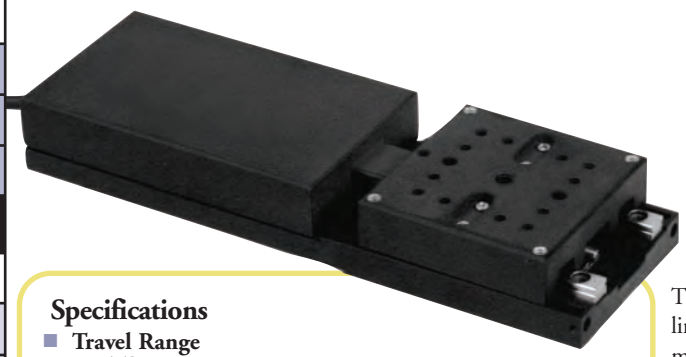
For current pricing, please see our website.

# 25 and 50 mm Travel Motorized Translation Stages



## Features

- Compact Modular Design
- Bundle Offer Includes TDC001 T-Cube Driver and Power Supply
- High-Load Linear Guide Rails
- Modular Design Allows Multi-Axis Configurations
- Built-In Limit Switches on the Stage
- Hall-Effect-Encoded DC Servo Motors

## Specifications

- **Travel Range**
  - **MTS25:** 25 mm
  - **MTS50:** 50 mm
- **Recommended Controller:** TDC001
- **Max Velocity:** 3 mm/s
- **Stage/Bearing Construction:** Aluminum/Recirculating Ball Bearing
- **Bidirectional Repeatability:** 1.6 µm
- **Backlash:** <6 µm
- **Min Achievable Incremental Movement:** 50 nm
- **Max On-Axis Load Capacity (Vertical):** 10 lbs (4.5 kg)
- **Max On-Axis Load Capacity (Horizontal):** 26.4 lbs (12 kg)
- **Absolute On-Axis Accuracy**
  - **MTS25:** 145 µm
  - **MTS50:** 290 µm
- **Max Percentage Accuracy**
  - **MTS25:** 0.3%
  - **MTS50:** 0.7%
- **Home Location Accuracy:** ±4%
- **Pitch**
  - **MTS25:** 0.04°
  - **MTS50:** 0.05°
- **Yaw**
  - **MTS25:** 0.05°
  - **MTS50:** 0.06°
- **Weight:** 0.75 lbs (0.34 kg)
- **Platform**
  - 1.50" x 1.69" (38.1 mm x 43.0 mm)
  - 4-40 (M3 x 0.5) Tapped Holes, 18 Places
  - 8-32 (M4 x 0.7) Tapped Holes, 1 Place

**Linear Displacement per Encoder Count:** There are 512 encoder counts per revolution of the motor. The output shaft of the motor goes into a 67:1 planetary gear head. This requires the motor to rotate 67 times in order to rotate the 1.0 mm pitch leadscrew one revolution. The end result advances the stage by 1.0 mm. To calculate the linear displacement of the actuator per encoder count:

- 512 x 67 = 34,304 encoder counts per revolution of the leadscrew
- 1.0 mm/34,304 counts = 2.915 x $10^{-5}$ mm (29 nm) linear displacement of the leadscrew per encoder count.

The compact, motorized MTS Series stages feature a dual set of linear rails with a continuously recirculating ball bearing on a moveable carriage. This mechanism provides smooth, low-friction movement. The minimum achievable movement is 50 nm.

Limit switches on the stage ensures controlled motion within the parameters of the unit and prevents overdriving in both directions.

Two travel ranges are available: 25 mm and 50 mm. The stages are configurable in XY, XZ, and XYZ in both left- and right-handed configurations using the Angle Brackets and Spacer Plates. Base plates are also available allowing them to be bolted directly to an optical table. The MTS25-Z8 and MTS50-Z8 stages can be attached to a MTS25A-Z8 or MTS50-Z8 base, respectively, using the four included M3 x 1.0 caphead screws and dowel pins. For added flexibility, multi-axis configuration can be made using a mixture of 25 mm and 50 mm stages.

The MTS bundles include a TDC001 Controller, power supply, and necessary cables for fast out-of-the-box setup and operation.

**A complete technical description of the TDC001 T-Cube™ servo driver is found on pages 626 – 627, in the Controllers chapter.**

Mechanical Drawings Available on the WEB

| ITEM # | METRIC ITEM # | $ | £ | € | RMB | DESCRIPTION |
|---|---|---|---|---|---|---|
| MTS25-Z8 | MTS25/M-Z8 | $ 890.00 | £ 640.80 | € 774,30 | ¥ 7,093.30 | Compact Motorized 25 mm Travel Translation Stage |
| MTS25-Z8E | MTS25/M-Z8E | $ 1,336.50 | £ 962.28 | € 1.162,76 | ¥ 10,651.91 | MTS25 Translation Stage Plus TDC001 Controller |
| MTS50-Z8 | MTS50/M-Z8 | $ 989.00 | £ 712.08 | € 860,43 | ¥ 7,882.33 | Compact Motorized 50 mm Travel Translation Stage |
| MTS50-Z8E | MTS50/M-Z8E | $ 1,425.60 | £ 1,026.43 | € 1.240,27 | ¥ 11,362.03 | MTS50 Translation Stage Plus TDC001 Controller |
| PAA632 | PAA632* | $ 52.80 | £ 38.02 | € 45,94 | ¥ 420.82 | Hi Density D-Type Extender Cable, 2.5 m |
| TPS001 | TPS001* | $ 25.00 | £ 18.00 | € 21,75 | ¥ 199.25 | ±15 V Power Supply for Single T-Cube |
| TPS008 | TPS008* | $ 175.00 | £ 126.00 | € 152,25 | ¥ 1,394.75 | ±15 V Power Supply for up to 8 T-Cubes |

*Both Imperial and Metric parts are equivalent.

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