

LISA Linear Actuator & Stage

HIGH- DYNAMICS, VERY STABLE PIEZO NANOPOSITIONER



P-753

- + Versatile design: Flexure stage or actuator
- + Travel range to 38 μm
- + Resolution 0.05 nm
- + Direct- drive design for fastest response
- + Highest linearity and stability with capacitive sensors

Specifications

	P-753.1CD	P-753.2CD	P-753.3CD	Unit	Tolerance
Active axes	X	X	X		
Motion and positioning					
Integrated sensor	Capacitive	Capacitive	Capacitive		
Closed- loop travel	12	25	38	μm	
Closed- loop / open- loop resolution	0.05	0.1	0.2	nm	typ., full travel
Linearity error, closed- loop	0.03	0.03	0.03	%	typ.
Repeatability	± 1	± 2	± 3	nm	typ.
Pitch / yaw	± 5	± 7	± 10	μrad	typ.
Mechanical properties					
Stiffness in motion direction	45	24	16	N/ μm	$\pm 20\%$
Unloaded resonant frequency	5.6	3.7	2.9	kHz	$\pm 20\%$
Resonant frequency @ 200 g	2.5	1.7	1.4	kHz	$\pm 20\%$
Push / pull force capacity in motion direction	100 / 20	100 / 20	100 / 20	N	max.
Load capacity (vertical / horizontal mounting)	10 / 2	10 / 2	10 / 2	kg	max.
Drive properties					
Ceramic type	PICMA [®] P-885	PICMA [®] P-885	PICMA [®] P-885		
Electrical capacitance	1.5	3.1	4.6	μF	$\pm 20\%$
Dynamic operating current coefficient	12	15	15	$\mu\text{A} / (\text{Hz} \times \mu\text{m})$	$\pm 20\%$
Miscellaneous					
Operating temperature range	-20 to 80	-20 to 80	-20 to 80	$^{\circ}\text{C}$	
Material	Steel	Steel	Steel		
Dimensions	44 mm \times 30 mm \times 15 mm	44 mm \times 30 mm \times 62 mm	44 mm \times 30 mm \times 80 mm		
Mass	0.16	0.215	0.26	kg	$\pm 5\%$
Cable length	1.5	1.5	1.5	m	$\pm 10\text{ mm}$
Sensor / voltage connection	Sub- D Special	Sub- D Special	Sub- D Special		

The resolution of PI piezo nanopositioning systems is not limited by friction or stiction. Value given is noise- equivalent motion with the E-503 piezo amplifier module

Versions with LEMO connector available as P-753.x1C.
Vacuum- compatible versions to 10^{-9} hPa available as P-753.xUD.
Non- magnetic versions available as P-753.xND.

Ask about custom designs!

Order Information

Versions with Sub- D connector

P-753.1CD

LISA High- Dynamics Nanopositioning System, 12 μ m, Direct Metrology, Capacitive Sensor, Sub- D Connector(s)

P-753.2CD

LISA High- Dynamics Nanopositioning System, 25 μ m, Direct Metrology, Capacitive Sensor, Sub- D Connector(s)

P-753.3CD

LISA High- Dynamics Nanopositioning System, 38 μ m, Direct Metrology, Capacitive Sensor, Sub- D Connector(s)

Versions with LEMO connector

P-753.11C

LISA High- Dynamics Nanopositioning System, 12 μ m, Direct Metrology, Capacitive Sensor, LEMO Connector(s)

P-753.21C

LISA High- Dynamics Nanopositioning System, 25 μ m, Direct Metrology, Capacitive Sensor, LEMO Connector(s)

P-753.31C

LISA High- Dynamics Nanopositioning System, 38 μ m, Direct Metrology, Capacitive Sensor, LEMO Connector(s)

Vacuum versions

P-753.1UD

LISA High- Dynamics Nanopositioning System, 12 μ m, Direct Metrology, Capacitive Sensor, Sub- D Connector(s), Vacuum- Compatible to 10^{-9} hPa

P-753.2UD

LISA High- Dynamics Nanopositioning System, 25 μ m, Direct Metrology, Capacitive Sensor, Sub- D Connector(s), Vacuum- Compatible to 10^{-9} hPa

P-753.3UD

LISA High- Dynamics Nanopositioning System, 38 μ m, Direct Metrology, Capacitive Sensor, Sub- D Connector(s), Vacuum- Compatible to 10^{-9} hPa

Non- magnetic versions available as P-753.xND.

Ask about custom designs!

Controllers / Drivers / Amplifiers

[E-753 Digital Piezo Controller](#)

[E-509 Signal Conditioner / Piezo Servo Module](#)

[E-625 Piezo Servo- Controller & Driver](#)

Related Products

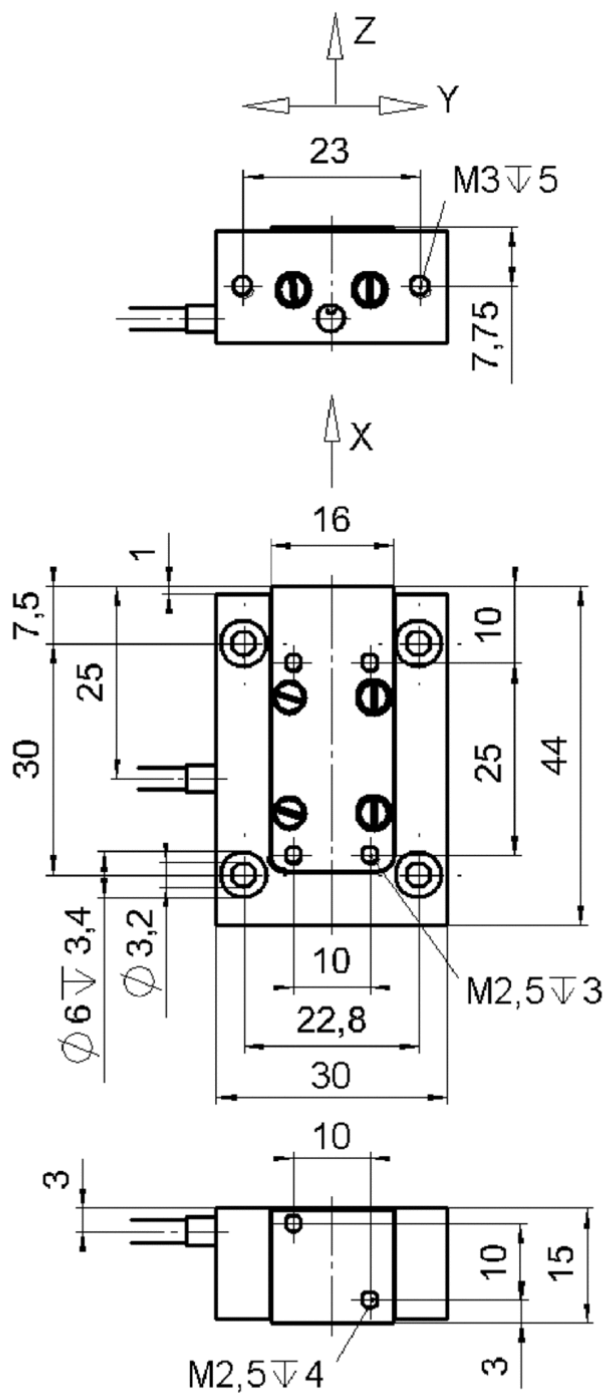
[P-752 High Precision Nanopositioning Stage](#)

[P-620.1 – P-629.1 PIHera Piezo Linear Stage](#)

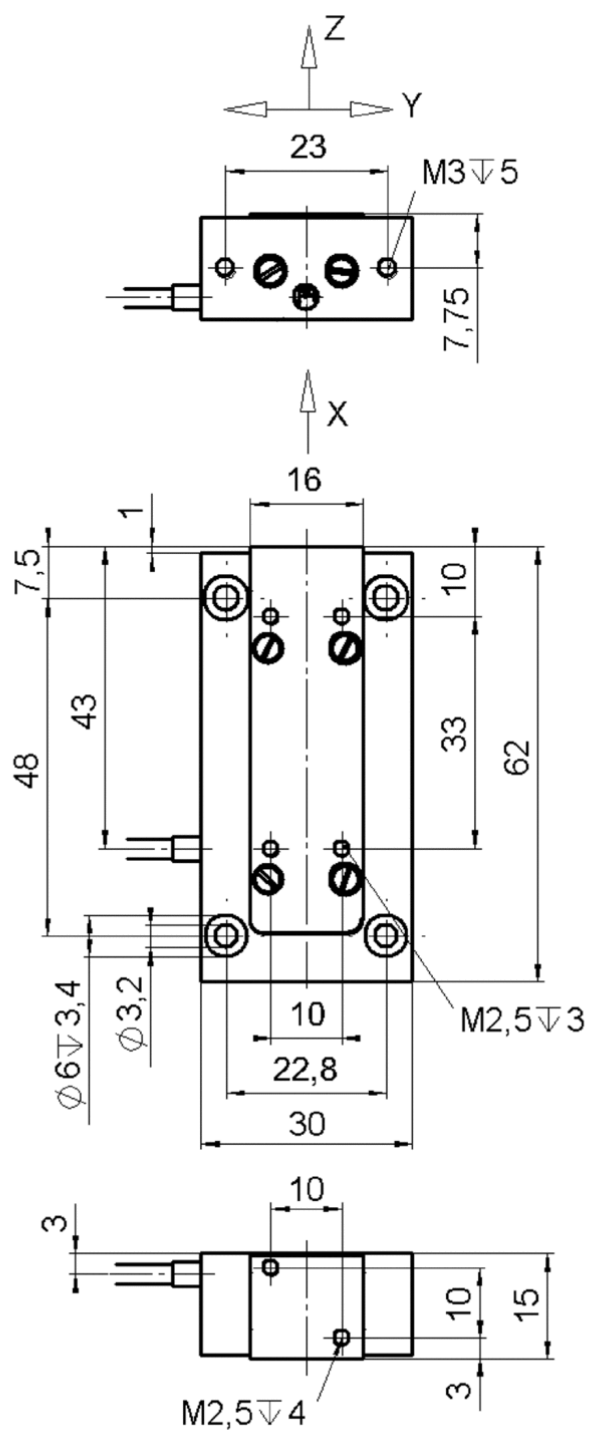
[P-601 PiezoMove Flexure- Guided Linear Actuator](#)

Drawings / Images

P-753.1 dimensions in mm, max. torque at M2.5 threads: 30 Ncm



P-753.2 dimensions in mm, max. torque at M2.5 threads: 30 Ncm



P-753.3 dimensions in mm, max. torque at M2.5 threads: 30 Ncm

