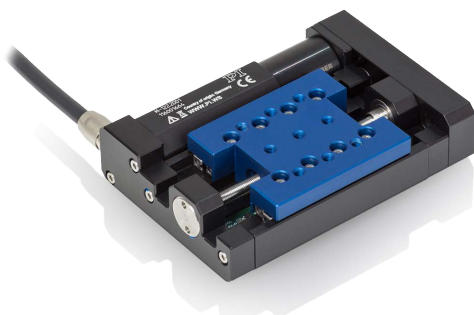


# M-122 Precision Micro-Translation Stage

## Fast & Compact with Direct Position Measurement



The M-122.2DD miniature translation stage features an optical linear encoder with 0.1  $\mu\text{m}$  position resolution and a highly efficient ballscrew

- Travel Range 25 mm
- 0.1  $\mu\text{m}$  Optical Linear Encoder for Highest Accuracy & Repeatability
- Min. Incremental Motion to 0.2  $\mu\text{m}$
- Max. Velocity 20 mm/s
- Recirculating Ball Screw Drives Provide High Speeds & Long Lifetimes

The M-122 palm-top-sized translation stage combines small dimensions, high speeds and very high accuracy at a competitive price. It features a space-saving, folded drive train with the servo motor and drive screw side-by-side. Equipped with a non-contacting optical linear encoder and a preloaded, precision-ground, ball-screw, these stages can provide much higher accuracy and better repeatability than conventional stepper motor stages or rotary encoder-equipped servo motor stages.

### Low Friction, High Speed, Maintenance-Free

Due to its low-friction, the backlash-free ball screw yields significantly higher mechanical

### Application Examples

- Photonics packaging
- Fiber positioning
- Metrology
- Quality assurance testing
- Testing equipment
- Micromachining

efficiency than leadscrews, and allows maintenance-free, high duty-cycle operation at high velocities up to 20 mm/sec.

### XY and XYZ Combinations

M-122 stages can be combined to very compact XY and XYZ systems. The M-122.AP1 mounting bracket is available to mount the Z-axis.

### Limit and Reference Switches

For the protection of your equipment, non-contact Hall-effect limit and reference switches are installed. The direction-sensing reference switch supports advanced automation applications with high precision.

### Low Cost of Ownership

The combination of these positioners with the networkable, single-channel C-863 Mercury™ servo motor controller (s. p. 4-114) offers high performance for a very competitive price in both single- and multi-axis configurations. For multi-axis applications, the C-843 PC plug-in controller board with on-board servo amplifiers (s. p. 4-120) is another cost-effective alternative.

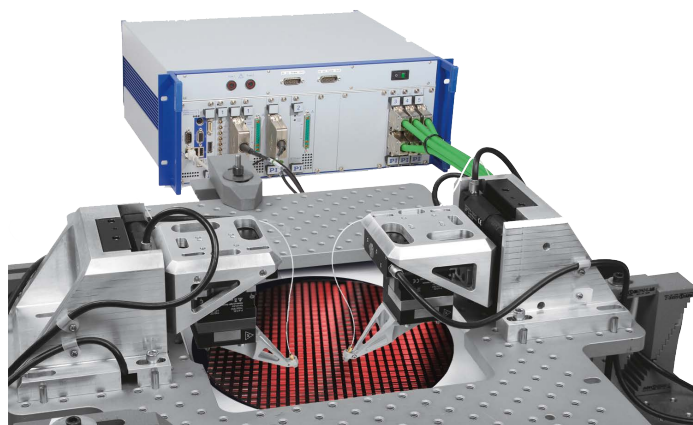
### Ordering Information

**M-122.2DD**  
High-Precision Translation Stage,  
25 mm, Direct-Drive DC Motor,  
Ballscrew

### Accessories

**M-122.AP1**  
Angle bracket for vertical  
mounting of M-122 stages

**Ask about custom designs**

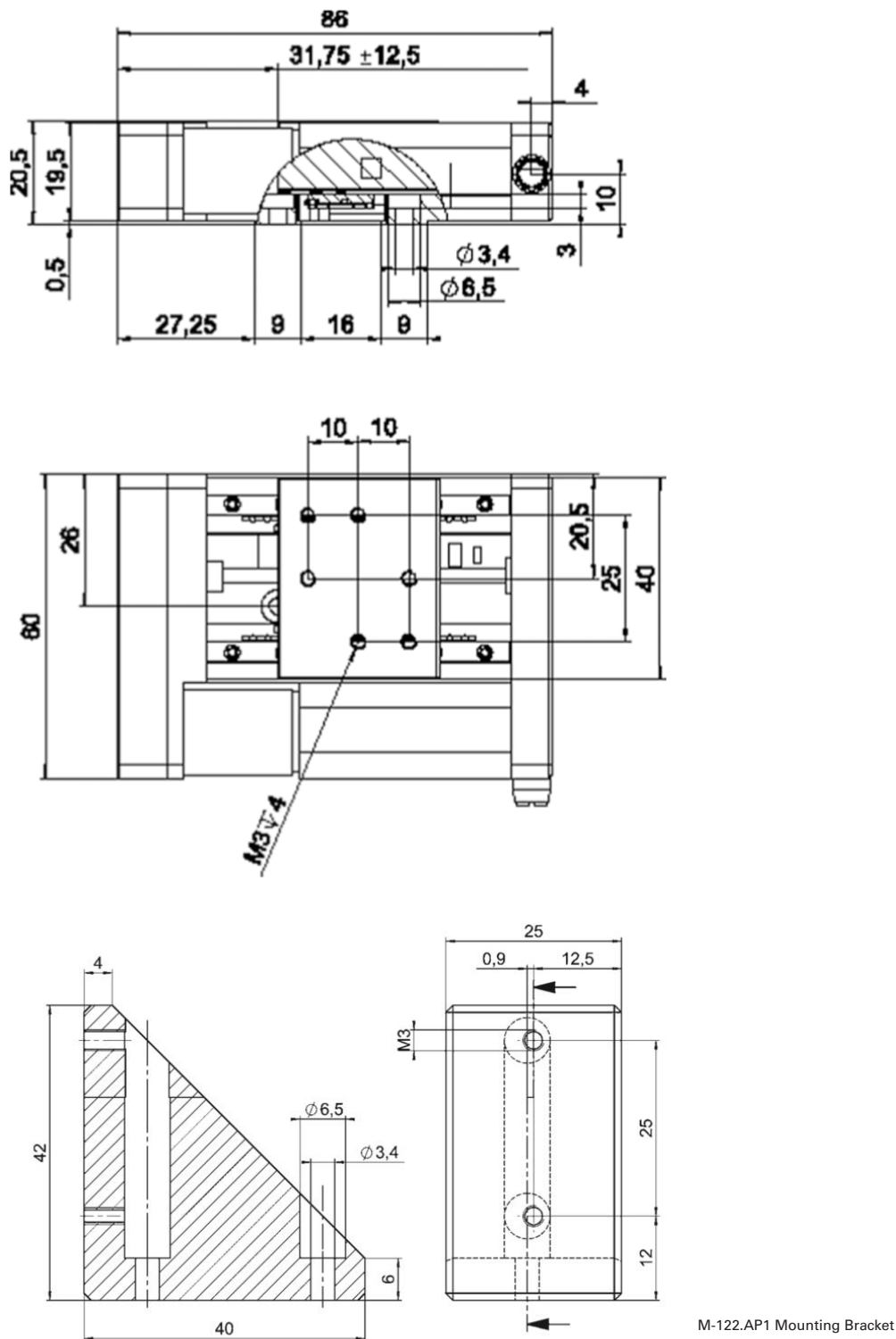


XYZ application in FMPA Photonics Alignment system

### Technical Data

Model	M-122.2DD
Active axes	X
<b>Motion and positioning</b>	
Travel range	25 mm
Integrated sensor	Linear encoder
Sensor resolution	0.1 $\mu\text{m}$
Design resolution	0.1 $\mu\text{m}$
Min. incremental motion	0.2 $\mu\text{m}$
Backlash	0.2 $\mu\text{m}$
Unidirectional repeatability	0.15 $\mu\text{m}$
Pitch	$\pm 150 \mu\text{rad}$
Yaw	$\pm 150 \mu\text{rad}$
Max. velocity	20 mm/s
Origin repeatability	1 $\mu\text{m}$
<b>Mechanical properties</b>	
Drive screw	Recirculating ballscrew
Thread pitch	0.5 mm
Stiffness in motion direction	0.25 N/ $\mu\text{m}$
Max. load	50 N
Max. push/pull force	20 N
Max. lateral force	25 N
<b>Drive properties</b>	
Motor type	DC motor
Operating voltage	0 to $\pm 12 \text{ V}$
Electrical power	2.25 W
Limit and reference switches	Hall-effect
<b>Miscellaneous</b>	
Operating temperature range	-20 to +65
Material	Aluminum, steel
Dimensions	86 x 60 x 20.5 mm
Mass	0.3 kg
Recommended controller/driver	C-863 (single-axis) C-884 (up to 4 axes)

## Drawings / Images



M-122.AP1 Mounting Bracket

### Order Information

**M-122.2DD**  
High- Precision Translation Stage, 25 mm, Direct- Drive DC Motor, Ball Screw

Ask about custom designs!

### Controllers / Drivers / Amplifiers

[C-863 Mercury Servo Controller](#)  
[C-884 Four Axis Motion Controller](#)  
[C-843 DC- Servo- Motor Controller](#)

### Related Products

[M-110 • M-111 • M-112 Compact Micro- Translation Stage](#)  
[M-116 Precision Rotation Stage](#)  
[M-663 Compact Linear Positioning Stage](#)  
[M-664 Precision Stage with Linear Piezo Drive](#)