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Find the *Physik Instrumente M-110.2DG* at our website: *Click HERE*

M-110.2 · M-111.2 · M-112.2

High-Resolution Micro-Translation Stages with Ballscrew Drive



M-112.2DG, M-111.2DG, M-110.2DG (from front to back) providing 25 mm, 15 mm and 5 mm travel range

- **5 to 25 mm Travel Ranges**
- **5000 h MTBF**
- **Very Cost Effective**
- **200 nm Minimum Inc. Motion**
- **Hall-Effect Limit & Reference Switches**
- **Recirculating Ballscrew for Extended Lifetime**

M-110, M-111 and M-112 are high-resolution motorized translation stages providing linear motion of 5 mm, 15 mm and 25 mm.

Small Size, High Performance

A major appeal of these stages is their small form factor in which they feature precision linear ball bearings for flatness and straightness of <0.5 microns over 15 mm. A miniature DC or stepper motor drives the platform via a backlash-compensated ballscrew system and gearhead. To meet the most critical positioning demands, the DC motor is equipped with a high-resolution encoder featuring resolution of 8.5 nm per count. The combination of the extremely low stiction/friction design and high-resolution encoder allows minimum incremental motion of 0.2 µm and speeds to 2 mm/sec.

24 Hours a Day—7 Days a Week: 24/7 Duty Cycles

To meet industrial demands, the M-110.2, M-111.2 and M-112.2 linear translation stages are equipped with a recirculating ballscrew instead of a leadscrew for precise motion with reduced friction. This allows 24/7 duty cycles. To protect your investment, integrated non-contact Hall-effect limit and reference switches with direction sensing are standard. The connector on the DC-servo versions features integrated line drivers for cable lengths up to 10 meters between actuator and controller.

Low Cost of Ownership

As mentioned before, these compact PI stages are extremely cost effective in industrial applications. The combination of the M-11x.2DG and the networkable C-862 Mercury™ single channel servo controller/driver offers high performance for a very competitive price in both single and multi-axis configurations.

Notes

See “Accessories”, page 7-92 *ff.* for adapters, brackets, etc.

Ordering Information

M-110.2DG
Micro-Translation Stage, 5 mm, Closed-Loop DC Motor, Ballscrew

M-111.2DG
Micro-Translation Stage, 15 mm, Closed-Loop DC Motor, Ballscrew

M-112.2DG
Micro-Translation Stage, 25 mm, Closed-Loop DC Motor, Ballscrew

M-110.22S
Micro-Translation Stage, 5 mm, Stepper Motor, Ballscrew

M-111.22S
Micro-Translation Stage, 15 mm, Stepper Motor, Ballscrew

M-112.22S
Micro-Translation Stage, 25 mm, Stepper Motor, Ballscrew

Adaptors and Angle Brackets:
Same as for Leadscrew Versions M-110.1/M-111.1/M-112.1.

Ask about custom designs!

Application Examples

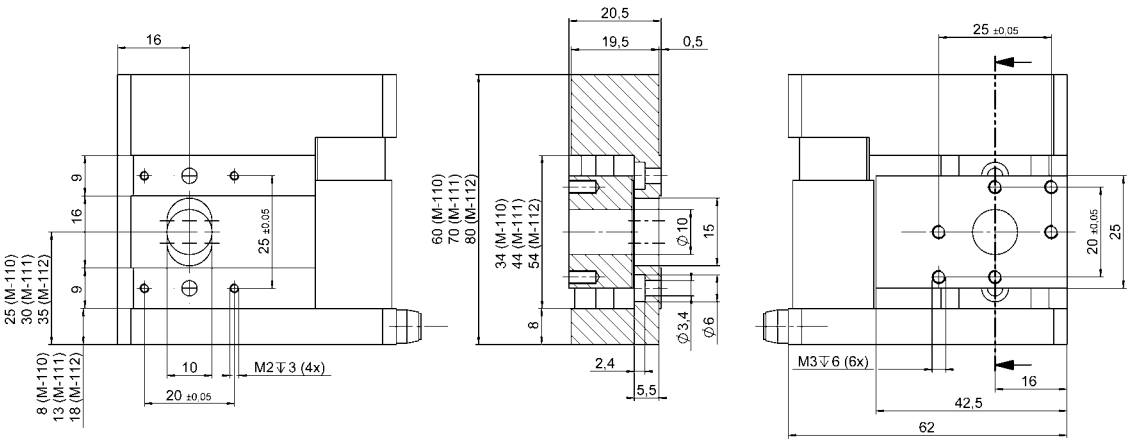
- Micromachining
- Photonics packaging automation
- Fiber optic instrumentation
- Fiber alignment
- Quality control
- Test equipment



XYZ combination of three M-111 stages, with M-110.02 Z axis mounting bracket and M-105.NC mounting bracket.

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M-110, M-111, M-112 dimensions in mm. C-815.38 motor cable included: 3 m, sub-D, 15/15 pin (m/f).

Technical Data

Models	M-110.2DG	M-111.2DG	M-112.2DG	M-110.22S	M-111.22S	M-112.22S	Units#
Travel range	5	15	25	5	15	25	mm
Design resolution	0.0085	0.0085	0.0085	0.014	0.014	0.014	µm
Min. incremental motion	0.2	0.2	0.2	0.2	0.2	0.2	µm
Unidirectional repeatability	0.5	0.5	0.5	0.5	0.5	0.5	µm
Backlash	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	µm
Max. velocity	1.5	2.0	2.0	1.0	1.0	1.0	mm/sec
Max. normal load capacity	5	5	3	5	5	3	kg
Max. push/pull force	10	10	10	10	10	10	N
Max. lateral force	10	10	10	10	10	10	N
Encoder resolution	2048	2048	2048	–	–	–	counts/rev.
Motor resolution	–	–	–	1200*	1200*	1200*	steps/rev
Drivescrew pitch	0.5	0.5	0.5	0.5	0.5	0.5	mm/rev.
Gear ratio	28.44444:1	28.44444:1	28.44444:1	28.44444:1	28.44444:1	28.44444:1	
Nominal motor power	0.6	2	2	*	*	*	W
Motor voltage	12	12	12	24*	24*	24*	V
Weight	0.3	0.4	0.5	0.3	0.4	0.5	kg
Cable length	500	500	500	500	500	500	mm
Connector	15-pin sub-D	15-pin sub-D	15-pin sub-D	15-pin sub-D	15-pin sub-D	15-pin sub-D	
Recommended motor controllers	C-843, C-848, C-862	C-843, C-848, C-862	C-843, C-848, C-862	C-600, C-630	C-600, C-630	C-600, C-630	

* 2-phase stepper, 24 V chopper voltage, max. 250 mA / phase, 1,200 microsteps with C-600, C-630 controllers.
# See page 7-106 for notes and explanations.

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