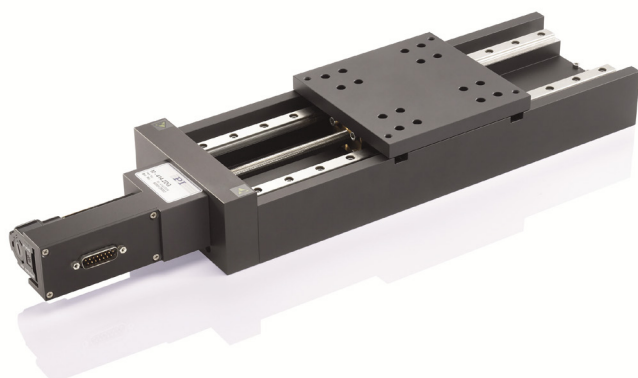


Precision High-Load Linear Stage

High Cycle Number, Inexpensive



M-414

- Use of precision components
- Flexible modular system M-403, M-404, M-413, M-414
- Travel ranges from 100 mm to 300 mm
- Resolution to 0.023 μm
- Ball screw for high velocities and number of cycles
- Min. incremental motion 0.1 μm

Application fields

Measuring technology, alignment.

Specifications

	M-414.1PD M-414.2PD M-414.3PD	M-414.1DG M-414.2DG M-414.3DG	M-414.12S M-414.22S M-414.32S	Unit	Tolerance
Active axes	with ActiveDrive X	with DC gear motor X	with stepper motor X		
Motion and positioning	M-414.1PD M-414.2PD M-414.3PD	M-414.1DG M-414.2DG M-414.3DG	M-414.12S M-414.22S M-414.32S	Unit	Tolerance
Travel range	100 / 200 / 300	100 / 200 / 300	100 / 200 / 300	mm	
Integrated sensor	Rotary encoder	Rotary encoder	-		
Sensor resolution	4000	2000	-	Cts./rev.	
Design resolution	0.5	0.023	0.31	μm	typ.
Minimum incremental motion	0.5	0.1	0.4	μm	typ.
Backlash	0.5	4	2	μm	typ.
Unidirectional repeatability	0.5	1	1	μm	typ.
Pitch / yaw ⁽¹⁾	100	100	100	μrad	typ. over 100 mm

Velocity	100	3	6	mm/s	max.
Reference switch repeatability	1	1	1	μm	typ.

Mechanical properties	M-414.1PD M-414.2PD M-414.3PD	M-414.1DG M-414.2DG M-414.3DG	M-414.12S M-414.22S M-414.32S	Unit	Tolerance
Drive screw pitch	2	2	2	mm	
Gear ratio	–	42.9206	-		
Motor resolution	-	-	6400 ⁽²⁾	Steps/rev	
Stiffness in motion direction	8	8	8	N/μm	±20 %
Load capacity	500	500	500	N	max.
Push/pull force	100	50	50	N	max.
Lateral force	200	200	200	N	max.

Drive properties	M-414.1PD M-414.2PD M-414.3PD	M-414.1DG M-414.2DG M-414.3DG	M-414.12S M-414.22S M-414.32S	Unit	Tolerance
Drive type	DC motor, ActiveDrive	DC gear motor	2-phase stepper motor ⁽²⁾		
Operating voltage	24	0 to ±12	24	V	
Motor power	70	3.6	4.8	W	nominal

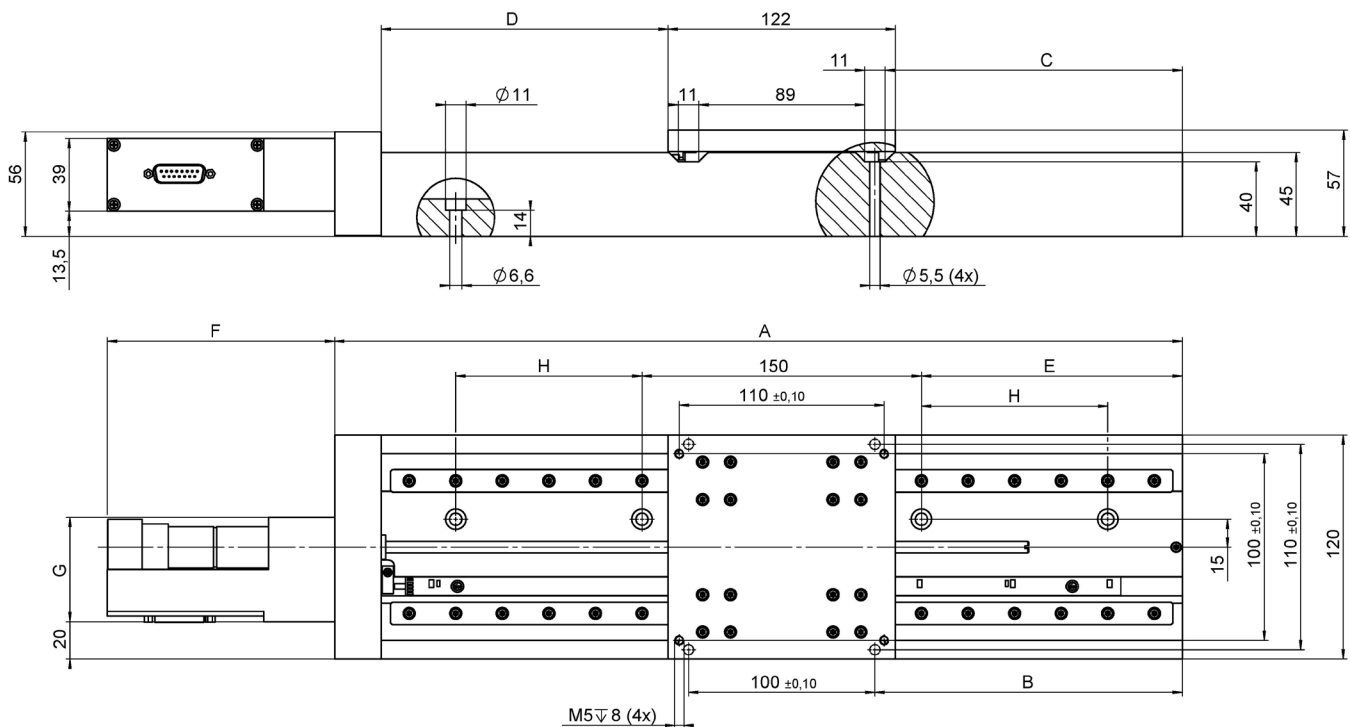
Miscellaneous	M-414.1PD M-414.2PD M-414.3PD	M-414.1DG M-414.2DG M-414.3DG	M-414.12S M-414.22S M-414.32S	Unit	Tolerance
Operating temperature range	-20 to 65	-20 to 65	-20 to 65	°C	
Material	Al (black anodized)	Al (black anodized)	Al (black anodized)		
Mass	4.4 / 5.4 / 6.6	4.2 / 5.2 / 6.4	4.4 / 5.4 / 6.6	kg	±5 %
Connector	D-sub 15 (m), incl. 3 m cable	D-sub 15 (m), incl. 3 m cable	D-sub 15 (m), incl. 3 m cable		
Recommended controllers/drivers	C-863.11 C-884	C-863.11 C-884	C-663		

(1) This value applies to 100 mm respectively for travel ranges greater than 100 mm.

(2) 24 V chopper voltage, max. 0.8 A/phase; 400 full steps/rev., motor resolution with C-663 stepper motor controller.

Ask about customized versions.

Drawings / Images



	M-413/414.1xx	M-413/414.2xx	M-413/414.3xx
A	255	355	455
B	65	115	165
C	59,5	109,5	159,5
D	54 (±50)	104 (±100)	154 (±150)
E	40	90	140
H	x	x	100

also valid for M-414.xxx

	M-413/414.xPD	M-413.xDG	M-414.xDG	M-413/414.x2s
F	120	122	133	105,5
G	59,5	56	59,5	59,5

M-413 and M-414, dimensions in mm

Ordering Information

M-414.1PD

Precision high-load linear stage, ballscrew, 120 mm width, 100 mm travel range, ActiveDrive

M-414.2PD

Precision high-load linear stage, ballscrew, 120 mm width, 200 mm travel range, ActiveDrive

M-414.3PD

Precision high-load linear stage, ballscrew, 120 mm width, 300 mm travel range, ActiveDrive

M-414.1DG

Precision high-load linear stage, ballscrew, 120 mm width, 100 mm travel range, DC gear motor

M-414.2DG

Precision high-load linear stage, ballscrew, 120 mm width, 200 mm travel range, DC gear motor

M-414.3DG

Precision high-load linear stage, ballscrew, 120 mm width, 300 mm travel range, DC gear motor

M-414.12S

Precision high-load linear stage, ballscrew, 120 mm width, 100 mm travel range, stepper motor

M-414.22S

Precision high-load linear stage, ballscrew, 120 mm width, 200 mm travel range, stepper motor

M-414.32S

Precision high-load linear stage, ballscrew, 120 mm width, 300 mm travel range, stepper motor