

## PRECISION LINEAR, ROTATION & TILT STAGES

Elliot Scientific is a name synonymous with one of the most comprehensive ranges of compact micropositioning stages on the market.

Manufactured in the UK under our Elliot|Martock brand, these precision engineered dovetail, tilt and rotation stages are offered in several sizes, all with smooth and backlash-free motion for demanding applications.

Series compatibility provides options to combine stages into multi-axis configurations with up to five axes.



- $x$ ,  $xy$ ,  $xz$ ,  $yz$  and  $xyz$  linear micropositioners
- Lockable options on most stages
- Rotation stages with vernier option
- Linear travel options of 10 mm, 5 mm and 3 mm
- Micrometer adjuster and knurled knob options
- Kinematic gimbal tilt stages

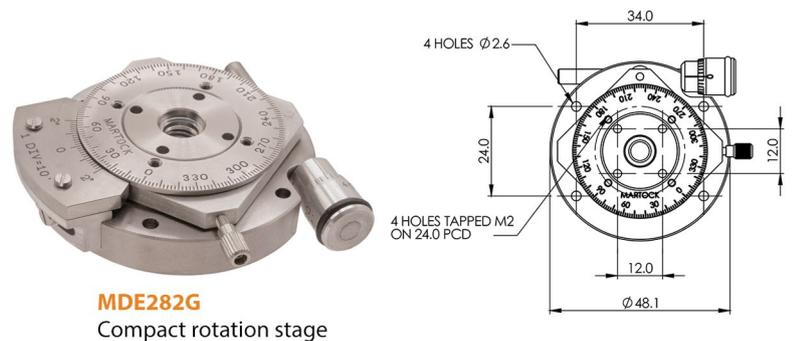
Different linear configurations such as single-axis, two-axis and three-axis, plus tilt and rotation stages, make up a flexible and adaptable set of miniature micropositioners ideal for mission-critical applications where space is at a premium but precision and stability are paramount concerns.

### 280 Series Compact Rotation Stages

Of the many rotation stages available on the market, few if any are both very small and very precise in operation. Our 280 Series rotation stages address this with two size options: MDE282 is 48 mm in diameter, and MDE283 is just 33 mm in diameter. These rotation stages have 360° free rotation with a locking screw, and a tangent screw to provide fine control.

MDE282 compact rotation stages have an engraved main scale with 2° divisions, and the adjuster barrel has 2' divisions. M6 threaded bore and 20 mm clear bore versions are available, with an option for a 10' vernier.

MDE283 miniature rotation stages feature a slotted adjuster for ease of operation in tight spaces, with M6 threaded bore and 8 mm clear bore options.



**MDE282G**  
Compact rotation stage



**MDE283**  
Miniature rotation stage

- High precision lapped bearing
- Fine adjustment range  $\pm 5^\circ$  with 5 arcsec resolution
- Adaptors for table and post mounting

## MINIATURE MICROPOSITIONING STAGES

Elliot|Martock micropositioning stages are ideal for applications where space is at a premium, such as in tightly packed optical setups or industrial systems for aligning components during assembly. Miniature stages range from small (10 mm travel) to very small (5 mm travel) to ultra-small (3 mm travel), and include options in most cases for vacuum preparation, low magnetic signature, axis locks and adjuster type.

Our linear stages are dovetail designs. Unlike ball stages, dovetail stages are rarely permanently damaged by temporary distortions, as the load is supported on a comparatively large area. This greater contact area makes dovetail slides well suited for absorbing and damping shocks and vibrations that could damage other bearings.

### 255 Series Small Micropositioners with 10 mm Travel



**MDE255A**  
Single-axis (x) stage

- Small dovetail stages in multi-axis configurations
- 10 mm travel with  $<0.5 \mu\text{m}$  sensitivity using precision cut 0.25 mm pitch adjusters
- Micrometer adjuster option reading to 0.01 mm
- Lockable version with side-mounted clamp
- Vacuum compatible and low magnetic versions
- Adaptors for table and post mounting
- Mounts to MDE282 rotation stage



**MDE255A-XZ**  
Two-axis (xz) stage



**MDE255A-YZ**  
Two-axis (yz) stage

Lockable option adds a plate and clamp screw. Holes on both sides of the stage allow the lock plate to be placed to the left or right.



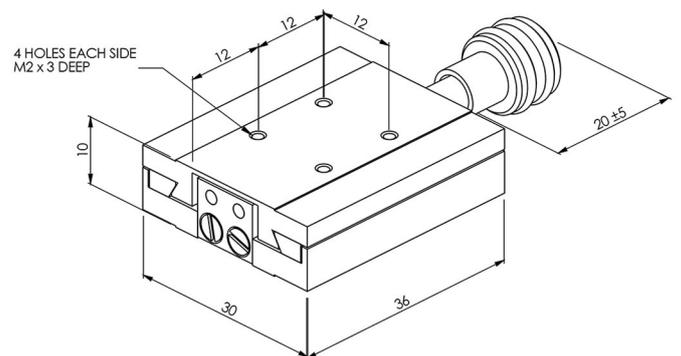
◀ Micrometer option available for all versions except vacuum compatible and low magnetic types.



**MDE258A**  
Two-axis (xy) stage



**MDE259A**  
Three-axis (xyz) stage

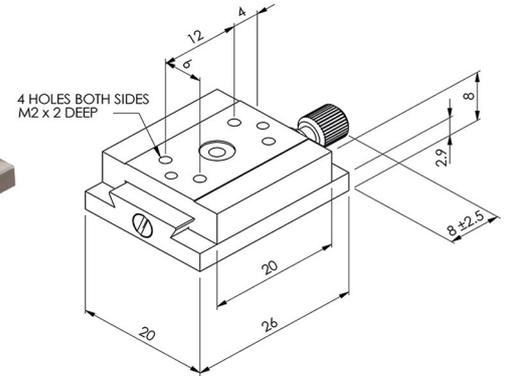


## 260 Series Very Small Micropositioners with 5 mm Travel

- Very small dovetail stages in multi-axis configurations
- 5 mm travel with  $<0.5 \mu\text{m}$  sensitivity using precision cut 0.25 mm pitch adjusters
- Micrometer adjuster option reading to 0.01 mm
- Lockable version with side-mounted clamp
- Vacuum compatible and low magnetic versions
- Adaptors for table and post mounting
- Mounts to MDE283 rotation stage and MDE270 tilt stage



**MDE261A**  
Single-axis (x) stage



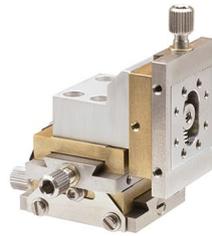
**MDE261A-XZ**  
Two-axis (xz) stage



**MDE261A-YZ**  
Two-axis (yz) stage



**MDE262A**  
Two-axis (xy) stage



**MDE263A**  
Three-axis (xyz) stage



◀ Lockable option  
(similar to 255 Series)



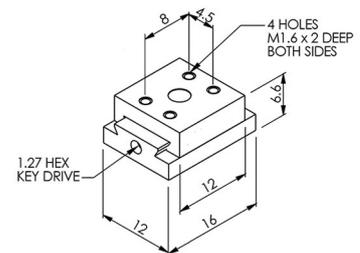
Micrometer option ▶  
(similar to 255 Series)

## 265 Series Ultra-small Micropositioners with 3 mm Travel

- Ultra-small dovetail stages in multi-axis configurations
- 3 mm travel with  $<0.5 \mu\text{m}$  sensitivity using precision cut 0.25 mm pitch adjusters with hex socket
- Knurled knob option
- Vacuum compatible versions
- Adaptors for post mounting



**MDE265**  
Single-axis (x) stage



**MDE266**  
Two-axis (xy) stage



**MDE268**  
Two-axis (xz) stage



**MDE267**  
Three-axis (xyz) stage on base



**MDE269**  
Three-axis (xyz) stage



◀ Knurled knob option

Small micropositioners with circular apertures are useful for mounting optics, or laser diodes in cylindrical packages, among many other applications. By combining two independent dovetail slides it is possible to construct a two-axis positioner with no interaction between the axes. Adaptors permit these micropositioners to be surface mounted or attached to 255 Series linear micropositioners. Direct fit to 270 Series tilt stages yields four- and five-axis positioners.

### 251 Series Small Micropositioners with 2 mm Travel



**MDE251**  
Two-axis (yz) stage



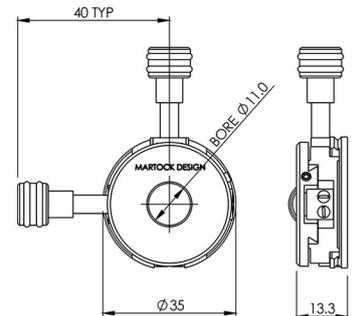
**MDE251-15**  
Two-axis (yz) stage

- Two-axis dovetail stage in round format for standalone use or in combination with 255 Series
- 2 mm travel per axis with  $<0.5 \mu\text{m}$  sensitivity using precision cut 0.25 mm pitch adjusters
- Micrometer adjuster option reading to 0.01 mm
- 11 mm bore (15 mm optional)
- Adaptors for surface mounting or attachment to 255 Series linear micropositioners, and direct fit to 270 Series tilt stage

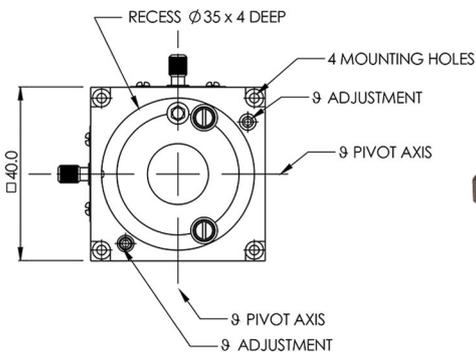


▶ A three-axis micropositioner can be built using standard adaptor parts to join the MDE251 and MDE255A stages, creating a compact stage for small laser diodes, optics or devices.

A fibre-holding v-groove with spigot ▶ is compatible with the 11 mm bore.



### 270 Series Precision Tilt Stages



**MDE270**  
Two-axis tilt stage

- Kinematic gimbal design provides independent adjustment on two axes
- $\pm 1.5^\circ$  range on each axis with 5 arcsec resolution adjusted using hex key, plus side-mounted locking clamps
- Both axes pass through centre of stage
- 14 mm clear bore

Tilt stages can be combined with 251 and 255 Series ▶ stages to build four- and five-axis micropositioners.

