

Compact Linear Positioning Stage

FAST LINEAR MOTOR, LINEARENCODER



M-663

- Max. velocity 400 mm/sec
- Travel range 19 mm
- 0.1 μm linear encoder
- XY combinations without adapter plate possible

Precision-class micropositioning stage

Integrated piezoceramic direct drive. A vacuum-compatible version down to 10^{-6} hPa is available

PIline® piezo ultrasonic drive

Self-locking, no heat generation at rest. Excellent start/stop dynamics. Centered ball bearings. Non-contact reference point switch

Direct measuring principle

Non-contact, optical linear encoder. High linearity and repeatability

Valid patents

US Patent No. 6,765,335B2

European Patent No. 1267425B1

Application fields

Research and industry. For optical metrology, laser technology, micromanipulation, biotechnology, photonics packaging



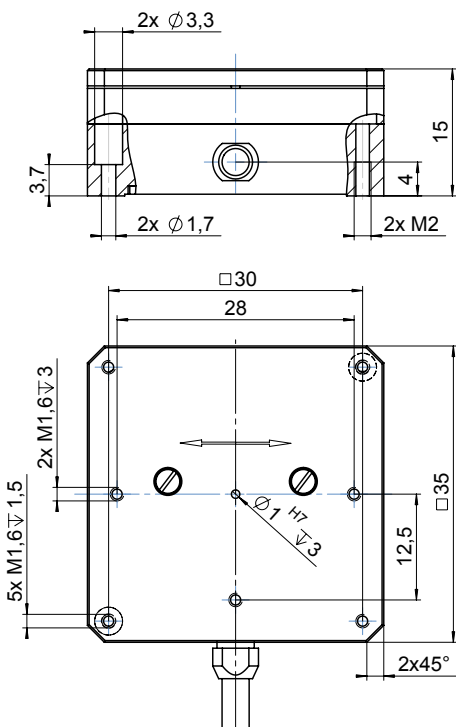
XY combination of two M-663

Related products

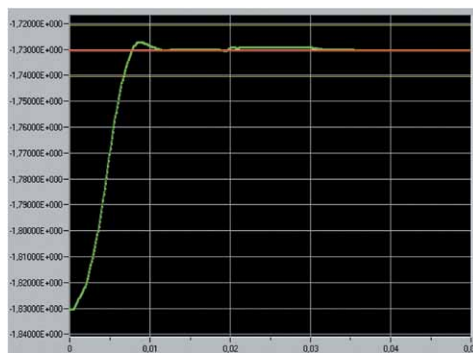
M-110 • M-111 • M-112 Compact, Cost-Efficient Linear Stage
 M-122 Compact, Fast Linear Stage
 M-683 Fast Micropositioning Stage
 C-867 PIline® Motion Controller

	M-663.465	Unit	Tolerance
Active axes	X		
Motion and positioning			
Travel range	19	mm	
Integrated sensor	Linear encoder		
Sensor resolution	0.1	μm	
Min. incremental motion	0.3	μm	typ.
Unidirectional repeatability	0.2	μm	typ.
Bidirectional repeatability	±0.3	μm	
Pitch / yaw	±300	μrad	typ.
Velocity	400	mm/sec	max.
Reference point switch repeatability	1	μm	typ.
Mechanical properties			
Load capacity	5	N	max.
Push / pull force	2	N	max.
Holding force	2	N	max.
Drive properties			
Motor type	P-661 PILine® ultrasonic piezomotor		
Reference point switch	Optical		
Miscellaneous			
Operating temperature range	-20 to 50	°C	
Material	Al (black anodized)		
Dimensions	35 x 35 x 15	mm	
Mass	40	g	±5 %
Cable length	1.5	m	±10 mm
Connector	MDR, 14-pin		
Recommended controller/driver	C-867 PILine® Motion Controller		

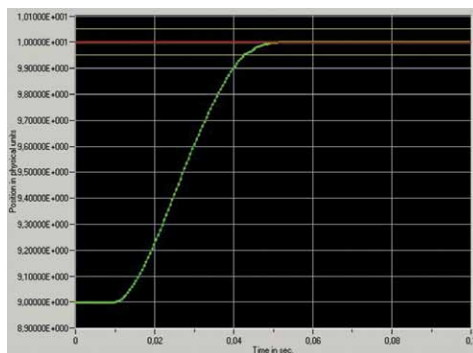
Vacuum versions to 10⁻⁶ hPa are available under the following ordering number: M-663.46V.
A version with 90 deg. shifted cable exit for XY mounting is available as the M-663.Y65



M-663.465, dimensions in mm



Step and settle example: An M-663 positioner loaded with 100 g can execute a 100-μm step and settle to within 0.1 μm in only 10 msec. Performed with a C-867 PILine® motion controller



1-mm step performed by an M-663 stage and a C-867 controller. The stage is loaded with 300 g and reaches the target position in less than 40 msec