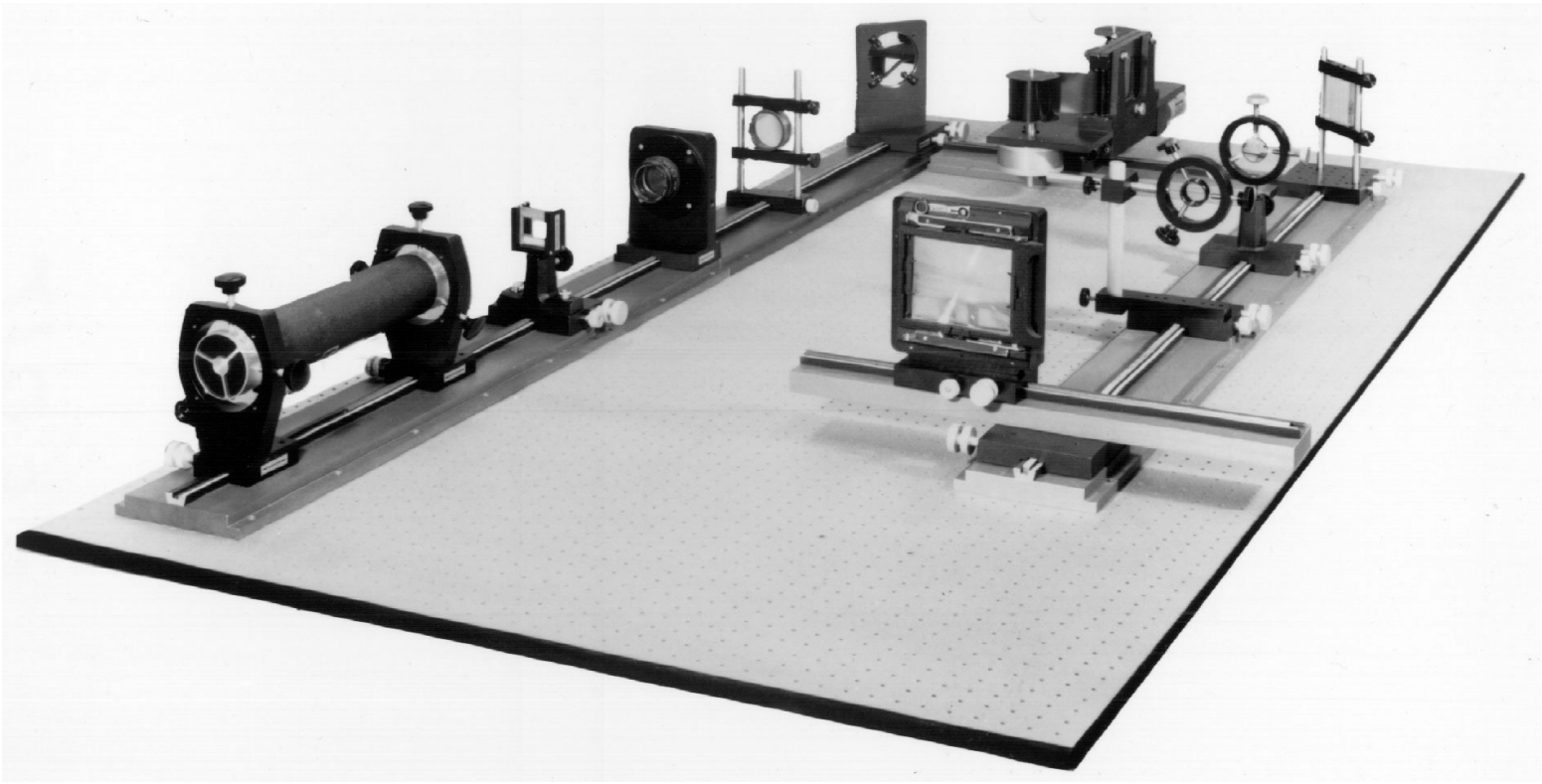
DATA OPTICS, INC.



PRECISION OPTICAL RESEARCH EQUIPMENT

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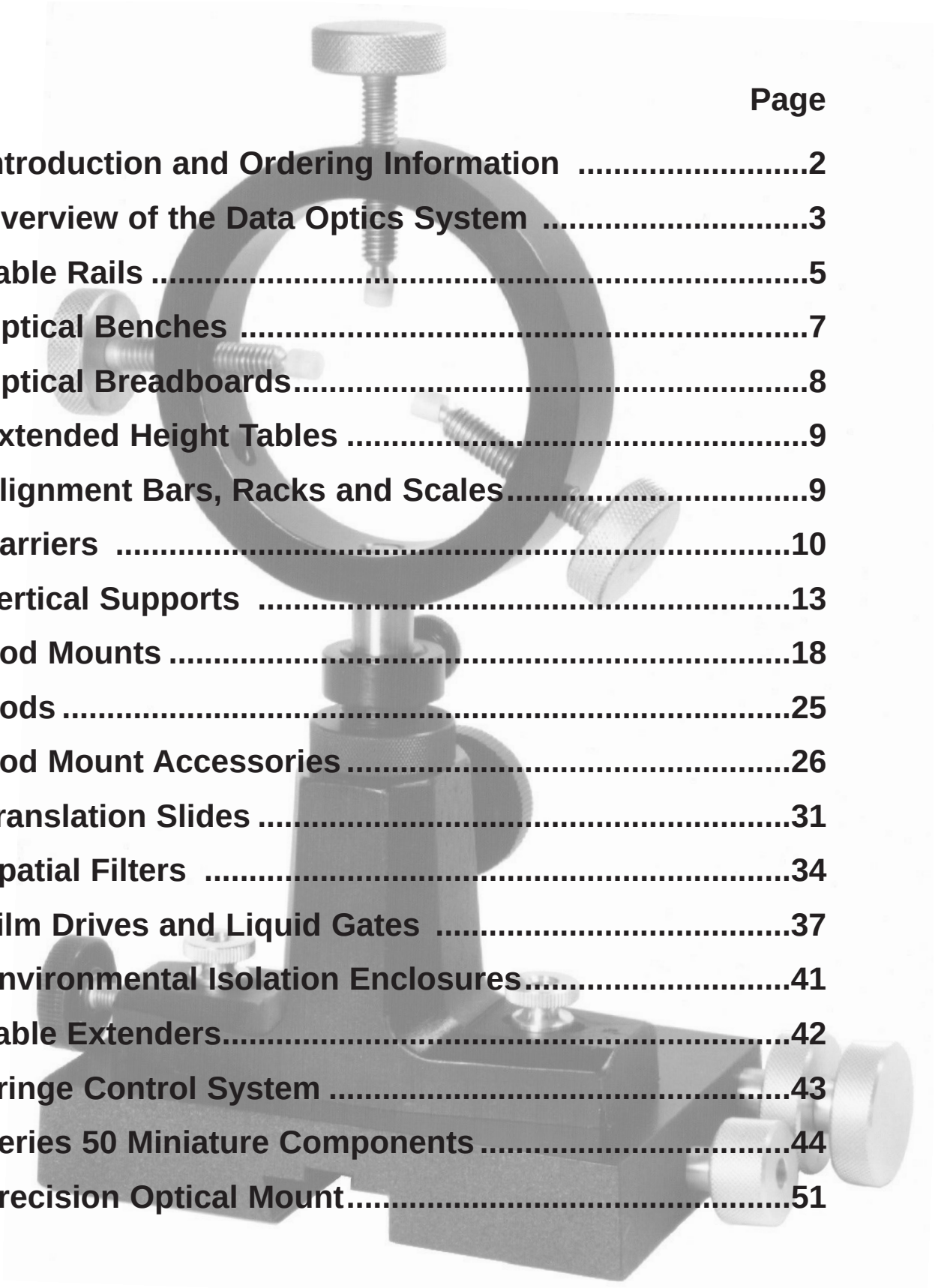
DATA OPTICS, INC.
115 HOLMES ROAD • YPSILANTI MICHIGAN 48198-3020
(800)321-9026 (734)483-8228 Fax:(734)483-9879



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Introduction

Dear Customer:

Data Optics has been manufacturing precision optical research equipment for over 30 years. We take personal pride in each component we make—whether it is one of our standard products or something to fill a special customer requirement. Our products are manufactured to maintain the closest specifications, and your sketches or drawings will be treated with the same pride of craftsmanship.

Your satisfaction is of the utmost importance to us and is given our personal attention. If you would like to discuss any aspect of our optical equipment, or a special part you may need, please feel free to contact us. We look forward to hearing from you soon!

Sincerely,
David M. Shindell
President

ORDERING INFORMATION

Phone, Fax, or Mail all orders to:

DATA OPTICS, INC.
115 Holmes Road
Ypsilanti, Michigan 48198–3020
Phone: (800) 321-9026 or (734) 483-8228
Fax: (734) 483-9879

Orders should include the following:

1. Company name
2. Purchasing contact name, phone and fax numbers
3. Purchase order number
4. Shipping address, contact name and phone number
5. Billing address, contact name and phone number
6. Item number, description and quantity

Shipping: All orders are shipped by United Parcel Service (UPS) Ground unless other instructions are received. Shipments are F.O.B. Ypsilanti, Michigan with shipping charges prepaid and added to the invoice.

Terms: Terms are Net 30 Days (On Domestic, Pre-approved Accounts Only).

Export: Export shipments should be paid in advance by bank money transfer. There is an additional charge for export packaging and paperwork. Shipment is by UPS, freight and duties collect.

Delivery: Shipment is made immediately for standard stock items. For standard items that are built to order, 2 to 3 weeks is usually required. Please call for estimated delivery time on special order items.

Overview of the Data Optics System

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The Data Optics System

Data Optics manufactures systems and components to meet the exacting requirements of modern optical research in such fields as optical data processing, holography, lasers, and electro-optics. There are four methods for setting up a typical system with Data Optics components: on a Data Optics precision optical bench, on a Data Optics table rail supported by an optical table, using a Data Optics alignment bar on an optical table, or with rigid mounts attached directly to an optical table or breadboard.

Remote Focusing

Any optical mount in a system can be used to remotely move any other mounts by a unique rack and pinion arrangement. One or more mounts are locked to the rack and moved by a pinion mechanism in another mount, without disturbing the optical alignment. (See page 4 for more details.)

Carriers

A dovetail slot in the carrier matches the shape of the alignment bar for outstanding repeat positioning accuracy. The carrier can be finely positioned by use of the pinion mechanism and clamped in place. It can also be placed on the alignment bar facing either left or right and still maintain optical alignment. The carriers have flat bottoms so that they can be used directly on any flat surface, as well.

V-Rods and V-Rod Mounts

To provide as much versatility as possible, Data Optics offers a unique rod mount. The “V” shape of the rod mounting hole accepts our special V-Rods or any diameter round rod up to 0.75" (19 mm). Round rods locate precisely on the two lines formed by the “V”, eliminating wobble, while V-rods prevent rotation and retain their angular alignment even when raised or lowered in the mount.

Benches

Optical benches have the distinct advantages of compactness, lightness, portability and precision. Data Optics benches are remarkably accurate and rigid due to their unique box-beam construction. Three adjustable feet provide stability and leveling capability.

Table Rails

Data Optics table rails are low profile optical benches designed to give optical tables the capacity for precision alignment, repeat positioning, and remote positioning provided through the Data Optics system.

Alignment Bars

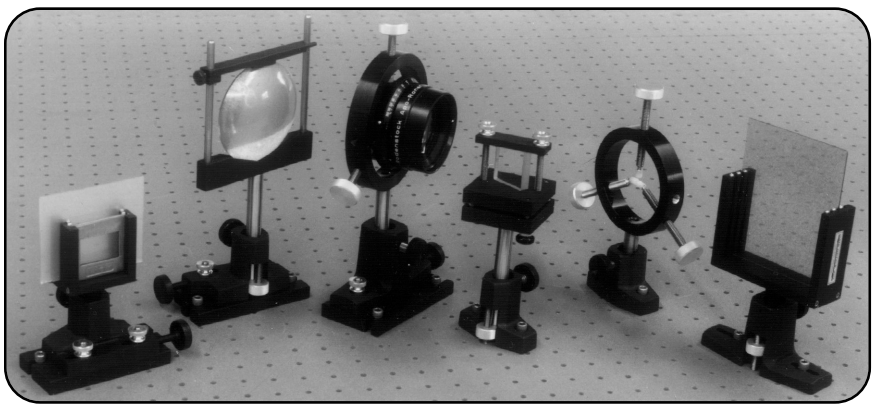
Data Optics alignment bars can be mounted directly to an optical table or breadboard for confined setups. The customer must, however, align the bar to the precision required by their application.

Choice of Sizes - Three Complete Lines

Three sizes of components are available. For smaller, lighter components, and when space is limited, choose the Series 76 components which have a 3" (76 mm) base width. For larger, heavier components, use the Series 133 components which have a 5.25" (133 mm) base width. For miniature optical systems, use the newest, Series 50 components which have a 2” (50 mm) base width.

Accessories

Our wide variety of accessories can be used with the Data Optics system, or on any suitable surface or rod mount. Accessories include Filter and Plate Holders, Spatial Filters, Translation Slides, Hologram Holders, Film Drives and Liquid Gates. Also available from Data Optics is the Model C Ronchi-type Optical Tester.



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Overview of the Data Optics System

Precise Alignment and Motion

Carriers have been designed with a flat bottom so that their use is not restricted to a Data Optics bench. They can be used on any flat surface, such as a granite slab, when an optical set-up needs a broader plane.

The dovetail slot in the carriers matches the shape of the alignment bar. A clamping knob housed in the carrier positions the side of the dovetail slot against the alignment bar, and the carrier feet down onto the flat mounting plate. This provides precise contact between the carrier and the bench or rail.

The clamping knob is fitted with a spring loaded nylon tip which keeps the carrier in contact with the bench when the carrier is being moved. The spring loaded tip can be fully seated to lock the carrier to the bench. Retracting the tip releases the carrier from the alignment bar so that the carrier can be readily lifted from the bench without disturbing other mounts in position.

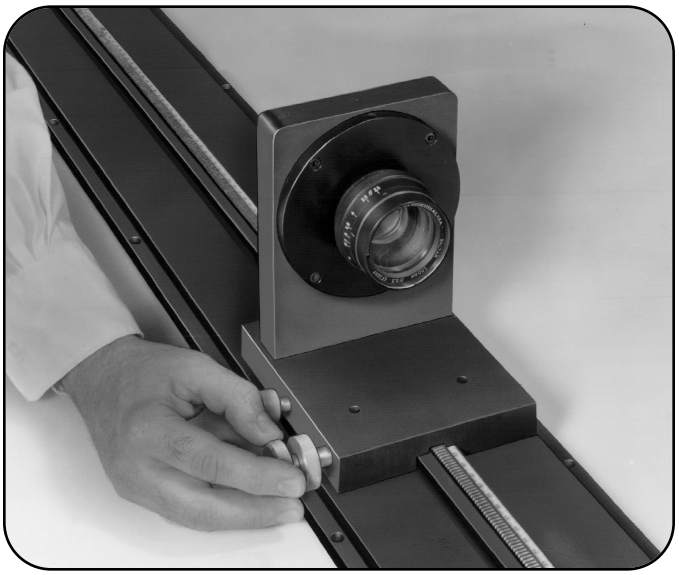
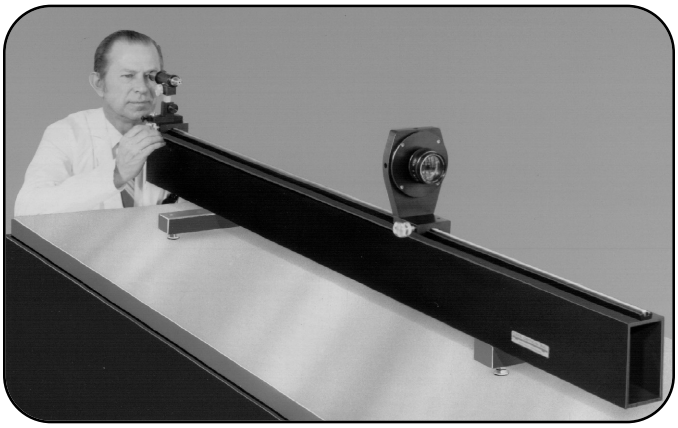


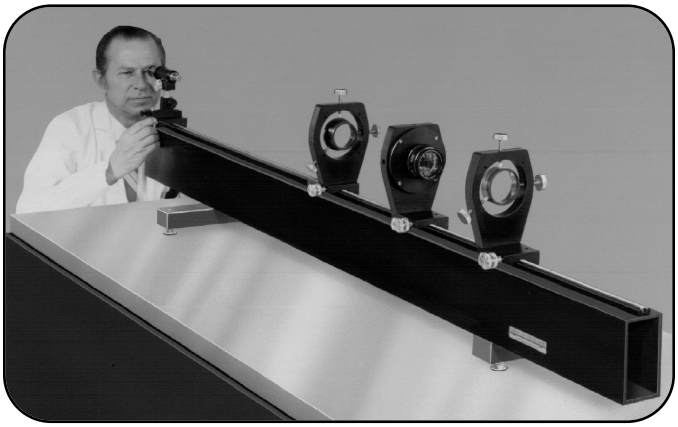
Table Rails

The Series 133 optical mount shown here is riding on a table rail. Table rails give optical tables and surface plates the outstanding features of the Data Optics system: rack and pinion control of each mount for remote positioning, and precise alignment.



Remote Focusing

Any mount on a Data Optics system can be used to remotely move any other mount(s) on the same system. Here the operator is moving a remote lens mount which has been locked to a moveable rack. The rack is being moved by a pinion in the operator's mount which has been locked to the alignment rail. Mounts stay in precise optical alignment at all times.



Remote Focusing of Two or More Lenses

Any number of lens mounts can be moved simultaneously from a remote position. Here two mounts which have been locked to the rack are being moved, with a stationary mount between them. The distance between the moving mounts remains constant. Mounts used to remotely move other mounts can be in any position along the entire length of the bench or rail.

Table Rails

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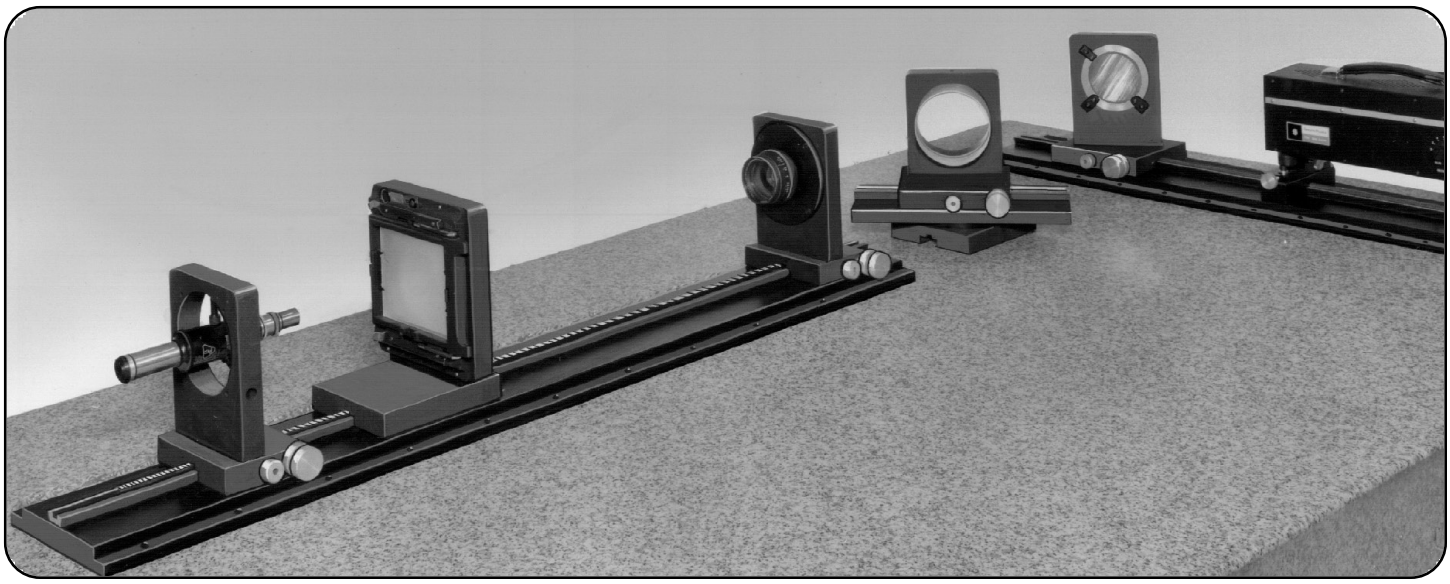
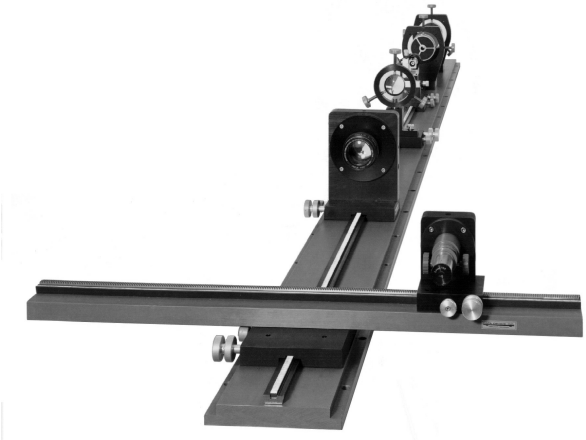
- **Low Profile**
- **Use on Optical Tables**
- **Provides Lateral Alignment**
- **Remote Lens Focusing**
- **Flexibility**

Table rails are low profile optical benches designed to give optical tables and surface plates the outstanding features of the Data Optics system: rack and pinion control of each mount for remote positioning, and precise alignment.

Data Optics table rails are made from 1" (25.4 mm) thick aluminum tooling plate that has been hard anodized to provide a long wearing surface. Tolerances in straightness and flatness are ±0.001"/foot (±0.025 mm/300 mm) and ±0.003" (±0.075 mm) over the entire length.

Lengths under 3 feet (1 meter) may be used as free standing optical benches, but longer lengths must be supported by a suitable flat surface to maintain the flatness tolerance specified above. Table rails may be ordered in any length up to 10 feet (3.1 meters). Although table rails come standard with a rack and scale, either may be deleted when ordering if not desired for the application.





If you have a limited budget or need to span a long distance, use two short sections of table rail and order a rack to cover the entire distance.

Vertical supports in conjunction with Data Optics table rails are especially useful in designing semi-permanent systems which must be quickly constructed, debugged and delivered to meet contractual obligations.

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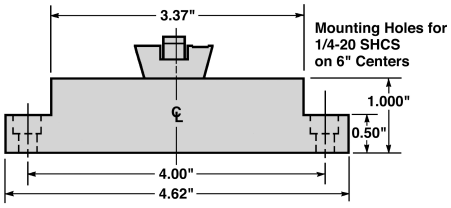
Table Rails

SERIES 76 SERIES 133

Table Rails with Clamping Ledges and Mounting Holes

Table rail with clamping ledges and mounting holes, including alignment bar, rack and scale. Weight is 8.0 lbs./foot (11.8 kg./meter) for Series 133 and 5.6 lbs./foot (8.3 kg./meter) for Series 76.

1135 - L



1100 - L

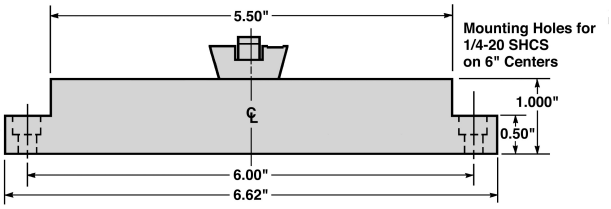
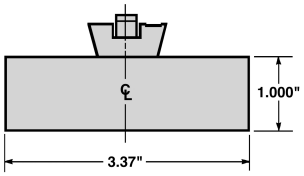


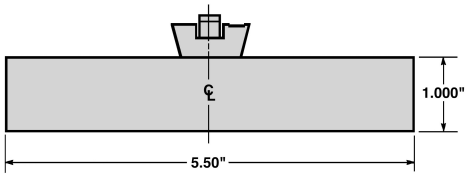
Table Rails without Clamping Ledges or Mounting Holes

Table rail without clamping ledges and mounting holes, but including alignment bar, rack and scale. Weight is 6.7 lbs./foot (9.9 kg./meter) for Series 133 and 4.1 lbs./foot (6.0 kg./meter) for Series 76.

1130 - L



1105 - L



When ordering a table rail, “L” specifies the length required. Standard tolerance on length is ±0.125" (±3.5 mm).

To delete the scale from any of the above table rails, specify #1101 – Delete Scale.

To delete the rack from any of the above table rails, specify #1102-L – Delete Rack.

Optical Benches

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The 1033, 1076 and 1088 Optical Benches are constructed from hollow aluminum rectangular beams with heavy wall sections, providing outstanding rigidity for their weight. The surface of the bench, on which optical mounts are supported, is precision machined for flatness to a tolerance of ±0.001"/foot (±0.025 mm/300 mm). The entire bench is hard anodized to provide an extremely hard and long wearing surface that will not corrode.

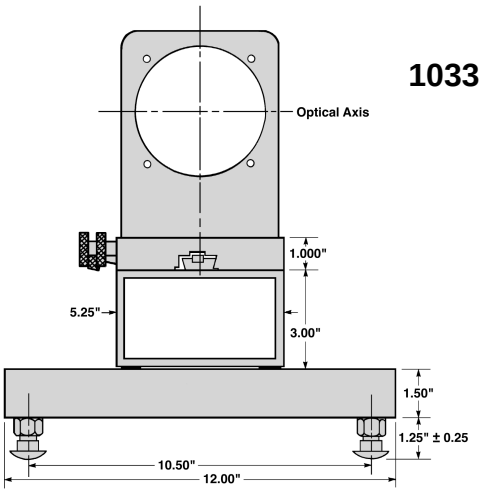
An anodized aluminum alignment bar placed in the center of the supporting surface provides lateral alignment and a versatile clamping surface for the optical mounts. In the center of the alignment bar is a movable stainless steel rack which is part of the rack and pinion system used for remote positioning of components. The alignment bar also holds a steel tape calibrated in both inches and millimeters. The alignment bar is straight to a tolerance of ±0.001"/foot (±0.025 mm/300 mm) and ±0.003" (±0.075 mm) over the entire length.

The 1033 and 1076 are for the Series 133 and Series 76 respectively, while the 1088 allows mounting of the Series 133 carriers on the top (horizontal) surface and the Series 76 carriers on the side (vertical) surface, simultaneously.

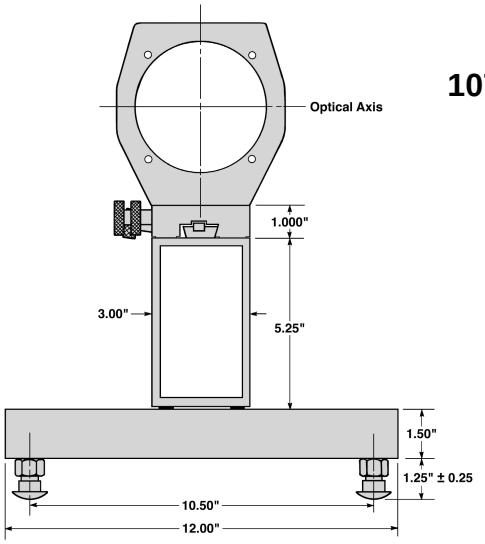
SERIES 76

SERIES 133

1033 - L



1076 - L



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Optical Benches

Steel Box-Beam Optical Benches

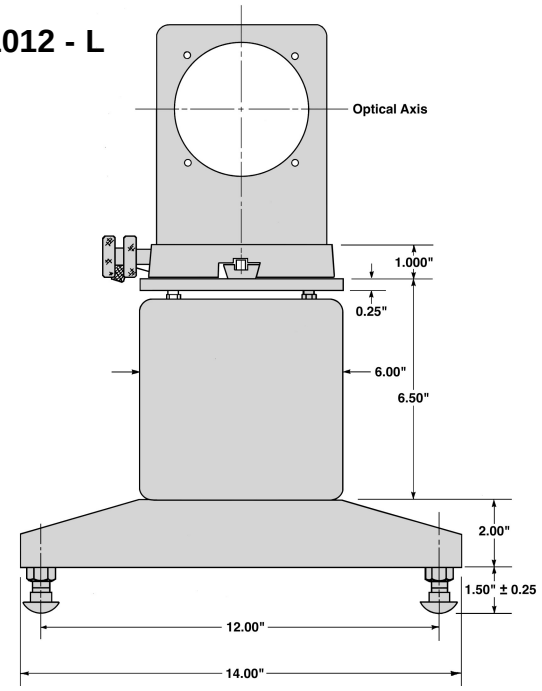
The 1012 Optical Bench has been developed by Data Optics to meet the requirements of modern optical research in such fields as optical data processing, lasers and holographic technology. The bench is standardly available in lengths up to 12 feet (3.65 meters) to accommodate the longer optical systems and lasers presently being encountered in the field. Though exceptionally long, the Data Optics 1012 optical bench is outstandingly accurate and rigid due to its unique steel box-beam construction. At 12 feet, it weighs only 260 lbs. (120 kg.), and is therefore relatively portable, and can be set on any suitable work surface. The three supporting legs with adjustable feet provide stability and leveling capability.

The surface which supports the optical mounts is a 0.375" thick steel plate which is precision ground for flatness and chrome plated to insure long wear and freedom from corrosion.

An anodized aluminum bar is placed in the center of the flat plate and provides longitudinal alignment and a clamping surface for the optical mounts. In the center of the alignment bar is a moveable steel rack which is part of the rack and pinion system used for remotely positioning the mounts. The alignment bar also holds a steel tape calibrated in both inches and millimeters.

Tolerances in straightness and flatness are ±0.001"/foot (±0.025 mm/300 mm) and ±0.003" (±0.075 mm) over the entire length of the bench. (Benches are aligned at the factory to tolerances better than these at a temperature of 72°F (22°C). Customers should expect to hold these tolerances under normal laboratory conditions. The 1012 Optical Bench is constructed so that it can be realigned at any time, both in flatness and straightness. This precision is assured by the rigidity of the steel box-section beam which supports the flat plate and alignment bar

1012 - L

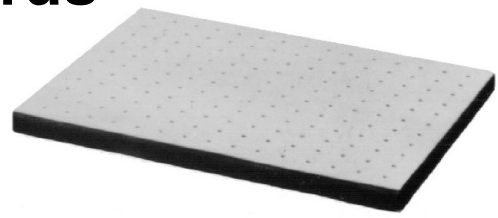


Optical Breadboards

Optical Breadboards

Any size from 4"×4" to 24"×48". Made from ½" thick aluminum tooling plate (⅝", ¾" and 1" thicknesses also available). With ¼-20 tapped holes on 1" or 2" centers, or metric M6 tapped holes on 25 mm or 50 mm centers.

80 ww - LL



Specifications:
Material: Aluminum tooling plate
Flatness: ±0.001"/foot (±0.025 mm/300 mm) and ±0.003" (±0.075 mm) over the entire length and width
Thickness: 0.50" ±0.003" standard; 0.75" and 1.00" also available

Hole Size: ¼-20 UNC or metric M6
Hole Spacing: 1.000", 2.000", 25.0 mm or 50.0 mm
Size: Any size from 4" × 4" to 24" × 48", ±0.125" 100 mm x 100 mm to 600 mm x 1220 mm, ±3 mm.
Surface Coating: Clear or black anodize standard; a grey hard anodize coating also available

Extended Height Tables

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8060

Extended Height Tables

The 8060 Extended Height Tables provide a sturdy, fixed height table for mounting components or assemblies. The tables are 6" by 6" and are made of 0.50" thick black anodized aluminum tooling plate. The top plate has a variety of ¼-20 tapped holes for mounting of components. The bottom plate has 5 counterbored holes to accept ¼-20 socket head cap screws for mounting to an optical table or breadboard. Supporting rods are 0.750" stainless steel and are available in any height. Other table sizes and hole patterns are available on request.

Alignment Bars, Racks and Scales

Alignment Bars, Racks and Scales

Alignment bars may be mounted directly onto an optical table or breadboard at any angle, dependent on table hole spacing and version of alignment bar. The alignment bars must be aligned by the customer on site to the tolerance required by the application.

1110-L – Standard Alignment Bar. Clearance holes every 3" for 8-32 SHCS screws. Specify length (-L) up to 12 feet.

1111-L – Slotted Alignment Bar. Slots every 6", accepts ¼-20 flat head screws (Part #1112). Specify length (-L) up to 12 feet.

1112 – ¼-20 Flat Head Stainless Steel Screws. For use with the #1111 and #1113 Slotted Alignment Bars.

1113-L – Alignment Bar with Countersunk Holes every 3" for ¼-20 flat head screws (Part #1112). Specify length (-L) up to 12 feet.

1115-L – Plain Alignment Bar. No holes. Specify length (-L) up to 12 feet.

1120-L – Rack. Stainless steel gear rack for use with alignment bars. Specify length (-L) up to 6 feet. Beyond 6 feet, two pieces of rack must be joined together. Specify Part #1121 for each joint required.

1121 – Rack Joints. Machining of rack ends so that they may be joined to form continuous lengths greater than 6 feet. Specify for each joint (pair of rack ends) required.

1125 – 2 Meter Precision Scale. Steel scale with both inch and metric units for use with alignment bars. Scales are 2 meters long and can be cut to any length.

1127 – 3 Meter Precision Scale. Same as above, but 3 meters long.

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Carriers

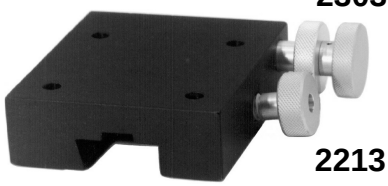
The top of each carrier is ground flat to provide a precision surface for mounting not only Data Optics standard components, but any component the researcher might want to mount. The height of the carrier is 1" ±0.001" (25.4 mm ±0.025 mm). This ensures that a component mounted on any carrier will be on the optical axis.

Two pairs of holes are provided in the top of the 2106 or 2303 carriers so that Data Optics vertical supports can be attached either right or left, depending upon the needs of the experiment. The holes are accurately and symmetrically located relative to the dovetail slot in the carrier, and the optical axis of the bench.

SERIES 76

SERIES 133

3.5" Carriers



2303 3.5" Carrier with clamping knob and pinion mechanism. Two ¼-20 clearance holes on 3" centers (Series 133) or four ¼-20 clearance holes on 2" centers (Series 76).

2103

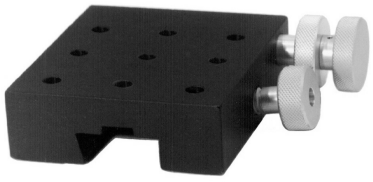
2213 3.5" Carrier with clamping knob, but without pinion mechanism.

2113

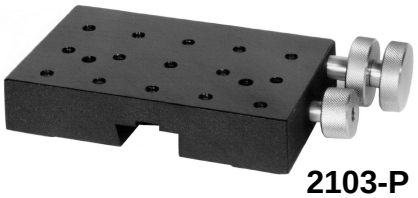
2203 3.5" Carrier without clamping knob or pinion mechanism.

2003

3.5" Tapped Carriers



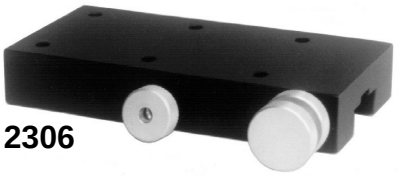
3.5" Carrier with 15 (Series 133) or 5 (Series 76) additional ¼-20 tapped holes on 1" centers. Includes both clamping knob and pinion mechanism.



2303-P

2103-P

6" Carriers



2306 6" Carrier with clamping knob and pinion mechanism. Four ¼-20 clearance holes on 3" centers (Series 133) or six ¼-20 clearance holes on 2" centers (Series 76).

2106

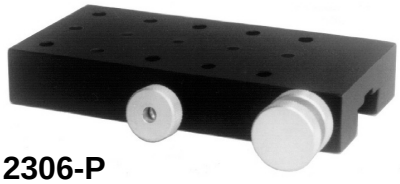
2216 6" Carrier with clamping knob, but without pinion mechanism.

2116

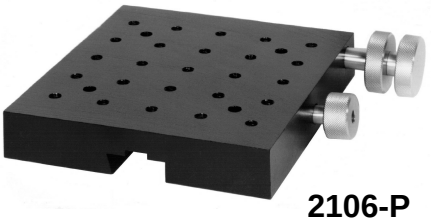
2206 6" Carrier without clamping knob or pinion mechanism.

2006

6" Tapped Carriers



6" Carrier with 25 (Series 133) or 9 (Series 76) additional ¼-20 tapped holes on 1" centers. Includes both clamping knob and pinion mechanism.



2306-P

Note: *Longer Series 76 carriers are available on special order*.

2106-P

Slim Carriers / Carrier Stops

Slim Carrier / Carrier Stop with clamping knob. Used to mount closely spaced components. No pinion mechanism can be used on this size carrier. Width is 1.50" (Series 133) or 1.25" (Series 76).

2211

2111

2221 Slim Carrier / Carrier Stop with nylon tipped set screw for clamping.

2001

Carriers

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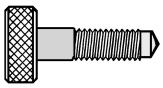
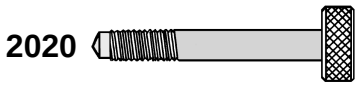
SERIES 76

SERIES 133

Clamping Knobs

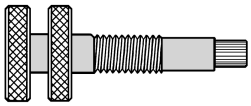


2320 Clamping Knob for use with Data Optics carriers. Has spring loaded nylon tip.

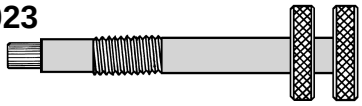


2020

Pinion Mechanisms



2330 Pinion Mechanism for use with Data Optics carriers. Pinion and pinion shaft are stainless steel. Includes both pinion knob and locking knob.



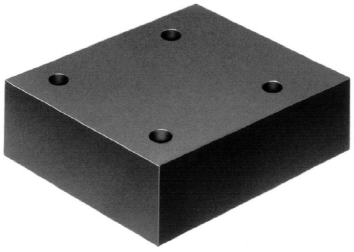
2023

Nylon Tipped Set Screws

2321 Nylon tipped Set Screw for use with Data Optics carriers. Can be used in place of a clamping knob when a mount is to be permanently left in one position, or moved infrequently.

2321

Solid Bases or 1" Spacers



Useful as solid bases or 1" thick spacers which match the hole patterns of the equivalent carriers. Also available with additional tapped holes by specifying "-P". These additional holes are on 1" centers and follow the same pattern as the equivalent carrier with the "-P" option.

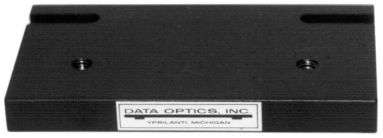
2333 3.5" Solid Base or 1" Spacer **2003-T**

2336 6" Solid Base or 1" Spacer **2006-T**

Sub-plates for Vertical Supports

Sub-plates for flexible mounting of Series 133 and Series 76 vertical supports directly on optical tables or breadboards.

2449



2549

Sub-plates for Rod Holders

Sub-plates for flexible mounting of Series 133 and Series 76 rod holders directly on optical tables or breadboards.

2451 **2551**

Magnetic Bases / Precision Platforms

Magnetic Bases with Precision Mounting Platforms are available in two sizes to work with either the Series 133, Series 76 or customer-specific requirements. Both platforms have $\frac{1}{4}$-20 tapped holes on 1" centers and are attached to the magnetic base with four 8-32 SHCS stainless steel screws.

8036

8037

Magnetic Bases

8035 Magnetic Base for use on optical tables with magnetic surfaces. It has a height of 1.9" and has one $\frac{5}{16}$-24 tapped hole in the center of the top surface for mounting a rod.

Sub-plates for Rods

Sub-plates with 0.25" slots for use with round rods or V-rods. Counterbored (part #2548) or tapped (part #2547) for $\frac{1}{4}$-20 SHCS screw in center.

2547 - 2548

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Carriers

SERIES 76

3262

3263

Box Spacers for 3.5" Carriers

Box Spacers to fit 3.5" carriers. Dimensions are 3" x 5.25" x 3.5" and the top and bottom surfaces have holes matching the equivalent carriers. The top surface can be ordered with additional tapped holes by specifying "-P".

Box Spacers for 6" Carriers

Large Box Spacers to fit 6" carriers. Dimensions are 3" x 5.25" x 6" and the top and bottom surfaces have holes matching the equivalent carriers. Top holes are ¼-20 clearance, while bottom holes are ¼-20 tapped. The top surface can be ordered with additional tapped holes by specifying "-P". These additional holes are on 1" centers and follow the same pattern as the equivalent carrier with the "-P" option.

SERIES 133

3260

3261

Mounting Cubes

3256

The 3256 Mounting Cube is 5" (H) x 5" (D) x 6" (W) with four ¼-20 tapped holes on 3" centers on two adjacent faces and four ¼-20 clearance holes on 3" centers on the other two faces. Other hole patterns can be provided upon request.

3246

The 3246 Mounting Cube is 4" (H) x 5" (D) x 6" (W) with four ¼-20 tapped holes on 3" centers on the top face, four ¼-20 clearance holes on 3" centers on the bottom face, four ¼-20 tapped holes in a 3" x 2" pattern on one side face and four ¼-20 clearance holes in a 3" x 2" pattern on the opposite side face. Other hole patterns can be provided.

High-Rise Carriers

2152

High-Rise Series 133 Carrier with clamping knob and pinion mechanism. Has a top surface 1.5" wide with two holes on 3" centers. Height is 7" (6" more than standard carriers). Can be used to mount Series 133 Vertical Supports or Rod Mounts. Extremely rigid and stable. Base is 4" wide.

2163

High-Rise Series 133 Carrier with clamping knob, but without pinion mechanism.

2063

High-Rise Series 133 Carrier without clamping knob or pinion mechanism.

Vertical Supports

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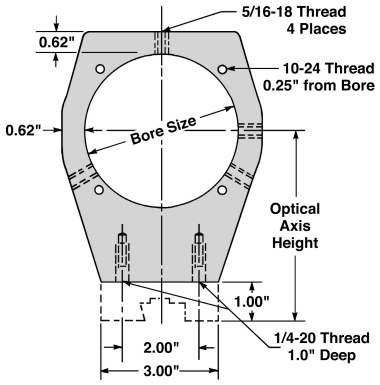
SERIES 76

SERIES 133

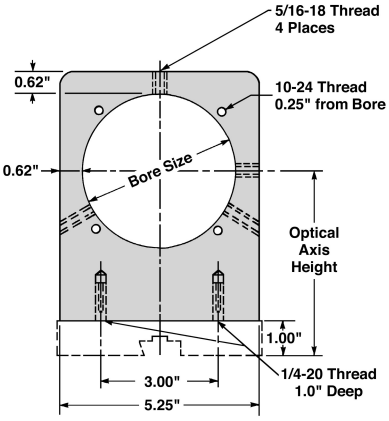
Vertical Supports

Vertical Supports provide a means for mounting your optics rigidly and accurately along the optical axis. They are 1" thick and have flat, parallel faces, with an accurately bored mounting hole. Optics can be mounted on either or both faces using the Mounting Plates. Optical alignment is retained while moving the mounting plates from one vertical support to another due to the precision to which they are made. Tapped holes are also provided in the sides of the vertical support so that optical elements can also be quickly mounted with thumb screws and easily adjusted.

Vertical supports are available in a wide range of bore diameters and optical axis heights. A variety of spacers and adapters are also available.



Series 76 Part #	Optical Axis Height	Bore Size	Series 133 Part #
3332	3"	2"	
3342	4"	2"	3042
3343	4"	3"	3043
3344	4"	4"	3044
3352	5"	2"	3052
3353	5"	3"	3053
3354	5"	4"	3054
	5"	5"	3055
	6"	2"	3062
	6"	3"	3063
	6"	4"	3064
	6"	5"	3065
	7"	2"	3072
	7"	3"	3073
	7"	4"	3074
	7"	5"	3075



Spacer Blocks

Spacer blocks are installed between the carrier and the vertical support to increase the height of the optical axis. Any height can be provided, but 1", 2" and 3" are standard. Supplied with special mounting studs.

3130-L

3100-L

Diagonal Spacer for Vertical Supports

Vertical supports can also be provided on a carrier at a 45° angle. A special 1" spacer for diagonal mounting is used in combination with the vertical support and carrier of your choice. Remember to choose a vertical support with an optical axis height of 1" less than you need, to allow for the extra height of the diagonal spacer.

3135

3105

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Vertical Supports

SERIES 76

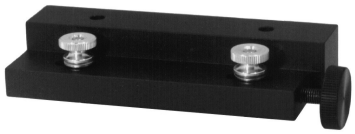
SERIES 133

Adjusto-Spacers w/ Thumb Screw Adjustments for Vertical Supports

3141

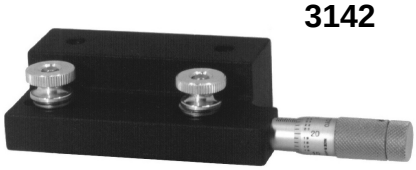
Adjusto-Spacer blocks are installed between the carrier and the vertical support to allow adjustment of the vertical support position perpendicular to the optical axis. This version of the Adjusto-Spacer has a thumb screw for adjustment. Remember to choose a vertical support with an optical axis height of 1" less than you need, to allow for the extra height of the Adjusto-Spacer.

3146



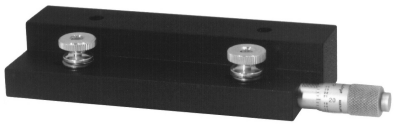
Adjusto-Spacers with Micrometer Adjustments for Vertical Supports

3142



This version of the Adjusto-Spacer has a micrometer to adjust the vertical support's position perpendicular to the optical axis. Remember to choose a vertical support with an optical axis height of 1" less than you need, to allow for the extra height of the Adjusto-Spacer.

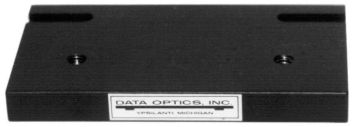
3147



Sub-plates for Vertical Supports

2449

Sub-plates for flexible mounting of Series 133 and Series 76 vertical supports directly on optical tables or breadboards.



2549

Standard Optical Mounts

2300

The standard optical mount is made up of three components: a carrier, a vertical support and a mounting plate. All of these components are made of aluminum that has been black anodized and then painted with a flat black epoxy paint to minimize reflections.

While both standard optical mounts shown have an optical axis height of 5", the Series 133 offers a 4" bore and the Series 76 offers a 3" bore as standard. We would be glad to assemble your selection free of charge, on request.

2000

Lens Mounting Plates

3802 – 2" dia.
3803 – 3" dia.
3804 – 4" dia.
3805 – 5" dia.

Mounting Plates are available in sizes to fit any vertical support from a 2" bore to a 5" bore. Optical components are custom fitted to the plate so that they are perfectly centered and can be moved from one vertical support to another without changing the optical alignment. Custom lens mounting can be provided at the factory at a nominal charge.

Mounting plates are also available in a push-pull version where a set screw is placed near each of the mounting screws, thus giving a slight angular adjustment to the plate and mounted optical component. Add "-T" to the end of the part number when ordering.

Vertical Supports

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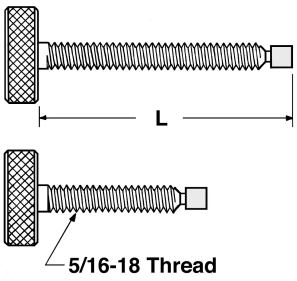
The "Quick Mount"

Vertical supports have tapped holes in the sides so that optical components can be mounted with thumb screws, where speed and ease of mounting are more important than accuracy and rigidity. Thumb screws are available in 1", 2" and 3" lengths with nylon swivel pads on the tips to prevent marring and twisting.

3701 – 1" **3702 – 2"** **3703 – 3"**
3700 – Replacement Nylon Swivel Pads

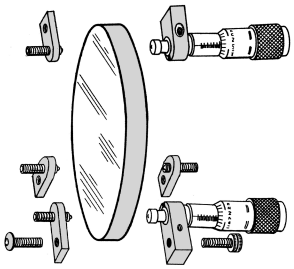
Thumb Screws



Precision Mirror Mounting Kits

Precision Mirror Mounting Kits are available to make any vertical support into a precision mirror mount with X and Y axis micrometer adjustments. The mirror is set in the bore of the vertical support and secured by 3 clips with spring loaded nylon plungers, a pivot clip and two micrometer heads. Mirrors (which should be 0.1" smaller than the bore of the vertical support) are not included, but may be special ordered. In addition to being used for mounting mirrors, it can be used to mount other relatively flat optical elements such as beam splitters, filters, long focal length lenses, etc.

4052



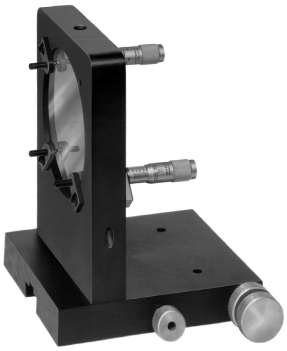
Same as above, but with 10-32 nylon thumb screws instead of micrometer heads.

4053

Precision Mirror Mounts with Micrometer Adjustments

Complete precision Mirror Mount, including a 3054 vertical support, 2106 standard carrier with clamping knob and pinion mechanism, and a precision mirror mounting kit (4052) with micrometer adjustments, as described above. Mirror not included, but can be special ordered. Provided for convenience in ordering; other combinations also available, if ordered separately.

4150



Precision 45° Mirror Mounts

Vertical supports are available with an extra support element at 45° as shown in the picture. This configuration can either be used with a mounting plate, thumb screws, or the precision mirror mounting kit (4052). This modification can be made to any size vertical support for either the Series 133 or Series 76.

3907

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Vertical Supports

SERIES 76

3904

3908

Rotating Slide with Micrometer Adj.

Rotating slides with micrometer adjustments can be used with the vertical supports to provide both a rotational adjustment and a translational adjustment for the central aperture. Sizes to fit 2", 3", 4", and 5" bores and with various apertures and micrometer travel distances can be provided.

Optical Mount with X-Y Adjustment

Mounts with thumb screw adjustments in both the X and the Y directions can be made to customer specifications. X-Y Mounts are attached to a vertical support with the desired optical axis height and bore.

SERIES 133

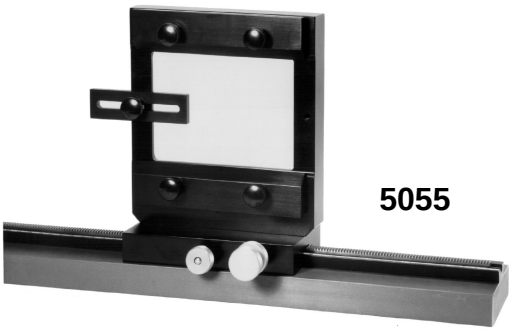
3905

3909

4 x 5 Plate Holder

A simple, solid, inexpensive plate holder. Two clamping bars securely hold 4x5 glass plates, 0.032" (0.8 mm) to 0.25" (6.4 mm) thick. An adjustable stop is included for repeat positioning.

The 4 x 5 Plate Holder is made from 1" thick black anodized aluminum, painted with a flat black epoxy paint. It has five $\frac{1}{4}$-20 tapped holes in the base for mounting on either Series 133 or Series 76 carriers, or rod mounting.



5055

4 x 5 Plate Holder Transverse Mounted on Series 76 carrier

The 4 x 5 plate holder is shown here mounted in a transverse manner on a special 6" long Series 76 carrier and table rail.

X-Y Plate Positioner

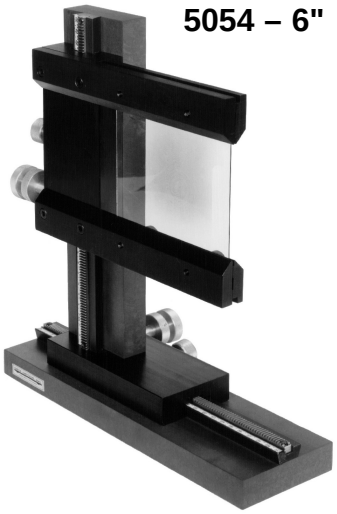
Built around standard Data Optics components, the X-Y Plate Positioner lets you quickly move a plate over a 6" or 12" range in both the X and the Y direction. Mounting the unit transversely on a 2106 Series 133 carrier would also give you Z motion.

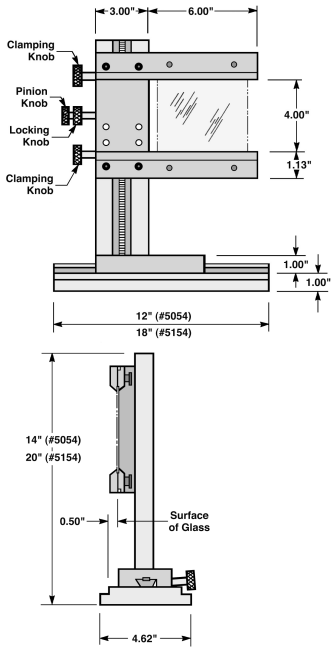
The unit has been designed for 4 x 5 photographic plates. In addition, extra holes have been provided to accommodate 2" and 3" wide plates. The jaws will accept plates from $\frac{1}{32}$" to $\frac{3}{8}$" in thickness.

The rack and pinion movement gives approximately 0.8" of travel per revolution of the pinion knob. The carriers may be locked in position using the standard clamping knob.

Units are available with either 6" or 12" of motion. Other sizes can be special ordered, as well. The 5054 with 6" of X and Y travel weighs 14 lbs., while the 5154 with 12" of X and Y travel weighs 19 lbs.

5154 – 12"
5054 – 6"





Vertical Supports

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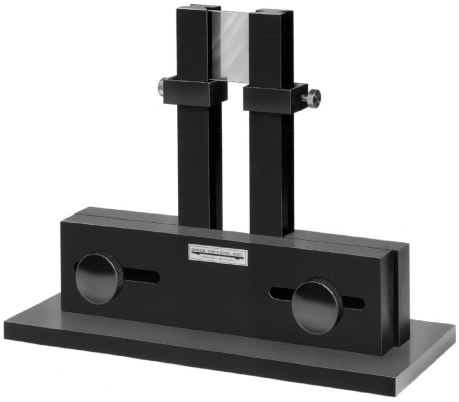
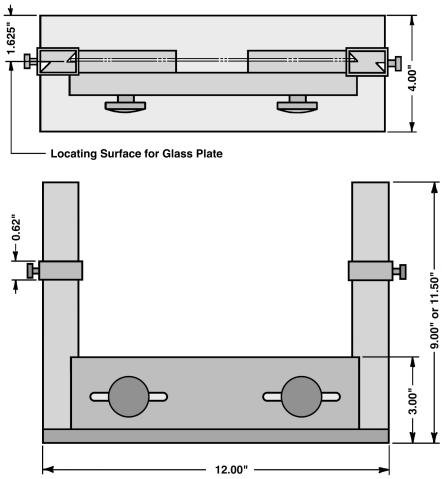
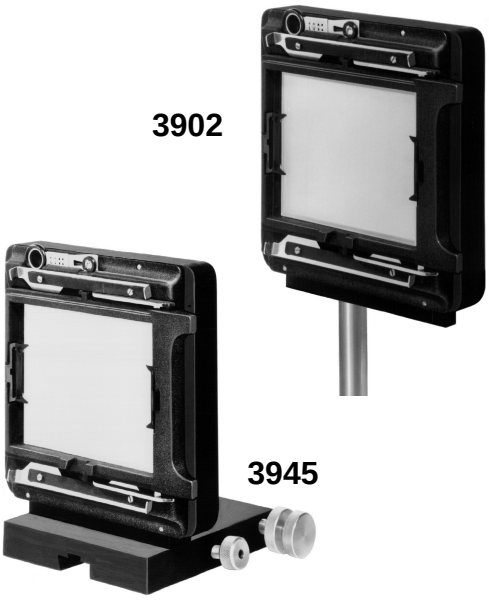
Hologram Holder

5051 Here is an adjustable holder which will accommodate a large variety of glass plates. Reversible jaws quickly adjust to any size plate up to 14 inches in width. Dovetail shaped grooves in the upright arms automatically accommodate various thicknesses of glass, while maintaining a constant focal plane. Stops on the arms provide vertical position adjustment.

The Hologram Holder is made of black anodized aluminum painted with a baked flat black epoxy paint and has thick sections to provide maximum rigidity. Two versions are standard with arms either 8.5" or 11" long (6" or 8.5" clear area above the base). Weight is approximately 7 lbs.







3902

3945

Graflok Camera Back

3900 To be mounted on the vertical support 3901.

Vertical Support for 4 x 5 Graflok Camera Back

3901 May be mounted on either a Data Optics Carrier or a rod with ¼-20 thread.

4 x 5 Graflok Camera Back with Vertical Support

3902 May be mounted on either a Data Optics Carrier or a rod with ¼-20 thread.

4 x 5 Graflok Camera Back on Series 133 Carrier

3945 The 4 x 5 Graflok Camera Back on Series 133 Carrier can be used to photographically record optical data. The camera back will take glass plate holders, sheet film holders or Polaroid backs. The 3945 consists of a 2106 Series 133 carrier with clamp knob and pinion mechanism, a special vertical support and a Graflok camera back.

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Rod Mounts

To provide as much versatility as possible, Data Optics offers a unique rod mount. The “V” shape of the rod mounting hole accepts our special V-rods or any diameter round rod up to 0.75" (19 mm). Round rods locate precisely on the two lines formed by the “V”, eliminating wobble, while V-rods retain their angular position even when raised or lowered in the mount. See page 25 for more details

Data Optics also provides a complete selection of rod mounts with vertical adjustments (1" adjustment range). They allow lower optical height, fewer moving parts and more precision than other types.

ROD MOUNT FEATURES TABLE

Series 133	Series 76	Tapped Holes	Clearance Holes	Mounting Slots	Vertical Adj.	Adjusto-Rod	Thumb Screw	Micrometer Adj.	On Carrier	On Sub-plate
2577	2477	Yes								
2577	2478		Yes							
2588	2479			Yes						
2557	2457	Yes			Yes					
2557	2458		Yes		Yes					
2558	2459			Yes	Yes					
2576	2476					Yes	Yes			
2586	2486					Yes		Yes		
2556	2456				Yes	Yes	Yes			
2559	2488				Yes	Yes		Yes		
2500	2400					Yes	Yes		Yes	
2501	2401					Yes		Yes	Yes	
2560	2455				Yes	Yes	Yes		Yes	
2505	2405				Yes	Yes		Yes	Yes	
2550	2450					Yes	Yes			Yes
2554	2466					Yes		Yes		Yes
2555	2454				Yes	Yes	Yes			Yes
2561	2460				Yes	Yes		Yes		Yes

SERIES 76

2477

Rod Mounts w/ ¼-20 tapped holes

These Rod Mounts are for use with Data Optics carriers and accurately place the rod on the optical axis. The “V” shaped hole allows any size rod up to 0.75" (19 mm) diameter to be used. Series 133 rod mounts are 2.5" high, while Series 76 rod mounts are 2" high. Two ¼-20 tapped holes are provided for mounting. Complete with ¼-20 stainless steel mounting screws.

SERIES 133

2577

2478

Rod Mounts w/ ¼-20 clearance holes

These Rod Mounts have ¼-20 clearance holes for mounting to plates or optical tables. Series 133 rod mounts have two holes on 4" centers, while Series 76 rod mounts have two holes on 2" centers. Complete with ¼-20 stainless steel mounting screws.

2577

Rod Mounts

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SERIES 76

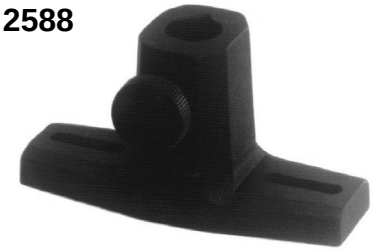
SERIES 133

Rod Mounts with ¼" mounting slots

2479

These Rod Mounts have ¼" slots for mounting to plates or optical tables where a degree of coarse lateral adjustment is desired. Series 133 rod mounts have two slots on 4" centers providing 0.875" of movement, while Series 76 rod mounts have two slots on 2" centers providing 0.5" of movement. Complete with ¼-20 stainless steel mounting screws.

2588



Rod Mounts with Vertical Adjustment; ¼-20 tapped mounting holes

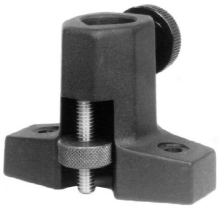
2457

These Rod Mounts with Vertical Rod Adjustment are for use with Data Optics carriers and accurately place the rod on the optical axis. The "V" shaped hole allows any size rod up to 0.75" (19 mm) diameter to be used. Series 133 rod mounts are 2.5" high, while Series 76 rod mounts are 2" high. Two ¼-20 tapped holes are provided for mounting. Complete with ¼-20 stainless steel mounting screws.

2557

Rod Mounts with Vertical Adjustment; ¼-20 clearance mounting holes

2458



These Rod Mounts with Vertical Rod Adjustment have ¼-20 clearance holes for mounting to plates or optical tables. Series 133 rod mounts have two holes on 4" centers, while Series 76 rod mounts have two holes on 2" centers. Complete with ¼-20 stainless steel mounting screws.

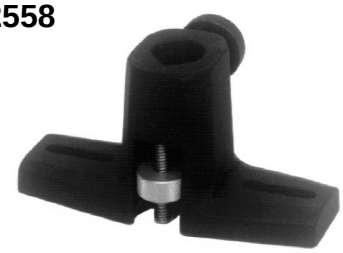
2557

Rod Mounts with Vertical Adjustment; ¼" mounting slots

2459

These Rod Mounts with Vertical Rod Adjustment have ¼" slots for mounting to plates or optical tables where a degree of coarse lateral adjustment is desired. Series 133 rod mounts have two slots on 4" centers providing 0.875" of movement, while Series 76 rod mounts have two slots on 2" centers providing 0.5" of movement. Complete with ¼-20 stainless steel mounting screws.

2558

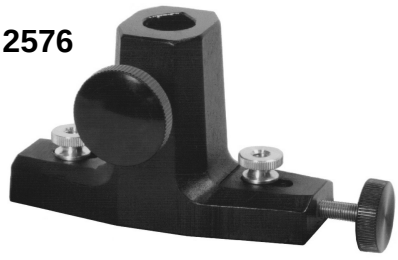


Adjusto-Rod Mounts with Lateral Thumb Screw Adjustment

2476

These Adjusto-Rod mounts provide lateral thumb screw adjustment of ±0.25" (±6.3 mm). A spring loaded thumb screw gives smooth adjustment of 0.03" (0.8 mm) per turn, free of backlash. Must be mounted on a Data Optics carrier or sub-plate to operate properly.

2576



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Rod Mounts

SERIES 76

SERIES 133

Adjusto-Rod Mounts with Lateral Micrometer Adjustment

2486

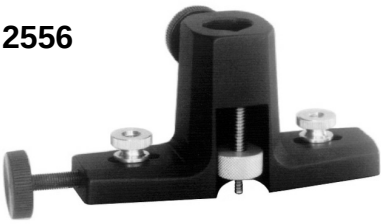
These Adjusto-Rod Mounts provide lateral micrometer adjustment of ±0.25" (±6.3 mm). A spring loaded micrometer gives smooth adjustment of 0.025" (0.5 mm) per turn, free of backlash. Must be mounted on a Data Optics carrier or sub-plate to operate properly. Specify English or Metric micrometer head.

2586

Adjusto-Rod Mounts w/ Vertical Adj. & Lateral Thumb Screw Adjustment

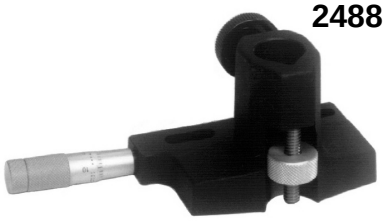
2456

These Adjusto-Rod Mounts with Vertical Adjustment provide lateral thumb screw adjustment of ±0.25" (±6.3 mm). A spring loaded thumb screw gives smooth adjustment of 0.03" (0.8 mm) per turn, free of backlash. Must be mounted on Data Optics carrier or sub-plate to operate properly.



2556

Adjusto-Rod Mounts w/ Vertical Adj. & Lateral Micrometer Adjustment

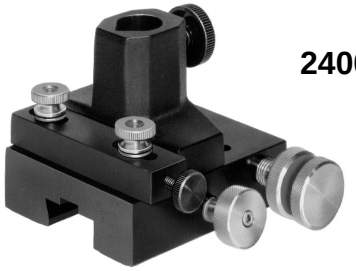


2488

These Adjusto-Rod Mounts with Vertical Adjustment provide lateral micrometer adjustment of ±0.25" (±6.3 mm). A spring loaded micrometer gives smooth adjustment of 0.025" (0.5 mm) per turn, free of backlash. Must be mounted on a Data Optics carrier or sub-plate to operate properly. Specify English or Metric micrometer head.

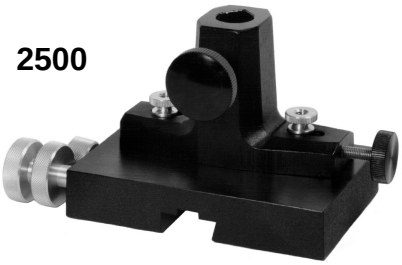
2559

Adjusto-Rod Mounts with Carriers; Lateral Thumb Screw Adjustment



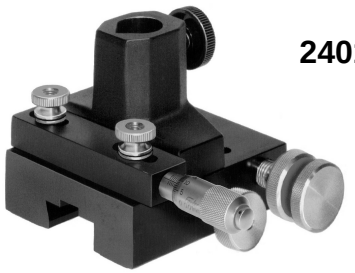
2400

A standard Adjusto-Rod Mount with Carrier, clamping knob and pinion mechanism is provided for convenience in ordering. Lateral thumb screw adjustment is provided via the 2576 / 2476 Adjusto-Rod Mount. The 2103 / 2303 3.5" carriers are included. Total height is 3.5" for the Series 133 and 3.3" for the Series 76.



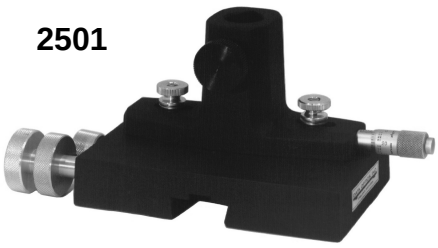
2500

Adjusto-Rod Mounts with Carriers; Lateral Micrometer Adjustment



2401

A standard Adjusto-Rod Mount with Carrier, clamping knob and pinion mechanism is provided for convenience in ordering. Lateral micrometer adjustment is provided via the 2586 / 2486 Adjusto-Rod Mount. The 2103 / 2303 3.5" carriers are included. Total height is 3.5" for the Series 133 and 3.3" for the Series 76.



2501

Rod Mounts

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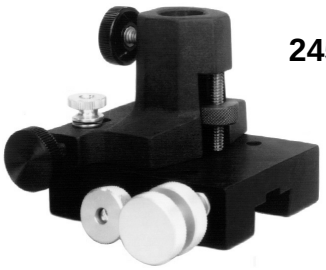
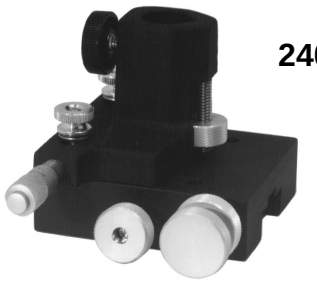
SERIES 76



2455

Adjusto-Rod Mounts w/ Vertical Adj. & Carriers; Lateral Thumb Screw Adj.

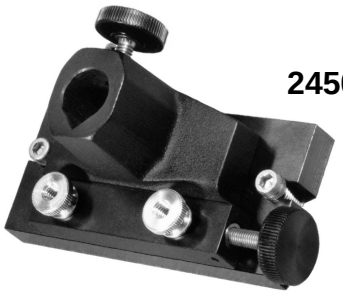
A standard Adjusto-Rod Mount with Vertical Adjustment, carrier, clamping knob and pinion mechanism is provided for convenience in ordering. Lateral thumb screw adjustment is provided via the 2556 / 2456 Adjusto-Rod Mount. The 2103 / 2303 3.5" carriers are included. Total height is 3.5" for the Series 133 and 3.3" for the Series 76.



2405

Adjusto-Rod Mounts w/ Vertical Adj. & Carriers; Lateral Micrometer Adj.

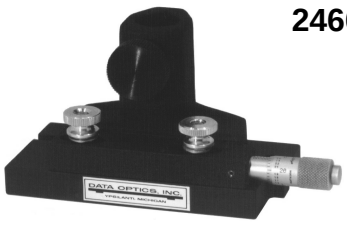
A standard Adjusto-Rod Mount with Vertical Adjustment, carrier, clamping knob and pinion mechanism is provided for convenience in ordering. Lateral micrometer adjustment is provided via the 2559 / 2488 Adjusto-Rod Mount. The 2103 / 2303 3.5" carriers are included. Total height is 3.5" for the Series 133 and 3.3" for the Series 76.



2450

Adjusto-Rod Mounts on Sub-plates; Lateral Thumb Screw Adjustment

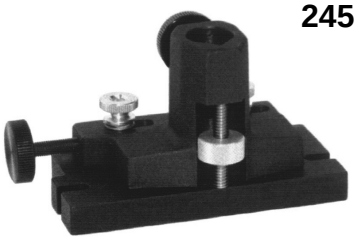
A standard Adjusto-Rod Mount on a Sub-plate for use on optical breadboards or tables is provided for convenience in ordering. Lateral thumb screw adjustment is provided via the 2576 / 2476 Adjusto-Rod Mount. The 2551 / 2451 sub-plate is included. Total height is 3" for the Series 133 and 2.5" for the Series 76.



2466

Adjusto-Rod Mounts on Sub-plates; Lateral Micrometer Adjustment

A standard Adjusto-Rod Mount on a Sub-plate for use on optical breadboards or tables is provided for convenience in ordering. Lateral micrometer adjustment is provided via the 2586 / 2486 Adjusto-Rod Mount. The 2551 / 2451 sub-plate is included. Total height is 3" for the Series 133 and 2.5" for the Series 76.



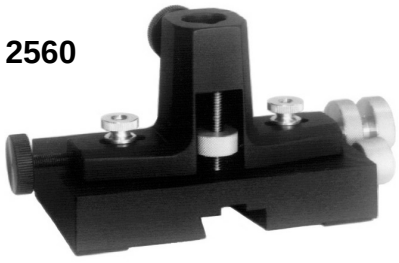
2454

Adjusto-Rod Mounts w/ Vertical Adj. on Sub-plates; Lateral Thumb Screw Adj.

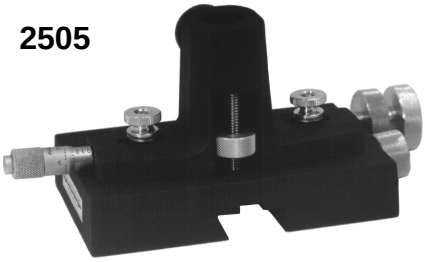
A standard Adjusto-Rod Mount with Vertical Adjustment on a Sub-plate for use on optical breadboards or tables is provided for convenience in ordering. Lateral thumb screw adjustment is provided via the 2556 / 2456 Adjusto-Rod Mount. The 2551 / 2451 sub-plate is included. Total height is 3" for the Series 133 and 2.8" for the Series 76.

SERIES 133

2560

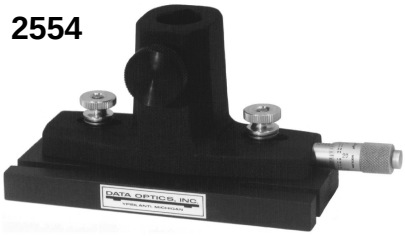


2505

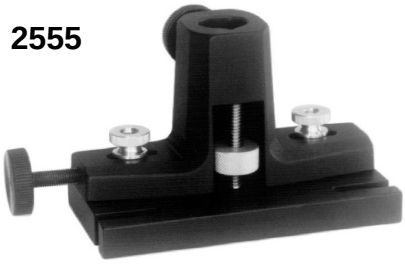


2550

2554



2555



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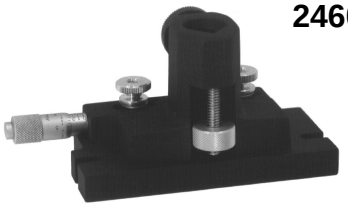
Rod Mounts

SERIES 76



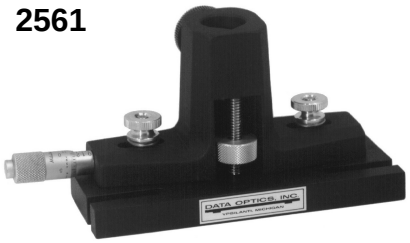
2460

Adjusto-Rod Mounts w/ Vertical Adj. on Sub-plates; Lateral Micrometer Adj.

A standard Adjusto-Rod Mount with Vertical Adjustment on a sub-plate for use on optical breadboards or tables is provided for convenience in ordering. Lateral micrometer adjustment is provided via the 2559 / 2488 Adjusto-Rod Mount. The 2551 / 2451 sub-plate is included. Total height is 3" for the Series 133 and 2.8" for the Series 76.

SERIES 133

2561



.Low Profile Mount with Vertical and Lateral Adjustment; Thumb Screw Adj. Mounted on a Slim Series 133 Carrier

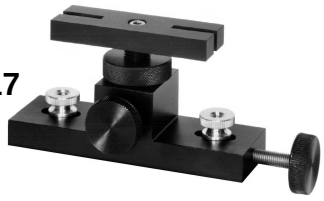
A versatile Low Profile Mount with Vertical thumb knob adjustment and lateral thumb screw adjustment mounted on a Slim Series 133 carrier (2111). Use a pair to mount many models of rectangular lasers. Adjusts ±0.2" (±5 mm) from the center position.

4000

Low Profile Mount w/ Vertical and Lateral Adj.; Thumb Screw Adj. without Carrier

Same as above, but without carrier. Must be mounted on a Series 133 carrier or similar base to operate.

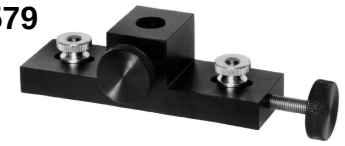
4117

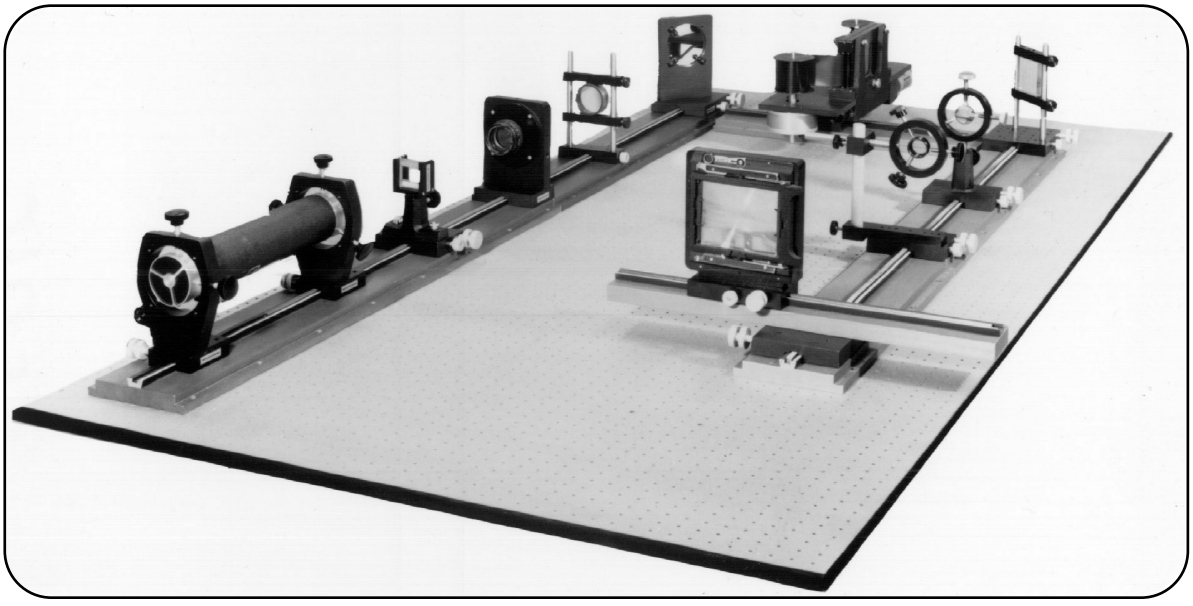


Low Profile Mount with Lateral Thumb Screw Adjustment

Same as above, but without vertical adjustment. Only 1.375" high. Has a round 0.5" (12.7 mm) diameter rod hole. Must be mounted on a Series 133 carrier or similar base to operate.

2579





Rod Mounts

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Table Mounted Rod Holders
Quick, Convenient, Space Saving, Economical

In addition to the rod holders covered in the earlier part of this section, Data Optics also makes the following compact designs which can also be used with a standard optical table or breadboard. Several rod mounts are offered which use the unique "V" shaped hole for precision alignment. When used, the V-rods provide enhanced orientation repeatability. The "V" hole points along the optical axis so that V-Rods can be removed from and then returned to the holder without disturbing the orientation. V-rod mounts also can be used with normal round rods, providing more precise positioning than a round hole.

Double Barrel V-Rod Holders

The outer barrel of these V-Rod Holders attaches to the optical table or breadboard using the ¼-20 threaded hole in its bottom. The inner barrel is free to rotate until it is locked in place with a thumb screw. The support rod can be positioned at the desired height and locked in place with a second thumb screw. The two versions differ only in height, with the 3652 being 2" tall and the 3653 being 3" tall. Both are 1.5" in diameter.

3652

3653

Single Barrel V-Rod Holders

These V-Rod Holders can be rotated to the right position and then clamped to the optical table or breadboard with the 2631 Mini Table Clamp, or attached by the ¼-20 threaded hole in the bottom. The support rod can be positioned at the desired height and locked in place with a thumb screw. The 3662 is 1.875" tall and the 3663 is 2.875" tall. Both have a base diameter of 1.5".

3662

3663

V- Rod Holder with Vertical Adjustment

This V-Rod Holder provides fine vertical adjustment over a 1" range with a thumb knob. It can be clamped to the optical table or breadboard with the 2631 Mini Table Clamp, or attached by the ¼-20 threaded hole in the bottom. The height is 2.25", while the footprint is 1.75" x 1.5".

3672

Mini Table Clamp

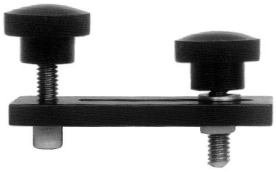
Specifically designed for use with the above table mounted rod holders which have a clamping ledge on the base (3662, 3663 and 3672). Comes with a ¼-20 thumb screw. Use for clamping thicknesses less than 0.25".

2631

Table Clamp

Table clamps for use where the clamping thickness is between 0.25" and 1".

2630



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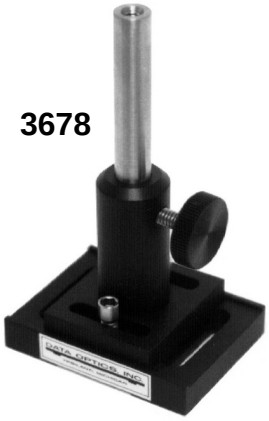
Rod Mounts

PART NO.	HEIGHT	INSIDE DIAMETER	OUTSIDE DIAMETER
3673	2"	0.75"	1.25"
3674	3"	0.75"	1.25"
3675	2"	0.50"	1"
3676	3"	0.50"	1"

Round Rod Holders

While the above V-Rod Holders have many advantages, even when used with round rods, simple holders for round rods only are also available. These can be attached to the optical table or breadboard by the ¼-20 threaded hole in the bottom. Precision boring reduces rod wobble. These round rod holders offer a quick, inexpensive solution for many table top applications.

3678



3677

X-Y Slotted Slides for Rod Holders

These X-Y Slotted Slides can be used with the rod holders shown previously to provide coarse X and Y adjustment. One ¼-20 tapped hole is provided in the center of the top plate for mounting of the rod holder, as illustrated in the photographs. The 3677 is 3.5" by 6.0" and allows for 2.25" of travel in both X and Y directions. The 3678 is 2.25" by 3.0" and allows 1.5" of travel in one direction and 1.25" of travel in the other direction. Total height is 0.7". Rod holders should be ordered separately.

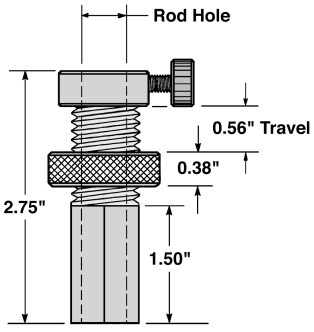
3680

3679

Slotted Bases for use with Rod Holders

These Slotted Bases can be used with the rod holders shown previously to provide coarse adjustment in one direction. One ¼-20 tapped hole is provided in the center of the plate for mounting of the rod holder. The 3679 is 3" by 5.0" and allows for 2" of travel. The 3680 is 2.25" by 3.0" and allows 1.25" of travel. Total height is 0.5". Rod holders should be ordered separately.

3620



Vertical Rod Adjusters

A Vertical Rod Adjuster can be readily added to any Data Optics V-rod mount. Fitting into the “V” shaped hole in the rod mount, the Vertical Rod Adjuster gives round rods all of the advantages of alignment that exist for Data Optics unique V-Rod. Once the round rod, and the optical element mounted on it, are set at the proper angle and approximate height, the assembly may then be precisely adjusted vertically without changing the angular setting of the element. Rotating the height adjusting nut one full turn raises the rod 0.05" (1.25 mm). Total travel is 0.5" (13 mm). Each Vertical Rod Adjuster is precision bored for a standard round rod size of 0.375", 0.500", or 0.540". Other sizes can be special ordered. Please specify the bore size after the part number.

Rods

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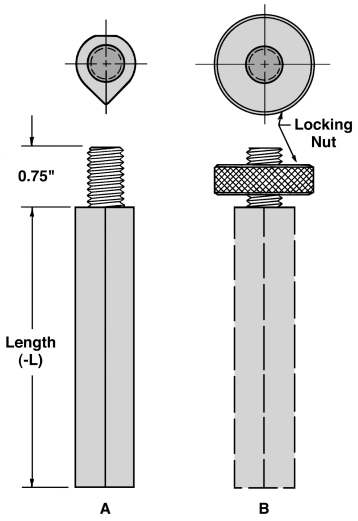
V-Rods

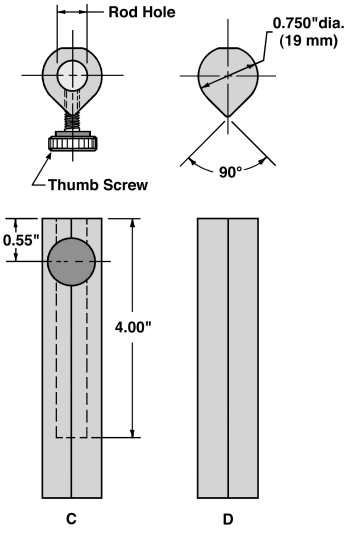
Standard V-Rod Styles

Unique “V” shaped Rods prevent rotation and assure accurate alignment. V-Rods are used just like round rods, but V-Rods DO NOT ROTATE when they are adjusted up and down in the rod mount. Consequently, a lens mounted on a V-Rod will maintain proper alignment while being adjusted vertically.

A locking nut or thumb knob permits an optical element to be preset in any angular position. V-Rods are made of anodized aluminum and are for use in V-Rod mounts only. State length (-L) required.



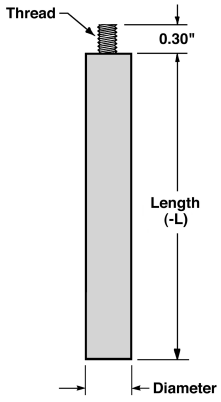
Standard V-Rod Styles		
Part #	**End Treatment**	**Figure**
3601-L	1/4-20 thread	A
3602-L	3/8-16 thread	A
3603-L	1/2-13 thread	A
3611-L	1/4-20 thread, w/ lock nut	B
3612-L	3/8-16 thread, w/ lock nut	B
3613-L	1/2-13 thread, w/ lock nut	B
3604-L	0.251" hole, w/ thumb screw	C
3605-L	0.376" hole, w/ thumb screw	C
3606-L	0.501" hole, w/ thumb screw	C
3607-L	0.541" hole, w/ thumb screw	C
3608-L	Plain end	D



Stainless Steel Round Rods & Support Posts

Stainless steel Round Rods and Support Posts come in a variety of diameters and can be obtained at whatever length is desired. Please specify length (-L) when ordering. Although it is standard to provide these rods with a 1/4-20 thread extending 0.3" from one end, other options are also available. The other end of the rod can be tapped or threaded, if desired, for a small additional charge (specify 3200).

Part #	**Diameter**	**Standard Thread Sizes Available**
3203-L	0.375" (9.5 mm)	1/4-20, M6
3205-L	0.500" (12.7 mm)	1/4-20, M6, 5/16-24, 3/8-16
3206-L	0.540" (13.7 mm)	1/4-20, M6, 5/16-24, 3/8-16
3204-L	0.625" (15.9 mm)	1/4-20, M6, 5/16-24, 3/8-16
3207-L	0.750" (19.1 mm)	1/4-20, M6, 5/16-24, 3/8-16, 1/2-13
3209-L	1.000" (25.4 mm)	1/4-20, M6, 5/16-24, 3/8-16, 1/2-13
3200	Tapped hole in other end of round rod	



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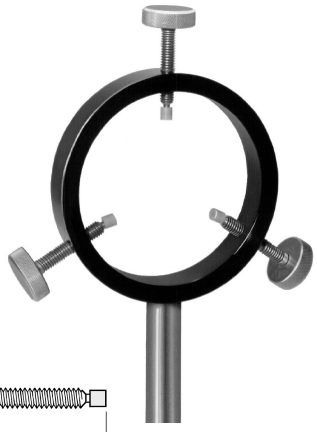
Rod Mounted Accessories

Data Optics manufactures many accessories for use with rod mounts. These include mounts for lenses, mirrors, prisms, filters, lasers and other optical components. There are also a variety of side rod and double rod mounts.

Quick-Mount Rings

Quick-Mount Rings provide a convenient means of mounting lenses, prisms, etc. on rod mounts. They are available in bore sizes of 2", 3", 4" and 5" and can accommodate three thumb screws in either an equilateral or an orthogonal arrangement. Rings are tapped to accept rods with threaded ends in all standard tap sizes. Order separately thumb screws and mounting rod in the length and size desired.

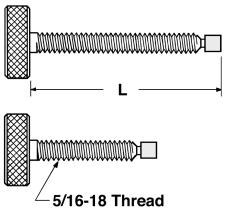
3002
3003
3004
3005



Thumb Screws for Mounting Rings

Thumb Screws are used in conjunction with either the Quick-Mount Rings or vertical supports. They have nylon swivel pads on the tips to prevent marring and twisting, and are available in 1", 2" and 3" lengths (3701, 3702, 3703 respectively). Choose the length that works best for your application. Spare or replacement nylon swivel pads can be ordered as part number 3700.

3700
3701
3702
3703



Adjustable Lens Holder

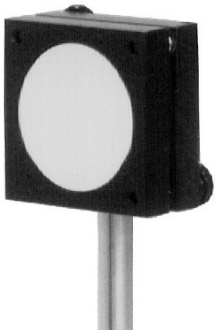
The Adjustable Lens Holder will accommodate lenses with diameters up to 4". The base is tapped for ¼-20 thread. Supplied with either a 0.50" or 0.54" diameter, 4" long, stainless steel rod.

3740 - 0.50
3740 - 0.54

Adjustable Mirror Holder

Adjustable Mirror Holders are available for either 1" (8026) or 2" (8028) diameter mirrors. Other sizes can be provided upon request. The front plate can be tilted in either the X or Y direction with thumb knobs. Customer provided mirrors are affixed to the flat front surface or in the 1" or 2" bored hole.

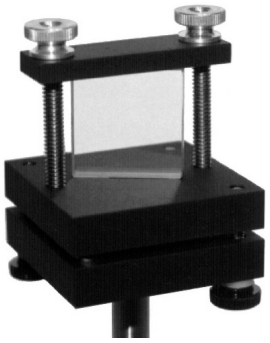
8026
8028



Adjustable Prism Platform

The Adjustable Prism Platform is 2.5" square and will accept a prism or block up to 1.5" tall and 1.375" wide. The platform tilt can be adjusted in both the X and Y directions using 10-32 thumb screws. A clamping bar with thumb nuts secures the prism in place on the platform. A threaded hole is provided in the center of the base to accept standard rods.

8025

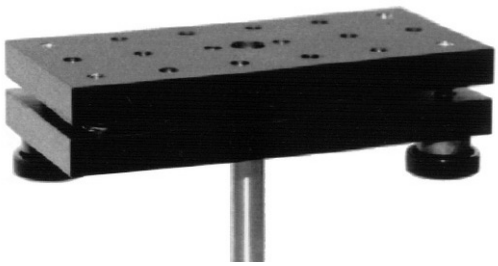


8025

Adjustable Tilt Platforms

Adjustable Tilt Platforms are available in two sizes to hold optical components that need to be adjusted. The 8030 is 3" x 6" while the 8032 is 3" x 3". Both have ¼-20 tapped holes on 1" centers on their top surface and a ¼-20 tapped hole in the center of the base for mounting on a rod. Thumb screws are provided to allow tilt adjustment about two axis.

8030
8032



Rod Mounted Accessories

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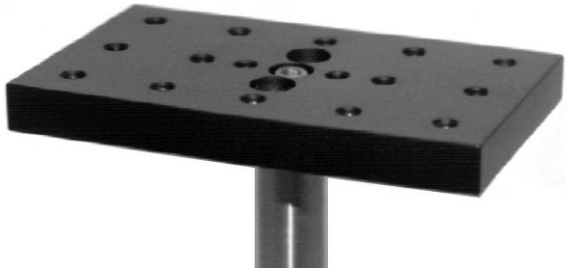


8040

Fixed Mounting Platform

The Fixed Mounting Platform is 3" x 5" and has ¼-20 tapped holes on 1" centers. One ¼-20 tapped hole in the center of the platform is intended for mounting the platform to a rod. Two counterbored ¼-20 clearance holes are provided on either side of the center hole to allow mounting on other surfaces. Other sizes and hole patterns can be provided on request. Platform is constructed from 0.5" aluminum tooling plate, black anodized, with an overcoat of flat black epoxy paint for protection.

8050 - L
8051 - L

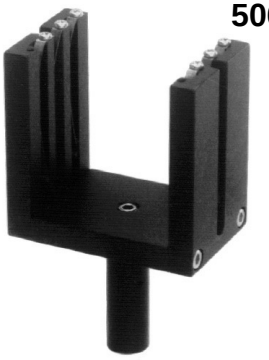
Cylindrical Laser Mounting Base

Mounting Bases for cylindrical lasers are available in a variety of sizes. Using either 3" (8050-L) or 4" (8051-L) mounting rings, these bases come complete with six 2" thumb screws with nylon swivel tips. They can be ordered in standard lengths of 8", 12", 16", or other lengths on request. A counterbored ¼-20 clearance hole is provided in the center of the base for mounting to a rod or via a single screw. Two other counterbored ¼-20 clearance holes are provided 1" on either side of the center hole to allow mounting on other surfaces via 2 screws.

5063

2" Filter Holder

These 2" Filter Holders will accommodate up to three 2" x 2" film slides, glass plates or filters. Beryllium copper spring clips in the grooves compensate for material thicknesses up to 0.125" (3.175 mm). Provided with a 0.5" diameter rod, 1.5" long, attached to the center of the base with a ¼-20 thread.



5064

2" Filter Holder with Big Plate Slot

Same as the 5063 2" Filter Holder shown above, but with the center slot open on the sides to accommodate larger plates with a thickness up to 0.187" (4.75 mm).

5065

4" Filter Holder

Same as the 5063 Filter Holder, but larger. Will accept 4" wide glass plates or filters. Side supports are 3" high. Beryllium copper spring clips in the grooves compensate for material thicknesses up to 0.125" (3.175 mm). Provided with a 0.5" diameter rod, 2" long, attached to the center of the base with a ¼-20 thread.

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Rod Mounted Accessories

Side Rod Mounts

Side Rod Mounts are intended to be mounted on a carrier to provide for mounting a rod to either side of the main rail axis, thereby allowing greater flexibility in mounting optical components. The “V” shaped hole allows any size round rod up to 0.75" (19 mm) diameter to be used, in addition to the unique Data Optics V-Rods. The rod hole is far enough to the side of the carrier for the vertical rod to clear the underlying optical bench or table rail. Various ¼-20 tapped mounting holes are provided to accommodate all of the Series 133 and 76 carriers.

2562

Slotted Side Rod Mounts

The Slotted Side Rod Mount provides a flexible mounting base for raised components via its 4.25" long slot with clearance for ¼-20 screws and eighteen tapped holes on 1" centers on the top and sides.

2564

Adjusto-Side Rod Mounts with Thumb Screw Adjustment

Similar to the 2562, the Adjusto-Side Rod Mounts are intended to be mounted on a carrier or similar surface, but provide lateral adjustment of the rod relative to the carrier via a thumb screw. Lateral travel is ±0.25".

2566

Adjusto-Side Rod Mount with Micrometer Adjustment

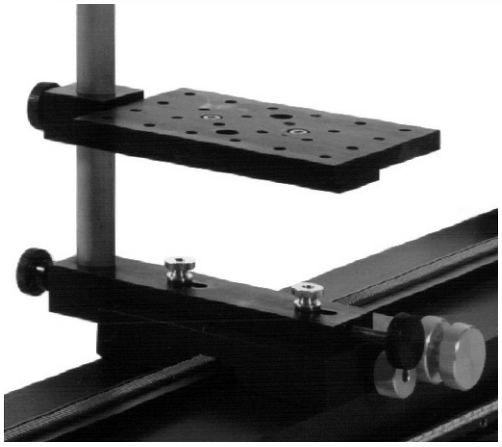
The Adjusto-Side Rod Mounts are intended to be mounted on a carrier or similar surface, and provide lateral adjustment of the rod relative to the carrier via a micrometer adjustment. Lateral travel is ±0.25" (±6.3 mm).

2568

Elevated Mounting Platform with Adjusto-Side Mount; thumb screw adj.

In this product, the Adjusto-Side Rod Mount, a V-Rod, a Side Rod Mount and a platform have been combined into one unit and mounted on a carrier. Many similar arrangements can be made, to satisfy almost any requirement.

8045

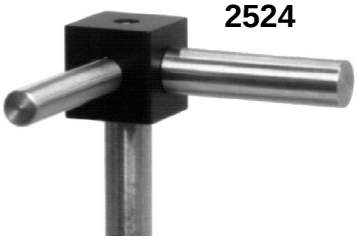


Rod Holder Cube

The Rod Holder Cube is a 1" cube with ¼-20 tapped holes in the center of each face. Any of the standard round rods with ¼-20 threaded ends can be used to produce unique supports.

2524

2524



Right Angle Rod Holder

The Right Angle Rod Holder has two “V” shaped holes at right angles to each other. It can be used with any V-Rod or round rod up to 0.75" in diameter. Includes two thumb screws for clamping rods into the rod holder.

2525

Rod Mounted Accessories

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2527

Variable Angle Rod Holder

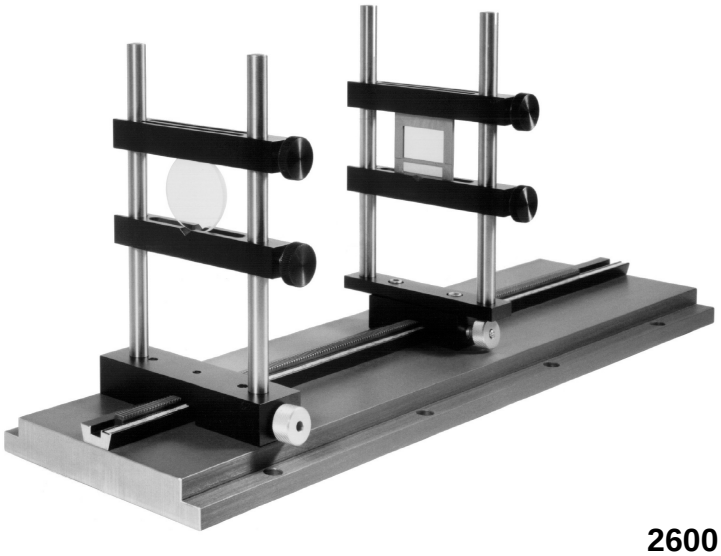
Similar to the Right Angle Rod Holder, but made in two pieces so that the angle between the two holes can be adjusted. A separate thumb screw locks the two sides together at the desired angle.

Double Rod Mounts

Double Rod Mounts provide a fast, simple way to inexpensively mount individual lenses, slides, filters, and small glass plates. Double Rod Mounts are more rigid than single rod mounts and hold the optical element square to the optical axis. Using Double Rod Mounts, the optical elements can be closely spaced, as well.

The rods used for Double Rod Mounts are standard 0.5" diameter stainless steel rods with ¼-20 threaded ends. The rods are screwed into any carrier, adapter, optical table or breadboard with holes on 4" centers, or with the 2603 adapter plate. The adjustable cross bars have a "U" shaped hole on one end to accommodate slight deviations in tapped hole spacing.

"V" grooves on one side of the cross bar hold round objects such as lenses, up to 3.5" (89 mm) in diameter. Two grooves on the other side of the cross bar are shaped to hold rectangular objects, such as glass plates, slides or filters up to 0.125" (3.2 mm) thick.



2600

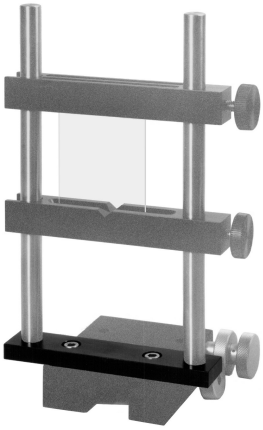
Double Rod Mount Set

The Double Rod Mount Set consists of two Adjustable Cross Bars with thumb screws and two 0.5" diameter, 8" long stainless steel rods with ¼ -20 threaded ends.

2601

Adjustable Cross Bars

For use only with Double Rod Mounts, these Adjustable Cross Bars have a "V" shaped groove for round objects on one side and two flat grooves on the other side for rectangular objects.



2603

Adapter Plate for Double Rod Mounts

This versatile Adapter Plate will allow mounting of Double Rod Mounts on surfaces which don't have holes on 4" centers, or to allow the Double Rod Mount to be set at an angle to the axis of the holes. Holes are provided to accommodate all Series 76 and Series 133 carriers.

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Rod Mounted Accessories

Self Centering Lens Chuck

The Self Centering Lens Chuck will accommodate a wide range of lens diameters up to 4" (100 mm) and place them all on the same optical axis. The optical axis may be changed up to 1.5" (38 mm) without changing the length of the support rods. Designed for a 5" (127 mm) to 6" (152.4 mm) optical axis when mounted on any Series 76 or Series 133 carrier. Will also mount directly on any optical table or breadboard with 2" hole spacing. (Subtract 1" from the optical axis heights given above.)

2620

Microscope Objective Lens Holder

The Microscope Objective Lens Holder is a simple, post-mounted accessory with a center threaded hole compatible with objective lenses and tapped holes along the edge for $\frac{1}{4}$-20 and $\frac{3}{8}$-16, to accommodate either V-Rod or round posts in a variety of sizes. Other mounting hole threads can be specified. Order posts and objective lenses separately.

8031

Beam Steering Components

Laser beam steering components are available from Data Optics for use both on optical table tops and optical bench or rail mounting. Utilizing the alignment precision and inherent flexibility of their unique V-rod posts, Data Optics beam steering components are available with micrometer or thumb screw adjustments, ball bearing pivots, variable height, and full rotation around the vertical axis.

Any length V-rod can be used to separate the pair of mirror mounts, and any of the V-rod mounts available from Data Optics can be used to secure the unit to a carrier or table top. Within the same family of components are 45° mirror units that can be used either singly or in pairs to steer laser beams into or out of an optical system.

Mirrors are not included with the units, as their specifications depend on the intended application. However, they can be quoted and provided to your specifications.

4075
4076

4065
4066

4070
4071

Translation Slides

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Crossed Roller Bearing Slides

— The Best Accuracy
— The Best Rigidity

Data Optics Crossed Roller Bearing Slides provide single axis movement of high, repeatable accuracy, smooth action and the capability of accepting heavy loads

Crossed roller bearings produce the highest stability and accuracy of all translation slide designs. They are constructed of cylindrical rollers with alternately opposed axes which travel on hardened, ground steel ways. This design eliminates side play and results in repeatable accuracies greater than 0.0001" per inch of motion. The design also ensures low friction, which enables the slides to maintain their smooth action under loads up to 60 pounds without losing accuracy.

Data Optic slide bodies are constructed of high strength anodized aluminum tooling plate which has been coated with a flat black epoxy paint. They have a variety of standard ¼-20 tapped and clearance holes on 1" centers in both the top and bottom plates to allow for many configurations, both in stacking the slides for multi-axis operation, and in mounting accessories.

The actuator mounting system has been designed with parallel dovetail ways which enable the actuator mounts to be attached in a variety of positions. Data Optics mounts can accept several types of actuators, including micrometer heads, thumb screws and power drives.

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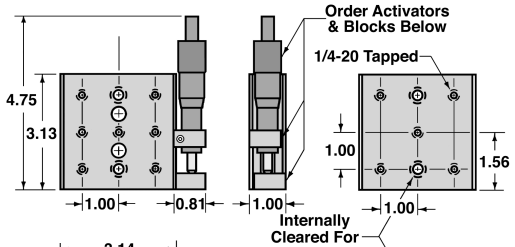
Translation Slides

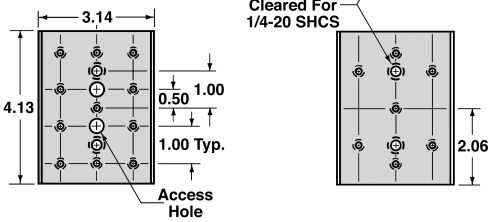
Slide Bodies

Crossed Roller Bearing Slides are made in 3" widths, and standard lengths of 3", 4" and 6". Other lengths are available on request. Two units can be mounted together to form an X-Y stage, or, using the Angle Brackets described below, into 3-axis stages. Actuator sets are ordered separately from the bodies. Please refer to the table below.

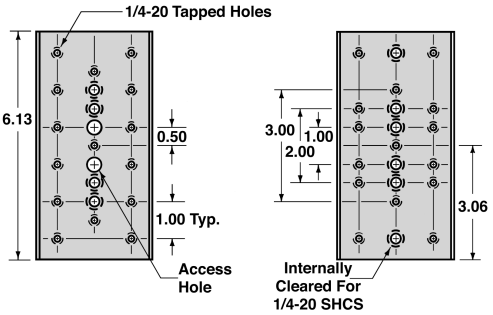
4403



4404



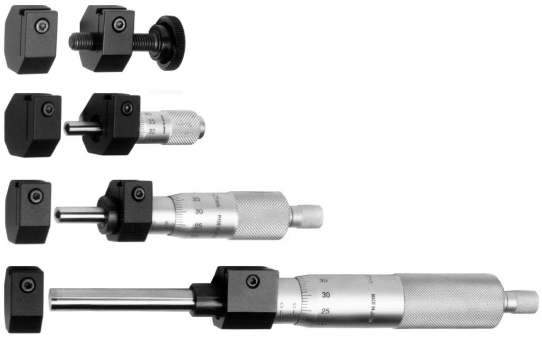
4406



Actuator Sets

Actuator sets for the Crossed Roller Bearing Slide Bodies shown above include the actuator, mounting block and stop block. Other size sets can be provided on request.

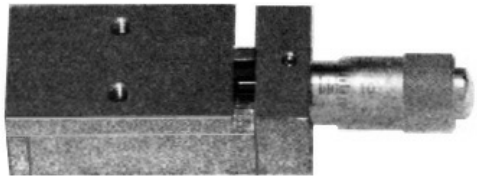
4421 13 mm Thumb Screw Set (M6 x 1 mm)
4422 0.5" Thumb Screw Set (¼-28)
4423 13 mm Micrometer Set
4424 0.5" Micrometer Set
4425 25 mm Micrometer Set
4426 1" Micrometer Set
4427 50 mm Micrometer Set
4428 2" Micrometer Set
4429 Differential Thumb Knob Set with 0.01" motion per revolution.



Miniature Dovetail Slides

Data Optics' Miniature Dovetail Slides include the same slide body and precision micrometer as used in the Spatial Filters in the next section. These units provide 0.25" (6.3mm) of travel with no backlash. Specify either an English or metric micrometer.

4400



Translation Slides

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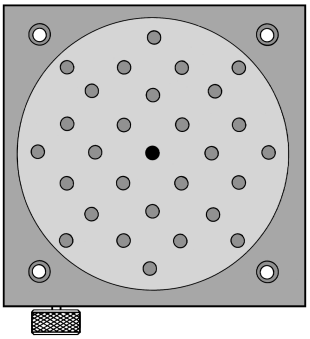
Precision Rotary Tables

Precision Rotary Tables for mounting prisms, beamsplitters, and other angle-dependent optical elements are available in two standard sizes. They are designed to fit the Series 133 and Series 76 carriers, or for direct mounting on an optical table top. Compatible worm gear and wheel pairs are available in three versions for fine (standard), medium or coarse adjustment. Specify "-F", "-M", or "-C" after the part number when ordering. Total platform height is 1.000". Metric versions are available on request with M6 tapped holes on 25 mm centers. Rotary Tables are anodized aluminum, with an overcoat of flat black epoxy paint. Shafts, fasteners and worm gears are stainless steel, while worm wheels are brass.

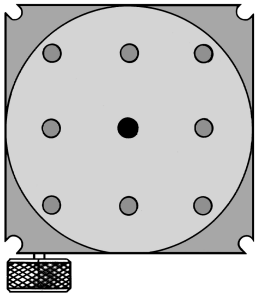
The 8075 Rotary Table is 5.25" square, with a 4.75" diameter platform. Sixteen ¼-20 tapped holes are provided on 1.000" centers, with twelve additional ¼-20 tapped holes to facilitate centered mounting of objects with mounting holes on 2.000" and 3.000" centers. Four ¼-20 tapped holes on 3.000" centers and four counterbored clearance holes for ¼-20 SHCS screws on 4.000" centers are provided in the base for mounting.

8075



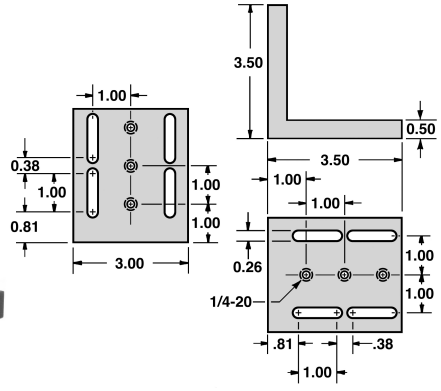
The 8076 Rotary Table is 3.25" square, with a platform of the same diameter. Eight ¼-20 tapped holes are provided on 1.000" centers in the platform. Four ¼-20 tapped holes on 2.000" centers and four counterbored clearance holes for ¼-20 SHCS screws on 3.000" centers are provided in the base for mounting.

8076

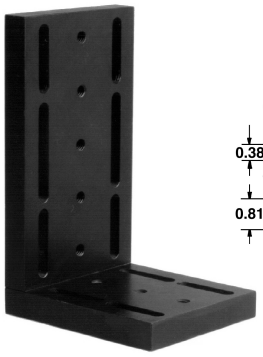


Angle Brackets

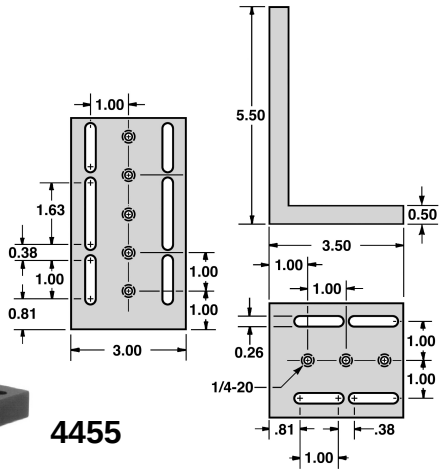
4453



Angle Brackets are available for mounting Crossed Roller Bearing Slide Bodies vertically or at right angles to each other. Both sizes have heavy 3" wide sections made out of 0.5" aluminum tooling plate to provide rigidity. Slots are provided for a variety of mounting positions and to accommodate other equipment. The 4453 is 3.5" tall and 3.5" long, while the 4455 is 5.5" tall and 3.5" long.



4455



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Spatial Filters

The Spatial Filters use standard microscope objectives and 3/8" diameter pinhole disks, both available from Data Optics in a variety of sizes (refer to the section following this for information on sizes available). The objective lens is mounted in a sliding tube for coarse focus adjustment. The tube and objective lens can be readily removed for inspection or replacement without disturbing the pinhole. The pinhole disk is mounted in a holder which also can be easily removed. While holders are available for glue or magnetic mounting of the pinhole disk, the magnetic holder has the advantage of allowing the disks to be replaced readily. The pinhole holders are designed so that objective lenses of extremely short focal length may be used without obstruction of the emerging beam.

Micrometer actuators on the dovetail slides have a spherical face which, coupled with the return spring and adjustable gib, gives a smooth, fine focusing, free of backlash. Micrometer motion is 0.025" per turn for units specified with English units and 0.50 mm per turn for metric units.

All mounts are made of black anodized aluminum tooling plate, coated with a flat black epoxy paint and have massive sections for rigidity. All mounts may be assembled right hand (as shown, standard) or left hand. Please specify when ordering (-L or -R). Mounts include one magnetic pinhole holder. Pinhole disks and objective lenses must be ordered separately.

Data Optics has developed a versatile Spatial Filter design which can be obtained in various arrangements. The base has 1/4-20 tapped holes so that it can be mounted on a 6" carrier and both 3/8-16 and 1/2-13 tapped holes for rod mounting. When mounted on a standard Data Optics carrier, the optical axis height is 5" above the rail or bench surface. Spatial filters can also be directly mounted on an optical table or breadboard.

5001 XYZ Spatial Filter

This Spatial Filter has 3-axis micrometer adjustment on the pinhole mount and a coarse 1-axis adjustment on the objective lens mount.

5001

5002 XY-Z Spatial Filter

This Spatial Filter has 2-axis micrometer adjustment on the pinhole mount and 1-axis micrometer adjustment on the objective lens mount.

5002

Spatial Filters

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5003

5003 Z-XY-Z Beam Expander

This beam expander has a centrally mounted pinhole mount with 2-axis micrometer adjustment and objective lens mounts on either side with 1-axis micrometer adjustments.

5004 XYZ-Z Spatial Filter

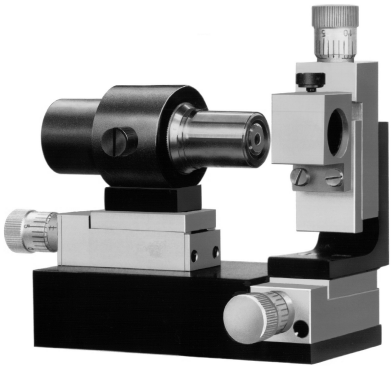
This Spatial Filter has 3-axis micrometer adjustment on the pinhole mount and 1-axis micrometer adjustment on the objective lens mount.

5005 XYZ-XYZ Spatial Filter

This Spatial Filter has 3-axis micrometer adjustment on the pinhole mount and 3-axis micrometer adjustment on the objective lens mount.

5006 XYZ-XY Spatial Filter

This Spatial Filter has 3-axis micrometer adjustment on the pinhole mount and 2-axis micrometer adjustment on the objective lens mount.



5010

5010 XY-Z Low Profile Spatial Filter

Low Profile Spatial Filter with 2-axis micrometer adjustment on the pinhole mount and 1-axis micrometer adjustment on the objective lens mount. The base has ¼-20 tapped holes on the bottom and each side to facilitate various mounting arrangements. Optical height is 2.3" (58.4 mm).

5011

5011 XY-Z Compact Low Profile Spatial Filter

This Compact, Low Profile Spatial Filter has a tighter configuration, enabling it to be used in a wide variety of applications and set-ups. It has 2-axis micrometer adjustment on the pinhole mount and 1-axis micrometer adjustment on the objective lens mount. The base has ¼-20 tapped holes on the bottom and each side to facilitate various mounting arrangements. Optical height is only 2.063" (52.4 mm).

5020

5020 XY-Z In-Line Spatial Filter

This Spatial Filter has all of the elements mounted directly over the center line of the rod mounting holes. It has 2-axis micrometer adjustment on the pinhole mount and 1-axis micrometer adjustment on the objective lens mount. Not for use with Series 133 carriers.

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Spatial Filters

5121 XY-Z In-Line Spatial Filter on Series 76 Carrier

This Spatial Filter is identical to the 5020, but it is built directly on a Series 76 carrier with clamping knob and pinion mechanism.

Other arrangements are available on request.

5121

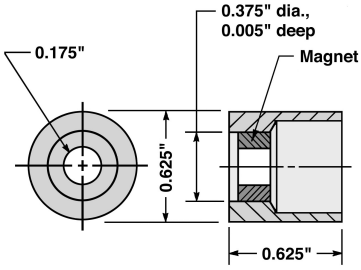
Pinhole Mounts

Pinhole disks are fragile and expensive. A pinhole mount for each disk will help reduce pinhole damage due to handling. One magnetic pinhole mount is supplied with each spatial filter or beam expander.

5008 Magnetic Pinhole Mount

This pinhole mount is of the magnetic type and holds standard 0.375" diameter pinhole disks as shown below. Absence of retainer rings, etc., permits the objective lens to be brought very close to the pinhole without obstruction. Disks can be easily mounted or removed from the recess provided in the mounting surface. For non-magnetic pinhole disks, 0.375" magnetic shim washers are available from Data Optics to use on top of the disk.

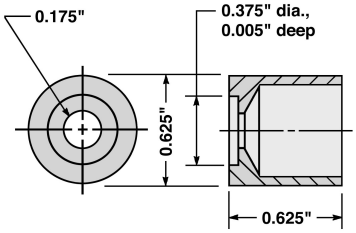
5008



5009 Adhesive Pinhole Mount

This pinhole mount is of the adhesive type which requires the pinhole disk to be retained by glue or tape. Very similar to the magnetic pinhole mount above, with a recess provided in the mounting surface for standard 0.375" pinhole disks as shown below.

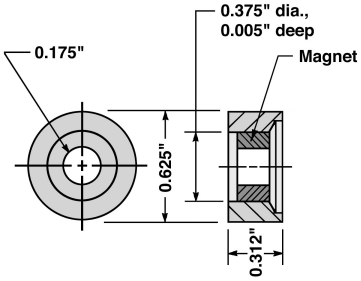
5009



5018 Compact Magnetic Pinhole Mount

Shallow version of the 5008 Magnetic Pinhole Mount. Should be used with the 5011 Compact Low Profile Spatial Filter. May also be used with any other spatial filter where coarse adjustment of the pinhole along the Z axis is not necessary or where an extremely wide cone of light is anticipated .

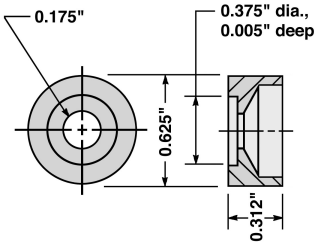
5018



5019 Compact Adhesive Pinhole Mount

Shallow version of the 5009 Adhesive Pinhole Mount. Should be used with the 5011 Compact Low Profile Spatial Filter. May also be used with any other spatial filter where coarse adjustment of the pinhole along the Z axis is not necessary or where an extremely wide cone of light is anticipated .

5019



Spatial Filters

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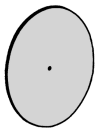

Precision Pinholes

Precision pinhole disks in Standard, High Power and Super High Power models are available, both mounted and unmounted. All pinhole disks are 0.375" diameter and are also compatible with spatial filters from other manufacturers. Standard power pinholes are made of 302 stainless steel; high power pinholes are made of a special moly alloy to withstand use with Argon and Krypton lasers up to 20 watts continuous power; and super high power pinholes are made from beryllium copper with gold plating on one side and graphite coated on the other and are intended for use with high pulse power IR lasers. Please refer to the current price list for the Table of Precision Pinholes and Slits.

Objective Lenses

Microscope objective lenses for use with spatial filters and beam expanders are available individually in powers of 5X, 10X, 20X, 40X and 60X, or as a set of all 5. These objective lenses have been proven in major research laboratories to be of superior quality for spatial filtering. They can also be used in spatial filters from other manufacturers as well. Please refer to the current price list.

Film Drives and Liquid Gates

Manual 35mm Film Drive

A precision 35mm Film Drive is available from Data Optics with manual film advance for use with roll or cut film. Either perforated or unperforated film, or microfiche cards can be accommodated by the design. A vacuum connection is provided to insure film flatness against the aperture glass, if required. Optional condenser lens assembly, projection light source, lens mount and 8"x10" vacuum copy board are also available.

The film drive utilizes a standard vertical support and can be mounted on any appropriate Data Optics carrier or plain base. When used with the optional units mentioned above, a complete camera system can be assembled on a table rail or optical bench.

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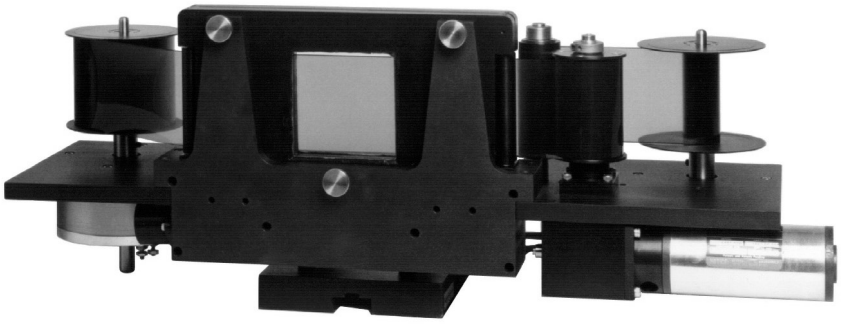
Film Drives & Liquid Gates



- Remove Phase Errors
- Continuous Film Motion
- Start-Stop-Reversible
- Variable Speed over a 1000:1 range
- Loop Loading

The film is driven by a viton coated capstan. The film may be perforated or non-perforated. The capstan is driven by a servo-controlled motor which has a speed range of 1000:1 and speed regulation of 0.5%. Torque motors on the supply and take-up spools keep the film taut. The capstan and other components are machined to very close tolerances to assure smoothness of film motion.

The liquid gate is open on three sides allowing film strips to be readily inserted for viewing or projection. The gap between the film and glass is adjustable between 0.0005" and 0.001", and is filled with a liquid which has an index of refraction matching that of the film. A circulating pump is used to supply a continuous flow of liquid to the gate.

Specifications:

Maximum Film Speed: 10" (250 mm) per second with Freon 113; 3" (75 mm) per sec. with Xylene
Speed Range: 1000:1
Speed Regulation: 0.5% of set speed.
Spindles for film spools: $\frac{3}{8}$" round standard, $\frac{5}{16}$" square shaft also available.
Optical height when mounted on Data Optics carrier: 6" standard, 5" also available.
Outside Dimensions: Approx. 24" wide x 8" deep x 8" high.
Mounting Base: Flat plate with $\frac{1}{4}$-20 counterbored clearance holes, four places standard. 2106 carrier mounting is also available.
Material: Black anodized aluminum tooling plate with an overcoat of flat black epoxy paint on all exposed surfaces.
Fasteners: Stainless steel or brass.
Glass: Standard gate glass is Grade A, BK-7 well annealed, bubble and striae free. Outside surface has low reflectance coating for 4880 Å or 6328 Å.
Film Gap: Adjustable – Normally 0.008" (0.20 mm)
Liquid for Gate: Freon 113 or Xylene
Pumping System: Includes pump, reservoir, hose, clamps, line filter and flow control valve. 115 VAC, 60 Hz motor.

Standard Models:

(All units include pumping system, D.C. power supply for torque motors and speed controller for capstan motor.)

7035 35 mm Liquid Gate & Film Drive

Aperture: 35 mm x 35 mm
Glass: Flat to $\frac{1}{5}$ wavelength

7070 70 mm Liquid Gate & Film Drive

Aperture: 70 mm x 70 m
Glass: Flat to $\frac{1}{5}$ wavelength

7055 5" Liquid Gate & Film Drive

Aperture: 5" x 5"
Glass: Flat to $\frac{1}{5}$ wavelength

Optional Features Available:

7001 Universal Spindles to accommodate both $\frac{5}{16}$" square and $\frac{3}{8}$" dia. round holes in film spools. Per pair.

7002 Additional Idler Roller with Flanges to provide enhanced guidance of the film through the gate.

7003 Additional Idler Roller, double grooved for 35 mm and 70 mm film.

7004 Mechanical Gate – replaces liquid gate.

7005 1000' spool capacity.

7006 Gate glass flat to within $\frac{1}{10}$ wavelength

Other custom features available on request.

Film Drives & Liquid Gates

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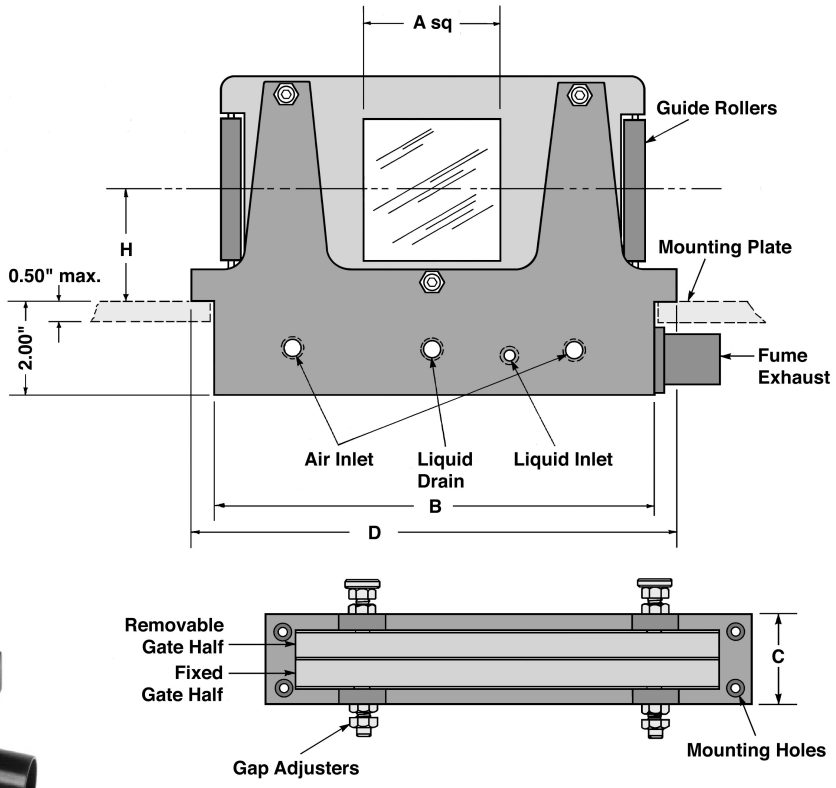
Liquid Gates by Data Optics Permit Continuous Film Motion

Check these features –

- ❑ Film operates in vertical position
- ❑ Built-in air jets dry film for respooling
- ❑ Film is held flat to within 0.002"
- ❑ Adjustable film gap
- ❑ Bi-directional operation
- ❑ Loop loading – film drops into gate without opening gate



Why A Liquid Gate?

Photographic film typically varies in thickness by several wavelengths per centimeter. In addition, the photographic emulsion thickness varies according to exposure. These variations cause phase errors that can ruin your results.

Phase errors can be removed by placing the film in a liquid gate: the film is positioned between two optical flats and the space between then is filled with a liquid matching the refractive index of the film. The optical distance between the inner faces of the gate remains constant regardless of the film thickness irregularities. The phase errors caused by the film are thus removed.

Description:

The Liquid Gate consists of a base and two gate halves, one fixed and one removable. Each gate half is attached to the base by three adjusting screws. The three point attachment minimizes the introduction of distorting forces to the glass. The glass is held in each gate half with an epoxy sealant. The glass normally supplied is BK-7 of good optical quality, well annealed, bubble and striae free. The outside surface has a low reflectance coating for either 4880 Å or 6328 Å.

A circulation pump is used to supply a continuous flow of liquid to the gate. The liquid fills the gap (0.0005" to 0.001") between the film and the glass. The gap spacing is adjustable. Special grooves on either side of the glass channel the excess liquid to the gate base. A drain hose then returns the liquid by gravity to the pump reservoir. A double pair of air jets on either side of the glass dry the film for re-spooling.

The gate is constructed of black anodized aluminum tooling plate overcoated with flat black epoxy paint. Stainless steel fasteners are used. Hose fittings are brass.

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Film Drives & Liquid Gates

Film	Glass		Optical Axis Height H	B	C	D	Mounting Centers E	Gate Only	Glass** 1/5 λ	Glass** 1/10 λ	Glass Installation Pair †
	Size A	Thickness									
35 mm	35 mm x 35 mm (1.4" x 1.4")	9.5 mm (.375")	42.9 mm (1.689")	250.8 mm (9.875")	57.1 mm (2.25")	276.2 mm (10.875")	38.1 mm x 263.5 mm (1.5"x 10.375")	No. 6035	No. 6635	No. 6735	No.6636 No.6736
70 mm *	76 mm x 76 mm (3" x 3")	12.7 mm (.50")	60.4 mm (2.378")	250.8 mm (9.875")	57.1 mm (2.25")	276.2 mm (10.875")	38.1 mm x 263.5 mm (1.5"x 10.375")	No. 6070	No. 6670	No. 6770	No.6671 No.6771
126 mm	127 mm x 127 mm (5" x 5")	16 mm (.62")	88.9 mm (3.500")	301.6 mm (11.875")	69.8 mm (2.75")	327 mm (12.875")	44.4 mm x 314.3 mm (1.75"x 12.375")	No. 6055	No. 6655	No. 6755	No.6656 No.6756

Exhaust Hose	Pumping System	Liquid Hose P.V.C		Air Hose P.V.C.	Air Valves	Glass Sealant Kit
	Includes pump, reservoir, hose, clamps, line filter & flow control valve 115 V.A.C. 60 Hz. motor No. 6001	Pump	Drain	5/16" I.D. No. 6807	Automatically directs air flow to proper air jets. For 5/16" I.D. Hose 2 required, No. 6806	Instructions included No. 6801
1¼" I.D. No. 6802		¼"I.D. No. 6803	3/8"I.D. No. 6804	**Hose Clamps** No.6805		

* A 70 mm x 5" Liquid Gate is also available - inquire. ** Two required per gate. † We will install your own glass if desired.

35 mm and 70 mm Liquid Gates without Air Knives for Stationary Film Applications

The outstanding feature of this liquid gate is that it is open on three sides, allowing film strips of any length to be readily inserted for viewing or projecting. The gap between the film and the glass is 0.0005" to 0.001", and is filled with a liquid which has an index of refraction matching that of the film. A circulating pump is used to supply a continuous flow of liquid to the gate.

Specifications:

Glass: Grade A, BK-7 well annealed, bubble and striae free. The outside surface is coated, typically for 4880 Å or 6328 Å)
Outside Dimensions: 1.2" x 4" x 4" (30 mm x 100 mm x 100 mm)
Material: Black anodized aluminum
Fasteners: Stainless steel
Mounting Hole: ¼-20, tapped
Film Gap: Adjustable (Normally 0.008" (0.20 mm)
Liquid: Xylene or Freon 113

Standard Models:

6535 – 35 mm Liquid Gate. Aperture 35 mm x 35 mm.

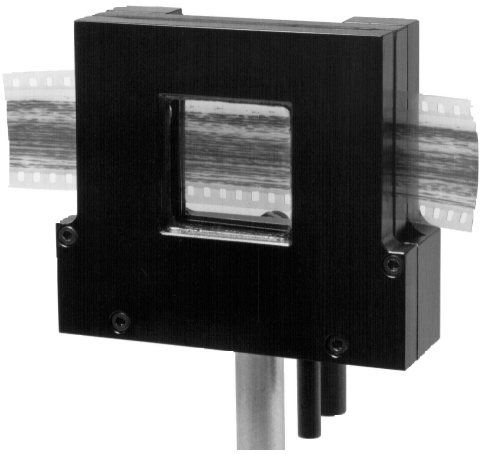
6570 – 70 mm Liquid Gate. Aperture 70 mm x 70 mm.

6001 – Pumping system; includes pump, reservoir, hose, clamps, line filter and flow control valve.

Features:

Removes Phase Errors
Holds Film Flat
Film need not be cut to be inserted

6535



Options:

7006 – 1/10 wavelength glass

Other custom features available on request – let us quote to your requirements.

Isolation Enclosures

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Enhance the Fringe Stability of Your Interferometric System

Stability of a two-beam interferometer is extremely sensitive to environmental parameters. Vibration-isolated optical tables reduce only one of the six destabilization effects on interferometric systems. Our Environmental Isolation Enclosures provide a solution to reduce the other five factors.

Reduced with Vibration-Isolated Optical Tables:
Mechanical Vibration

Reduced with our Environmental Isolation Enclosure:
Air Turbulence Acoustic Noise Airborne Pollutants
Humidity Fluctuations Temperature Drift

Features

Temperature and Humidity Stabilization
Utilizing state-of-the-art materials and construction methods, Data Optics has engineered a panelized enclosure that isolates the optical system from the influence of external temperature and humidity fluctuations.

Air Turbulence and Acoustic Noise Protection
The use of rigid isolation panels with peripheral air-tight sealing allows the Data Optics enclosures to suppress air movement and acoustic noise generated by sources such as heating, ventillation and air conditioning systems, and human movement.

Reduction of Airborne Pollutants
An additional benefit of the air-tight sealing of the Data Optics enclosures is their ability to reduce the ingress of airborne pollutants. Filters can optionally be used right after sealing to remove trapped particles and chemicals.

Modular and Lightweight
Engineered with modular construction for fast, easy assembly and dissassembly by one person. Lightweight aluminum frames and ultra-light removeable panels allow quick, easy access from all four sides and the top.

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Isolation Enclosures

Specifications:

Frame

Lightweight anodized aluminum tubular frame with aluminum die-cast corner mounts; both strong and inobtrusive to the experimenter during setup.

Removeable Panels

Rigid ultra-light honeycomb core with flat black formica exterior and easy grip handles. Panels provide the following features:

- Superior thermal and electrical insulation
- Corrosion resistant
- Fungus resistant
- Water resistant
- Superior dielectric properties

Standard Sizes

Widths available in increments of 4 or 5 feet. Lengths available in increments of 2 feet. Heights available: 2, 3, or 4 feet. Non-standard sizes are also available at no additional charge.

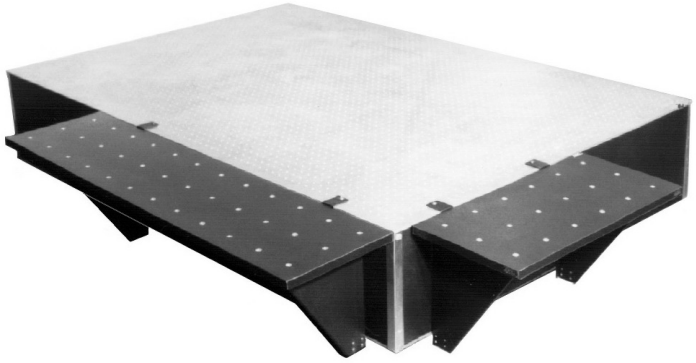
Options

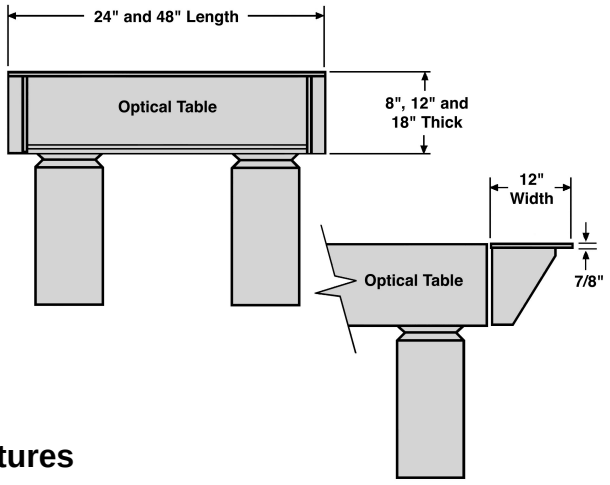
- Laser Beam Entry Ports
- Internal Lighting Modules
- Vibration Isolation Interface
- Viewing Ports
- Wire Feedthru Ports

Custom Design

Data Optics welcomes inquiries on special applications or needs. We are always available to assist and advise on the construction of special enclosures.

Optical Table Extenders





Features

- Low profile mounting, flush with table surface
- Mounts directly to 8”, 12” and 18” thick tables
- Built-in leveling capability
- Converts to table top mounted shelf
- Easily located anywhere along the table edge
- Easy to assemble and disassemble

Expand the Work Space on Your Optical Table

The Optical Table Extender is a simple and cost effective way to add precious work space to your optical table. This versatile design provides multi-purpose usage as a table extender or as a table top shelf. It accommodates lasers, instrumentation, tools and various other types of support equipment.

Specifications

Top

- Rigid fiberboard substrate
- Laminated, black textured surface

Supports

- Steel reinforcement structure
- Aluminum support gussets

Mounting

- Mounts directly to the table surface
- Locking clamp on table bottom
- Accommodates 8”, 12” and 18” thick tables

Standard Sizes

- 12” wide x 24” long (150 lb. load)
- 12” wide x 48” long (200 lb. load)
- Custom sizes are available on request

Options

- Shelf kit
- ¼-20 threaded inserts on 2” centers

Fringe Control System

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Fringe Control System
FC-400

Data Optics has introduced a new active-feedback Fringe Control System with state-of-the-art stability, dynamic range and functionality. This system, the FC-400, is intended to be used in interferometric and holographic applications where active-feedback fringe stabilization can be achieved with path-length compensation.

Specifications

Controller

- Dynamic Range of 1000:1
- Locking Stability of λ/20 typical
- Frequency Response of DC to 500 Hz with standard 5 gram mirror
- Response Roll-off of 10 to 500 Hz, adjustable
- Feedback Control Adjustments
  - – Gain via 10-turn precision potentiometer
  - – Damping via 10-turn precision potentiometer
  - – Zero via Up/ Down pushbutton controls
- Optical Power Level Display – 2 digit numerical
- Mirror Position Display – 20 element bar graph
- Monitor Output of ±3.5 VDC at 400 Ohms via backpanel BNC Connector
- Power Requirements of 120/240 VAC, 0.5/0.25 A at 50/60 Hz

Detector Head

- Bi-cell photodiode detector assembly
- Detector Spectral Range of 400 to 1050 nm (20% of S_{max})
- Detector separation of 0.100”
- Detector aperature size of 0.036” diameter
- Connector – 9-pin “D” connector, 8 foot cord

Mirror (Feedback) Head

- Bimorph movement with ±5 micron total travel
- Mirror diameter up to 15 mm
- High performance, special application and standard mirrors available
- Connector – BNC, 8 foot cord

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Series 50 Components

Miniature Line of Positioning Components

Precision and rigidity have been retained in Data Optics new line of miniature positioning components. Providing all of the features and variety of the Series 133 (5.25” wide) and Series 76 (3” wide), the new Series 50 miniature components do so in a package that is only 2” wide.

Immediately available are optical benches, table rails, carriers, rod mounts (with and without vertical adjustment), vertical supports (with bore diameters from 1” to 3”), translation platforms (with micrometer or thumbwheel adjustments), rotary index plates, spacer blocks, and lens mounting plates. These items are shown in detail in the following pages.

All of Data Optics existing rod-mounted accessories are also compatible with the Series 50. Unique features such as dovetail alignment bars, remote focusing via a rack and pinion system, V-rods and “V” shaped rod mounting holes are retained.

Optical Bench

The 1050-L Optical Bench is constructed from a solid aluminum rectangular beam (1.000” thick by 2.375” wide), providing outstanding precision and rigidity. The surface of the bench, on which optical mounts are supported, is precision ground for flatness to a tolerance of +/-0.001”/foot (+/-0.025 mm / 300 mm) and +/-0.003” (+/-0.075 mm) over the entire length. The entire bench is hard anodized to provide an extremely hard and long wearing surface that will not corrode. Weight is 3.0 lb. / foot (4.5 kg / meter) plus 3 lbs. for the feet.

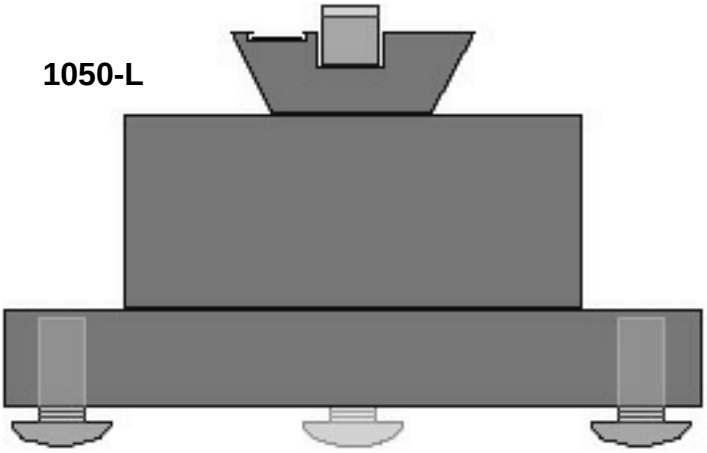
An anodized aluminum alignment bar placed in the center of the supporting surface provides lateral alignment and a versatile clamping surface for the optical mounts. In the center of the alignment bar is a moveable stainless steel rack which is part of the rack and pinion system used for remote positioning of components. The alignment bar also holds a steel tape calibrated in both inches and millimeters. The alignment bar is straight to a tolerance of +/-0.001”/foot (+/-0.025 mm / 300 mm) and +/-0.003” (+/-0.075 mm) over the entire length.

Table Rails

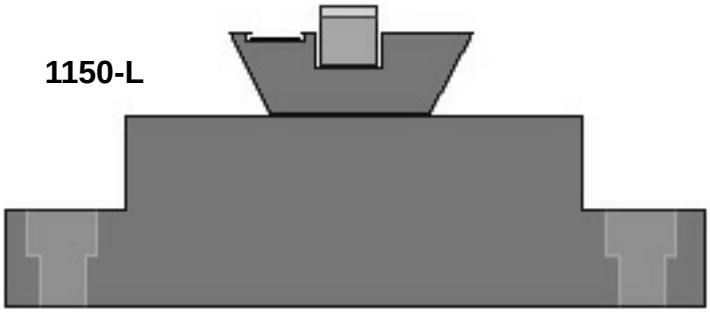
The 1150-L is a Precision Optical Table Rail with clamping ledges and mounting holes, including alignment bar, rack and scale. Rails are 1.000” thick by 3.625” wide with a top surface of 2.375”. Flatness and lateral alignment of the dovetail is +/- 0.001” per foot (+/-0.025 mm per 300 mm) and 0.003” (+/-0.075 mm) over the entire length. Mounting holes in the clamping ledges are on 3” centers, every 6” of length. The finish is grey hard coat anodized. Weight is 3.7 lb. / foot (5.6 kg / meter).

The 1155-L is a Precision Optical Table Rail with alignment bar, rack and scale, but without clamping ledges and mounting holes. Rails are 1.000” thick by 2.375”

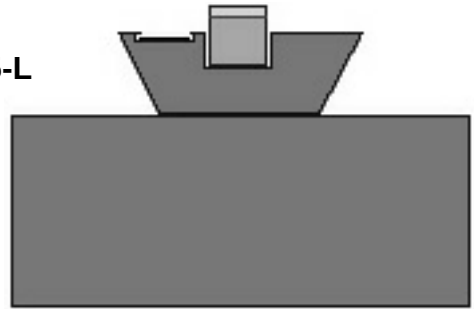
1050-L



1150-L



1155-L



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wide. Flatness and lateral alignment of the dovetail is +/- 0.001" per foot (+/-0.025 mm per 300 mm) and 0.003" (+/-0.075 mm) over the entire length. The finish is grey hard coat anodized. Weight is 3.0 lb. / foot (4.5 kg / meter).

When ordering a bench or rail, "L" specifies the length required in either English or Metric units. Standard tolerance on length is +/-0.125" (+/-3.5 mm). Closer tolerances can usually be provided, if requested.

To delete the scale from any of the above benches or rails, specify #1101.
To delete the pinion rack from any of the above benches or rails, specify #1102-L.

Carriers

The top of each carrier is ground flat to provide a precision surface for mounting not only Data Optics standard components, but any component the researcher might want to mount. The height of the carrier is 1.000" +/- 0.001" (25.4 mm +/- 0.025 mm). This ensures that a component mounted on any carrier will be on the optical axis. Holes are accurately located relative to the precision milled dovetail slot in the carrier, and the optical axis of the bench or rail. All carriers are black anodized and then painted with a flat black epoxy paint.

0.875" Carrier with Clamping Knob

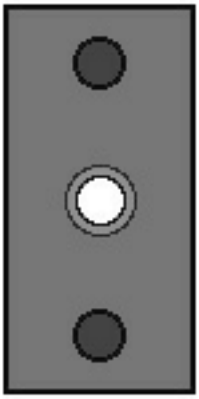
The 2351 is a 0.875" carrier with clamping knob. There are three holes on 0.750" centers, with the outer two tapped for ¼-20 screws and the center one counterbored for clearance of a ¼-20 socket head cap screw.

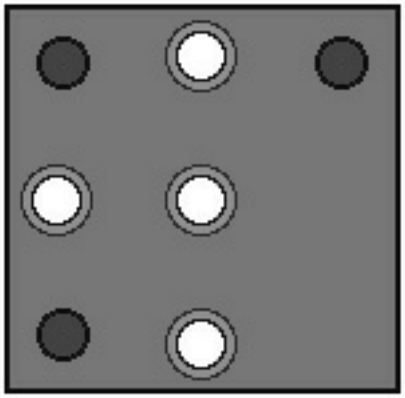
2" Carrier w/ Clamping Knob & Pinion

The 2352 is a 2" carrier with clamping knob and pinion mechanism. Four ¼-20 counterbored clearance holes on 0.75" centers are provided for accessory mounting, and three ¼-20 tapped holes are provided for use with the 2363 adjustable platform in either the x or the y adjustment direction.

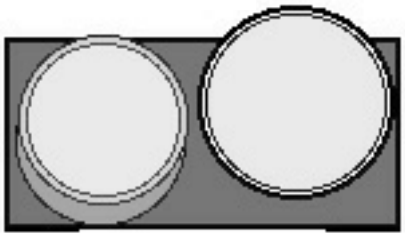
2.75" Carrier w/ Clamping Knob & Pinion

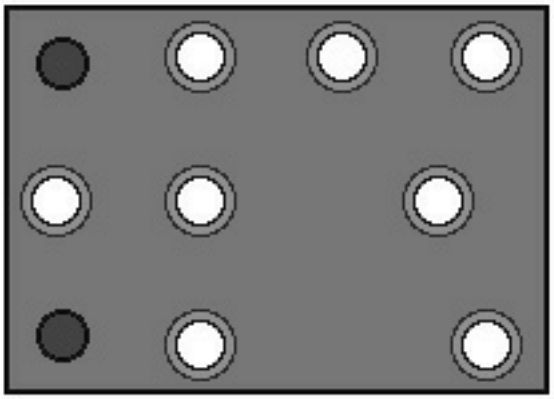
The 2353 is a 2.75" carrier with clamping knob and pinion mechanism. Eight ¼-20 counterbored clearance holes, seven of which are on 0.75" centers, are provided for accessory mounting and two ¼-20 tapped holes are provided for use with the 2363 or 2365 adjustable platform in the y adjustment direction.



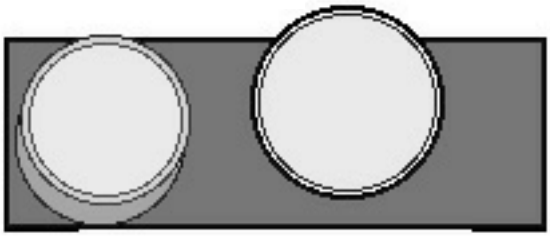


2351 **2352**





2353



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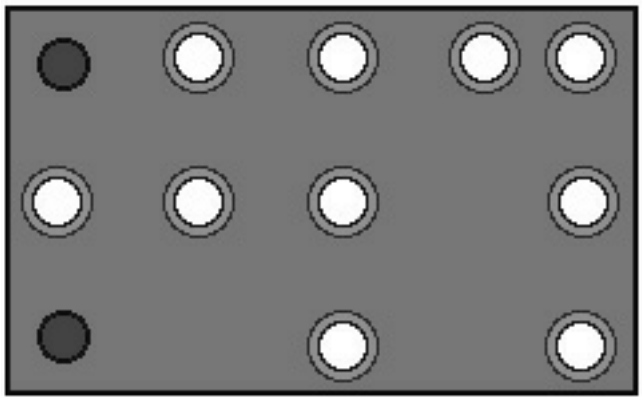
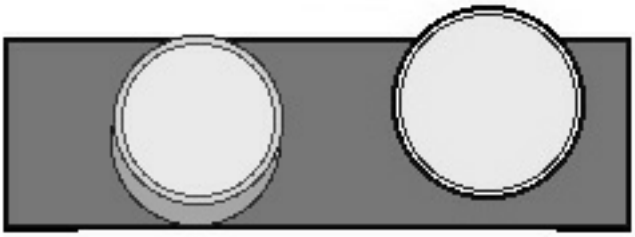
3.25” Carrier w/ Clamping Knob & Pinion

The 2354 is a 3.25” carrier with clamping knob and pinion mechanism. Ten ¼-20 counterbored clearance holes, seven of which are on 0.75” centers, are provided for accessory mounting and two ¼-20 tapped holes are provided for the use with the 2363 or 2365 adjustable platform in the y adjustment direction.

The 2350 Clamping Knob is for use with Data Optics Series 50 Carriers and has a spring loaded nylon tip. The 2360 Pinion Mechanism is also for use with Data Optics Series 50 Carriers. Pinion and pinion shaft are stainless steel. It includes both pinion and locking knobs.

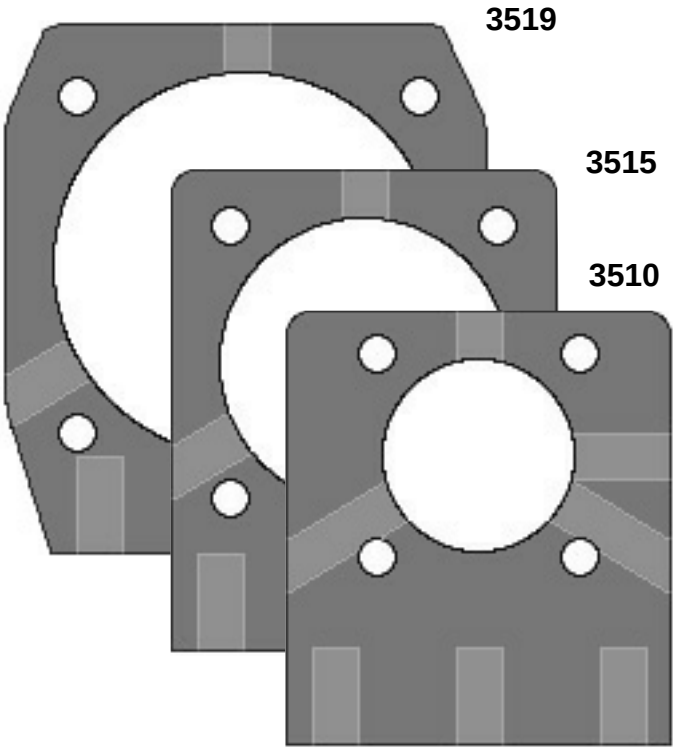


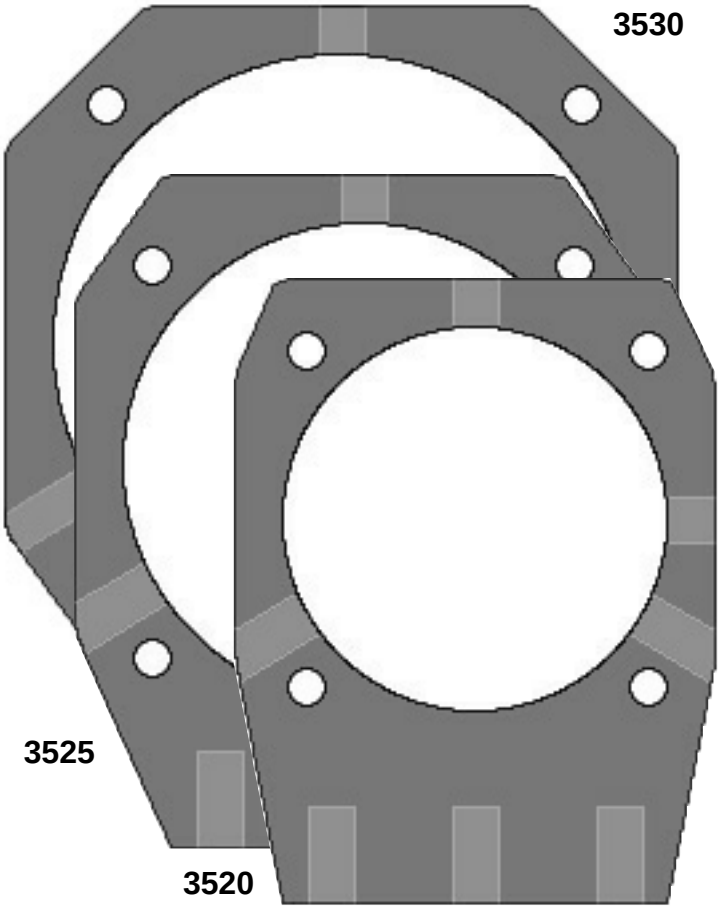
2354



Vertical Supports

The 3510 to 3530 Vertical Supports provide a means for mounting your optics rigidly and accurately along the optical axis. They are 0.625” thick and have flat, parallel faces, with an accurately bored mounting hole. Optics can be mounted on either or both faces using the Mounting Plates. Optical alignment is retained while moving the mounting plates from one vertical support to another, due to the precision to which they are made. Tapped holes are also provided in the sides of the vertical support so that optical elements can also be quickly mounted and easily adjusted with 3750-L nylon swivel tipped thumb screws.





Series 50 Components

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Vertical supports are available in standard bore diameters from 1.0” to 3.0” and optical axis heights of 2.5” or 3.0”. Any bore diameter can be provided on request. A variety of spacers and adapters are also available.

Spacer Blocks

The 3150-L Spacer blocks are installed between the carrier and the vertical support to increase the height of the optical axis. Any height can be provided, but 0.5”, 1.0”, 1.5” and 2” are standard. Supplied with special mounting screws.

Sub-plates

2530 Sub-plates provide flexible mounting of Series 50 Vertical Supports directly onto optical tables or breadboards.

Lens Mounting Plates

The 380x Mounting Plates are available in sizes to fit any vertical support from a 1” bore to a 5” bore. Optical components are custom fitted to the plate so that they are perfectly centered and can be moved from one vertical support to another without changing the optical alignment. Custom lens mounting can be provided at the factory at a nominal additional charge.

The “Quick Mount”

Vertical supports have tapped holes in the sides so that optical components can be mounted with nylon swivel tipped thumb screws, where speed and ease of mounting are more important than accuracy and rigidity. Thumb screws are available in lengths from 0.5” to 3” with nylon swivel pads on the tips to prevent marring and twisting. Two styles of nylon swivel pads are available: the 3751 has a plain, flat pad surface while the 3752 has a V-groove machined on the surface for holding especially thin-edged lenses.

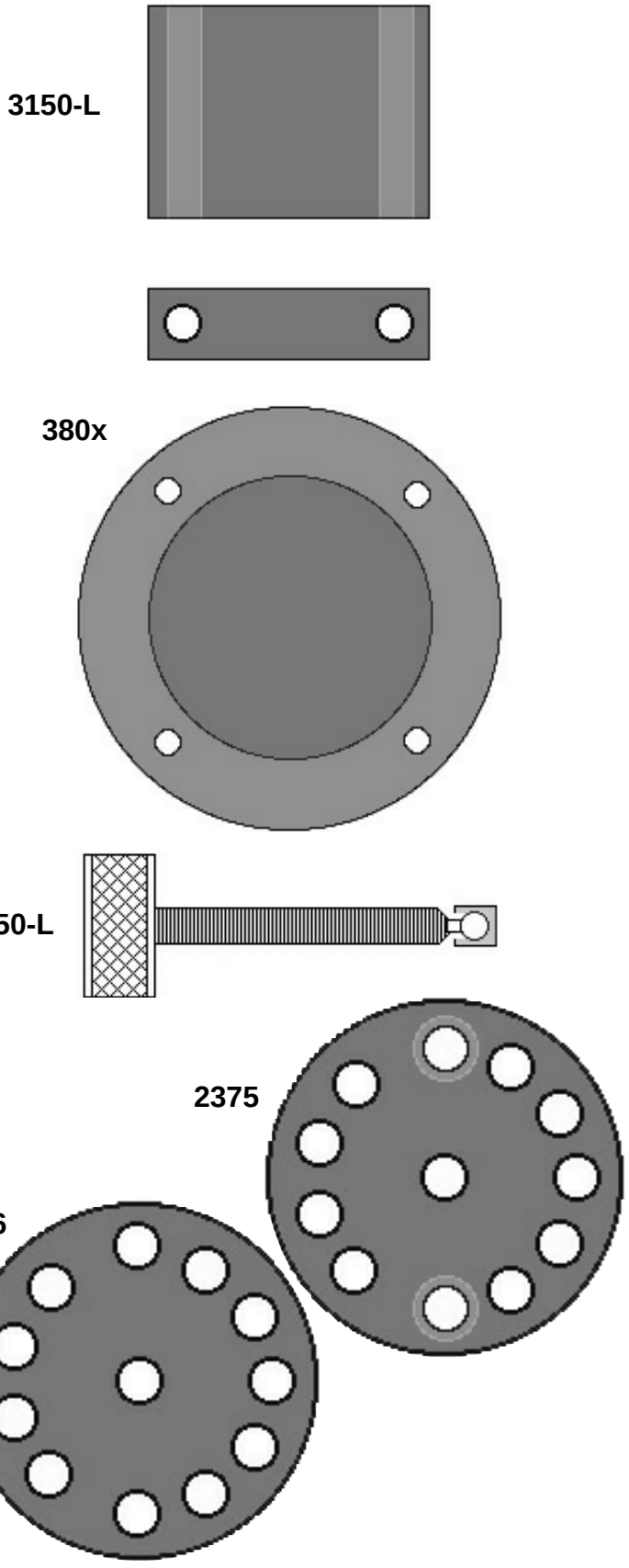
3750-L –Thumb Screws
3751 & 3752 – Spare Nylon Swivel Pads

Index Plates for Precise Angles

Vertical supports can be easily used on a diagonal by inserting the 2375 index plate between the carrier and the vertical support, adding 0.5” to the optical height. Angles of 30°, 45°, 60° and 90 can be accurately set, while angles in between can be obtained by adjustment, using the center bolt as a pivot.

Precision Mirror Mounting Kits

The 4052 and 4053 Precision Mirror Mounting Kits are available to make any vertical support into a precision



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mirror mount with X and Y axis adjustments. The mirror is set in the bore of the vertical support and is secured by 3 clips with spring loaded nylon plungers, a pivot clip and two micrometer heads (4052). Also available is a similar kit with 10-32 nylon thumb screws instead of micrometer heads (4053). Mirrors (which should be at least 0.01" smaller than the bore of the vertical support) are not included, but may be special ordered. In addition to being used for mounting mirrors, it can be used to mount other relatively flat optical elements such as beam splitters, filters, long focal length lenses, etc.

Precision 45° Mirror Mounts

The 390x Vertical supports are available with an extra support element at 45°. This configuration can either be used with a mounting plate, thumb screws, or the precision mirror mounting kits (4052 or 4053). This modification can be made to any size vertical support.

Rod Mounts and Rods

To provide as much versatility as possible, Data Optics offers a unique rod mount. The "V" shape of the rod mounting hole accepts our special V-rods or any size round rod up to 0.75" (19 mm). Round rods locate precisely on the two lines formed by the "V", eliminating wobble, while V-rods retain their angular position even when raised or lowered in the mount. Data Optics also provides rod mounts with vertical adjustments with a 0.5" adjustment range.

Rod Mount with ¼-20 Tapped Mtg Holes

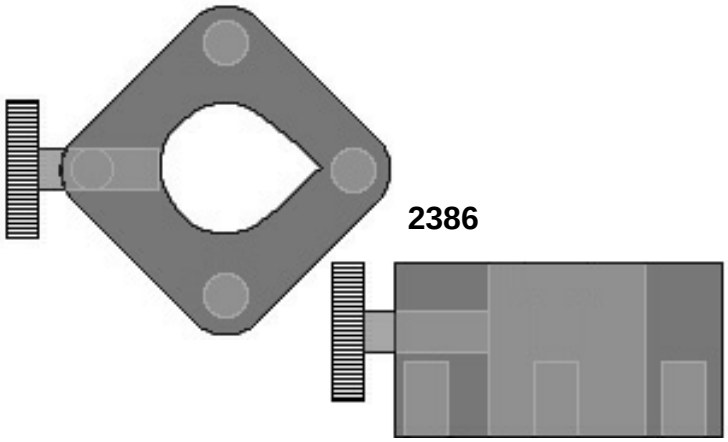
The 2386 rod mounts are for use with Data Optics series 50 Carriers and accurately place the rod on the optical axis. The "V" shaped hole allows any size round rod up to 0.75" (19 mm) diameter to be used. Rod mount is 1.0" high. Four ¼-20 tapped holes are provided for mounting.

Rod Mount with ¼-20 Counterbored Clearance Mounting Holes

The 2387 is a similar design to the 2386, but these rod mounts have two ¼-20 counterbored clearance holes on 1.5" centers for mounting to plates or optical tables.

Rod Mounts with Vertical Adjustment and ¼-20 Tapped Mounting Holes

The 2388 rod mounts with vertical rod adjustment are for use with Data Optics Series 50 Carriers and accurately place the rod on the optical axis. The "V" shaped hole allows any size rod up to 0.75" (19 mm) diameter to be used. Rod mounts are 2" high. Vertical adjustment



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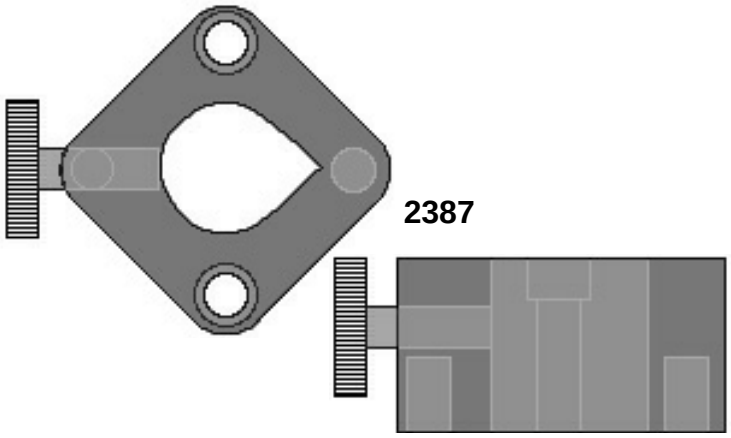

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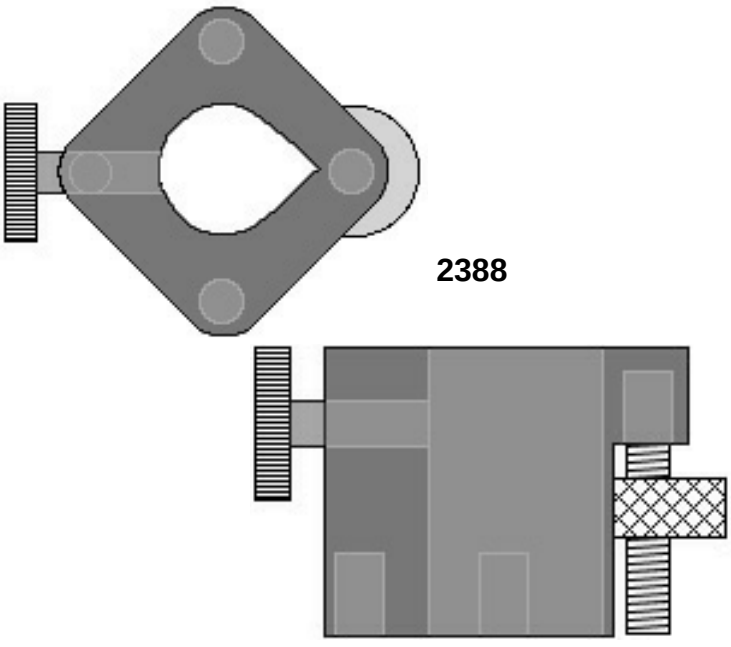

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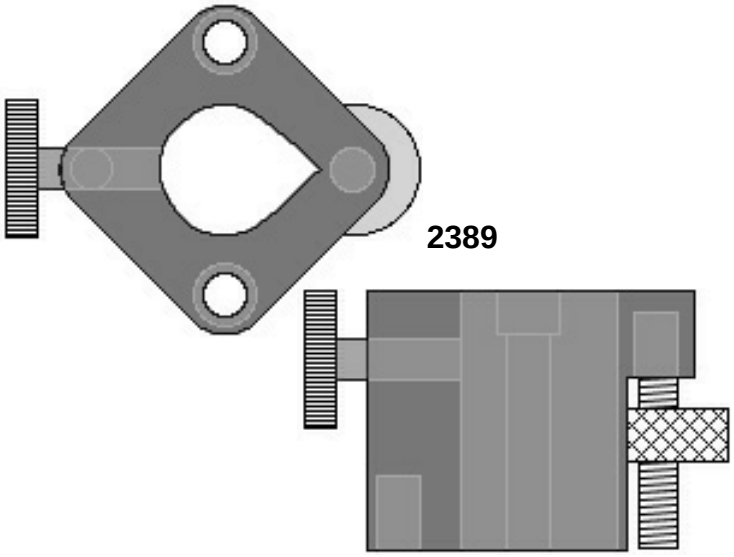
range is 0.6". Four ¼-20 tapped holes are provided for mounting.

Rod Mounts with Vertical Adjustment and ¼-20 Clearance Mounting Holes

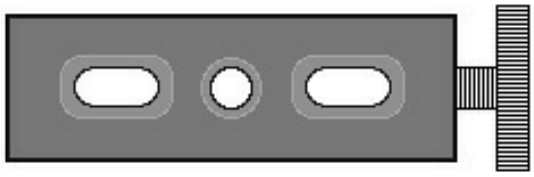
The 2389 is a similar design to the 2388, but these rod mounts with vertical rod adjustment have two ¼-20 counterbored clearance holes on 1.5" centers for mounting to plates or optical tables. Rod mounts are 2" high. Vertical adjustment range is 0.6".



Mounting Platforms w/ Lateral Adjustment

0.875" Mounting Platforms with Lateral Thumb Screw Adjustment

The 2361 0.875" Mounting Platform provides lateral thumb screw adjustment of 0.25" (6.3 mm), except on the 2351 carrier where it is limited to 0.15" (4 mm). A spring loaded thumbscrew gives smooth adjustment of 0.03" (0.8 mm) per turn, free of backlash. One ¼-20 counterbored clearance hole is provided for accessory mounting. Must be mounted on a Series 50 carrier or subplate.

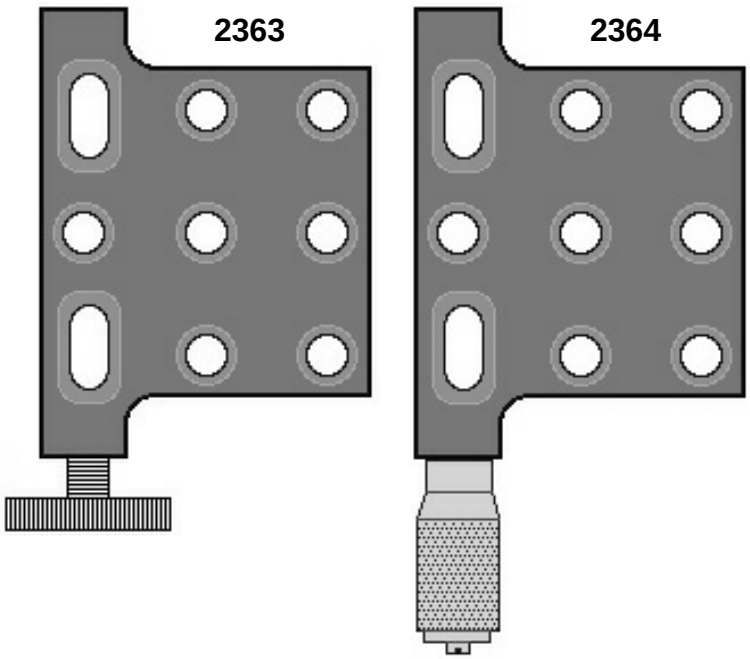


0.875" Mounting Platforms with Lateral Micrometer Adjustment

The 2362 0.875" Mounting Platform provides lateral micrometer adjustment of 0.25" (6.3 mm), except on the 2351 carrier where it is limited to 0.15" (4 mm). A spring loaded micrometer gives smooth adjustment of 0.025" (0.5 mm) per turn, free of backlash. One ¼-20 counterbored clearance hole is provided for accessory mounting. Must be mounted on a Data Optics carrier or subplate.

2" Mounting Platforms with Lateral Thumb Screw Adjustment

The 2363 2" Mounting Platform provides lateral thumb screw adjustment of 0.25" (6.3 mm). A spring loaded thumb screw gives smooth adjustment of 0.03" (0.8 mm) per turn, free of backlash. Seven ¼-20 counterbored clearance holes are provided for accessory mounting. When used on a 2352 2" Carrier, the 2363 can provide either x or y-axis adjustment. Must be mounted on a Series 50 carrier or sub-plate to operate properly.



2" Mounting Platforms with Lateral Micrometer Adjustment

The 2364 2" Mounting Platform provides lateral micrometer adjustment of 0.25" (6.3 mm). A spring loaded

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micrometer gives smooth adjustment of 0.025" (0.5 mm) per turn, free of backlash. Seven $\frac{1}{4}$-20 counterbored clearance holes are provided for accessory mounting. When used on a 2352 2" Carrier, the 2364 can provide either x or y-axis adjustment. Must be mounted on a Data Optics carrier or sub-plate to operate properly.

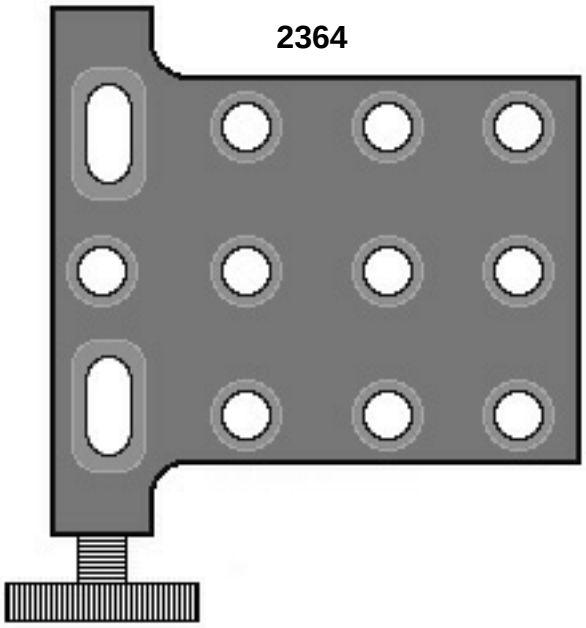
2.75" Mounting Platforms with Lateral Thumb Screw Adjustment

The 2365 2.75" Mounting Platform provides lateral thumb screw adjustment of 0.25" (6.3 mm). A spring loaded thumb screw gives smooth adjustment of 0.03" (0.8 mm) per turn, free of backlash. Ten $\frac{1}{4}$-20 counterbored clearance holes are provided for accessory mounting. Must be mounted on a Series 50 carrier or sub-plate to operate properly.

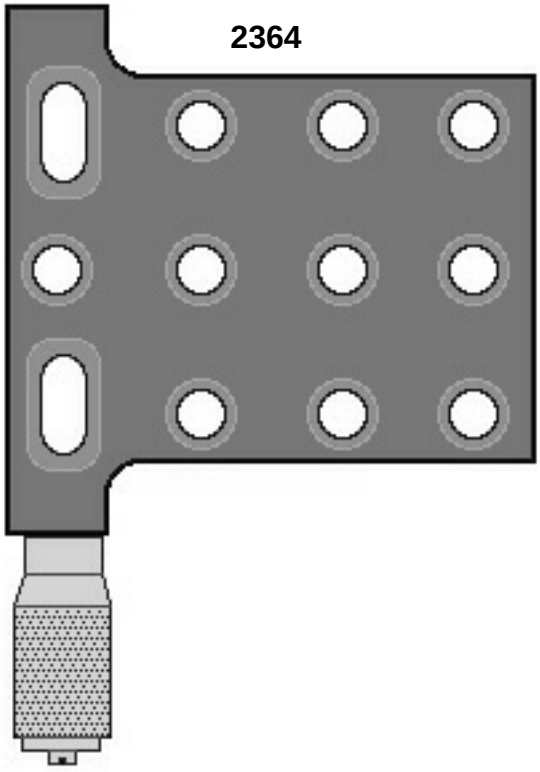
2.75" Mounting Platforms with Lateral Micrometer Adjustment

The 2366 2.75" Mounting Platform provides lateral micrometer adjustment of 0.25" (6.3 mm). A spring loaded micrometer gives smooth adjustment of 0.025" (0.5 mm) per turn, free of backlash. Ten $\frac{1}{4}$-20 counterbored clearance holes are provided for accessory mounting. Must be mounted on a Data Optics carrier or sub-plate to operate properly.

2364



2364



Precision Optical Mount

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Precision Optical Mount with 2-Axis Micrometer Adjustment

A new precision optical mount is now available with 2-axis micrometer adjustment (Part #3020-dia.) for use with Data Optic's broad line of research-grade positioning components. Any size optical component up to 2" (50 mm) can be accommodated An inner tubular mount, bored to fit the specific dimensions of the optical component, is suspended in a 3" O.D. ring between a spring loaded plunger and the spherical faces of two micrometers. A shallow groove in the tubular mount provides accurate positioning, angular stability and full rotation of the component around the optical axis. The entire unit is post mounted and, therefore, compatible with all three series of Data Optics systems, as well as systems from other manufacturers. When ordering, specify the diameter of the bore required for the optical component being mounted.