

M-126

Translation Stages with Crossed Roller Bearings

Ordering Information

M-126.CG
Translation Stage, 25 mm,
Compact DC Motor / Gearhead

M-126.DG
Translation Stage, 25 mm,
DC Motor / Gearhead

M-126.PD
Translation Stage, 25 mm,
ActiveDrive™ DC Motor
(power supply included)

M-126.2S
Translation Stage, 25 mm,
2-Phase Stepper Motor

M-126.M0
Translation Stage, 25 mm,
Manual Drive, Leadscrew

M-125.90 Z-axis Mounting Bracket
for Vertical Mount of M-126 Stages

**Custom Designs
for Volume Buyers**

- 25 mm Travel Range
- Manual, DC-Servo and Stepper-Motor Drives
- Novel ActiveDrive™ Concept
- Compatible with Leading Industrial Motion Controllers
- Crossed Roller Bearings
- < 0.1 µm Resolution
- XY and XYZ Combinations

M-126 are leadscrew-driven translation stages with a travel range of 25 mm. Precision crossed roller bearings guarantee straightness of travel of better than 2 µm.

All models are equipped with low-friction leadscrews for excellent resolution and repeatability. Three motorized versions are available: M-126.CG utilizes a compact closed-loop DC

motor with shaft-mounted high-resolution position encoder and a precision gearhead providing 0.1 µm minimum incremental motion, M-126.DG is equipped with a larger motor than M-126.CG and provides higher velocity.

ActiveDrive™

M-126.PD is equipped with the unsurpassed high-resolution ActiveDrive™. This unique design features a high-efficiency PWM servo-amplifier mounted side-by-side with the DC motor.

The ActiveDrive™ provides several decisive advantages:

- Increased efficiency by eliminating power losses between the amplifier and motor

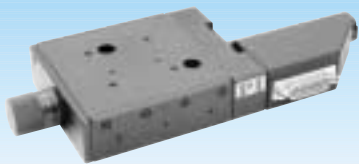
- Reduced cost of ownership and improved reliability because no external driver is required
- Elimination of PWM amplifier noise radiation by mounting the amplifier and motor together in a single electrically shielded case

Model M-126.2S is equipped with a micro-stepped 2-phase stepper motor.

Limit Switches

Non-contacting, Hall-effect limit switches are integrated into the motorized versions to protect your equipment.

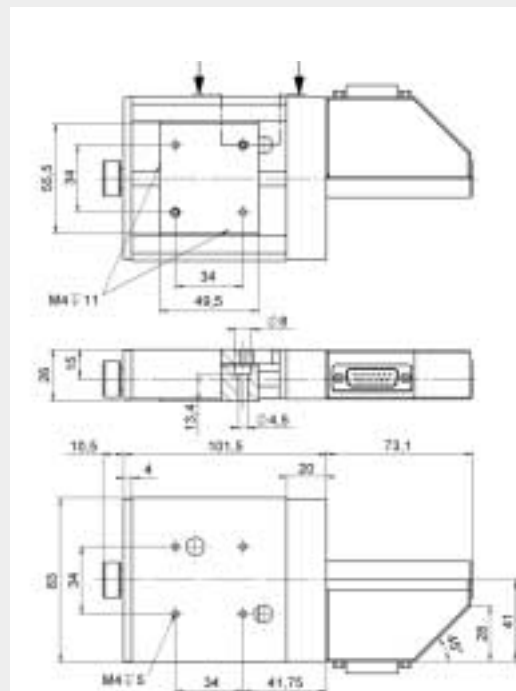
All stages can be cross-stacked and combined with the M-125.90 Z-axis mounting bracket to provide multi-axis motion.



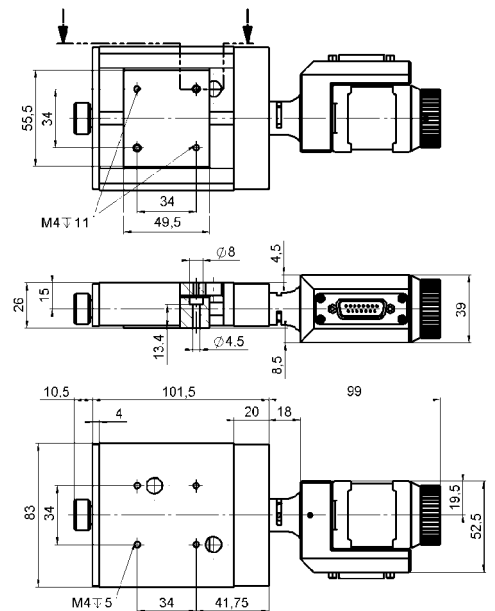
M-126.CG translation stage with compact DC motor/gearhead



M-126.2S translation stage with 2-phase stepper motor (pen for size comparison)



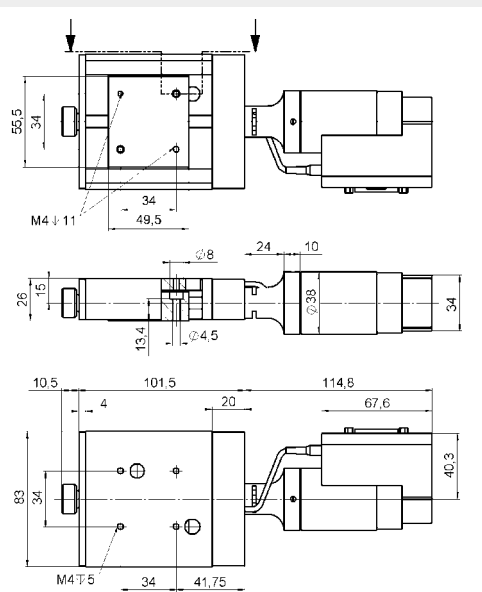
M-126.CG dimensions (in mm)



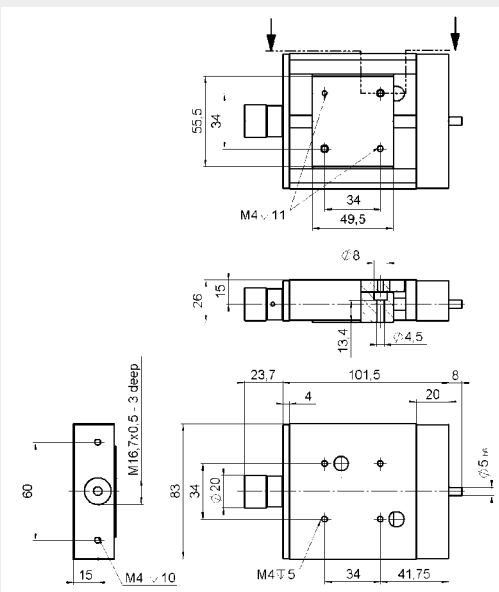
M-126.2S dimensions (in mm)

Notes

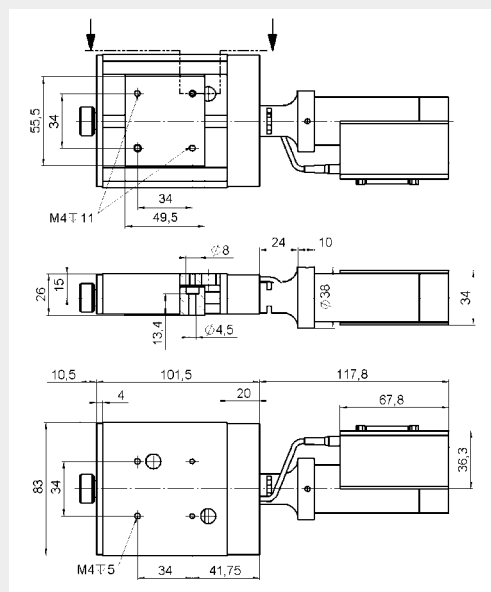
See "Accessories," page 7-82 ff. for adapters, brackets, etc.



M-126.PD dimensions (in mm)



M-126.M0 dimensions (in mm)



M-126.DG dimensions (in mm)



M-126.M0 translation stage, manual version



M-126.DG and M-126.PD translation stages



F-140: XYZ Combination of M-126.PD Translation Stages, M-125.90 angle bracket NanoCube™ nanopositioning system mounted on M-105.NC angle bracket and B-082.10 adapter plate (see p. 8-20) for details

Technical Data

Models	M-126.M0	M-126.CG	M-126.DG	M-126.PD	M-126.2S	Units	Notes see p. 7-96
Travel range	25	25	25	25	25	mm	
Design resolution	-	0.0035	0.0085	0.125	0.05	µm	A3
Min. incremental motion	1	0.1	0.1	0.25	0.1	µm	A4
Unidirectional repeatability	-	0.2	0.1	0.1	0.1	µm	
Bidirectional repeatability	-	2	1	1	1	µm	
Straightness	2	2	2	2	2	µm	
Flatness	2	2	2	2	2	µm	
Pitch (θy)	50	50	50	50	50	µrad	
Yaw (θz)	50	50	50	50	50	µrad	
Max. velocity	-	1	1.5	*15	6	mm/sec	
Max. normal load capacity	20	20	20	20	20	kg	B1
Max. push/pull force	50 / 50	40 / 40	50 / 50	50 / 50	50 / 50	N	B2
Max. lateral force	100	100	100	100	100	N	
Encoder resolution	-	2048	2000	4000	-	counts/rev.	
Motor resolution	-	-	-	-	20000**	steps/rev.	
Leadscrew pitch	0.5	0.5	0.5	0.5	0.5	mm/rev.	
Gear ratio	-	69.12:1	(28/12) ⁴ :1 ≈29.6:1	-	-		
Nominal motor power	-	2	3	30	- **	W	
Motor voltage range	-	0 to ±12	0 to ±12	0 to ±24	24 **	V	
Weight	0.6	0.8	0.9	1.0	1.0	kg	
Body material	Al, St	Al, St	Al, St	Al, St	Al, St		L
Recommended motor controller	-	C-842, C-844, C-860	C-842, C-844, C-860	C-842, C-844, C-860	C-600, C-630		D2

* max. recommended velocity

** 2-phase stepper, 24 V chopper voltage, max. 1.5 A / phase, 20,000 microsteps with C-600, C-630 controllers