™	DC-Motor, gearhead	2-phase stepper-motor		
24	24	0-12	24	24	0-12	24	V	
	26	2.5		26	2.5		W	nominal
-20 to +65	-20 to +65	-20 to +65	-20 to +65	-20 to +65	-20 to +65	-20 to +65	°C	
Al (black anodized)	Al (black anodized)	Al (black anodized)	Al (black anodized)	Al (black anodized)	Al (black anodized)	Al (black anodized)		
2	2.2	2.2	2.2	2.5	2.5	2.5	kg	±5 %
3	3	3	3	3	3	3	m	±10 mm
Sub-D 15 (m)	Sub-D 15 (m)	Sub-D 15 (m)	Sub-D 15 (m)	Sub-D 15 (m)	Sub-D 15 (m)	Sub-D 15 (m)		
C-630; C-600	C-843; C-862	C-843; C-862	C-630; C-600	C-843; C-862	C-843; C-862	C-630; C-600		
M-404.42S	M-404.6PD	M-404.6DG	M-404.62S	M-404.8PD	M-404.8DG	M-404.82S	Units	Tolerance
X	X	X	X	X	X	X		
100	150	150	150	200	200	200	mm	
	Rotary encoder	Rotary encoder		Rotary encoder	Rotary encoder			
	4000	2000		4000	2000			
0.1	0.25	0.0116	0.1	0.25	0.0116	0.1	µm	typ.
0.2	0.25	0.1	0.2	0.25	0.1	0.2	µm	typ.
2	0.5	2	2	0.5	2	2	µm	typ.
1	0.5	1	1	0.5	1	1	µm	typ.
75	75	75	75	75	75	75	µrad	typ., over 100 mm
75	75	75	75	75	75	75	µrad	typ., over 100 mm
3	50	1.5	3	50	1.5	3	mm/s	
1	1	1	1	1	1	1	µm	±20 %
1	1	1	1	1	1	1	mm/rev.	
		42.92063			42.92063			
10000**			10000**			10000**	Steps/rev.	
3500	3500	3500	3500	3500	3500	3500	N/mm	±20 %
200	200	200	200	200	200	200	N	Max.
50	50	50	50	50	50	50	N	Max.
50	40	50	50	40	50	50	N	Min.
100	100	100	100	100	100	100	N	Max.
2-phase stepper-motor	DC-Motor, ActiveDrive™	DC-Motor, gearhead	2-phase stepper-motor	DC-Motor, ActiveDrive™	DC-Motor, gearhead	2-phase stepper-motor		
24	24	0-12	24	24	0-12	24	V	
	26	2.5		26	2.5		W	nominal
-20 to +65	-20 to +65	-20 to +65	-20 to +65	-20 to +65	-20 to +65	-20 to +65		
Al (black anodized)	Al (black anodized)	Al (black anodized)	Al (black anodized)	Al (black anodized)	Al (black anodized)	Al (black anodized)		
2.2	2.3	2.3	2.3	2.6	2.6	2.6	kg	±5 %
3	3	3	3	3	3	3	m	±10 mm
Sub-D 15 (m)	Sub-D 15 (m)	Sub-D 15 (m)	Sub-D 15 (m)	Sub-D 15 (m)	Sub-D 15 (m)	Sub-D 15 (m)		
C-630; C-600	C-843; C-862	C-843; C-862	C-630; C-600	C-843; C-862	C-843; C-862	C-630; C-600		

# P-620.1 – P-629.1 Linear Slide, Piezo Driven PIHera® Miniature Long-Range Piezo Nanopositioning Stages with Direct Metrology

PIHera® piezo nanotranslation stages with travel ranges from 50 µm to 1800 µm



- Travel to 1800 µm
- Compact Design
- Resolution <1 nm
- Frictionless Precision Flexure Guiding System
- PICMA® High-Performance Piezo Drives
- Direct Metrology with Capacitive Sensors for Highest Precision
- Up to 0.02 % Position Accuracy
- X, XY, Z, XYZ Versions
- Vacuum-Compatible Versions

P-620.1CD – P-629.1CD PIHera® systems are piezo-nanopositioning stages featuring travel ranges from 50 to 1800 µm. Despite the increased travel ranges, the units are extremely compact and provide sub-nanometer resolution. The long travel range is achieved with a newly designed, friction-free and extremely stiff flexure system, which also offers rapid response and excellent guiding accuracy (typically less than 5 µrad pitch/yaw over the full travel range).

### Application Examples

- (Dynamic) interferometry
- Microscopy
- Nanopositioning
- Biotechnology
- Quality assurance
- Semiconductor technology

### Superior Accuracy Through Direct-Motion Metrology with Capacitive Sensors

The capacitive-sensor-equipped versions provide motion linearity to 0.02 % with effective resolution in the sub-nanometer range. PI capacitive sensors are absolute-measuring, direct-metrology devices that boast

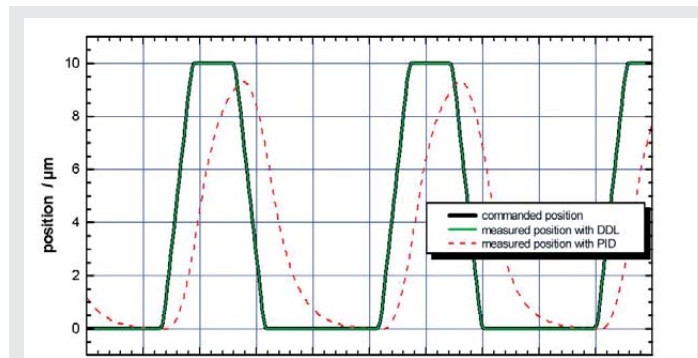
very high bandwidth and exhibit no periodic errors. Unlike conventional sensors, capacitive sensors measure the actual distance between the fixed frame and the moving part of the stage. They detect errors contributed by all components in the drive train—from the actuator through the flexures to the platform. This results in higher motion linearity, long-term stability, phase fidelity, and—because external disturbances are seen by the sensor immediately—a stiffer, faster-responding servo-loop. See p. 2-4 ff. and p. 5-2 ff. for more information.

### Nanometer Precision in Milliseconds

One of the advantages of PIHera® stages over motor-driven positioning stages is the rapid response to input changes and fast and precise settling behavior. The P-622.1CD, for example, can settle to an accuracy of 10 nm in only 30 msec (other PI stages provide even faster response!)

### Single & Multi-Axis Versions

See page 2-42 and page 2-54 for Z and XY versions. XZ and XYZ combinations can be assembled without adapters.



Rapid scanning motion of a P-621.1CD (commanded rise time 5 ms) with the E-710 controller and DDL option. Digital Dynamic Linearization virtually eliminates the tracking error (<20 nm) during the scan. The improvement over a classical PID controller is up to 3 orders of magnitude, and grows with the scanning frequency

### Ordering Information

**P-620.1CD \* / P-620.1CL \***  
PIHera® Nanopositioning System, 50 µm, Capacitive Sensors

**P-620.10L**  
PIHera® Nanopositioning System, 60 µm, Open-Loop, LEMO Conn.

**P-621.1CD \* / P-621.1CL \***  
PIHera® Nanopositioning System, 100 µm, Capacitive Sensors

**P-621.10L**  
PIHera® Nanopositioning System, 120 µm, Open-Loop, LEMO Conn.

**P-622.1CD \* / P-622.1CL \***  
PIHera® Nanopositioning System, 250 µm, Capacitive Sensors

**P-622.10L**  
PIHera® Nanopositioning System, 300 µm, Open-Loop, LEMO Conn.

**P-625.1CD \* / P-625.1CL \***  
PIHera® Nanopositioning System, 500 µm, Capacitive Sensors

**P-625.10L**  
PIHera® Nanopositioning System, 600 µm, Open-Loop, LEMO Conn.

**P-628.1CD \* / P-628.1CL**  
PIHera® Nanopositioning System, 800 µm, Capacitive Sensors

**P-628.10L**  
PIHera® Nanopositioning System, 950 µm, Open-Loop, LEMO Conn.

**P-629.1CD \* / P-629.1CL \***  
PIHera® Nanopositioning System, 1500 µm, Capacitive Sensors

**P-629.10L**  
PIHera® Nanopositioning System, 1800 µm, Open-Loop, LEMO Conn.

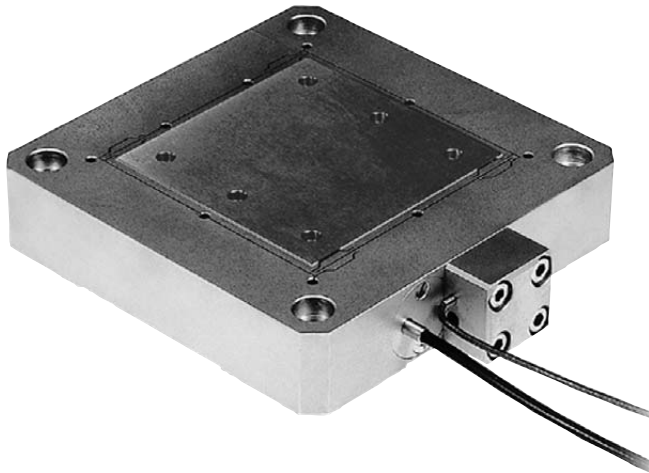
- \* .1CD with Sub-D Connector
- \* .1CL with LEMO Connectors

**Vacuum versions** to 10<sup>-9</sup> hPa are available as part numbers P-62x.1UD

**Custom sizes & specifications available!**

# P-750 Linear Slide with Piezo Flexure Drive

## High-Load Piezo-Driven Nanopositioning Stages with Direct Metrology



P-750.10 flexure nanopositioner

- 10 kg Load Capacity
- 1 nm Lateral Guiding Precision
- Resolution <1 nm
- PICMA® High-Performance Piezo Drives
- Fast Response
- 75 µm Travel Range
- Direct Metrology with Capacitive Sensors for Highest Precision
- Frictionless Precision Flexure Guiding System

P-750 high-load, piezo-driven flexure-guided, nanopositioning stages are designed to provide motion in one axis with extremely low off-axis error. They feature a positioning and scanning range up to 75 µm with fast settling, on the order of a few milliseconds. Closed-loop versions with integrated

capacitive and LVDT (linear variable differential transformer) feedback sensors are offered for enhanced accuracy and repeatability.

### Superior Accuracy Through Direct-Motion Metrology

The capacitive-sensor equipped versions (P-750.10) permit motion linearity to 0.03% with effective resolution in the sub-nanometer range. PI capacitive sensors are absolute-measuring, direct-metrology devices that boast very high bandwidth and exhibit no periodic errors.

Unlike conventional indirect sensors, capacitive sensors

measure the actual distance between the fixed frame and the moving part of the stage. They detect errors contributed by all components in the drive train—from the actuator through the flexures to the platform. This results in higher motion linearity, long-term stability, phase fidelity, and—because external disturbances are seen by the sensor immediately—a stiffer, faster-responding servo-loop. See p. 2-4 *ff.* and p. 5-2 *ff.* for more information.

P-750.10 models are equipped with lower-cost, direct-metrology LVDT sensors providing 10 nm resolution.

### Dynamic Digital Control for Best Scanning Linearity

Use our new digital control electronics with DDL (Dynamic Digital Linearization) to increase linearity and effective bandwidth in scanning applications by up to 1000-fold (see p. 6-16). By virtually eliminating tracking errors, DDL also increases the usable travel range.

### Working Principle / Reliability

P-750 nanopositioning stages are equipped with the award winning PICMA® piezo drives, integrated into a sophisticated single-module, flexure guiding system. The wire-EDM-cut flexures are FEA modeled for zero stiction, zero friction and exceptional guiding precision. The ceramic-encapsulated PICMA® drives are more robust than conventional piezo actuators, featuring superior lifetime and performance in both dynamic and static applications. Because guidance, actuators and sensors are all frictionless and maintenance-free, these nanopositioning systems achieve outstanding levels of reliability.

### Ordering Information

**P-750.00**  
Piezo Flexure Stage, 75 µm

**P-750.10**  
Piezo Flexure Stage, 75 µm, LVDT Sensor

**P-750.20**  
Piezo Flexure Stage, 75 µm, Capacitive Sensor

**Ask about custom designs!**

### 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.

### Application Examples

- Metrology
- Disk drive testing
- Wafer steppers
- Semiconductor equipment



# M-126 Linear Slide, Servo & Stepper Motor Translation Stages with Crossed Roller Bearings



M-126.CG1 translation stage with compact DC motor/gearhead

- To 25 mm Travel Range
- Manual, DC-Servo and Stepper-Motor Drives
- ActiveDrive™ Option
- Compatible with Leading Industrial Motion Controllers
- Crossed Roller Bearings
- <0.1 μm Resolution
- XY and XYZ Combinations
- Direction-Sensing Origin Switch
- Non-Contact Limit Switches

M-126 systems are high-resolution translation stages with leadscrew and ballscrew drives. Precision crossed roller bearings guarantee straightness of travel of better than 2 μm.

All models are equipped with low-friction leadscrews for excellent resolution and repeatability. Three motorized versions are available: M-126.CG1 utilizes a compact closed-loop DC motor with shaft-mounted high-resolution position encoder and a precision gearhead providing 0.1 μm minimum incremental motion, M-126.DG1 is equipped with a larger motor than M-126.CG1 and provides higher velocity.

### ActiveDrive™

M-126.PD1 and .PD2 are equipped with the high-performance ActiveDrive™. This

novel design features a high-efficiency PWM servo-amplifier mounted side-by-side with the DC motor.

The ActiveDrive™ provides several decisive advantages:

- Increased efficiency by eliminating power losses between the amplifier and motor
- Reduced cost of ownership and improved reliability because no external driver is required
- Elimination of PWM amplifier noise radiation by mounting the amplifier and motor together in a single electrically shielded case

Model M-126.2S1 is equipped with a micro-stepped 2-phase stepper motor.

### Non-Contact Limit and Origin Switches

Non-contacting, Hall-effect limit and direction sensing origin switches are integrated into the motorized versions to protect your equipment.

All stages can be cross-stacked and combined with the M-125.90 Z-axis mounting bracket to provide multi-axis motion.

### Notes

See "Accessories", page 7-92 ff. for adapters, brackets, etc.

### Ordering Information

**M-126.CG1**  
Translation Stage, 25 mm, Compact DC Motor / Gearhead

**M-126.DG1**  
Translation Stage, 25 mm, DC Motor / Gearhead

**M-126.PD1**  
Translation Stage, 25 mm, ActiveDrive™ DC Motor (power supply included)

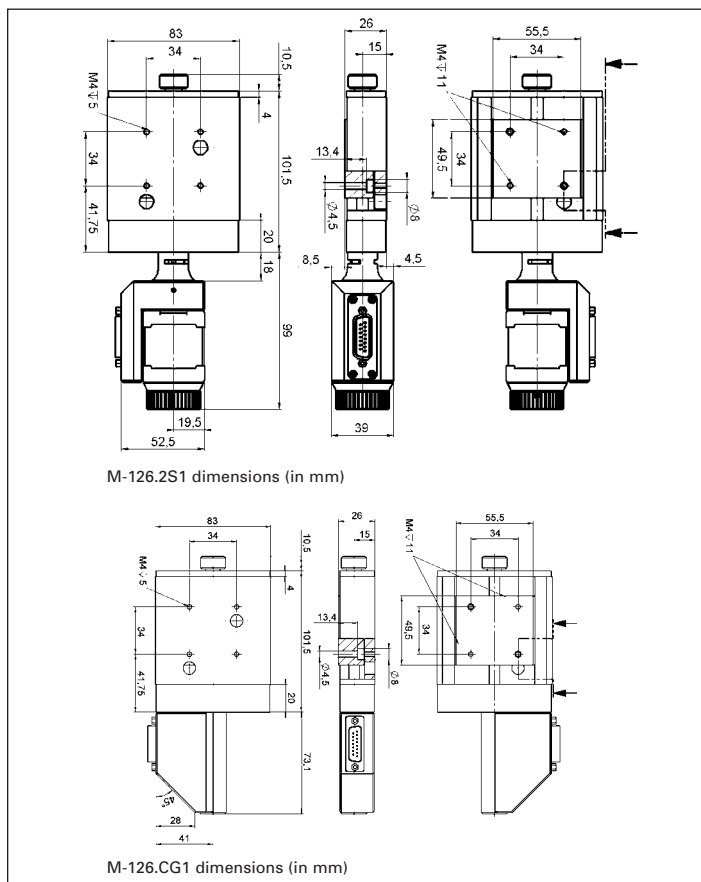
**M-126.PD2**  
Translation Stage, 20 mm ActiveDrive™ DC-Motor Ball Screw (power supply included)

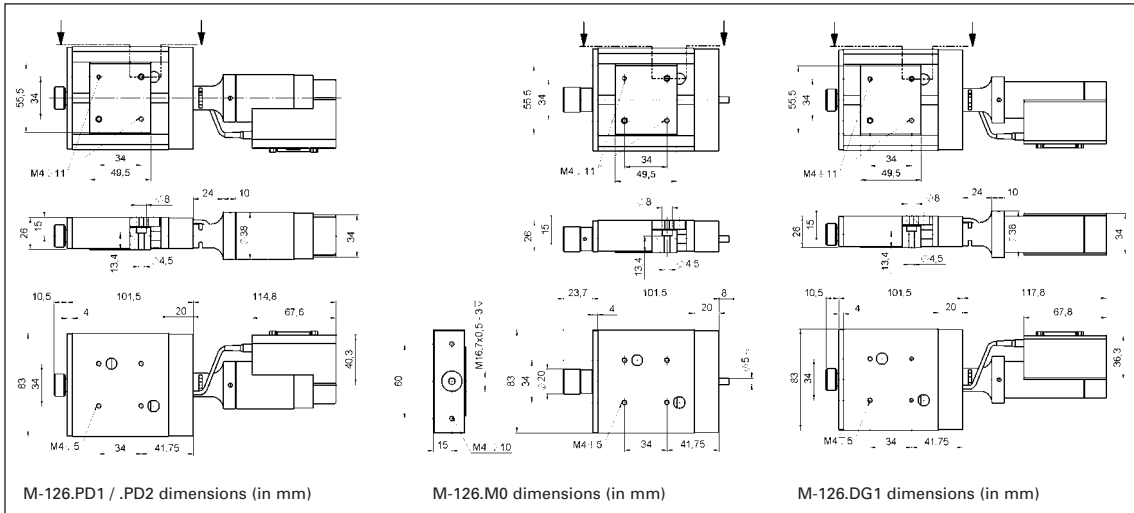
**M-126.2S1**  
Translation Stage, 25 mm, 2-Phase Stepper Motor

**M-126.M0**  
Translation Stage, 25 mm, Manual Drive, Leadscrew

**M-125.90**  
Z-axis Mounting Bracket for Vertical Mount of M-126 Stages

**Ask about custom designs!**





M-126.M0 translation stage, manual version



M-126.2S1 translation stage with 2-phase stepper motor (pen for size comparison)

**Technical Data**

Models	M-126.M0	M-126.CG1	M-126.DG1	M-126.PD1	M-126.PD2	M-126.2S1	Units	Notes see page 7-106
Travel range	25	25	25	25	20	25	mm	
Design resolution	-	0.0035	0.0085	0.125	0.25	0.05	µm	A3
Min. incremental motion	1	0.1	0.1	0.25	0.25	0.1	µm	A4
Unidirectional repeatability	-	0.2	0.1	0.1	0.25	0.1	µm	
Bidirectional repeatability	-	2	1	1	1	1	µm	
Straightness	2	2	2	2	2	2	µm	
Flatness	2	2	2	2	2	2	µm	
Pitch ( $\theta_y$ )	50	50	50	50	50	50	µrad	
Yaw ( $\theta_z$ )	50	50	50	50	50	50	µrad	
Max. velocity	-	1	1.5	*15	50	6	mm/sec	
Max. normal load capacity	20	20	20	20	20	20	kg	B1
Max. push/pull force	50 / 50	40 / 40	50 / 50	50 / 50	50 / 50	50 / 50	N	B2
Max. lateral force	100	100	100	100	100	100	N	
Encoder resolution	-	2048	2000	4000	4000	-	counts/rev.	
Motor resolution	-	-	-	-	-	20,000**	steps/rev.	
Leadscrew pitch	0.5	0.5	0.5	0.5	1	0.5	mm/rev.	
Gear ratio	-	69.12:1	(28/12) <sup>1</sup> :1 ≈ 29.6:1	-	-	-		
Nominal motor power	-	2	3	30	30	- **	W	
Motor voltage	-	12	12	24	24	24 **	V	
Weight	0.6	0.8	0.9	0.9	0.9	1.0	kg	
Body material	Al, St	Al, St	Al, St	Al, St	Al, St	Al, St		L
Recommended motor controller	-	C-843, C-848	C-843, C-848, C-843, C-848	C-843, C-848	C-843, C-848	C-600, C-630		D2

C-815.38 motor cable included: 3 m, sub-D, 15/15 pin (m/f).

\* max. recommended velocity. \*\* 2-phase stepper, 24 V chopper voltage, max. 0.8 A / phase, 20,000 microsteps with C-600, C-630 controllers.

Piezo Actuators

Nanopositioning & Scanning Systems

Active Optics / Steering Mirrors

Tutorial: Piezo-electrics in Positioning

Capacitive Position Sensors

Piezo Drivers & Nanopositioning Controllers

Hexapods / Micropositioning

Photonics Alignment Solutions

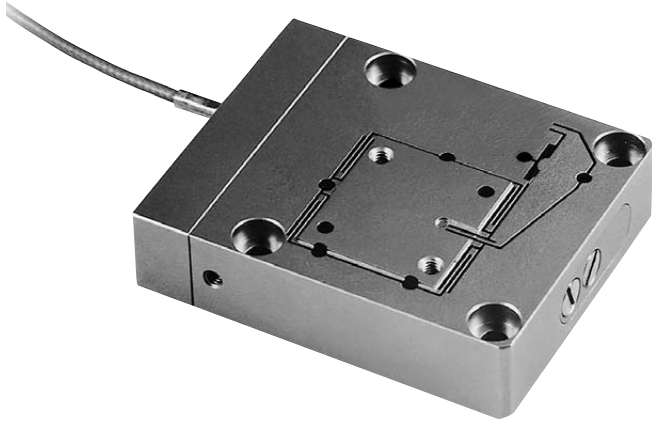
Motion Controllers

Ceramic Linear Motors & Stages

Index

# P-780 Linear Slide with Piezo Flexure Drive

## Miniature Piezo Nanopositioning/Scanning Stage with Direct Metrology



P-780 flexure nanopositioner

- Fast Response (1 kHz Resonant Frequency)
- Stainless Steel Construction
- Frictionless Precision Flexure Guiding System
- 80 μm Travel Range
- Direct Metrology with LVDT Sensor
- Resolution <5 nm
- PICMA® High-Performance Piezo Drives

P-780 piezo-driven, flexure-guided stages are extremely compact and fast devices, providing a positioning and scanning range of up to 80 μm with settling times of only a few milliseconds. The P-780 is designed for applications with loads up to 100 g. Closed-loop and open-loop versions are offered to fit your application.

Direct-metrology LVDT sensor P-780.20 models feature direct-measuring, non-contact LVDT sensors (direct metrology).

Unlike indirect strain-measuring, piezoresistive sensors, direct-metrology sensors measure the actual distance between the fixed frame and the moving part of the stage. This results in higher motion linearity, long-term stability, phase fidelity, and—because external disturbances are seen by the sensor immediately—a stiffer, faster-responding servo-loop. See p. 2-4 ff and p. 5-2 ff. for more information.

### Working Principle / Reliability

P-780 nanopositioning stages are equipped with the award winning PICMA® piezo drives, integrated into a sophisticated single-module, flexure guiding

system. The wire-EDM-cut flexures are FEA modeled for zero stiction, zero friction and exceptional guiding precision. The ceramic-encapsulated PICMA® drives are more robust than conventional piezo actuators, featuring superior lifetime and performance in both dynamic and static applications. Because guidance, actuators and sensors are all frictionless and maintenance-free, these nanopositioning systems achieve outstanding levels of reliability.

### Ordering Information

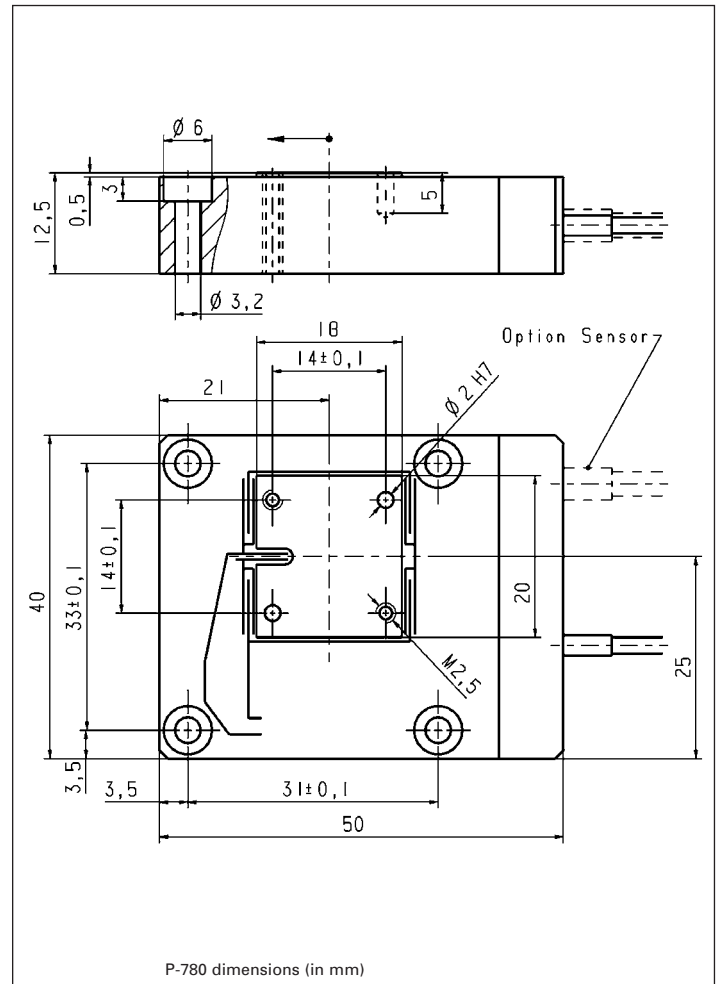
**P-780.00**  
Miniature Piezo Flexure Stage,  
80 μm

**P-780.20**  
Miniature Piezo Flexure Stage,  
80 μm, LVDT Sensor

**Ask about custom designs!**

### Notes

See the "Selection Guide" on p. 2-14 ff. for comparison with other nanopositioning systems.



### Application Examples

- Metrology
- Nanopositioning
- Scanning microscopy
- Disk drive testing
- Fiber optics
- Scanning interferometry
- Biotechnology
- Micromanipulation

# Linear Slides

	*Models	Description	Precision	Max Speed [mm/s]	Load Capacity [kg]	Travel [mm]
	<u>M-511.HD</u> , <u>M-714</u>	Hybrid drive, DC motor & piezo. Extremely accurate, 2 nm linear encoder	+++++	50, 0.2	100, 20	102, 7
	<u>M-511</u> , <u>M-521</u> , <u>M-531</u>	Ballscrew drive, compact, high load capacity and lifetime, optional linear encoder, choice of motors	+++00/ +++++	6 to 125	100	102, 204, 306
	<u>M-405</u> , <u>M-410</u> , <u>M-415</u>	Crossed roller bearings, very high resolution, choice of motors	+++00	1 to 6	50	50, 100, 150
	<u>M-413</u> , <u>M-414</u>	For cost-sensitive precision positioning applications. Choice of leadscrew and ballscrew drive	+0000/ ++000	1.5 to 50	50	100-300
	<u>M-403</u> , <u>M-404</u>	Low cost translation stages. Choice of leadscrew and ballscrew drive	+0000/ ++000	1.5 to 50	20	25-200
	<u>M-403KSTS</u>	With integrated stepper motor controller, 0.5 μm resolution	++000	10	50	200
	<u>M-605</u>	Compact integrated linear encoder, very high accuracy, protective bellows.	+++++	50	20	25, 50

# Piezo Stage Linear Slides, Nanopositioning,

## [Piezo Linear Actuators](#)



Sub-nanometer resolution, load capacity to 100 kN, optional case / preload / position sensor.

Piezo Actuators-Tubes w/ No Casing  
PICMA® Chip and Multilayer Actuators  
Piezo Shear and Multi-Axis  
Actuators w/ Casing, Closed-Loop Actuators

## [PiezoStage Systems, Piezo-Stages, Piezo Linear Slides](#)



Very high dynamics, sub-nanometer precise motion, 1 to 6 axis, frictionless flexure guides. Parallel kinematics, parallel metrology, capacitive feedback.

Single Axis Piezo Systems  
Multi-Axis Piezo Stages without Aperture  
Z-Actuators  
Multi-Axis Piezo Stages with Aperture  
Z-/Tip/Tilt Piezo Stages with Aperture

## [Tip/Tilt Fast Steering Mirrors](#)



Very fast, piezo-driven systems. Application examples: Image stabilization, resolution enhancement. 1 - 3 axis, up to 6° beam deflection

Single-Axis Platforms / Shifters  
Multi-Axis Tip/Tilt Platforms

## [Capacitive Nanometrology Sensors](#)



Up to 0.01 nanometer resolution. Absolute measuring, noncontact, high bandwidth, high linearity, vacuum compatible, ideal for parallel metrology

[Capacitive Sensors](#)

## [Piezo Drivers & Nanopositioning Controllers](#)



Digital and analog controllers. Drivers and amplifiers for 100 V and 1000 V system, up to 2000 W power; bench-top, 19" rack and OEM versions.

High-Speed Digital Controllers  
3-Channel Nanocube Controllers  
High-Power Amplifiers 500 to 2000 W  
Controllers for Bender Piezo Linear Actuators  
[OEM Controller Modules](#)  
Modular Controllers  
Single Channel Controllers / Amps / Cards  
Open-Loop Piezo Controllers  
[Accessories](#)

# Motorized Linear Slide, Stages, Actuators

## [Micropositioning Stages & Actuators](#)



Micropositioning Stages and Actuators

Linear Linear Slide / Translation Stages  
Actuators & Micrometers  
Vertical Linear Slide / Translation Stages  
[Rotation Stages & Tilt Stages](#)

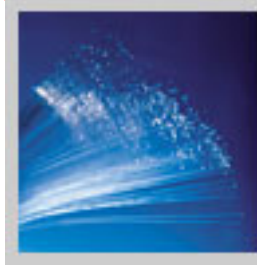


## [Hexapods, Hexapod 6-Axis Stages](#)

Highly precise Hexapod parallel kinematics systems with six degrees of freedom. Sub-micron resolution, load capacity to 200 kg (standard). Standard & custom designs.

[Six-Axis Micropositioning Stage](#)

## [Photonics Alignment Solutions](#)



Automated 6D-alignment systems, hybrid aligners, photometers, PIMotion&Vision™ system.

[Photonics Alignment Solutions](#)

## [Motion Controllers](#)



Servo motor controllers, stepper motor controllers, piezomotor controllers. Cost-effective single channel controllers, automation controllers, custom designs to 300 axes.

DC Motor Controllers  
Piezo Motor Controllers  
NEXLINE® PiezoWalk® Controller  
[Motion Controllers for Stepper Motors](#)

## [Piezo Motor, Ceramic Linear Motors & Stages® / NEXLINE®](#)



PILine® ultrasonic linear motors / stages. Ultra-compact, velocity to 800 mm/s. NEXLINE® nano-drives. Long range, high force, sub-nanometer resolution.

[Piezo Motor Stages](#)

PILine® Stages with Piezo Linear Motors  
NEXLINE® Piezo Nanopositioning Drives









[D510.100 PISeca™ Single-Electrode Capacitive Sensor Probe, 20 mm diameter, 100 µm nominal range](#)  
[PDF PISeca™ Single-Electrode Capacitive Sensor Probe, 20 mm diameter, 100 µm nominal range](#)  
[E413.D2 Piezo Amplifier for DuraAct™ Patch Transducers, -100 to +400 V](#)  
[PDF Piezo Amplifier for DuraAct™ Patch Transducers, -100 to +400 V](#)  
[E413.00 Piezo Amplifier for PICA™ Shear Actuators, -250 to +250 V, Bench Top](#)  
[PDF Piezo Amplifier for PICA™ Shear Actuators, -250 to +250 V, Bench Top](#)  
[E413.OE Piezo Amplifier for PICA™ Shear Actuators, -250 to +250 V, OEM Module](#)  
[PDF Piezo Amplifier for PICA™ Shear Actuators, -250 to +250 V, OEM Module](#)  
[E462.00 HVPZT Piezo Amplifier, 1000 V](#)  
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[E536.3CH PicoCube® Piezo Controller, 3 Channels, High-Resolution, Capacitive Sensors](#)  
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[E536.30H PicoCube® Piezo Controller, 3 Channels, High-Resolution, Open-Loop](#)  
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[E712.3CD Modular Digital Multi-Channel Piezo Controller, 3 Channels, Capacitive Sensors](#)  
[PDF Modular Digital Multi-Channel Piezo Controller, 3 Channels, Capacitive Sensors](#)  
[E712.3CDA Modular Digital Multi-Channel Piezo Controller, 3 Channels, Capacitive Sensors, Analog INs and OUTs](#)  
[PDF Modular Digital Multi-Channel Piezo Controller, 3 Channels, Capacitive Sensors, Analog INs and OUTs](#)  
[E712.6CD Modular Digital Multi-Channel Piezo Controller, 6 Channels, Capacitive Sensors](#)  
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[E753.1CD High-Speed Single-Channel Digital Piezo Controller for Capacitive Sensors](#)  
[PDF High-Speed Single-Channel Digital Piezo Controller for Capacitive Sensors](#)  
[E852.10 PISeca™ Signal Conditioner Electronics for Single Electrode Capacitive Sensors, 1 Channel \(with E-852.PS Power Supply\)](#)  
[PDF PISeca™ Signal Conditioner Electronics for Single Electrode Capacitive Sensors, 1 Channel \(with E-852.PS Power Supply\)](#)  
[E861.1A1 NEXACT® Controller, 1 Channel, Linear Encoder](#)  
[PDF NEXACT® Controller, 1 Channel, Linear Encoder](#)  
[M122.2DD High-Precision Linear Slide / Translation Stage, 25 mm, Direct-Drive DC Motor, Ballscrew](#)  
[PDF High-Precision Linear Slide / Translation Stage, 25 mm, Direct-Drive DC Motor, Ballscrew](#)  
[M122.AP1 Angle bracket for vertical mounting of M-122 stages](#)  
[PDF Angle bracket for vertical mounting of M-122 stages](#)

[M664.164 PILine® Micro Positioning Stage with P-664 Piezo Linear Motor, 25 mm, 6 N](#)  
[PDF PILine® Micro Positioning Stage with P-664 Piezo Linear Motor, 25 mm, 6 N](#)  
[M682.174 PILine® High-Speed Linear Stage with RodDrive, 50 mm, 6 N, 50 mm, 7 N](#)  
[PDF PILine® High-Speed Linear Stage with RodDrive, 50 mm, 6 N, 50 mm, 7 N](#)  
[M686.D64 XY Open-Frame Stage with Closed-Loop PILine® Piezomotor Drives, 25 x 25 mm, 7 N, 0.1 µm Linear Encoder](#)  
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[M674.264 PILine® RodDrive, 100 mm, 7 N](#)  
[PDF PILine® RodDrive, 100 mm, 7 N](#)  
[M674.364 PILine® RodDrive, 150 mm, 7 N](#)  
[PDF PILine® RodDrive, 150 mm, 7 N](#)  
[N111.30 NEXLINE® OEM Nanopositioning Drive, 5 mm, 50 N](#)  
[PDF NEXLINE® OEM Nanopositioning Drive, 5 mm, 50 N](#)  
[N111.3A NEXLINE® OEM Nanopositioning Drive, 5 mm, 50 N, Closed-Loop, 5 nm Resolution](#)  
[PDF NEXLINE® OEM Nanopositioning Drive, 5 mm, 50 N, Closed-Loop, 5 nm Resolution](#)  
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[PDF NEXACT® OEM linear drive, 20 mm, 10 N](#)  
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[PDF PIHera® Piezo Linear Slide Nanopositioning System, 1800 µm, Open-Loop, LEMO Conn.](#)

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[P653.01 Miniature PILine® OEM Drive, 2 mm Travel Range, 0.15 N, mounted on PCB board](#)

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[PDF Low-Profile OEM Piezo Scanner, 30 µm, SGS Sensor](#)

[P737.1SL PIFOC® Nanofocusing Z-Stage for Microscope Sample Holder, 100 µm, SGS, LEMO Connector, for Märzhäuser Microscope Stages](#)

[PDF PIFOC® Nanofocusing Z-Stage for Microscope Sample Holder, 100 µm, SGS, LEMO Connector, for Märzhäuser Microscope Stages](#)

[P737.2SL PIFOC® Nanofocusing Z-Stage for Microscope Sample Holder, 200 µm, SGS, LEMO Connector, for Märzhäuser Microscope Stages](#)

[PDF PIFOC® Nanofocusing Z-Stage for Microscope Sample Holder, 200 µm, SGS, LEMO Connector, for Märzhäuser Microscope Stages](#)

[P876.A11 DuraAct™ Patch Transducer, 61 x 35 x 0.4 mm](#)

[PDF DuraAct™ Patch Transducer, 61 x 35 x 0.4 mm](#)

[P876.A12 DuraAct™ Patch Transducer, 61 x 35 x 0.5 mm](#)

[PDF DuraAct™ Patch Transducer, 61 x 35 x 0.5 mm](#)

[P876.A15 DuraAct™ Patch Transducer, 61 x 35 x 0.8 mm](#)

[PDF DuraAct™ Patch Transducer, 61 x 35 x 0.8 mm](#)

[S330.2SD High-Dynamics Piezo Tip/Tilt Platform, 2 mrad, SGS, Sub-D Connector](#)

[PDF High-Dynamics Piezo Tip/Tilt Platform, 2 mrad, SGS, Sub-D Connector](#)

[S330.4SL High-Dynamics Piezo Tip/Tilt Platform, 5 mrad, SGS, LEMO Connector](#)

[PDF High-Dynamics Piezo Tip/Tilt Platform, 5 mrad, SGS, LEMO Connector](#)

[S330.4SD High-Dynamics Piezo Tip/Tilt Platform, 5 mrad, SGS, Sub-D Connector](#)

[PDF High-Dynamics Piezo Tip/Tilt Platform, 5 mrad, SGS, Sub-D Connector](#)

[S330.40L High-Dynamics Piezo Tip/Tilt Platform, 5 mrad, Open-Loop, LEMO Connector](#)

[PDF High-Dynamics Piezo Tip/Tilt Platform, 5 mrad, Open-Loop, LEMO Connector](#)

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[S330.8SD High-Dynamics Piezo Tip/Tilt Platform, 10 mrad, SGS, Sub-D Connector](#)

[PDF High-Dynamics Piezo Tip/Tilt Platform, 10 mrad, SGS, Sub-D Connector](#)

[S330.80L High-Dynamics Piezo Tip/Tilt Platform, 10 mrad, Open-Loop, LEMO Connector](#)

[PDF High-Dynamics Piezo Tip/Tilt Platform, 10 mrad, Open-Loop, LEMO Connector](#)

[B082.10 Adapter plate for M-105 stages](#)

[B094.00 Adapter plate for honeycomb tables](#)

[C136.10 DC-Motor-Gearhead, Drive Unit](#)

[C150.PD DC-Motor, Drive Unit, PWM-Amplifier](#)

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[C170.161 Redstone PILine Piezomotor Controller for P/M-661/2 Motors, 1-Channel, open-loop](#)

[C170.261 Redstone PILine Piezomotor Controller for P/M-661/2 Motors, 2-Channels, open-loop](#)

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[C184.161 PILine® Piezo Motor OEM-Driver, Analog, 1-Channel for P-661, M-661, > M-662, M-663](#)

[C185.161 PILine® Piezo Motor Driver, Analog, 1-Channel for P-661, M-661, M-662, M-663](#)

[C185.165 PILine® Piezo Motor Driver, Analog, 1-Channel for P-665, M-665](#)

[C600.42 4-Channel Stepping Motor Controller](#)

[C630.32 Apollo, 3-Channel Motion Controller for 2-Phase Stepper Motors](#)

[C702 Hybrid Controller](#)

[C809.40 Motion Interface for NI Controllers, 4-Axis](#)

[C815.18V Motor Cable, 1m, sub-D 15 pin f/m, Vacuum Version](#)

[C815.34 RS 232 Cable RS 232 Cable](#)

[C815.38 Motor Cable, 3 m, sub-D 15-pin \(f\) / 15-pin \(male\)](#)

[C815.38V Motor Cable, 3m, sub-D 15 pin f/m, Vacuum Version](#)

[C815.62 Flat Ribbon Cable 10pin/DB 15](#)

[C815.82 Motor Cable, DB15/DB25](#)

[C815.83 Motor Cable for C-842/C-844, 10m](#)

[C815.MC6 Extension Cable for F-206.MC6, 3m](#)

[C815.PS3 Cable, 24V for F-206](#)

[C815.VF Vacuum Feedthrough, Sub-D 15, XAVAC, 10<sup>-6</sup> hPa](#)

[C816.5M PIIntelliStage™ Master Cable](#)

[C816.5S PIIntelliStage™ Slave Cable](#)

[C819.00 Analog Joystick for C-600.42](#)

[C819.10 Analog Joystick for C-842/844](#)

[C842.AP1 Adapter Box PWM-analog](#)

[C843.21 DC-Motor Controller PC Board, 2 Axes, PCI](#)

[C843.21P DC and Piezo Motor Controller, PCI PC Board, 2-Axis](#)

[C843.41 DC-Motor Controller PC Board, 4 Axes, PCI](#)

[C843.41P DC and Piezo Motor-Controller, PCI PC Board, 4-Axis](#)

[C843.JS Joystick with PCI Card for C-843](#)

[C848.20 DC-Motor Controller, 2 Axes, 19" rack mount, RS-232](#)  
[C848.20i DC-Motor Controller, 2 Axes, 19" rack mount, RS-232 and IEEE488](#)  
[C848.40 DC-Motor Controller, 4 Axes, 19" rack mount, RS232](#)  
[C848.40i](#)  
[C860.CN Slave Communication Cable](#)  
[C862.00 Mercury II DC-Motor Controller Set](#)  
[C862.CN Network Cable for C-862](#)  
[C862.CN2 Network Cable for C-862, 180 cm](#)  
[C862.iO Mercury Controller](#)  
[C862.PB1 Pushbutton Box for C-862](#)  
[C862.PB3 Pushbutton Box with LED's for C-862](#)  
[C863.633 Interface Cable for PIIntelliStages™](#)  
[C865.161 Motor](#)  
[C865.165 Motor](#)  
[C880.00 RS232](#)  
[C880.00D RS232, Display and Keypad](#)  
[C890.PS Power Supply for Mercury Controller](#)  
**Capacitive Sensors**  
[D015.00 Capacitive Position Sensor, 15µm, Aluminum](#)  
[D050.00 Capacitive Position Sensor, 50µm, Aluminum](#)  
[D100.00 Capacitive Position Sensor, 100µm, Aluminum](#)  
[D892.01 1m 1m](#)  
[D892.02 2m 2m](#)  
[D892.03 3m 3m](#)  
[D892.05 5m 5m Pair of Low Noise Capacitive Sensor Extension Cables, Coax. Shielded, LEMO , 5m](#)  
[E115.11 LVDT Position Sensor, 2mm](#)  
[E115.21 LVDT Position Sensor, 1mm](#)  
[E420.00 HVPZT Piezo Amplifier Module, 500W](#)  
[E461.OE HVPZT Piezo Amplifier Module 1000V, 0.5W, OEM Version](#)  
[E463.00 HVPZT Piezo Amplifier 1500V, Bench Top, 3 Channels, 5W](#)  
[E470.00 HVPZT Piezo Amplifier 1100V, 500W, Bench-Top](#)  
[E471.00 HVPZT Piezo Amplifier 1100V, 500W, Controller Option, 19"](#)  
[E472.00 HVPZT Piezo Amplifier, 2 Channels, 500W,1100V, Bench Top, 19"](#)  
[E480.00 HVPZT-High Power Amplifier with Energy Recovery, 2000W, 1000V](#)  
[E480.96 E-480 Connector set HV and temperature sensor](#)  
[E500.00 Controller Basic Chassis 19"](#)  
[E500.621 Controller Chassis, 19", for up to 12 E-621 Modules, w/ power supply](#)  
[E501.00 Controller Basic Chassis 9.5"](#)  
[E501.10 Controller Chassis 9.5" for E-612.C0 Modules](#)  
[E501.621 Controller Chassis, 9.5", for up to 4 E-621 Modules, w/ power supply](#)  
[E503.00 LVPZT Piezo Amplifier Module -20 to 120V, 3 Channels](#)  
[E503.00N LVPZT Piezo Amplifier Module for P-611.30](#)  
[E503.00S LVPZT Piezo Amplifier Module for Tip/Tilt Mirrors, -20 to 120V, 3 Channels \(Channel 3 = 100V\)](#)  
[E505.00 LVPZT Piezo Amplifier Module -20 to 120V, 200W](#)  
[E505.00S LVPZT-Driver Modul for Tip/Tilt Mirrors, 100V fixed](#)  
[E507.00 HVPZT Piezo Amplifier Module 1100V, 50W](#)  
[E507.36 HVPZT Piezo Amplifier, -250/+250 Volts](#)  
[E507.OE HVPZT OEM Amplifier Module -3 to -1100V, 50W](#)  
[E509.C1A PZT Sensor/Controller Module, Capacitive Sensor](#)  
[E509.C2A PZT Sensor/Controller Module, Capacitive Sensor, 2 Channels](#)  
[E509.C3A PZT Sensor/Controller Module, Capacitive Sensor, 3 Channels](#)  
[E509.L1 PZT Sensor/Controller Module, LVDT Sensor](#)  
[E509.L3 PZT Sensor/Controller Module, LVDT Sensor, 3 Channels](#)  
[E509.S1 PZT Sensor/Controller Module, Strain Gauge Sensor](#)  
[E509.S3 Sensor/Controller Module, Strain Gauge Sensor, 3 Channels](#)  
[E509.S3N PZT Sensor/Controller Module for P-611.3S](#)  
[E515.01 Display Module for PZT Voltage/Displacement](#)  
[E515.03 Display Module for PZT Voltage/ Displacement, 3 Channels](#)  
[E516.i1 Display/Interface Module 20 Bit, IEEE488/RS232, 1 Channel](#)  
[E516.I3 Display/Interface Module 20 Bit, IEEE488/RS232, 3 Channels](#)  
[E530.00 Multi-Function Power Supply for E-500](#)  
[E531.00 Multi-Function Power Supply for E-501](#)  
[E610.00 LVPZT Piezo Amplifier Module, OEM](#)  
[E610.C0 LVPZT Piezo Amplifier/Controller Module, Capacitive Sensor, OEM Version](#)  
[E610.L0 LVPZT Piezo Amplifier/Controller Module, LVDT Sensor, OEM Version](#)  
[E610.S0 LVPZT Piezo Amplifier/Controller Module, Strain Gauge Sensor, OEM Version](#)

[E612.C0 NanoAutomation Controller, OEM Version](#)  
[E621.CR LVPZT Piezo Amplifier/Controller Card, Capacitive Sensor, RS-232](#)  
[E621.LR LVPZT Piezo Amplifier/Controller Card, LVDT Sensor, RS-232](#)  
[E621.SR LVPZT Piezo Amplifier/Controller Card, Strain Gauge Sensor, RS-232](#)  
[E625.CR LVPZT Piezo Amplifier/Position Servo Controller, Cap Sensor, 20-bit RS232](#)  
[E625.LR LVPZT Piezo Amplifier/Position Servo Controller, LVDT, 20-bit RS232](#)  
[E625.SR LVPZT Piezo Amplifier/Position Servo Controller, SGS, 20-bit RS232](#)  
[E650.00 LVPZT-Amplifier for Multilayer Bender Transducers](#)  
[E650.OE LVPZT-Amplifier for Multilayer Bender Transducers, OEM](#)  
[E651.1S Bench Top LVPZT-Amplifier/Controller for Multilayer Bender Transducers with SGS, 1-Channel](#)  
[E651.2S Bench Top LVPZT-Amplifier/Controller for Multilayer Benders with SGS, > 2-Channels](#)  
[E660.OE LVPZT-Amplifier-Module, 5 to 100V, 2W, OEM Version](#)  
[E661.CP NanoAutomation Controller, 1 Channel, Bench top](#)  
[E662.LR LVPZT Piezo Amplifier/Position Servo Controller, LVDT, RS232](#)  
[E662.SR LVPZT Piezo Amplifier/Position Servo Controller, SGS, RS232](#)  
[E663.00 LVPZT Piezo Amplifier, -20 to 120V, 3 Channels](#)  
[E664.S3 NanoCube® Controller](#)  
[E665.CR LVPZT Piezo Amplifier/Position Servo Controller, Cap Sensor, 20-bit RS232](#)  
[E665.LR LVPZT Piezo Amplifier/Position Servo Controller, LVDT, 20-bit RS232](#)  
[E665.SR LVPZT Piezo Amplifier/Position Servo Controller, SGS, 20-bit RS232](#)  
[E-701.00 Mach II Input Shaper in Chassis with Software and Power Supply, Includes \(1\) License](#)  
[; E710.1X1 Ext. Cable for E-710, 1 Ch., 2x Cap. Sensor, 1x PZT, Coax., Shielded High-Voltage Special Sub-D Connector,](#)  
[E710.1X2 Ext. Cable for E-710, 1 Ch., 2x Cap. Sensor, 1x PZT, Coax., Shielded High-Voltage Special Sub-D Connector, 2m](#)  
[E710.1X3 Extension Cable for E-710, 1 Ch., 2x Cap. Sensor, 1x PZT, Coax., Shielded High-Voltage Special Sub-D Connector, 3 m](#)  
[E710.1X5 Extension Cable for E-710, 1 Ch., 2x Cap. Sensor, 1x PZT, Coax., Shielded High-Voltage Special Sub-D Connector, 5 m](#)  
[E710.3CD Digital Piezo Controller, 3 Channels, Sub-D Connector](#)  
[E710.3X1 Ext. Cable for E-710.3CD, 3 Ch., 6x Cap. Sensor, 3x PZT, Coax., Shielded High-Voltage Special Sub-D Connector, 1m](#)  
[E710.3X2 Ext. Cable for E-710.3CD, 3 Ch., 6x Cap. Sensor, 3x PZT, Coax., Shielded High-Voltage Special Sub-D Connector, 2m](#)  
[E710.3X3 Ext. Cable for E-710.3CD, 3 Ch., 6x Cap. Sensor, 3x PZT, Coax., Shielded High-Voltage Special Sub-D Connector, 3m](#)  
[E710.3X5 Ext. Cable for E-710.3CD, 3 Ch., 6x Cap. Sensor, 3x PZT, Coax., Shielded High-Voltage Special Sub-D Connector, 5m](#)  
[E710.4CD 4-Axis Digital Piezo Controller, 32-bit DSP, Cap. Sensors, Dig. Linearization, Multiaxis Coord. Transformation, Sub-D](#)  
[E710.4CL 4-Axis Digital Piezo Controller, 32-bit DSP, Cap. Sensors, Dig. Linearization, Multiaxis Coord. Transformation, LEMO](#)  
[E710.6CD 6-Axis Digital Piezo Controller, 8 PZT Amps, 7 Cap. Sensor Ch., Dig. Linearization, DDL, Multiaxis Coord. Transformation](#)  
[E710.6SD 6-Axis Digital Piezo Controller, 8 PZT Amps, DST 15 m, Analog Input](#)  
[E710.P3D 3-Axis Digital Piezo Controller, High-Speed Parallel Port, Cap. Sens., Dig. Linearization, Multiaxis Coord. Transform., Sub-D](#)  
[E710.P4D 4-Axis Digital Piezo Controller, High-Speed Parallel Port, Cap. Sens., Dig. Linearization, Multiaxis Coord. Transform., Sub-D](#)  
[E710.P4L 4-Axis Digital Piezo Controller, High-Speed Parallel Port, Cap. Sens., Dig. Linearization, Multiaxis Coord. Transform., LEMO](#)  
[E710.PO2 PIO Interface Cable for E-710.PxD, 2 m, Interfaces to NI PCI-96-DIO](#)  
[E710.SCN DDL Dynamic Linearization Upgrade for E-710, Effectively Eliminates Nonlinearity & Following Error in Nanopositioning Systems](#)  
[E750.CP Digital NanoAutomation Controller](#)  
[E751.F05 FiberLink Cable, 5m](#)  
[E751.PCI PCI-Controller-Board with FiberLink for E-750](#)  
[E751.PIO Parallel-Port to Fiber Converter](#)  
[E-755.101 Digital NEXLine® Controller, 1Ch, open loop](#)  
[E-755.10A Digital NEXLine® Controller, 1Ch, open loop, analog input](#)  
[E-755.1A1 Digital NEXLine® Controller, 1Ch, closed loop Encoder](#)  
[E-755.1AA Digital NEXLine® Controller, 1Ch, closed loop Encoder, analog](#)

[input](#)[E-755.1C1 Digital NEXLine® Controller, 1Ch, closed loop cap. Sensor](#)[E-755.1CA Digital NEXLine® Controller, 1Ch, closed loop cap. sensor,](#)[analog input](#)[E760.3S0 NanoCube® Controller, ISA-Board](#)[E760.3SI NanoCube® Controller ISA-Board, Detector for IR Range](#)[E760.3SV NanoCube® Controller ISA-Board, Detector for Visible Range](#)[E761.3CD Digital Piezo Controller, PCI-Board, 3 Channels](#)[E808.90 Monitor Output Cable for E-509 Control Module](#)[E831.02 OEM Piezo Amplifier, Output Voltage max. 127V](#)[E841.05 OEM Power Supply Input Voltage: 10-30V Output Voltage: +/-15V,-26V,+127V](#)[E842.05 OEM Power Supply Input Voltage: 30-72V Output Voltage: +/-15V,-26V,+127V](#)[Photonics Alignment](#)[F010.00 Fiber Holder](#)[F020.00 Fiber Holder, Adjustable](#)[F110.00 Fiber Positioner, 18mm/50µm](#)[F111.00 Fiber Positioner 6mm /30µm](#)[F130.3OD XYZ Photonics Alignment System, 5mm, 100µm, DC-Motor/Encoder, Open-Loop Piezo](#)[F130.3OS XYZ Photonics Alignment System, 5mm, 100µm, Stepper Motor, Open-Loop Piezo](#)[F130.3SD XYZ Photonics Alignment System, 5mm, 100µm, DC-Motor/Encoder, Closed-Loop Piezo](#)[F130.3SS XYZ Photonics Alignment System, 5mm, 100µm, Stepper Motor, Closed-Loop Piezo](#)[F131.3OD XYZ Photonics Alignment System, 15mm, 100µm, DC-Motor/Encoder, Open-Loop Piezo](#)[F131.3OS XYZ Photonics Alignment System, 15mm, 100µm, Stepper Motor, Open-Loop Piezo](#)[F131.3SD XYZ Photonics Alignment System, 15mm, 100µm, DC-Motor/Encoder, Closed-Loop Piezo](#)[F131.3SS XYZ Photonics Alignment System, 15mm, 100µm, Stepper Motor, Closed-Loop Piezo](#)[F206.00U Photometer Card, Visible Range](#)[F206.033 Motor Cable, 68 pin to 6 x 15 pin Sub-D \(see C-815.PS3\)](#)[F206.9MP F-206 Replacement Top Plate for F-206](#)[F206.AC8 Two Additional Motorized Axis Controls for F-206](#)[F206.I3E GPIB/ IEEE 488 Interface for F-206](#)[F206.IRU Photometer Card, IR Range](#)[F206.MC6 Interactive Control Pad Upgrade for F-206](#)[F206.MFU Force Sensing Option for F-206](#)[F206.MHU Magnetic Mounting Platform for F-206](#)[F206.NCU Upgrade for F-206 with NanoCube®, Controller Board and Alignment Software](#)[F206.S0 HexAlign Six-Axis Micro-Robot & Alignment System w/ 6D Controller](#)[F206.SD HexAlign Six-Axis Micro-Robot & Alignment System w/ 6D Controller](#)[F206.TMU Additional Top Plate for F-206.MHU](#)[F311.L10 PI Motion&Vision Illumination Set](#)[F311.V01 PI Motion&Vision, 1CH, Basic](#)[F311.V04 PI Motion&Vision, 4CH, Basic](#)[F311.V11 PI Motion&Vision, 1CH, Pro](#)[F311.V14 PI Motion&Vision, 4CH, Pro](#)[F311.V1U PI Motion&Vision, Upgrade to Pro](#)[F361.10 Optical Power Meter, NIST traceable, 1000-1650 nm](#)[F603.11 Objective Holder W0.8x1/36"](#)[F603.12 Objective Holder M19x0.75](#)[F603.13 Objective Holder M25x0.75](#)[F603.14 Objective Holder M26x0.75](#)[F603.20 Vacuum Waveguide Mount](#)[F603.21 FC-Connector](#)[F603.22 Fiber Holder](#)[Micropositioning Stages, Actuators, Mike Drives and Motors](#)[Side-Drive Linear Slide / Translation Stages w Magnetic Bearings](#)[M009.10 Z-Axis Mounting Bracket for Vertical Mount of M-105/106](#)[M009.20 Mounting Bracket for Mounting P-280 PZT Block Actuators or F-010 Fiber Holders](#)[M009.30 Z-Axis Mounting Bracket for M-015/016 on PI Standard Hole Pattern](#)[M011.00 Linear Slide / Translation Stage, 15mm, Micrometer Drive](#)[M011.D0 Linear Slide / Translation Stage, 10mm, DC-Motor Drive](#)[M011.D01 Linear Slide / Translation Stage, 10mm, DC-Motor Drive](#)[M011.DP1 Linear Slide / Translation Stage, 10mm, DC-Motor & PZT Drive](#)[M011.DS1 Linear Slide / Translation Stage, 10mm, DC-Mike Drive & Closed-Loop PZT Drive](#)[M011.P0 Linear Slide / Translation Stage 15mm, Manual & PZT Drive](#)[M011.PS Linear Slide / Translation Stage 15mm, Manual & Closed-Loop PZT Drive](#)[M011.U0 Upgrade Kit with Open-Loop PZT Drive](#)[M011.UD Factory Installed Upgrade Kit with DC-Motor Drive and Limit Switches](#)[M011.US Upgrade Kit with Closed-Loop PZT Drive](#)[M014.00 Linear Slide / Translation Stage, 25mm, Micrometer Drive](#)[M014.D01 Linear Slide / Translation Stage, 25mm, DC-Motor Drive](#)[M014.DP1 Linear Slide / Translation Stage, 25mm, DC-Motor & PZT Drive](#)[M014.DS1 Linear Slide / Translation Stage, 25mm, DC-Motor & Closed-Loop PZT Drive](#)[M014.P0 Linear Slide / Translation Stage, 25mm, Manual & PZT Drive](#)[M014.PS Linear Slide / Translation Stage, 25mm, Manual & Closed-Loop PZT Drive Linear Slide / Translation Stage 25mm, Manual + PZT Drive](#)[M014.U0 Upgrade Kit with PZT Drive](#)[M014.UD Factory Installed Upgrade Kit with DC-Motor Drive and Limit Switches](#)[M014.US Upgrade Kit with Closed-Loop PZT Drive](#)[M015.00 Linear Positioner XY, 25x25mm](#)[Rotation & Tilt Stages](#)[M035.50 Rotation Stage, Ø 60mm, Micrometer Drive](#)[M035.91 Limit Switch Set, Factory Installed](#)[M035.D01 Rotation Stage, Ø 60mm, DC-Motor Drive](#)[M035.DP1 Rotation Stage, Ø 60mm, DC-Motor + PZT Drive](#)[M035.DS1 Rotation Stage, Ø 60mm, DC-Motor + Closed-Loop PZT Drive](#)[M035.P0 Rotation Stage, Ø 60mm, Micrometer & PZT Drive](#)[M035.PS Rotation Stage, Ø 60mm, Micrometer & Closed-Loop PZT Drive](#)[M035.U0 Upgrade Kit with PZT Drive for M-035](#)[M035.UD Factory Installed Upgrade Kit with DC-Motor Drive for M-025](#)[M035.US Upgrade Kit with Closed-Loop PZT Drive for M-035](#)[M036.00 Rotation Stage, Ø 100mm, Micrometer Drive](#)[M036.91 Limit Switch Set, Factory Installed](#)[M036.D01 Rotation Stage, Ø 100mm, DC-Motor Drive](#)[M036.DP1 Rotation Stage, Ø 100mm, DC-Motor & PZT Drive](#)[M036.DS1 Rotation Stage, Ø 100mm, DC-Motor & Closed-Loop PZT Drive](#)[M036.P0 Rotation Stage, Ø 100mm, Micrometer + PZT Drive](#)[M036.PS Rotation Stage, Ø 100mm, Micrometer & Closed-Loop PZT Drive](#)[M036.U0 Upgrade Kit with PZT Drive for M-036](#)[M036.UD Factory Installed Upgrade Kit with DC-Motor Drive for M-036](#)[M036.US Upgrade Kit with Closed-Loop PZT Drive for M-036](#)[M037.00 Rotation Stage, Ø 60mm, >360°, Manual Drive](#)[M037.2S Rotation Stage Ø 60mm, >360°, 2 Phase Stepper Motor Drive](#)[M037.95 Upgrade Kit with Home Reference Switch for M-037](#)[M037.DG Rotation Stage, Ø 60mm, >360°, DC-Motor/Gearhead Drive](#)[M037.PD Rotation stage, Ø 60mm, >360°, DC-Motor + Active Drive™](#)[M037.VG Rotation Stage, Ø 60 mm, >360°, DC-Motor/Gearhead Drive, Vacuum Version](#)[M037.VP Rotation Stage, Ø 60 mm, >360°, DC-Motor, PWM, Vacuum Version](#)[M038.00 Rotation Stage, Ø 100mm, >360°, Manual Drive](#)[M038.2S Rotation Stage, Ø 100mm, >360°, 2 Phase Stepper Motor Drive](#)[M038.95 Upgrade Kit with Home Reference Switch for M-038](#)[M038.DG Rotation Stage, Ø 100mm, >360°, DC-Motor/Gearhead Drive](#)[M038.PD1 Precision Rotation Stage, Ø 100mm, DC Motor, Active](#)[M038.VG Rotation Stage, Ø 100 mm, >360°, DC-Motor/Gearhead Drive, Vacuum Version](#)[M038.VP1 Precision Rotation Stage, Ø 100 mm, DC Motor, Active > Drive™, Vacuum Version](#)[M041.00 Small Tilt Stage, Micrometer Drive](#)[M041.D01 Small Tilt Stage, DC-Motor Drive](#)[M041.U0 Open-Loop PZT Drive Upgrade Kit for M-041 Tilt Stages](#)[M041.US Closed-Loop PZT Drive Upgrade Kit for M-041 Tilt Stages](#)[M042.00 Small Tip/Tilt Stage, Micrometer Drive](#)[M042.D01 Small Tip/Tilt Stage, DC-Motor Drive](#)[M042.U0 Open-Loop PZT Drive Upgrade Kit for M-042 Tilt Stages](#)[M042.US Closed-Loop PZT Drive Upgrade Kit for M-042 Tilt Stages](#)[M043.00 Small Tilt Stage, Micrometer Drive](#)[M043.D01 Tilt Stage, DC-Motor Drive](#)[M043.U0 Open-Loop PZT Drive Upgrade Kit for M-043 Tilt Stages](#)[M043.US Closed-Loop PZT Drive Upgrade Kit for M-043 Tilt Stages](#)[M044.00 Tip/Tilt Stage, Micrometer Drive](#)

[M044.D01 Tip/Tilt Stage, DC-Motor Drive](#)  
[M044.U0 Open-Loop PZT Drive Upgrade Kit for M-044 Tilt Stages](#)  
[M044.US Closed-Loop PZT Drive Upgrade Kit for M-044 Tilt Stages](#)  
[M045.00 Spring Coupling](#)  
[M052.00 Z-Axis Mounting Bracket](#)  
[M052.30 Z-Axis Mounting Bracket](#)  
[M052.40 Z-Axis Mounting Bracket](#)  
[M053.10 Z-Axis Mounting Bracket](#)  
[M053.20 Z-Axis Mounting Bracket](#)  
[M053.30 Z-Axis Mounting Bracket](#)  
[M053.40 Z-Axis Mounting Bracket](#)  
[M060.2S Rotation Stage Ø 60mm, >360°, 20mm clear aperture, 2-Phase Stepper-Motor Drive](#)  
[M060.DG Rotation Stage Ø 60mm, >360°, 20mm clear aperture, DC-Motor/Gearhead Drive](#)  
[M060.HP Adapter Plate, M-060 to Honeycomb Table \(metric/inch\)](#)  
[M060.M0 Rotation Stage Ø 60mm, >360°, 20mm clear aperture, Manual Drive](#)  
[M060.PD Rotation Stage Ø 60mm, >360°, 20mm clear aperture, ActiveDrive DC-Motor](#)  
[M061.2S Rotation Stage Ø 90mm, >360°, 2-Phase Stepper-Motor Drive](#)  
[M061.DG Rotation Stage Ø 90mm, >360°, DC-Motor/Gearhead Drive](#)  
[M061.HP Adapter Plate, M-061 to Honeycomb Table \(metric/inch\)](#)  
[M061.M0 Rotation Stage Ø 90mm, >360°, Manual Drive](#)  
[M061.PD Rotation Stage Ø 90mm, >360°, ActiveDrive DC-Motor](#)  
[M062.2S Rotation Stage Ø 120mm, >360°, 2-Phase Stepper-Motor Drive](#)  
[M062.DG Rotation Stage Ø 120mm, >360°, DC-Motor/Gearhead Drive](#)  
[M062.HP Adapter Plate, M-062 to Honeycomb Table \(metric/inch\)](#)  
[M062.M0 Rotation Stage Ø 120mm, >360°, Manual Drive](#)  
[M062.PD Rotation Stage Ø 120mm, >360°, ActiveDrive DC-Motor](#)  
[M087.10 Adapter Plate for Horizontal Mounting of Linear Slide / Translation Stages on M-035/037 Rot. Positioners](#)  
[M088.10 Adapter Plate for Horizontal Mounting of Linear Slide / Translation Stages on M-036/038 Rot. Positioners](#)  
[Small Linear Slide / Translation Stages](#)  
[M105.10 Linear Slide / Translation Stage, 18mm](#)  
[M105.11 Linear Slide / Translation Stage, 18mm, with Lockable Micrometer](#)  
[M105.1P Linear Slide / Translation Stage, 18mm, PiezoMike Drive](#)  
[M105.20 XY Linear Slide / Translation Stage, 18mm, Micrometer](#)  
[M105.2P XY Linear Slide / Translation Stage, 18mm, PiezoMike Drive](#)  
[M105.30 XYZ Linear Slide / Translation Stage, 18mm, Micrometer](#)  
[M105.3P XYZ Linear Slide / Translation Stage, 18mm, PiezoMike Drive](#)  
[M105.AP Adapter Plate for Stages w/o PI Standard Hole Pattern](#)  
[M105.HP Adapter Plate, M-105 to Optical Table](#)  
[M105.HP1 Adapter Plate, M-105 to Optical Table](#)  
[M105.MB Mounting Bracket for Fiber Holders](#)  
[M105.NC Mounting Bracket for NanoCube®](#)  
[M105.VB1 Z-Axis Mounting Bracket for M-105](#)  
[M106.10 Linear Slide / Translation Stage, 5mm, Differential Micrometer](#)  
[M106.20 XY Linear Slide / Translation Stage, 5mm, Differential Micrometer](#)  
[M106.30 XYZ Linear Slide / Translation Stage, 5mm, Differential Micrometer](#)  
[M110.01 Adapter Plate M-110/111/112 to Optical Table](#)  
[M110.02 Z-Axis Mounting Bracket for M-110](#)  
[M110.03 Z-Axis Mounting Bracket for M-111](#)  
[M110.04 Z-Axis Mounting Bracket for M-112](#)  
[M110.12S Micro-Linear Slide / Translation Stage, 5mm, 2-Phase Stepper Motor](#)  
[M110.1DG Micro-Linear Slide / Translation Stage, 5mm, DC-Motor/Gearhead/Encoder](#)  
[M110.1VG High-Resolution Micro-Linear Slide / Translation Stage, 5mm, DC-Motor/Gearhead/Encoder, Vacuum Version](#)  
[M110.22S Micro-Linear Slide / Translation Stage, 5mm, RBS, 2-Phase Stepper Motor](#)  
[M110.2DG Micro-Linear Slide / Translation Stage, 5mm, RBS, DC-Motor/Gearhead/Encoder](#)  
[M110.2VG High-Resolution Micro-Linear Slide / Translation Stage, 5mm, RBS, DC-Motor/Gearhead/Encoder, Vacuum Version](#)  
[M111.12S Micro-Linear Slide / Translation Stage, 15mm, 2-Phase Stepper Motor](#)  
[M111.1DG Micro-Linear Slide / Translation Stage, 15mm, DC-Motor/Gearhead/Encoder](#)  
[M111.1VG High-Resolution Micro-Linear Slide / Translation Stage, 15mm, DC-Motor/Gearhead/Encoder, Vacuum Version](#)  
[M111.22S Micro-Linear Slide / Translation Stage, 15mm, RBS, 2-Phase](#)

[Stepper Motor](#)  
[M111.2DG Micro-Linear Slide / Translation Stage, 15mm, RBS, DC-Motor/Gearhead/Encoder](#)  
[M112.12S Micro-Linear Slide / Translation Stage, 25mm, 2-Phase Stepper Motor](#)  
[M112.1DG Micro-Linear Slide / Translation Stage, 25mm, DC-Motor/Gearhead/Encoder](#)  
[M112.1VG High-Resolution Micro-Linear Slide / Translation Stage, 25mm, DC-Motor/Gearhead/Encoder, Vacuum Version >](#)  
[M112.22S Micro-Linear Slide / Translation Stage, 25mm, RBS, 2-Phase Stepper Motor](#)  
[M112.2DG Micro-Linear Slide / Translation Stage, 25mm, RBS, DC-Motor/Gearhead/Encoder](#)  
[M116.2S Micro-Rotation Stage, 360°, 2-Phase Stepper-Motor / Gearhead Drive](#)  
[M116.2SH Micro-Rotation Stage, 360°, 2-Phase Stepper-Motor / Gearhead Drive](#)  
[M116.AL1 Adapter for 1/2 Optical Devices with M-116](#)  
[M116.DG Micro-Rotation Stage, 360-degrees, closed-loop DC-Motor/Gearhead drive](#)  
[M116.DGH Micro-Rotation Stage, 360°, DC-Motor / Gearhead Drive](#)  
[M125.90 Z-Axis Mounting Bracket for Vertical Mount of M-126 Stages](#)  
[M126.2S Linear Slide / Translation Stage, 25mm, 2-Phase Stepper](#)  
[M126.80 Adapter Plate M-126 to Optical Table](#)  
[M126.CG Linear Slide / Translation Stage, 25mm, Closed-Loop, DC-Motor / Gearhead Drive](#)  
[M126.DG1 Linear Slide / Translation Stage, 25mm, Closed-Loop, DC-Motor / Gearhead Drive](#)  
[M126.M0 Linear Slide / Translation Stage, 25mm, Manual Version](#)  
[M126.PD Linear Slide / Translation Stage, 25mm, Closed-Loop, DC-Motor + Active Drive™](#)  
[M149.01 Flexible Shaft Coupling, Ø 17x30.2mm Bore Shaft 4mm / 4mm](#)  
[M149.02 Flexible Shaft Coupling, Ø 17x30.2mm Bore Shaft 5mm / 5mm](#)  
[M149.03 Flexible Shaft Coupling, Ø 17x30.2mm Bore Shaft 6mm / 6mm](#)  
[M149.11 Flexible Shaft Coupling, Ø 12x23.6mm Bore Shaft 4mm / 4mm](#)  
[M149.12 Flexible Shaft Coupling, Ø 12x23.6mm Bore Shaft 5mm / 5mm](#)  
[M149.14 Flexible Shaft Coupling, Ø 12x23.6mm Bore Shaft 2mm / 5mm](#)  
[M149.27 Flexible Shaft Coupling, Ø 17x30.2mm Bore Shaft 4mm / 5mm](#)  
[M151.10 Holder Ø 12x17mm, Holds M-623/624 Micrometer](#)  
[M151.30 Holder Ø 16x10mm, Holds M-227.10 DC-Mikes](#)  
[M151.40 Holder Ø 16x14mm, Holds M-227.25 and .50 DC-Mikes](#)  
[Motorized Precision Linear Actuators / DC-Mikes](#)  
[M168.10 Stepper-Mike Actuator, 10mm, 0.25µm Resolution](#)  
[M168.12S Stepper-Mike Actuator, 10mm, 0.05µm Resolution](#)  
[M168.22S Stepper-Mike Actuator, 25mm, 0.05µm Resolution](#)  
[M168.30 Stepper-Mike Actuator, 25mm, 0.25µm Resolution](#)  
[M168.40 Stepper-Mike Actuator, 50mm, 0.25µm Resolution](#)  
[M168.52S Stepper-Mike Actuator, 50mm, 0.05µm Resolution](#)  
[M219.00 Spherical Tip](#)  
[M219.10 Ball Tip](#)  
[M219.20 Tip With M5 Threaded Stud](#)  
[M219.30 Hardened Stainless Steel Tip](#)  
[M222.50 DC-Linear Actuator Micrometer, 10mm](#)  
[M227.10 DC-Linear Actuator Micrometer, 10mm](#)  
[M227.10S Stepper-Linear Actuator Micrometer, 10mm](#)  
[M227.25 DC-Linear Actuator Micrometer, 25mm](#)  
[M227.25S Stepper-Linear Actuator Micrometer, 25mm](#)  
[M227.50 DC-Linear Actuator Micrometer, 50mm](#)  
[M227.50S Stepper-Linear Actuator Micrometer, 50mm](#)  
[M230.10 DC-Linear Actuator Micrometer, 10mm, Integrated Limit Switches](#)  
[M230.10S Stepper-Linear Actuator Micrometer, 10mm, Integrated Limit Switches](#)  
[M230.10V DC-Linear Actuator Micrometer, 10mm, Integrated Limit Switches, Vacuum Version](#)  
[M230.25 DC-Linear Actuator Micrometer, 25mm, Integrated Limit Switches](#)  
[M230.25S Stepper-Linear Actuator Micrometer, 25mm, Integrated Limit Switches](#)  
[M230.25V DC-Linear Actuator Micrometer, 25mm, Integrated Limit Switches, Vacuum Version](#)  
[M231.17 DC-Linear Actuator Micrometer, 17mm, Integrated Limit Switches](#)  
[M231.17S Stepper-Linear Actuator Micrometer, 17mm, Integrated Limit Switches](#)  
[M232.17 Compact DC-Linear Actuator Micrometer, 17mm, Integrated Limit switches](#)  
[M232.17S Compact Stepper-Linear Actuator Micrometer, 17mm, Integrated](#)

[Limit Switches](#)

[M235.22S Heavy-Duty Stepper-Mike 20mm](#)  
[M235.2DD Heavy-Duty DC-Mike 20mm DC-Direct Drive](#)  
[M235.2DG Heavy-Duty DC-Mike 20mm DC-Gearhead Drive](#)  
[M235.2VD Heavy-Duty DC-Mike 20 mmDC-Direct Drive, Vacuum Version](#)  
[M235.2VG Heavy-Duty DC-Mike 20 mmDC-Gearhead Drive, Vacuum Version](#)  
[M235.52S Heavy-Duty Stepper-Linear Actuator Micrometer, 50mm](#)  
[M235.5DD Heavy-Duty DC-Linear Actuator Micrometer, 50mm, DC Direct Drive](#)  
[M235.5DG Heavy-Duty DC-Linear Actuator Micrometer, 50mm, DC-Gearhead Drive](#)  
[M235.5VD Heavy-Duty DC-Mike 50 mmDC-Direct Drive, Vacuum Version](#)  
[M235.5VG Heavy-Duty DC-Mike 50 mmDC-Gearhead Drive, Vacuum Version](#)  
[M238.5PG Heavy-Duty DC-Mike Actuator, 400 N, 50 mm, DC-Gearhead Drive, ActiveDrive™](#)  
[M238-5PL Heavy-Duty DC-Mike Actuator, 400 N, 50 mm, DC-Gearhead Drive, ActiveDrive™, Direct Metrology Encoder](#)  
[Mini Linear Slide / Translation Stages \(Manual\)+ Piezo](#)  
[M311.00 Mini Linear Slide / Translation Stage, 6mm](#)  
[M311.80 Mini Linear Slide / Translation Stage, with PiezoMike Drive, 6mm](#)  
[M312.00 XY Mini Linear Slide / Translation Stage, 6mm](#)  
[M312.80 XY Mini Linear Slide / Translation Stage, with PiezoMike Drive, 6mm](#)  
[M313.00 XYZ Mini Linear Slide / Translation Stage, 6mm](#)  
[M313.80 XYZ Miniature Linear Slide / Translation Stage, with PiezoMike Drive, 6mm](#)  
[M318.00 Z-Axis Mounting Bracket for Vertical Mount of M-311 stages on M-311 stages \(Al\)](#)  
[M318.20 Mounting Bracket for Mounting of F-010 Fiber Holder on Vertically Mounted M-311 stages \(Al\)](#)  
[M318.30 Adapter Plate for Mounting M-311 stages on a post with M6 Threaded Stud \(Al\)](#)  
[M318.40 Adapter Plate for Honeycomb Tables, 1" & 25mm](#)  
[Motorized Precision Linear Slide / Translation Stages \(25mm to 300 mm\)](#)  
[M400.AP Adapter Plate for Mounting Stages w/o PI Standard Hole Pattern](#)  
[M403.12S Precision Linear Slide / Translation Stage, 80mm Wide, 25mm Travel, Stepper Motor](#)  
[M403.1DG Precision Linear Slide / Translation Stage, 80mm Wide, 25mm Travel, DC-Motor/Gearhead](#)  
[M403.1PD Precision Linear Slide / Translation Stage, 80mm Wide, 25mm Travel, DC-Motor/ActiveDrive™](#)  
[M403.22S Precision Linear Slide / Translation Stage, 80mm Wide, 50mm Travel, Stepper Motor](#)  
[M403.2DG Precision Linear Slide / Translation Stage, 80mm Wide, 50mm Travel, DC-Motor/Gearhead](#)  
[M403.2PD Precision Linear Slide / Translation Stage, 80mm Wide, 50mm Travel, DC-Motor/ActiveDrive™](#)  
[M403.42S Precision Linear Slide / Translation Stage, 80mm Wide, 100mm Travel, Stepper Motor](#)  
[M403.4DG Precision Linear Slide / Translation Stage, 80mm Wide, 100mm Travel, DC-Motor/Gearhead](#)  
[M403.4PD Precision Linear Slide / Translation Stage, 80mm Wide, 100mm Travel, DC-Motor/ActiveDrive™ >](#)  
[M403.62S Precision Linear Slide / Translation Stage, 80mm Wide, 150mm Travel, Stepper Motor](#)  
[M403.6DG Precision Linear Slide / Translation Stage, 80mm Wide, 150mm Travel, DC-Motor/Gearhead](#)  
[M403.6PD Precision Linear Slide / Translation Stage, 80mm Wide, 150mm Travel, DC-Motor/ActiveDrive™](#)  
[M403.82S Precision Linear Slide / Translation Stage, 80mm Wide, 200mm Travel, Stepper Motor](#)  
[M403.8DG Precision Linear Slide / Translation Stage, 80mm Wide, 200mm Travel, DC-Motor/Gearhead](#)  
[M403.8PD Precision Linear Slide / Translation Stage, 80mm Wide, 200mm Travel, DC-Motor/ActiveDrive™](#)  
[M404.12S Precision Linear Slide / Translation Stage, 80mm Wide, 25mm Travel, Stepper Motor](#)  
[M404.1DG Precision Linear Slide / Translation Stage, 80mm Wide, 25mm Travel, DC-Motor/Gearhead](#)  
[M404.1PD Precision Linear Slide / Translation Stage, 80mm Wide, 25mm Travel, DC-Motor/ActiveDrive™](#)  
[M404.22S Precision Linear Slide / Translation Stage, 80mm Wide, 50mm Travel, Stepper Motor](#)

[M404.2DG Precision Linear Slide / Translation Stage, 80mm Wide, 50mm Travel, DC-Motor/Gearhead](#)  
[M404.2PD Precision Linear Slide / Translation Stage, 80mm Wide, 50mm Travel, DC-Motor/ActiveDrive™](#)  
[M404.42S Precision Linear Slide / Translation Stage, 80mm Wide, 100mm Travel, Stepper Motor](#)  
[M404.4DG Precision Linear Slide / Translation Stage, 80mm Wide, 100mm Travel, DC-Motor/Gearhead](#)  
[M404.4PD Precision Linear Slide / Translation Stage, 80mm Wide, 100mm Travel, DC-Motor/ActiveDrive™](#)  
[M404.62S Precision Linear Slide / Translation Stage, 80mm Wide, 150mm Travel, Stepper Motor](#)  
[M404.6DG Precision Linear Slide / Translation Stage, 80mm Wide, 150mm Travel, DC-Motor/Gearhead](#)  
[M404.6PD Precision Linear Slide / Translation Stage, 80mm Wide, 150mm Travel, DC-Motor/ActiveDrive™](#)  
[M404.82S Precision Linear Slide / Translation Stage, 80mm Wide, 200mm Travel, Stepper Motor](#)  
[M404.8DG Precision Linear Slide / Translation Stage, 80mm Wide, 200mm Travel, DC-Motor/Gearhead](#)  
[M404.8PD Precision Linear Slide / Translation Stage, 80mm Wide, 200mm Travel, DC-Motor/ActiveDrive™](#)  
[M405.CG Linear Slide / Translation Stage, 50mm DC-Motor/Gearhead](#)  
[M405.GD Linear Slide / Translation Stage, 50mm, DC-Motor/Gearhead](#)  
[M405.PD Linear Slide / Translation Stage, 800mm, DC-Motor/Gearhead](#)  
[M405.2S Linear Slide / Translation Stage, 50mm, 2-phase Stepper Motor](#)  
[M405.M0 Linear Slide / Translation Stage, 50mm, Manual, Leadscrew](#)  
[M410.CG Linear Slide / Translation Stage, 100mm, Manual, DC Motor/Gearhead](#)  
[M410.DG Linear Slide / Translation Stage, 100mm, Manual, DC Motor/Gearhead](#)  
[M410.PD Linear Slide / Translation Stage, 50mm, Manual, DC Motor/ActiveDrive™](#)  
[M410.2S Linear Slide / Translation Stage, 100mm, 2-phase Stepper Motor](#)  
[M410.M0 Linear Slide / Translation Stage, 100mm, Manual, Leadscrew](#)  
[M413.12S Precision Linear Slide / Translation Stage, 120mm Wide, 100mm Travel, Stepper Motor](#)  
[M413.1DG Precision Linear Slide / Translation Stage, 120mm Wide, 100mm Travel, DC-Motor/Gearhead](#)  
[M413.1PD Precision Linear Slide / Translation Stage, 120mm Wide, 100mm Travel, DC-Motor/ActiveDrive™](#)  
[M413.22S Precision Linear Slide / Translation Stage, 120mm Wide, 200mm Travel, Stepper Motor](#)  
[M413.2DG Precision Linear Slide / Translation Stage, 120mm Wide, 200mm Travel, DC-Motor/Gearhead](#)  
[M413.2PD Precision Linear Slide / Translation Stage, 120mm Wide, 200mm Travel, DC-Motor/ActiveDrive™](#)  
[M413.32S Precision Linear Slide / Translation Stage, 120mm Wide, 300mm Travel, Stepper Motor](#)  
[M413.3DG Precision Linear Slide / Translation Stage, 120mm Wide, 300mm Travel, DC-Motor/Gearhead](#)  
[M413.3PD Precision Linear Slide / Translation Stage, 120mm Wide, 300mm Travel, DC-Motor/ActiveDrive™](#)  
[M415.CG Linear Slide / Translation Stage, 150mm, DC Motor/Gearhead](#)  
[M415.DG Linear Slide / Translation Stage, 150mm, DC Motor/Gearhead](#)  
[M415.PD Linear Slide / Translation Stage, 150mm, DC-Motor/ActiveDrive™](#)  
[M415.2S Linear Slide / Translation Stage, 100mm, 2-phase Stepper Motor](#)  
[M415.M0 Linear Slide / Translation Stage, 150mm, Manual, Leadscrew](#)  
[M505.1S2 Linear Slide / Translation Stage, 25mm, 2 Phase Stepper Motor](#)  
[M505.2DG Linear Slide / Translation Stage, 50mm, DC-Motor/ Gearhead](#)  
[M505.2PD Linear Slide / Translation Stage, 50mm, Closed-Loop, DC-Motor + Active Drive™](#)  
[M505.2S2 Linear Slide / Translation Stage, 50mm, 2 Phase Stepper Motor](#)  
[M505.4DG Linear Slide / Translation Stage, 100mm, DC-Motor/ Gearhead](#)  
[M505.4PD Linear Slide / Translation Stage, 100mm, Closed-Loop, DC-Motor + Active Drive™](#)  
[M505.4S2 Linear Slide / Translation / Stage, 100mm, 2 Phase Stepper Motor](#)  
[M505.6DG Linear Slide / Translation Stage, 150mm, DC-Motor/ Gearhead](#)  
[M505.6PD Linear Slide / Translation Stage, 150mm, Closed-Loop, DC-Motor + Active Drive™](#)  
[M505.6S2 Linear Slide / Translation Stage, 150mm, 2 Phase Stepper Motor](#)  
[M511.2S Linear Slide / Translation Stage, 4", 2 Phase Stepper Motor](#)  
[M511.5IM PIIntelliStage™, Linear Slide / Translation Stage, 4", Integrated Controller, Master](#)

[M511.5IS PIIntelliStage™, Linear Slide / Translation Stage, 4", Integrated Controller, Slave](#)

[M511.DD Linear Slide / Translation Stage, 4", DC-Motor + Active Drive™, 0.1µm Linear Encoder](#)

[M511.DDB Linear Slide / Translation Stage, 4", DC-Motor + Active Drive™, 0.1µm Linear Encoder, Brake](#)

[M511.DG Linear Slide / Translation Stage, 4", DC-Motor/Gearhead](#)

[M511.HD Hybrid Nanopositioning Linear Slide / Translation Stage, 100 mm, 4 nm Linear Encoder](#)

[M511.PD Linear Slide / Translation Stage, 4", DC-Motor + Active Drive™](#)

[M511.VD Linear Slide / Translation Stage, 4", DC-Motor + Active Drive™, 0.1µm Linear Encoder, Vacuum Version](#)

[M511.VG Linear Slide / Translation Stage, 4", DC-Motor/Gearhead, Vacuum Version](#)

[M511.VP Linear Slide / Translation Stage, 4", DC-Motor + Active Drive™, Vacuum > Version](#)

[M521.2S Linear Slide / Translation Stage, 8", 2 Phase Stepper Motor](#)

[M521.5IM PIIntelliStage™, Linear Slide / Translation Stage, 8", Integrated Controller, Master](#)

[M521.5IS PIIntelliStage™, Linear Slide / Translation Stage, 8", Integrated Controller, Slave](#)

[M521.DD Linear Slide / Translation Stage, 8", DC-Motor + Active Drive™, 0.1µm Linear Encoder](#)

[M521.DDB Linear Slide / Translation Stage, 8", DC-Motor + Active Drive™, 0.1µm Linear Encoder, Brake](#)

[M521.DG Linear Slide / Translation Stage, 8", DC-Motor/Gearhead](#)

[M521.PD Linear Slide / Translation Stage, 8", DC-Motor + Active Drive™](#)

[M521.VD Linear Slide / Translation Stage, 8", DC-Motor + Active Drive™, 0.1µm Linear Encoder, Vacuum Version](#)

[M521.VG Linear Slide / Translation Stage, 8", DC-Motor/Gearhead, Vacuum Version](#)

[M521.VP Linear Slide / Translation Stage, 8", DC-Motor + Active Drive™, Vacuum > Version](#)

[M531.2S Linear Slide / Translation Stage, 12", 2 Phase Stepper Motor](#)

[M531.5IM PIIntelliStage™, Linear Slide / Translation Stage, 12", Integrated Controller, Master](#)

[M531.5IS PIIntelliStage™, Linear Slide / Translation Stage, 12", Integrated Controller, Slave](#)

[M531.DD Linear Slide / Translation Stage, 12", DC-Motor + Active Drive™, 0.1µm Linear Encoder](#)

[M531.DDB Linear Slide / Translation Stage, 12", DC-Motor + Active Drive™, 0.1µm Linear Encoder, Brake](#)

[M531.DG Linear Slide / Translation Stage, 12", DC-Motor/Gearhead](#)

[M531.PD Linear Slide / Translation Stage, 12", DC-Motor + Active Drive™](#)

[M531.VD Linear Slide / Translation Stage, 12", DC-Motor + Active Drive™, 0.1µm Linear Encoder, Vacuum Version](#)

[M531.VG Linear Slide / Translation Stage, 12", DC-Motor/Gearhead, Vacuum Version](#)

[M531.VP Linear Slide / Translation Stage, 12", DC-Motor + Active Drive™, Vacuum > Version](#)

[M590.00 Three-Point Support Mounting Feet for M-510/511/521/531 Stages](#)

[M591.00 Mounting Screws for Series M-500 Stages](#)

[M592.00 Z-Axis Mounting Bracket for Vertical Mount of M-400 and M-505 Stages](#)

[M592.10 Z-Axis Mounting Bracket for Vertical mount of M-511/521/531 Stages](#)

[M605.11 Adapter Plate M-605 to M-011...M-044 + M-126](#)

[M605.1DD High-Accuracy Linear Slide / Translation Stage, 25mm, 0.1µm Linear Encoder](#)

[M605.2DD High-Accuracy Linear Slide / Translation Stage, 50mm, 0.1µm Linear Encoder](#)

[M605.AV1 Z-Axis Mounting Bracket for M-605 Stages](#)

[M619.00 Micrometer Drive, 6.5mm, Tip length 9mm](#)

[M619.10 Micrometer Drive, 6.5mm, Tip length 16.5mm](#)

[M620.00 Micrometer Drive, 10mm](#)

[M621.00 Micrometer Drive, 10mm](#)

[M621.10 Micrometer Drive, 10mm, Spherical Tip](#)

[M622.00 Micrometer Drive, 15mm](#)

[M623.00 Micrometer Drive, 15mm](#)

[M624.00 Micrometer Drive, 25mm](#)

[M624.10 Micrometer Drive, 25mm, Spherical Tip](#)

[M626.00 Micrometer Drive, 18mm, Tip Length 19mm](#)

[M626.05 Micrometer Drive, 18mm, Tip Length 19mm, Lockable](#)

[M626.10 Micrometer Drive, 18mm, Tip Length 30.5mm](#)

[M631.00 Precision Micrometer Drive with Non-Rotating Tip, 10mm Travel](#)

[M632.00 Precision Micrometer Drive with Non-Rotating Tip, 25mm Travel](#)

[M633.00 Precision Micrometer Driver with Non-Rotating Tip, 50mm Travel](#)

[M653.00 Differential Micrometer Drive, 5mm](#)

[M655.00 Differential Micrometer Drive, 20mm](#)

**PILine® Ultrasonic Piezo Motor Stages**

[M661.370 PILine® Ultra-Compact Piezo Linear Motor Stage, 18mm, Open-Loop](#)

[M661.470 PILine® Ultra-Compact Piezo Linear Motor Stage, 20mm, Open-Loop](#)

[M661.4V0 PILine® Ultra-Compact Piezo Linear Motor Stage, 18mm, Open-Loop, Vacuum Version](#)

[M662.470 PILine® Ultra-Compact Piezo Linear Motor Stage, 20mm, 2N, Open-Loop, XY mountable](#)

[M662.4V0 PILine® Compact Linear Slide / Translation Stage 20 mm Open Loop, > Vacuum Version](#)

[M663.465 PILine® Ultra-Compact Piezo Linear Motor Stage, 20mm, 2N, Closed-Loop, 0.1µm, Linear Encoder \(32 MHz\), requires Driver](#)

[M663.46V PILine® Compact Linear Slide / Translation Stage 20 mm, 0.1 µm Linear Encoder, for C-865.161, Vacuum Version](#)

[M663.485 PILine® Ultra-Compact Piezo Linear Motor Stage, 20mm, 2N, Closed-Loop, 0.1µm, Linear Encoder \(12 MHz\), requires Driver](#)

[M663.48V PILine® Compact Linear Slide / Translation Stage 20 mm, 0.1 µm Linear Encoder, für C-185.161, Vacuum Version](#)

[M665.265 PILine® Low-Profile Stage, 50mm, Piezo Linear Motor, Closed-Loop, 0.1µm, Linear Encoder \(32 MHz\)](#)

[M665.26V PILine® Low-Profile TranslationStage, 50 mm, 0.1 µm Linear Encoder, for C-865.161, Vacuum Version](#)

[M665.285 PILine® Low-Profile Stage, 50mm, Piezo Linear Motor, Closed-Loop, 0.1µm, Linear Encoder \(12 MHz\), for C-865.161](#)

[M665.28V PILine® Low-Profile TranslationStage, 50 mm, 0.1 µm Linear Encoder, for C-865.161, Vacuum Version](#)

[M674.00 PILine® RodDrive, 100 mm, 7 N](#)

**Hybrid Nanopositioning System**

[M714 Hybrid Z-Nanopositioning Stage](#)

**Hexapods**

[M824.3DG Hexapod Compact 6-Axis MicroMotion Robot, DC-Gearhead Drive with Motion Controller](#)

[M824.3PD Hexapod Compact 6-Axis MicroMotion Robot DC-Direct Drive with Motion Controller](#)

[M824.3VG Hexapod Compact 6-Axis MicroMotion Robot, DC-Gearhead Drive with Motion Controller, Vacuum Version](#)

[M824.3VP Hexapod Compact 6-Axis MicroMotion Robot DC-Direct Drive with Motion Controller, Vacuum Version](#)

[M840.5DG HexaLight, Hexapod 6-Axis Micropositioning System w/ 6D Controller and Software, 2.5mm/sec](#)

[M840.5PD HexaLight, Hexapod 6-Axis Micropositioning System w/ 6D Controller and Software, 50mm/sec](#)

[M850.11 High-Load Hexapod 6-Axis Micropositioning System w/ 6D Controller and Software, 0.5mm/sec](#)

[M850.50 High-Load Hexapod 6-Axis Micropositioning System w/ 6D Controller and Software, 8mm/sec](#)

[M850.V50 Hexapod 6-Axis MicroMotionRobot with Motion Controller 8 mm/s, Vacuum Version](#)

**NEXLINE® PiezoWalk® Nanopositioning Actuators**

[N110.00 NEXLINE®-Actuator, 3 mm, 30N, open loop](#)

[N214.00 NEXLINE®-Actuator, 20 mm, 200 N, closed loop, linear encoder](#)

[N215.00 NEXLINE® High-Load Actuator, 400N, 20mm, Open-Loop](#)

**HVPZT Piezo Linear Actuators, Translators, Shear, Disks**

**PICA-Thru Piezo Linear Actuators**

[P010.00H PICA-Thru Piezoelectric Linear Actuator, 5µm, 10mm OD, 5mm ID, 7mm len.](#)

[P010.05H PICA-Thru Piezoelectric Linear Actuator, 10µm, 10mm OD, 5mm ID, 12mm len.](#)

[P010.10H PICA-Thru Piezoelectric Linear Actuator, 15µm, 10mm OD, 5mm ID, 15mm len.](#)

[P010.15H PICA-Thru Piezoelectric Linear Actuator, 20µm, 10mm OD, 5mm ID, 21mm len.](#)

[P010.20H PICA-Thru Piezoelectric Linear Actuator, 30µm, 10mm OD, 5mm ID, 27mm len.](#)

[P010.30H PICA-Thru Piezoelectric Linear Actuator, 40µm, 10mm OD, 5mm ID, 40mm len.](#)

[P010.40H PICA-Thru Piezoelectric Linear Actuator, 60µm, 10mm OD, 5mm ID, 54mm len.](#)

[P016.00H PICA-Thru Piezoelectric Linear Actuator, 5µm, 16mm OD, 8mm ID, 7mm len.](#)

[P016.05H PICA-Thru Piezoelectric Linear Actuator, 10µm, 16mm OD, 8mm ID, 12mm len.](#)

[P016.10H PICA-Thru Piezoelectric Linear Actuator, 15µm, 16mm OD, 8mm ID, 15mm len.](#)

[P016.15H PICA-Thru Piezoelectric Linear Actuator, 20µm, 16mm OD, 8mm ID, 21mm len.](#)

[P016.20H PICA-Thru Piezoelectric Linear Actuator, 30µm, 16mm OD, 8mm ID, 27mm len.](#)

[P016.30H PICA-Thru Piezoelectric Linear Actuator, 40µm, 16mm OD, 8mm ID, 40mm len.](#)

[P016.40H PICA-Thru Piezoelectric Linear Actuator, 60µm, 16mm OD, 8mm ID, 52mm len.](#)

[P025.10H PICA-Thru Piezoelectric Linear Actuator, 15µm, 25mm OD, 16mm ID, 16mm len.](#)

[P025.20H PICA-Thru Piezoelectric Linear Actuator, 30µm, 25mm OD, 16mm ID, 27mm len.](#)

[P025.40H PICA-Thru Piezoelectric Linear Actuator, 60µm, 25mm OD, 16mm ID, 51mm len.](#)

[P025.50H PICA-Thru Piezoelectric Linear Actuator, 80µm, 25mm OD, 16mm ID, 66mm len.](#)

#### PICA-Power Piezoelectric Linear Actuators

[P010.00P PICA-Power Piezoelectric Linear Actuator, 5µm, Ø10x9mm](#)

[P010.10P PICA-Power Piezoelectric Linear Actuator, 15µm, Ø10x18mm](#)

[P010.20P PICA-Power Piezoelectric Linear Actuator, 30µm, Ø10x31mm](#)

[P010.40P PICA-Power Piezoelectric Linear Actuator, 60µm, Ø10x58mm](#)

[P010.80P PICA-Power Piezoelectric Linear Actuator, 120µm, Ø10x111mm](#)

[P016.40P PICA-Power Piezoelectric Linear Actuator, 60µm, Ø16x58mm](#)

[P016.80P PICA-Power Piezoelectric Linear Actuator, 120µm, Ø16x111mm](#)

[P016.90P PICA-Power Piezoelectric Linear Actuator, 180µm, Ø16x163mm](#)

[P025.10P PICA-Power Piezoelectric Linear Actuator, 15µm, Ø25x20mm](#)

[P025.20P PICA-Power Piezoelectric Linear Actuator, 30µm, Ø25x33mm](#)

[P025.40P PICA-Power Piezoelectric Linear Actuator, 60µm, Ø25x60mm](#)

[P025.80P PICA-Power Piezoelectric Linear Actuator, 120µm, Ø25x113mm](#)

[P025.90P PICA-Power Piezoelectric Linear Actuator, 180µm, Ø25x165mm](#)

[P035.10P PICA-Power Piezoelectric Linear Actuator, 15µm, Ø35x21mm](#)

[P035.20P PICA-Power Piezoelectric Linear Actuator, 30µm, Ø35x34mm](#)

[P035.40P PICA-Power Piezoelectric Linear Actuator, 60µm, Ø35x61mm](#)

[P035.80P PICA-Power Piezoelectric Linear Actuator, 120µm, Ø35x114mm](#)

[P035.90P PICA-Power Piezoelectric Linear Actuator, 180µm, Ø35x166mm](#)

[P045.20P PICA-Power Piezoelectric Linear Actuator, 30µm, Ø45x36mm](#)

[P045.40P PICA-Power Piezoelectric Linear Actuator, 60µm, Ø45x63mm](#)

[P045.80P PICA-Power Piezoelectric Linear Actuator, 120µm, Ø45x116mm](#)

[P045.90P PICA-Power Piezoelectric Linear Actuator, 180µm, Ø45x169mm](#)

[P056.20P PICA-Power Piezoelectric Linear Actuator, 30µm, Ø56x36mm](#)

[P056.40P PICA-Power Piezoelectric Linear Actuator, 60µm, Ø56x63mm](#)

[P056.80P PICA-Power Piezoelectric Linear Actuator, 120µm, Ø56x116mm](#)

[P056.90P PICA-Power Piezoelectric Linear Actuator, 180µm, Ø56x169mm](#)

#### PICA -Stack Piezo Linear Actuators

[P007.00 PICA-Stack Piezoelectric Linear Actuator, 5µm, Ø7x8mm](#)

[P007.10 PICA-Stack Piezoelectric Linear Actuator, 15µm, Ø7x17mm](#)

[P007.20 PICA-Stack Piezoelectric Linear Actuator, 30µm, Ø7x29mm](#)

[P007.40 PICA-Stack Piezoelectric Linear Actuator, 60µm, Ø7x54mm](#)

[P010.00 PICA-Stack Piezoelectric Linear Actuator, 5µm, Ø10x8mm](#)

[P010.10 PICA-Stack Piezoelectric Linear Actuator, 15µm, Ø10x17mm](#)

[P010.20 PICA-Stack Piezoelectric Linear Actuator, 30µm, Ø10x30mm](#)

[P010.40 PICA-Stack Piezoelectric Linear Actuator, 60µm, Ø10x56mm](#)

[P010.80 PICA-Stack Piezo Linear Actuator, 120µm, Ø10x107mm](#)

[P016.40 PICA-Stack Piezoelectric Linear Actuator, 60µm, Ø16x54mm](#)

[P016.80 PICA-Stack Piezo Linear Actuator, 120µm, Ø16x101mm](#)

[P016.90 PICA-Stack Piezo Linear Actuator, 180µm, Ø16x150mm](#)

[P025.10 PICA-Stack Piezoelectric Linear Actuator, 15µm, Ø25x18mm](#)

[P025.150 PICA-Stack Piezo Linear Actuator, 250µm, Ø25x204mm](#)

[P025.20 PICA-Stack Piezoelectric Linear Actuator, 30µm, Ø25x30mm](#)

[P025.200 PICA-Stack Piezo Linear Actuator, 300µm, Ø25x244mm](#)

[P025.40 PICA-Stack Piezoelectric Linear Actuator, 60µm, Ø25x53mm](#)

[P025.80 PICA-Stack Piezo Linear Actuator, 120µm, Ø25x101mm](#)

[P025.90 PICA-Stack Piezo Linear Actuator, 180µm, Ø25x149mm](#)

[P035.10 PICA-Stack Piezoelectric Linear Actuator, 15µm, Ø35x20mm](#)

[P035.20 PICA-Stack Piezoelectric Linear Actuator, 30µm, Ø35x32mm](#)

[P035.40 PICA-Stack Piezoelectric Linear Actuator, 60µm, Ø35x57mm](#)

[P035.80 PICA-Stack Piezo Linear Actuator, 120µm, Ø35x104mm](#)

[P035.90 PICA-Stack Piezo Linear Actuator, 180µm, Ø35x153mm](#)

[P045.20 PICA-Stack Piezoelectric Linear Actuator, 30µm, Ø45x33mm](#)

[P045.40 PICA-Stack Piezoelectric Linear Actuator, 60µm, Ø45x58mm](#)

[P045.80 PICA-Stack Piezo Linear Actuator, 120µm, Ø45x105mm](#)

[P045.90 PICA-Stack Piezo Linear Actuator, 180µm, Ø45x154mm](#)

[P050.20 PICA-Stack Piezoelectric Linear Actuator, 30µm, Ø50x33mm](#)

[P050.40 PICA-Stack Piezoelectric Linear Actuator, 60µm, Ø50x58mm](#)

[P050.80 PICA-Stack Piezo Linear Actuator, 120µm, Ø50x105mm](#)

[P050.90 PICA-Stack Piezo Linear Actuator, 180µm, Ø50x154mm](#)

[P056.20 PICA-Stack Piezoelectric Linear Actuator, 30µm, Ø56x33mm](#)

[P056.40 PICA-Stack Piezoelectric Linear Actuator, 60µm, Ø56x58mm](#)

[P056.80 PICA-Stack Piezo Linear Actuator, 120µm, Ø56x105mm](#)

[P056.90 PICA-Stack Piezo Linear Actuator, 180µm, Ø56x154mm](#)

#### PICA Shear Actuators

[P111.01 PICA-Shear Piezo Linear Actuator, 1µm X, 3x3mm, 3.5mm len.](#)

[P111.03 PICA-Shear Piezo Linear Actuator, 3µm X, 3 x3mm, 5.5mm len.](#)

[P111.05 PICA-Shear Piezo Linear Actuator, 5µm X, 3x3mm, 7.5mm len.](#)

[P112.01 PICA-Shear Piezo Linear Actuator, 1x1µm XY, 3x3mm, 5mm len.](#)

[P112.03 PICA-Shear Piezo Linear Actuator, 3x3µm XY, 3x3mm, 9.5mm len.](#)

[P121.01 PICA-Shear Piezo Linear Actuator, 1µm X, 5x5mm, 3.5mm len.](#)

[P121.03 PICA-Shear Piezo Linear Actuator, 3µm X, 5x5mm, 5.5mm len.](#)

[P121.05 PICA-Shear Piezo Linear Actuator, 5µm X, 5x5mm, 7.5mm len.](#)

[P122.01 PICA-Shear Piezo Linear Actuator, 1x1µm XY, 5x5mm, 5mm len.](#)

[P122.03 PICA-Shear Piezo Linear Actuator, 3x3µm XY, 5x5mm, 9.5mm len.](#)

[P122.05 PICA-Shear Piezo Linear Actuator, 5x5µm XY, 5x5mm, 14mm len.](#)

[P123.01 PICA-Shear Piezo Linear Actuator, 1x1x1µm XYZ, 5x5mm, 7.5mm len.](#)

[P123.03 PICA-Shear Piezo Linear Actuator, 3x3x3µm XYZ, 5x5mm, 15.5mm len.](#)

[P141.03 PICA-Shear Piezo Linear Actuator, 3µm X, 10x10mm, 5.5mm len.](#)

[P141.05 PICA-Shear Piezo Linear Actuator, 5µm X, 10x10mm, 7.5mm len.](#)

[P141.10 PICA-Shear Piezo Linear Actuator, 10µm X, 10x10mm, 12mm len.](#)

[P142.03 PICA-Shear Piezo Linear Actuator, 3x3µm XY, 10x10mm, 9.5mm len.](#)

[P142.05 PICA-Shear Piezo Linear Actuator, 5x5µm XY, 10x10mm, 14mm len.](#)

[P142.10 PICA-Shear Piezo Linear Actuator, 10x10µm XY, 10x10mm, 23mm len.](#)

[P143.01 PICA-Shear Piezo Linear Actuator, 1x1x1µm XYZ, 10x10mm, 7.5mm len.](#)

[P143.03 PICA-Shear Piezo Linear Actuator, 3x3x3µm XYZ, 10x10mm, 15.5mm len.](#)

[P143.05 PICA-Shear Piezo Linear Actuator, 5x5x5µm XYZ, 10 x10mm, 23mm len.](#)

[P151.03 PICA-Shear Piezo Linear Actuator, 3µm X, 16x16mm, 5.5mm len.](#)

[P151.03H PICA-Shear Piezo Linear Actuator, 3µm X, 16x16mm, 10mm ID, 5.5mm len.](#)

[P151.05 PICA-Shear Piezo Linear Actuator, 5µm X, 16x16mm, 7.5mm len.](#)

[P151.05H PICA-Shear Piezo Linear Actuator, 5µm X, 16x16mm, 10mm ID, 7.5mm len.](#)

[P151.10 PICA-Shear Piezo Linear Actuator, 10µm X, 16x16mm, 12mm len.](#)

[P151.10H PICA-Shear Piezo Linear Actuator, 10µm X, 16x16mm, 10mm ID, 12mm len.](#)

[P152.03 PICA-Shear Piezo Linear Actuator, 3x3µm XY, 16x16mm, 9.5mm len.](#)

[P152.05 PICA-Shear Piezo Linear Actuator, 5x5µm XY, 16x16mm, 14mm len.](#)

[P152.10 PICA-Shear Piezo Linear Actuator, 10x10µm XY, 16x16mm, 23mm len.](#)

[P153.03 PICA-Shear Piezo Linear Actuator, 3x3x3µm XYZ, 16x16mm, 15.5mm len.](#)

[P153.05 PICA-Shear Piezo Linear Actuator, 5x5x5µm XYZ, 16x16mm, 23mm len.](#)

[P153.10 PICA-Shear Piezo Linear Actuator, 10x10x10µm XYZ, 16x16mm, 40mm len.](#)

[P153.10H PICA-Shear Piezo Linear Actuator, 10x10x10µm XYZ, 16x16mm, 10mm ID, 40mm len.](#)

#### Piezo Linear Actuators with Casing

[P170.00 Piezo Linear Actuator \(High Voltage\) 5µm](#)

[P170.07 Piezo Linear Actuator \(High Voltage\) 5µm, modified](#)

[P171.00 Piezo Linear Actuator \(High Voltage\) 10µm](#)

[P171.07 Piezo Linear Actuator \(High Voltage\) 10µm, modified](#)

[P172.00 Piezo Linear Actuator \(High Voltage\) 20µm](#)

[P172.07 Piezo Linear Actuator \(High Voltage\) 20µm, modified](#)

[P173.00 Piezo Linear Actuator \(High Voltage\) 40µm](#)

[P173.07 Piezo Linear Actuator \(High Voltage\) 40µm, modified](#)

[P176.10 Magnetic Adapter w/ M5 Thread](#)

[P176.20 Magnetic Adapter w/ M3 Thread](#)

[P176.30 Magnetic Adapter for P-820/821](#)

[P176.50 Flexible Tip with M5 Thread](#)  
[P176.60 Flexible Tip with M8 Thread](#)  
[P177.10 Strain Gauge Position Sensor for Piezo Linear Actuator \(High Voltage\)s](#)  
[P178.10 Piezo Linear Actuator \(High Voltage\) 10µm](#)  
[P178.17 Piezo Linear Actuator \(High Voltage\) 10µm, modified](#)  
[P178.20 Piezo Linear Actuator \(High Voltage\) 20µm](#)  
[P178.27 Piezo Linear Actuator \(High Voltage\) 20µm, modified](#)  
[P178.30 Piezo Linear Actuator \(High Voltage\) 40µm](#)  
[P178.37 Piezo Linear Actuator \(High Voltage\) 40µm, modified](#)  
[P178.50 Piezo Linear Actuator \(High Voltage\) 80µm](#)  
[P178.57 Piezo Linear Actuator \(High Voltage\) 80µm, modified](#)  
[P204.10 HVPZT Adapter, LEMO Coupling/BNC-Connector](#)  
[P204.20 HVPZT Adapter, BNC plug/SMC socket](#)  
[P204.30 HVPZT Adapter, LEMO Coupling/BNC-Connector](#)  
[P209.01 Extension Cable for HVPZTs, 1m](#)  
[P209.02 Extension Cable for HVPZTs, 2m](#)  
[P209.03 Extension Cable for HVPZTs, 3m](#)  
[P209.05 Extension Cable for HVPZTs, 5m](#)  
[P209.10 Extension Cable for HVPZTs, 10m](#)  
[P210.10 LEMO Cable Blunt End, 1m](#)  
[P210.20 BNC-cable Blunt End](#)

#### Preloaded Piezo Linear Actuators

[P239.00 Preloaded Piezo Linear Actuator \(HVPZT\) 5µm](#)  
[P239.07 Preloaded Piezo Linear Actuator \(HVPZT\) 5µm, modified](#)  
[P239.10 Preloaded Piezo Linear Actuator \(HVPZT\) 10µm](#)  
[P239.17 Preloaded Piezo Linear Actuator \(HVPZT\) 10µm, modified](#)  
[P239.20 Preloaded Piezo Linear Actuator \(HVPZT\) 20µm](#)  
[P239.27 Preloaded Piezo Linear Actuator \(HVPZT\) 20µm, modified](#)  
[P239.30 Preloaded Piezo Linear Actuator \(HVPZT\) 40µm](#)  
[P239.37 Preloaded Piezo Linear Actuator \(HVPZT\) 40µm, modified](#)  
[P239.40 Preloaded Piezo Linear Actuator \(HVPZT\) 60µm](#)  
[P239.47 Preloaded Piezo Linear Actuator \(HVPZT\) 60µm, modified](#)  
[P239.60 Preloaded Piezo Linear Actuator \(HVPZT\) 100µm](#)  
[P239.67 Preloaded Piezo Linear Actuator \(HVPZT\) 100µm, modified](#)  
[P239.80 Preloaded Piezo Linear Actuator \(HVPZT\) 140µm](#)  
[P239.87 Preloaded Piezo Linear Actuator \(HVPZT\) 140µm, modified](#)  
[P239.90 Preloaded Piezo Linear Actuator \(HVPZT\) 180µm](#)  
[P239.95 Option: Ball Tip](#)  
[P239.97 Preloaded Piezo Linear Actuator \(HVPZT\) 180µm, modified](#)  
[P241.00 Preloaded Piezo Linear Actuator \(HVPZT\), 5µm,](#)  
[P242.00 Preloaded Piezo Linear Actuator \(HVPZT\), 12500/2000N, 5µm](#)  
[P242.07 Preloaded Piezo Linear Actuator \(HVPZT\), 12500/2000N, 5µm, modified](#)  
[P242.10 Preloaded Piezo Linear Actuator \(HVPZT\), 12500/2000N, 10µm](#)  
[P242.17 Preloaded Piezo Linear Actuator \(HVPZT\), 12500/2000N, 10µm, modified](#)  
[P242.20 Preloaded Piezo Linear Actuator \(HVPZT\), 12500/2000N, 20µm](#)  
[P242.27 Preloaded Piezo Linear Actuator \(HVPZT\), 12500/2000N, 20µm, modified](#)  
[P242.30 Preloaded Piezo Linear Actuator \(HVPZT\), 12500/2000N, 40µm](#)  
[P242.37 Preloaded Piezo Linear Actuator \(HVPZT\), 12500/2000N, 40µm, modified](#)  
[P242.40 Preloaded Piezo Linear Actuator \(HVPZT\), 12500/2000N, 60µm](#)  
[P242.47 Preloaded Piezo Linear Actuator \(HVPZT\), 12500/2000N, 60µm, modified](#)  
[P243.00 Preloaded Piezo Linear Actuator \(HVPZT\), 30000/2000N, 5µm](#)  
[P243.07 Preloaded Piezo Linear Actuator \(HVPZT\), 30000/2000N, 5µm, modified](#)  
[P243.10 Preloaded Piezo Linear Actuator \(HVPZT\), 30000/2000N, 10µm](#)  
[P243.17 Preloaded Piezo Linear Actuator \(HVPZT\), 30000/2000N, 10µm, modified](#)  
[P243.20 Preloaded Piezo Linear Actuator \(HVPZT\), 30000/2000N, 20µm](#)  
[P243.27 Preloaded Piezo Linear Actuator \(HVPZT\), 30000/2000N, 20µm, modified](#)  
[P243.30 Preloaded Piezo Linear Actuator \(HVPZT\), 30000/3500N, 40µm](#)  
[P243.37 Preloaded Piezo Linear Actuator \(HVPZT\), 30000/3500N, 40µm, modified](#)  
[P243.40 Preloaded Piezo Linear Actuator \(HVPZT\), 30000/3500N, 60µm](#)  
[P243.41 Preloaded Piezo Linear Actuator \(HVPZT\), 30000/3500N, 60µm, modified](#)  
[P244.10 Preloaded Piezo Linear Actuator \(HVPZT\) 10µm](#)  
[P244.17 Preloaded Piezo Linear Actuator \(HVPZT\) 10µm, modified](#)  
[P244.20 Preloaded Piezo Linear Actuator \(HVPZT\) 20µm](#)  
[P244.27 Preloaded Piezo Linear Actuator \(HVPZT\) 20µm, modified](#)

[P244.30 Preloaded Piezo Linear Actuator \(HVPZT\) 40µm](#)  
[P244.37 Preloaded Piezo Linear Actuator \(HVPZT\) 40µm, modified](#)  
[P244.40 Preloaded Piezo Linear Actuator \(HVPZT\) 60µm](#)  
[P244.47 Preloaded Piezo Linear Actuator \(HVPZT\) 60µm, modified](#)  
[P244.4S Preloaded Piezo Linear Actuator \(HVPZT\), 60µm, SGS](#)  
[P244.95 Option: Ball Tip](#)  
[P244.96 Preloaded Piezo Linear Actuator \(HVPZT\) 20µm](#)  
[P244.97 Preloaded Piezo Linear Actuator \(HVPZT\) 20µm, modified](#)  
[P244.98 Preloaded Piezo Linear Actuator \(HVPZT\) 40µm](#)  
[P244.99 Preloaded Piezo Linear Actuator \(HVPZT\) 40µm, modified](#)  
[P244.100 Preloaded Piezo Linear Actuator \(HVPZT\) 80µm](#)  
[P244.101 Preloaded Piezo Linear Actuator \(HVPZT\) 80µm, modified](#)  
[P244.102 Preloaded Piezo Linear Actuator \(HVPZT\) 120µm](#)  
[P244.103 Preloaded Piezo Linear Actuator \(HVPZT\) 120µm, modified](#)  
[P244.104 Preloaded Piezo Linear Actuator \(HVPZT\), 120µm, SGS](#)  
[P245.20 Preloaded Piezo Linear Actuator \(HVPZT\) 20µm](#)  
[P245.27 Preloaded Piezo Linear Actuator \(HVPZT\), 20µm, modified](#)  
[P245.30 Preloaded Piezo Linear Actuator \(HVPZT\) 40µm](#)  
[P245.37 Preloaded Piezo Linear Actuator \(HVPZT\), 40µm, modified](#)  
[P245.50 Preloaded Piezo Linear Actuator \(HVPZT\) 80µm](#)  
[P245.57 Preloaded Piezo Linear Actuator \(HVPZT\), 80µm, modified](#)  
[P245.70 Preloaded Piezo Linear Actuator \(HVPZT\) 120µm](#)  
[P245.77 Preloaded Piezo Linear Actuator \(HVPZT\), 120µm, modified](#)  
[P245.7S Preloaded Piezo Linear Actuator \(HVPZT\) 120µm, SGS](#)

#### Preloaded High-Load Piezo Linear Actuators

[P246.20 Preloaded Piezo Linear Actuator \(HVPZT\), 12500/2000N, 20µm](#)  
[P246.27 Preloaded Piezo Linear Actuator \(HVPZT\), 12500/2000N, 20µm, modified](#)  
[P246.30 Preloaded Piezo Linear Actuator \(HVPZT\), 12500/2000N, 40µm](#)  
[P246.37 Preloaded Piezo Linear Actuator \(HVPZT\), 12500/2000N, 40µm, modified](#)  
[P246.50 Preloaded Piezo Linear Actuator \(HVPZT\), 12500/2000N, 80µm](#)  
[P246.57 Preloaded Piezo Linear Actuator \(HVPZT\), 12500/2000N, 80µm, modified](#)  
[P246.70 Preloaded Piezo Linear Actuator \(HVPZT\), 12500/2000N, 120µm](#)  
[P246.77 Preloaded Piezo Linear Actuator \(HVPZT\), 12500/2000N, 120µm, modified](#)  
[P247.20 Preloaded Piezo Linear Actuator \(HVPZT\), 30000/3500, 20µm](#)  
[P247.27 Preloaded Piezo Linear Actuator \(HVPZT\), 30000/3500, 20µm, modified](#)  
[P247.30 Preloaded Piezo Linear Actuator \(HVPZT\), 30000/3500, 40µm](#)  
[P247.37 Preloaded Piezo Linear Actuator \(HVPZT\), 30000/3500, 40µm, modified](#)  
[P247.50 Preloaded Piezo Linear Actuator \(HVPZT\), 30000/3500, 80µm](#)  
[P247.70 Preloaded Piezo Linear Actuator \(HVPZT\), 30000/3500, 120µm](#)  
[P247.77 Preloaded Piezo Linear Actuator \(HVPZT\), 30000/3500, 120µm, modified](#)

#### Miniature High-Voltage Piezo Linear Actuators

[P249.10 Miniature Piezo Linear Actuator \(High Voltage\) 5µm](#)  
[P249.17 Miniature Piezo Linear Actuator \(High Voltage\) 5µm, modified](#)  
[P249.20 Miniature Piezo Linear Actuator \(High Voltage\) 10µm](#)  
[P249.27 Miniature Piezo Linear Actuator \(High Voltage\), 10µm, modified](#)  
[P250.10 Piezo Linear Actuator \(High Voltage\) 20µm BNC Connector](#)  
[P250.20 Piezo Linear Actuator \(High Voltage\) 20µm LEMO Connector](#)  
[P250.21 Piezo Linear Actuator \(High Voltage\) 20µm, modified](#)  
**HVPZT Block Nanopositioning Translators**  
[P280.10A Piezo Linear Slide / PiezoStage, Piezo System 30µm, Cable A](#)  
[P280.10B Piezo Linear Slide / PiezoStage, Piezo System 30µm, Cable B](#)  
[P280.10C Piezo Linear Slide / PiezoStage, Piezo System 30µm, Cable C](#)  
[P280.20A Piezo Linear Slide / PiezoStage, Piezo System 50µm, Cable A](#)  
[P280.20B Piezo Linear Slide / PiezoStage, Piezo System 50µm, Cable B](#)  
[P280.20C Piezo Linear Slide / PiezoStage, Piezo System 50µm, Cable C](#)  
[P280.30A Piezo Linear Slide / PiezoStage, Piezo System 100µm, Cable A](#)  
[P280.30B Piezo Linear Slide / PiezoStage, Piezo System 100µm, Cable B](#)  
[P280.30C Piezo Linear Slide / PiezoStage, Piezo System 100µm, Cable C](#)  
[P281.10 XY Piezo Linear Slide / PiezoStage, Piezo System , 30µm](#)  
[P281.20 XY Piezo Linear Slide / PiezoStage, Piezo System , 50µm](#)  
[P281.30 XY Piezo Linear Slide / PiezoStage, Piezo System , 100µm](#)  
[P282.10 XYZ Piezo Linear Slide / PiezoStage, Piezo System , 30µm](#)  
[P282.20 XYZ Piezo Linear Slide / PiezoStage, Piezo System , 50µm](#)  
[P282.30 XYZ Piezo Linear Slide / PiezoStage, Piezo System , 100µm](#)

#### Disk Piezo Translators

[P286.20 HVPZT Disk Translator 100µm, wire leads](#)  
[P286.23 HVPZT Disk Translator 100µm, Vacuum](#)  
[P286.27 HVPZT Disk Translator 100µm, modified](#)

[P286.40 HVPZT Disk Translator 100µm, LEMO Connector](#)  
[P287.70 Z/Tilt Piezo Stage 12mrad, 700µm](#)  
[P287.77 Z/Tilt Piezo Stage 12mrad, 700µm, modified](#)  
[P288.00 HVPZT Mini Disk Translator 50µm](#)  
[P289.20 HVPZT Double Disk Translator 200µm, wire leads](#)  
[P289.40 HVPZT Double Disk Translator 200µm, LEMO Connector](#)  
[P290.00 Vertical Piezo Nanopositioning Stage 1000µm](#)  
 Piezo Nanopositioning / Scanning Stages (P-36x, P-5xx, P-6xx Series)  
[P363.2CD PicoCube™, XY Nanopositioning/Scanning Stage, 5x5µm, Parallel Direct Metrology](#)  
[P363.2CL PicoCube™ XY Nanopositioning/Scanning Stage, 5x5µm, Parallel Direct Metrology](#)  
[P363.2UD PicoCube™, XY Nanopositioning/Scanning Stage, 5x5µm, Parallel Direct Metrology, UHV Version](#)  
[P363.3CD PicoCube™ XYZ Nanopositioning/Scanning Stage, 5x5x5µm, Parallel Direct Metrology](#)  
[P363.3CL PicoCube™ XYZ Nanopositioning/Scanning Stage, 5x5x5µm, Parallel Direct Metrology, LEMO](#)  
[P363.3UD PicoCube™ XYZ Nanopositioning/Scanning Stage, 5x5x5µm, Parallel Direct Metrology, UHV Version](#)  
 P-517 - P-528 Multi-Axis Parallel-Kinematics Piezo Nanopositioning Stages  
[P517.2CD XY Piezo Linear Slide / Piezo Stage Piezo System 100x100µm, Parallel Direct Metrology, digital](#)  
[P517.2CL XY Piezo Linear Slide / Piezo Stage Piezo System 100x100µm, Parallel Direct Metrology](#)  
[P517.3CD XYZ Piezo Linear Slide / Piezo Stage Piezo System , 100x100x20µm, Parallel Direct Metrology, Digital](#)  
[P517.3CL XYZ Piezo Linear Slide / Piezo Stage Piezo System , 100x100x20µm, Parallel Direct Metrology](#)  
[P517.6CD 6-Axis Piezo Flexure Stage, Parallel Metrology, Capacitive Sensors, for Digital Controller](#)  
[P517.RCD XY, Theta-Z Piezo Linear Slide / Piezo Stage Piezo System 100x100µm, 2mrad, Parallel Direct Metrology, Digital](#)  
[P518.TCD Z/Tip/Tilt Piezo Linear Slide / Piezo Stage Piezo System , 100µm, 2mrad, Parallel Direct Metrology, Digital](#)  
[P518.ZCL Z Piezo Linear Slide / Piezo Stage Piezo System , 100µm, Capacitive Direct Metrology](#)  
[P527.2CL XY Piezo Linear Slide / Piezo Stage Piezo System , 200x200µm, Parallel Direct Metrology](#)  
[P527.3CD XYZ Piezo Linear Slide / Piezo Stage Piezo System , 200x200x20µm, Parallel Direct Metrology, Digital](#)  
[P527.3CL XYZ Piezo Linear Slide / Piezo Stage Piezo System , 200x200x20µm, Parallel Direct Metrology](#)  
[P527.6CD 6-Axis Piezo Flexure Stage, Parallel Metrology, Capacitive Sensors, for Digital Controller](#)  
[P527.RCD XY, Theta-Z Piezo Linear Slide / Piezo Stage Piezo System 200x200µm, 4mrad, Parallel Direct Metrology, Digital](#)  
[P528.TCD Z/Tip/Tilt Piezo Nanopositioning Stage, 200µm, 2mrad, Parallel Direct Metrology, Digital](#)  
[P528.ZCD Z Piezo Linear Slide / Piezo Stage Piezo System , 200µm, Capacitive Direct Metrology, Digital](#)  
[P528.ZCL Z Piezo Linear Slide / Piezo Stage Piezo System , 200µm, Capacitive Direct Metrology](#)  
 P-541 / P-542 Low Profile Nanopositioning Stages  
[P541.20L Low-Profile XY NanoPositioning Stage, 100x100µm, Open-Loop, Lemo](#)  
[P541.2CD Low-Profile XY NanoPositioning Stage, 100x100µm, Cap. Sensors, Sub-D Connector](#)  
[P541.2CL Low-Profile XY NanoPositioning Stage, 100x100µm, Cap. Sensors, Lemo](#)  
[P541.2DD High-Speed, Low-Profile Nano positioning Stage, 50x50mm, Cap. Sensors, Sub-D Connector](#)  
[P541.2SL Low-Profile NanoPositioning Stage, 100x100µm, Strain Gauge Sensors, Lemo Connector](#)  
[P541.T0L Low-Profile Z-Tip/Tilt, open Loop, 100µm](#)  
[P541.TCD Low-Profile Z-Tip/Tilt, Cap.Sensor, 100µm](#)  
[P541.TSL Low-Profile Z-Tip/Tilt with SGS, 100µm](#)  
[P541.Z0L Low-Profile Vertical Z Nanopositioning Stage, 100µm, Open-Loop, Lemo Connector](#)  
[P541.ZCD Low-Profile Vertical Z Nano Positioning Stage, 100µm, Cap. Sensors, Sub-D Connector](#)  
[P541.ZCL Low-Profile Vertical Z Nano Positioning Stage, 100µm, Cap. Sensors, Lemo Connectors](#)  
[P541.ZSL Low-Profile Vertical Z Nano positioning Stage, 100µm, Strain Gauge Sensors, Lemo Connector](#)

[P542.20L Low-Profile XY NanoPositioning Stage, 200x200µm, Open-Loop, Lemo Connectors](#)  
[P542.2CD Low-Profile XY NanoPositioning Stage, 200x200µm, Cap. Sensors, Sub-D Connector](#)  
[P542.2CL Low-Profile XY NanoPositioning Stage, 200x200µm, Cap. Sensors, Lemo Connectors](#)  
[P542.2SL Low-Profile NanoPositioning Stage, 200x200µm, Strain Gauge Sensors, Lemo Connector](#)  
[P558.TCD Z/Tip/Tilt Piezo Nanopositioning Stage, 50µm, 1mrad, Parallel Direct Metrology, Digital](#)  
[P558.ZCD Z Piezo Linear Slide / Piezo Stage Piezo System , 50µm, Capacitive Direct Metrology, Digital](#)  
[P558.ZCL Z Piezo Linear Slide / Piezo Stage Piezo System , 50µm, Capacitive Direct Metrology](#)  
 PIMars™ Multi-Axis Parallel-Kinematics Piezo Nanopositioning Stages  
[P561.2DD Ultra-Fast PIMars™ XY Nanopositioning/Scanning Stage, 45x45µm, Parallel Direct Metrology](#)  
[P561.3CD PIMars™ XYZ Piezo Linear Slide / Piezo Stage Piezo System , 100x100x100µm, Parallel Direct Metrology, Sub-D](#)  
[P561.3CL PIMars™ XYZ Piezo Linear Slide / Piezo Stage Piezo System , 100x100x100µm, Parallel Direct Metrology, Lemo](#)  
[P561.3DD Ultra-Fast PIMars™ XYZ Nanopositioning/Scanning Stage, 45x45x10µm, Parallel Direct Metrology](#)  
[P561.3UD UHV PIMars™ XYZ Piezo Linear Slide / Piezo Stage Piezo System , 100x100x100µm, Parallel Direct Metrology](#)  
[P561.3VD High Vacuum PIMars™ XYZ Piezo Linear Slide / Piezo Stage Piezo System , 200x200x200µm, Parallel Direct Metrology](#)  
[P562.2CD PIMars™ XY Piezo Linear Slide / Piezo Stage Piezo System , 200x200µm, Parallel Direct Metrology, Sub-D](#)  
[P562.3CD PIMars™ XYZ Piezo Linear Slide / Piezo Stage Piezo System , 200x200x200µm, Parallel Direct Metrology, Sub-D](#)  
[P562.3CL PIMars™ XYZ Piezo Linear Slide / Piezo Stage Piezo System , 200x200x200µm, Parallel Direct Metrology, Lemo](#)  
[P562.3UD UHV PIMars™ XYZ Piezo Linear Slide / Piezo Stage Piezo System , 200x200x200µm, Parallel Direct Metrology](#)  
[P562.3VD High Vacuum PIMars™ XYZ Piezo Linear Slide / Piezo Stage Piezo System , 200x200x200µm, Parallel Direct Metrology](#)  
[P562.6CD PIMars 6-Axis NanoPositioning System, 200x200x200µm \(2x2x1.6 mrad\), Cap. Sensors, Sub-D connector >](#)  
[P563.3CD PIMars™ XYZ Piezo Linear Slide / Piezo Stage Piezo System , 300x300x300µm, Parallel Direct Metrology, Sub-D](#)  
[P563.3UD UHV PIMars™ XYZ Piezo Linear Slide / Piezo Stage Piezo System , 300x300x300µm, Parallel Direct Metrology](#)  
[P563.3VD High Vacuum PIMars™ XYZ Piezo Linear Slide / Piezo Stage Piezo System , 300x300x300µm, Parallel Direct Metrology](#)  
[P587.6CD 6 Axis Long-Travel Piezo Linear Slide / Piezo Stage Piezo System , 800x800x200µm, 3x3x10mrad](#)  
 PiezoMove® Flexure-Guided Nanopositioning Actuators  
[P601.10 PiezoMove®, Lever-Amplified, Flexure-Guided Piezo Nanopositioning Actuator, 100µm, Open-Loop](#)  
[P601.10L PiezoMove®, Lever-Amplified, Flexure-Guided Piezo Nanopositioning Actuator, 100µm, Open-Loop, LEMO Connector](#)  
[P601.1S PiezoMove®, Lever-Amplified, Flexure-Guided Piezo Nanopositioning Actuator, 100µm, Closed-Loop, SGS](#)  
[P601.1SL PiezoMove®, Lever-Amplified, Flexure-Guided Piezo Nanopositioning Actuator, 100µm, Closed-Loop, SGS, LEMO Connector](#)  
[P601.30 PiezoMove®, Lever-Amplified, Flexure-Guided Piezo Nanopositioning Actuator, 250µm, Open-Loop](#)  
[P601.30L PiezoMove®, Lever-Amplified, Flexure-Guided Piezo Nanopositioning Actuator, 250µm, Open-Loop, LEMO Connector](#)  
[P601.3S PiezoMove®, Lever-Amplified, Flexure-Guided Piezo Nanopositioning Actuator, 250µm, Closed-Loop, SGS](#)  
[P601.3SL PiezoMove®, Lever-Amplified, Flexure-Guided Piezo Nanopositioning Actuator, 250µm, Closed-Loop, SGS, LEMO Connector](#)  
[P601.40 PiezoMove®, Lever-Amplified, Flexure-Guided Piezo Nanopositioning Actuator, 400µm, Open-Loop](#)  
[P601.40L PiezoMove®, Lever-Amplified, Flexure-Guided Piezo Nanopositioning Actuator, 400µm, Open-Loop, LEMO Connector](#)  
[P601.4S PiezoMove®, Lever-Amplified, Flexure-Guided Piezo Nanopositioning Actuator, 400µm, Closed-Loop, SGS](#)  
[P601.4SL PiezoMove®, Lever-Amplified, Flexure-Guided Piezo Nanopositioning Actuator, 400µm, Closed-Loop, SGS, LEMO Connector](#)  
 NanoCube® Series X, XY, Z, XZ, XYZ Nanopositioning Stages  
[P611.01 Extension Cable for NanoCube®, Special Shielded Lines for Low Noise, 1m](#)

[P611.03 Extension Cable for NanoCube®, Special Shielded Lines for Low Noise, 3m](#)

[P611.05 Extension Cable for NanoCube®, Special Shielded Lines for Low Noise, 5m](#)

[P611.10 Piezo Nanopositioning Stage, 100µm, Open-Loop](#)

[P611.1S Piezo Nanopositioning Stage, 100µm, Closed-Loop, SGS](#)

[P611.20 XY Piezo Nanopositioning Stage, 100x100µm, Open-Loop](#)

[P611.2S XY Piezo Nanopositioning Stage, 100x100µm, Closed-Loop, SGS](#)

[P611.30 NanoCube® XYZ Piezo Stage, 100x100x100µm](#)

[P611.30F NanoCube®, XYZ Piezo Stage, 100x100x100µm, Fiber Adapter Interface](#)

[P611.3S NanoCube® XYZ Piezo Stage, 100x100x100µm, Closed-Loop](#)

[P611.3SF NanoCube®, XYZ Piezo Stage, 100x100x100µm, Closed-Loop, Fiber Adapter Interface](#)

[P611.90 Adapter 3CH LEMO/DB25 female, cable len. 30cm](#)

[P611.91 Adapter 3CH LEMO/DB25 female, cable len. 30cm, Closed-Loop](#)

[P611.XZ0 XZ Piezo Nanopositioning Stage, 100x100µm, Open-Loop >](#)

[P611.XZS XZ Piezo Nanopositioning Stage, 100x100µm, Closed-Loop >](#)

[P611.Z0 Z Piezo Nanopositioning Stage, 100µm, Open-Loop >](#)

[P611.ZS Z Piezo Nanopositioning Stage, 100µm, Closed-Loop >](#)

[P612.20L Nano-XY Piezo Stage, 100 x100 µm, 20mm Clear Aperture, Open Loop](#)

[P612.2SL Nano-XY Piezo Stage, 100x100 micron, SGS, 20 mm clear-aperture](#)

[P612.Z0L Z NanoPiezo Stage, 100 µm, 20mm Clear Aperture, Open Loop >](#)

[P612.ZSL Z NanoPiezo Stage, 100 x100 µm, SGS, 20mm Clear Aperture](#)

[P615.30D NanoCube® Compact XYZ Nanopositioning/Scanning Stage, 350x350x250µm, without Sensors, Sub-D](#)

[P615.30L NanoCube® Compact XYZ Nanopositioning/Scanning Stage, 350x350x250µm, Open-Loop, LEMO](#)

[P615.3CD NanoCube® XYZ Piezo Linear Slide / Piezo Stage Piezo System , 350x350x250µm, Parallel Direct Metrology](#)

[P615.3CL NanoCube® Compact XYZ Nanopositioning/Scanning Stage, 350x350x250µm, Parallel Direct Metrology, LEMO](#)

[P615.3OL NanoCube® XYZ Piezo Linear Slide / Piezo Stage Piezo System , 350x350x250µm, Open-Loop](#)

[PIHera™ Nanopositioning Stages, 50 to 1000 µm, X, XY, Z](#)

[P620.10L PIHera™ X-Axis Piezo Linear Slide / Piezo Stage Piezo System , 50µm, Open-Loop, LEMO](#)

[P620.1CD PIHera™ X-Axis Piezo Linear Slide / Piezo Stage Piezo System , 50µm, Capacitive Direct Metrology, Sub-D](#)

[P620.1CL PIHera™ X-Axis Piezo Linear Slide / Piezo Stage Piezo System , 50µm, Capacitive Direct Metrology, LEMO](#)

[P620.20L PIHera™ XY Piezo Linear Slide / Piezo Stage Piezo System , 50x50µm, Open-Loop, LEMO](#)

[P620.2CD PIHera™ XY Piezo Linear Slide / Piezo Stage Piezo System , 50x50µm, Capacitive Direct Metrology, Sub-D](#)

[P620.2CL PIHera™ XY Piezo Linear Slide / Piezo Stage Piezo System , 50x50µm, Capacitive Direct Metrology, LEMOs](#)

[P620.Z0L PIHera™ Z-Axis Piezo Linear Slide / Piezo Stage Piezo System , 50µm, Open-Loop, LEMO](#)

[P620.ZCD PIHera™ Z-Axis Piezo Linear Slide / Piezo Stage Piezo System , 50µm, Capacitive Direct Metrology, Sub-D](#)

[P620.ZCL PIHera™ Z-Axis Piezo Linear Slide / Piezo Stage Piezo System , 50µm, Capacitive Direct Metrology, LEMO](#)

[P621.10L PIHera™ X-Axis Piezo Linear Slide / Piezo Stage Piezo System , 100µm, open-loop](#)

[P621.1CD PIHera™ X-Axis Piezo Linear Slide / Piezo Stage Piezo System , 100µm, Capacitive Direct Metrology, Sub-D](#)

[P621.1CL PIHera™ X-Axis Piezo Linear Slide / Piezo Stage Piezo System , 100µm, Capacitive Direct Metrology, LEMO](#)

[P621.20L PIHera™ XY Piezo Linear Slide / Piezo Stage Piezo System , 100x100µm, Open-Loop, LEMO](#)

[P621.2CD PIHera™ XY Piezo Linear Slide / Piezo Stage Piezo System , 100x100µm, Capacitive Direct Metrology, Sub-D](#)

[P621.2CL PIHera™ XY Piezo Linear Slide / Piezo Stage Piezo System , 100x100µm, Capacitive Direct Metrology, LEMOs](#)

[P621.Z0L PIHera™ Z-Axis Piezo Linear Slide / Piezo Stage Piezo System , 100µm, Open-Loop, LEMO](#)

[P621.ZCD PIHera™ Z-Axis Piezo Linear Slide / Piezo Stage Piezo System , 100µm, Capacitive Direct Metrology, Sub-D](#)

[P621.ZCL PIHera™ Z-Axis Piezo Linear Slide / Piezo Stage Piezo System , 100µm, Capacitive Direct Metrology, LEMO](#)

[P622.10L PIHera™ X-Axis Piezo Linear Slide / Piezo Stage Piezo System , 250µm, open-loop](#)

[P622.1CD PIHera™ X-Axis Piezo Linear Slide / Piezo Stage Piezo System , 250µm, Capacitive Direct Metrology, Sub-D](#)

[P622.1CL PIHera™ X-Axis Piezo Linear Slide / Piezo Stage Piezo System , 250µm, Capacitive Direct Metrology, LEMO](#)

[P622.20L PIHera™ XY Piezo Linear Slide / Piezo Stage Piezo System , 250x250µm, Open-Loop, LEMO](#)

[P622.2CD PIHera™ XY Piezo Linear Slide / Piezo Stage Piezo System , 250x250µm, Capacitive Direct Metrology, Sub-D](#)

[P622.2CL PIHera™ XY Piezo Linear Slide / Piezo Stage Piezo System , 250x250µm, Capacitive Direct Metrology, LEMO](#)

[P622.Z0L PIHera™ Z-Axis Piezo Linear Slide / Piezo Stage Piezo System , 250µm, Open-Loop, LEMO](#)

[P622.ZCD PIHera™ Z-Axis Piezo Linear Slide / Piezo Stage Piezo System , 250µm, Capacitive Direct Metrology, Sub-D](#)

[P622.ZCL PIHera™ Z-Axis Piezo Linear Slide / Piezo Stage Piezo System , 250µm, Capacitive Direct Metrology, LEMO](#)

[P625.10L PIHera™ X-Axis Piezo Linear Slide / Piezo Stage Piezo System , 500µm, open-loop](#)

[P625.1CD PIHera™ X-Axis Piezo Linear Slide / Piezo Stage Piezo System , 500µm, Capacitive Direct Metrology, Sub-D](#)

[P625.1CL PIHera™ X-Axis Piezo Linear Slide / Piezo Stage Piezo System , 500µm, Capacitive Direct Metrology, LEMO](#)

[P625.20L PIHera™ XY Piezo Linear Slide / Piezo Stage Piezo System , 500x500µm, Open-Loop, LEMO](#)

[P625.2CD PIHera™ XY Piezo Linear Slide / Piezo Stage Piezo System , 500x500µm, Capacitive Direct Metrology, Sub-D](#)

[P625.2CL PIHera™ XY Piezo Linear Slide / Piezo Stage Piezo System , 500x500µm, Capacitive Direct Metrology, LEMO](#)

[P628.1CD PIHera™ X-Axis Piezo Linear Slide / Piezo Stage Piezo System , 800µm, Capacitive Direct Metrology, Sub-D](#)

[P628.1CL PIHera™ X-Axis Piezo Linear Slide / Piezo Stage Piezo System , 800µm, Capacitive Direct Metrology, LEMO Connector](#)

[P628.1OL PIHera® X-Axis Piezo Linear Slide / PiezoStage, Piezo System , 1000µm, Open-Loop, LEMO Connector](#)

[P628.20L PIHera® XY Piezo Linear Slide / PiezoStage, Piezo System , 1000x1000µm, Open-Loop, LEMO](#)

[P628.2CD PIHera® XY Piezo Linear Slide / PiezoStage, Piezo System , 800x800µm, Capacitive Direct Metrology, Sub-D](#)

[P628.2CL PIHera® XY Piezo Linear Slide / PiezoStage, Piezo System , 800x800µm, Capacitive Direct Metrology, LEMO](#)

[PILine® Ultrasonic Piezo Motors](#)

[P652 PILine® OEM Piezo Linear Motor, 3.2 mm Travel](#)

[P661.B02 25mm Friction Bar for P-661 PILine® OEM Piezo Linear Motor](#)

[P661.B01 15mm Friction Bar for P-661 PILine® OEM Piezo Linear Motor](#)

[P661.B02 25mm Friction Bar for P-661 PILine® OEM Piezo Linear Motor](#)

[P661.B05 55mm Friction Bar for P-661 PILine® OEM Piezo Linear Motor](#)

[P661.P00 PILine® OEM Piezo Linear Motor, 2N Holding Force, requires Driver and Friction Bar](#)

[P661.P01 PILine® OEM Piezo Linear Motor, 2N Holding Force](#)

[P661.PV1 PILine® OEM Piezo Linear Motor, 2N Holding Force, Vacuum Version](#)

[P665.2PM PILine® OEM Piezo Linear Motor, 10mm Travel, 5N Holding Force, OEM Driver Board](#)

[P665.4PM PILine® OEM Piezo Linear Motor, 20mm Travel, 5N Holding Force, OEM Driver Board](#)

[P665.6PM PILine® OEM Piezo Linear Motor, 50mm Travel, 5N Holding Force, OEM Driver Board](#)

[Options for HVPZT Piezo Linear Actuators](#)

[P700.01 Option: M4 on Bottom Piece](#)

[P700.02 Option: M5 on Bottom Piece](#)

[P700.03 Option: M8 on Bottom Piece](#)

[P700.04 Option: 4/40 on Bottom Piece](#)

[P700.10 Option: M4 on Top Piece](#)

[P700.20 Option: M5 on Top Piece](#)

[P700.40 Option: 4/40 on Top Piece](#)

[P700.50 Option: Flat Top Piece, Tungsten Carbide](#)

[P700.60 Option: Flat Top Piece, Tungsten Carbide, polished](#)

[P700.70 Option: Ball Tip](#)

[P702.10 High Temperature Option for HVPZTs](#)

[P702.20 Low Temperature Option for HVPZTs](#)

[P703.10 UHV Option without Casing](#)

[P703.20 UHV Option with Casing](#)

[P705.00 Option: Positive Polarity](#)

[P706.00 Option: Water Protected Case](#)

[Piezo Nanopositioning / Scanning Stages \(P-71x, P-73x, P-75x, P-77x, P-78x\)](#)

Series)

[P713.20L Low-Profile Mini-XY Piezo Scanner, 15x15µm, Open-Loop](#)  
[P714.20L Low-Profile Mini-XY Piezo Scanner, 15x15µm, Improved Guiding Accuracy, Open-Loop](#)  
[P714.2SL Low-Profile Mini-XY Piezo Scanner, 15x15µm, Improved Guiding Accuracy, SGS Sensors](#)  
**PIFOC® High-Speed Nanofocusing Z-Scanners**  
[P720.00 PIFOC® High-Speed Nanofocusing Drive, 100µm, W0.8x1/36"](#)  
[P720.01 PIFOC® Distance Case for P-720](#)  
[P720.92 Modified P-720.00, inverted threads, BNC Connector](#)  
[P721.02Q Quick Lock Thread Option M26x0.75](#)  
[P721.03Q Quick Lock Thread Option M27x0.75](#)  
[P721.04Q Quick Lock Thread Option M28x0.75](#)  
[P721.05Q Quick Lock Thread Option M32x0.75](#)  
[P721.06Q Quick Lock Thread Option M26x1/36"](#)  
[P721.08Q Quick Lock Thread Option M19x0.75](#)  
[P721.0LQ PIFOC® Objective Positioner & Scanner, 100µm, Open-Loop](#)  
[P721.11Q Quick Lock Thread Option M25x0.75](#)  
[P721.12Q Quick Lock Thread Option W0.8x1/36"](#)  
[P721.90 Objective Extension Tube, 13mm, Thread W0.8x1/36"](#)  
[P721.90Q PIFOC® Objective Extension Tube, Quick Lock Thread W0.8x1/36"](#)  
[P721.91 PIFOC® Objective Extension Tube, Thread M25x0.75](#)  
[P721.91Q PIFOC® Objective Extension Tube, Quick Lock Thread M25x0.75](#)  
[P721.92 PIFOC® Objective Extension Tube, Thread M26x0.75](#)  
[P721.92Q PIFOC® Objective Extension Tube, Quick Lock Thread M26x0.75](#)  
[P721.93 PIFOC® Objective Extension Tube, Thread M27x0.75](#)  
[P721.93Q PIFOC® Objective Extension Tube, Quick Lock Thread M27x0.75](#)  
[P721.94 PIFOC® Objective Extension Tube Thread M28x0.75](#)  
[P721.94Q PIFOC® Objective Extension Tube, Quick Lock Thread M28x0.75](#)  
[P721.95 PIFOC® Objective Extension Tube, Thread M32x0.75](#)  
[P721.95Q PIFOC® Objective Extension Tube, Quick Lock Thread M32x0.75](#)  
[P721.96 PIFOC® Objective Extension Tube, Thread M26x1/36"](#)  
[P721.96Q PIFOC® Objective Extension Tube, Quick Lock Thread M26x1/36"](#)  
[P721.98 PIFOC® Objective Extension Tube, Thread M19x0.75](#)  
[P721.98Q PIFOC® Objective Extension Tube, Quick Lock Thread M19x0.75](#)  
[P721.CDQ PIFOC® High-Speed Nanofocusing Drive, 100µm, Capacitive Direct Metrology, Sub-D, for Quick Lock](#)  
[P721.CLQ PIFOC® High-Speed Nanofocusing Drive, 100µm, Capacitive Direct Metrology, for Quick Lock](#)  
[P721.LLQ PIFOC® High-Speed Nanofocusing Drive, 100µm, Direct Metrology, LVDT-Sensor, for Quick Lock](#)  
[P725.10L PIFOC® High-Speed Nanofocusing Drive 100µm, Open-Loop, for QuickLock](#)  
[P725.1CD PIFOC® High-Speed Nanofocusing Drive 100µm, Direct Metrology, Sub-D, for QuickLock](#)  
[P725.1CL PIFOC® High-Speed Nanofocusing Drive, 100µm, Direct Metrology, LEMO, for QuickLock](#)  
[P725.20L PIFOC® High-Speed Nanofocusing Drive 250µm, Open-Loop, for QuickLock](#)  
[P725.2CD PIFOC® High-Speed Nanofocusing Drive, 250µm, Direct Metrology, Sub-D, for QuickLock](#)  
[P725.2CL PIFOC® High-Speed Nanofocusing Drive, 250µm, Direct Metrology, LEMO, for QuickLock](#)  
[P725.40L PIFOC® High-Speed Nanofocusing Drive, 400µm, Open-Loop, for QuickLock](#)  
[P725.4CD PIFOC® High-Speed Nanofocusing Drive, 400µm, Direct Metrology, Sub-D, for QuickLock](#)  
[P725.4CL PIFOC® High-Speed Nanofocusing Drive, 400µm, Direct Metrology, LEMO, for QuickLock](#)  
**P-73x, P-75x, P-77x, P-78x Series Nanopositioning / Scanning Stages**  
[P732.ZC Z-Nanopositioning Stage, 12µm, Cap. Sensors, Lemo Connectors](#)  
[P733.2CD XY Piezo Linear Slide / Piezo Stage Piezo System ,100x100µm, Parallel Direct Metrology, Sub-D](#)  
[P733.2CL XY Piezo Linear Slide / Piezo Stage Piezo System ,100x100µm, Parallel Direct Metrology, LEMO](#)  
[P733.2DD High-Speed XY Piezo Linear Slide / Piezo Stage Piezo System ,30x30µm, Parallel Direct Metrology](#)  
[P733.2UD Ultra High Vacuum XY Piezo Nanopositioner/Scanning Stage,100x100µm, Parallel Direct Metrology, Sub-D](#)  
[P733.2VD High Vacuum XY Piezo Linear Slide / Piezo Stage Piezo System ,100x100µm, Parallel Direct Metrology, Sub-D](#)  
[P733.2VL High Vacuum XY Piezo Linear Slide / Piezo Stage Piezo System , 100x100µm, Parallel Direct Metrology, LEMO feed thr.](#)

[P733.3DD High-Speed XYZ Piezo Linear Slide / Piezo Stage Piezo System , 30x30x10µm, Parallel Direct Metrology, 2.2 kHz F-res](#)  
[P734.2CD Ultra-Precise Trajectory, XY Nanopositioning/Scanning Stage, 100x100µm, Parallel Direct Metrology, Sub-D](#)  
[P734.2CL Ultra-Precise Trajectory, XY Nanopositioning/Scanning Stage, 100x100µm, Parallel Direct Metrology, LEMO](#)  
[P750.00 High-Load Piezo Linear Slide / PiezoStage, Piezo System 75µm](#)  
[P750.10 High-Load Piezo Linear Slide / Piezo Stage Piezo System 75µm, LVDT Sensor](#)  
[P750.20 High-Load Piezo Linear Slide / Piezo Stage Piezo System 75µm, Capacitive Direct Metrology](#)  
[P752.11C High-Speed Piezo Linear Slide / Piezo Stage Piezo System , 15µm, Capacitive Direct Metrology](#)  
[P752.1CD High-Speed Piezo Linear Slide / Piezo Stage Piezo System , 15µm, Capacitive Direct Metrology, Sub-D](#)  
[P752.21C High-Speed Piezo Linear Slide / Piezo Stage Piezo System , 30µm, Capacitive Direct Metrology](#)  
[P752.2CD High-Speed Piezo Linear Slide / Piezo Stage Piezo System , 30µm, Capacitive Direct Metrology, Sub-D](#)  
[P753.11C LISA Piezo Nanopositioning Stage/Actuator, 12µm, Capacitive Direct Metrology, LEMO](#)  
[P753.1CD LISA Piezo Nanopositioning Stage/Actuator, 12µm, Capacitive Direct Metrology, Sub-D](#)  
[P753.1UD LISA Piezo Nanopositioning Stage/Actuator, 12µm, Capacitive Direct Metrology, Sub-D,UHV version](#)  
[P753.21C LISA Piezo Nanopositioning Stage/Actuator, 25µm, Capacitive Direct Metrology](#)  
[P753.2CD LISA Piezo Nanopositioning Stage/Actuator, 25µm, Capacitive Direct Metrology, Sub-D](#)  
[P753.2UD LISA Piezo Nanopositioning Stage/Actuator, 25µm, Capacitive Direct Metrology, Sub-D,UHV version](#)  
[P753.31C LISA Piezo Nanopositioning Stage/Actuator, 38µm, Capacitive Direct Metrology](#)  
[P753.3CD LISA Piezo Nanopositioning Stage/Actuator, 38µm, Capacitive Direct Metrology, Sub-D](#)  
[P753.3UD LISA Piezo Nanopositioning Stage/Actuator, 38µm, Capacitive Direct Metrology, Sub-D,UHV version](#)  
[P770.00 XY Piezo Linear Slide / Piezo Stage Piezo System , 200x200µm, LVDT Sensor](#)  
[P772.0L Ultra-Compact Piezo Nanopositioning System, 10µm, Open Loop](#)  
[P772.1CD Ultra-Compact Piezo Linear Slide / Piezo Stage Piezo System , 10µm, Capacitive Direct Metrology, Sub-D](#)  
[P772.1CL Ultra-Compact Piezo Linear Slide / Piezo Stage Piezo System , 10µm, Capacitive Direct Metrology](#)  
[P780.00 Miniature Piezo Linear Slide / PiezoStage, Piezo System , 80µm](#)  
[P780.20 Miniature Piezo Linear Slide / Piezo Stage Piezo System , 80µm, LVDT Sensor](#)  
[P783.ZL Z-Piezo Linear Slide / PiezoStage, Piezo System , 300µm, LVDT Sensor](#)  
**LVPZT Piezo Linear Actuators, Translators, Benders**  
[P810.10 Small-Load Open-Loop Piezo Linear Actuator \(Multilayer PZT\), 15µm, OEM Version](#)  
[P810.20 Small-Load Open-Loop Piezo Linear Actuator \(Multilayer PZT\), 30µm, OEM Version](#)  
[P810.30 Small-Load Open-Loop Piezo Linear Actuator \(Multilayer PZT\), 45µm, OEM Version](#)  
[P820.10 Small-Load Open-Loop Piezo Linear Actuator \(Multilayer PZT\), 15µm](#)  
[P820.20 Small-Load Open-Loop Piezo Linear Actuator \(Multilayer PZT\), 30µm](#)  
[P820.30 Small-Load Open-Loop Piezo Linear Actuator \(Multilayer PZT\), 45µm](#)  
[P820.95 Option: Top Piece With Ball](#)  
[P830.10 Open-Loop Piezo Linear Actuator \(Multilayer PZT\), 15µm, OEM Version](#)  
[P830.20 Open-Loop Piezo Linear Actuator \(Multilayer PZT\), 30µm, OEM Version](#)  
[P830.30 Open-Loop Piezo Linear Actuator \(Multilayer PZT\), 45µm, OEM Version](#)  
[P830.40 Open-Loop Piezo Linear Actuator \(Multilayer PZT\), 60µm, OEM Version](#)  
**Preloaded LVPZT Piezo Linear Actuators**  
[P-840.10 Preloaded Open-Loop Piezo Linear Actuator \(Multilayer PZT\), 15µm](#)  
[P-840.20 Preloaded Open-Loop Piezo Linear Actuator \(Multilayer PZT\),](#)

[30µm](#)

[P-840.30 Preloaded Open-Loop Piezo Linear Actuator \(Multilayer PZT\), 45µm](#)

[P-840.40 Preloaded Open-Loop Piezo Linear Actuator \(Multilayer PZT\), 60µm](#)

[P-840.60 Preloaded Open-Loop Piezo Linear Actuator \(Multilayer PZT\), 90µm](#)

[P-840.95 Option: Top Piece With Ball](#)

[P-841.10 Preloaded Closed-Loop Piezo Linear Actuator \(LVPZT\), 15µm](#)

[P-841.20 Preloaded Closed-Loop Piezo Linear Actuator \(LVPZT\), 30µm](#)

[P841.30 Preloaded Closed-Loop Piezo Linear Actuator \(LVPZT\), 45µm](#)

[P841.40 Preloaded Closed-Loop Piezo Linear Actuator \(LVPZT\), 60µm](#)

[P841.60 Preloaded Closed-Loop Piezo Linear Actuator \(LVPZT\), 90µm](#)

[P842.10 Preloaded Open-Loop Piezo Linear Actuator \(Multilayer PZT\), 15µm](#)

[P842.20 Preloaded Open-Loop Piezo Linear Actuator \(Multilayer PZT\), 30µm](#)

[P842.30 Preloaded Open-Loop Piezo Linear Actuator \(Multilayer PZT\), 45µm](#)

[P842.40 Preloaded Open-Loop Piezo Linear Actuator \(Multilayer PZT\), 60µm](#)

[P842.60 Preloaded Open-Loop Piezo Linear Actuator \(Multilayer PZT\), 90µm](#)

[P843.10 Preloaded Closed-Loop Piezo Linear Actuator \(LVPZT\), 15µm](#)

[P843.20 Preloaded Closed-Loop Piezo Linear Actuator \(LVPZT\), 30µm](#)

[P843.30 Preloaded Closed-Loop Piezo Linear Actuator \(LVPZT\), 45µm](#)

[P843.40 Preloaded Closed-Loop Piezo Linear Actuator \(LVPZT\), 60µm](#)

[P843.60 Preloaded Closed-Loop Piezo Linear Actuator \(LVPZT\), 90µm](#)

[P844.10 Preloaded Open-Loop Piezo Linear Actuator \(Multilayer PZT\), 15µm](#)

[P844.20 Preloaded Open-Loop Piezo Linear Actuator \(Multilayer PZT\), 30µm](#)

[P844.30 Preloaded Open-Loop Piezo Linear Actuator \(Multilayer PZT\), 45µm](#)

[P844.40 Preloaded Open-Loop Piezo Linear Actuator \(Multilayer PZT\), 60µm](#)

[P844.60 Preloaded Open-Loop Piezo Linear Actuator \(Multilayer PZT\), 90µm](#)

[P845.10 Preloaded Closed-Loop Piezo Linear Actuator \(LVPZT\), 15µm](#)

[P845.20 Preloaded Closed-Loop Piezo Linear Actuator \(LVPZT\), 30µm](#)

[P845.30 Preloaded Closed-Loop Piezo Linear Actuator \(LVPZT\), 45µm](#)

[P845.40 Preloaded Closed-Loop Piezo Linear Actuator \(LVPZT\), 60µm](#)

[P845.60 Preloaded Closed-Loop Piezo Linear Actuator \(LVPZT\), 90µm](#)

[P853.00 PiezoMike, Piezoelectric Micrometer Drive, 6mm, 25µm](#)

[P854.00 PiezoMike, Piezoelectric Micrometer Drive, 18mm, 30µm](#)

**PICMA® Bender Piezo Transducers**

[P871.112 PICMA® Multilayer Piezoelectric Transducer Bender Actuator, Closed-Loop, SGS, 160µm](#)

[P871.122 PICMA® Multilayer Piezoelectric Transducer Bender Actuator, Closed-Loop, SGS, 400µm](#)

[P871.127 PICMA® Multilayer Piezoelectric Transducer Bender Actuator, Closed-Loop, SGS, 720µm](#)

[P871.128 PICMA® Multilayer Piezoelectric Transducer Bender Actuator, Closed-Loop, SGS, 720µm](#)

[P871.140 PICMA® Multilayer Piezoelectric Transducer Bender Actuator, Closed-Loop, SGS, 1600µm](#)

**PICMA® Ceramic-Encapsulated Linear Piezo Actuators**

[P882.10 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 7µm, 2x3x9mm](#)

[P882.11 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 7µm, 2x3x9mm, wire leads](#)

[P882.20 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 8.5µm, 2x3x11mm](#)

[P882.21 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 8.5µm, 2x3x11mm, wire leads](#)

[P882.30 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 11µm, 2x3x13.5mm](#)

[P882.31 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 11µm, 2x3x13.5mm, wire leads](#)

[P882.50 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 15µm, 2x3x18mm](#)

[P882.51 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 15µm, 2x3x18mm, wire leads](#)

[P883.10 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 7µm, 3x3x9mm](#)

[P883.11 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 7µm, 3x3x9mm, wire leads](#)

[P883.20 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 8.5µm, 3x3x11mm](#)

[P883.21 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 8.5µm, 3x3x11mm, wire leads](#)

[P883.30 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 11µm, 3x3x13.5mm](#)

[P883.31 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 11µm, 3x3x13.5mm, wire leads](#)

[P883.50 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 15µm, 3x3x18mm](#)

[P883.51 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 15µm, 3x3x18mm, wire leads](#)

[P885.10 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 7µm, 5x5x9mm](#)

[P885.11 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 7µm, 5x5x9mm, wire leads](#)

[P885.20 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 8.5µm, 5x5x11mm](#)

[P885.21 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 8.5µm, 5x5x11mm, wire leads](#)

[P885.30 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 11µm, 5x5x13.5mm](#)

[P885.31 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 11µm, 5x5x13.5mm, wire leads](#)

[P885.50 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 15µm, 5x5x18mm](#)

[P885.51 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 15µm, 5x5x18mm, wire leads](#)

[P885.90 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 30µm, 5x5x36mm](#)

[P885.91 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 30µm, 5x5x36mm, wire leads](#)

[P888.30 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 11µm, 10x10x13.5mm](#)

[P888.31 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 11µm, 10x10x13.5mm, wire leads](#)

[P888.50 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 15µm, 10x10x18mm](#)

[P888.51 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 15µm, 10x10x18mm, wire leads](#)

[P888.90 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 30µm, 10x10x36mm](#)

[P888.91 PICMA® Ceramic Encapsulated Piezo Linear Actuator, 30µm, 10x10x36mm, wire leads](#)

**Accessories / Extension Cables**

[P890.10 LVPZT Cable LEMO/Blunt End, 1m](#)

[P890.20 LVPZT Cable LEMO/Blunt End, 5m](#)

[P891.01 LVPZT Extension Cable, Shielded, Coax. LEMO, 1m](#)

[P891.02 LVPZT Extension Cable, Shielded, Coax. LEMO, 2m](#)

[P891.03 LVPZT Extension Cable, Shielded, Coax. LEMO, 3m](#)

[P891.05 LVPZT Extension Cable, Shielded, Coax. LEMO, 5m](#)

[P891.10 LVPZT Extension Cable, Shielded, Coax. LEMO, 10m](#)

[P892.01 Sensor Extension Cable, Shielded, LEMO, 1m](#)

[P892.02 Sensor Extension Cable, Shielded, LEMO, 2m](#)

[P892.03 Sensor Extension Cable, Shielded, LEMO, 3m](#)

[P892.05 Sensor Extension Cable, Shielded, LEMO, 5m](#)

[P892.07 Sensor Extension Cable, Shielded, LEMO, 7 m for Strain Gauge Sensors or LVDTs](#)

[P892.10 Sensor Extension Cable, Shielded, LEMO, 10m](#)

[P893.10 LVPZT Adapter Cable, 1m, LEMO-BNC](#)

[P894.10 LVPZT T-Adapter](#)

[P894.30 LVPZT Adapter LEMO-BNC](#)

[P895.00 Extension Board 32 Pin](#)

[P896.00 Extension Board 64-Pin](#)

**PICMA®-Chip Encapsulated Piezo Linear Actuators**

[PL022.30 PICMA®-Chip Ceramic Encapsulated Piezo Linear Actuator, 2.2µm, 2x2x2mm, 150C max op. Temp](#)

[PL022.31 PICMA®-Chip Ceramic Encapsulated Piezo Linear Actuator, 2.2µm, 2x2x2mm, wire leads, 150C max temp](#)

[PL033.30 PICMA®-Chip Ceramic Encapsulated Piezo Linear Actuator, 2.2µm, 3x3x2mm, 150C max op. Temp](#)

[PL033.31 PICMA®-Chip Ceramic Encapsulated Piezo Linear Actuator, 2.2µm, 3x3x2mm, wire leads, 150C max op. Temp](#)

[PL055.30 PICMA®-Chip Ceramic Encapsulated Piezo Linear Actuator, 2.2µm, 5x5x2mm, 150C max op. Temp](#)

[PL055.31 PICMA®-Chip Ceramic Encapsulated Piezo Linear Actuator, 2.2µm, 5x5x2mm, wire leads, 150C max op. Temp](#)

[PICMA® Ceramic Encapsulated Piezo Bender Actuators](#)

[PL112.10 PICMA® Ceramic Encapsulated Piezoelectric Transducer Bender Actuator, 160µm, 17.8x9.6x0.65mm](#)

[PL112.11 PICMA® Ceramic Encapsulated Piezoelectric Transducer Bender Actuator, 160µm, 17.8x9.6x0.65mm, wire leads](#)

[PL122.10 PICMA® Ceramic Encapsulated Piezoelectric Transducer Bender Actuator, 500µm, 25.0x9.6x0.65mm](#)

[PL122.11 PICMA® Ceramic Encapsulated Piezoelectric Transducer Bender Actuator, 500µm, 25.0x9.6x0.65mm, wire leads](#)

[PL127.10 PICMA® Ceramic Encapsulated Piezoelectric Transducer Bender Actuator, 900µm, 31.0x9.6x0.65mm](#)

[PL127.11 PICMA® Ceramic Encapsulated Piezoelectric Transducer Bender Actuator, 900µm, 31.0x9.6x0.65mm, wire leads](#)

[PL128.10 PICMA® Ceramic Encapsulated Piezoelectric Transducer Bender Actuator, 900µm, 35.5x6.3x0.75mm](#)

[PL128.11 PICMA® Ceramic Encapsulated Piezoelectric Transducer Bender Actuator, 900µm, 35.5x6.3x0.75mm, wire leads](#)

[PL140.10 PICMA® Ceramic Encapsulated Piezoelectric Transducer Bender Actuator, 2000µm, 45.0x11.0x0.6mm](#)

[PL140.11 PICMA® Ceramic Encapsulated Piezoelectric Transducer Bender Actuator, 2000µm, 45.0x11.0x0.6mm, wire leads](#)

[Piezo Tubes](#)

[PT120.00 Piezo Tube, 20x2.2x1.0mm LxODxID, 4µm Axial Contr.](#)

[PT130.00 Piezo Tube, 30x3.2x2.2mm LxODxID, 8µm Axial Contr., 0.5µm Rad. Contr.](#)

[PT130.10 Piezo Tube, 30x6.35x5.35mm LxODxID, 6µm Axial Contr., 1.0µm Rad. Contr.,](#)

[PT130.14 Piezo Tube, 30x6.35x5.35mm LxODxID, Quad. Electr., 6µm Axial Contr., 1.0µm Rad. Contr., ±8µm XY](#)

[PT130.20 Piezo Tube, 30x10.0x9.0mm LxODxID, 8µm Axial Contr., 4µm Rad. Contr.](#)

[PT130.24 > Piezo Tube, 30x10.0x9.0mm LxODxID, Quad. Electr., 8µm Axial Contr., 4µm Rad. Contr., ±14µm XY](#)

[PT130.30 Piezo Tube, 30x10.0x8.0mm LxODxID, 8µm Axial Contr., 3µm Rad. Contr.](#)

[PT130.40 Piezo Tube, 30x20.0x18.0mm LxODxID, 8µm Axial Contr., 5µm Rad. Contr.](#)

[PT130.90 Piezo Tube, 30x3.2x2.2mm LxODxID, 8µm Axial Contr., 0.6µm Rad. Contr.](#)

[PT130.94 Piezo Tube, 30x3.2x2.2mm LxODxID, Quad. Electr., 8µm Axial Contr., 0.6µm Rad. Contr., ±6µm XY](#)

[PT140.70 Piezo Tube, 40x40.0x38.0mm LxODxID, 15µm Axial Contr., 10µm Rad. Contr.](#)

[Piezo Steering Mirrors, Tip/Tilt Platforms and Accessories](#)

[S224.00 High-Speed Piezo Tilt Mirror, 2.2\(4.4\)mrad](#)

[S226.00 High-Speed Piezo Tilt Mirror, 2\(4\)mrad, Closed-Loop, SGS](#)

[S303.CD High-Speed Piezo Phase Shifter, 2µm, Capacitive Direct Metrology](#)

[S303.CDI High-Speed Piezo Phase Shifter, 2µm, Capacitive Direct Metrology, Invar](#)

[S303.OL High-Speed Piezo Phase Shifter, 2µm, Open-Loop](#)

[S303.OLI High-Speed Piezo Phase Shifter, 2µm, Open-Loop, Invar](#)

[S310.10 Piezo Z-Platform, Clear Aperture, 6µm](#)

[S311.10 Piezo Z/Tip/Tilt Platform, Clear Aperture, 0.6\(1.2\)mrad](#)

[S314.10 Piezo Z-Platform, Clear Aperture, 12µm](#)

[S315.10 Piezo Z/Tip/Tilt Platform, Clear Aperture, 1.2\(2.4\)mrad](#)

[S316.10 Piezo Z/Tip/Tilt Platform, Clear Aperture, 1.2\(2.4\)mrad, Closed-Loop, SGS](#)

[S325.3SL Piezo Z/Tip/Tilt Platform, 5\(10\)mrad, 30µm, Closed-Loop, SGS](#)

[S330.2OL X/Y Piezo Tip/Tilt Platform, 2 mrad, Open-Loop](#)

[S330.2SL Piezo Tip/Tilt Platform, 2\(4\)mrad, Closed-Loop, SGS](#)

[S334.2SL Long-Travel Piezo Tip/Tilt Mirror, 50\(100\)mrad, Closed-Loop, SGS](#)

[S340.A0 Piezo Tip/Tilt Platform, 2\(4\)mrad, Aluminum Top Plate](#)

[S340.AL Piezo Tip/Tilt Platform, 2\(4\)mrad, Aluminum Top Plate, Closed-Loop, LVDT](#)

[S340.I0 Piezo Tip/Tilt Platform, 2\(4\)mrad, Invar Top Plate](#)

[S340.IL Piezo Tip/Tilt Platform, 2\(4\)mrad, Invar Top Plate, Closed-Loop, LVDT](#)

[S340.S0 Piezo Tip/Tilt Platform, 2\(4\)mrad, Stainless Steel Top Plate](#)

[S340.SL Piezo Tip/Tilt Platform, 2\(4\)mrad, Stainless Steel Top Plate, Closed-Loop, LVDT](#)

[S340.T0 Piezo Tip/Tilt Platform, 2\(4\)mrad, Titanium Top Plate](#)

[S340.TL Piezo Tip/Tilt Platform, 2\(4\)mrad, Titanium Top Plate, Closed-Loop, LVDT](#)

[Voice-Coil Scanning Systems](#)

[V-106.11S Voice-Coil Scanning System, X-Stage, 6mm](#)

[V-106.14S Voice-Coil Scanning System, X-Stage, 20mm](#)

[V-106.1S QuickScan Voice Coil Scanning System, X-Stage, & Controller Board](#)

[V-106.2S QuickScan Voice Coil Scanning System, XY-Stage, & Controller Board](#)

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[\(International Site\) Nanopositioning Piezo Stage Nanotechnology Piezo](#)

[Transducer Parallel-Kinematic Parallel-Kinematics Parallelkinematic](#)

[Parallelkinematics Piezo-Motor Physik Instrumente.net Parallel-](#)

[Kinematic.com Precision-Motion-Control Piezo Nanopositioning](#)

[C866.161 Piezomotor Controller with Drive Electronics, 1 Channel, for PILine® Systems with P-661 Motors](#)

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[C866.164 Piezomotor Controller with Drive Electronics, 1 Channel, for PILine® Systems with P-664 Motors](#)

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[C866.165 Piezomotor Controller with Drive Electronics, 1 Channel, for PILine® Systems with P-665 Motors](#)

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[C866.D64 Piezomotor Controller with Drive Electronics, 1 Channel, for PILine® Systems with M-674 RodDrive](#)

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[D510.020 PISeca™ Single-Electrode Capacitive Sensor Probe, 8 mm diameter, 20 µm nominal range](#)

[PDF PISeca™ Single-Electrode Capacitive Sensor Probe, 8 mm diameter, 20 µm nominal range](#)

[D510.050 PISeca™ Single-Electrode Capacitive Sensor Probe, 12 mm diameter, 50 µm nominal range](#)

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