

Compact Linear Stage

XY(Z) Combinations with a Variety of Drives and Travel Ranges



M-110 • M-111 • M-112

- Very compact due to folded drive
- Stepper motors and closed-loop DC motors
- Noncontact reference and limit switches
- XY setups can be mounted directly
- Larger quantities available quickly
- Vacuum-compatible items on request

Compact linear stage, versatile in use

Linear stage with compact size due to folded drive with belt drive. Clear aperture with 10 mm \varnothing . XY setups can be mounted directly without adapter plate.

Drive

- 2-phase stepper motor or closed-loop DC gear motor
- Backlash-compensated leadscrew or ball screw

Position measurement

- Variants with DC gear motor: Rotary encoder on the motor shaft.
- Noncontact Hall effect reference and limit switches.

Application fields

Precision microassembly, Research, Laser marking, Automation, Optical alignment

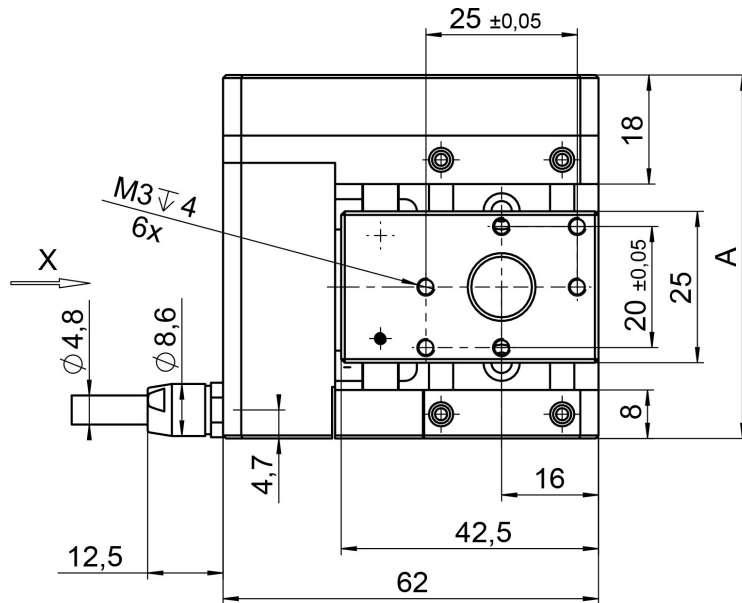
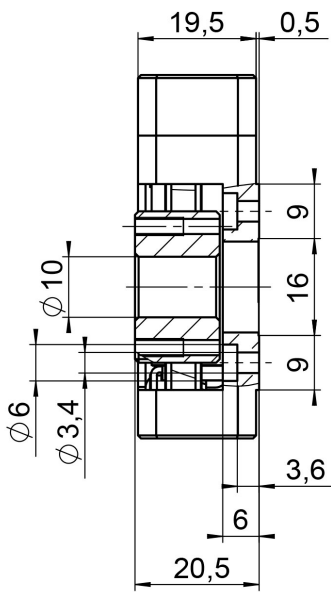
Specifications

	M-110.1DG1 M-111.1DG1 M-112.1DG1	M-110.12S1 M-111.12S1 M-112.12S1	M-110.2DG1 M-111.2DG1 M-112.2DG1	M-110.22S1 M-111.22S1 M-112.22S1	Unit	Tolerance
Motion and positioning						
Travel range	5 / 15 / 25	5 / 15 / 25	5 / 15 / 25	5 / 15 / 25	mm	
Integrated sensor	Rotary encoder	–	Rotary encoder	–		
Sensor resolution	2048		2048		Cts./rev.	
Design resolution ⁽¹⁾	0.0069	0.00029	0.0086	0.00036	µm	
Minimum incremental motion ⁽¹⁾	0.05	0.02	0.2	0.2	µm	Typ.
Backlash	3	3	3	3	µm	Typ.
Unidirectional repeatability	0.25	0.25	0.15	0.15	µm	Typ.
Velocity	1 / 1.5 / 1.5	1 / 1 / 1	1.5 / 2 / 2	1 / 1 / 1	mm/s	Max.
Mechanical properties						
Drive screw type	Leadscrew	Leadscrew	Ball screw	Ball screw		
Drive screw pitch	0.4	0.4	0.5	0.5	mm	
Gear ratio	256:9	256:9	256:9	256:9		
Step resolution	–	24	–	24	Full steps/rev	
Load capacity	30 / 30 / 20	30 / 30 / 20	30 / 30 / 20	30 / 30 / 20	N	Max.
Push/pull force	10	10	10	10	N	Max.
Self-locking	10	10	10	10	N	Max.
Permissible lateral force	15 / 10 / 10	15 / 10 / 10	15 / 10 / 10	15 / 10 / 10	N	Max.
Drive properties						
Motor type	DC gear motor	2-phase stepper motor	DC gear motor	2-phase stepper motor		
Operating voltage	0 to ±12	–	0 to ±12	–	V	
Motor power	0.52 / 1.75 / 1.75	1.5	0.52 / 1.75 / 1.75	1.5	W	
Nominal current per phase	160 / 320 / 320	250	160 / 320 / 320	250	mA	
Reference and limit switches	Hall effect	Hall effect	Hall effect	Hall effect		
Miscellaneous						
Operating temperature range	-20 to 65	-20 to 65	-20 to 65	-20 to 65	°C	
Material	Anodized aluminum	Anodized aluminum	Anodized aluminum	Anodized aluminum		
Mass	0.25 / 0.27 / 0.3	0.25 / 0.27 / 0.3	0.25 / 0.27 / 0.3	0.25 / 0.27 / 0.3	kg	
Cable length	0.5	0.5	0.5	0.5	m	
Connector	HD D-sub 26 (m)	HD D-sub 26 (m)	HD D-sub 26 (m)	HD D-sub 26 (m)		
Recommended controllers	C-863.12 C-863.11 ⁽²⁾ C-863.20C885 ⁽²⁾ C-884.xDC ⁽²⁾	C-663.12 C-663.11 ⁽³⁾	C-863.12 C-863.11 ⁽²⁾ C-863.20C885 ⁽²⁾ C-884.xDC ⁽²⁾	C-663.12 C-663.11 ⁽³⁾		

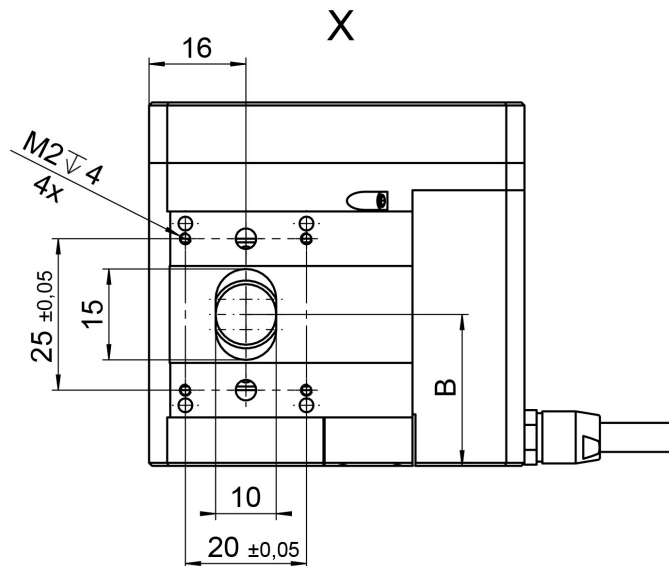
⁽¹⁾ With recommended controller

- (2) C-815.LDM1 adapter cable (3 m) required for compatibility (available as optional accessory; other cable lengths available)
 (3) C-815.AK456 adapter cable (3 m) required for compatibility (available as optional accessory)

Drawings / Images



	A	B
M-110.1DG1	60	25
M-110.2DG1		
M-110.12S1		
M-110.22S1		
M-111.1DG1	70	30
M-111.2DG1		
M-111.12S1		
M-111.22S1		
M-112.1DG1	80	35
M-112.2DG1		
M-112.12S1		
M-112.22S1		



M-11x.xxx1, dimensions in mm



XY setups possible without adapter plate.

Ordering Information

M-110.1DG1

Compact Linear stage, 62 mm width, folded drivetrain, 5 mm travel range, 30 N load capacity, DC gear motor, rotary encoder, leadscrew, 0.5 m cable length

M-110.12S1

Compact Linear stage, 62 mm width, folded drivetrain, 5 mm travel range, 30 N load capacity, stepper motor, leadscrew, 0.5 m cable length

M-110.2DG1

Compact Linear stage, 62 mm width, folded drivetrain, 5 mm travel range, 30 N load capacity, DC gear motor, rotary encoder, ball screw, 0.5 m cable length

M-110.22S1

Compact Linear stage, 62 mm width, folded drivetrain, 5 mm travel range, 30 N load capacity, stepper motor, ball screw, 0.5 m cable length

M-111.1DG1

Compact Linear stage, 62 mm width, folded drivetrain, 15 mm travel range, 30 N load capacity, DC gear motor, rotary encoder, leadscrew, 0.5 m cable length

M-111.12S1

Compact Linear stage, 62 mm width, folded drivetrain, 15 mm travel range, 30 N load capacity, stepper motor, leadscrew, 0.5 m cable length

M-111.2DG1

Compact Linear stage, 62 mm width, folded drivetrain, 15 mm travel range, 30 N load capacity, DC gear motor, rotary encoder, ball screw, 0.5 m cable length

M-111.22S1

Compact Linear stage, 62 mm width, folded drivetrain, 15 mm travel range, 30 N load capacity, stepper motor, ball screw, 0.5 m cable length

M-112.1DG1

Compact Linear stage, 62 mm width, folded drivetrain, 25 mm travel range, 30 N load capacity, DC gear motor, rotary encoder, leadscrew, 0.5 m cable length

M-112.12S1

Compact Linear stage, 62 mm width, folded drivetrain, 25 mm travel range, 30 N load capacity, stepper motor, leadscrew, 0.5 m cable length

M-112.2DG1

Compact Linear stage, 62 mm width, folded drivetrain, 25 mm travel range, 30 N load capacity, DC gear motor, rotary encoder, ball screw, 0.5 m cable length

M-112.22S1

Compact Linear stage, 62 mm width, folded drivetrain, 25 mm travel range, 30 N load capacity, stepper motor, ball screw, 0.5 m cable length

Adapter cables**C-815.LDM1**

Motor cable, DC motor, HD D-sub 26 (f) to D-sub 15 (m), 3 m

C-815.AK456

Motor cable, 2-phase stepper motor, HD D-sub 26 (f) to D-sub 15 (m), 3 m