

# Tables, Breadboards, & Rails

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## Optics

Lenses & Microscope Components

Coatings

Mirrors, Beamsplitters & Windows

Prisms & Polarizers

Filters

Pinholes

## Opto-mechanics

Tables, Breadboards & Rails

Mounting Hardware

Mirror & Component Mounts

Manual Micro-positioners

Motorized Positioners

## Lasers & Accessories

Beam Delivery

Laser Measurement

Diode Laser Modules

# MicroMech™ 19 mm Optical Rail

## Optics

Lenses & Microscope Components

Coatings

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- 19 mm dovetail section rail
- Precisely machined aluminum construction
- End tapped holes enable construction of 3D optical systems
- Range of carriers for mounting MicroMech™ stages and standard post holders
- End stackable



## Opto-mechanics

Tables, Breadboards & Rails

Mounting Hardware

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Motorized Positioners

MicroMech Optical Rails provide a compact and economical foundation for constructing small-scale intricate optical systems. The heart of the MicroMech Optical Rail system is a 19 mm wide precision machined aluminum dovetail section rail, this gives a more accurate mating face and smoother positioning of MicroMech carriers than less expensive extruded designs.

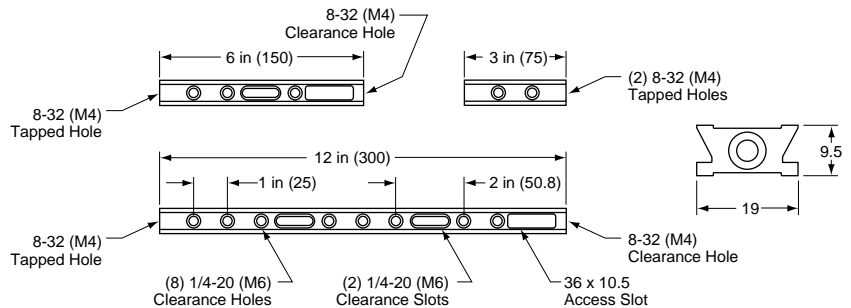
The low profile cross section of MicroMech Optical Rails allows systems to be constructed with a low optical center line height. Carriers which have been specially designed for the MicroMech rails may be fitted and locked onto the rail at any point to provide a stable mounting surface for positioners and optical component mounts. Mounting holes and slots in the rail accommodate metric (M6) and inch (1/4-20) optical table hole patterns. The slots also allow the rail to be secured at almost any angle across the mounting surface. MicroMech Rails can also be securely attached to a table using the clamping ledges and MicroMech table clamps.

## Lasers & Accessories

Beam Delivery

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The 75 mm (3 inch) long MicroMech Rails have tapped M4 (metric versions) or 8-32 (inch version) holes in each end allowing them to be attached to bases and longer rails. The longer 150 mm and 300 mm MicroMech Rails have a cut-out section with a M4 (8-32) clearance hole at one end and a tapped hole at the other end allowing them to be joined together

to form almost any length rail, these sizes are supplied with the hardware needed to connect rails together.

**Note: 19 mm Rails can be stacked to give longer lengths. For example to construct an 18 inch rail connect a 12 inch and 6 inch rail together – all connecting hardware is supplied.**

### MicroMech™ 19 mm Optical Rail (Metric)

Catalog Number	Description	Price US
53-3471	MicroMech 19 mm Optical Rail - 75 mm, Metric	\$28.60
53-3489	MicroMech 19 mm Optical Rail -150 mm, Metric	\$39.60
53-3497	MicroMech 19 mm Optical Rail - 300 mm, Metric	\$53.55

### MicroMech™ 19 mm Optical Rail (Inch)

Catalog Number	Description	Price US
61-3471	MicroMech 19 mm Optical Rail – 3 inch, Inch	\$28.60
61-3489	MicroMech 19 mm Optical Rail – 6 inch, Inch	\$39.60
61-3497	MicroMech 19 mm Optical Rail – 12 inch, Inch	\$53.55

# MicroMech™ 19 mm Optical Rail Carriers

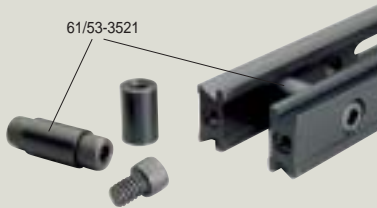
- Accurately machined to slide easily on the optical rail
- Designed for 19 mm dovetail optical rails
- Side clamps for positive positioning
- Compatible with MicroMech™ positioners
- Compatible with 1/2 inch post holders



MicroMech Carriers are available in two designs, a Wide Carrier and a Narrow Carrier.

The Wide Carrier is designed to be used with 1/2 inch post holders or any of the MicroMech positioners with M2 on 10 mm thread mounting patterns. This Wide MicroMech Carrier has a central clearance hole for M6 or 1/4-20 screws.

## Building 3D Rail Assemblies

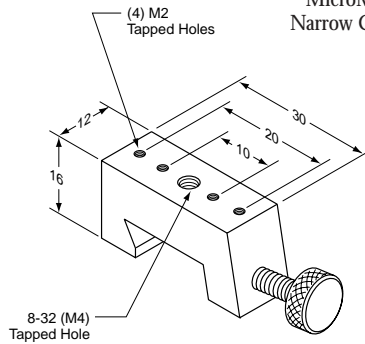


Two and three Dimensional configurations can be constructed from MicroMech 19 mm Rails using MicroMech Rail Spacers, and Universal Mounting Bases as shown.



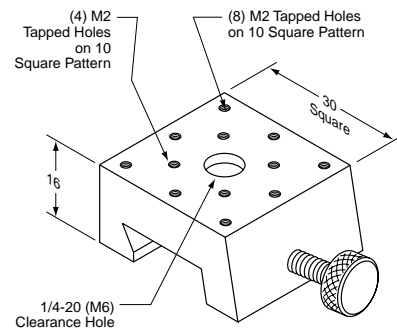
### 53-3513/61-3513

MicroMech™ Narrow Carrier



### 53-3505

MicroMech™ Wide Carrier



The Narrow Carrier is specifically for edge mounting of component mounts such as Precise™ Mirror Mounts, it is available in inch or metric versions with a central M4 or 8-32 tapped hole. It is also useful for post mounting of components close together. Compact Mirror Mounts can be mounted on the

wide carrier using an M6 (1/4-20) to M4 (8-32) Adapter Washer 53-9734, which allows an M4 or 8-32 screw to use the larger central clearance hole in the wide carrier. These adapters are also useful for mounting 19 mm rail on top of stable pillars.

## MicroMech™ Carriers & Accessories

Catalog Number	Description	Price US
53-3505	MicroMech Wide Carrier, Universal	\$25.30
53-3513	MicroMech Narrow Carrier, Metric	\$20.90
61-3513	MicroMech Narrow Carrier, Inch	\$20.90
53-3521	MicroMech Rail Spacer Pair, M6, Metric	\$14.30
61-3521	MicroMech Rail Spacer Pair, 1/4-20, Inch	\$14.30
53-1913	Mounting Base, Universal M4/8-32	\$11.00
53-9734	Adapter Washers M6 (1/4-20) to M4 (8-32) Clear, Set of 10	\$22.00
72-0428	Adapter Washers M4 (8-32) to M2, Set of 4	\$22.00

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## Opto-mechanics

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Motorized Positioners

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Diode Laser Modules

# TriRail™ – Triangular Optical Rails



- *Triangular Profile*
- *Free standing optical rail*
- *Lightweight Aluminum or cast iron versions*
- *Positioning scale in millimetres*
- *Lengths up to 2 m*

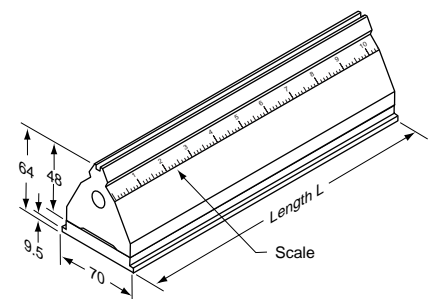
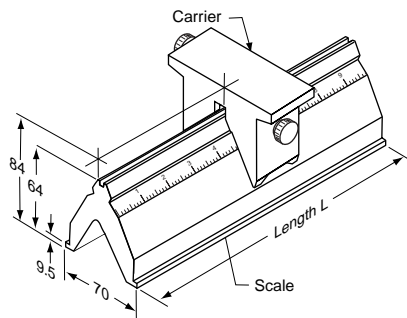
Ealing TriRails are available in two versions, lightweight low cost Aluminum TriRail and high precision machined Cast Iron TriRail. Both are based on the widely used triangular bench profile originally offered by Ealing Electro Optics.

The lightweight Aluminum rails are ideal for educational and general laboratory applications, they are

extruded from hard aluminum alloy, and clear anodized for durability. They are supplied with a simple positioning scale calibrated in millimeters and attached to the side of the rail. Ledges on each side of the rail are designed for clamping to an optical table or similar mounting surface.

The Precision Cast Iron rails are made from stress relieved continuous castings,

that are precision milled to achieve a straightness of  $\pm 100$  micrometers per meter of length. Twist of the profile is guaranteed to not exceed 3 minutes of arc over the full length of the rail. These rails are coated in an epoxy-resin based semi-matte finish to protect from corrosion. The Precision Cast Iron Triangular Rails are supplied with removable base plates that have ledges on either side that allow for table mounting.



## TriRail™ – Aluminum and Precision Cast Iron

Catalog Number	Description	Price US
22-6886	Aluminum Triangular Optical Rail, ½ m	\$91.35
22-6894	Aluminum Triangular Optical Rail, 1 m	\$118.65
22-6928	Aluminum Triangular Optical Rail, 2 m	\$218.40
44-5163	Cast Iron Triangular Optical Rail, ½ m	\$156.45
44-5171	Cast Iron Triangular Optical Rail, 1 m	\$276.15
44-5189	Cast Iron Triangular Optical Rail, 2 m	\$472.50

### Optics

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# TriRail™ Carriers

- New hole patterns available to suit MiniMech™ and MacroMech™ Positioners
- Ideal for teaching labs
- Low cost cast Aluminum design
- Two widths available



TriRail™ carriers are made of die-cast aluminum, which is machined, drilled, tapped and finished in matte black. Two sizes of carrier are offered, a 40 mm wide carrier which is ideal for use with half-inch mounting posts and StablePillars™, and a 65mm wide carrier which is ideal for use with MiniMech™ or MacroMech™ micropositioners.

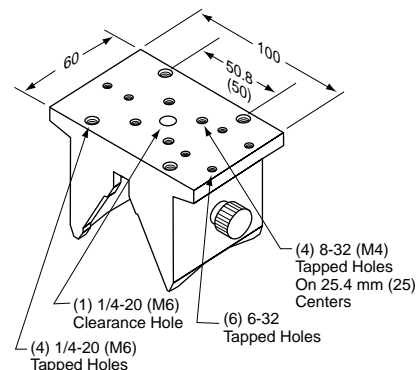
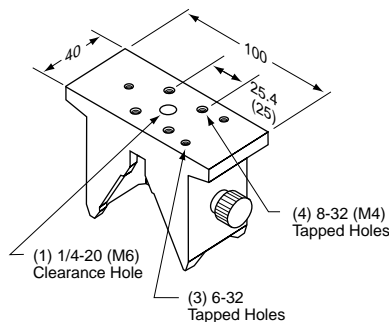
Our designers have added two new hole patterns to the mounting surfaces of

these popular Triangular Rail Carriers. For example the 65mm wide carrier now has an M6 on 25mm pattern for the metric carrier and a 1/4-20 on 1 inch pattern on the inch carrier. This enables TriRail carriers to offer even more mounting options.

These carriers are fully “backwards compatible” with the carriers, pillars and vertical slides from the Ealing triangular bench range.



TriRail Carriers are ideal for use with half inch post holders, StablePillar™ and our new range of dovetail slides.



## TriRail™ Carriers

Catalog Number	Description	Price US
53-3679	TriRail Carrier 40mm wide, metric	\$57.75
53-3687	TriRail Carrier 65mm wide, metric	\$63.00
61-3679	TriRail Carrier 40mm wide, inch	\$57.75
61-3687	TriRail Carrier 65mm wide, inch	\$63.00

### Optics

Lenses & Microscope Components

Coatings

Mirrors, Beamsplitters & Windows

Prisms & Polarizers

Filters

Pinholes

### Opto-mechanics

Tables, Breadboards & Rails

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Mirror & Component Mounts

Manual Micro-positioners

Motorized Positioners

### Lasers & Accessories

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Diode Laser Modules

# TriRail™ Dovetail Stages

## Optics

Lenses & Microscope Components

Coatings

Mirrors, Beamsplitters & Windows

Prisms & Polarizers

Filters

Pinholes

- Ideal for use with TriRail™
- 1-3 axis assemblies
- Compact dovetail slide/leadscrew design
- 25mm travel with graduated scale
- Side locking screw
- Optical Table or Rail Mounting



## TriRail™ Dovetail Stages

These new stages are constructed from machined aluminum and incorporate a dovetail slide/leadscrew design. TriRail Dovetail Stages provide a low cost alternative to the more accurate MiniMech™ and MacroMech™ stages described in the manual micropositioners section of this catalog. They are very versatile, and allow multiple axis assemblies to be built using the hardware described below (see diagrams opposite). These multi-axis assemblies can be attached directly to an optical table via clearance holes in the

stage base, or they can be attached to a TriRail or Low Profile Rail carrier. They can also be stacked on top of MiniMech or MacroMech positioners.

vertically oriented stage as shown in the diagrams opposite giving fine positional adjustment of the post holder in either the horizontal or vertical direction.

## Opto-mechanics

Tables, Breadboards & Rails

Mounting Hardware

Mirror & Component Mounts

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## Dovetail Stage Post Holder Plate

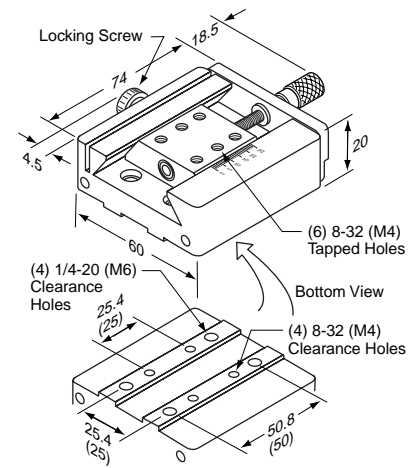
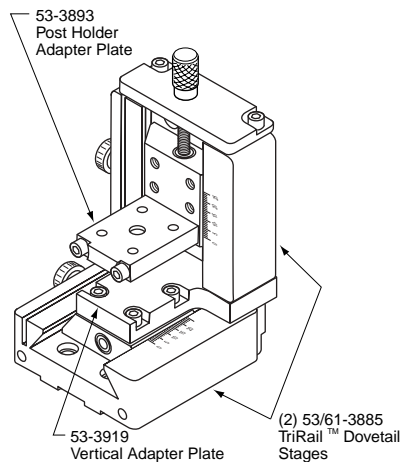
The post holder plate allows Half-inch post holders or StablePillar™ pedestals to be attached to the Dovetail Stage. The plate can be attached to a horizontally or

## Dovetail Stage Vertical Adapter Plate

This adapter plate allows a Dovetail stage to be mounted vertically on top of another Dovetail Stage.



Multi-axis assemblies can be built from these modular stages, as shown in the photograph above and diagrams opposite.



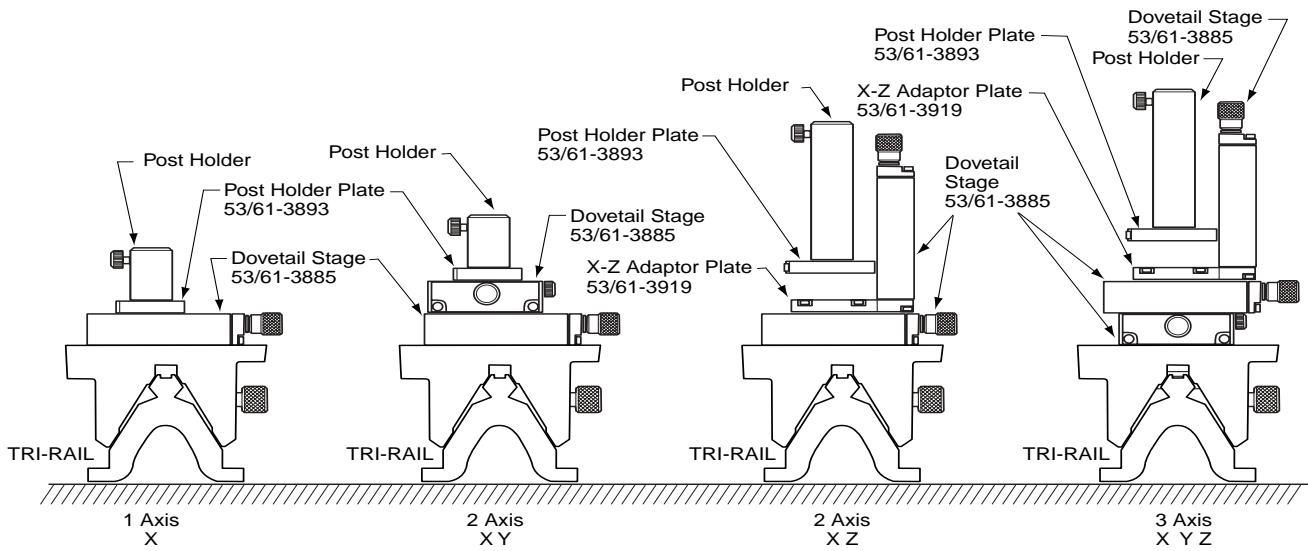
## TriRail™ Dovetail Stages

Catalog Number	Description	Price US
53-3885	TriRail Dovetail Stage 25mm travel, metric	\$136.50
61-3885	TriRail Dovetail Stage 25mm travel, inch	\$136.50
53-3893	Dovetail Stage Post Holder Adapter Plate, Universal	\$27.50
53-3919	Dovetail Stage Vertical Adapter Plate, Universal	\$33.00

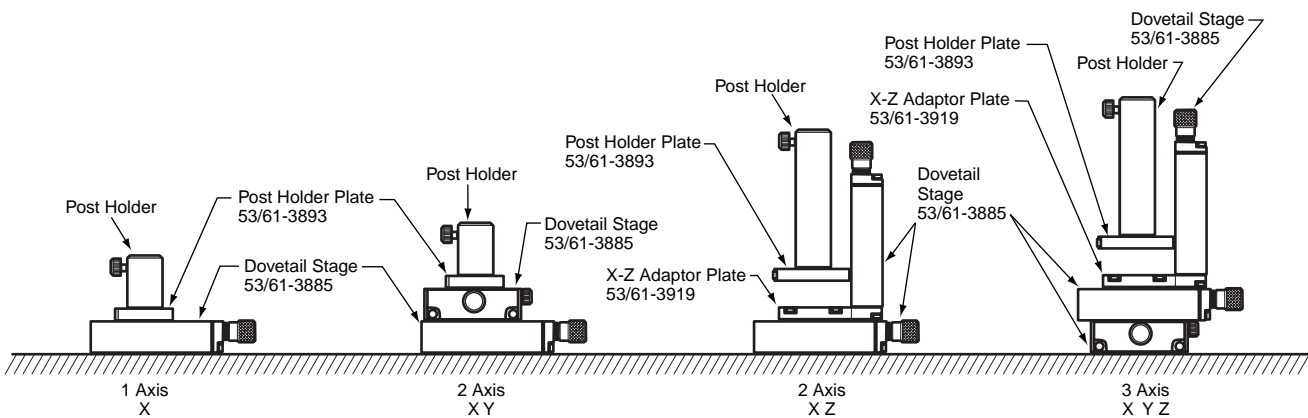
# Dovetail Stage Assemblies



- Optics
- Lenses & Microscope Components
- Coatings
- Mirrors, Beamsplitters & Windows
- Prisms & Polarizers
- Filters
- Pinholes



- Opto-mechanics
- Tables, Breadboards & Rails
- Mounting Hardware
- Mirror & Component Mounts
- Manual Micro-positioners
- Motorized Positioners



- Lasers & Accessories
- Beam Delivery
- Laser Measurement
- Diode Laser Modules

# Low Profile Optical Rails

## Optics

Lenses & Microscope Components

Coatings

Mirrors, Beamsplitters & Windows

Prisms & Polarizers

Filters

Pinholes

- *Light weight aluminum or ultra straight cast iron*
- *114 mm wide dovetail section*
- *300 mm, 600 mm and 1000 mm lengths available*
- *High load capacity*



Low Profile Optical Rails are manufactured from either aluminum or cast iron. They have a 114 mm wide dovetail cross section.

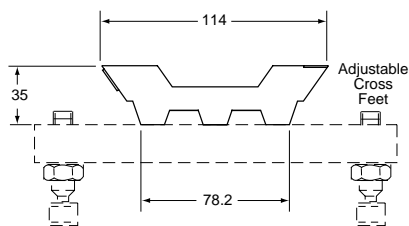
The low cost aluminum rail is ideal for table mounting applications where low load bearing capacity is required and absolute straightness is not of paramount importance. These aluminum rails are extruded and anodized to provide a durable finish. A slotted hole pattern allows them to be attached to standard

optical tables with ¼-20 or M6 mounting threads. A hardened steel clamping surface is bonded to one face of the dovetail and a positioning scale calibrated in millimeters is inset into the top surface of the other.

The cast iron version of the Low Profile Optical Rail is machined on all faces to achieve a straightness of  $\pm 100 \mu\text{m}$  per meter. A positioning scale, calibrated in millimeters, is inset into the top surface of the bench and a matte black, resin-

based finish protects all non-contact surfaces. Feet are available for use with these benches and it is recommended that three feet should be used to support the 1000 mm long versions. Great accuracy and high load-bearing capacity are the key benefits of the cast iron rail. The Low Profile Cast Iron Rails use a precision machined shallow section with a central channel drilled and slotted to accept M6 or ¼-20 screws.

## Low Profile Optical Rail Cross-Section



### Specifications

**Material:** Extruded Aluminum or Cast Iron

**Lateral Straightness (Aluminum):** 0.05 mm per 100 mm of length

**Lateral Straightness (Cast Iron):**  $\pm 100 \mu\text{m}$  per meter of length

## Opto-mechanics

Tables, Breadboards & Rails

Mounting Hardware

Mirror & Component Mounts

Manual Micro-positioners

Motorized Positioners

## Lasers & Accessories

Beam Delivery

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Diode Laser Modules

## Low Profile Optical Rails

Catalog Number	Description	Price US
36-0057	300 mm Low Profile Optical Rail, Aluminum	\$150.15
36-0065	600 mm Low Profile Optical Rail, Aluminum	\$177.45
36-0073	1000 mm Low Profile Optical Rail, Aluminum	\$194.25
36-0081	Levelling Cross Feet, Set of Two	\$152.25
36-4919	300 mm Low Profile Optical Rail, Cast Iron	\$347.00
36-4927	600 mm Low Profile Optical Rail, Cast Iron	\$628.95
36-4935	1000 mm Low Profile Optical Rail, Cast Iron	\$799.05



# Low Profile Optical Rail Carriers

- Large load capacity
- Wide range of hole patterns
- Ideal for large optical components



- Optics
- Lenses & Microscope Components
- Coatings
- Mirrors, Beamsplitters & Windows
- Prisms & Polarizers
- Filters
- Pinholes

The Standard Carrier is an aluminum die-casting with machined rail contact faces. It clamps to the rail with a simple locking screw, and incorporates a vernier which allows the bench scale to be read to 0.1 mm. The Standard Carrier is ideal for use with the Aluminum Low Profile Rail and accepts Posts and Slides from the Triangular Rail range.

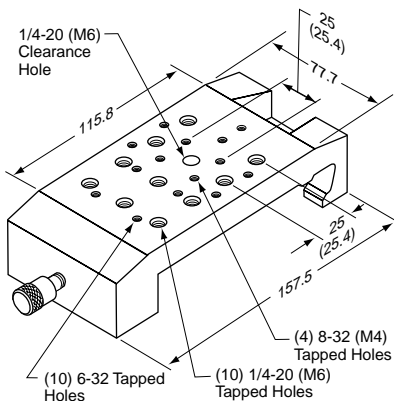
The three 'Precision' Carriers are iron castings with machined contact faces and

top surfaces. All three feature a spring-loaded screw clamp which ensures accurate alignment but allows the carrier base to be moved freely when released. The Precision Carrier and Wide Precision Carrier both incorporate a vernier which allows the scale to be read to 0.1 mm. Precision Carriers accept the MacroMech™ range of manual micropositioning equipment. The Precision Carrier with Rollers enables a heavy object, such as a large collimator,

to be moved freely on a Lathe Bed Rail. The rollers run on the top slideways of the bench section and allow smooth translation during focusing.

- Opto-mechanics
- Tables, Breadboards & Rails
- Mounting Hardware
- Mirror & Component Mounts
- Manual Micro-positioners
- Motorized Positioners

53--3836/61-3836



## Low Profile and Lathe Bed Rail Carriers

Catalog Number	Description	Price US
53-3836	Standard Low Profile Rail Carrier, metric	\$85.00
61-3836	Standard Low Profile Rail Carrier, inch	\$85.00
53-0535	Precision Carrier	\$215.25
61-0535	Precision Carrier	\$215.25
22-2513	Wide Precision Carrier	\$303.45
22-2786	Precision Carrier with Rollers	\$766.50

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