

Optics

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Rails

Mounting Hardware

Mirror & Component Mounts

Manual Micro Positioners

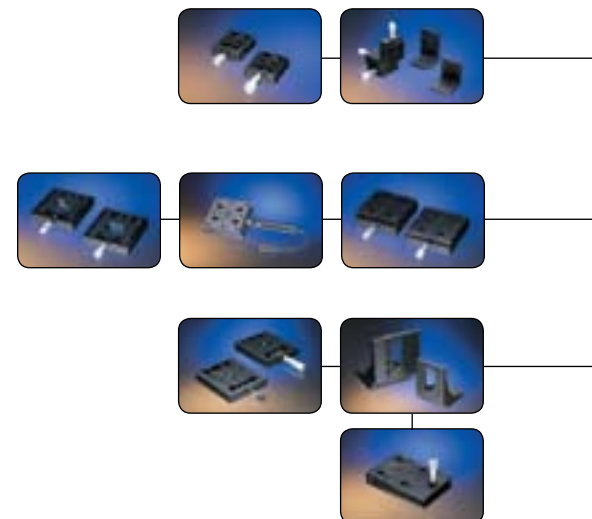
Motorized Positioners

Optical Instruments

Microscopes

Light Sources

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Manual Micropositioners

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Manual Micropositioners

Technical Considerations

Ealing offers three different ranges of Manual Micropositioners - MicroMech™, MiniMech™ and MacroMech™. The selection of the most appropriate range is determined by the following key criteria.

Range of Travel

Linear Stages provide a wide choice of travel from 6.5 mm with micrometer-driven MicroMech Stages to 50 mm with micrometer-driven MacroMech Stages.

Rotary Stages offer a full 360 degree coarse travel range and a minimum of 5 degrees fine calibrated adjustment.

Tilting Stages provide either single or two-axis tilt up to a range of 10 degrees, depending on unit size.

Tilt and Rotation Stages combine two axes of tilt with an axis of rotation over a 5 degree range.

Size (of positioner platform and component to be moved)

The load capacity required may ultimately determine the stage size.

For compact systems on a rail or breadboard, and for OEM applications where space is restricted, stages from the MicroMech or MiniMech ranges are ideal. The larger or heavier component will need to be supported on a stage from the MacroMech range.

Larger components within the stage load capacity may exceed the stage dimensions only if the load is reasonably balanced.

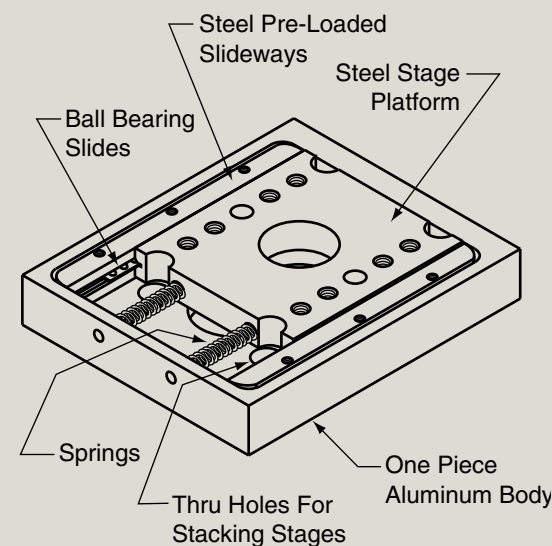
Typical platform sizes for Ealing Manual Micropositioners are shown below:

Positioner Type	Platform Size
MicroMech	30 x 30 mm
MiniMech	60 x 60 mm
MacroMech	100 x 100 mm



Construction

Ealing linear manual micropositioners are constructed from a combination of steel and aluminum to provide a light weight stage with performance approaching that of an all steel design. This is achieved by machining the outer body of the positioner from a single piece of aluminum which has an exceptional resistance to deformation despite its light weight. Accurately machined and pre-loaded hardened steel ball bearing slide-ways and a steel central stage combine to give exceptionally precise and accurate linear motion. The hardened steel ball bearing slides are individually adjusted and tested during assembly. Spring loaded guides maintain contact between the central steel translation stage and the driving head, ensuring minimal backlash.



Load

Each Manual Micropositioner has a maximum load carrying capability specified. Figures are normally given for both horizontal and vertical stage movement. Linear and Rotary Stages will accept higher loads when mounted in the horizontal plane. Typical horizontal loading capacities for Ealing Manual Micropositioners are shown below:

Resolution or Minimum Incremental Movement

This is the smallest controllable movement of a stage (i.e. the smallest movement achievable by hand on thumbscrew or micrometer-driven stages). It is specified individually for each Manual Micropositioner. When using stages fitted with MotorDrivers™ or EncoderDrivers™ much higher resolutions or smaller movements are achievable using push-button control or computer control respectively.

Reading Accuracy

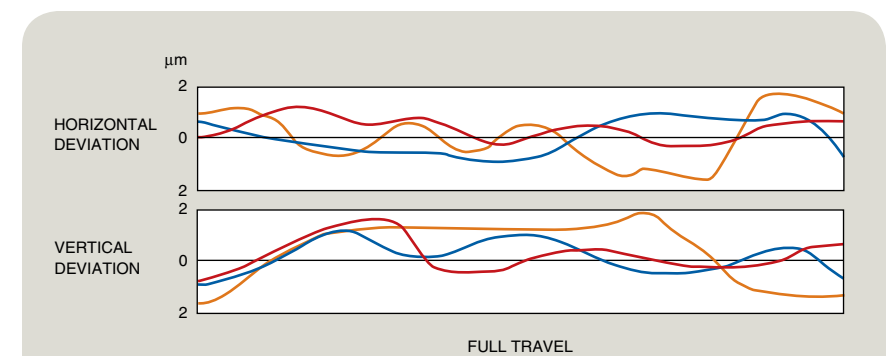
This is the smallest division or reading from a calibrated micrometer-driven stage (normally division on the 1/2 micrometer).

Vacuum Compatibility

Ealing linear manual micropositioners can be used in a vacuum down to 10⁻³ Torr without any modification. By replacing the grease in the precision ball bearing slides with high vacuum compatible grease they can be prepared for use in a vacuum down to 10⁻⁵ Torr. For lower pressures than this special attention has to be made to the finish and types of materials used in constructing the stage. Ealing will be pleased to quote for your special needs.

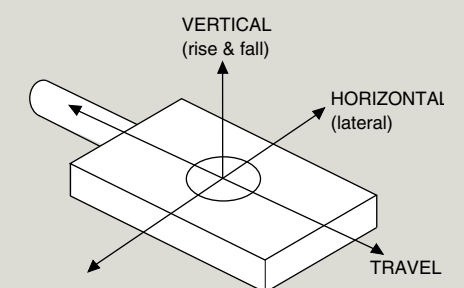


Positioner Type	Horizontal Load Capacity
MicroMech	3 kg
MiniMech	5.5 kg
MacroMech	12 kg



Tracking Accuracy

This is the maximum deviation from a straight line and is specified as a maximum deviation in both horizontal and vertical planes. All Linear Stages feature two rows of linear ball bearings, pre-loaded in precision-ground, hardened steel grooves. This ensures that the moving stage maintains accuracy after many direction reversals at the full rated load.



Mounting and Compatibility

The three Ealing product ranges feature their own individual hole patterns which ensure that all stages are compatible within their range. MiniMech™ and MacroMech™ range micropositioners are available in two types – Metric, with metric thread forms and hole patterns and Inch, which uses UNC threads on an inch grid. The Inch series has been developed to meet the industry standards in the US and provides complete compatibility with inch series optical tables and benches. Metric products correspond to the equipment standards used in industry and research throughout Europe.

The different types may be identified at a glance by the use of a blue dot

on Inch versions. When ordering, please note that the catalog numbers of Metric units are prefixed by either a 53- or 74- and Inch catalog numbers commence with a 61- .

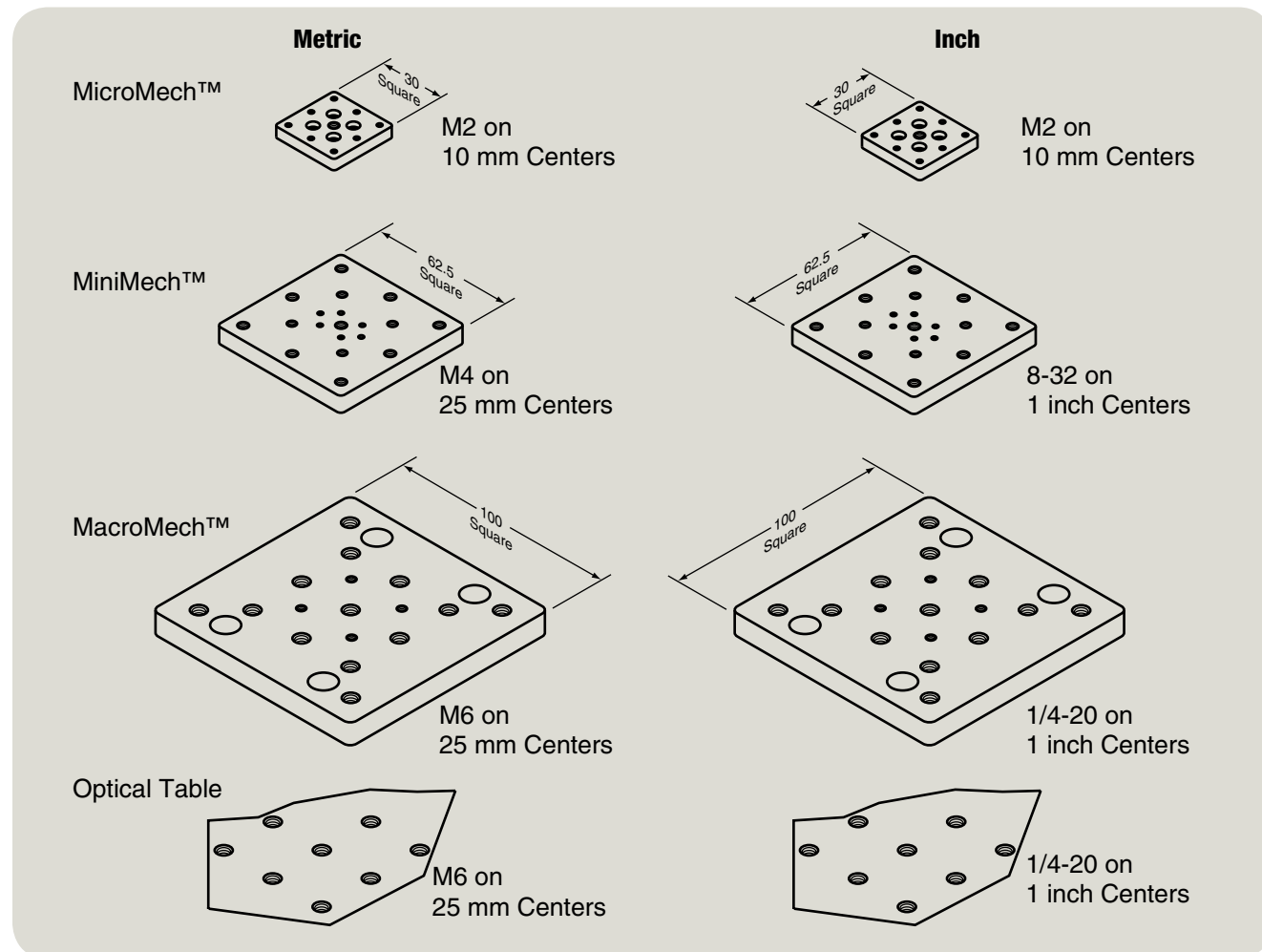
Three basic sizes of micropositioning equipment are available –MicroMech™, MiniMech™, and MacroMech™. Availability of these sizes as Metric and Inch types is shown below, with the principle thread forms and hole patterns used on each size/ type combination.

The modular nature of the micropositioners' construction enables assemblies to be built up which permit the positioning of components in three dimensional space with micrometer and

sub-micrometer precision. Horizontal, vertical, rotary and tilting movements are available in all size ranges. Most manual micropositioners have provision for locking the translation stage to provide a permanently fixed position when required. In many cases there is compatibility between ranges either directly or with the use of adapter plates.

The MacroMech range is also designed for direct mounting to optical tables and breadboards. The other ranges may be table mounted using the appropriate adapter plates.

The following table illustrates the compatibility between the product ranges.



Actuators & Motorization

Motorization

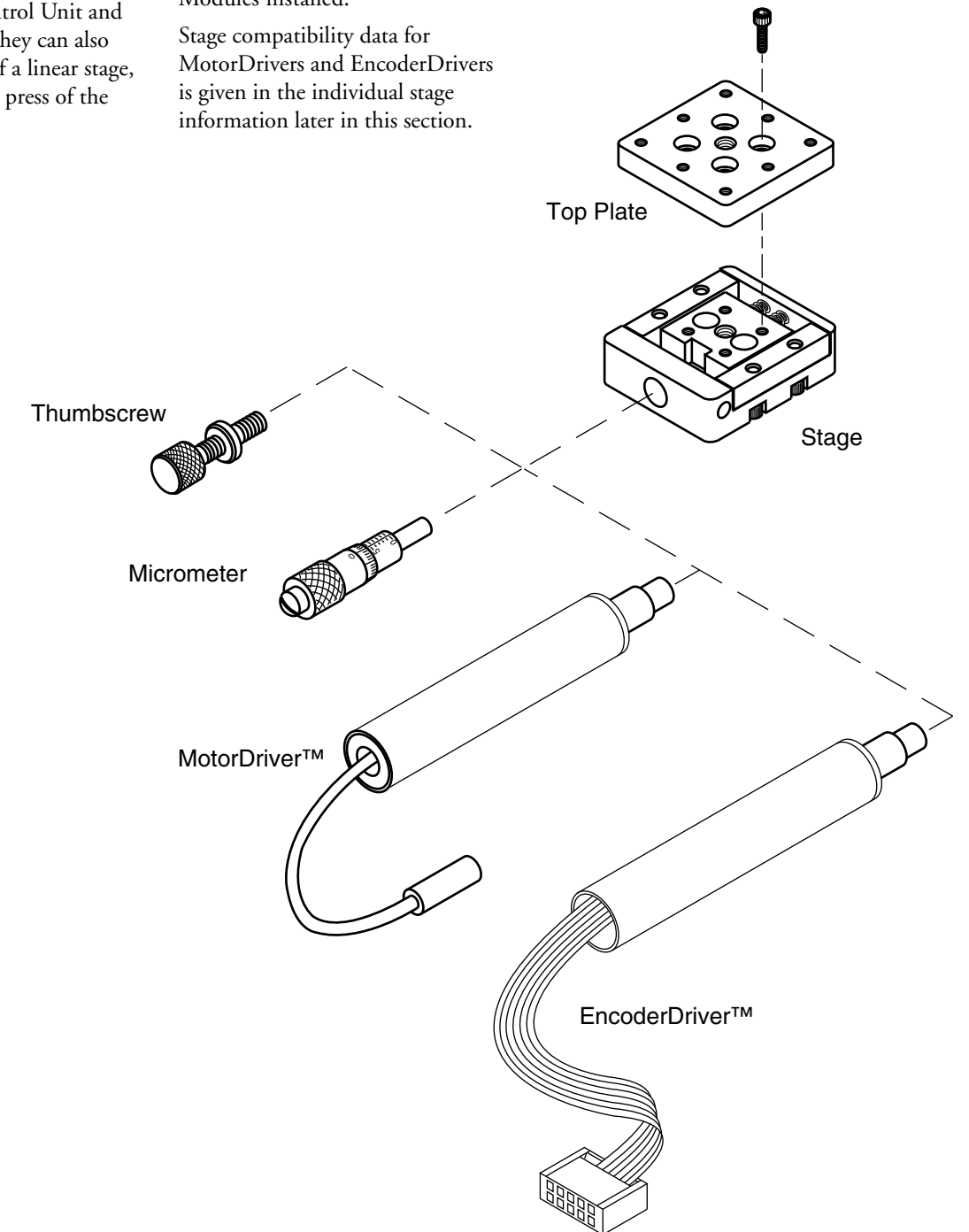
Many of the Manual Micropositioners can be fitted with either MotorDrivers™ or EncoderDrivers™. They simply replace the normal manual micrometer head fitted to the stage.

MotorDrivers allow remote control of a stage when used in conjunction with a MotorDriver Control Unit and suitable Power Supply. They can also improve the resolution of a linear stage, resolving 0.1 μm for one press of the control button.

EncoderDrivers convert a manual stage to a computer-programmable micropositioner capable of sub-micrometer resolution. Up to eight stages with EncoderDrivers may be controlled from a PC with one Drive Card and eight Plug-In Modules installed.

Stage compatibility data for MotorDrivers and EncoderDrivers is given in the individual stage information later in this section.

Diagram showing the modular design of Ealing micropositioners



MicroMech™ Linear Stages

- **Micrometer resolution**
- **Rigid design superior to dovetail or side rod designs**
- **Compact 35 x 30 mm dimensions**
- **Low profile 10 mm thickness**
- **Pre-loaded precision ball bearing slides**
- **Stackable for multi-axis positioning**
- **6.5 mm travel with no top plate**



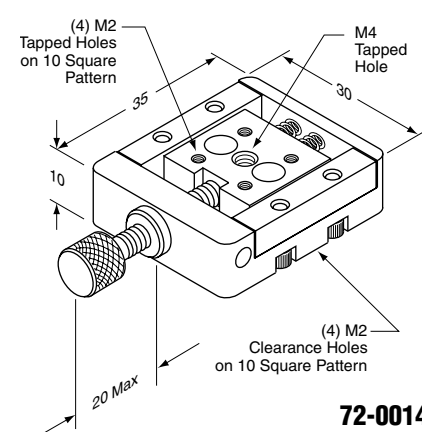
MicroMech™ Linear Stages are supplied fitted with either a high resolution thumbscrew or a 6.5 mm travel precision metric micrometer with a calibrated scale.

These Stages are light weight, accurate and compact making them ideal for use where space is restricted. Load carrying capacity is excellent for the stage size due to the use of hardened steel precision pre-loaded ball bearing slides. These slides are superior to dovetail or pre-loaded side rod designs used on many stages of comparable size and provide an extremely rigid, slop-free platform to mount on. If motorization is required the micrometer or thumbscrew can be replaced with

either a MotorDriver™ for remote control and 0.1 μm resolution, or an EncoderDriver™ for full motorized position control from a computer with 0.05 μm resolution.

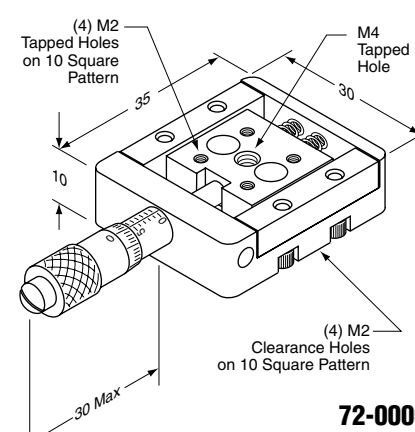
The MicroMech range is designed around an M2 thread size on a 10 mm square hole pattern. The stages on this

page are offered without a top plate and are intended for use in stacked assemblies and OEM applications where minimum stage thickness is required. These stages have a useful central M4 tapped hole which is compatible with our new range of component mounts and Precise™ mirror mounts.



72-0014

MicroMech™ Linear Stage with Thumbscrew Actuator



72-0006

MicroMech™ Linear Stage with Micrometer Actuator

MicroMech™ Linear Stages

Catalog Number	Description	Price US
72-0014	MicroMech Linear Stage 6.5 mm Travel with Thumbscrew Actuator (no top plate)	\$188.00
72-0006	MicroMech Linear Stage 6.5 mm Travel with Micrometer Actuator (no top plate)	\$230.00
37-0221	10 mm MotorDriver Actuator	\$616.35
37-0494	10 mm EncoderDriver Actuator Package	\$1,268.40

Specifications

Travel Range: 6.5 mm

Resolution -

- Thumbscrew Actuator: 1.0 μm
- Micrometer Actuator: 1.0 μm
- MotorDriver Actuator: 0.1 μm
- EncoderDriver Actuator: 0.05 μm

Reading Accuracy: 1 division = 10 μm (micrometer version only)

Load Capacity -

- Horizontal: 3 kg (6.5 lb)
- Vertical: 0.5 kg (1 lb)
- (1 kg with drive downwards)

MicroMech™ Linear Stages

- **Micrometer resolution**
- **Compact 35 x 30 mm dimensions**
- **Useful top plate hole pattern**
- **Pre-loaded precision ball bearing slides**
- **6.5 mm travel with no top plate**
- **Rigid design superior to dovetail or side rod designs**



MicroMech™ Linear Stages are supplied fitted with either a high resolution thumb screw or a 6.5 mm travel precision metric micrometer with a calibrated scale.

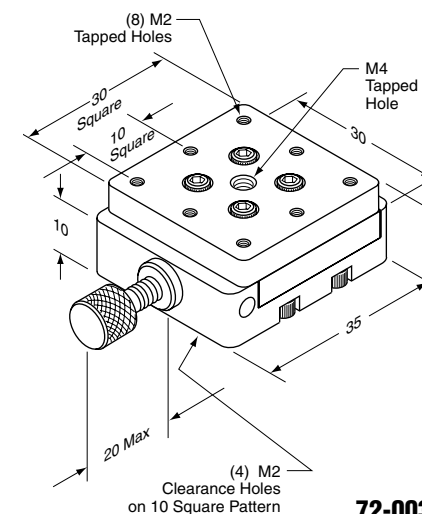
These Stages are light weight, accurate and compact making them ideal for use where space is restricted. Load carrying capacity is excellent for the stage size due to the use of hardened steel precision pre-loaded ball bearing slides. These slides are superior to dovetail or pre-loaded side rod designs used on many stages of comparable size and provide an extremely rigid, slop-free platform to mount on.

If motorization is required the micrometer or thumbscrew can be replaced with either a MotorDriver™

for remote control with 0.1 μm resolution, or an EncoderDriver™ for full motorized position control from a computer with 0.05 μm resolution.

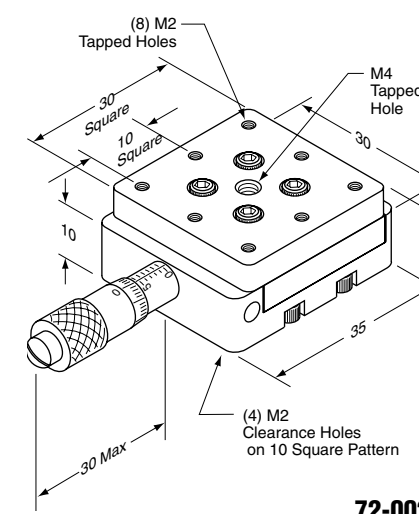
The MicroMech range is designed around an M2 thread size on a 10 mm square hole pattern. The stages on this page are offered with a top plate. The

top plate is intended to provide a hole pattern compatible with the industry standard "tiny" hole pattern (M2 on 10 mm centers). These stages have a useful central M4 tapped hole which is compatible with our new range of component mounts and Precise™ mirror mounts.



72-0030

MicroMech™ Linear Stage with Thumbscrew Actuator and Top Plate



72-0022

MicroMech™ Linear Stage with Micrometer Actuator and Top Plate

Specifications

Travel Range: 6.5 mm

Resolution -

- Thumbscrew Actuator: 1.0 μm
- Micrometer Actuator: 1.0 μm
- MotorDriver Actuator: 0.1 μm
- EncoderDriver Actuator: 0.05 μm

Reading Accuracy: 1 division = 10 μm (micrometer version only)

Load Capacity -

- Horizontal: 3 kg (6.5 lb)
- Vertical: 0.5 kg (1 lb)
- (1 kg with drive downwards)

MicroMech™ Linear Stages

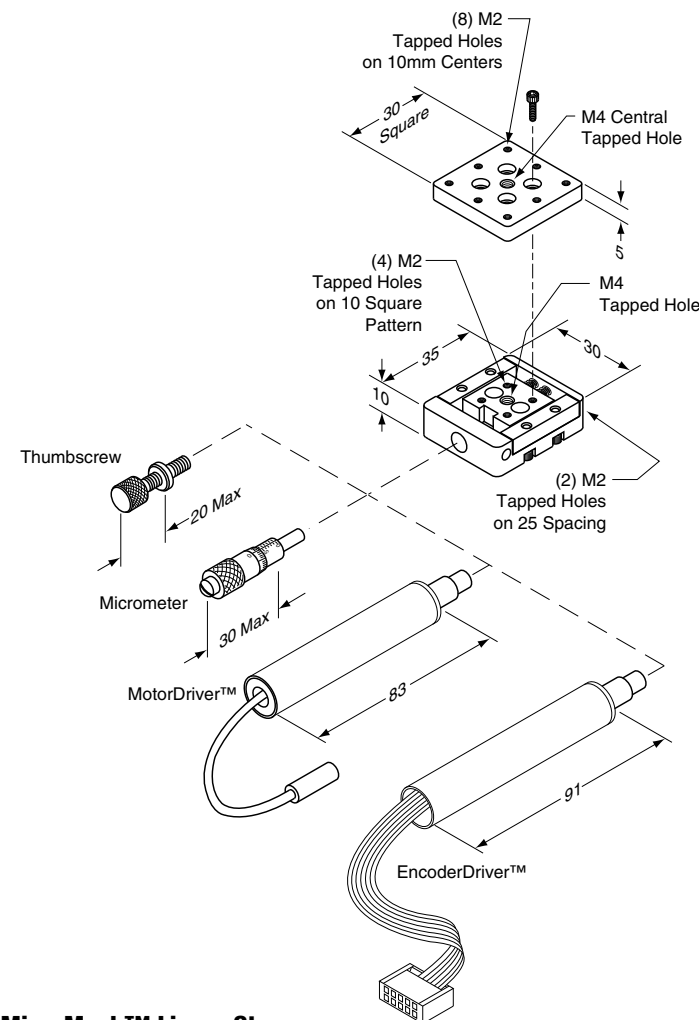
Catalog Number	Description	Price US
72-0030	MicroMech Linear Stage 6.5 mm Travel with Thumbscrew Actuator, supplied with Top Plate	\$207.90
72-0022	MicroMech Linear Stage 6.5 mm Travel with Micrometer Actuator, supplied with Top Plate	\$252.00
37-0221	10 mm MotorDriver Actuator	\$616.35
37-0494	10 mm EncoderDriver Actuator Package	\$1,268.40

MicroMech™ Linear Stages – How to Motorize

- Sub micrometer resolution
- Closed loop computer control or open loop hand control
- Multi-axis motorized positioning



MicroMech™ Linear Stages can be motorized by replacing the micrometer or thumbscrew with either a MotorDriver™ for remote control with 0.1 μm resolution, or an EncoderDriver™ for full motorized position control from a computer with 0.05 μm resolution.



Actuators for MicroMech™ Linear Stages

Catalog Number	Description	Price US
37-0221	10 mm MotorDriver Actuator	\$616.35
37-0494	10 mm EncoderDriver Actuator Package	\$1,268.40

Specifications

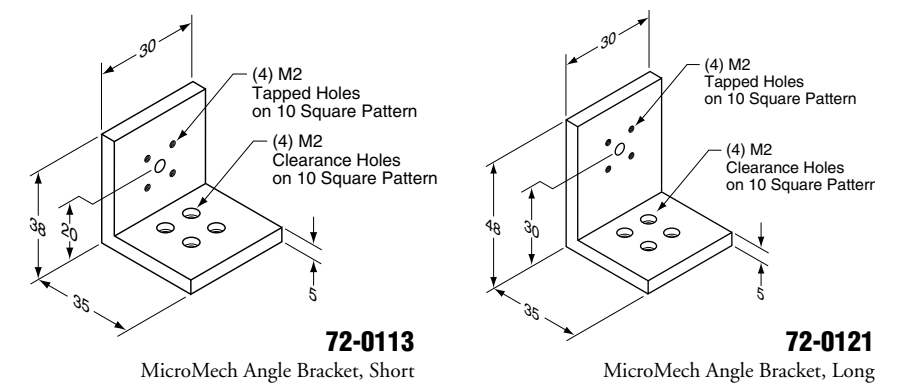
Travel Range: 6.5 mm
Resolution -
 MotorDriver Actuator: 0.1 μm
 EncoderDriver Actuator: 0.05 μm
Reading Accuracy: 1 division = 10 μm (micrometer version only)
Load Capacity -
 Horizontal: 3 kg (6.5 lb)
 Vertical: 0.5 kg (1 lb)
 (1 kg with drive downwards)
Hole Pattern: M2 x 10 mm sq.

MicroMech™ Angle Brackets

- Ideal for building 3-axis stages
- Two sizes available
- Aluminum construction



MicroMech™ Angle Brackets are designed to allow two or three MicroMech stages to be combined to form multi-axis translation stages. They are available in a short low profile version as well as a longer, taller version. Mounting screws are supplied with all Angle Brackets.



3 Dimensional Linear Stage

Using these angle brackets and three MicroMech Linear Stages it is possible to construct a 3-axis x-y-z stage with excellent accuracy and rigidity. These angle brackets can also be used with MicroMech Elevation, Rotation and Tilt Stages allowing multi-axis stages to be constructed.

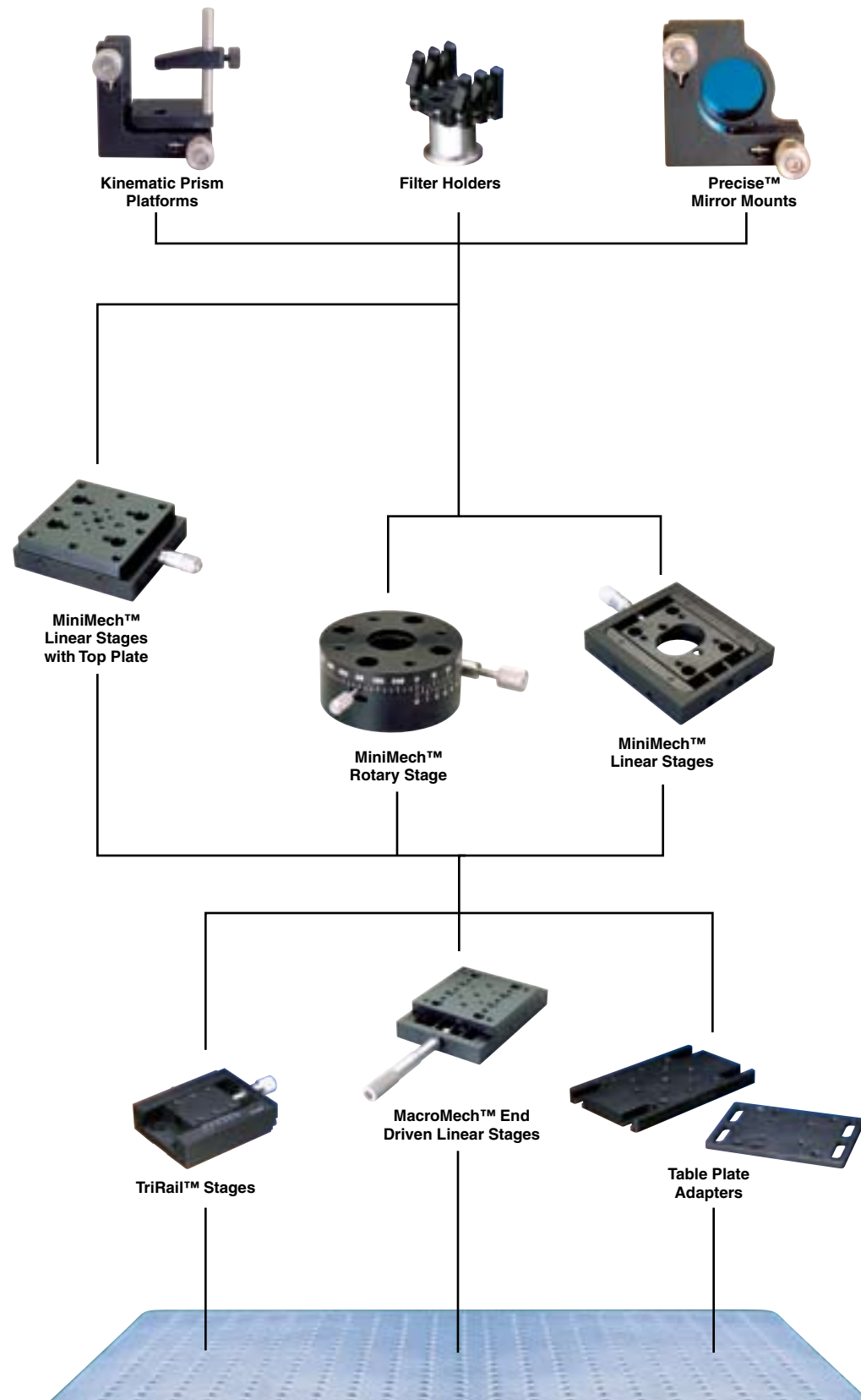


Specifications

Material: Aluminum
 Hole Patterns: M2 on 10 mm centers

MicroMech™ Angle Brackets

Catalog Number	Description	Price US
72-0113	MicroMech Angle Bracket, Short	\$49.35
72-0121	MicroMech Angle Bracket, Long	\$60.90



- Lockable thumbscrew drive actuators or micrometers
- Upgradeable to motorized drive
- Precision pre-loaded steel ball bearing slides
- One piece machined aluminum body
- Low profile design



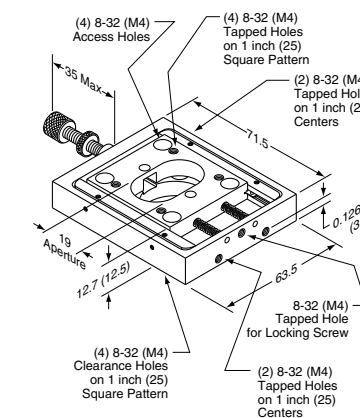
MiniMech™ Linear Stages are supplied with either thumbscrew or graduated micrometer actuators. The thumbscrew actuators provide 12.7 mm of travel and the micrometers provide 6.5 mm of travel. Both of these actuators provide a minimum incremental movement of 1 μ m.

The actuators on these stages can be upgraded at any time to provide fully motorized drive using EncoderDriver™ or MotorDriver™ actuators. These actuators give full range travel of 10 mm and a minimum incremental movement of less than 1 μ m.

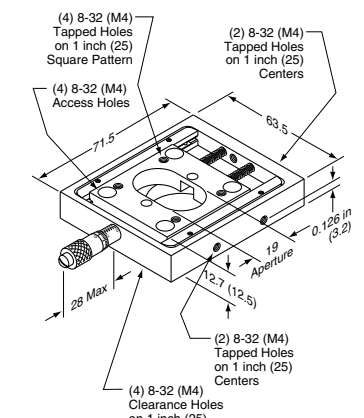
MiniMech Linear Stages feature a positioner body machined from a single piece of aluminum. This design produces an exceptionally rigid

minipositioner, ensuring accuracy and smoothness of operation. Precise linear motion is achieved by the use of pre-loaded, hardened steel ball bearing slides, individually adjusted and

tested during assembly. Spring-loaded guides maintain contact between the translation stage and driving head, ensuring minimal backlash.



74-0006/61-0006
MiniMech™ Linear Stage with Thumbscrew Actuator



74-0014/61-0014
MiniMech™ Linear Stage with Micrometer Actuator

Specifications

- Range -**
 Thumbscrew: 12.7 mm
 Micrometer: 6.5 mm
- Resolution -**
 Thumbscrew Actuator: 1.0 μ m
 Micrometer Actuator: 1.0 μ m
 MotorDriver Actuator: 0.1 μ m
 EncoderDriver Actuator: 0.05 μ m
- Tracking Accuracy:** 2 μ m
Reading Accuracy: 1 division = 10 μ m (micrometer stages only)
- Load Capacity -**
 Horizontal: 5.5 kg
 Vertical: 0.5 kg (1 kg with drive below the stage)
- Weight (with micrometer):** 0.15 kg

MiniMech™ Linear Stages

Catalog Number	Description	Travel	Price US
74-0006	MiniMech Linear Stage, 12.7 mm Travel, Thumbscrew Drive Actuator, Metric, without Top Plate	12.7 mm	\$194.00
74-0014	MiniMech Linear Stage, 6.5 mm Travel, Micrometer Drive, Metric, without Top Plate	6.5 mm	\$197.40
61-0006	MiniMech Linear Stage, 12.7 mm Travel, Thumbscrew Drive Actuator, Inch, without Top Plate	0.5 inch	\$203.70
61-0014	MiniMech Linear Stage, 6.5 mm Travel, Micrometer Drive, Inch, without Top Plate	0.25 inch	\$210.00
37-0221	10 mm MotorDriver Actuator		\$616.35
37-0494	10 mm EncoderDriver Actuator Package		\$1,268.40

MiniMech™ Linear Micrometer Stages with Top Plate

- Lockable thumbscrew drive actuators or micrometers
- Upgradeable to motorized control
- Precision pre-loaded ball bearing slides
- One piece machined aluminum body
- Tracking accuracy 2 μm



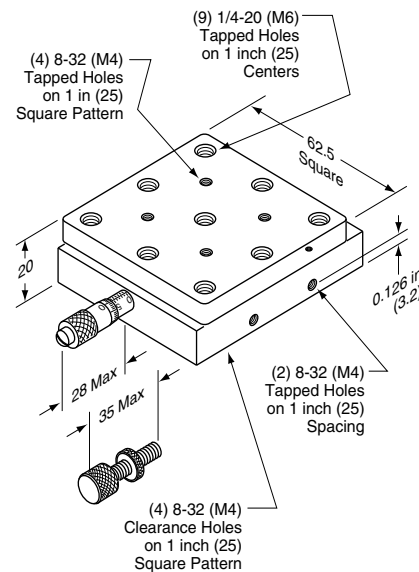
MiniMech™ Linear Motorized Stages

- Low profile design
- Precision pre-loaded ball bearing slides
- MotorDriver™ or EncoderDriver™ Actuators, with 10 mm travel
- 0.1 μm or 0.05 μm resolution



The MiniMech™ Linear Micrometer Stages described on the previous page are also supplied with Top Plates.

Four different Top Plate versions are available with standard hole patterns in metric (M4 and M6) and inch (8-32 and 1/4-20) configurations. These Top Plates provide a convenient mounting surface for component mounts and holders. MiniMech Linear Stages with Top Plates are available with either 12.7 mm travel thumbscrew actuators or with graduated micrometer actuators which have 6.5 mm of full range travel.



74-3125/ 61-3125/ 74-3158/ 61-3158
MiniMech™ Linear Stages with Top Plate

Specifications

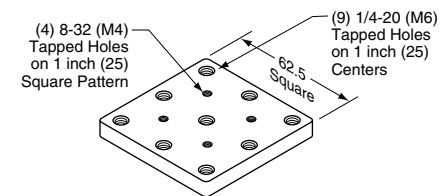
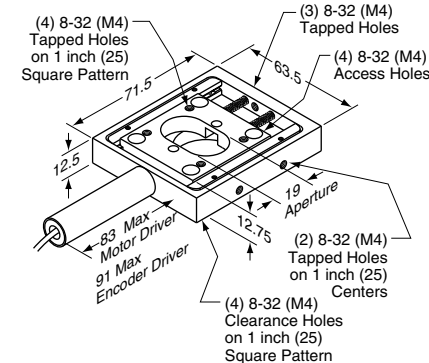
- Travel Range -**
 Thumbscrew: 12.7 mm
 Micrometer: 6.5 mm
- Resolution -**
 Thumbscrew Actuator: 1.0 μm
 Micrometer Actuator: 1.0 μm
 MotorDriver Actuator: 0.1 μm
 EncoderDriver Actuator: 0.05 μm
- Tracking Accuracy:** 2 μm
- Reading Accuracy:** 1 division = 10 μm (micrometer stages only)
- Load Capacity -**
 Horizontal: 5.5 kg
 Vertical: 0.5 kg (1 kg with drive below the stage)
- Weight (with micrometer):** 0.15 kg

MiniMech™ Linear Stages with Top Plate

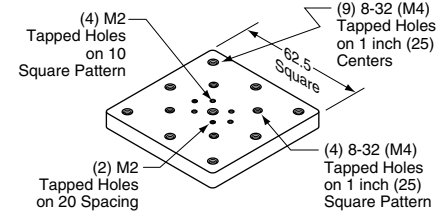
Catalog Number	Description	Price US
74-3125	MiniMech Linear Stage, 12.7 mm Travel, Thumbscrew, with M6 Hole Pattern Top Plate	\$247.80
74-3158	MiniMech Linear Stage, 6.5 mm Travel, Micrometer Drive, with M6 Hole Pattern Top Plate	\$254.10
61-3125	MiniMech Linear Stage, 12.7 mm Travel, Thumbscrew, Inch, with 1/4-20 Hole Pattern Top Plate	\$247.80
61-3158	MiniMech Linear Stage, 6.5 mm Travel, Micrometer Drive, Inch, with 1/4-20 Hole Pattern Top Plate	\$254.10
37-0221	10 mm MotorDriver Actuator	\$616.35
37-0494	10 mm EncoderDriver Actuator Package	\$1,268.40

MiniMech™ Linear Motorized Stages are supplied fitted with either a MotorDriver™ or EncoderDriver™ Actuator. The open loop version uses a MotorDriver which offers motorized movement of up to 10 mm with a minimum incremental movement of 0.1 μm (power supplies and hand controls for use with this stage are listed later in this section). The closed loop motorized EncoderDrivers offer computer controlled travel of up to 10 mm and a minimum incremental movement of 0.05 μm (PC control cards and software are not supplied with the stage).

Top Plates are available separately with standard hole patterns in metric (M4 and M6) and inch (8-32 and 1/4-20) to provide a suitable mounting surface for component mounts and holders.



74-3174/61-3174
Top Plate, M6/1/4-20



74-3166/61-3166
Top Plate, M4/8-32

Specifications

- Travel Range:** 10 mm motorized
- Resolution -**
 MotorDriver Actuator: 0.1 μm
 EncoderDriver Actuator: 0.05 μm
- Tracking Accuracy:** 2 μm
- Reading Accuracy:** 1 division = 10 μm (micrometer stages only)
- Load Capacity -**
 Horizontal: 5.5 kg
 Vertical: 0.5 kg (1 kg with drive below the stage)
- Weight (with micrometer):** 0.15 kg

MiniMech™ Linear Stages with Micrometer Drive

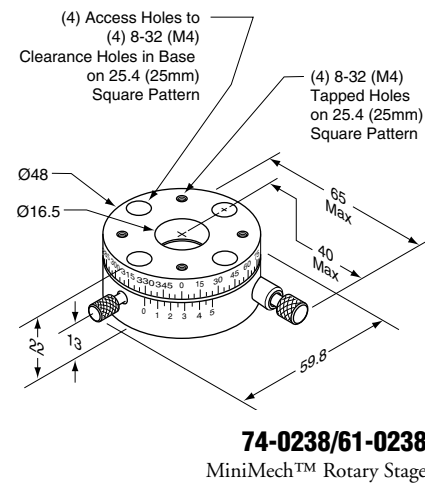
Catalog Number	Description	Price US
74-3166	Top Plate M4	\$49.35
74-3174	Top Plate M6	\$49.35
61-3166	Top Plate 8-32	\$49.35
61-3174	Top Plate 1/4-20	\$49.35

MiniMech™ Rotary Stage

- **Compact**
- **Rotation 360° coarse, 6° fine**
- **Lockable**
- **Radial ball bearing design**



The MiniMech™ Rotary Stage provides a full 360 degrees of rotation from a stage supported on radial ball bearings. Coarse and fine adjustments are available, allowing initial rotation to be carried out by hand followed by fine adjustment over a range of 6 degrees using the fine adjusting screw. A vernier scale enables the angular position of the table to be read to an accuracy of 30 arcmin, although a minimum incremental movement or resolution of less than 30 arcsec can be achieved with care. Clearance holes in the top plate of this translation stage permit access to mounting holes in the base of the unit.



Specifications

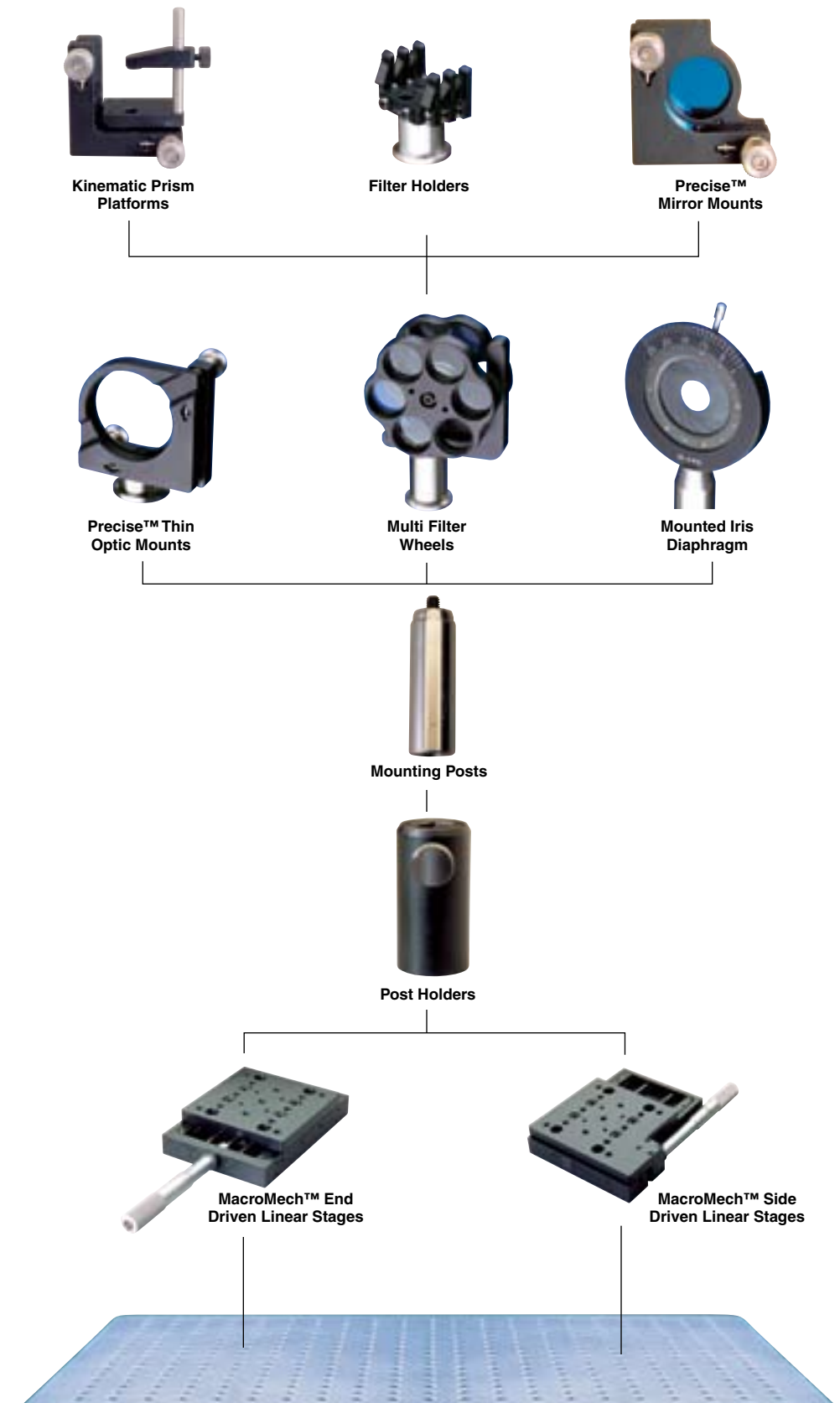
Range: 360° coarse, 6° fine
 Resolution: <30 arcsec
 Parallelism to Base: <1 arcmin
 Load Capacity -
 Horizontal: 10 kg (22 lb)
 Vertical: 1 kg (2.2 lb) balanced
 Weight: 165 g (0.4 lb)
 Hole Patterns -
 Metric: M4 x 25 mm
 Inch: 8-32 x 1 inch

MiniMech™ Rotary Stage

Catalog Number	Description	Price US
74-0238	MiniMech Rotary Stage, Metric	\$388.50
61-0238	MiniMech Rotary Stage, Inch	\$388.50

MacroMech™

How they go together. . .



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MacroMech™ End Driven Linear Stages

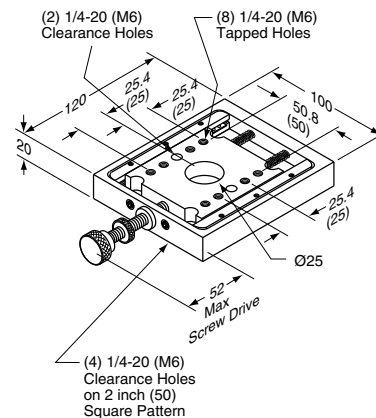
- 25 mm (1 inch) travel
- Precision pre-loaded ball bearing slides
- Choice of 4 different actuator types
- One piece machined aluminum body
- Tracking accuracy 4 μm
- 1/4-20 (M6) hole patterns



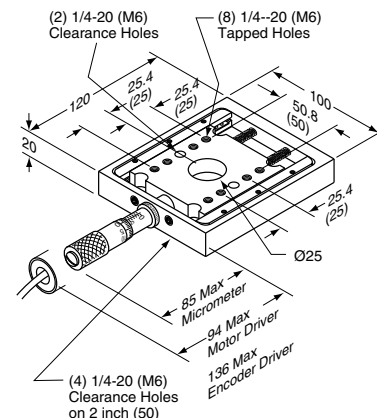
Ealing's MacroMech stages are designed for positioning medium weight loads with a high degree of accuracy and stability. All MacroMech linear stages feature a positioner body machined from a single piece of aluminum, providing exceptional rigidity. High accuracy and smoothness of operation are achieved by the use of pre-loaded, high precision ball bearing slides, individually adjusted and tested during assembly. Spring-loaded guides maintain contact between translation stage and actuator driving head, ensuring minimal 'stiction' and backlash.

MacroMech 25 mm linear stages are supplied with either a thumbscrew drive actuator or with a micrometer which is clearly marked for 0.01 mm accuracy over the full 25 mm of travel

(1/2 division is equal to 5 μm). The micrometer drive can be easily removed from the stage. It can then be replaced with either a MotorDriver™ or EncoderDriver™ Actuator.



53-1590/61-1590
MacroMech™ End Driven Linear Stage with Thumbscrew



53-0303/61-0303
MacroMech™ End Driven Linear Stage with Micrometer

MacroMech™ End Driven Linear Stages (Metric)

Catalog Number	Description	Price US
53-0303	MacroMech End Driven Linear Stage, 25 mm Travel, Micrometer Drive, Metric Hole Patterns	\$247.80
37-0015	25 mm MotorDriver Actuator	\$368.00
37-1104	25 mm EncoderDriver Actuator	\$1,268.40

MacroMech™ End Driven Linear Stages (Inch)

Catalog Number	Description	Price US
61-0303	MacroMech End Driven Linear Stage, 1 inch Travel, Micrometer Drive, Inch Hole Patterns	\$247.80
37-0015	25 mm MotorDriver Actuator	\$368.00
37-1104	25 mm EncoderDriver Actuator	\$1,268.40

Specifications

Range: 25 mm (1 inch)
Minimum Incremental Motion -
 Thumbscrew Actuator: 1 μm
 Micrometer Actuator: 1 μm
 MotorDriver Actuator: 0.1 μm
 EncoderDriver Actuator: 0.05 μm
Tracking Accuracy: 4 μm
Reading Accuracy: 1 division = 10 μm (on micrometer version)
Load Capacity -
 Horizontal: 12 kg
 Vertical: 0.5 kg (4 kg with drive below the stage)
Weight (with micrometer): 0.9 kg (2 lb)
Construction: One piece aluminum body, steel precision ground slides and stage.

MacroMech™ End Driven Linear Stages

- 25 mm (1 inch) travel with top plate
- Precision pre-loaded ball bearing slides
- One piece machined aluminum body
- Tracking accuracy 4 μm
- 1/4-20 (M6) hole patterns

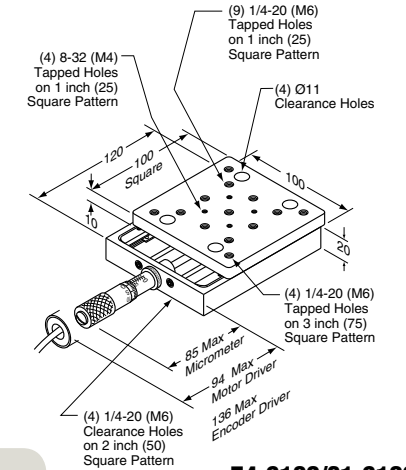


Ealing's MacroMech™ stages are designed for positioning medium weight loads with a high degree of accuracy and stability. Two- and three-axis positioning assemblies can be constructed by bolting stages together directly, and using one of the MacroMech right angle brackets to support a third stage where necessary. All MacroMech linear stages feature a positioner body machined from a single piece of aluminum alloy, providing exceptional rigidity at a light weight. Accuracy and smoothness of operation are achieved by the use of pre-loaded, high precision ball bearing slides, individually adjusted and tested during assembly. Spring-loaded guides maintain contact between translation stage and actuator driving head, ensuring an absence of 'stiction' and backlash.

MacroMech 25 mm linear stages are supplied with a high quality micrometer which is clearly marked for 0.01 mm accuracy over the full 25 mm of travel (1/2 division is equal to 5 μm). The micrometer drive can be replaced with either a MotorDriver™ or EncoderDriver™ Actuator for more accurate motorized positioning control. MacroMech™ linear end driven stages are available with metric or inch hole patterns.

Motorization

MacroMech end driven stages can be motorized by replacing the micrometer with a MotorDriver or EncoderDriver.



74-3182/61-3182
MacroMech™ End Driven Linear Stage, 25 mm Travel

Specifications

Range: 25 mm (1 inch)
Minimum Incremental Motion -
 Thumbscrew Actuator: 1 μm
 Micrometer Actuator: 1 μm
 MotorDriver Actuator: 0.1 μm
 EncoderDriver Actuator: 0.05 μm
Tracking Accuracy: 4 μm
Reading Accuracy: 1 division = 10 μm (on micrometer version)
Load Capacity -
 Horizontal: 12 kg
 Vertical: 0.5 kg (4 kg with drive below the stage)
Weight (with micrometer): 0.9 kg (2 lb)
Construction: One piece aluminum body, steel precision ground slides and stage with aluminum top plates.

MacroMech™ End Driven Linear Stages (Metric)

Catalog Number	Description	Price US
74-3182	MacroMech End Driven Linear Stage, 25 mm Travel w/Top Plate, Micrometer Drive, Metric Hole Patterns	\$264.60
37-0015	25 mm MotorDriver Actuator	\$368.00
37-1104	25 mm EncoderDriver Actuator	\$1,268.40

MacroMech™ End Driven Linear Stages (Inch)

Catalog Number	Description	Price US
61-3182	MacroMech End Driven Linear Stage, 25 mm Travel, w/Top Plate, Micrometer Drive, Inch Hole Patterns	\$264.60
37-0015	25 mm MotorDriver Actuator	\$368.00
37-1104	25 mm EncoderDriver Actuator	\$1,268.40

MacroMech™ Side Driven Linear Stages

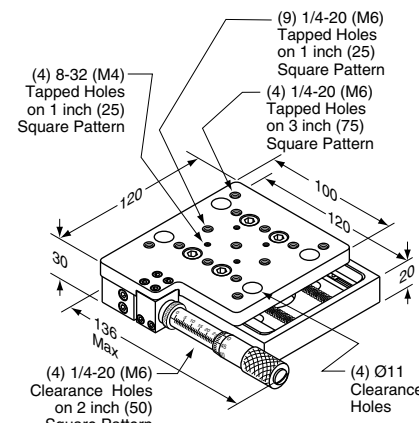
- 25 mm (1 inch) travel
- Supplied with top plates
- Side driven compact footprint
- Precision pre-loaded ball bearing slides
- Tracking accuracy 4 μm
- 1/4-20 (M6) hole patterns



Ealing's MacroMech stages are designed for positioning medium weight loads with a high degree of accuracy and stability. Two- and three-axis positioning assemblies can be constructed by bolting stages together directly, and using one of the MacroMech right angle brackets to support a third stage where necessary. All MacroMech linear stages feature a positioner body machined from a single piece of aluminum alloy, providing exceptional rigidity at a light weight. Accuracy and smoothness of operation are achieved by the use of pre-loaded, high precision ball bearing slides, individually adjusted and tested during assembly. Spring-loaded guides maintain contact between translation stage and actuator driving head, ensuring an absence of 'stiction' and backlash.

MacroMech 25 mm side driven linear stages are supplied with a high quality micrometer which is clearly marked for 0.01 mm accuracy over the full 25 mm of travel (1/2 division is equal to 5 μm). The micrometer drive can be

replaced with either a MotorDriver™ or EncoderDriver™ Actuator for more accurate motorized positioning control. MacroMech side driven stages are available with metric or inch hole patterns.



74-3190/61-3190
 MacroMech™ Side Driven Linear Stage, 25 mm Travel



Specifications

Range: 25 mm (1 inch)
Minimum Incremental Motion -
 Micrometer Actuator: 1 μm
 MotorDriver Actuator: 0.1 μm
 EncoderDriver Actuator: 0.05 μm
Tracking Accuracy: 4 μm
Reading Accuracy: 1 division = 10 μm (on micrometer version)
Load Capacity -
 Horizontal: 12 kg
 Vertical: 0.5 kg (4 kg with drive below the stage)
Weight (with micrometer): 0.9 kg (2 lb)

MacroMech™ Side Driven Linear Stages (Metric)

Catalog Number	Description	Price US
74-3190	MacroMech Side Driven Linear Stage, 25 mm Travel, Micrometer Drive, Metric Hole Patterns	\$268.80
37-0015	25 mm MotorDriver Actuator	\$368.00
37-1104	25 mm EncoderDriver Actuator	\$1,268.40

MacroMech™ Side Driven Linear Stages (Inch)

Catalog Number	Description	Price US
61-3190	MacroMech Side Driven Linear Stage, 25 mm Travel, Micrometer Drive, Inch Hole Patterns	\$268.80
37-0015	25 mm MotorDriver Actuator	\$368.00
37-1104	25 mm EncoderDriver Actuator	\$1,268.40

MacroMech™ End Driven Linear Stages

- 50 mm (2 inch) travel without top plate
- Precision pre-loaded ball bearing slides
- Interchangeable actuators
- One piece machined aluminum body
- Tracking accuracy 4 μm
- 1/4-20 (M6) hole pattern

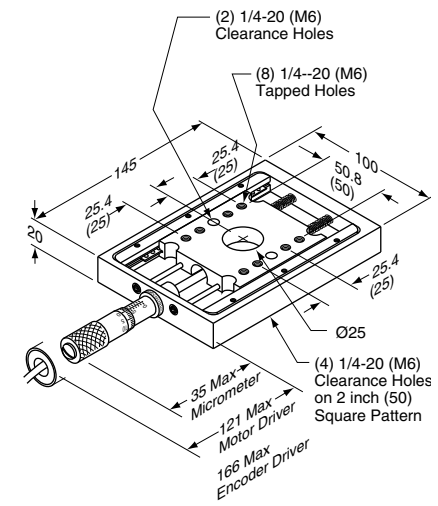


Ealing's MacroMech™ stages are designed for positioning medium weight loads with a high degree of accuracy and stability. Two- and three-axis positioning assemblies can be constructed by bolting stages together directly, and using one of the MacroMech right angle brackets to support a third stage where necessary. All MacroMech linear stages feature a positioner body machined from a single piece of aluminum alloy, providing exceptional rigidity at a light weight. Accuracy and smoothness of operation are achieved by the use of pre-loaded, high precision ball bearing slides, individually adjusted and tested during

assembly. Spring-loaded guides maintain contact between translation stage and actuator driving head, ensuring an absence of 'stiction' and backlash.

MacroMech 50 mm linear stages are supplied with a high quality micrometer which is clearly marked for 0.01 mm accuracy over the full 50 mm of travel (1/2 division is equal to 5 μm). The micrometer drive can be easily removed from the stage by releasing a small allen screw in the base of the stage body. It can then be replaced with either a MotorDriver™ Actuator or EncoderDriver™ Actuator for more accurate motorized positioning control.

MacroMech linear end driven stages are available with metric or inch hole patterns.



53-0329/61-0329
 MacroMech™ End Driven Linear Stage, 50 mm Travel

Specifications

Range of Travel: 50 mm (2 inch)
Minimum Incremental Motion -
 Micrometer Actuator: 1 μm
 MotorDriver Actuator: 0.1 μm
 EncoderDriver Actuator: 0.05 μm
Tracking Accuracy: 4 μm
Reading Accuracy: 1 division = 10 μm (on micrometer version)
Load Capacity -
 Horizontal: 12 kg
 Vertical: 0.3 kg (4 kg with drive below the stage)
Weight (with micrometer): 1 kg (2.2 lb)
Hole Pattern: M6 on 50 mm sq. or 1/4-20 on 2 inch sq.
Construction: One piece aluminum body, steel precision ground slides and stage.

MacroMech™ End Driven Linear Stages (Metric)

Catalog Number	Description	Price US
53-0329	MacroMech End Driven Linear Stage, 50 mm Travel, Micrometer Drive, Metric Hole Patterns	\$475.00
37-0023	50 mm Travel MotorDriver Actuator	\$537.60
37-1112	50 mm Travel EncoderDriver Actuator Package	\$1,378.65

MacroMech™ End Driven Linear Stages (Inch)

Catalog Number	Description	Price US
61-0329	MacroMech End Driven Linear Stage, 2 inch Travel, Micrometer Drive, Inch Hole Patterns	\$475.00
37-0023	50 mm Travel MotorDriver Actuator	\$537.60
37-1112	50 mm Travel EncoderDriver Actuator Package	\$1,378.65

MacroMech™ End Driven Linear Stages

- 50 mm (2 inch) travel with top plate
- Precision pre-loaded ball bearing slides
- Choice of 3 different actuator drives
- One piece machined aluminum body
- Tracking accuracy 4 μm
- 1/4-20 (M6) hole pattern

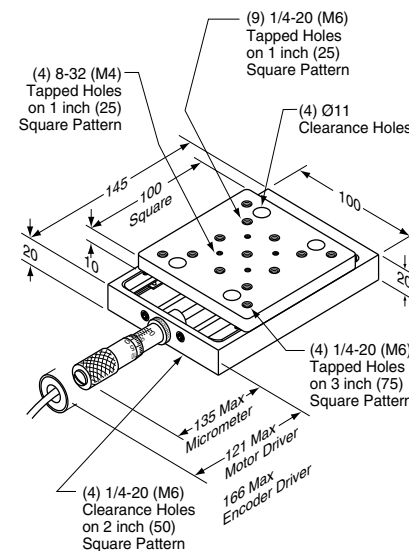


Ealing's MacroMech™ stages are designed for positioning medium weight loads with a high degree of accuracy and stability. Two- and three-axis positioning assemblies can be constructed by bolting stages together directly, and using one of the MacroMech right angle brackets to support a third stage where necessary. All MacroMech linear stages feature a positioner body machined from a single piece of aluminum alloy, providing exceptional rigidity at a light weight. Accuracy and smoothness of operation are achieved by the use of pre-loaded, high precision ball bearing slides, individually adjusted and tested during

assembly. Spring-loaded guides maintain contact between translation stage and actuator driving head, ensuring an absence of 'stiction' and backlash.

MacroMech 50 mm linear stages are supplied with a high quality micrometer which is clearly marked for 0.01 mm accuracy over the full 50 mm of travel (1/2 division is equal to 5 μm). The micrometer drive can be easily removed from the stage by releasing a small allen screw in the base of the stage body. It can then be replaced with either a MotorDriver™ Actuator or EncoderDriver™ Actuator for more accurate motorized positioning control.

MacroMech linear end driven stages are available with metric or inch hole patterns.



74-3208/61-3208
MacroMech™ End Driven Linear Stage,
50 mm Travel with Top Plate

MacroMech™ End Driven Linear Stages (Metric)

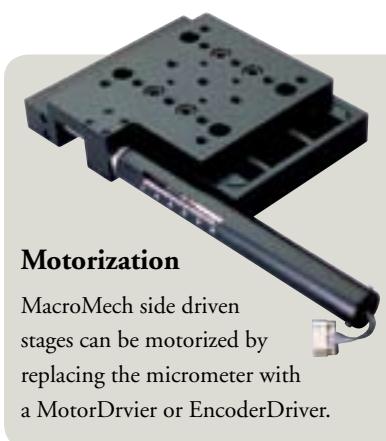
Catalog Number	Description	Price US
74-3208	MacroMech End Driven Linear Stage, 50 mm Travel w/Top Plate, Micrometer Drive, Metric Hole Patterns	\$495.00
37-0023	50 mm Travel MotorDriver Actuator	\$537.60
37-1112	50 mm Travel EncoderDriver Actuator Package	\$1,378.65

MacroMech™ End Driven Linear Stages (Inch)

Catalog Number	Description	Price US
61-3208	MacroMech End Driven Linear Stage, 2 inch Travel w/Top Plate, Micrometer Drive, Inch Hole Patterns	\$495.00
37-0023	50 mm Travel MotorDriver Actuator	\$537.60
37-1112	50 mm Travel EncoderDriver Actuator Package	\$1,378.65

MacroMech™ Side Driven Linear Stages

- 50 mm (2 inch) travel side driven stages
- Precision pre-loaded ball bearing slides
- Choice of 3 different actuator drives
- Tracking accuracy 4 μm
- 1/4-20 (M6) hole pattern



Motorization

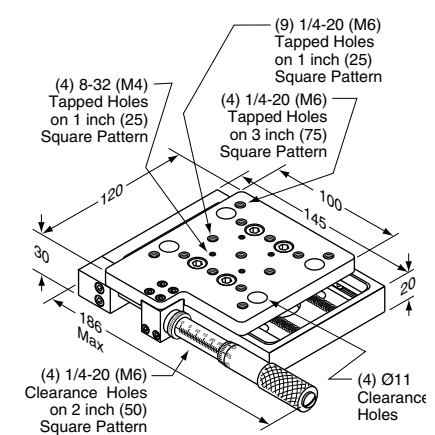
MacroMech side driven stages can be motorized by replacing the micrometer with a MotorDriver or EncoderDriver.

Specifications

Range of Travel: 50 mm (2 inch)
Minimum Incremental Motion - Micrometer Actuator: 1 μm
MotorDriver Actuator: 0.1 μm
EncoderDriver Actuator: 0.05 μm
Tracking Accuracy: 4 μm
Reading Accuracy: 1 division = 10 μm (on micrometer version)
Load Capacity - Horizontal: 12 kg
Vertical: 0.3 kg (4 kg with drive below the stage)
Weight (with micrometer): 1 kg (2.2 lb)
Hole Pattern: M6 on 50 mm sq. or 1/4-20 on 2 inch sq.
Construction: One piece aluminum body, steel precision ground slides and stage with aluminum top plates.

MacroMech™ 50 mm Side Driven Linear Stages are supplied with a high quality micrometer which is clearly marked for 0.01 mm accuracy over the full 50 mm of travel (1/2 division is equal to 5 μm). The micrometer drive can be easily removed from the stage by releasing a small allen screw in the base of the stage body. It can then be replaced with either a MotorDriver™ Actuator or EncoderDriver™ Actuator for more accurate motorized positioning control.

MacroMech side driven linear stages are available with metric or inch hole patterns.



74-3216/61-3216
MacroMech™ Side Driven Linear Stage,
50 mm Travel

MacroMech™ Side Driven Linear Stages (Metric)

Catalog Number	Description	Price US
74-3216	MacroMech Side Driven Linear Stage, 50 mm Travel, Micrometer Drive, Metric Hole Patterns	\$510.00
37-0023	50 mm Travel MotorDriver Actuator	\$537.60
37-1112	50 mm Travel EncoderDriver Actuator Package	\$1,378.65

MacroMech™ Side Driven Linear Stages (Inch)

Catalog Number	Description	Price US
61-3216	MacroMech Side Driven Linear Stage, 2 inch Travel, Micrometer Drive, Inch Hole Patterns	\$510.00
37-0023	50 mm Travel MotorDriver Actuator	\$537.60
37-1112	50 mm Travel EncoderDriver Actuator Package	\$1,378.65

MacroMech™ Angle Brackets

- **Compatible with MacroMech™ micropositioners**
- **Internal or external mounting of stages**
- **One piece cast aluminum design**
- **Standard or compact designs**



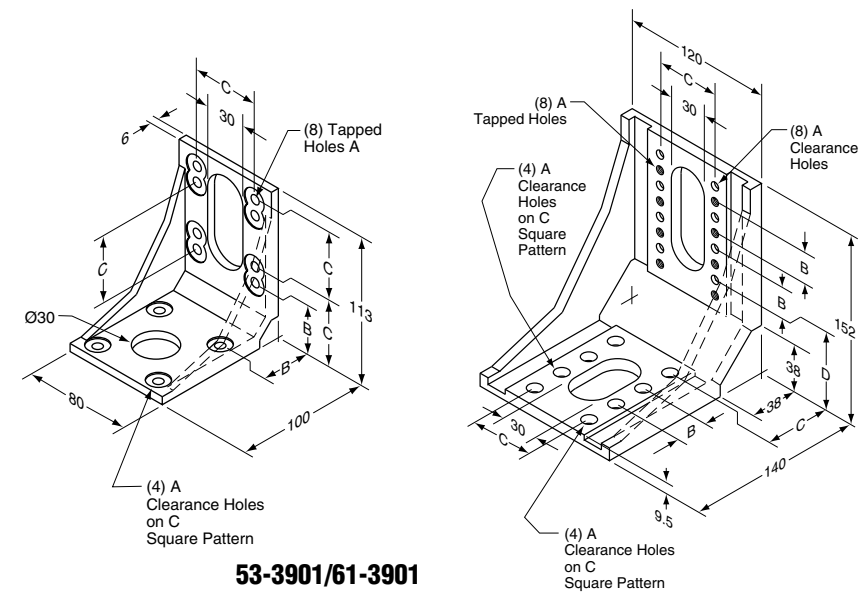
MacroMech™ 1-Axis Tilting Stage

- **High resolution 1-axis tilt**
- **Motorizable**
- **Inch and metric versions**
- **7.5° total range**



Both the MacroMech™ Angle Brackets have an extended vertical face, providing alternative mounting positions for building a two- or three-axis MacroMech linear positioner. The Compact Bracket fits, conventionally, within the angle formed by the two positioners, while the Large Bracket will accept the vertical positioner on the inside or the outside of the upright face, with its micrometer protruding below or through the opening at the 'knee' of the bracket.

Mounting screws are supplied with all Angle Brackets.



Specifications

Construction: One piece cast aluminum
Finish: Black painted

Angle Brackets (Metric)

Catalog Number Metric	Description	A	B (mm)	C (mm)	D (mm)	Price US
53-3901	MacroMech Compact Bracket	M6	37.5	50.0		\$99.75
53-0527	MacroMech Large Bracket	M6	25.0	50.0	62.5	\$121.80

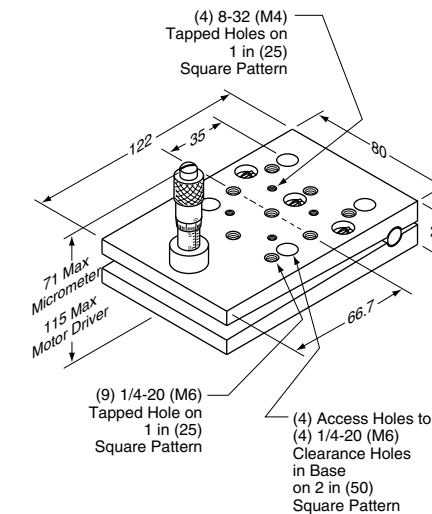
Angle Brackets (Inch)

Catalog Number Inch	Description	A	B (inch)	C (inch)	D (inch)	Price US
61-3901	MacroMech Compact Bracket	1/4-20	1.5	2		\$99.75
61-0527	MacroMech Large Bracket	1/4-20	1	2	2.5	\$121.80

This Tilting Stage provides a controlled angular displacement of ± 3.75 degrees. The stage has a pivot at one end and a tilting drive at the other. The baseplate is held in contact with the micrometer or MotorDriver head by three tension springs connecting the platforms, eliminating any backlash in the drive.

The platform position of the manual stage is controlled by a precision micrometer head which reads to 0.01 mm, where one division corresponds to 20 arcsec of displacement.

If motorization is required a MotorDriver or EncoderDriver can be ordered separately to replace the micrometer head in the manual stage. MotorDrivers provide remote control with a resolution of 2 arcsecs and EncoderDrivers offer full motorized control from a computer and 1 arcsec resolution.



Specifications

Range: $\pm 3.75^\circ$
Resolution -
Micrometer Actuator: 5 arcsec
MotorDriver Actuator: 2 arcsec
EncoderDriver Actuator: 1 arcsec
Reading Accuracy¹: 10 arcsec
Load Capacity: 10 kg (22 lb)
Weight: 0.6 kg (1.2 lb)
¹ Micrometer-driver stages only

MacroMech™ 1-axis Tilting Stage (Metric)

Catalog Number	Description	Price US
74-0386	MacroMech 1-axis Tilting Stage, Micrometer, Metric	\$176.40
37-0007	13 mm Travel MotorDriver Actuator	\$347.55
37-0486	13 mm Travel EncoderDriver Actuator Package	\$1,268.40

MacroMech™ 1-axis Tilting Stage (Inch)

Catalog Number	Description	Price US
61-0386	MacroMech 1-axis Tilting Stage, Micrometer, Inch	\$176.40
37-0007	13 mm Travel MotorDriver Actuator	\$347.55
37-0486	13 mm Travel EncoderDriver Actuator Package	\$1,268.40