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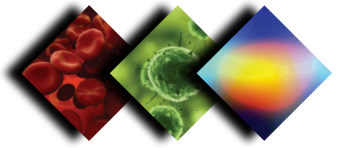
GENERAL MICROTECHNOLOGY & PHOTONICS

siskiyou



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About Siskiyou

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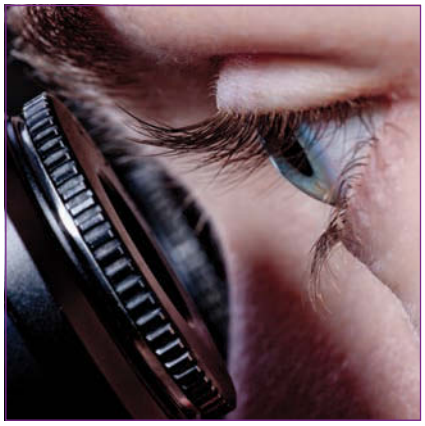
Just as a tool is only as good as the person using it, a company is only as good as the people who staff it. The difference between ordinary and extraordinary quality is the people who add their knowledge and skills to a product. At Siskiyou, we pride ourselves in maintaining an experienced work force who provide the life science and photonics research communities with dependable equipment and technical knowledge to support our products. At Siskiyou, our skilled and experienced work force makes the difference in quality and dependability.



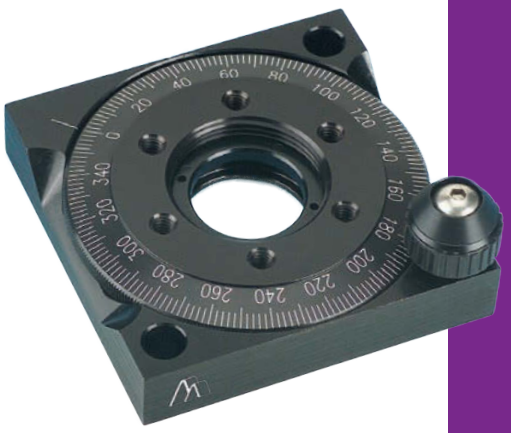
Siskiyou Corporation began in Grants Pass, Oregon, in 1972 as a two-man shop with the concept of providing precision positioning devices for photonics research. The first products produced were a mirror mount, support post, support post holder, and mounting base. It was the precision of our instruments that attracted attention and soon we received requests for related devices.

Over the years, advances in life science and photonics research led to new uses for Siskiyou's devices, resulting in an increase in demand. As demand increased, staff and equipment were added to handle both new design requests and manufacturing capacity for all products. By 1992, twenty years after the initial concept, Siskiyou had grown and was equipped with the latest CNC machining centers. Now, forty years into our existence, we continue to adapt to changing market demands through the use of technology and our highly skilled staff. From the beginning, through the present, and continuing for years into the future, the one element that Siskiyou will not outgrow is its commitment to quality. Siskiyou's commitment translates into developing and maintaining highly trained and skilled people dedicated to serving our customers.

Because Siskiyou is committed to continue to produce high quality products within reasonable delivery periods, we have acquired contiguous properties to ensure our ability to expand at our present location. As we grow, we will continue to have the same quality of expertise to assist you in selecting, installing, operating, and maintaining your equipment.

...and the people that make it all possible

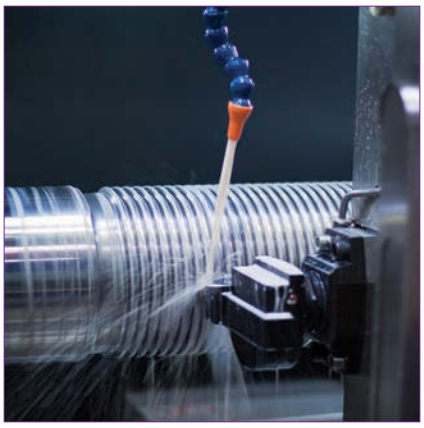
In an age of rapid job turnover, we are proud to have a staff with an average tenure of more than twenty years. New staff members will be trained by experienced professionals to deliver the quality you expect. The backbone of Siskiyou — our experienced staff — will always be available. Siskiyou is committed to ensuring that the current high standard in product support will be maintained.



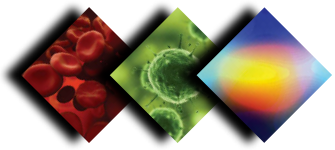
Recognizing that a functioning precision tool must have accurate, readable markings, Siskiyou has combined the practicality of precision scales with an aesthetically pleasing product appearance. Affiliated with Siskiyou is a company that produces the high quality anodizing for Siskiyou's product line. Metal Finishers, Inc., also of Grants Pass, was founded in 1988. Through a close working relationship between the two companies, Siskiyou helped develop and re-engineer the anodizing process. MFI guarantees a reliable, quality source of finishing and laser engraving for Siskiyou products, and ensures that the anodizing process will not delay product delivery. Like Siskiyou Corporation, MFI is staffed with experienced people who insist that the highest quality standards are maintained.

Siskiyou has designed and presently manufactures nearly 2500 products for the medical research and photonics industries. Products range from highly precise micromanipulators to robust platforms and adapter plates. The manipulator section includes motorized drives and motion controllers that can position stages with incremental moves as small as 0.1 micron. A variety of base plates, adjusting screws, clamps, rods, and mounting posts augment the versatility of the manipulators and stages. Siskiyou products are Modular by Design™, which makes it easy to substitute interchangeable parts or to exchange and add modular units. The ability to combine products interchangeably provides an unlimited array of functional tools that can be adapted to most any requirement.

Almost every month, a new idea or adaptation expands the applications of Siskiyou tools. Siskiyou engineers listen to customers' ideas about desired changes or modifications, and then work with customers to provide solutions. Communication is through your preferred method: telephone, fax or email. Electronic drawings can be submitted in either dwg or dxf formats. Frequently, drawings are submitted and then discussed via telephone. Siskiyou's willingness to listen has led to respect among customers who want person-to-person support. Siskiyou engineers can provide guidance and insight for your next project whether it involves standard products or customized devices.



Siskiyou is growing, but the people at Siskiyou haven't changed. Your project becomes our concern. Providing tools for your discoveries and innovations is why we're here. Call us and find out how Siskiyou can make a difference for you.



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Ultraviolet Applications / Solutions

Introduction to Siskiyou ultraviolet products

Mechanical assemblies used in ultraviolet lasers or around similar light sources require unique materials and finishes if they are to survive this harsh working environment. These materials must not contaminate the atmosphere or optics in the system.

Manual mechanical assemblies, such as mirror mounts and lens positioners, have relatively simple standards to meet UV requirements. Unanodized aluminum or stainless steel are preferred base materials, and aluminum is the best choice for cost effective manufacturing processes. Within these assemblies, brass bushings and stainless steel adjustment screws require the use of low vapor pressure (LVP) lubricants. For their adjustment screws and sliding surfaces, Siskiyou usually recommends the use of Krytox® LVP or Tribolube®-15. Both of these lubricants are industry standards for UV or high vacuum applications. Depending on the application and mechanical design, and unless otherwise specified by the customer, we will recommend the best choice of lubricant for long term performance of the specific mechanical assembly.

Motorized mechanical assemblies for UV applications differ from manual assemblies only in the electronic wiring and motor requirements, but they are similar in other aspects. Therefore, LVP lubricants are required for motor gearheads, leadscrews and bearing ways. Our standard DC servo motor gearheads use a lubricant with a vapor pressure of less than 0.1 mbar at 20°C (0.075 Torr, .00145 psi or 9.9×10^{-5} atm). This is not an extreme high vacuum lubricant, but it does perform well at ambient temperatures under atmospheric pressures with no risk of out-gassing.

The ability to use our stock motor for UV applications saves time and money. There is no longer a need to purchase motors with special lubricants. For leadscrews and bearing ways we use Krytox® LVP or Tribolube®-15 depending on the application and performance requirements. The use of plastics is generally not accepted in UV environments, and, for motorized assemblies, there are few exceptions. Plastic components are acceptable in standard wiring, but only where the wires or electronic components are shielded from the UV light. For our motorized drives, we use plastic microswitches that are housed within a light-tight area of the drive. For all external wiring, Kapton® coated wire is used.

Vacuum Applications / Solutions

Introduction to Siskiyou high and ultrahigh vacuum products

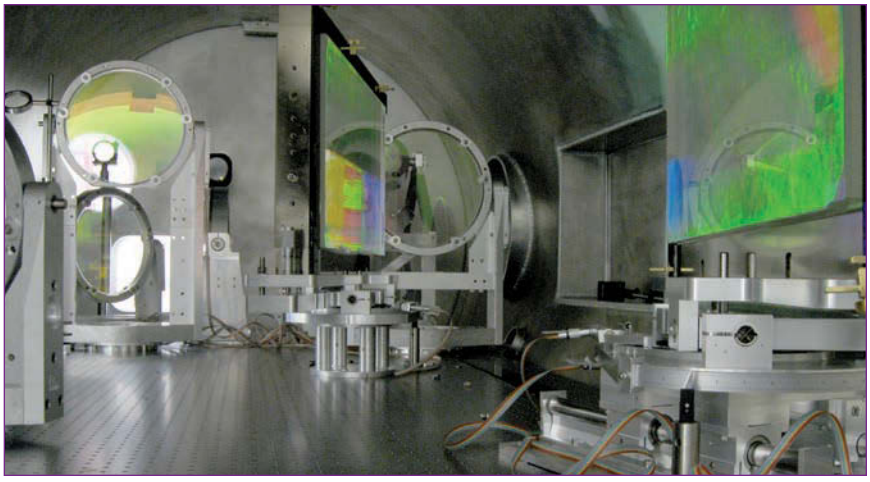
Mechanical assemblies used in vacuum chambers or launched out of the atmosphere require unique materials and finishes if they are to survive this harsh working environment. When these devices are used in closed loop environments, such as a vacuum chamber, the materials must not contaminate the atmosphere or optics in the system.

Manual mechanical assemblies, such as mirror mounts and lens positioners, have relatively simple standards to meet vacuum compatibility (VC) requirements. Un-anodized aluminum or stainless steel are preferred base materials, and aluminum is the best choice for cost effective manufacturing processes. Within these assemblies, the use of brass or plastic is not acceptable due to their oxidation, their source of virtual leaks and high temperature instability in which a system bakeout of 350°C is required. All blind holes must be vented to ensure maximum flow during pumpdown of the vacuum system. To achieve this, tapped holes are drilled through and ball pockets are drilled from the opposite side.

Depending on the pressure of the system, low vapor pressure lubricants must be used on adjustment screws, bearings and sliding surfaces. For systems at or around $1x10^{-6}$ Torr, Apiezon® or Krytox® LVP are both acceptable lubricants. For high or ultrahigh vacuum systems reaching $1x10^{-12}$ Torr or better we recommend Tribolube®-15.

Motorized mechanical assemblies for vacuum applications differ from manual assemblies only in the electronic wiring and motor requirements, but are similar in other aspects. Therefore, LVP lubricants are required for motor gearheads, leadscrews, and bearing ways. Our standard DC servo motor gearheads use a lubricant with a vapor pressure of less than 0.1 mbar at 20°C. However, this lubricant is not acceptable at pressure ratings below $1x10^{-3}$ Torr.

Per special order, Siskiyou can supply motor drives with vacuum compatible prepped motors which will operate at $1x10^{-7}$ Torr. These motor drives are manufactured with low vapor pressure lubricant in the gearhead and a Teflon® ribbon cable for the electronic interface to the chamber feedthrough. Vacuum compatible stepper motors are also available on request.



Examples of custom lens positioner mounts made for the University of Texas at Austin. The equipment is installed on a large vacuum compatible isolation table (supplied by TMC) that is inside the vacuum chamber ($1x10^{-6}$ Torr) for the university's Peta-watt laser. Photo courtesy UT-Austin

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Laboratory Mechanicals

Introduction to Siskiyou Laboratory Mechanicals Sections

Siskiyou Corporation has been producing Laboratory Mechanicals for over forty years. From the beginning, these products have been produced with quality and flexibility in mind. Superior quality provides the end user with a product that will fulfill the designed function and continue beyond the service life of competitive products. Designed flexibility provides products which may be used in multiple configurations and applications. By combining flexibility with long service life, many products see uses far different from their original application. Sometimes a seemingly simple part of a project can be the most problematic. Our laboratory mechanicals can provide cost-effective solutions to a variety of problems from simple to complex. These products are not aimed at a single discipline, such as Photonics or Electrophysiology, but are designed to provide any end user with modular tools limited only by imagination.

Laboratory Mechanicals is the designation for a range of basic components that are Modular by Design™. They are intended to be assembled in virtually any configuration to solve problems presented by a wide variety of scientific experiments. The products utilize standard and consistent dimensions to allow for easy interchangeability. Most products have a variety of mounting configurations and many may be ordered with metric mounting. The modularity of the products provides economical solutions to assembly or configuration problems. Motion Controllers head the list of the product line. The Siskiyou family of controllers includes single-axis up to 4-axis devices. They may be operated manually or governed by a desktop computer. The modularity of the units allows the computer interface unit to be daisy-chained to control up to 64 axes by special request.

Stages

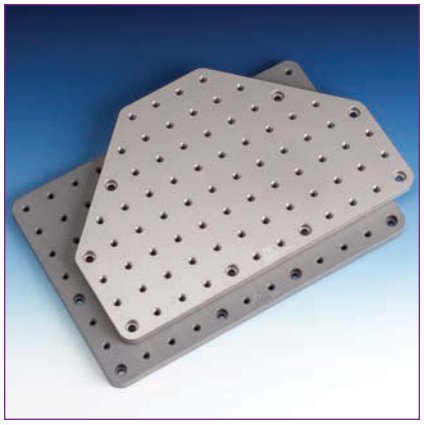
Siskiyou stages range from single direction to multiple axis units. Linear units may be operated manually or with quiet DC servo motors. The XYZ stages are Modular by Design™ and may be assembled in numerous inventive configurations as well as in their standard Cartesian configuration.

Adapters and Hardware

These components offer a range of solutions for assembly of experimental apparatus. A variety of bases include both magnetic supports where threaded supports are not possible, and movable bases that allow for coarse positioning without restructuring an entire assembly. Precision rods, clamps, and fasteners provide flexible solutions to erecting structures to position and hold experimental components.

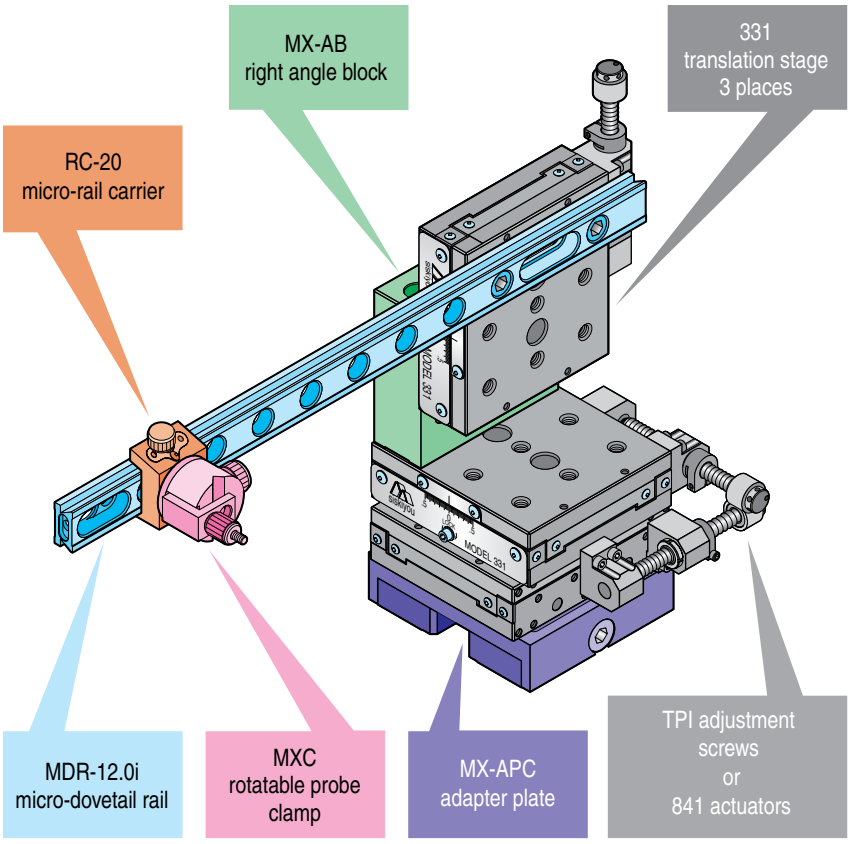
Platforms

Platforms are designed to be as flexible as possible for assembly to match the user's requirements. Frequently, a simple modular component may solve a configuration problem because it can be rotated and translated into unusual formations to access hard-to-reach locations. The solid aluminum plates provide sturdy yet lightweight structures on which to place experimental devices or equipment. The series of support posts and spacers provide unlimited flexibility in positioning the modular platforms.



Adjustment Screws

The mainstay of our precision stages is our line of TPI Adjustment Screws. Since beginning in 1972, Siskiyou has produced over 1,500,000 adjustment screws and was the first company to bring 80-pitch adjustment to the market. Our range of adjustment screws goes from coarse 20TPI threads up to 170TPI (150µm/revolution) threads for the most demanding positioning requirements. New to Siskiyou's line of adjustment screws are our differential micrometers. These ultrafine differential micrometers produce only 20µm of linear motion per revolution of the adjustment knob. They are available in two sizes, one for our 50.5cr, 100.5cr and 150.5cr stages and a larger version built as a typical micrometer replacement, pages 84–85.



The manual 3-axis manipulator depicted in this drawing was used by a researcher for in vivo probing of spinal tissue. This type of setup could also be used for probing semiconductor and MEMS devices.

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Life Sciences

Introduction to Siskiyou Life Sciences Solutions

Siskiyou's Life Science product line has been refined utilizing the input provided by end users. Researchers, using our products in their own laboratories, accomplish much of the design testing of our products. This is an ongoing process. We constantly evaluate user feedback to improve our products and develop new products. Many of the features in our products are the result of a close relationship between our customers and our technical staff. Maintaining this dialogue ensures that we will continue to fulfill the needs of our customers. Input from our customers enabled us to develop simulated lab conditions at our facility which allowed us to design and build products with the high levels of stability needed to complete experiments successfully. While we may not be able to incorporate every suggestion into our products, we greatly value the feedback from the users of our equipment. Since the end user is at the heart of the process, there is no one better to know the demands placed on equipment.

Modular by Design™

Our customers require a great variety of configurations in laboratory experiments. This need for flexibility led to our Modular by Design™ concept. This concept facilitates the incorporation of our products into the individual researcher's system with the least amount of alteration or disruption. The ability to reconfigure the devices ensures that they will not become obsolete when one experiment is completed, but will remain a useful piece of laboratory equipment for future experiments. Our technical staff is ready to help our users accomplish their goals. For us, technical assistance is a two-way street — we find it is an excellent way to learn what our customers' needs are, while providing information to help a user complete a setup. Maintaining direct contact with end users will ensure resolution of their problems or concerns and concurrently improve our service. Customer satisfaction is, and will remain, a top priority at Siskiyou. Our staff has found working with the biomedical community to be a rewarding and enjoyable experience.

Crossed Roller Bearing, Ball and Rail or Dovetail Slides

Our manual micromanipulator comes in three designs: dovetail, ball and rail bearing and crossed roller bearing. The difference among the three designs relates to load and precision of movement. Crossed roller stages are typically designed to carry heavier loads than either ball & rail bearing stages or dovetail stages, and to have smooth, wobble-free actuation. Descriptions of the three designs are given on page 36. Our dovetail MX10 and MX130 stages are compact manipulators designed for positioning stimulating electrodes and puffer pipettes. The ball & rail bearing MX160s are ideal for oocyte micro-injection and for positioning stimulating electrodes. The MX1600 series performs these tasks, as well as applications that need more precise positioning.

Micromanipulators

Most of our micromanipulators come in either post mount or base mount models. The post mount models are typically designed to be mounted next to a microscope or experiment and allow the experimenter to swing the entire manipulator out of the experimenting area. Our base mount versions are designed to be mounted to one of our

platform systems, found on pages 94–112, or directly to a microscope platform. If microscope mounting is preferred, please do not hesitate to call; we can find the right laboratory mechanicals for attaching the manipulator.

Hydraulic Micromanipulators

Our hydraulic micromanipulators are water-based systems that are integrated into crossed roller bearing stages. By using water, we ensure a smooth response to dial controller input and minimize the drift found in oil based systems. The instant response found in our hydraulic manipulators is ideal for the impalement motion needed in intracellular recording. As with all hydraulic manipulators, service or maintenance must be performed on a regular basis. Our hydraulic manipulators come with an extended two (2) year warranty and will be filled at no charge within that period. After that period, they will need to be refilled every 18–24 months. There is a nominal fee for the refilling after the warranty period. In most cases, the manipulator will be returned in less than 10 working days.

Motorized Micromanipulators

All of our motorized micromanipulator systems use DC servo motors for smooth, precise, noise-free operation. Unlike stepper or piezoelectric driven manipulators, our DC systems have shielded power cables that need to be grounded at the ground lug of the controller junction box. DC servo motors are inherently more stable than stepper motors because they do not require current to hold position and therefore do not generate heat, causing extraneous drift. These systems are so stable that power may be disconnected while performing a patch recording without generating enough drift to lose connection.

Mechanical Drift

Mechanical drift in an electrophysiology rig is one of the most difficult problems to overcome. Over the years, we have discovered that there are two main sources of drift that are typically overlooked by the experimenter. The first is the electrode holder in the amplifier headstage, and the second is the material used in headstage mounting rods. Electrode holders are typically made from poly-carbonate (plastic) that is very unstable when exposed to even the slightest thermal change. Our new ST50 series of Stable-tip electrode holders greatly reduce this thermal instability. See page 171 for additional information on the features and materials used. Another problem with the electrode holder is the rubber compression washers.

We have successfully addressed the first source of drift by replacing the plastic headstage mounting rod with a solid ceramic rod. The ceramic rod used in the MXE series of amplifier headstage mounts is literally "rock-solid" and is effective in resolving many temperature related drift problems. We have models for most Axon, HEKA, and Warner Instruments amplifiers. If you have an amplifier to be adapted to our MXE headstage mounts, please call us, and we can help with the modification. See pages 172–173 for product details.

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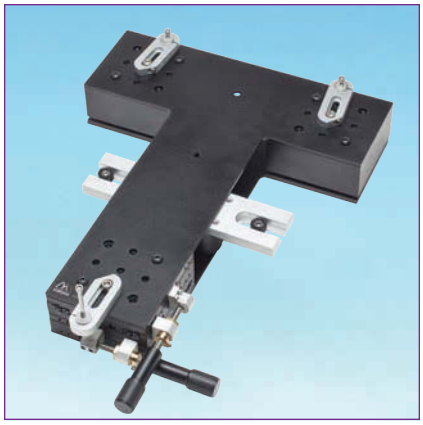
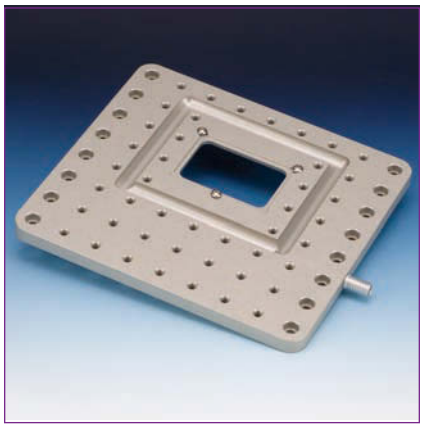
Life Sciences (continued)



Microscope Translators

On fixed-stage electrophysiology rigs, it is critical to have a stable microscope translator that won't allow microscope drift independent of the recording chamber. Our MXMS series of microscope translators have been in use since 1998 (see pages 184–185). They come in a motorized crossed roller version and two manual versions – crossed roller and economy. The economy version is a perfect example of our working relationship with our customers. Following customers' recommendations, we were able to incorporate ball transfer pads typically used for package conveyer systems. This design provides significant cost savings to the user, and for applications of 700x magnification or less, they work well. For higher magnification and motorized models, a full crossed roller system is recommended. Both versions have mounting kits for Olympus, Nikon, Leica, and Zeiss microscopes. Manual versions can be ordered with either 20, 40, 80, or 100TPI adjustment screws.



Perfusion Chamber Platforms

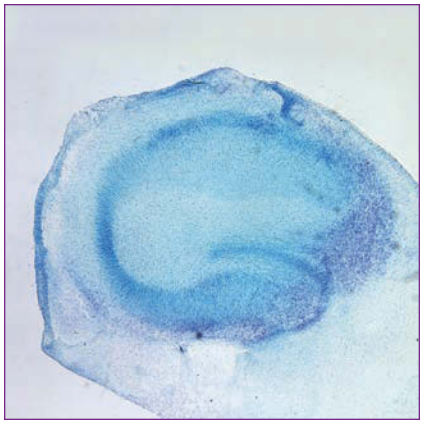
The 8090c perfusion chamber platform is specifically designed with the electrophysiologist in mind (see pages 192–193). It includes adequate mounting holes and a drainage trough around the perimeter for solution overflows. The drainage trough is designed to protect your expensive microscope optics by funneling the solution to the outer edge of the platform and down the drainage tube to a safe location. The chamber receiver is located off-center and accepts our PC series perfusion chambers. These perfusion chambers use a simple design that incorporates a 22-mm square cover slip for the chamber bottom. The cover slip can be attached with vacuum grease, silicon, or parafilm. For added security, there are two plastic screws to secure the cover slip to the bottom of the chamber. A unique feature of our perfusion chambers is the use of inserted magnets for holding perfusion plumbing, ground plugs, and other devices that need to be secured close to the perfusion bath.

Pipette Pullers

Our improved EP-450 pipette puller is designed for ease of use and provides a consistent, repeatable electrode shape pull after pull. The unique design of the EP-450 allows for easy access of the loading mechanism. All the controls are set at a 45° angle to eliminate bending over or kneeling down to either load the glass or monitor your progress. The system is designed around the strict control of time for both the first and second pulls. In concert with voltage adjustments for the first pull and second pull, the clock allows you to monitor time for each pull and thus ensure a repeatable electrode shape. A variety of user defined electrode shapes may be reproduced by keeping a time/voltage/glass log for the different shapes. A front panel switch adjusts the voltage range for high or low temperature pipette glass. Our heating filament is very robust and won't change thermal characteristics over thousands of pipettes, insuring a repeatable pull every time. See page 194 for product details.

Tissue Slicers

For slicing cortical and hippocampal tissue, there is nothing faster than the MX-TS tissue slicer. Its classic design uses a simple winding system to create two slicing frames that are similar to an egg slicer. The winding system sets the wire spacing on the frames at 200-, 300- or 400-µm separations depending on the required thickness of the tissue. The tissue slicer itself is a guillotine design that drives the frame through the sectioned tissue and into an agarose bed. Once the tissue has been sliced, the frame, tissue, and agarose are removed from the slicer so that the tissue can be floated off in a buffer solution. The experimenters who use this device are impressed by the ease of operation and the minimal damage done to the tissue. The bottom-right image is a photograph of a hippocampal section sliced using the MX-TS. See page 196 for product details.



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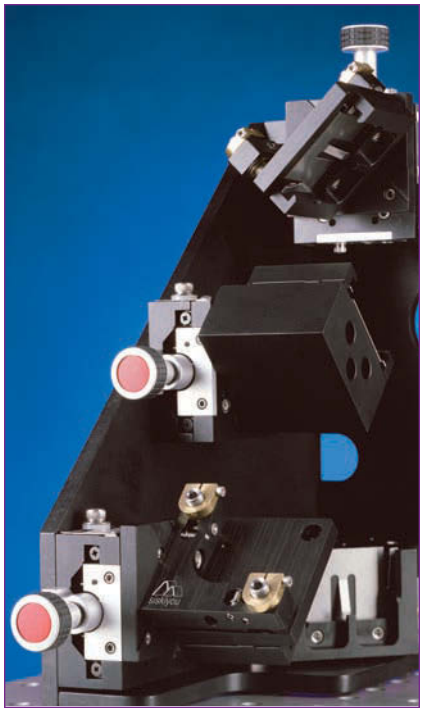

Custom beam delivery system assembled from 1600 series Stages and IM100 series Mirror Mounts.

Introduction to Siskiyou Photonics Solutions

Siskiyou's photonics components have a solid 36-year history. They have been widely used in research and OEM applications for semiconductors, telecommunications, and the life sciences. Our in-house Oregon manufacturing facility ensures that you will receive the superior quality that has made Siskiyou components a standard throughout the photonics industry. The goal is now, and has always been, to supply quality and value which surpass the competition.

As with all of our products, we apply the Modular by Design™ concept. This gives the end-user maximum flexibility for the installation of the component. In fields that change rapidly with technological advances, maintaining solid basic designs with maximum flexibility is of paramount importance. Users need traditional devices that can fulfill future demands. We try to anticipate variations in a product's use and then examine the effects this would have on fit and function. By following this "what if" process, we know our customers will be able to get maximum use from our components with the least amount of design work. We are also willing to modify existing products or design new ones whenever an application requires either a simpler or more complex device. We are familiar with HV and UHV applications (see pages 8–9), nonmagnetic requirements, and custom beam delivery systems. Our IM100 and IM200 series (pages 200–213) are designed for more demanding applications. The IXM series (pages 214–221) is our most extreme mirror mount and incorporates the latest design features including a thicker back plate, lockable 100TPI adjustment screws, and our patented spring loaded pivot (pat.# 6590723).

Monolithic Flexure Mounts

The IXF series is a unique, monolithic flexure mount found nowhere else in the industry. Unlike other flexure designs, they have lockable 100TPI adjustment screws that have a rolled-cap design to guarantee that the flexure will not be forced past its elastic limit. Three versions are available: steel-bulkhead mounted, steel bulkhead/post mounted, and aluminum-bulkhead/post mounted. The steel-bulkhead mounted version (IXF1.0, IXF.75, and IXF.50) has 4-40 tapped holes on two sides and is electroless nickel plated. The steel-bulkhead/post version (IXF1.0i, IXF.75i, and IXF.50i) has the 4-40 tapped holes on only one side, and has 8-32 (M4) tapped holes on two edges, as well as lock screws for the fine pitch 100TPI adjustment screws. This model is also electroless nickel plated. For vacuum compatible and flight-ready applications, we've developed a method to produce a spring-loading effect in an aluminum version. The aluminum version (IXF1.0a, IXF.75a, and IXF.50a) has the same features and performance specifications as the steel bulkhead/post version.

Almost Gimbal Mounts

With the issuance of a patent for our spring-loaded pivot design, we looked for other uses for this distinctive concept. As a result, we developed yet another design, unique to the industry. Our IAG (Innovative Almost Gimbal) series mounts incorporate the spring-loaded pivot into

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an optical mount that is neither kinematic nor true gimbal, although the motion closely resembles gimbaled motion by pivoting about the center of the optical axis. The real attraction of these mounts is that adjustment screws are located out of the beam path on the upper side of the mount. This location reduces the possibility of finger burns while aligning high powered lasers. This innovative design has also solved some problems found in the industry that, until now, were accepted by users. This latest innovation allows us to utilize top adjusted mounts and to eliminate the crosstalk found in all other mounts of this type. By adding the spring loaded pivot to our IVM series, we were able to create a mount of the highest stability. We then created a new orthogonal motion system that very simply turns vertical motion into horizontal motion. This design allows the user to adjust one axis without readjusting the other axis to compensate for crosstalk.

Gimbal Mounts

Our OT series optic translators and OG series of optical gimbal mounts use our color coded SoftTouch™ knob caps. These knob caps are comfortable to use and provide quick axis location in low light conditions. 80-pitch screws are the basis for smooth accurate positioning of all models from the smallest mount to the largest. To meet the demands of many different applications we have XY, XYZ, and 5-axis OT series optic translators in three sizes. In the OG series of optical gimbal mounts, we have 1.0-inch, 2.0-inch, 1.0-inch polarizer and cylindrical lens versions. The entire OT series comes standard with Delrin® retaining rings and a separate optic adapter. Additional adapters include ones for microscope objectives or various standard apertures, as well as a solid version to be machined for your custom optic.

Fiber Translators

The BFT series of bare fiber translators come in XYZ, XYZ polarizing, 5-axis, and 5-axis polarizing to meet the demands of a variety of positioning requirements. These fiber translators use our selection of BFC series of fiber chucks to securely, but gently, hold fibers from 80µm to 1mm. Smooth and accurate positioning is accomplished using 80-pitch screws. The screws incorporate our color coded SoftTouch™ knob caps to provide quick axis location in low light conditions. Completing the fiber translators are our CFT connectorized fiber translators. These translators have the same features as the BFT series but are designed for our CFC connectorized fiber chucks. These fiber chucks are compatible with SMA, NTT, and ATT fiber connectors and come with a graduated dial for polarizing. For the ultimate in fiber positioning and flexibility, Models 3010 and 3018 are unique and are the most innovative fiber holders on the market today. These self-aligning fiber holders can be purchased separately or mounted as a 5-axis manual fiber aligner in the FP1600 and GR1600 series fiber positioners.

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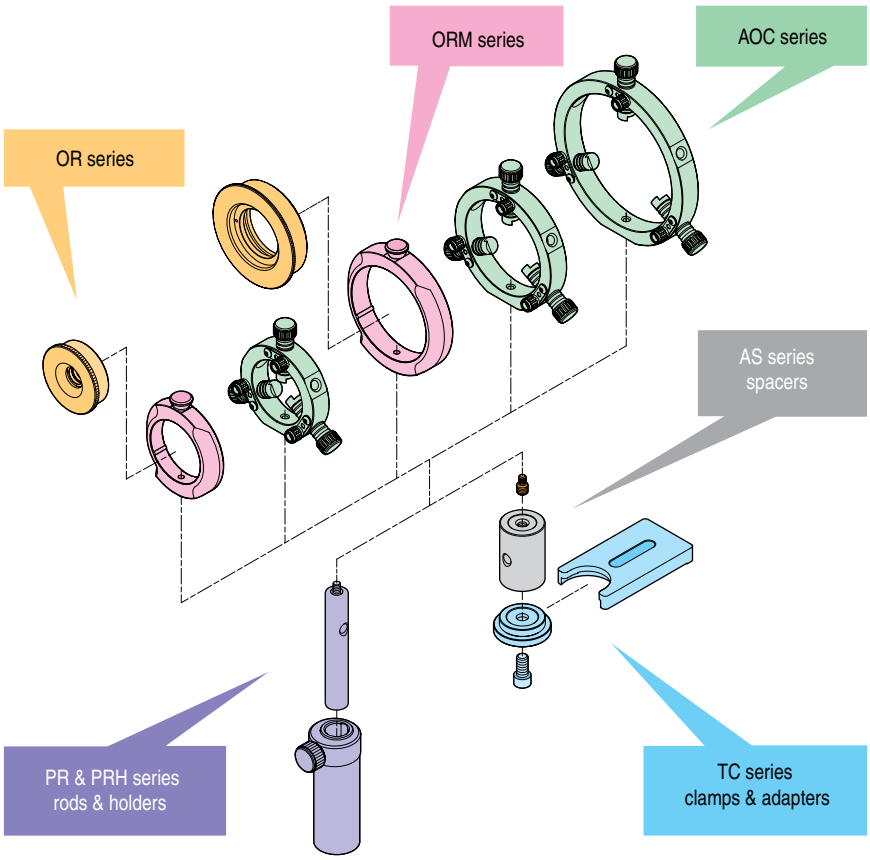
Photonics (continued)

The Optic Accessories section starting on page 302 has a wide variety of adjustable optical chucks, optic retainers, fixed optic holders, filter holders and optic focus mounts. The adjustable optical chucks, optic retainers, fixed optic holders, and focus mount are typically used for axial mounting (as shown in the diagram below) with only one or no axis adjustment. New in this product area is a C-mount tube that, when combined with our focus mount from page 312, can create a single objective microscope/imaging system.



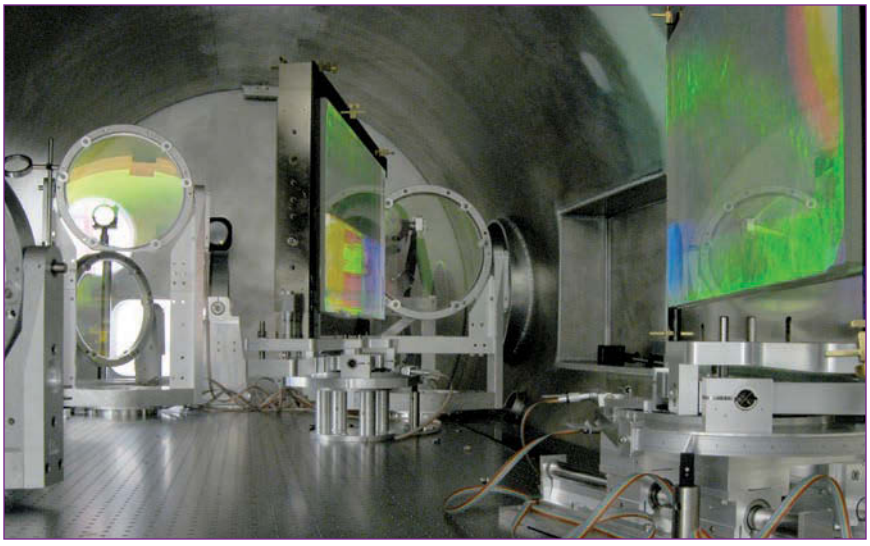
The product tree shown here is only a sampling of the modularity of our Photonics product line. The example shown here relates to our Optics Chucks, Optic Rotators, and related spacers, clamps, adapters, support rods and holders.

Over the past 40 years, we have designed a wide variety of optic mounts for OEM customers and for our own catalog sales. We continue to create new, innovative products such as our IXF series flexure mounts. The photo of mirror mounts above shows a small selection of our existing designs. We have many variations of these, and if you don't see something that fits your requirements, be sure to contact us.

Since we design and manufacture 100% of our products in our factory in southern Oregon, we have the in-house capacity to modify existing designs or build mounts to a customer's given specifications. We have over 40 years of expertise to make sure the customer gets the best mount for their specific application, whether they are to be used in vacuum, ultraviolet, or atmospheric conditions.

The Minimum Controllable Motion (MCM) Reference Chart is a summary of the angular travel range and resolution for our most common mirror mounts. This chart facilitates comparisons among the various models. Travel ranges are mechanically accurate to the mount, and the MCM is calculated for a rotation of one degree. Since these are all manually adjusted, the minimum controllable motion is an approximation and should only be used as a reference point.

Model	Travel Pitch / Yaw	MCM Pitch / Yaw
CVM100	7° / 6°	4.6 / 3.6 arc sec
IAG100	8°	8.0 arc sec
IAG200	8°	4.7 arc sec
IM05 Series	10°	8.6 arc sec
IM100 Series	8°	3.8 arc sec
IM100-LPA	8°	3.8 arc sec
IM100-T/B	8°	3.8 arc sec
IM100.1H	10°	8.3 arc sec
IM200 Series	8°	2.5 arc sec
IVM100.5 (K)	8°	7.9 arc sec
IVM100 (K)	8°	3.8 arc sec
IVM200 (K)	8°	2.3 arc sec
IXF.50 Series	6°	8.2 arc sec
IXF.75 Series	6°	5.5 arc sec
IXF1.0 Series	5°	4.5 arc sec
IXM100 Series	8°	3.8 arc sec
IXM200 Series	8°	2.5 arc sec
OGX-1.0	7°	8.1 / 5.4 arc sec
OGX-2.0	6° / 7°	6.0 / 5.3 arc sec
RM80-1H	10°	10.4 arc sec
RM80-0.5H	16°	22.8 arc sec
RM80-0.75H	11°	14.8 arc sec



Examples of custom lens positioner mounts made for the University of Texas at Austin. The equipment is installed on a large vacuum compatible isolation table (supplied by TMC) that is inside the vacuum chamber (1x10^{-6} Torr) for the university's Peta-watt laser.
Photo courtesy UT-Austin

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Motion Control

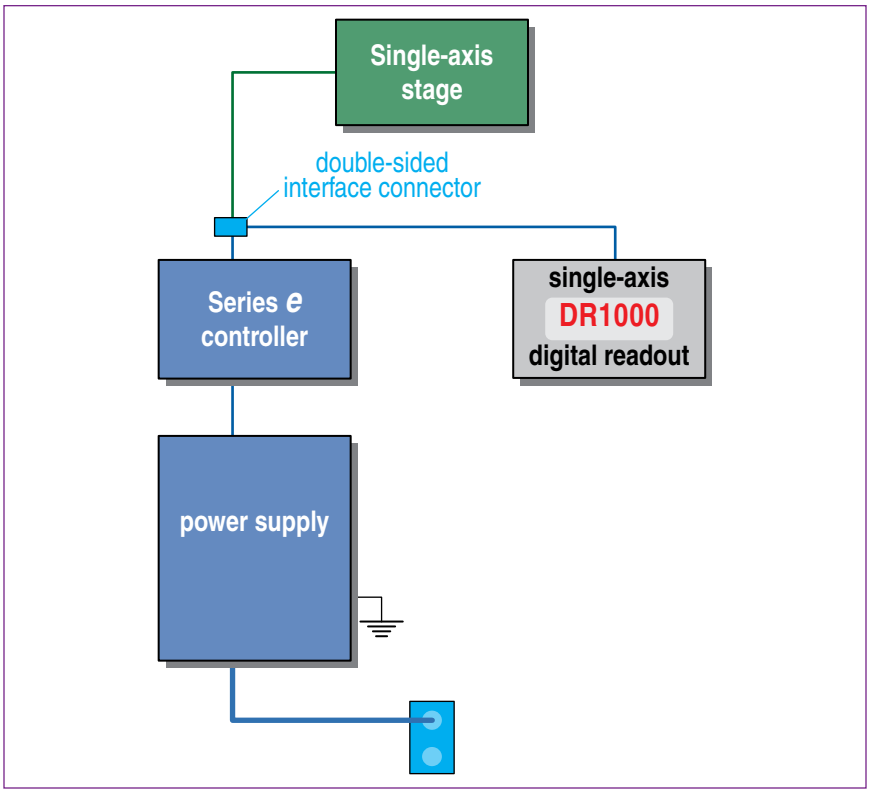
Siskiyou Motion Control Products

Siskiyou translation stages are designed with multiple applications in mind. Siskiyou's motion controllers provide intuitive and accurate control over a full range of actuators, manipulators, and stages. The Siskiyou family of controllers includes single-axis up to 4-axis devices. They utilize a CE certified power supply as a source for clean DC power for the operation of DC servo motors. All cables are shielded, and a central ground is provided to ensure noise-free operation during sensitive electrophysiology experiments. In addition, they are frequently used in controlling microscope, headstage, probe, optics, and fiber optics positioners. Hydraulic controllers for one- or 3-axis control are found in the Life Science section.

All of our controllers come complete with the power supply and power cables needed to operate our motorized equipment. Because each installation is different, grounding cables are not included and must be supplied by the end user.

The MC1000e series of motion controllers uses a closed loop signal between the controller and the motor encoder for smooth, responsive motion. The MC2010 motion controller also uses a closed loop signal between the controller and the motor encoder, but is operated by a user-supplied personal computer. LabVIEW™ is the flexible operating platform used to drive the MC2010. LabVIEW™ is a trade name for National Instruments software, the industry standard in the laboratory automation environment.

Typical Installation Schematic



Many of our products utilize symbols or color coding where appropriate. For example, on our motion controllers, a rabbit icon is used to show fast, rapid, or high speed settings. This setting is typically used for coarse positioning, where positioning accuracy of 15 µm or greater is adequate.

For slow speed or high resolution settings, a turtle icon is used. This setting is typically used for positioning accuracy of 2 µm or less. On manually adjusted stages or manipulators, color coded SoftTouch™ knob caps are used to identify axis adjustment at a glance, especially in low light conditions.

The DR1000 is an example of our Modular by Design™ philosophy. This standalone digital readout is compatible with all of our MC1000e series controllers. The DR1000 is a cost-effective alternative to a PC operated controller — you don't need an active computer to display position. A DR1000 is shown in the typical installation schematic on page 20.

For sensitive electrophysiology experiments it is critical to ground electrical connections. All our controllers come with grounding lugs on the junction box. It is important to read the instruction manual completely before attempting to use any controller or related equipment.

Every effort has been made to protect the equipment and the user from accidental shock. If a saline solution used in electrophysiology experiments is spilled on the control pendant of a series controller, it is possible that the circuitry would be damaged but highly unlikely that the user would be shocked. As with any accident, unplug the equipment. See Ordering Information for instructions on returning the unit to Siskiyou for repair.

Siskiyou controllers are compatible with other comparable DC servo devices. Please contact us for compatibility specifications.

Siskiyou controllers are compatible with other comparable DC servo devices. Please contact us for compatibility specifications.

Motion Control

Closed Loop Controllers

Push Button Control
1 Axis, Push Button 22
4 Axis, Push Button 23

Micrometer Dial Control
1–4 Axis, Single Micrometer Dial 24
4 Axis, Micrometer Dial 25

Joystick Control
3 Axis, Joystick 26

Computer Interface Control
4 Axis, Computer Interface 27

Open Loop Controllers

Push Button Control
1 & 4 Axis, Push Button 28
1 & 4 Axis, Push Button Microdrive 29

Accessories
1-4 Axis, Switch / Junction Box 30
1 Axis, Digital Readout / Display 31
25 Pin, Sub-D Polarity Adapter 31

Closed Loop Controllers

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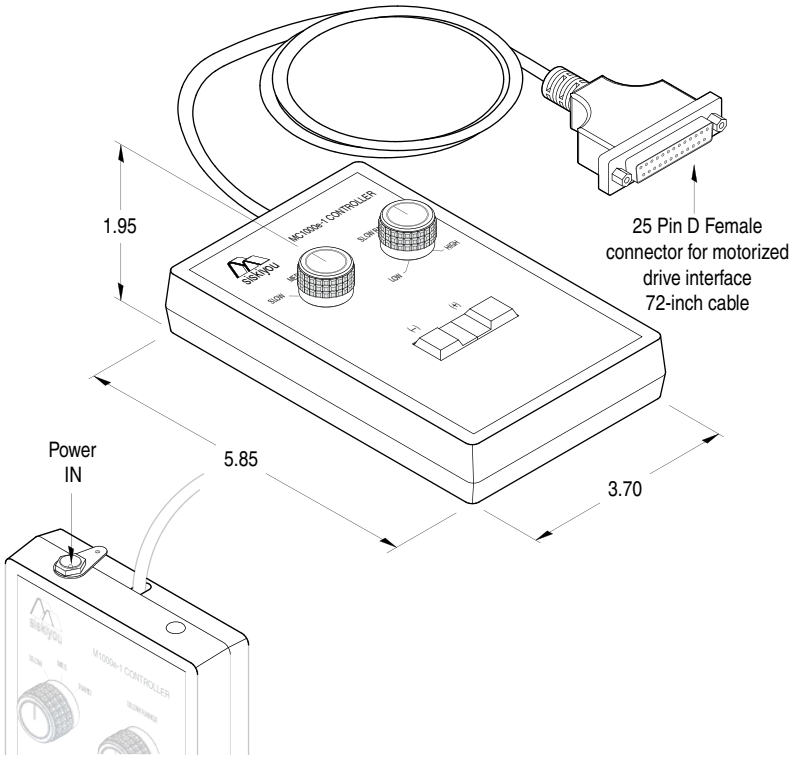
1 Axis Push-Button Control / MC1000e-1

MC1000e-1, MC1000e and MC1100e pendant dimensions are identical

MC1000e-1



1 and 4 Axis Push Button Controllers

The MC1000e and MC1100e are simple push-button controllers with submicron positioning capability, and compatible with our 800 and 7000 series actuators, manipulators, and stages. These controllers have two preset speed settings: rapid (1.7 mm/second) and medium (300 µm/second). The third speed selector (slow) has a variable 330° potentiometer that enables settings from high speed (50 µm second) to low speed (2 µm/second). With the speed selector set at the slowest settings, consistent 0.2 µm moves are easily made by the simple bump of an axis button. The controller uses encoder feedback from the motor to drive the device. This encoder coupling enables the use of the DR1000 digital readout for repeated positioning requirements. MC1000e and MC1100e use a CE certified power supply as their source for clean DC power.

The MC1100e has a target/retract feature on one axis. Target/retract allows a user to set a target location at a desired point. When it becomes necessary to back away from the experiment area, the user simply presses the RETRACT button on the controller. The stage/actuator plugged into that axis then automatically retracts to its full negative limit. The user can then return to the previously set position by simply depressing the TARGET button.

All controller cables are shielded and fitted with a central ground lug located on the junction box to ensure noise-free operation during sensitive electrophysiology experiments.

Product Features

- Economical DC controller
- Variable, high resolution speed control
- Preset rapid and medium speed setting
- User set TARGET point (MC1100e)

Performance Specifications

Minimum controllable motion	0.2 µm
Power requirements	110–230 VAC, 50/60 Hz

Related Products

MX1641 micromanipulators	167
800 and 7000 series translation stages	63
800 and 7000 series actuators	93
100cri stages	64
200cri stages	64
DR1000 digital readout	31

Order Information

1-axis, closed loop controller	MC1000e-1
4-axis, closed loop controller	MC1000e
4-axis, closed loop controller w/ TARGET	MC1100e

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Closed Loop Controllers

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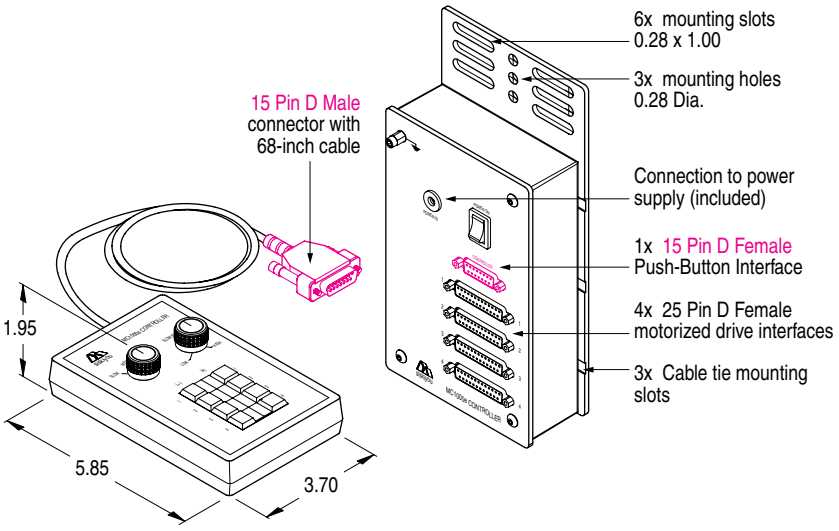
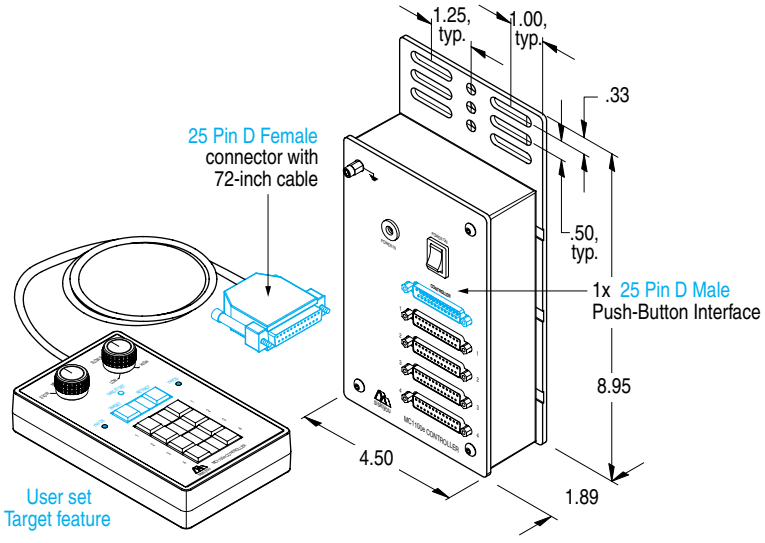
4 Axis Push-Button Control / MC1000e

MC1000e and MC1100e component dimensions are identical / Differences are highlighted in ■ ■



4 Axis Push-Button Control with Target Functionality / MC1100e

MC1000e and MC1100e component dimensions are identical / Differences are highlighted in ■ ■



MC1100e

Closed Loop Controllers

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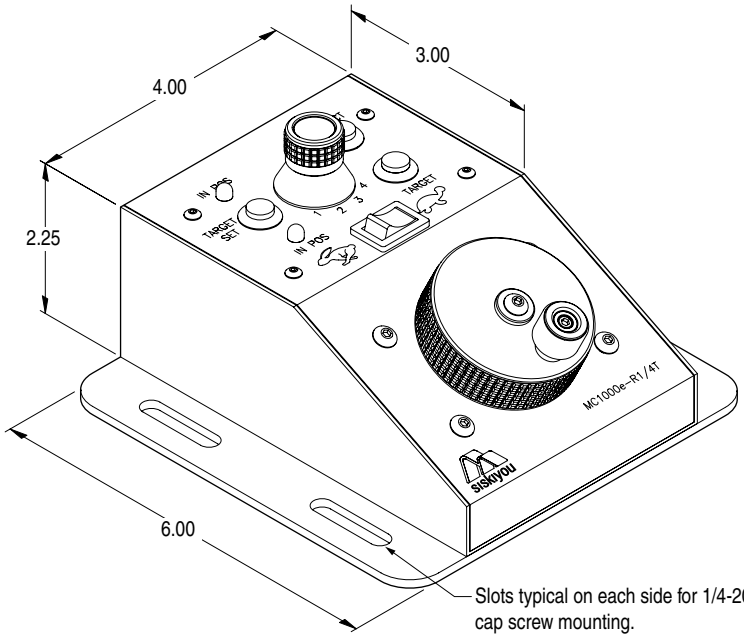
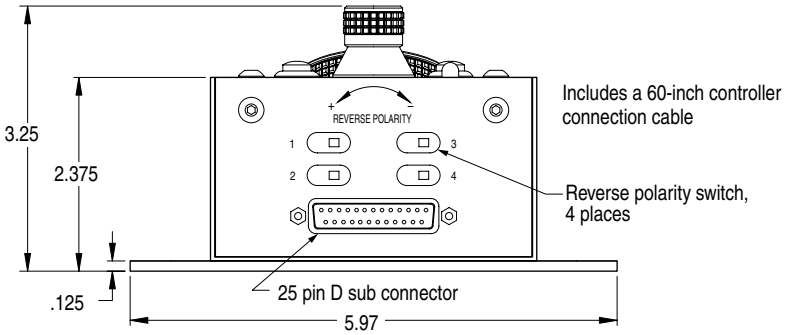
1–4 Axis Single Dial / MC1000e-R1/4T

MC1000e-R1/4T



Slots typical on each side for 1/4-20 or M6 cap screw mounting.
Fits up to 5.00-inch (125.0mm) or 4.00-inch (100.0mm) table hole pattern.



1–4 Axis Micrometer Dial Control, with Target and Retract Feature

The MC1000e-R1/4T 4-axis dial controller acts as a remote micrometer control with a user selected target feature for 800 and 7000 series actuators, manipulators, and stages. The MC1000e-R1/4T uses encoder feedback from our closed loop devices to create an electronic link between the controller dial and the device being driven. This direct coupling to the encoder ensures smooth and coordinated motion between the controller and the drive. The encoder coupling enables the use of the DR1000 digital readout for repeated positioning requirements.

A four position rotary switch, mounted on top of the controller, is used to select the desired axis to control. A two-position rocker switch is conveniently located on the top of the controller to allow for rapid and slow travel speed. The rapid setting is set to maximize speed (1.5 mm/second) when the dial is turned at 240 RPM. The slow setting is set to maximize resolution (0.2 µm) but still allow coarse positioning (45 µm/second).

The TARGET/RETRACT allows the user to set a target location at a desired point. When it becomes necessary to back away from the experiment area, the user simply depresses the RETRACT button on the controller. The stage/actuator plugged into that axis (No.1), then automatically retracts to its full negative limit. The user can then return to the previously set position by simply depressing the TARGET button. The MC1000e-R1/4T uses a CE certified power supply as its source for clean DC power. All cables are shielded and a central ground lug is located on the junction box to ensure noise-free operation during sensitive electrophysiology experiments.

Product Features

- Multi-axis, single dial control
- Remote micrometer control
- High and low speed settings

Performance Specifications

Minimum controllable motion	0.2 µm
Maximum speed	1.5 mm/sec
Power requirements	110–230 VAC, 50/60 Hz

Related Products

motorized micromanipulators	beginning 166
800 and 7000 series actuators	93
800 and 7000 series translation stages	63
100cri stages	64
200cri stages	64
DR1000 digital readout	31

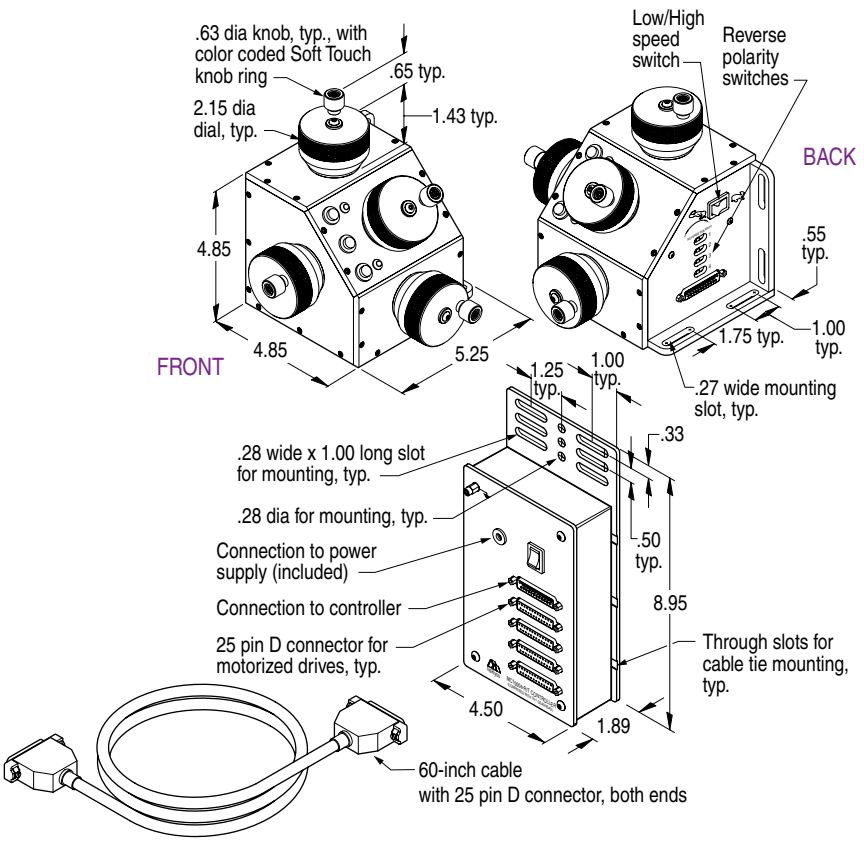
Order Information

1–4-axis dial controller	MC1000e-R1/4T
junction box for MC1000e-R/T	JB-MC1000e-R/T

Closed Loop Controllers

CE Certified

4 Axis Dial / MC1000e-R/T



MC1000e-R/T

4 Axis Micrometer Dial Control, with Target and Retract Feature

The MC1000e-R/T 4-axis dial controller acts as a remote micrometer control with a user selected target feature for 800 and 7000 series actuators, manipulators, and stages. The MC1000e-R/T uses encoder feedback from our closed loop devices to create an electronic link between the controller dial and the device being driven. This direct coupling to the encoder ensures smooth and coordinated motion between the controller and the drive. The encoder coupling enables the use of the DR1000 digital readout for repeated positioning requirements.

A two-position rocker switch is conveniently located on the side of the controller to allow for rapid and slow travel speed. The rapid setting is set to maximize speed (1.5 mm/second) when the dial is turned at 240 RPM. The slow setting is set to maximize resolution (0.2 µm) but still allow coarse positioning (45 µm/second).

The TARGET/RETRACT allows the user to set a target location at a desired point. When it becomes necessary to back away from the experiment area, the user simply depresses the RETRACT button on the controller. The stage/actuator plugged into that axis (No.1), then automatically retracts to its full negative limit. The user can then return to the previously set position by simply depressing the TARGET button. The MC1000e-R/T uses a CE certified power supply as its source for clean DC power. All cables are shielded and a central ground lug is located on the junction box to ensure noise-free operation during sensitive electrophysiology experiments.

Product Features

- 4-axis intuitive dial control
- Remote micrometer control
- High and low speed settings

Performance Specifications

Minimum controllable motion	0.2 µm
Maximum speed	1.5 mm/sec
Power requirements	110–230 VAC, 50/60 Hz

Related Products

MX7500 micromanipulator	170
MX7600 micromanipulator	169
831 stage	63
800 series actuators	93
100cri stage	64
200cri stage	64
DR1000 digital readout	31

Order Information

4-axis dial controller	MC1000e-R/T

Motion Control

Closed Loop Controllers

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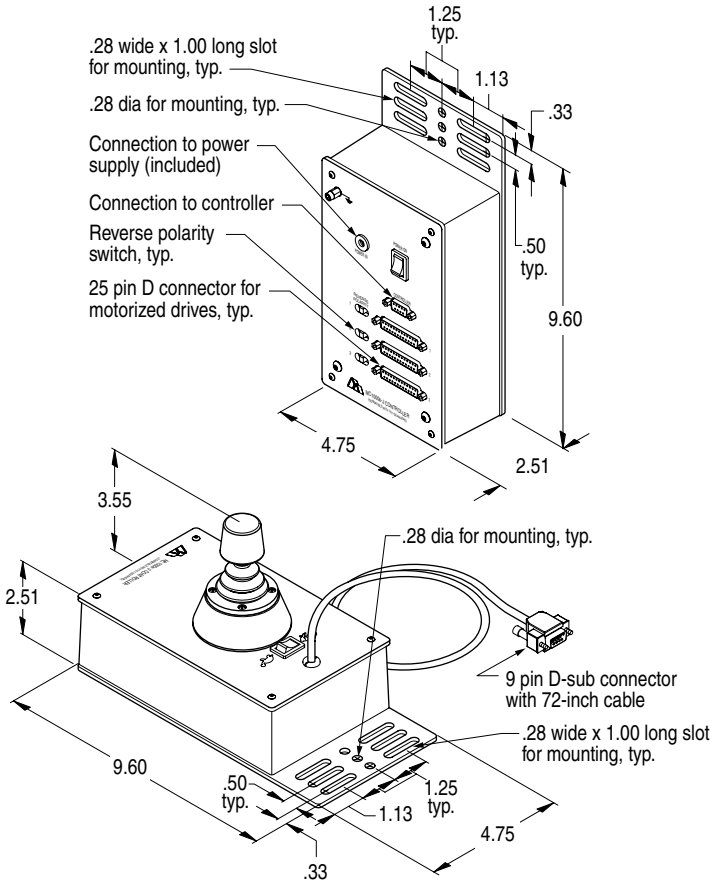
3 Axis Joystick Control / MC1000e-J

MC1000e-J



3 Axis Joystick Control

The MC1000e-J joystick controller is designed for micron-scale positioning of our 800 and 7000 series actuators, manipulators, and stages.

The joystick control is proportional from slow to high through the travel range of the joystick motion. A two-position rocker switch is conveniently located on the top of the controller. The rapid setting is set to maximize speed (1.7 mm/second) when the joystick is moved to its farthest position from center. The slow setting is set to maximize resolution (0.2 µm, 30 µm/second).

Polarity switches on the junction box allow the joystick motion to be set to match the direction of travel of the stage being driven. This feature ensures intuitive interaction between the joystick operator and the operation. The controller uses encoder feedback from the motor to drive the device. This encoder coupling enables the use of the DR1000 digital readout for repeated positioning requirements.

The MC1000e-J uses a CE certified power supply as its source for clean DC power. All cables are shielded and a central ground lug is located on the junction box to ensure noise-free operation during sensitive electrophysiology experiments.

Product Features

- 3-axis, proportional speed control
- Ideal for XYZ motorized manipulator control
- High and low speed settings

Performance Specifications

Minimum controllable motion	1 µm
Power requirements	110–230 VAC, 50/60 Hz

Related Products

MX7630 micromanipulator	168
MXMS-100cri series microscope translators	185
800 series actuators	93
831 stage	63
100cri stage	64
200cri stage	64
DR1000 digital readout	31

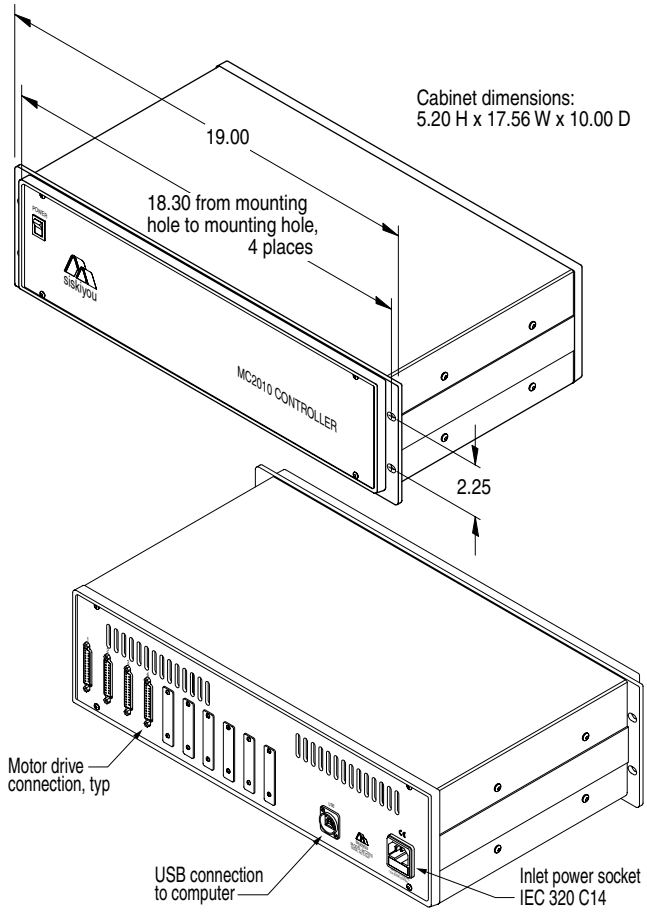
Order Information

3-axis joystick controller	MC1000e-J

Closed Loop Controllers

CE Certified

4 Axis USB 2.0 Computer Interface Control / MC2010



MC2010

back

Computer Interface Control

The MC2010 is a LabVIEW™ driven interface for our 800 and 7000 series actuators, manipulators, and stages. It is designed to be connected to the customer-supplied computer *via* the USB com port. The standard configuration is a 4 axis system and is capable of up to 10 axes of control.

The supplied LabVIEW™ executable has the ability to drive the stage/actuator with an external device. A traditional USB type PC game controller may be used to coarsely position the device, as well as define coordinate points to record and playback. The software's versatile parameter screens allows the user to custom fit AXIS HOME, ABSOLUTE POSITION, ZERO SET, VELOCITY, and INCREMENTAL AXIS JOG buttons. Interface commands are given in microns and are capable of 0.1 µm resolution when used with our motorized systems. The MC2010's industry standard 19-inch rack mounted cabinet comes with power supply and USB interface cords. The software is supplied on a CD.

Product Features

- LabVIEW™ Operating Software
- 4-axis, closed loop control
- USB I/O interface
- 19-inch Rack Mount Formfactor

Performance Specifications

Minimum controllable motion	0.1 µm
Maximum speed	1.7 mm/sec
Power requirements	110–230 VAC 50/60 Hz

Related Products

MX7500 micromanipulator	170
MX7600 micromanipulator	169
831 stage	63
800 series actuators	93
100cri stage	64
200cri stage	64

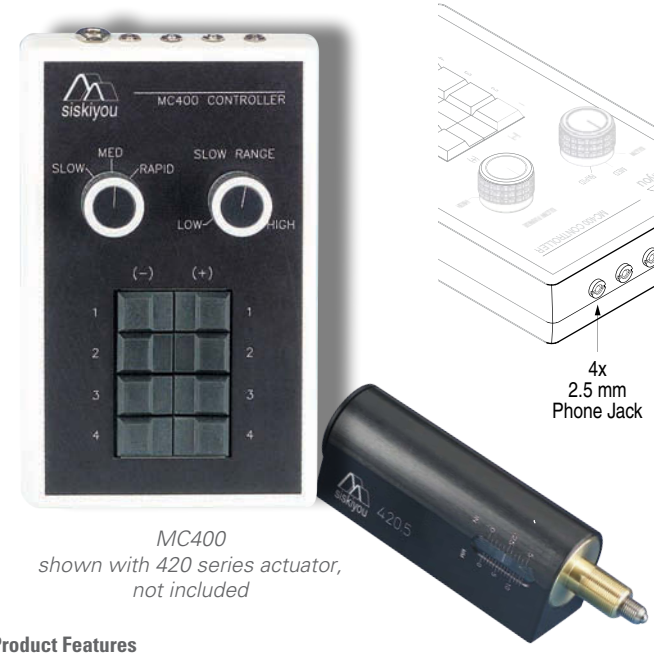
Order Information

4-axis, computer interface controller	MC2010

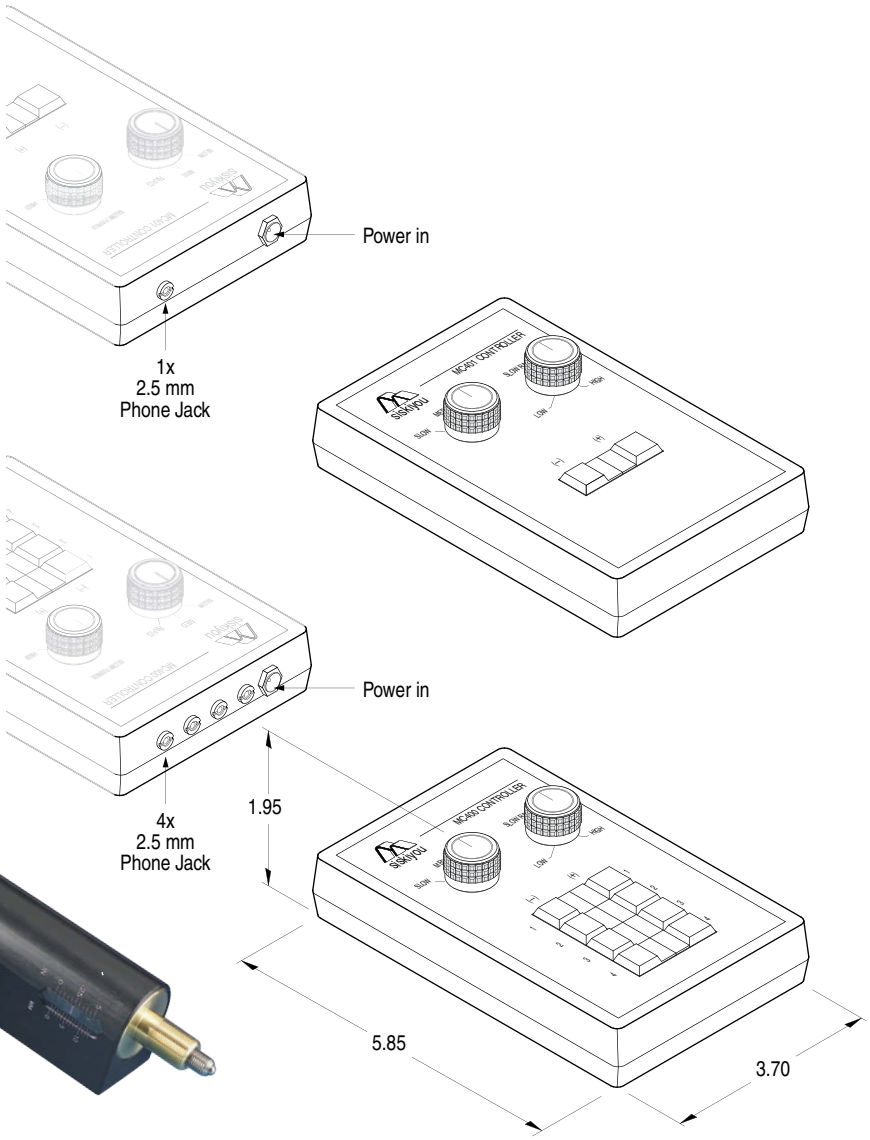
Open Loop Controllers

1 and 4 Axis Push-Button Control / MC401, MC400

MC401



MC400
shown with 420 series actuator, not included



Product Features

- Economical DC controller
- Variable, high resolution speed control
- Preset rapid and medium speed settings

Performance Specifications

with 400 series actuators under 8 pounds load

Maximum speed:	
Rapid	800 µm/sec
Medium	100 µm/sec
Slow Range / High	35 µm/sec
Slow Range / Low	5 µm/sec
Power requirements	110 VAC, 50/60 Hz

Related Products

400 series actuators	90

Order Information

1-axis, open loop controller	MC401
4-axis, open loop controller	MC400

1 and 4 Axis Push Button Control

The MC401 and MC400 open loop DC controllers are designed to drive our 400 series actuators. These controllers allow the user to operate from one to four of our 400 series actuators of any travel length. Both single and four-axis controllers have two preset speed settings: rapid (0.8 mm/second) and medium (100 µm/second). A third speed selection (slow) has a variable 330° potentiometer that enables settings from high speed (35 µm/second) to low speed (5 µm/second). With the speed selector set at the slowest settings, consistent 1.0 µm moves are easily made by the simple bump of an axis button. The MC400 and 401 controllers use wall mounted DC power supplies as their source. These noise-free DC controllers, along with our 400 series drives, can be used in proximity to electrophysiology experiments.

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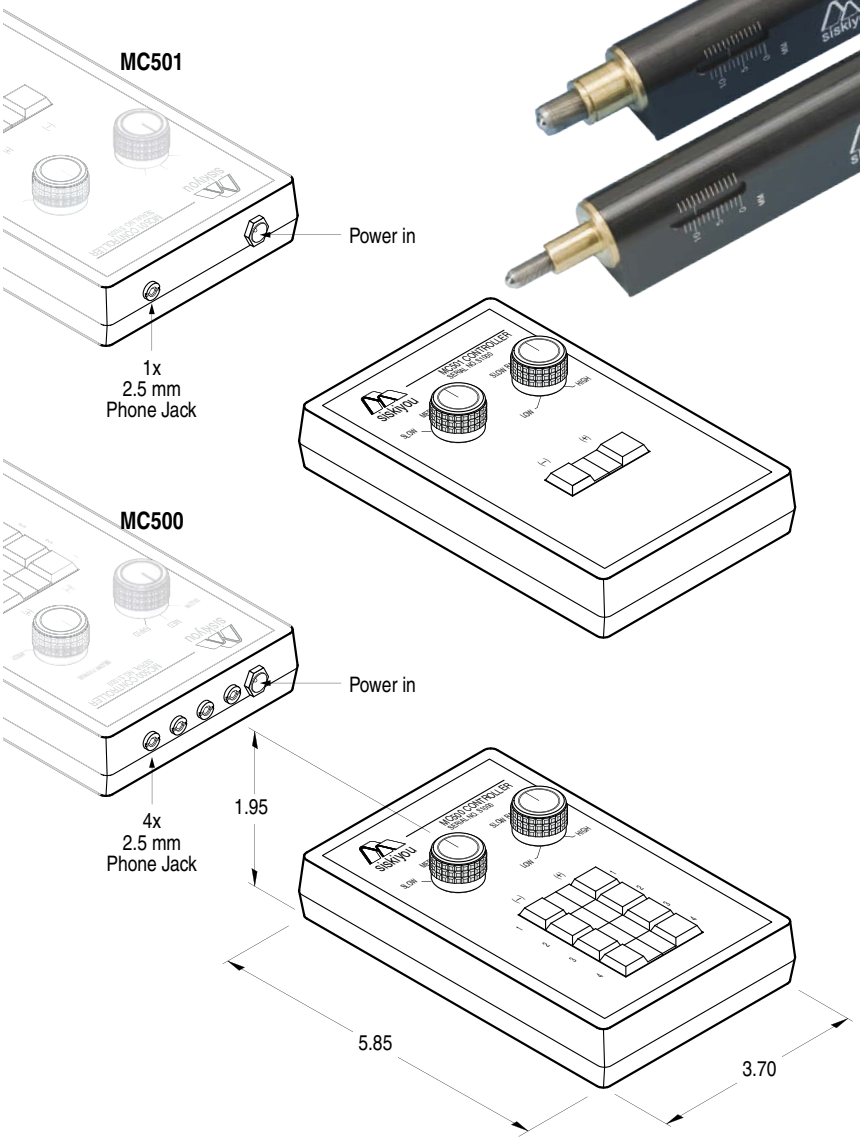
Open Loop Controllers

1 and 4 Axis Microdrive Push-Button Control / MC501, MC500



MC501
shown with 500 series actuators, not included

MC500

1 and 4 Axis Microdrive Push Button Control

MC500 and MC501 open-loop DC controllers are specifically designed to drive series 500 and 500MM actuators. The 4-axis MC500 controller allows a user to operate as many as four series 500 actuators of any travel length. It has two preset speed settings: rapid (0.8 mm/ second) and medium (100 µm/second). The third speed selector (slow) has a variable 330° potentiometer that enables settings from high speed (35 µm/second) to low speed (5 µm/second). With the speed selector set at the slowest settings, consistent 1.0 µm moves are easily made by the simple bump of an axis button. The MC500 controller uses a wall mounted DC power supply as its source. This noise-free DC controller, along with our 500 series drives, can be used in proximity to electrophysiology experiments.

Product Features

- Economical DC controller
- Variable, high resolution speed control
- Preset rapid and medium speed settings
- Variable, "slow" speed range

Performance Specifications

Maximum speed	
Rapid	300 µm/second
Medium	100 µm/second
Slow Range / High	30 µm/second
Slow Range / Low	10 µm/second
Power requirements	110 VAC, 50/60 Hz

Related Products

500 series actuators	91
500MM series actuators	91

Order Information

1-axis, open loop microdrive controller	MC501
4-axis, open loop microdrive controller	MC500

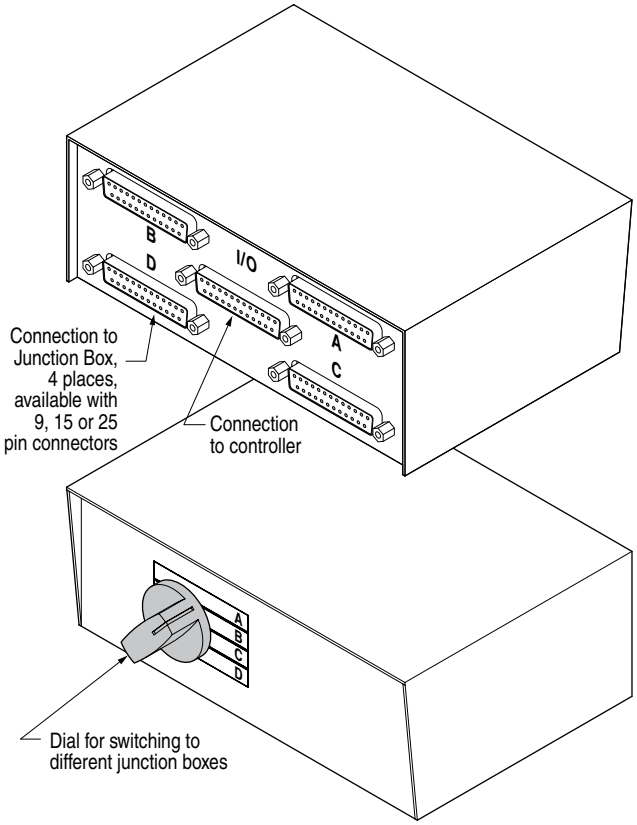
Accessories and Hardware

CE Certified

Switching and Junction Boxes / SB and JB Series

SB-MC1000e Series

back



Product Features

- Control 2 to 4 micromanipulators with 1 controller
- Cost-effective and easy to assemble
- No position loss during switching
- Available in 9, 15 or 25 pin connector interface

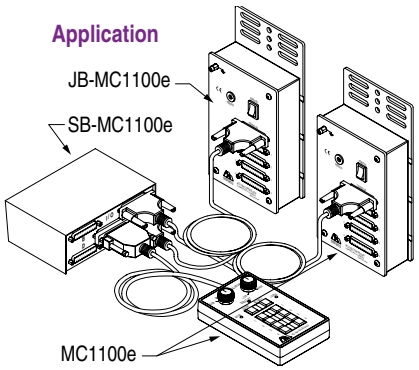
Related Products

MC1000e-J motion controller	26
MC1000e motion controller	22
MC1100e motion controller	22
MC1000e-R/T motion controller	25
DR1000 digital readout	31

Order Information

Switch Boxes	
for MC1000e	SB-MC1000e
for MC1100e	SB-MC1100e
for MC1000e-R/T	SB-MC1100e
for MC1000e-R1/4T	SB-MC1100e
for MC1000e-J	SB-MC1000e-J
Junction Boxes	
for MC1000e	JB-MC1000e
for MC1000e-R/T	JB-MC1000e-R/T
for MC1000e-R1/4T	JB-MC1000e-R/T
for MC1100e	JB-MC1100e
for MC1000e-J	JB-MC1000e-J

Application

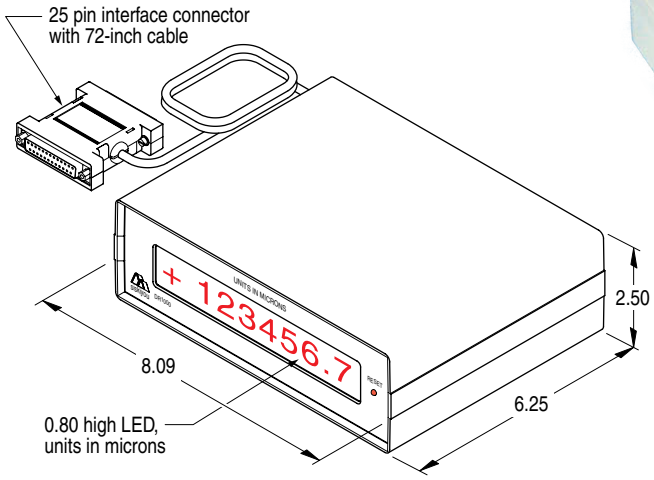


Switching and Junction Boxes

Our switching box allows control of one to four 4-axis micromanipulators by one controller (MC2010 excluded). The basis of the design is simple and requires only an extra controller junction box for each added micromanipulator or motor drive group (up to four per group). Junction boxes must be purchased separately, however this is more cost-effective than individual handheld control units. When used with the MC1100e controller, the user can save a "target" location for each manipulator independent of the operation of the others even after switching between micromanipulators. The DR1000 is also compatible with this switching box and will allow the user to reposition without the use of an expensive computer based controller. The switch box comes with enough cables to attach four junction boxes, and all connections are shielded.

Accessories and Hardware

Digital Readout / DR1000



DR1000

The DR1000 Digital Readout provides an accurate, highly visible display for axis position. The digital readout may be installed on any of our ***e*** series controllers and is connected in series via a double-sided connector between the controller junction box and the device D connector. Each digital readout reads a single axis position. Additional units may be used to monitor multiple axes. The DR1000 reads from 50 mm down to 0.1 µm and has a face mounted ZERO SET button.

The DR1000 receives clean DC power through the junction box of the MC1000e series controller. All cables are shielded to ensure noise-free operation during sensitive electrophysiology experiments. The slim and light weight case may be mounted separately or stacked on top of each other in multiple axis applications

Product Features

- Economical position readout solution
- Large, easy to read, digital display
- Compatible with all ***e*** series controllers

Performance Specifications

Minimum travel increment	0.1 µm
Maximum travel display	500,000 µm
Accuracy	99

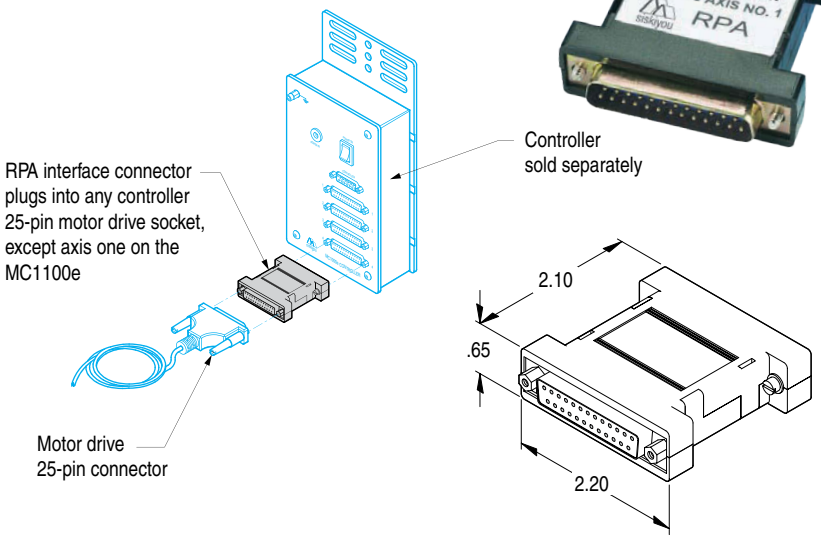
Related Products

MC1000e-1 motion controller	22
MC1000e-R1/4T motion controller	24
MC1000e-J motion controller	26
MC1000e motion controller	22
MC1100e motion controller	22
MC1000e-R/T motion controller	25

Order Information

single-axis digital readout	DR1000

Reverse Polarity Adapter / RPA



The RPA is an interface plug that reverses the motion direction of stages and actuators. Used to reverse axis direction relative to controller. Use on MC1000e-1, MC1000e, and MC1100e (except axis number 1).

Product Features

- Economical solution to reversing polarity
- Intuitive controller adapter
- Maintains gender orientation

Performance Specifications

Pinout pattern	standard 25-pin "D" connector Male to Female
Power requirements	12 volt DC maximum

Related Products

MC1000e-1 motion controller	22
MC1000e motion controller	22
MC1100e motion controller	22

Order Information

reverse polarity adapter	RPA

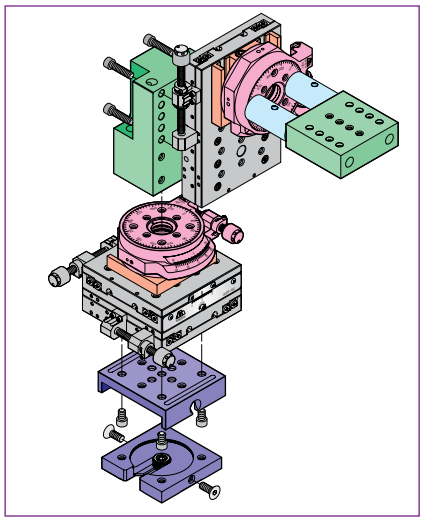
Introduction to Siskiyou linear and rotary translation products

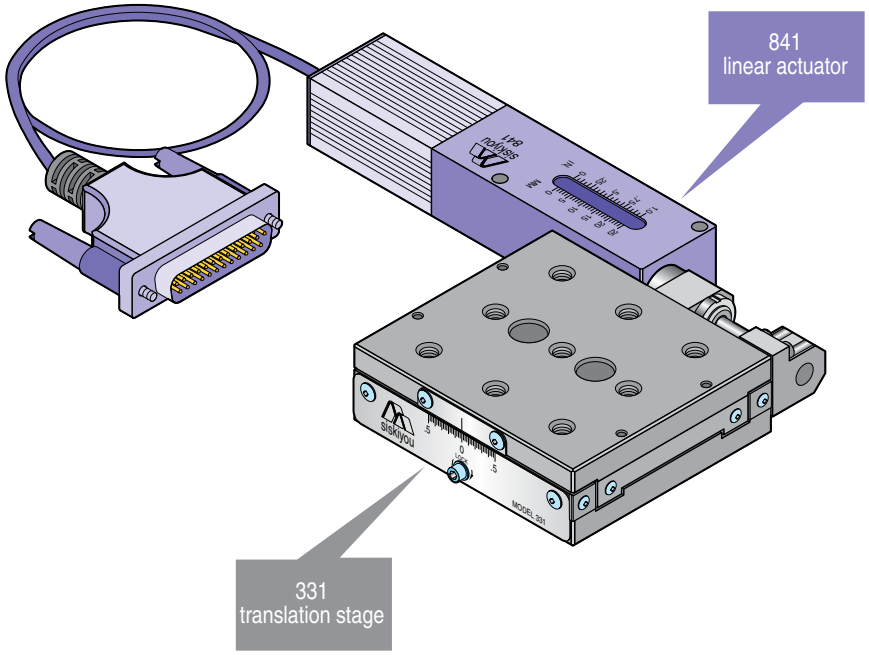
Siskiyou translation stages are designed with multiple applications in mind. The three different types of stages – dovetail slide, ball bearing, and crossed roller – all have characteristics which dictate their applications. A primary feature of all of them is the adherence to the Modular by Design™ concept. Mounting dimensions use common increments, so multi-axis systems with various travel ranges can be constructed. Since many stages can be actuated by several different methods, one has a choice of precision within the same assembly. Examples of the different methods of actuation are manual adjustment screws from coarse to ultrafine resolution and open or closed loop motorized drives. Because of this variability, a multi-axis device can be assembled using the positioning mechanism best suited to each axis. This allows for more cost-conscious approach when compared to preassembled devices that use the same precision throughout. By observing many different applications, Siskiyou has developed products that can fill many needs with few limitations.

Dovetail slides are typically used for moderate loads of up to 20 pounds in some models. Manual actuation provides positioning accuracy of 10 µm or greater. Our dovetail slides use precision rolled lead screws for smooth positioning characteristics and long service life.

The 331, as well as the MX160 in the Life Science section, uses the classic ball-on-hardened-rail design for smooth positioning of light loads of 15 pounds or less. Our ball bearing stages use ball separators in both bearing sets to ensure the bearings won't stack-up and jam the stage motion. Siskiyou ball bearing stages are unique in the addition of 20 percent more bearings than competitors' stages. This delivers better performance under load and better linearity of travel.

A typical motorized stage assembly constructed with separately purchased stage and motorized actuator.



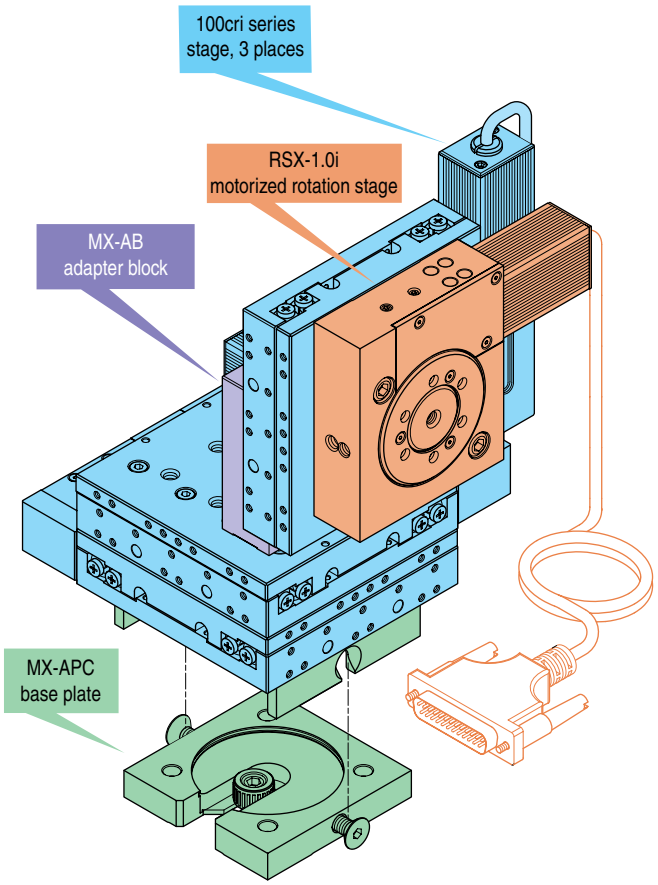


Our CR series of crossed roller stages is ideal for heavy loads of up to 70 pounds and high duty cycle applications. As with our ball bearing stages, the crossed roller stages have additional bearings making them unique in the industry. Depending on the positioning accuracy requirements of your application, 100cr and 200cr series stages can be positioned with TPI adjustment screws, standard micrometers, differential micrometers, 420 actuators, 840 actuators, or any drive with the industry standard 0.375-inch nose mount. The 100cr and 200cr series stages are also available in fully integrated motorized versions.

DT-300, 331, and 100cr/200cr stages have common mounting hole patterns on the top and bottom plates. This common hole pattern is the cornerstone of our Modular by Design™ approach, and enables the user to mount different stages to each other for a variety of positioning requirements in one package.

Angular or tilted linear translation can be achieved by mounting our stages to either an MX3T, MX5T, or MXT tilt platform. The MX3T and MX5T are solid aluminum platforms that may be adjusted to several preset angles. The MXT uses a precision lead screw to position the mounting platform from plane parallel to 45°.

Many of the devices in this catalog may be modified for vacuum compatibility or configured with mounting holes or features to fit your specific application. To request a quote or talk to an engineer about your application, call us at 1-877-313-6418, or email tech@siskiyou.com.



Translation Stages

Linear Manual

Dovetail Slides

1/4" Travel, 1 Axis	38
12mm Travel, 1, 2 & 3 Axis, Miniature	40
1.0" Travel, 1 Axis	42
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Ball Bearing Stages

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Crossed Roller Stages

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Linear Motorized

Ball Bearing Stages

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Crossed Roller Stages

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2.0" Dial Aperture	77

Lab Jacks

Linear, Manual / Motorized

1.0" Travel, with Rotation Platform	79
1.8" Travel, Scissor Manual	80
1.8" Travel, Scissor Motorized	81
3.0" Travel, Scissor Manual	80

Rotary Stages

Siskiyou's complete line of rotation stages are ideal solutions for rotating optics and other mechanical devices. From the smallest RS-100 manual stage to the new RSX-2.0i motorized stage, our rotation stages are compatible with most opto-mechanical applications. The manual versions found in the following pages are useful for low-resolution applications. Our motorized versions have 6 arc-second repeatability and 10 arc-second resolution. Manual versions can be supplied in UV or vacuum compatible versions to $1x10^{-13}$ Torr, and motorized versions can be supplied in UV or vacuum compatible versions to $1x10^{-7}$ Torr.

The RSF-1 has 360° of coarse rotation with 2° of resolution and ±10° of fine control. It comes with a 40TPI adjustment screw for resolution down to 5 arc-seconds. Finer resolution can be attained by using 80TPI or 100TPI adjustment screws.

Our RS series of manual rotation stages has been on the market for over 25 years. This time-tested economical design is ideal for low-resolution, manually driven applications. We use a full contact bearing race of our own design to ensure maximum smoothness and load in these aluminum stages.

The RSA-2.0i, RSA-1.0i and RSA-0.5i motorized rotation stages use spring-loaded worm drives as well as anti-backlash gearheads to keep backlash and unidirectional repeatability of 6 to 10 arc-seconds. They are compatible with all of our MC1000e series and MC2010 controllers. We use quiet running DC servo motors with shielded cable to ensure noise-free operation. Stepper motor versions are available upon request.

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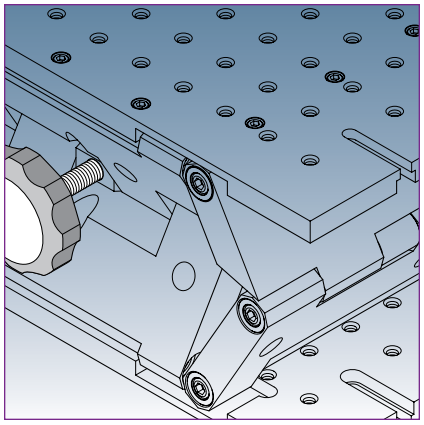
Lab Jacks

Lab jacks are useful tools for many laboratory or commercial applications. Generally used for positioning optical elements at the correct axis height, they are also used to position larger and heavier assemblies in similar applications. UV and vacuum compatible versions to $1x10^{-13}$ Torr are available upon request.



The RLJ-10 is a simple but effective "screw" design lab jack. The simple design has been improved by using tight-tolerance guide rods to minimize rotation of the upper platform during linear vertical translation. The upper platform has a built-in 360° rotation and is useful for positioning cube beamsplitters.

Our 540 and 560 manual lab jacks are built for high load applications and use solid aluminum construction to ensure long life under loads up to 80 pounds. The unique "captured" pivot pin design and tight-tolerance machining guarantee minimal wobble and the best parallelism in the industry. The 540 is also available in a motorized DC servo motor driven model (page 81) and can be supplied with a stepper motor upon request.

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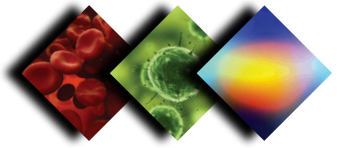
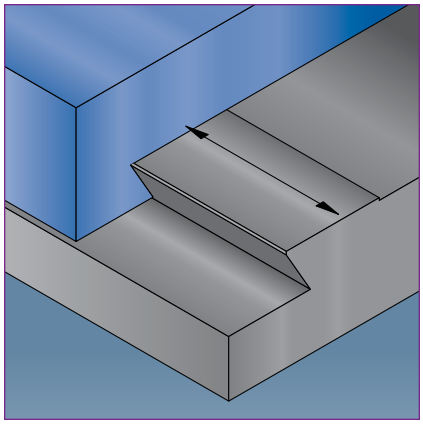


Translation Stage Bearing Types

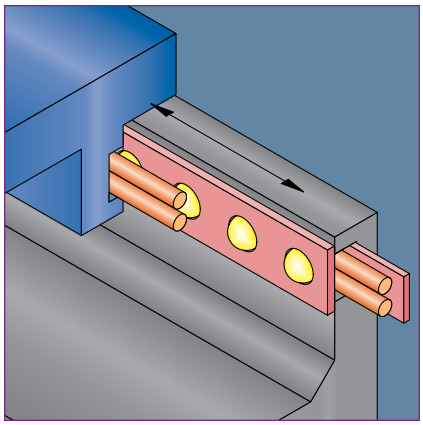


Introduction to dovetail slides, ball and rail, and crossed roller bearings

The performance of a linear translation stage is determined primarily by the type of bearings that are used. There are three major designs available from Siskiyou: dovetail slides, ball & rail bearings, and crossed roller.

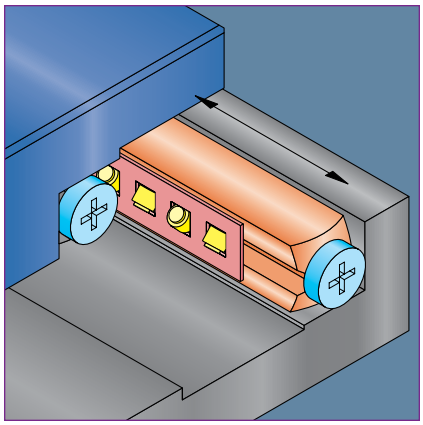
Dovetail Slides

Dovetail slides are the simplest type of linear translation stage. They consist of two flat surfaces sliding against each other (models DT-300 and DT-100). Dovetail slides can provide long travel and have relatively high stiffness and load capacity. They are more resistant to shock than other types of bearings and reasonably immune to contamination, but their friction varies with translation speed. This makes precision control difficult and limits the resolution of the stage. Dovetail stages are typically manually driven devices and work well in vacuum or nonmagnetic applications.



Ball and Rail Bearings

Ball & rail bearing stages reduce friction by replacing sliding motion with rolling motion. The ball bearings are captured in guideways by means of four hardened steel rods. The guideways are externally loaded against the balls to eliminate unwanted runout in the bearing (models 331 and 831). Even with this preload, the friction is very low which results in extremely smooth travel with the capability to make controlled submicron incremental movements. Ball & rail bearing systems are relatively sensitive to contamination because each ball contacts the rail guideway at only a single point, allowing a contaminant to potentially put a "bump" in the smooth motion. This "point contact" can also be susceptible to damage from overload, shock and wear. Be sure to check the individual specifications of our stages to match your application. Ball & rail bearing stages are available in both motorized and manual versions. The motorized versions can be ordered for use in vacuum applications down to $1x10^{-7}$ Torr, and the manual versions can be ordered down to $1x10^{-13}$ Torr.

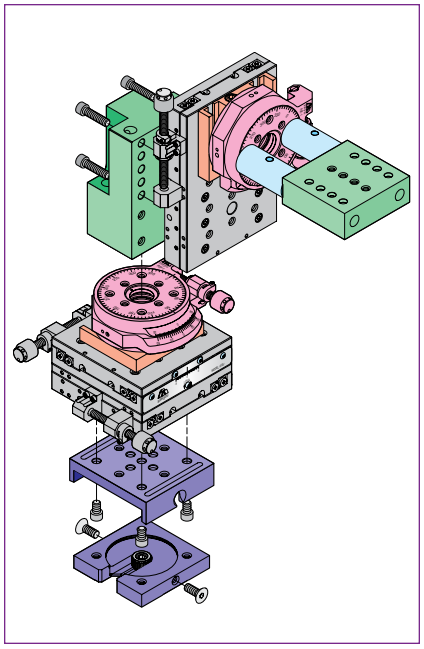


Crossed Roller Bearings

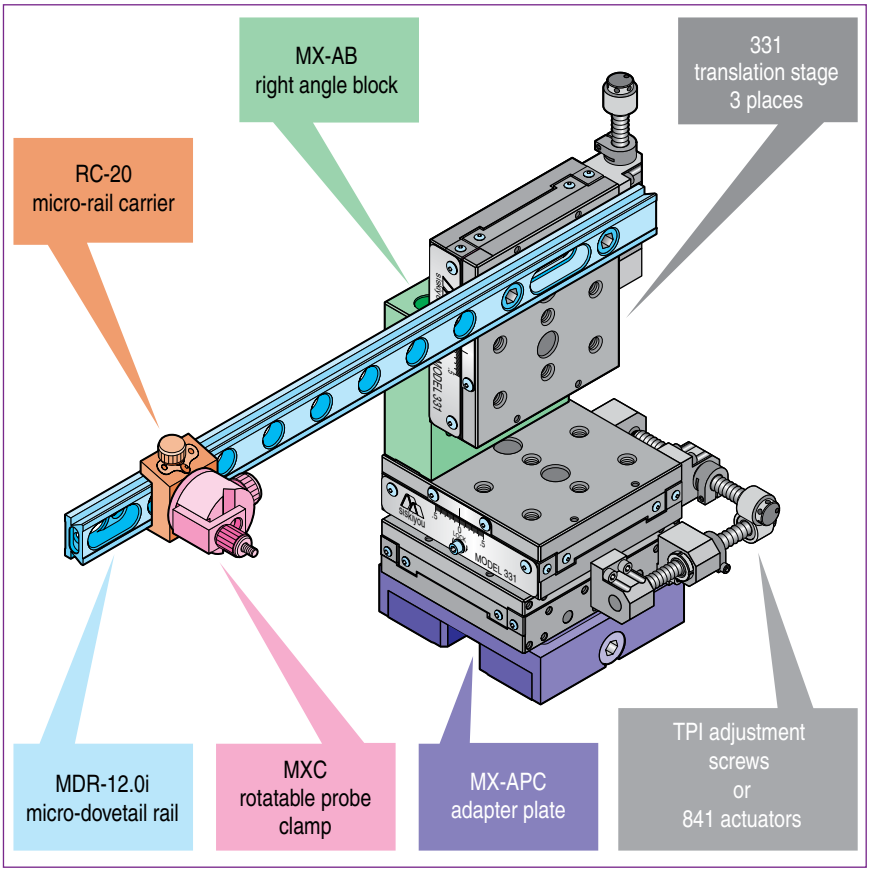
Crossed roller bearing stages offer all the advantages of ball & rail bearings with higher load capacity and higher stiffness. The increased load and stiffness is a direct result of replacing the point contact of the ball with a line contact of the roller. Crossed roller bearings are externally loaded in the same manner as ball & rail bearings but require more attention to detail during the assembly process. This lengthened assembly process, plus the added manufacturing time of the ground rollers and guideways, is the reason for the higher cost of these precision stages. Crossed roller stages should be used for applications requiring high load, high stiffness, and precision bidirectional straightness such as fiber alignment, semiconductor probing, and cellular research. These stages are available in both motorized and manual versions. The motorized versions can be ordered for use in vacuum applications down to $1x10^{-7}$ Torr, and the manual versions can be ordered down to $1x10^{-13}$ Torr.

Building XYZ Configuration

The stages in this section come in either single axis (X, Z) or multiple axis (XY, XYZ) configurations. In all cases the XY versions are factory set with the adjustment knobs or motors in a right hand or left hand configuration. The three axis (XYZ) models all use a universal mounting block for attaching the Z-axis. This mounting style enables the user to reconfigure the Z-axis in a wide variety of ways to fit their specific space requirements. All of the stages in our line are available in vacuum compatible, nonmagnetic, and high-speed or low-speed motorized models.



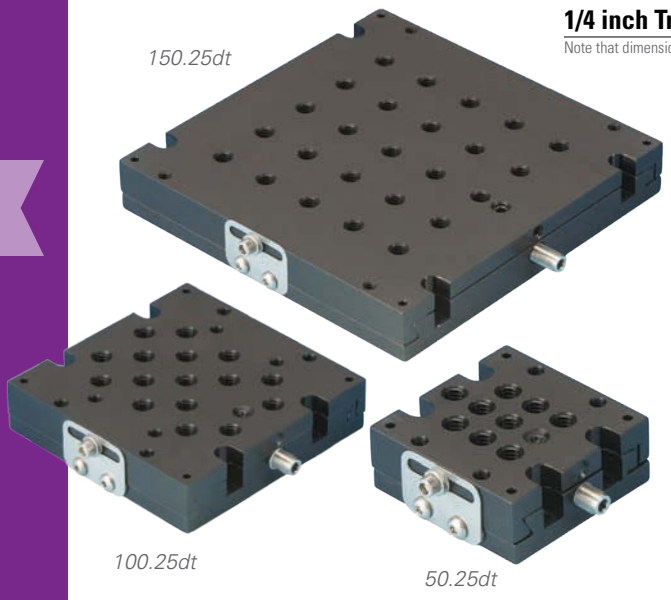
The custom configuration above was assembled from standard components to position imaging equipment for a customer's inspection station.



The manual 3-axis manipulator depicted in this drawing was used by a researcher for in vivo probing of spinal tissue. This type of setup could also be used for probing semiconductor and MEMS devices.

1/4 inch Travel / .25dt Series

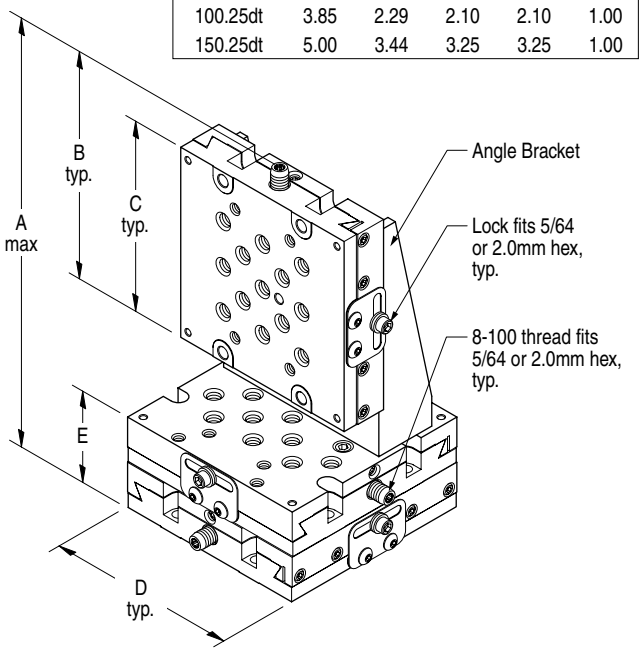
Note that dimensions in parentheses (mm) reflect metric assembly features



All bottom views

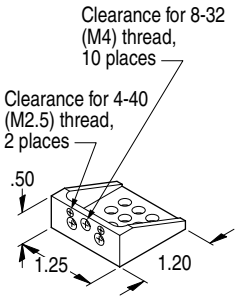
Typical Assembly

Model	A	B	C	D	E
50.25dt	2.82	1.49	1.30	1.30	1.00
100.25dt	3.85	2.29	2.10	2.10	1.00
150.25dt	5.00	3.44	3.25	3.25	1.00

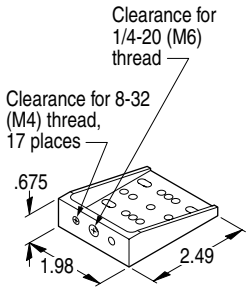


Angle Bracket

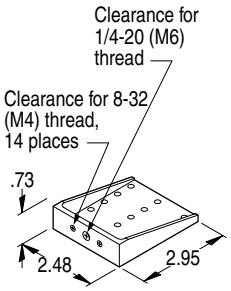
50ab



100ab



150ab



Product Features

- Low profile design
- 100TPI adjustment
- Non-influencing lock
- UV and vacuum compatible versions available upon request

Performance Specifications

Maximum horizontal axis load	5 lbs
Maximum vertical axis load	2 lbs
Travel	0.25 inch (6 mm)
Minimum controllable motion	5 µm, typical

Related Products

RTC-0.5 rotation clamp	132
RTC rotation clamp adapters	132

Order Information

1.3"x1.3" dovetail stage, 0.25 travel	50.25dt
2.1"x2.1" dovetail stage, 0.25 travel	100.25dt
3.25"x3.25" dovetail stage, 0.25 travel	150.25dt
angle bracket for 50.xx size	50ab
angle bracket for 100.xx size	100ab
angle bracket for 150.xx size	150ab

Metric Option — for metric assembly features on this product, add '-M' after model number.

The 50.25dt, 100.25dt and 150.25dt are the thinnest line of dovetail stages on the market. Their design is simple but effective for set-it-and-forget-it applications. The 100TPI thread ensures the smallest minimum controllable motion in a dovetail stage and the non-influencing foil lock virtually guarantees that the first adjustment is the last one. The foil lock can be mounted to matching holes on the opposite side of the stage for maximum access flexibility.

To maximize the available footprint area for the device being mounted, Siskiyou offers this series in three sizes. With each size there are orthogonal mounting holes to create low profile XY assemblies. There are also specific angle brackets for each model so you can create XZ, YZ or XYZ stage configurations.

GMP GENERAL MICROTECHNOLOGY & PHOTONICS

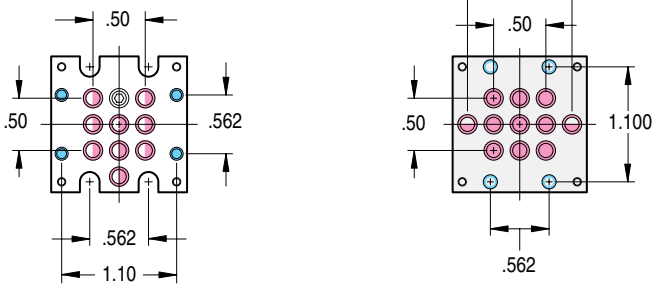
siskiyou

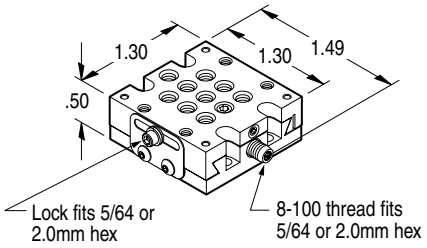
Linear Manual — Dovetail Slides

1.3 inch Table / 50.25dt

Top Plate Bottom Plate Mounting Holes: 4-40 (M2.5), 0.12, Clearance / 8-32 (M4), 0.26, 0.15, 0.13
Note that dimensions in parentheses (mm) reflect metric assembly features.

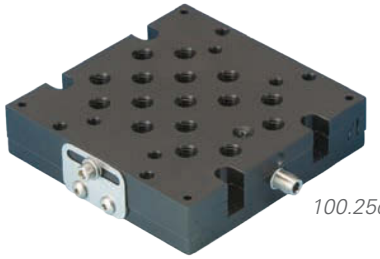
50.25dt



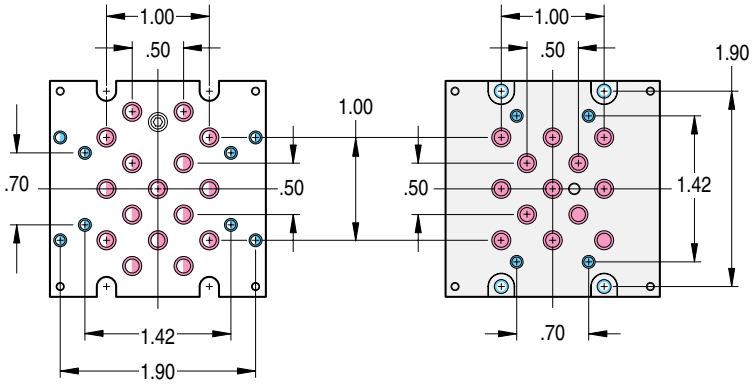


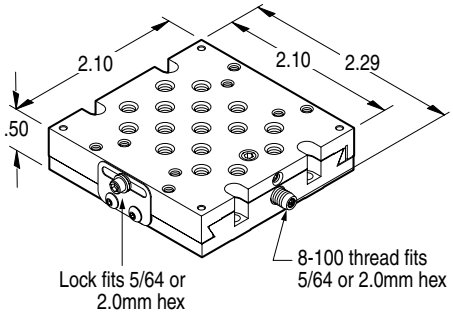
2.1 inch Table / 100.25dt

Top Plate Bottom Plate Mounting Holes: 4-40 (M2.5), 0.31, 0.14, Clearance / 8-32 (M4), 0.26, 0.15
Note that dimensions in parentheses (mm) reflect metric assembly features.



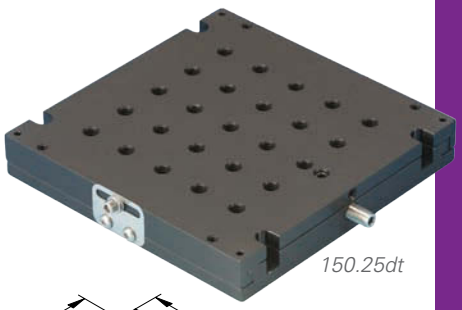
100.25dt



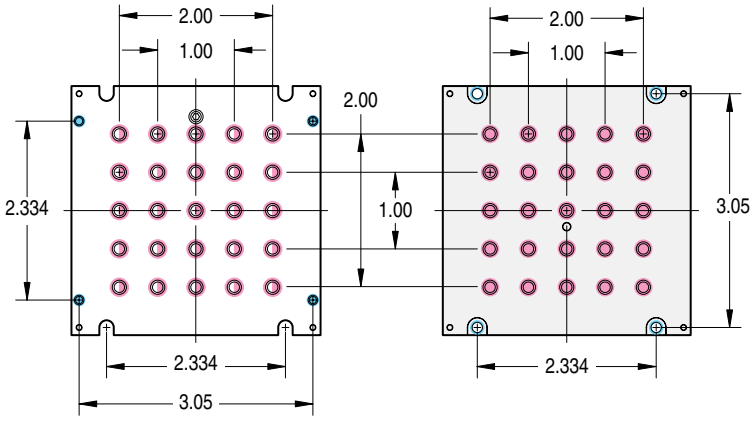


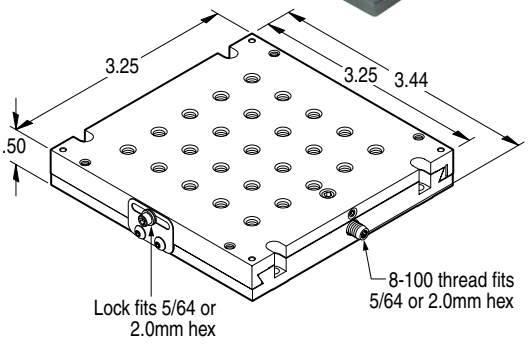
3.25 inch Table / 150.25dt

Top Plate Bottom Plate Mounting Holes: 4-40 (M2.5), 0.14, Clearance / 8-32 (M4), 0.26, 0.15
Note that dimensions in parentheses (mm) reflect metric assembly features.



150.25dt



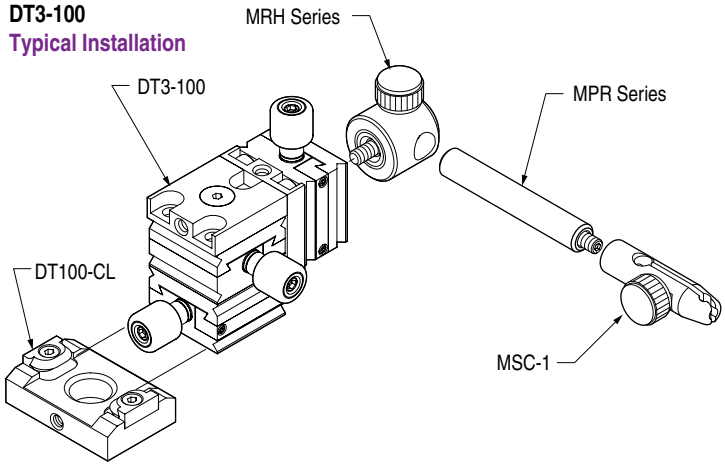


12mm XYZ Travel, Miniature / DT Series

Note that dimensions in parentheses (mm) reflect metric assembly features

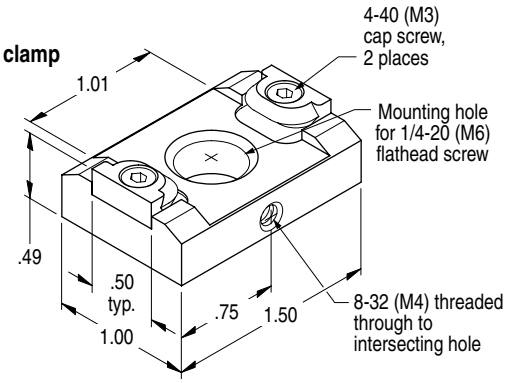
DT-100 Series

DT3-100
Typical Installation



DT100-CL

DT100-CL
Dovetail mounting clamp



Product Features

- Fine 80 pitch adjustment
- Compact design
- Vacuum compatible versions available upon request

Performance Specifications

Maximum load	0.5 lbs
Travel	12 mm
Minimum controllable motion	5 µm

Related Products

RS-100 rotary stage	71

Order Information

dovetail single-axis stage	DT-100
dovetail 2-axis stage	DT2-100
dovetail 3-axis stage	DT3-100
dovetail stage angle bracket	DT100-AB
dovetail mounting clamp	DT100-CL

Metric Option — for metric assembly features on this product, add '-M' after model number.

Dovetail XYZ Stages

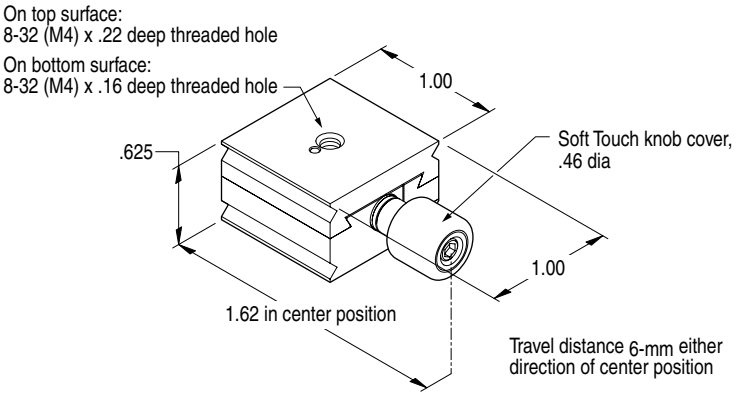
The DT-100 is a miniature dovetail stage that is ideal for positioning applications that require micron-scale resolution. They use precision rolled 80TPI leadscrews for smooth positioning along the entire length of travel.

The DT100's factory pre-set ensures exceptional straightness of travel for a dovetail stage. There are V-grooves into the sides of the bases, designed to slide into Delrin® clamps on the DT100-CL. Tightening the hex screws on these clamps holds the stage securely, without damaging or distorting the stage. The DT100-CL makes it easy to mount these stages almost anywhere.

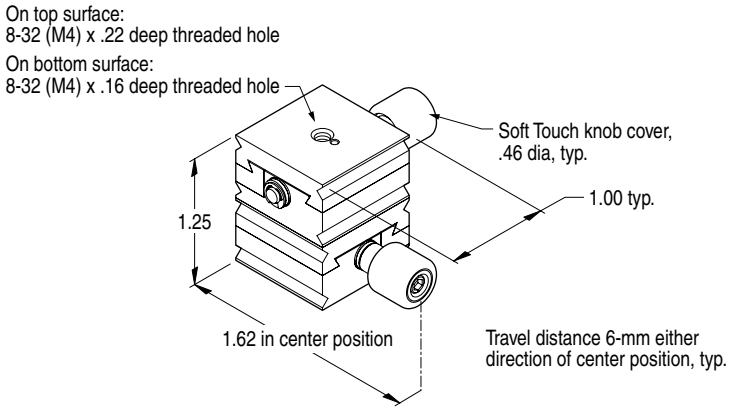
They are available in X, XY, and XYZ configurations. The XYZ version is supplied with the DT100-AB angle bracket, which can be purchased separately to create XZ and YZ configurations.

Dovetail Slide, Miniature / DT Series

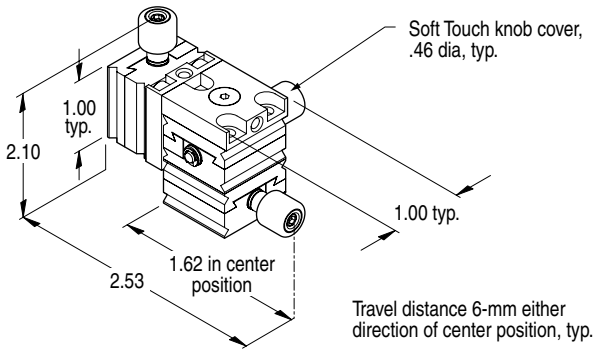
Note that dimensions in parentheses (mm) reflect metric assembly features



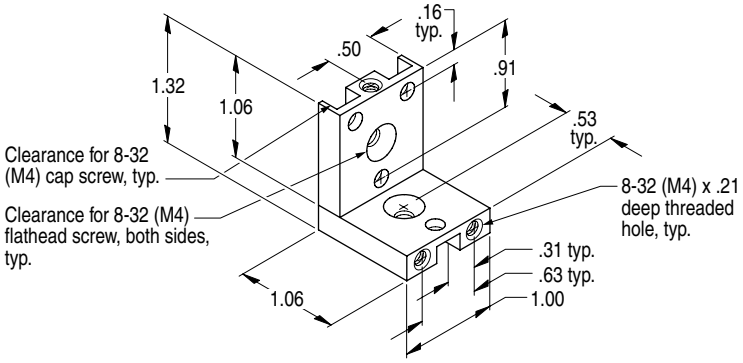
DT-100



DT2-100



DT3-100

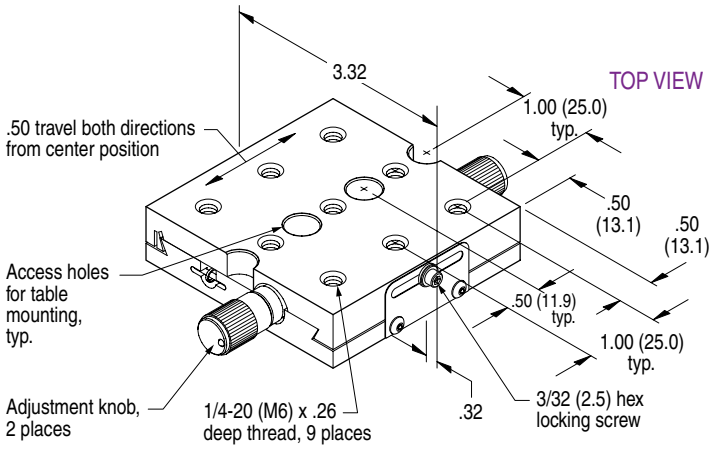


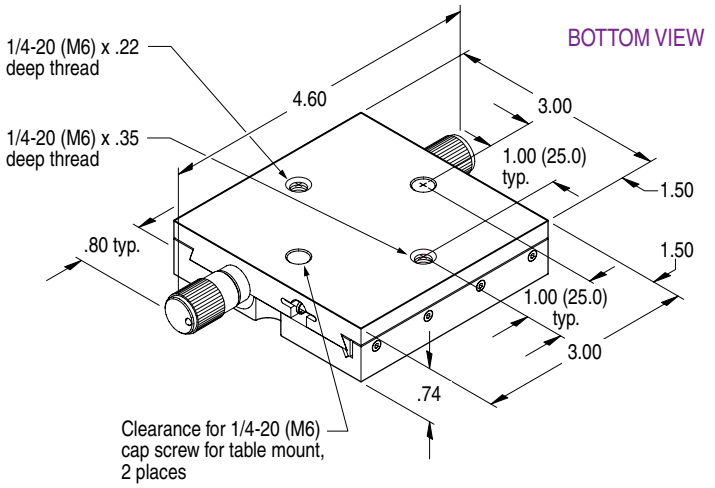
DT100-AB

1 inch Travel / DT-300

Note that dimensions in parentheses (mm) reflect metric assembly features

DT-300





Product Features

- Rapid positioning
- Stable dovetail design
- Lockable
- Vacuum compatible versions available upon request

Performance Specifications

Maximum horizontal axis load	20 lbs
Maximum vertical axis load	5 lbs
Travel	1.0 inch (25 mm)
Minimum controllable motion	10 µm

Related Products

AB-U aluminum base	118

Order Information

dovetail stage, 1.0 inch travel	DT-300

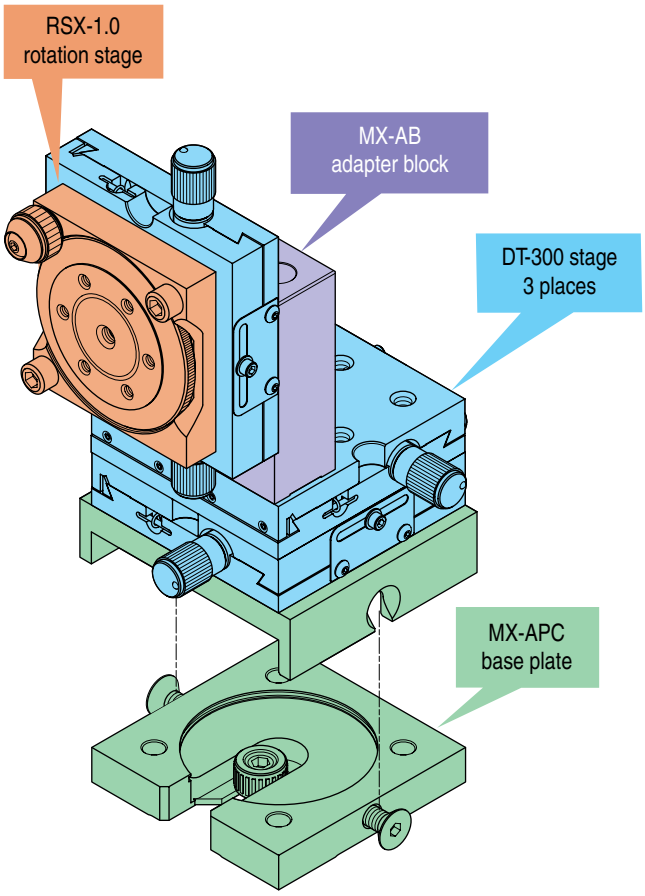
Metric Option — for metric assembly features on this product, add '-M' after model number.

Dovetail Translation Stage

The DT-300 dovetail translation stage offers rapid 1.0 inch (25 mm) linear positioning for a variety of components. Adjustment of the 20 pitch lead screw can be made from either side of the DT-300. The drive mechanism is spring-loaded to minimize backlash. Smooth travel is obtained with a rugged dovetail slide track.

The side located, non-influencing foil lock of the DT-300 locks the slide securely in place without moving the stage from its position. DT-300s can be stacked for coarse XY positioning, or mounted with our MX-AB for Z-axis applications.

Application



Dovetail slides have the greatest bearing area of any stage design. Siskiyou offers these slides in both free-adjust and spring loaded configurations.

With the MX-AB adaptor block, DT-300 stages can be mounted in a wide variety of configurations. Other dovetail slides are available in pre-assembled multi-axis configurations.

Unique to Siskiyou, our differential dovetail screw provides coarse / fine adjustment over a long travel range. It's available in pre-assembled multi-axis configurations.

www.gmp.ch

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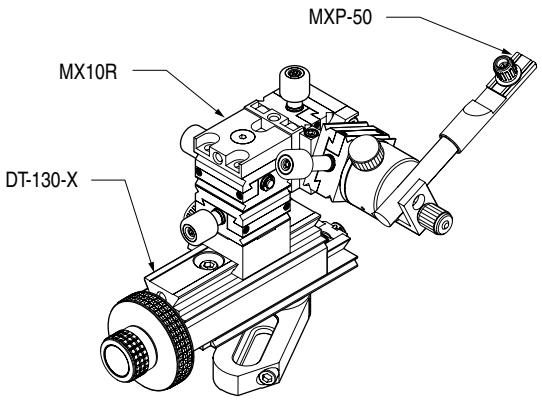
GMP SA	Büro Zürich: Dübendorfstrasse 11a	CH-8117 Fällanden	Tel. 044 825 34 00	Fax. 044 825 34 01	info@gmp.ch

Linear Manual — Dovetail Slides

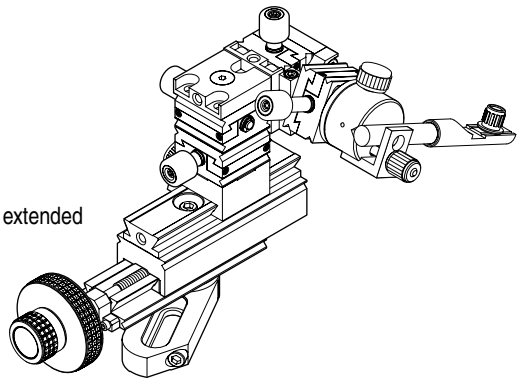
1-1/2 inch XYZ Fast Travel / DT-130 Series

Note that dimensions in parentheses (mm) reflect metric assembly features

DT-130 Series



Fully retracted



Fully extended

Product Features

- Integrated 3mm fine adjustment and 42mm coarse fast adjustment
- Unique sliding XY assembly clamp
- Submicron fine resolution

Performance Specifications

Maximum load	1 lb
Travel range	
fine	3 mm
coarse / fast	42 mm
Minimum controllable motion	
fine	5 µm
coarse / fast	100 µm

Related Products

RC dovetail carriers	129
MXC probe clamps	175

Order Information

3-axis fast travel stage, right hand	DT-130-XYZR
3-axis fast travel stage, left hand	DT-130-XYZL
2-axis fast travel stage	DT-130-XY
single-axis fast travel stage	DT-130-X
dovetail stage angle bracket	DT-130-AB

Metric Option — for metric assembly features on this product, add '-M' after model number.

Modular Fast Travel Stages

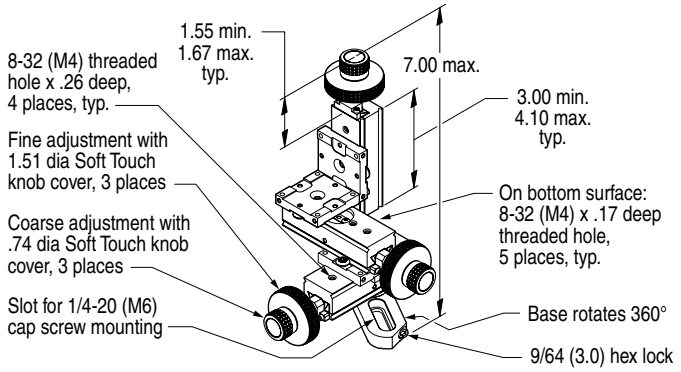
The DT-130 series of dovetail stages integrates a coarse fast travel stage and a fine adjustable stage in one simple device. The coarse fast action is controlled by a 0.74-inch diameter knob that is attached to a multi-lead adjustment screw that drives the stage across 42 millimeters of travel in only three revolutions. The fine adjustment is controlled by a large 1.5-inch diameter knob that is attached to a 100TPI adjustment screw which moves the stage across 3 millimeters of travel. This large knob improves leverage and control of any fine adjustments so that movement approaching submicron accuracies can be achieved.

Three models of the DT-130 series are available: single-axis DT-130-X, 2-axis DT-130-XY and 3-axis DT-130-XYZ. The XY and XYZ versions employ a unique sliding clamp that attaches to the V-groove on the top or bottom of the stage. This simple clamp allows the user to select the location of the orthogonal stage anywhere along the 3.0 inch length of the stage. This clamp is also available as a two-piece angle bracket for creating customized subassemblies.

Linear Manual — Dovetail Slides

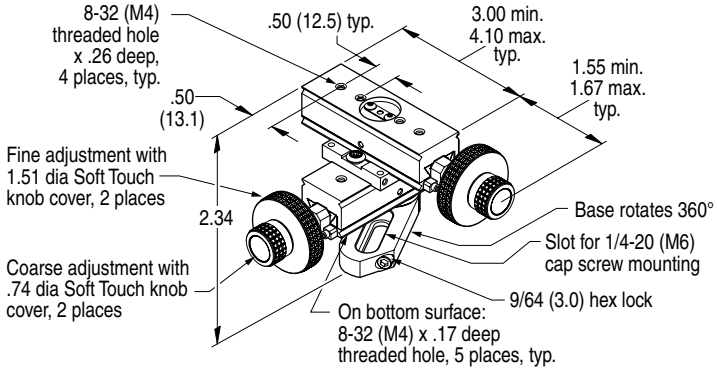
3-Axis / DT-130-XYZR

Note that dimensions in parentheses (mm) reflect metric assembly features



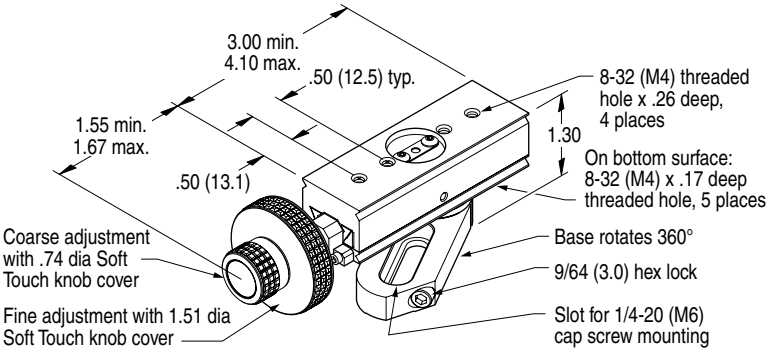
2-Axis / DT-130-XY

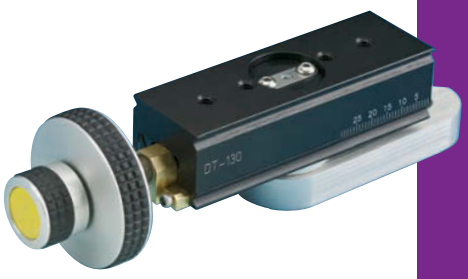
Note that dimensions in parentheses (mm) reflect metric assembly features



Single-Axis / DT-130-X

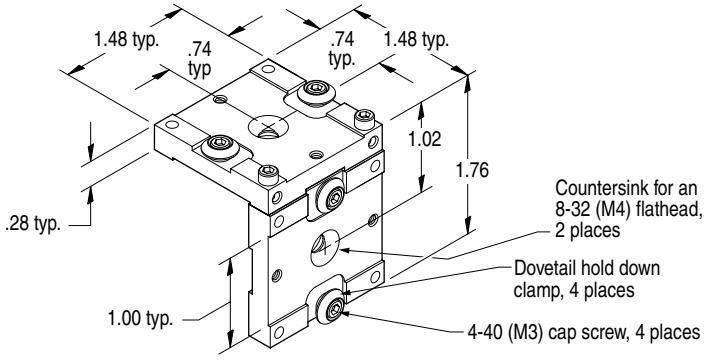
Note that dimensions in parentheses (mm) reflect metric assembly features





90° Angle Bracket / DT-130-AB

Note that dimensions in parentheses (mm) reflect metric assembly features



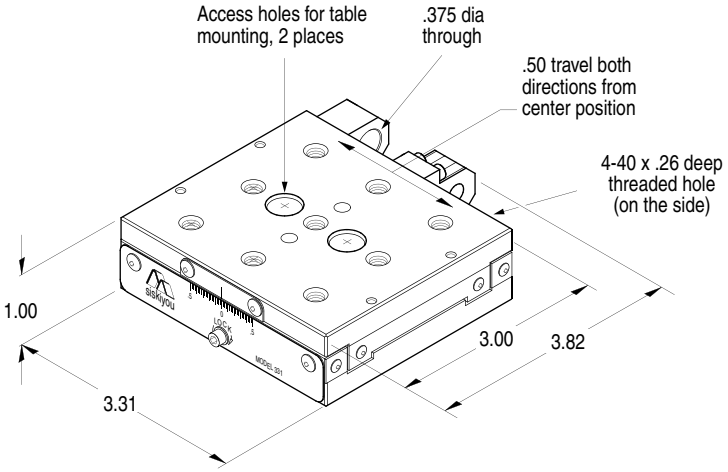
Translation Stages

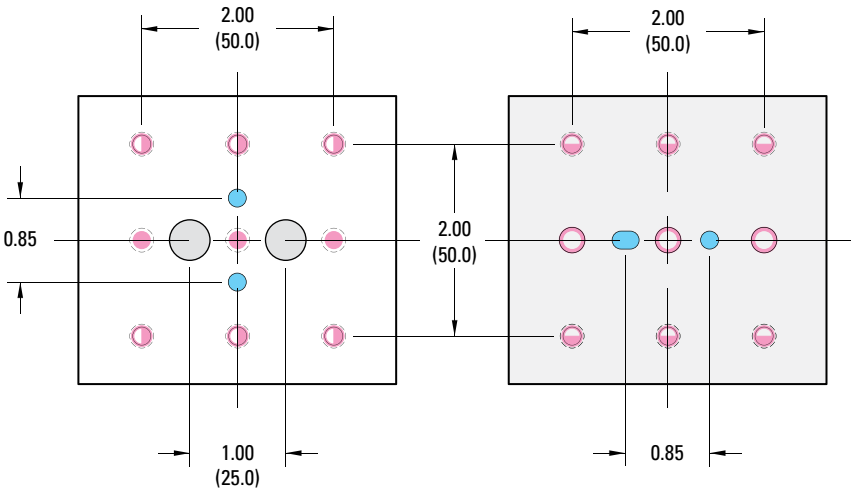
Linear Manual — Ball Bearing Stages

1 inch Travel / 331

Model 331, shown with TPI adjustment screw, not included

Top Plate Bottom Plate Mounting Holes: 1/4-20 (M6), ▽ 0.51 ● 0.26 ◐ 0.22 ◒ Clearance ✪ / 0.1875 Dowel Pin, ▽ 0.21 ●
Note that dimensions in parentheses (mm) reflect metric assembly features.





Product Features

- Integrated scale / lock
- Right and left hand drive adjustable
- Compatible with standard micrometers
- Vacuum compatible versions available upon request

Performance Specifications

Maximum horizontal axis load	15 lbs, centered
Maximum vertical axis load	3 lbs, centered
Travel	1.0-inch (25mm)
Minimum controllable motion	
20TPI	20 µm
40TPI	10 µm
80TPI	submicron
100TPI	submicron
127TPI	submicron

Related Products

MX-AB adapter block	120
TPI adjustment screws	beginning 84
841 actuator	93
400 series actuators	90
motorized version	63

Order Information

ball bearing stage, 1.0 inch travel	331

Metric Option — for metric assembly features on this product, add '-M' after model number.

Ball Bearing Translation Stage

The 331 precision ball bearing translation stage offers exceptionally smooth linear travel. The time-tested design has been improved with the addition of more bearing area than similar stages. The increased bearing surface reduces non-linear motion when changing directions, and maximizes linearity towards the end of travel.

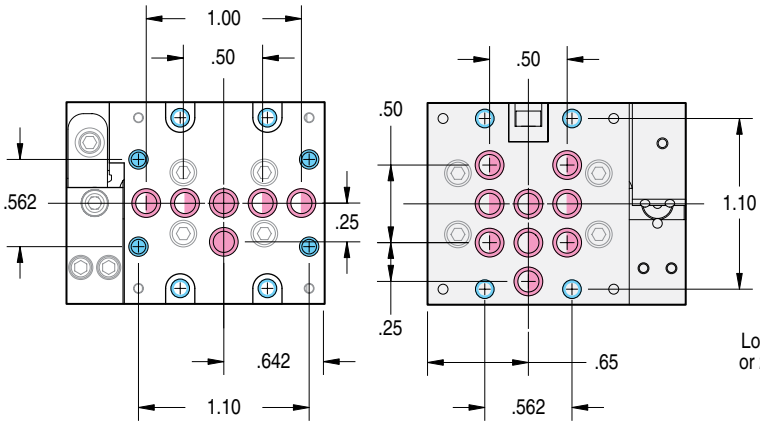
The 331 has a side located non-influencing lock that is integrated with a graduated scale for position readout of 0.04 inches (1 mm). The actuator mounting block and stop block are designed to enable either right or left hand mounting of the drive device. The actuator mounting block is compatible with our TPI series adjustment screws, 400 and 800 series actuators, as well as standard micrometers.

The spring-loaded 331 stage is stackable for XY positioning requirements and is compatible with our MX-AB for Z-axis applications.

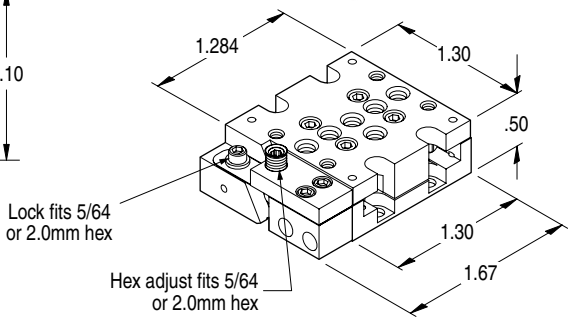
Linear Manual, Top Adjust — Crossed Roller Stages

2mm Travel / 50.5cr-T

☐ Top Plate ■ Bottom Plate Mounting Holes: 8-32 (M4), ▽ 0.25 ● 0.15 ◐ / 4-40 (M2.5), ▽ 0.15 ● Clearance ○
Note that dimensions in parentheses (mm) reflect metric assembly features.

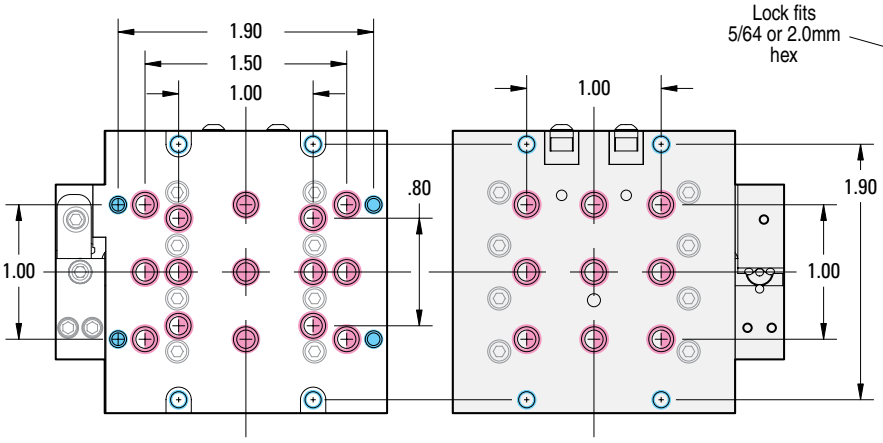


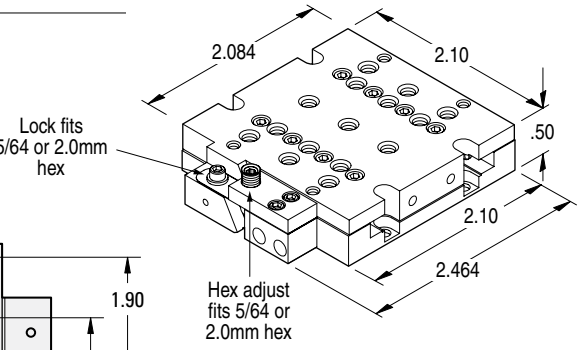
50.5cr-T



2mm Travel / 100.5cr-T

☐ Top Plate ■ Bottom Plate Mounting Holes: 8-32 (M4), ▽ 0.25 ● 0.15 ◐ / 4-40 (M2.5), ▽ 0.15 ● Clearance ○
Note that dimensions in parentheses (mm) reflect metric assembly features.





The 50.5cr-T and 100.5cr-T bring top adjust capability to the thinnest line of crossed roller translation stages available. With a 100 pitch screw bearing upon a 60° angle block (pat. pending), the effective thread pitch is 170, giving you the most precise adjustment available from a non-differential adjuster. Perfect for tight spaces, many components can be mounted to the top adjust stages to help you get many degrees-of-freedom in a small volume. Both sizes can be stacked to create XY versions. XYZ is available by adding an angle bracket and using an end drive cr-series stage; all three axes are then top adjustable. Each axis has a non-influencing foil lock which virtually guarantees that the first adjustment is the last one. The foil locks are accessible from the top. The same wrench drives the stage and actuates the foil locks. Angle brackets are purchased separately. See page 38 for Model numbers and dimensions.

Product Features

- Low profile design
- Non-influencing lock
- High load crossed roller bearings
- Vacuum compatible versions available

Performance Specifications

Maximum horizontal axis load	
50.5cr-T series	3 lbs
100.5cr-T series	7 lbs
Travel range	
50.5cr-T series	0.078 inch (2 mm)
100.5cr-T series	0.078 inch (2 mm)
Resolution	
100TPI adjustment screw	submicron, 150µm/revolution

Related Products

50ab and 100ab, angle brackets	38

Order Information

1.3" top adjust stage, 2mm travel	50.5cr-T
2.1" top adjust stage, 2mm travel	100.5cr-T

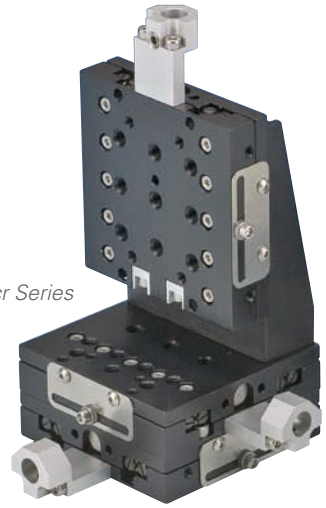
Metric Option — for metric assembly features on this product, add '-M' after model number.

Translation Stages

Linear Manual — Crossed Roller Stages

1/2 and 1 Inch XYZ Travel / .5cr Series

Note that dimensions in parentheses (mm) reflect metric assembly features



.5cr Series

Product Features

- Low profile design
- Non-influencing lock
- High load crossed roller bearings
- Vacuum compatible versions available

Performance Specifications

Travel Range:	
50.5cr series	0.5 inch (12mm)
100.5cr series	1.0 inch (25.4mm)
150.5cr series	1.0 inch (25.4mm)
Maximum Horizontal axis Load	
50.5cr series	5 lb
100.5cr series	10 lb
150.5cr series	15 lb
Maximum Vertical axis Load	
50.5cr series	2 lb
100.5cr series	4 lb
150.5cr series	6 lb
Resolution	
with 80TPI adjustment screw	5µm
with 100TPI adjustment screw	submicron

Related Products

SDM and SM series micrometers	84
80 and 100 TPI actuator screws	88
420 series motorized actuators	90
angle brackets	38
ABP mounting plates	61

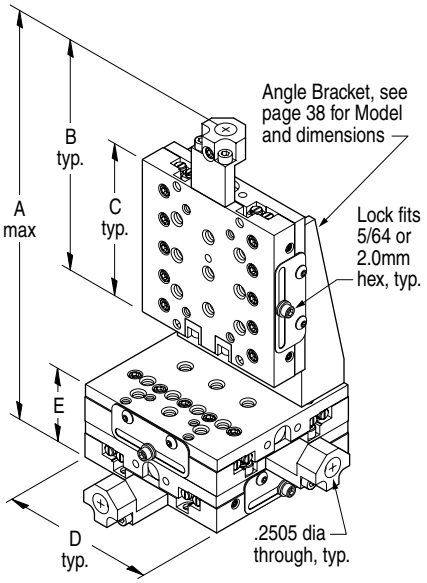
Order Information

0.5 inch travel stage / 1.3" ☐	
single-axis	50.5cr-X
2-axis	50.5cr-XY
3-axis, rh	50.5cr-XYZR
3-axis, lh	50.5cr-XYZL
1.0 inch travel stage / 2.1" ☐	
single-axis	100.5cr-X
2-axis	100.5cr-XY
3-axis, rh	100.5cr-XYZR
3-axis, lh	100.5cr-XYZL
1.0 inch travel stage / 3.25" ☐	
single-axis	150.5cr-X
2-axis	150.5cr-XY
3-axis, rh	150.5cr-XYZR
3-axis, lh	150.5cr-XYZL

Metric Option — for metric assembly features on this product, add '-M' after model number.

Crossed Roller XYZ Stages

The 50.5cr, 100.5cr and 150.5cr represent the thinnest line of crossed roller stages on the market today. Their slim design is ideal for applications in which space or height is critical. All three sizes are available in X-, XY- or XYZ-axis versions. Each axis has a non-influencing foil lock which virtually guarantees that the first adjustment is the last one. The foil lock has matching mounting holes on the opposite edge for maximum access flexibility. Depending on the sensitivity of the setup, either 8-80TPI or 8-100TPI adjustment screws, or SM-1 micrometers, can be used with these stages. Angle brackets are included in assemblies, and may also be purchased separately. See page 38 for Model numbers and dimensions.



Model	A	B	C	D	E
50.5cr-XYZ	3.37	1.85	1.30	1.30	1.00
100.5cr-XYZ	4.95	2.90	2.10	2.10	1.00
150.5cr-XYZ	6.10	4.05	3.25	3.25	1.00

Micrometers / Adjustment Screws / Motorized Actuators

See pages 82–93 for detailed information on these actuator options. Note that actuators do not have metric options.

Diff. Micrometers

1/4" Travel
SDM-0.25

1/2" Travel
SDM-0.5

Micrometers

1/2" Travel
SM-0.5

1" Travel
SM-1.0

Knob Drives

1/2" Travel
8-80TPI-0.5
8-100TPI-0.5

1" Travel
8-80TPI-1.0
8-100TPI-1.0

Hex Drives

1/4" Travel
8-80TPI-0.2H
8-100TPI-0.2H

1/2" Travel
8-80TPI-0.5H
8-100TPI-0.5H

Motorized Drives

1/2" Travel, 512
1" Travel, 525

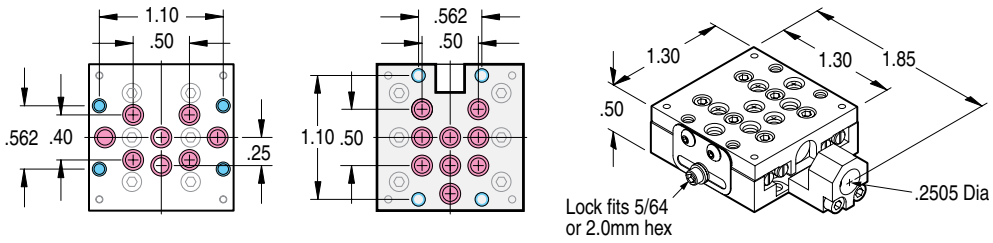
Controllers

4 Axis, MC500
1 Axis, MC501

1/2" Linear Travel, 1.30"☐ Stage / 50.5cr-X

☐ Top Plate ■ Bottom Plate Mounting Holes: 4-40 (M2.5), ▼ 0.15 ● Clearance ○ / 8-32 (M4), ▼ 0.15 ● 0.25 ◐

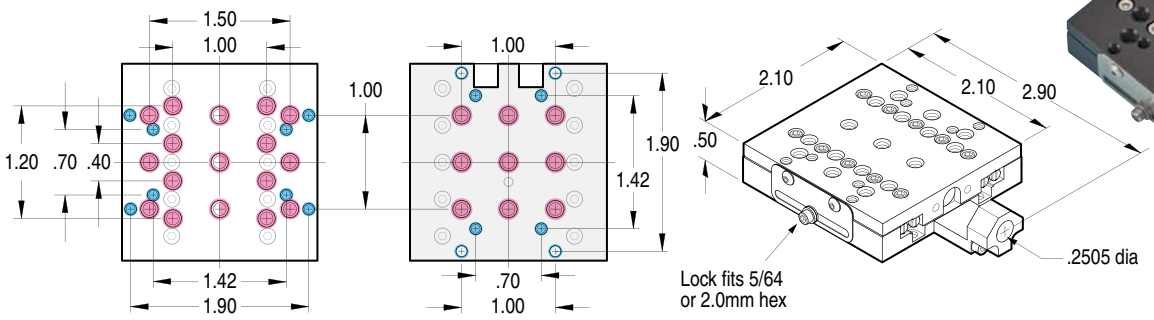
Note that dimensions in parentheses (mm) reflect metric assembly features



1" Linear Travel, 2.10"☐ Stage / 100.5cr-X

☐ Top Plate ■ Bottom Plate Mounting Holes: 4-40 (M2.5), ▼ 0.15 ● Clearance ○ / 8-32 (M4), ▼ 0.15 ● and 0.25 ◐

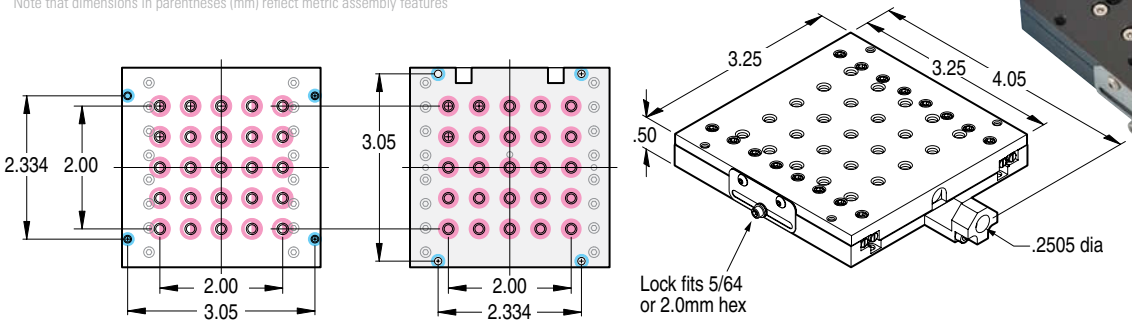
Note that dimensions in parentheses (mm) reflect metric assembly features

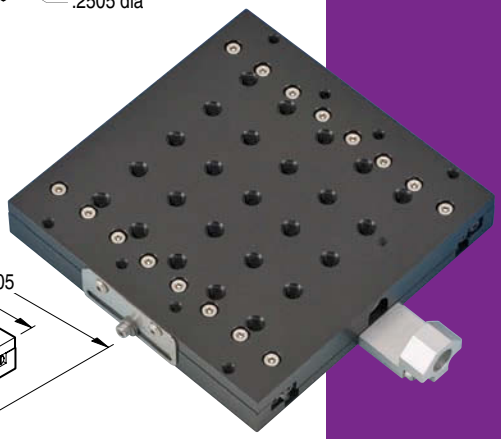


1" Linear Travel, 3.25"☐ Stage / 150.5cr-X

☐ Top Plate ■ Bottom Plate Mounting Holes: 4-40 (M2.5), ▼ 0.15 ● Clearance ○ / 8-32 (M4), ▼ 0.15 ● and 0.25 ◐

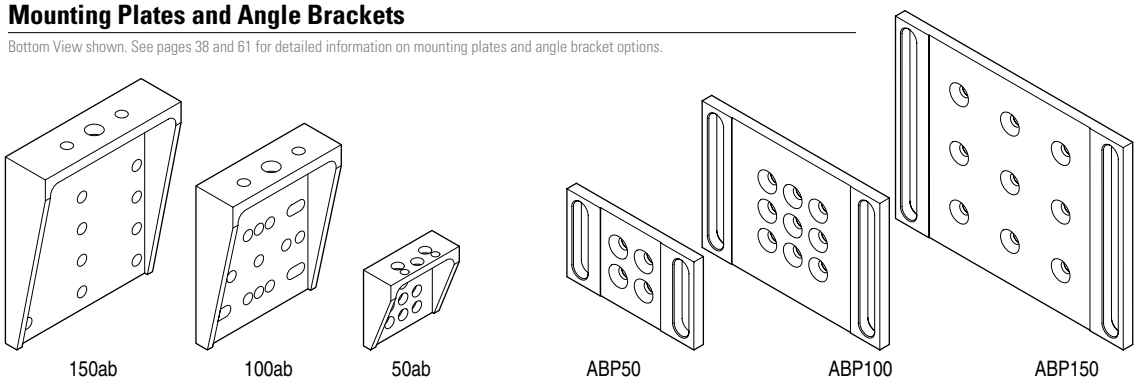
Note that dimensions in parentheses (mm) reflect metric assembly features





Mounting Plates and Angle Brackets

Bottom View shown. See pages 38 and 61 for detailed information on mounting plates and angle bracket options.

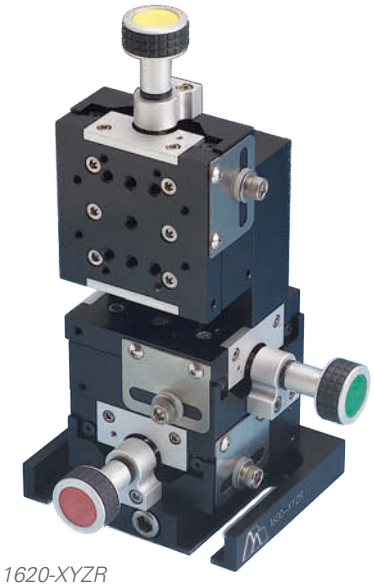


Translation Stages

Linear Manual — Crossed Roller Stages

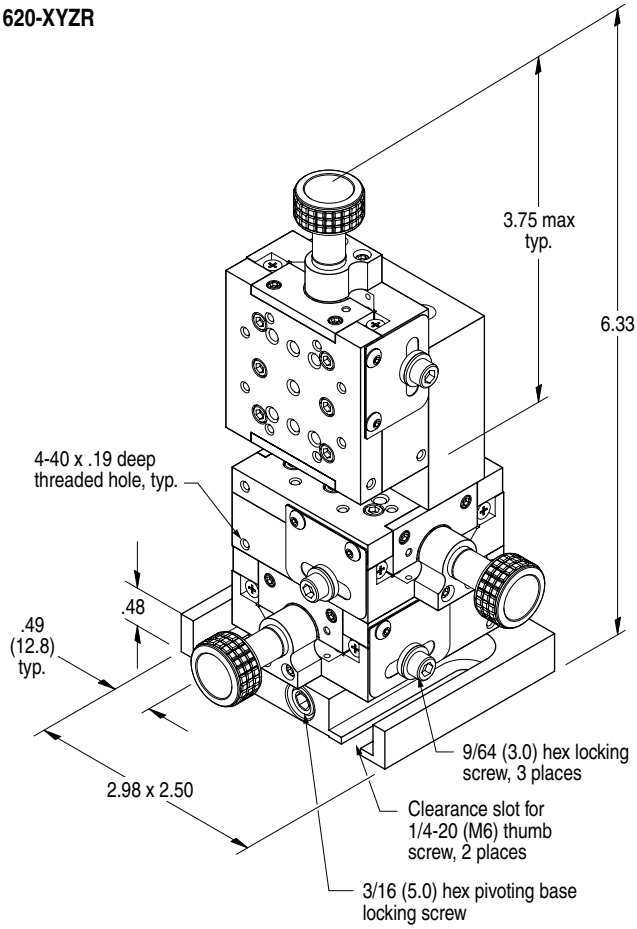
20mm XYZ Travel / 1600 Series

Note that dimensions in parentheses (mm) reflect metric assembly features



1620-XYZR

1620-XYZR



Product Features

- Color coded axis knobs
- Non-influencing lock
- Rotatable mounting base
- Vacuum compatible versions available upon request

Performance Specifications

Maximum horizontal axis load	10 lbs
Maximum vertical axis load	4 lbs
Travel	20 mm
Minimum controllable motion	
1620 series	10 µm
1640 series	5 µm
1680 series	submicron

Related Products

motorized version	66

Order Information

crossed roller single-axis stage, 20TPI	1620-X
crossed roller 2-axis stage, 20TPI	1620-XY
crossed roller vertical stage, 20TPI	1620-Z
crossed roller 3-axis stage, 20TPI, rh	1620-XYZR
crossed roller 3-axis stage, 20TPI, lh	1620-XYZL

Thread Option for 40- or 80-pitch adjustment screws, change the Model Number to indicate the appropriate TPI adjustment screw — 1640-.... or 1680-....

Metric Option — for metric assembly features on this product, add '-M' after model number.

Crossed Roller XYZ Stages

1600 series crossed roller translation stages are ideal for a wide range of submicron or micron-scale motion applications. Our 1600 series stages use precision rolled 20TPI, 40TPI, and 80TPI lead screws for smooth positioning along their entire travel. These lead screws are spring-loaded against a solid stop to ensure drift-free operation.

1600 series stages come standard with our ABP-R mounting plate. The design of this mounting plate enables coarse positioning between platform mounting holes as well as 360° of coarse rotational positioning. If rotation with a solid submicron level stop is required, the MX-RS rotation stage is designed to mount directly into the ABP-R and has mounting holes for all 1600 series stages.

A non-influencing foil lock is integrated into all 1600 series stages. Z-axis and XYZ-axis models have a Z-axis mounting block that allows the user to reconfigure the stage to fit the application. Color coded knob caps are used to identify axis location in low light conditions.

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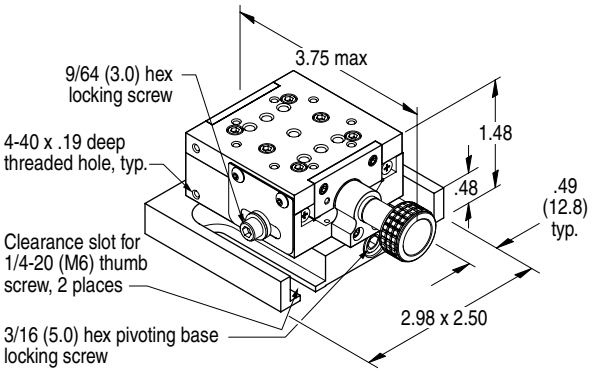
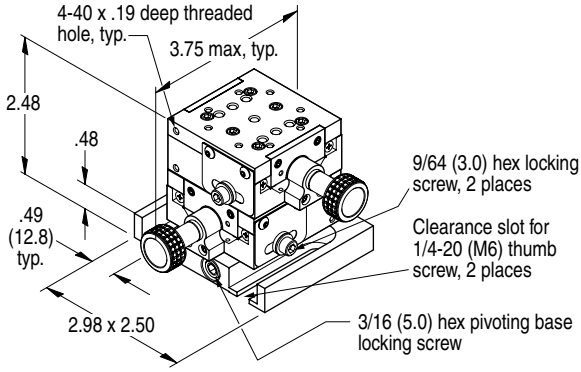
Linear Manual — Crossed Roller Stages

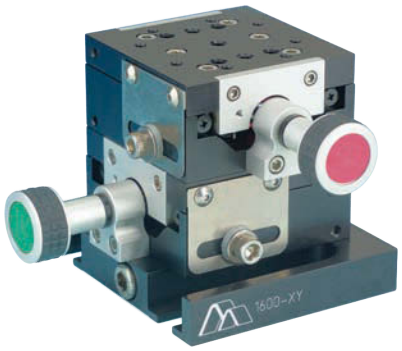
20mm XYZ Travel / 1600 Series

Top Plate Bottom Plate Mounting Holes: 8-32 (M4), 0.22 ● 0.19 ● / 4-40 (M2.5), 0.19 ● Clearance ○
Note that dimensions in parentheses (mm) reflect metric assembly features.

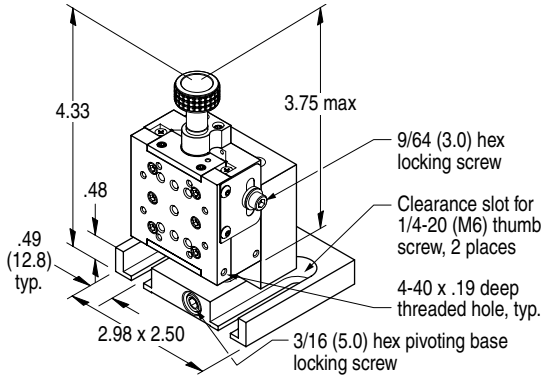


1620-X

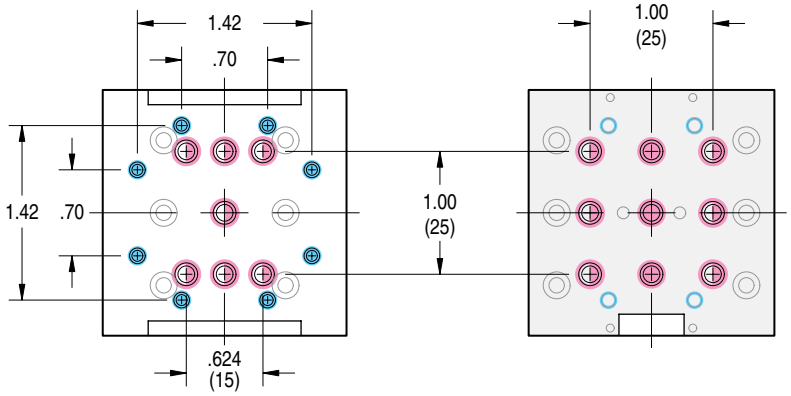




1620-XY



1620-Z



1620 Mounting Plate Detail

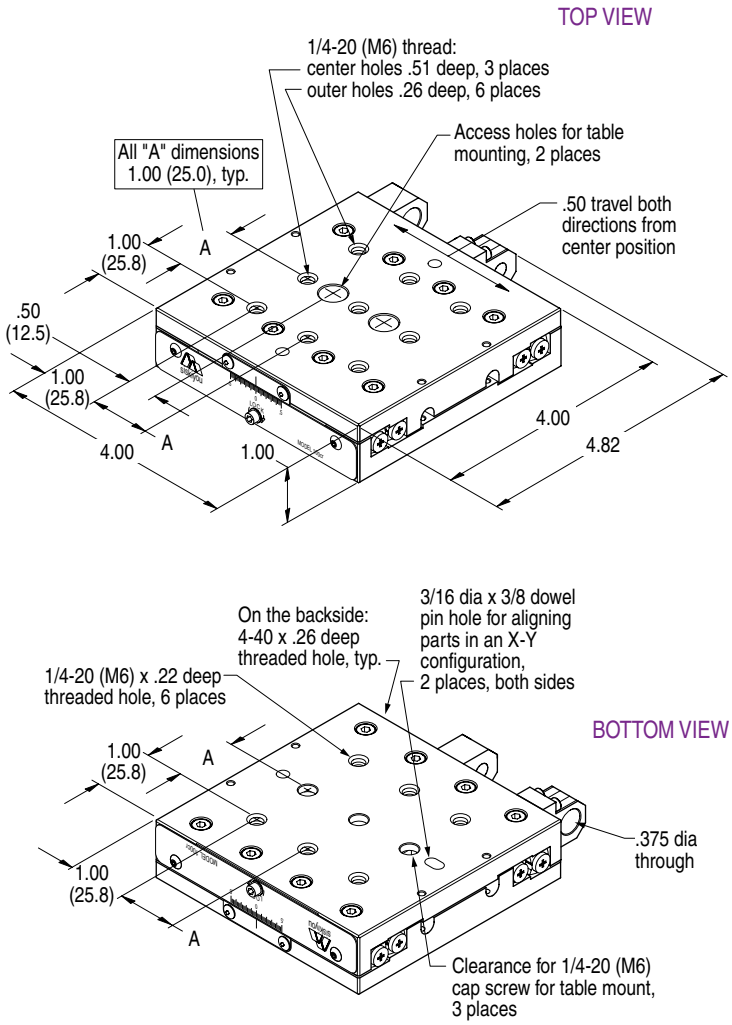
Translation Stages

Linear Manual — Crossed Roller Stages

1 inch Travel / 100cr

Note that dimensions in parentheses (mm) reflect metric assembly features

Model 100cr



Product Features

- Integrated scale / lock
- Right and left hand drive adjustable
- Compatible with standard micrometers
- Vacuum compatible versions available upon request

Performance Specifications

Maximum horizontal axis load	70 lbs, centered
Maximum vertical axis load	10 lbs, centered
Travel	1.0 inch (25 mm)
Minimum controllable motion	
20TPI	20 µm
40TPI	10 µm
80TPI	submicron
100TPI	submicron
127TPI	submicron

Related Products

MX-AB adapter block	120
TPI adjustment screws	beginning 84
841 actuator	93
400 series actuators	90
motorized version	64

Order Information

crossed roller stage, 1.0 inch travel	100cr

Metric Option — for metric assembly features on this product, add '-M' after model number.

Crossed Roller Translation Stage

The 100cr precision crossed roller bearing translation stage offers exceptionally smooth linear travel. The time-tested design has been improved with the addition of more bearing area than similar stages. The increased bearing surface reduces non-linear motion when changing directions, and maximizes linearity towards the end of travel.

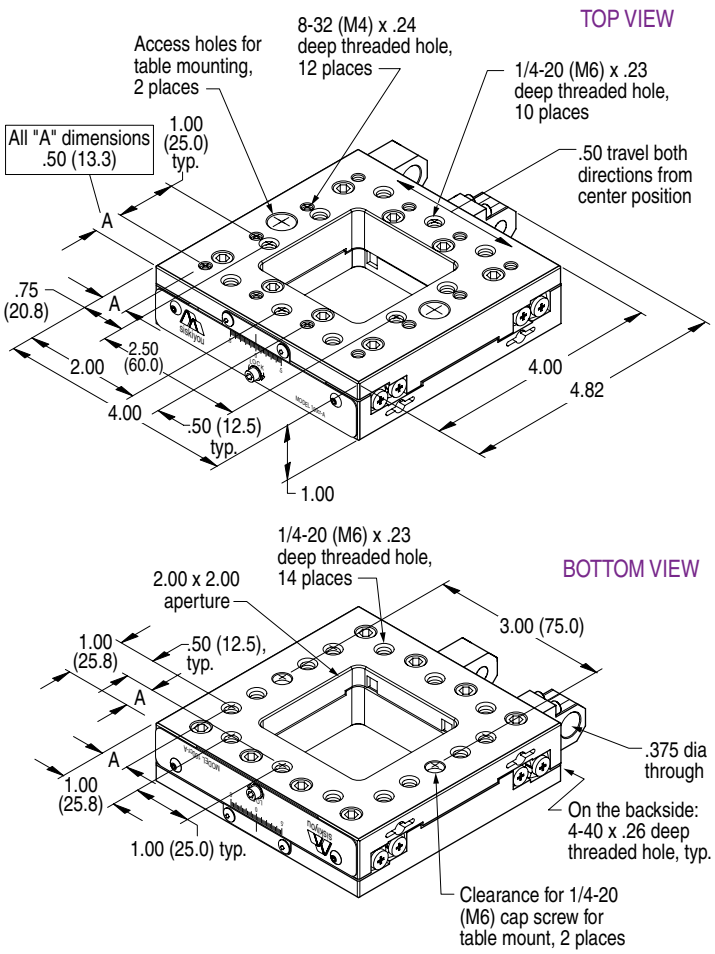
The 100cr has a side located non-influencing lock that is integrated with a graduated scale for position readout of 0.04 inches (1 mm). The actuator mounting block and stop block are designed to enable either right or left hand mounting of the drive device. The actuator mounting block is compatible with our TPI series adjustment screws, 400 and 800 series actuators, as well as standard micrometers.

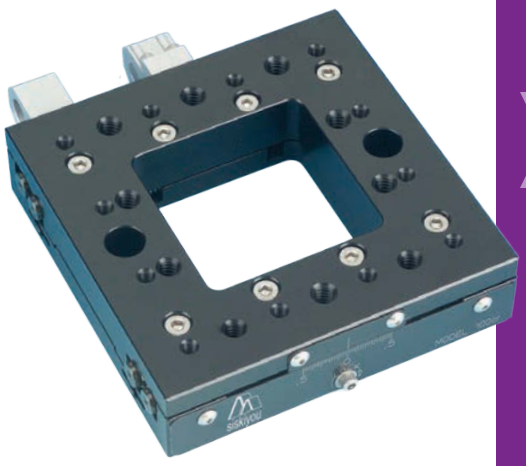
The spring-loaded 100cr stage is stackable for XY positioning requirements, and has pin pockets to optimize orthogonality. It is compatible with our MX-AB for Z-axis applications.

Linear Manual — Crossed Roller Stages

1 inch Travel with Aperture / 100cr-A

Note that dimensions in parentheses (mm) reflect metric assembly features





Model 100cr-A

Crossed Roller Translation Stage

The 100cr-A precision crossed roller bearing translation stage offers exceptionally smooth linear travel. The time-tested design has been improved with the addition of more bearing area than similar stages. The increased bearing surface reduces non-linear motion when changing directions, and maximizes linearity towards the end of travel. This aperture version of our 100cr stage is ideal for laser and microscopy applications where a light path through the stage is necessary.

The 100cr-A has a side located non-influencing lock that is integrated with a graduated scale for position readout of 0.04 inches (1 mm). The actuator mounting block and stop block are designed to enable either right or left hand mounting of the drive device. The actuator mounting block is compatible with our TPI series adjustment screws, 400 and 800 series actuators, as well as standard micrometers.

The spring-loaded 100cr-A stage is stackable for XY positioning requirements and is compatible with our MX-AB for Z-axis applications.

Product Features

- Integrated scale / lock
- Right and left hand drive adjustable
- Compatible with standard micrometers
- Vacuum compatible versions available upon request

Performance Specifications

Maximum horizontal axis load	70 lbs, centered
Maximum vertical axis load	10 lbs, centered
Travel	1.0 inch (25 mm)
Minimum controllable motion	
20TPI	20 µm
40TPI	10 µm
80TPI	submicron
100TPI	submicron
127TPI	submicron

Related Products

MX-AB adapter block	120
TPI adjustment screws	beginning 84
841 actuator	93
400 series actuators	90
motorized version	64

Order Information

crossed roller stage with aperture, 1.0 inch travel	100cr-A

Metric Option — for metric assembly features on this product, add '-M' after model number.

Translation Stages

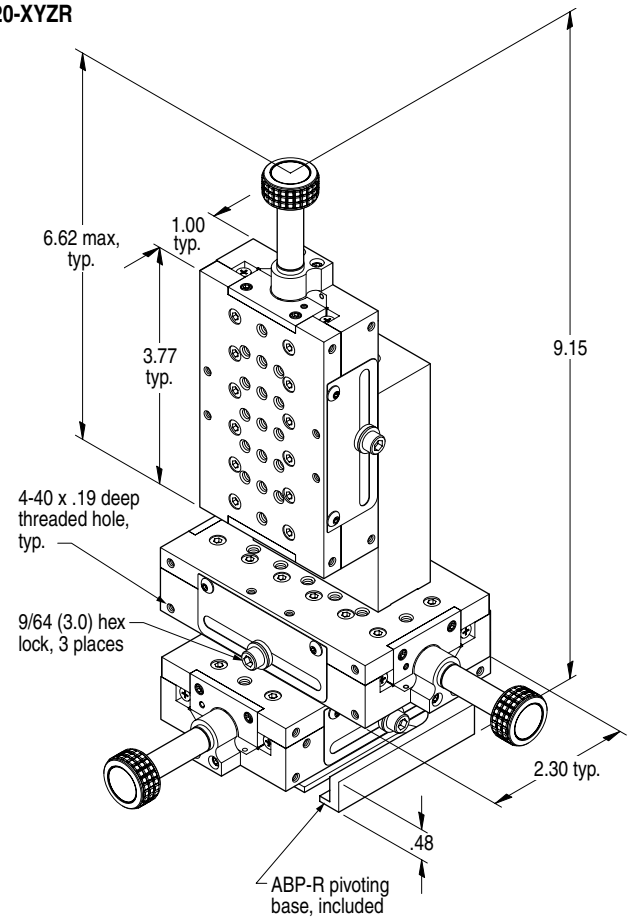
Linear Manual — Crossed Roller Stages

50mm XYZ Travel / 1700 Series

Note that dimensions in parentheses (mm) reflect metric assembly features

1720-XYZR

1720-XYZR



Product Features

- Color coded axis knobs
- Non-influencing lock
- Rotatable mounting base
- Vacuum compatible versions available upon request

Performance Specifications

Maximum horizontal axis load	10 lbs
Maximum vertical axis load	4 lbs
Travel	50 mm
Minimum controllable motion	
1720 series	10 µm
1740 series	5 µm
1780 series	submicron

Related Products

motorized version	68
MX-RS rotation base	122

Order Information

crossed roller single-axis stage, 20TPI	1720-X
crossed roller 2-axis stage, 20TPI	1720-XY
crossed roller vertical stage, 20TPI	1720-Z
crossed roller 3-axis stage, 20TPI, rh	1720-XYZR
crossed roller 3-axis stage, 20TPI, lh	1720-XYZL

Thread Option for 40- or 80-pitch adjustment screws, change the Model Number to indicate the appropriate TPI adjustment screw — 1740-.... or 1780-....

Metric Option — for metric assembly features on this product, add '-M' after model number.

Crossed Roller XYZ Stages

1700 series crossed roller translation stages are ideal for a wide range of submicron or micron-scale motion applications. Our 1700 series stages use precision rolled 20TPI, 40TPI, and 80TPI lead screws for smooth positioning along their entire travel. These lead screws are spring-loaded against a solid stop to ensure drift-free operation.

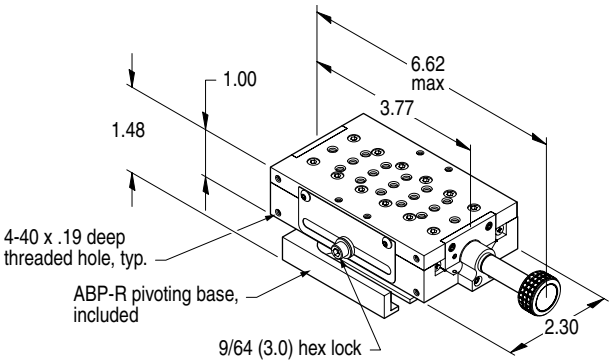
1700 series stages come standard with our ABP-R mounting plate. The design of this mounting plate enables coarse positioning between platform mounting holes as well as 360° of coarse rotational positioning. If rotation with a solid submicron level stop is required, the MX-RS rotation stage is designed to mount directly into the ABP-R and has mounting holes for all 1700 series stages.

A non-influencing foil lock is integrated into all 1700 series stages. Z-axis and XYZ-axis models have a Z-axis mounting block that allows the user to reconfigure the stage to fit the application. Color coded knob caps are used to identify axis location in low light conditions.

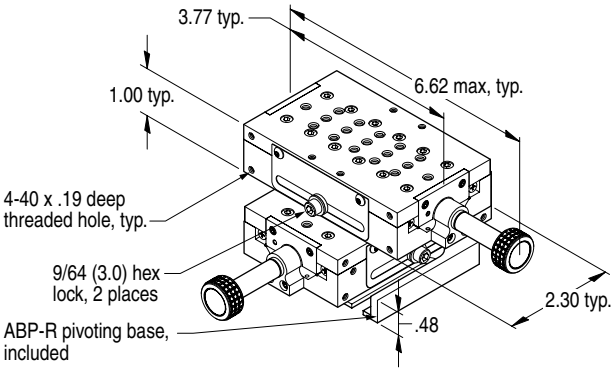
Linear Manual — Crossed Roller Stages

50mm XYZ Travel / 1700 Series

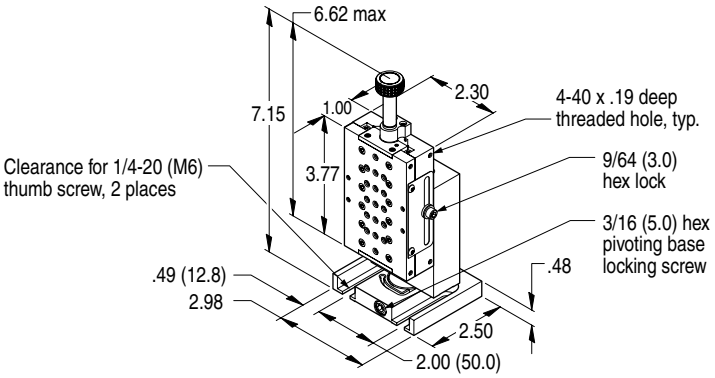
☐ Top Plate ■ Bottom Plate Mounting Holes: 8-32 (M4), ⏚ 0.21 ● 0.19 ◐ / 4-40 (M2.5), ⏚ 0.19 ● Clearance ○
Note that dimensions in parentheses (mm) reflect metric assembly features.



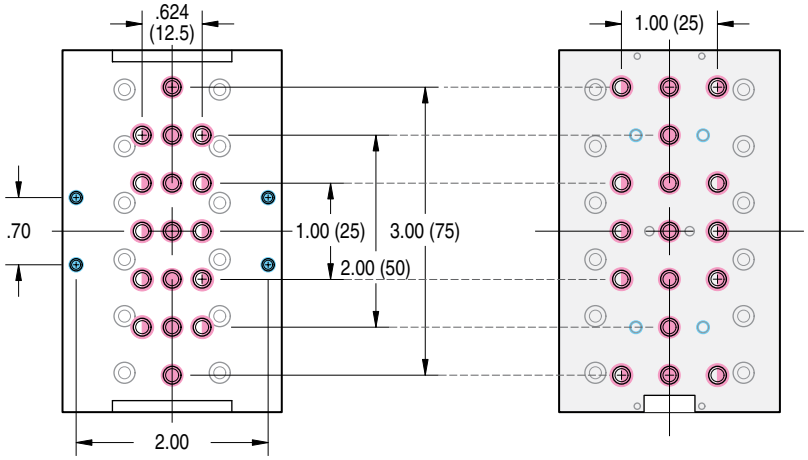
1720-X



1720-XY



1720-Z



1720 Mounting Plate Detail

Translation Stages

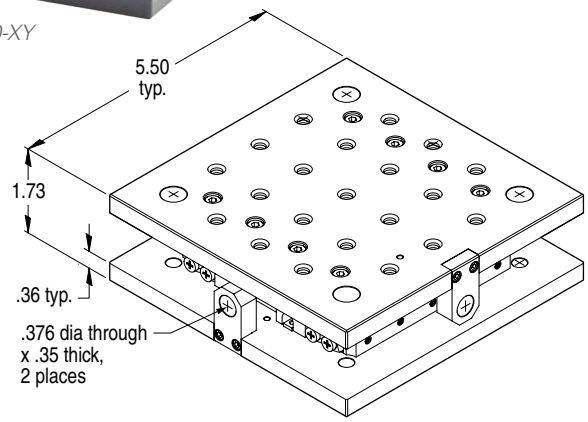
Linear Manual — Crossed Roller Stages

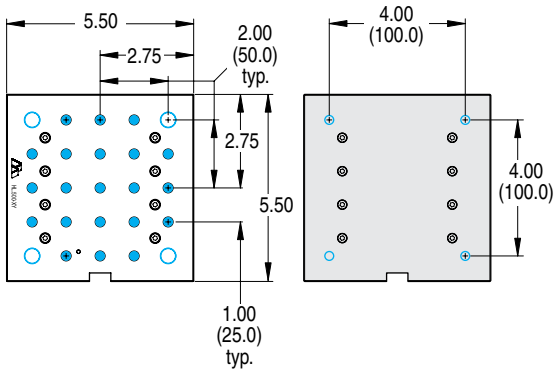
1/2 inch Travel / HL.500-XY

☐ Top Plate ■ Bottom Plate Mounting Holes: 1/4-20 (M6), ▽ 0.29 ●, Clearance ○
Note that dimensions in parentheses (mm) reflect metric assembly features.

New

HL.500-XY





Manual XY Linear Stage

The HL.500-XY stage has crossed roller bearings for the ultimate in stability, linearity and reduced stiction under heavy loads. We use 20% more bearings for improved bidirectional linearity over the entire travel range, with notable performance improvement at the end of travel. A variety of manual and motorized actuators are available: manual actuators in 20TPI / 40TPI / 80TPI / 100TPI / 127TPI / 170TPI, differential micrometers, as well as open-loop and closed loop drives. The HL.500-XY has individual non-influencing locks on each axis that will hold the stage in place even under a 3g jolt. The HL.500-XY is compatible with our MX-AB and MX-AB2 vertical mounting blocks; when combined with our 100cr or 200cr stages a high load XYZ stage system can be assembled.

Product Features

- Low profile design
- Integrated XY axes
- Non-influencing lock
- High load crossed roller bearings
- Vacuum compatible versions available

Performance Specifications

Travel range	0.5 inch (12.5mm)
Maximum horizontal axis load	150 lbs, centered
Maximum vertical axis load	20 lbs, centered
Minimum controllable motion	
20TPI	20 µm
40TPI	10 µm
80TPI	submicron
100TPI	submicron
127TPI	submicron

Related Products

FAM-0.5 micrometers	84
420.5 actuator	90
841 acuator	93
EAS & TPI adjustment stcrews	86

Order Information

0.5 inch travel XY stage / 5.5" ☐	HL.500-XY

Metric Option — for metric assembly features on this product, add '-M' after model number.

Micrometers / Adjustment Screws / Motorized Actuators

See pages 82–93 for detailed information on these actuator options.

Differential Micrometers 1" Travel FDM-1

Micrometers 1/2" Travel FAM-0.5

Knob Drives 1/2" Travel 20, 40, 80,100, 127 and 170 TPI

Hex Drives 1/2" Travel 20, 40, 80,100, 127 and 170 TPI + 100 TPI Differential

Motorized Drives 1/2" Travel, 420.5 1" Travel, 841

Controllers 4 Axis, MC500 MC1000e Series 1 Axis, MC501 MC1000e-1

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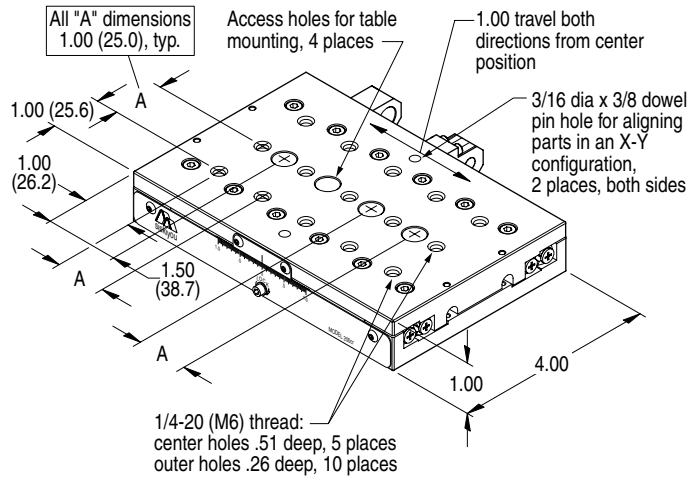
Linear Manual — Crossed Roller Stages

2 inch Travel / 200cr

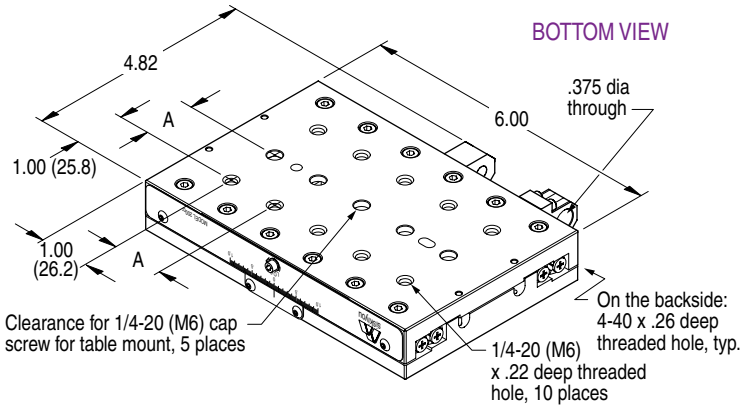
Note that dimensions in parentheses (mm) reflect metric assembly features

TOP VIEW



Model 200cr

BOTTOM VIEW



Crossed Roller Translation Stage

The 200cr precision crossed roller bearing translation stage offers exceptionally smooth linear travel. The time-tested design has been improved with the addition of more bearing area than similar stages. The increased bearing surface reduces non-linear motion when changing directions, and maximizes linearity towards the end of travel.

The 200cr has a side located non-influencing lock that is integrated with a graduated scale for position readout of 0.04 inches (1 mm). The actuator mounting block and stop block are designed to enable either right or left hand mounting of the drive device. The actuator mounting block is compatible with our TPI series adjustment screws, 400 and 800 series actuators, as well as standard micrometers.

The spring-loaded 200cr stage is stackable for XY positioning requirements and is compatible with our MX-AB2 for Z-axis applications.

Product Features

- Integrated scale / lock
- Right and left hand drive adjustable
- Compatible with standard micrometers
- Vacuum compatible versions available upon request

Performance Specifications

Maximum horizontal axis load	70 lbs, centered
Maximum vertical axis load	10 lbs, centered
Travel	2.0 inch (50 mm)
Minimum controllable motion	
20TPI	20 µm
40TPI	10 µm
80TPI	submicron
100TPI	submicron
127TPI	submicron

Related Products

TPI adjustment screws	beginning 84
842 actuator	93
422 actuator	90
motorized version	64

Order Information

crossed roller stage, 2.0 inch travel	200cr

Metric Option — for metric assembly features on this product, add '-M' after model number.

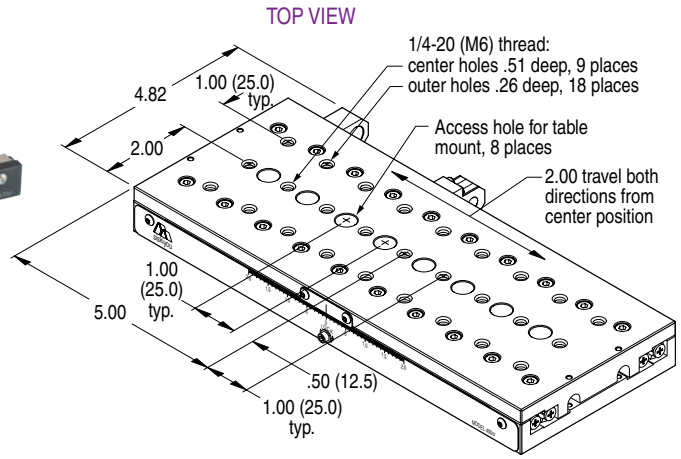
Translation Stages

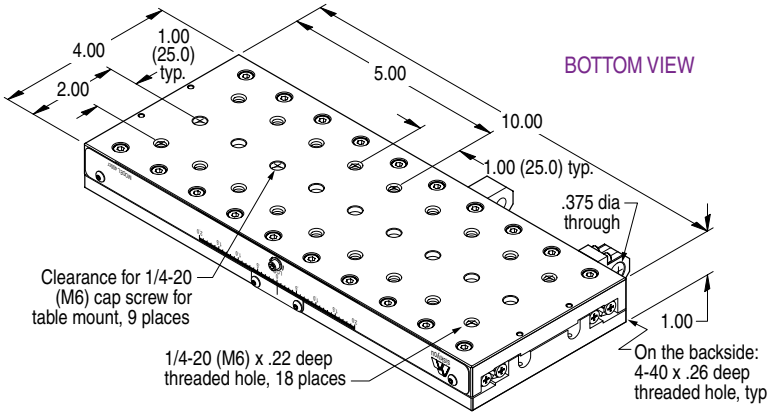
Linear Manual — Crossed Roller Stages

4 inch Travel / 400cr

Note that dimensions in parentheses (mm) reflect metric assembly features

Model 400cr
shown with long travel adjustment screw, not included





Product Features

- Integrated scale / lock
- Right and left hand drive adjustable
- Compatible with Lt series long travel adjustment screws
- Vacuum compatible versions available upon request

Performance Specifications

Maximum horizontal axis load	90 lbs, centered
Maximum vertical axis load	20 lbs, centered
Travel	4.0 inch (100 mm)
Minimum controllable motion	
20TPI	20 µm
40TPI	10 µm
80TPI	submicron
100TPI	submicron

Related Products

long travel adjustment screws	59
842 actuator	93
422 actuator	90

Order Information

crossed roller stage, 4.0 inch travel	400cr

Metric Option — for metric assembly features on this product, add '-M' after model number.

Crossed Roller Translation Stage

The 400cr precision crossed roller bearing translation stage offers exceptionally smooth linear travel. The time-tested design has been improved with the addition of more bearing area than similar stages. The increased bearing surface reduces non-linear motion when changing directions, and maximizes linearity towards the end of travel.

The 400cr has a side located non-influencing lock that is integrated with a graduated scale for position readout of 0.04 inches (1 mm). The actuator mounting block and stop block are designed to enable either right or left hand mounting of the drive device. The actuator mounting block is compatible with our TPI series adjustment screws, 400 and 800 series actuators, as well as standard micrometers.

The spring-loaded 400cr stage is stackable for XY positioning requirements and is compatible with our MX-AB2 for XZ, YZ or XYZ applications.

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Long Travel Adjustment Screws

Coarse Long Travel with 1.0-inch TPI Adjustment / Lt Series

Figure 1

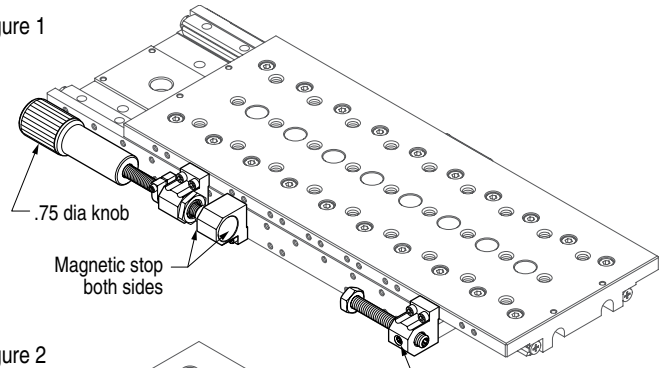
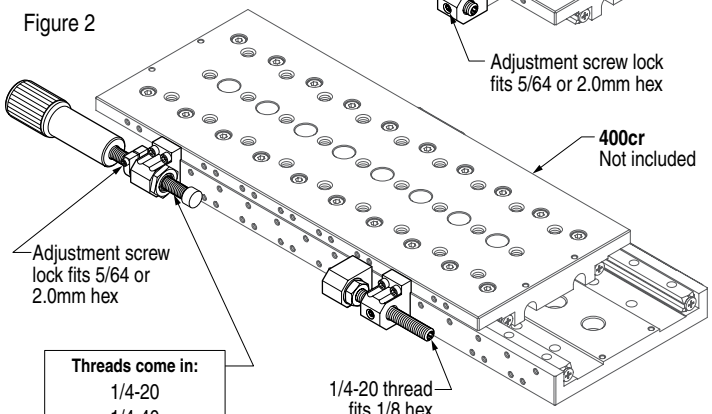


Figure 2



Threads come in:
1/4-20
1/4-40
1/4-80
or 1/4-100

Long Travel Adjustment Screw

Shown with 400cr Stage, not included

Long Travel Adjustment Screws

Our **Lt** series of long travel adjustment screws incorporate a magnet stop-block (pat.pend.). As shown in Figure 1 above, where the stage is located against the magnetically coupled adjustment screw, the stage can be adjusted just like on a standard spring-loaded stage. To move the stage out of the experiment, slide the stage to the opposite end of travel (Figure 2) to its new magnetic stop location. Some force will be needed to overcome the magnetic coupling on either end of travel. This unique feature is ideal for use on long travel stages in applications where you need to move a device into an area in the experiment and then remove it to a new location. When the stage is in place the magnet is coupled with the screw and allows the continued use of the adjustment screw for linear adjustment as needed. The opposing stop-block has a 1/4-20 set screw for adjusting the stage location when it is "out" of the experimental area. This simple design is ideal for moving sample chambers under a microscope (see page 186 for a complete system) or moving optical elements into a laser light path. The **Lt** series adjustment screws are compatible with our 200cr and 400cr stages.

Product Features

- Magnet "stop-block" for rapid/extreme travel adjustments
- 20, 40, 80 & 100 thread per inch models
- Large adjustment knob for improved resolution

Performance Specifications

Maximum load	100 lbs
Minimum controllable motion	
20TPI	20 µm
40TPI	10 µm
80TPI	submicron
100TPI	submicron

Related Products

200cr translation stage	57
400cr translation stage	58
XYZ chamber shuttle	186

Order Information

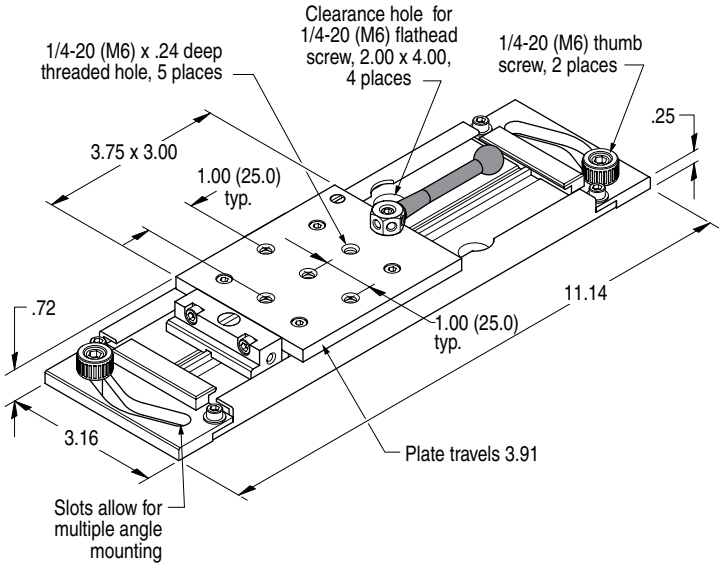
long travel adjustment screw, 20TPI	20TPI-1.0Lt
long travel adjustment screw, 40TPI	40TPI-1.0Lt
long travel adjustment screw, 80TPI	80TPI-1.0Lt
long travel adjustment screw, 100TPI	100TPI-1.0Lt

Device Slider

Accurate Reinsertion / MXS-400

Note that dimensions in parentheses (mm) reflect metric assembly features

MXS-400



Partially retracted

Product Features

- Long travel sliding stage
- Submicron repeatable stop
- Heavy load capacity

Performance Specifications

Maximum load	100 lbs
Travel range	4.00 inch (102 mm)
Repeatability, both ends of travel	10 µm

Related Products

stages	beginning 32
platforms	beginning 94
manipulators	beginning 147

Order Information

long travel sliding stage, 4.0" travel	MXS-400

Metric Option — for metric assembly features on this product, add '-M' after model number.

Device Slider

The MXS-400 is ideal for applications in which a device needs to be removed from a location and reinserted with high accuracy. The 4.0 inches of full travel ensure that even large devices, up to 100 pounds of load, may be moved for temporary access. The cam-locking lever engages a precise location stop at one end of travel and will also hold the stage in position anywhere along the entire travel.

The sliding stage platform has five 1/4-20 (M6) tapped holes for mounting a wide array of devices. The boomerang shaped mounting slots on either end allow for multiple angle mounting to any isolation table or platform. There are also four counterbored locations inside the slider rail for orthogonal mounting with 1/4-20 (M6) flathead screws which are included.

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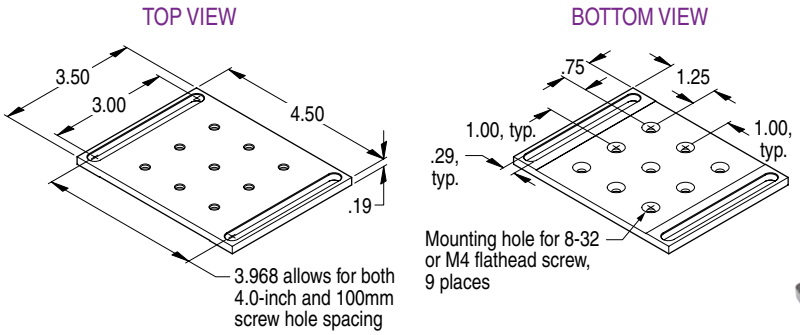
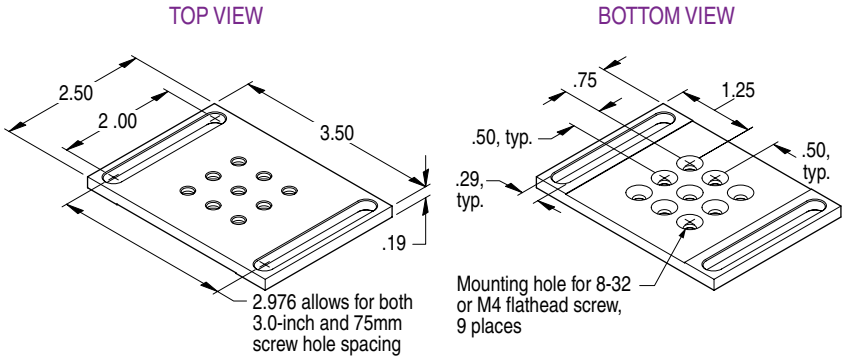
Accessories

Mounting Plate / ABP-150, ABP-100 and ABP-50

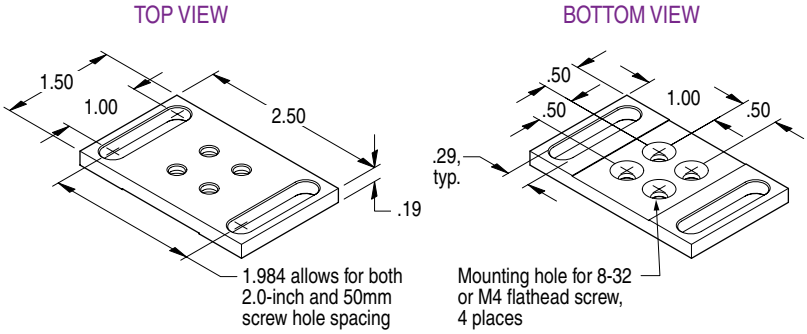
ABP-150



ABP-100



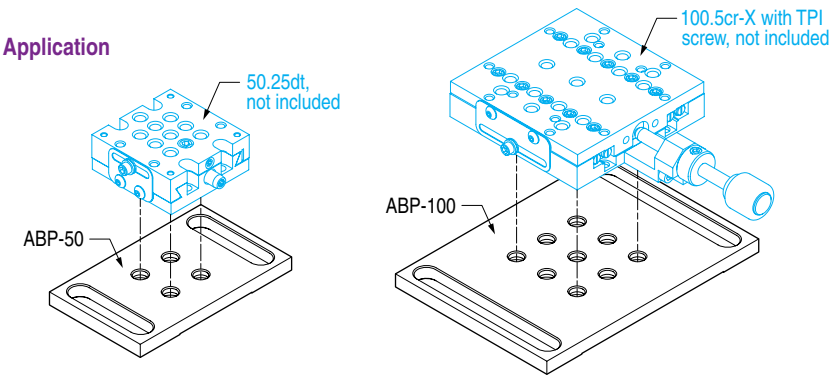
ABP-50



New

ABP-150

Application



Product Features

- Solid aluminum construction
- Flathead screws included for stage attachment
- Vacuum compatible versions available upon request

Related Products

dovetail slide stages, .25dt series	38
crossed roller stages, .5cr series	48
top adjust stages, .5cr-T series (mounted with travel axis perpendicular to base slots)	47

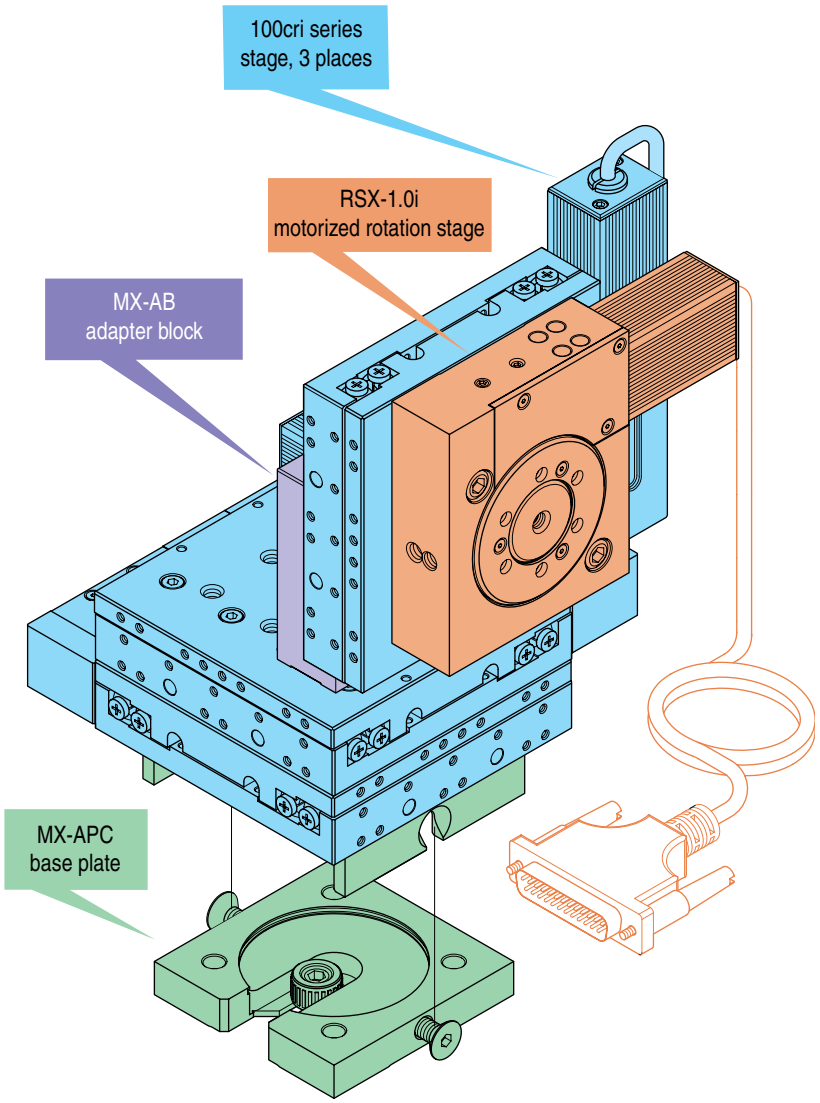
Order Information

mounting plate, 3.50 x 4.50	ABP-150
mounting plate, 2.50 x 3.50	ABP-100
mounting plate, 1.50 x 2.50	ABP-50

Translation Stages

Application

Siskiyou linear and rotary motorized stages (Section Contents on page 33), with integral closed loop actuators, provide super-accurate staging at a great price. The stages are driven by encoder feedback, minimizing backlash and providing computer-controlled accuracy to 0.1 microns, while our pushbutton, joystick and rotary knob controllers yield 0.2 to 1.0 micron sensitivity. Our MC2010 controller has pre-programmed subroutines that enable the user to specify linear, serpentine, raster and circular scans, as well as define a position sequence. 20 percent more bearing elements than specified in conventional bearing sets provide greater straightness and flatness of travel, to keep sensitive loads on-axis. Optional digital readout boxes let you see where you are — without a computer interface.



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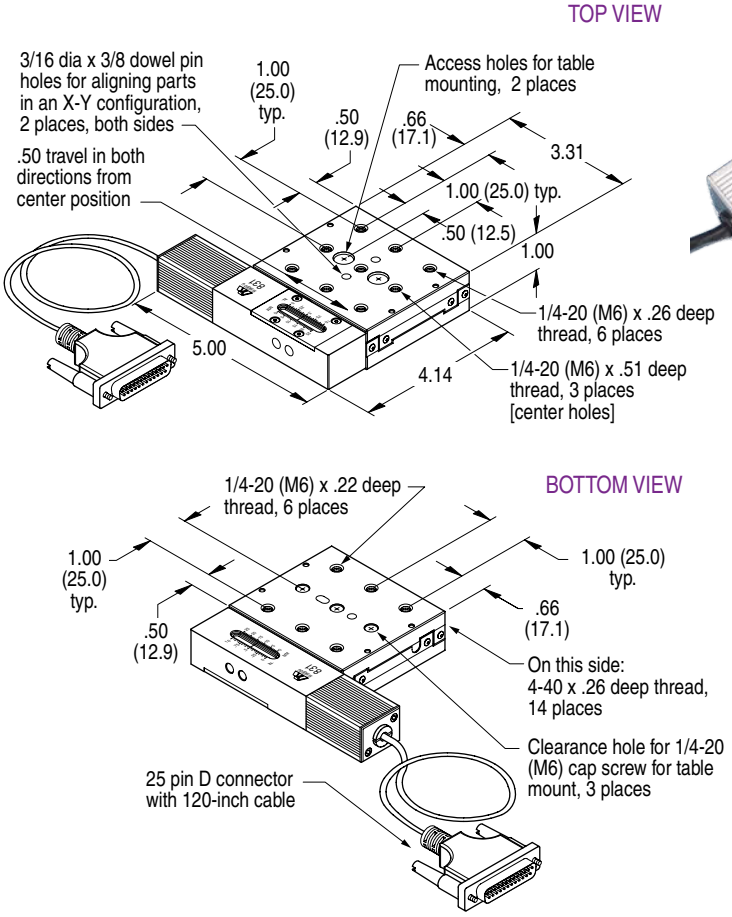
siskiyou

CE

Linear Motorized Ball Bearing Stages CE Certified

1 inch Travel / 831

Note that dimensions in parentheses (mm) reflect metric assembly features



Model 831

Motorized Translation Stage

The 831 motorized precision ball bearing translation stage offers exceptionally smooth linear travel. The time-tested design has been improved with the addition of more bearing area than similar stages. The increased bearing surface reduces non-linear motion when changing directions, and maximizes linearity towards the end of travel.

831 stages are an integration of our 331 translation stage and our 841 actuators. By combining the actuator and the stage we have created a smaller package. Our ***e*** series and MC2010 controllers drive the stage through a closed loop interface between the controller and the motor encoder. The closed loop connection ensures 0.2 µm and 0.1 µm resolution, respectively. The encoder coupling also enables the use of the DR1000 digital readout for repeated or relative positioning requirements.

There is a quick reference scale on both the top and bottom of the drive housing. They are available in either right or left hand versions. 831s are stackable for XY positioning requirements and are compatible with our MX-AB for Z-axis applications. High-speed versions available upon request.

Product Features

- 1.7 mm/second rapid positioning
- Limit switch soft stops
- Visual quick reference scale
- Vacuum compatible versions available upon request

Performance Specifications

Maximum horizontal axis load	15 lbs
Maximum vertical axis load	3 lbs
Travel	1.0 inch (25 mm)
Backlash	≤ 5 µm
Point-to-point accuracy	± 2 µm

Related Products

model ***e*** motion controllers	beginning 22
MC2010 computer interface	27
DR1000 digital readout	31
MX-AB adapter block	120
manual version	46

Order Information

ball bearing stage, closed loop, 1.0 inch travel, rh	831R
ball bearing stage, closed loop, 1.0 inch travel, lh	831L

Metric Option — for metric assembly features on this product, add '-M' after model number.

Translation Stages

Linear Motorized Crossed Roller Stages CE Certified

The 100cri and 100cri-A motorized crossed roller bearing translation stages offer exceptionally smooth linear travel. The time-tested design has been improved with the addition of more bearing area than similar stages. The increased bearing surface reduces non-linear motion when changing directions. 100cri and 100cri-A are the integration of 100cr and 100cr-A translation stages with our 841 actuators. By combining actuator and stage we have effectively created a smaller package. Our ***e*** series and MC2010 controllers drive these stages through a closed loop interface between the controller and motor encoder. The closed loop connection ensures 0.2 µm and 0.1 µm resolution, respectively. The encoder coupling also enables the use of the DR1000 digital readout for repeated or relative positioning requirements. The aperture stage version,100cri-A is ideal for laser and microscopy applications where a light path through the stage is necessary. There is a quick reference scale on both the top and bottom of the drive housing. They are available in either right or left hand versions. Multiple 100cri units are stackable for XY positioning requirements and are compatible with our MX-AB for Z axis applications. High-speed versions available upon request.

Product Features

- 1.7 mm/second rapid positioning
- Limit switch soft stops
- Visual quick reference scale
- Vacuum compatible versions available

Performance Specifications

Maximum horizontal axis load	30 lbs
Maximum vertical axis load	10 lbs
Travel	
100cri	1.0 inch (25 mm)
200cri	2.0 inch (50 mm)
Backlash	≤ 5 µm
Point-to-point accuracy	± 2 µm

Related Products

model ***e*** motion controllers	beginning 22
MC2010 computer interface	27
DR1000 digital readout	31
manual version	beginning 52

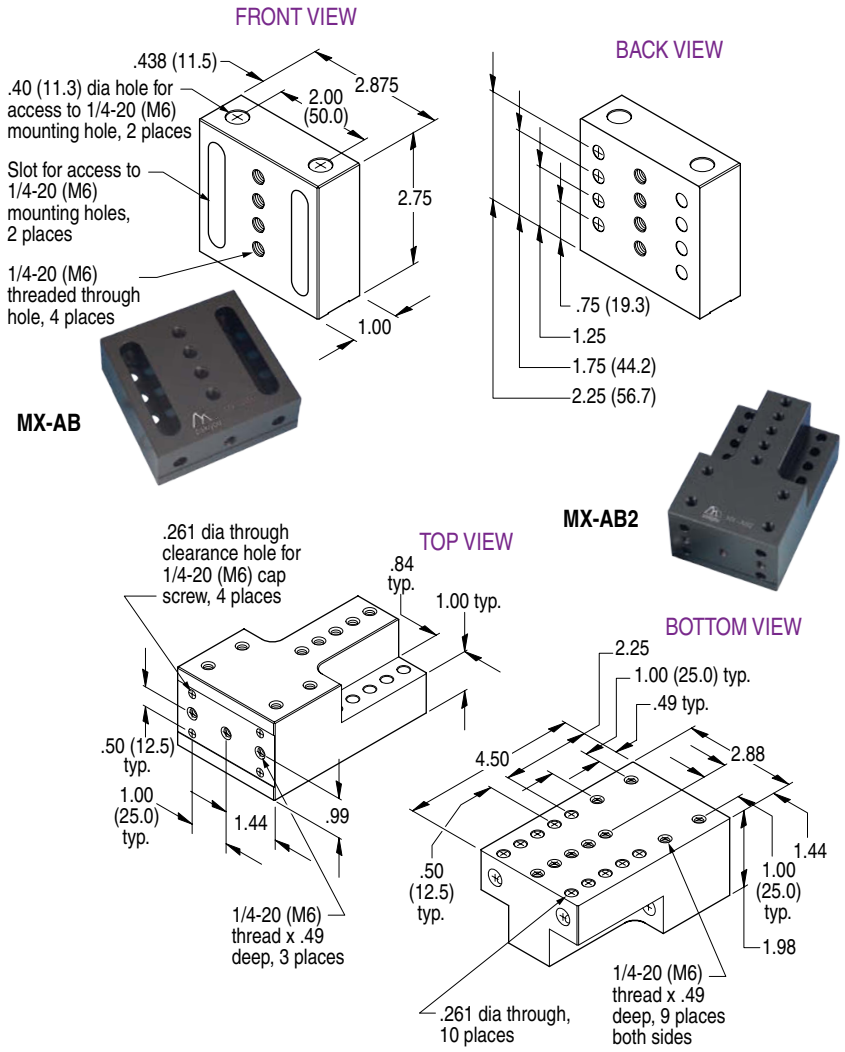
Order Information

crossed roller stage, closed loop, 1.0 inch travel, rh	100cri-R
crossed roller stage, closed loop, 1.0 inch travel, lh	100cri-L
crossed roller stage, closed loop, 1.0" travel with 2.0" aperture, rh drive	100cri-AR
crossed roller stage, closed loop, 1.0" travel with 2.0" aperture, lh drive	100cri-AL
crossed roller stage, closed loop, 2.0 inch travel, rh	200cri-R
crossed roller stage, closed loop, 2.0 inch travel, lh	200cri-L
adapter, block	MX-AB
adapter, mounting base	MX-AB2

Metric Option — for metric assembly features on this product, add '-M' after model number.

Adapter Block and Mounting Base / MX-AB and MX-AB2

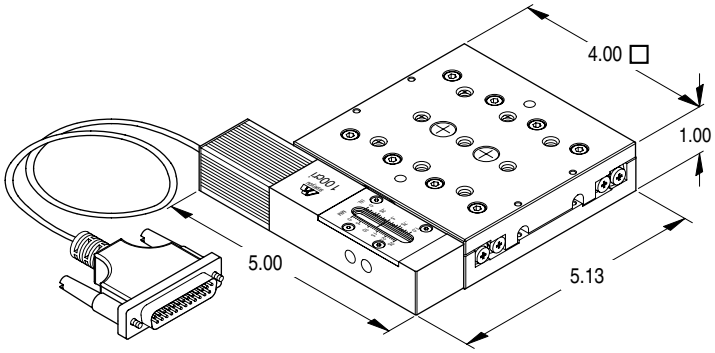
Note that dimensions in parentheses (mm) reflect metric assembly features.

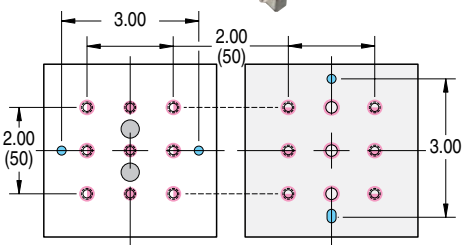


Linear Motorized **Crossed Roller Stages** CE Certified

4"□ Table, 1" Travel / 100cri-R and L

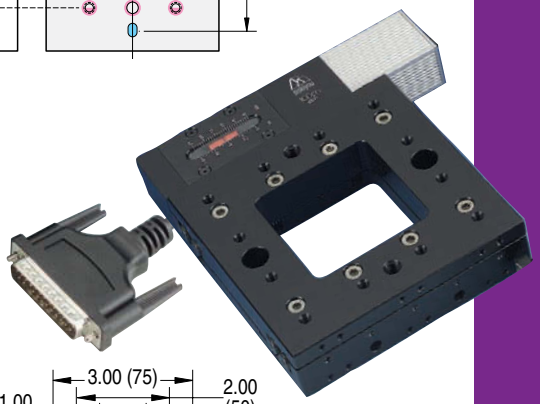
□ Top Plate ■ Bottom Plate Mounting Holes: 3/16 dia x 3/8 dowel pin holes ● / 1/4-20 (M6), ⏚ 0.51 ●, 0.26 ◐, 0.22 ◒ and Clearance ○
Note that dimensions in parentheses (mm) reflect metric assembly features.

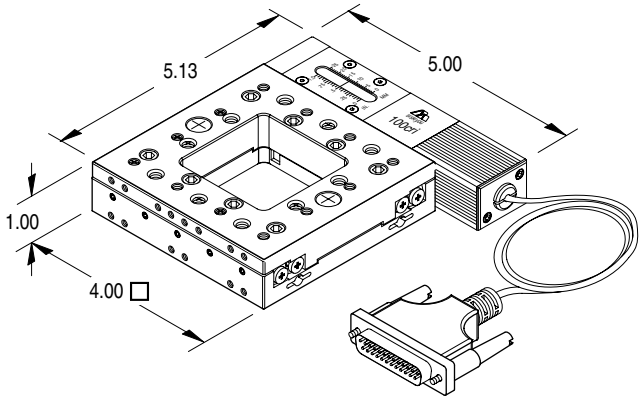


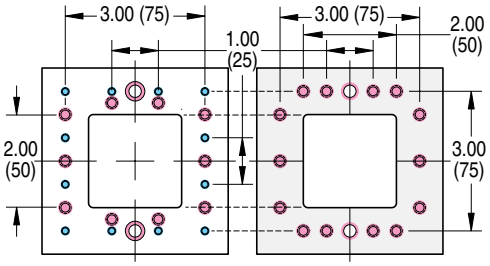


4"□ Table / 2"□ Aperture, 1" Travel / 100cri-AR and AL

□ Top Plate ■ Bottom Plate Mounting Holes: 8-32 (M4), ⏚ 0.24 ● / 1/4-20 (M6), ⏚ 0.23 ● and Clearance ○
Note that dimensions in parentheses (mm) reflect metric assembly features.

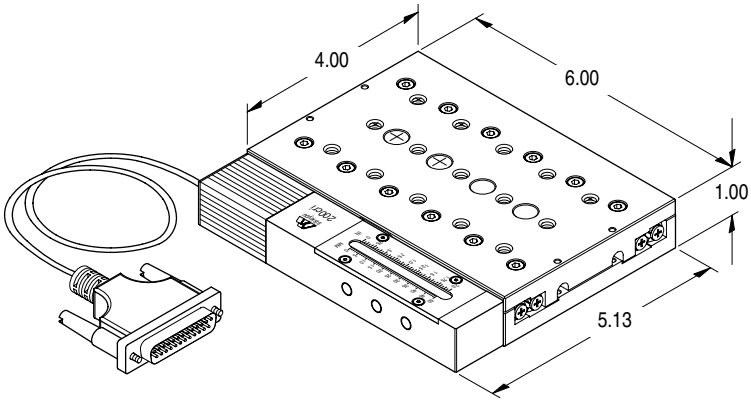


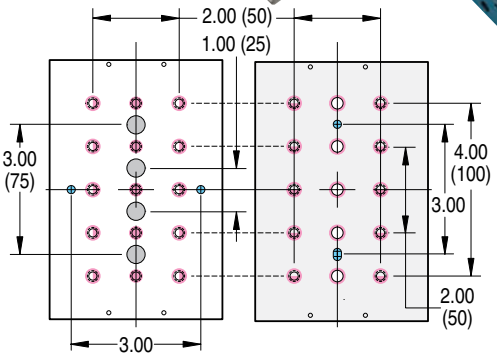




4" x 6" Table, 2" Travel / 200cri-R and L

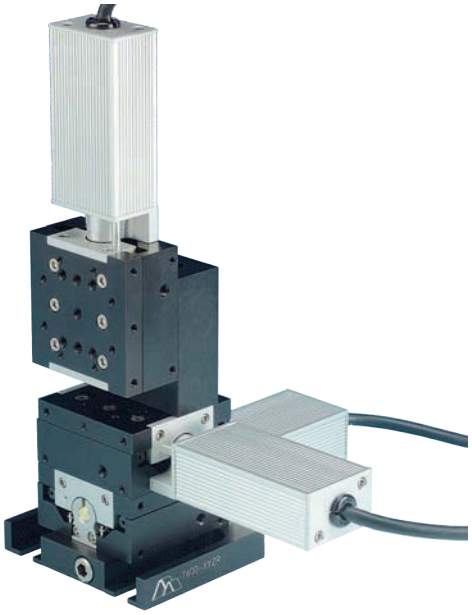
□ Top Plate ■ Bottom Plate Mounting Holes: 3/16 dia x 3/8 dowel pin holes ● / 1/4-20 (M6), ⏚ 0.51 ●, 0.26 ◐, 0.22 ◒ and Clearance ○
Note that dimensions in parentheses (mm) reflect metric assembly features.



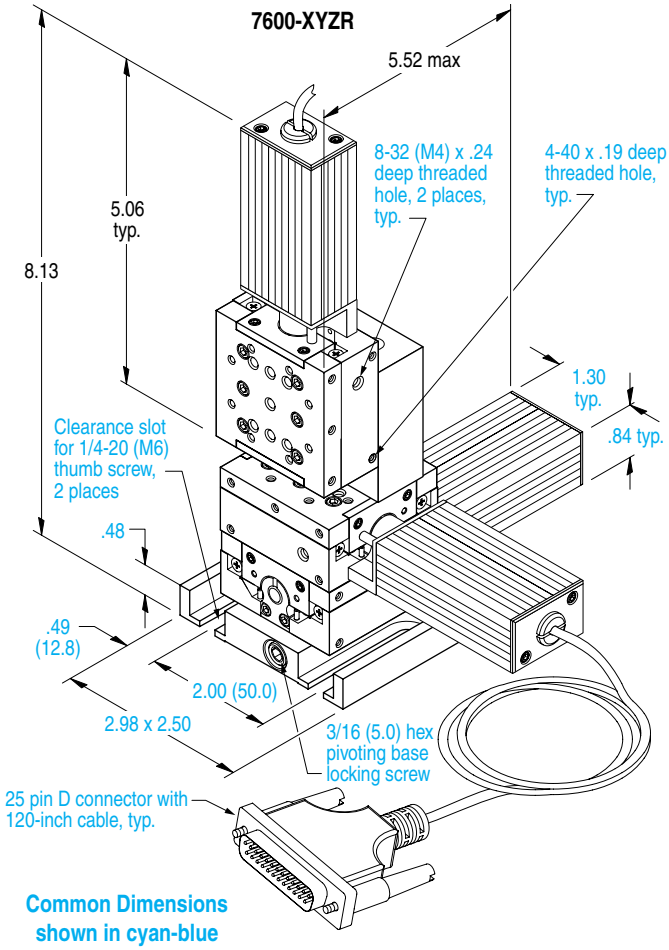


20mm XYZ Travel / 7600 Series

Note that dimensions in parentheses (mm) reflect metric assembly features



7600-XYZR



Product Features

- 1.7 mm/second rapid positioning
- Quiet running DC servo motors
- Rotatable mounting base
- Vacuum compatible versions available upon request

Performance Specifications

Maximum horizontal axis load	10 lbs
Maximum vertical axis load	4 lbs
Travel	20 mm
Backlash	≤ 5 µm
Point to point accuracy	± 2 µm

Related Products

model ***e*** motion controllers	beginning 22
MC2010 computer interface	27
DR1000 digital readout	31
manual version	50
MX-RS rotation base	122

Order Information

crossed roller single-axis stage, closed loop	7600-X
crossed roller 2-axis stage, closed loop	7600-XY
crossed roller vertical stage, closed loop	7600-Z
crossed roller 3-axis stage, closed loop, rh	7600-XYZR
crossed roller 3-axis stage, closed loop, lh	7600-XYZL

Metric Option — for metric assembly features on this product, add '-M' after model number.

Motorized XYZ Stages

The 7600 motorized crossed roller bearing translation stage offers exceptionally smooth linear travel. 7600 stages are an integrated version of our 1600 series crossed roller translation stage. They use a precision preloaded lead screw to ensure drift-free operation. High-speed versions available upon request.

Our ***e*** series and MC2010 controllers drive the stage through a closed loop interface between the controller and the motor encoder. The closed loop connection ensures 0.2 µm and 0.1 µm resolution, respectively. The encoder coupling also enables the use of the DR1000 digital readout for repeated or relative positioning requirements.

7600 series stages come standard with our ABP-R mounting plate. The design of this mounting plate enables coarse positioning between platform mounting holes as well as 360° of coarse rotational positioning. If rotation with a solid submicron level stop is required, the MX-RS rotation stage is designed to mount directly into the ABP-R and has mounting holes for all 1600 series stages.

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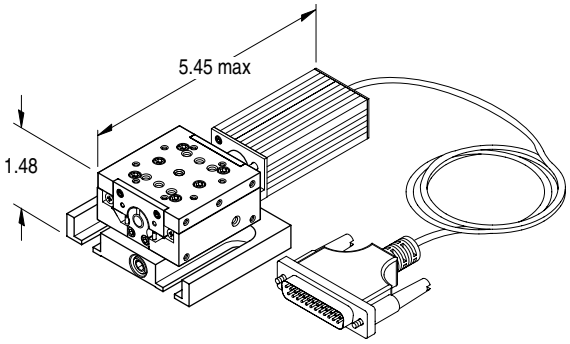
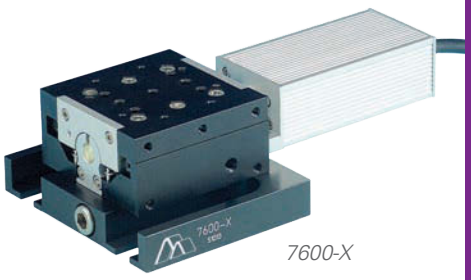
CE

Linear Motorized Crossed Roller Stages CE Certified

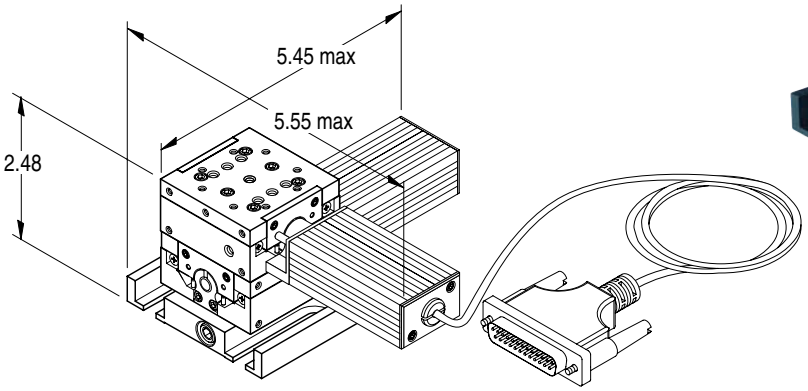
20mm XYZ Travel / 7600 Series

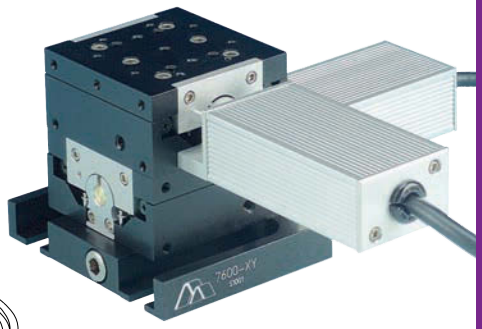
☐ Top Plate ■ Bottom Plate Mounting Holes: 8-32 (M4), ⧩ 0.22 ● 0.19 ● / 4-40 (M2.5), ⧩ 0.19 ● Clearance ○
Note that dimensions in parentheses (mm) reflect metric assembly features.



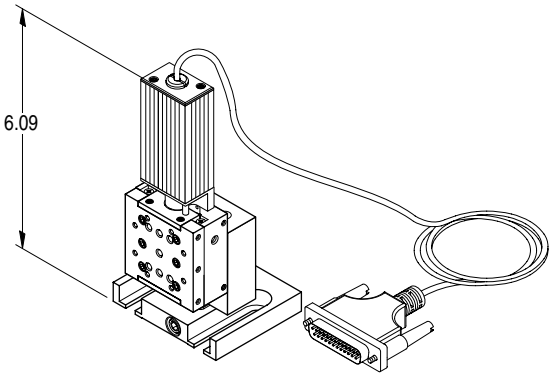


7600-X

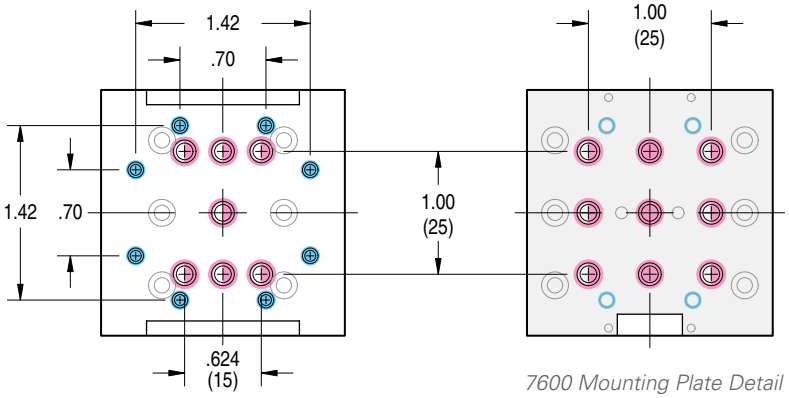




7600-XY



7600-Z



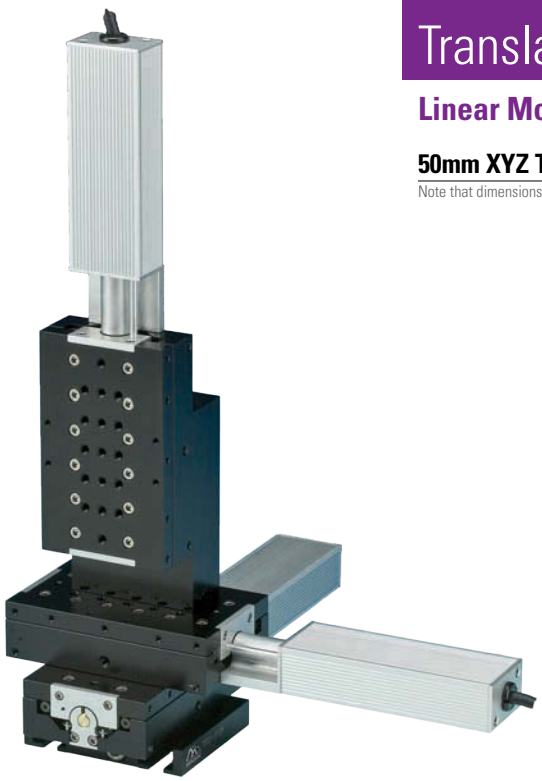
7600 Mounting Plate Detail

Translation Stages

Linear Motorized Crossed Roller Stages CE Certified

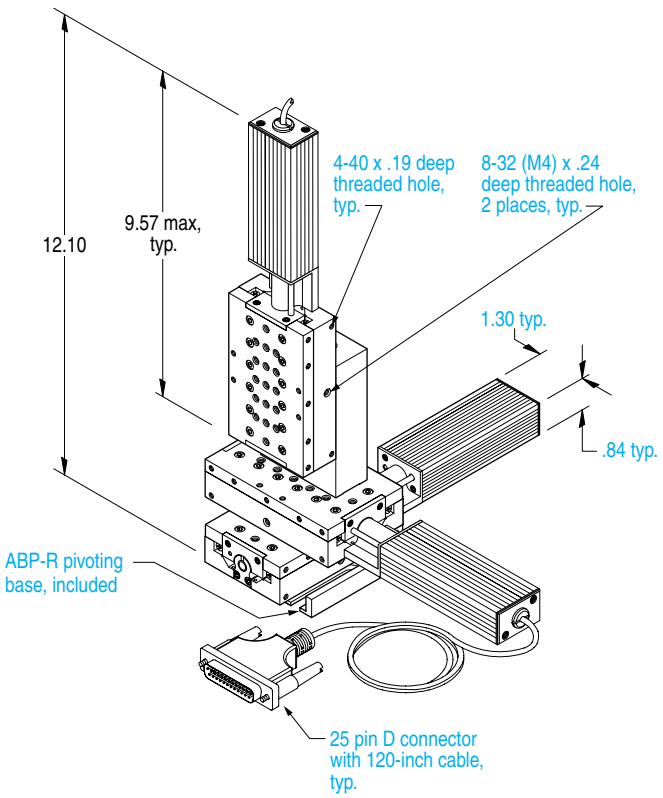
50mm XYZ Travel / 7700 Series

Note that dimensions in parentheses (mm) reflect metric assembly features



7700-XYZR

7700-XYZR



Common Dimensions shown in cyan-blue

Product Features

- 1.7 mm/second rapid positioning
- Quiet running DC servo motors
- Rotatable mounting base
- Vacuum compatible versions available upon request

Performance Specifications

Maximum horizontal axis load	10 lbs
Maximum vertical axis load	4 lbs
Travel	50 mm
Backlash	5 µm
Point to point accuracy	± 2 µm

Related Products

model ***e*** motion controllers	beginning 22
MC2010 computer interface	27
DR1000 digital readout	31
manual version	54
MX-RS rotation base	122

Order Information

crossed roller single-axis stage, closed loop	7700-X
crossed roller 2-axis stage, closed loop	7700-XY
crossed roller vertical stage, closed loop	7700-Z
crossed roller 3-axis stage, closed loop, rh	7700-XYZR
crossed roller 3-axis stage, closed loop, lh	7700-XYZL

Metric Option — for metric assembly features on this product, add '-M' after model number.

Motorized XYZ Stages

The 7700 motorized crossed roller bearing translation stage offers exceptionally smooth linear travel. 7700 stages are an integrated version of our 1700 series crossed roller translation stage. They use a precision preloaded lead screw to ensure drift-free operation. High-speed versions available upon request.

Our ***e*** series and MC2010 controllers drive the stage through a closed loop interface between the controller and the motor encoder. The closed loop connection ensures 0.2 µm and 0.1 µm resolution, respectively. The encoder coupling also enables the use of the DR1000 digital readout for repeated or relative positioning requirements.

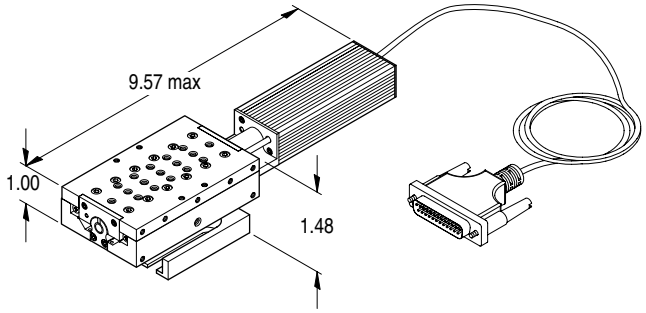
7700 series stages come standard with our ABP-R mounting plate. The design of this mounting plate enables coarse positioning between platform mounting holes as well as 360° of coarse rotational positioning. If rotation with a solid submicron level stop is required, the MX-RS rotation stage is designed to mount directly into the ABP-R and has mounting holes for all 1700 series stages.

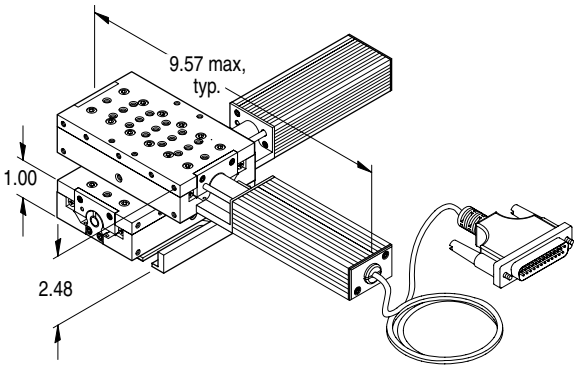
Translation Stages

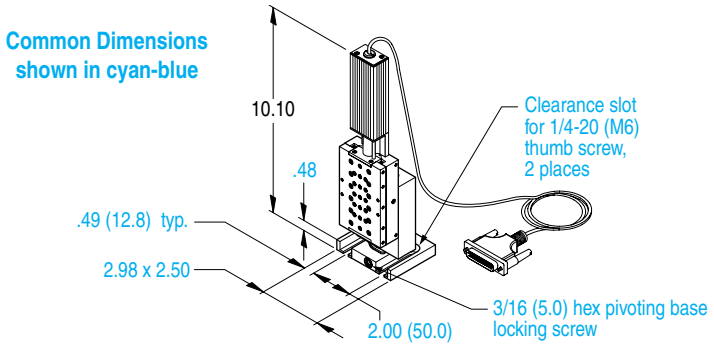
Linear Motorized Crossed Roller Stages CE Certified

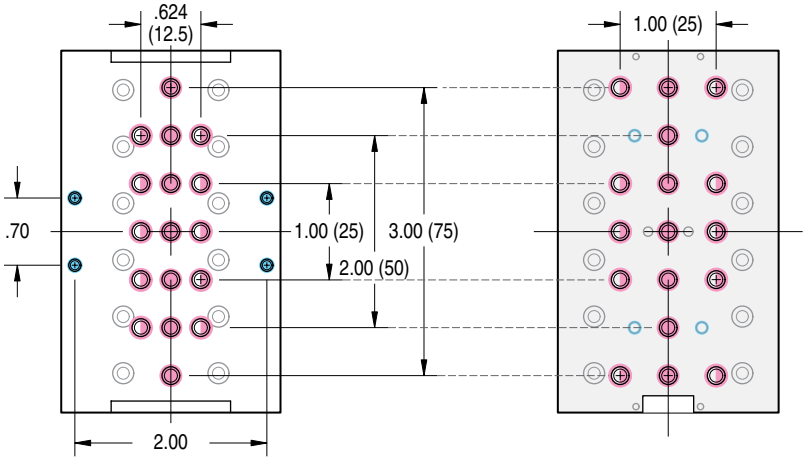
50mm XYZ Travel / 7700 Series

☐ Top Plate ■ Bottom Plate Mounting Holes: 8-32 (M4), ⊽ 0.21 ● 0.19 ◐ / 4-40 (M2.5), ⊽ 0.19 ● Clearance ○
Note that dimensions in parentheses (mm) reflect metric assembly features.



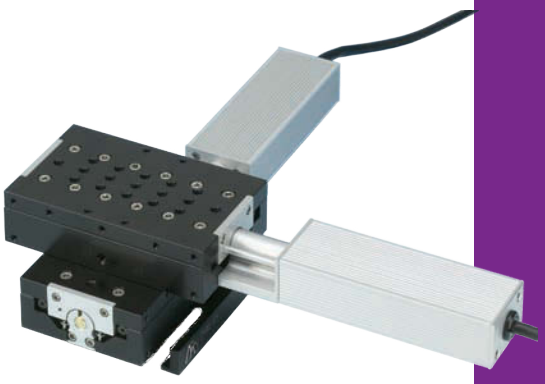






7700 Mounting Plate Detail

7700-X

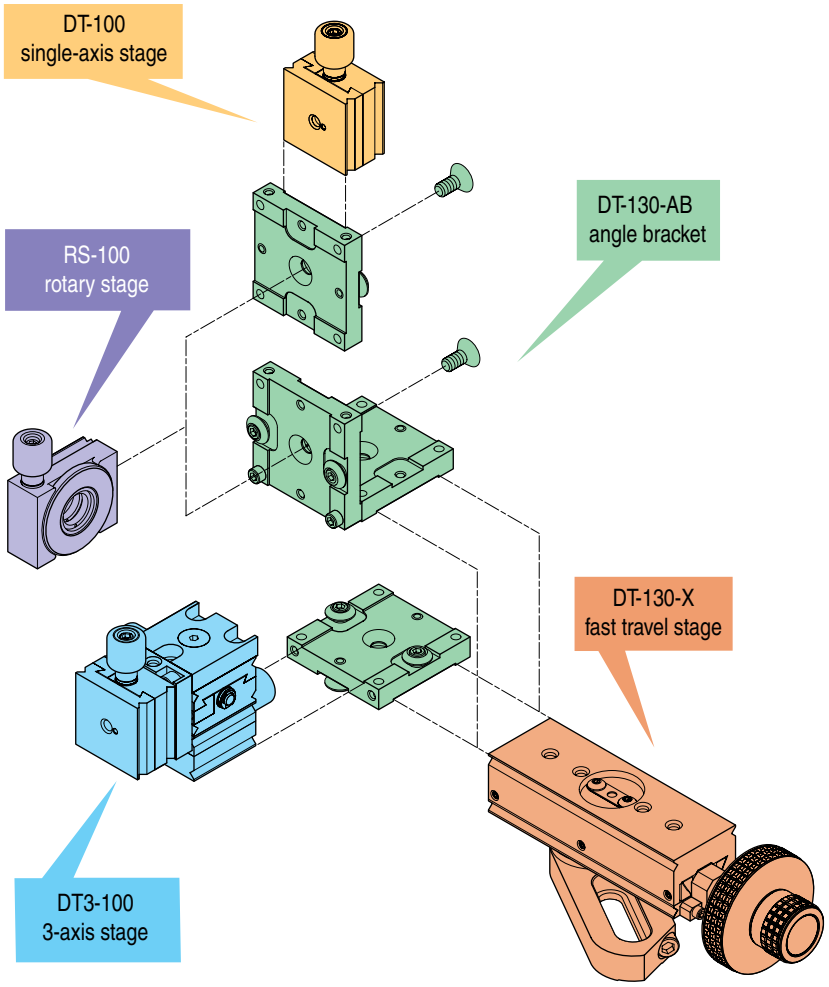


7700-XY

7700-Z

Applications

Various multi-axis configurations of our DT-100, DT-130 and RS-100 stages can be assembled with our DT-130-AB angle brackets.



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GENERAL MICROTECHNOLOGY & PHOTONICS

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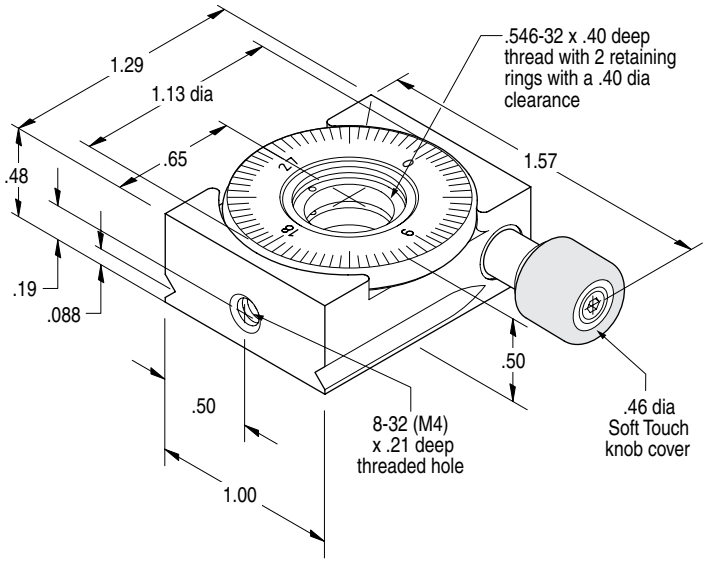
Rotary Manual — Ball Bearing

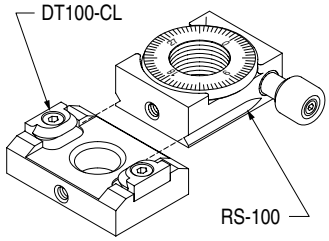
0.5-inch / RS-100

Note that dimensions in parentheses (mm) reflect metric assembly features



RS-100

Application



Manual Rotary Stage

The RS100's compact design and right angle drive are ideal for close coupled optic stacking.

0.5-inch polarizers, wave plates, and other small optics can be coarsely positioned using the external knurled dial through a full 360°. Final tuning is accomplished with the worm driven adjustment knob that is located conveniently on the side.

The RS100 rotation stage uses our unique integrated bearing design. This ball bearing design is a robust alternative to more expensive bearing packages. Our worm drive system, coupled with the bearing system, ensures smooth positioning throughout the 360° of rotation. The face of the dial is marked in 5° increments for easy referencing.

There are machined V-grooves on the sides of the RS-100 for mounting the DT100-CL. This mounting option enables either horizontal table mounting or vertical mounting with the option to remove the stage from the beam path to vary the experiment.

Product Features

- Coarse manual adjustment
- Fine adjustment through 360°
- Post or table mounting
- Vacuum compatible versions available upon request

Performance Specifications

Maximum load	
when axis of rotation is vertical	1 lb
when axis of rotation is horizontal	0.5 lb
Travel	360° continuous
Minimum controllable motion	30 arc min.

Related Products

motorized version	75
DT-100 series dovetail stage	40
DT100-CL dovetail clamp	40

Order Information

rotary stage, 0.5 inch, manual	RS-100

Metric Option — for metric assembly features on this product, add '-M' after model number.

Rotary Manual — Ball Bearing

1.0-inch & 2.0-inch / RSX and RSA

Note that dimensions in parentheses (mm) reflect metric assembly features

Rotary Stages

Rotary Stages

RS series rotation stages provide smooth, continuous angular positioning for a variety of components. Both sizes of RS series rotation stages use our unique integrated bearing design. This ball bearing design is a robust but cost- effective alternative to more expensive bearing packages. Our knurled drive system coupled with the bearing system ensures smooth positioning throughout the full 360° of continuous rotation.

The knurled edge of the rotating platform gives convenient coarse positioning control. A fine adjustment knob controls angular positioning through a 360° scale graduated in 2° increments. The rotating platform can be securely locked in position by a non-influencing lock that is integrated into the fine adjustment knob.

RS series rotation stages are available in two styles: aperture (RSA-1.0 and RSA-2.0) for polarization applications and solid platform (RSX-1.0 and RSX-2.0) for mounting prisms, mirrors, and stages. Aperture versions come with two Delrin® retaining rings to securely hold optics without damage. The solid platform versions have a 1/4-20 tapped hole at the center of rotation and all models have six 8-32 tapped holes for added mounting flexibility. For vertical mounting there are 8-32 (RSA-1.0 and RSX-1.0) and 1/4-20 (RSA-2.0 and RSX-2.0) tapped holes on the edge of the stage. Horizontal or table top mounting is accomplished through two 1/4-20 clearance holes at opposite corners of both sizes.

Product Features

- Coarse manual adjustment
- Fine adjustment through 360°
- Non-influencing lock
- Vacuum compatible versions available upon request

Performance Specifications

Travel	360° continuous
Maximum load	
when axis of rotation is vertical	
RSX-1.0	10 lbs
RSA-1.0	10 lbs
RSX-2.0	15 lbs
RSA-2.0	15 lbs
when axis of rotation is horizontal	
RSX-1.0	5 lbs
RSA-1.0	5 lbs
RSX-2.0	7 lbs
RSA-2.0	7 lbs
Minimum controllable motion	30 arc min.

Related Products

motorized version, 1-0 inch	76
motorized version, 2.0-inch	77

Order Information

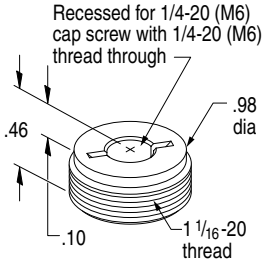
rotary platform stage, 1.0 inch	RSX-1.0
rotary aperture stage, 1.0 inch	RSA-1.0
rotary platform stage, 2.0 inch	RSX-2.0
rotary aperture stage, 2.0 inch	RSA-2.0
1 1/16-20 to 1/4-20 (M6) adapter	RS-1.0i

Metric Option — for metric assembly features on this product, add '-M' after model number.

Adapter for RSA-1.0

The RS-1.0i threaded adapter provides a change from a 1 1/16-20 internal thread to a 1/4-20 (M6) thread.

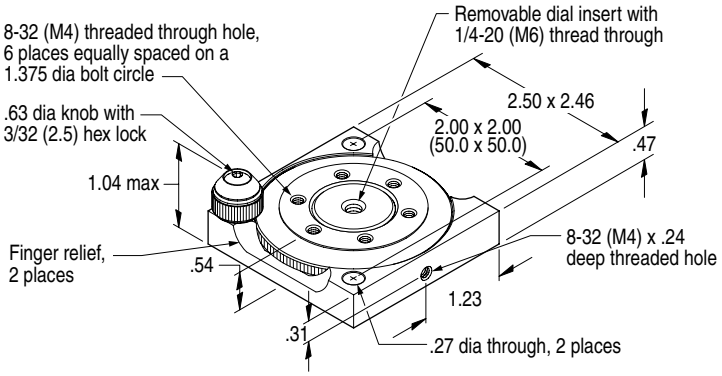
Also used on Model OG-1.0P series, polarizing gimbal mount, beginning on page 270.

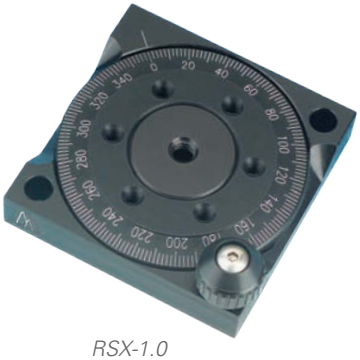


Rotary Manual — Ball Bearing

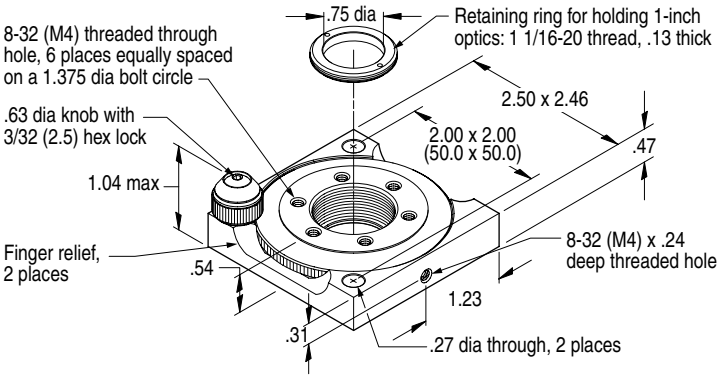
1.0-inch & 2.0-inch / RSX and RSA

Note that dimensions in parentheses (mm) reflect metric assembly features

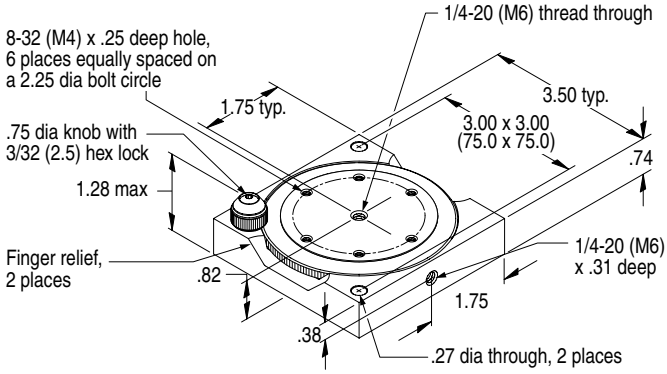


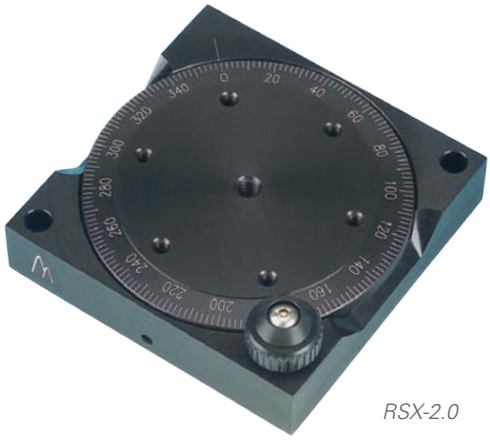


RSX-1.0

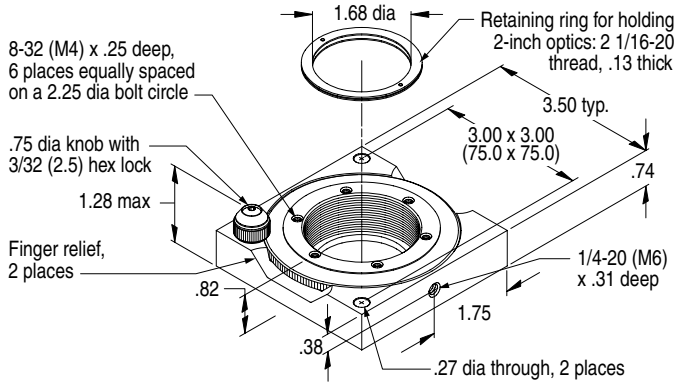


RSA-1.0





RSX-2.0

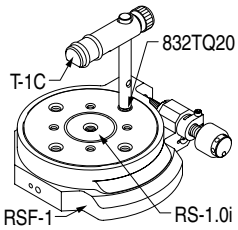


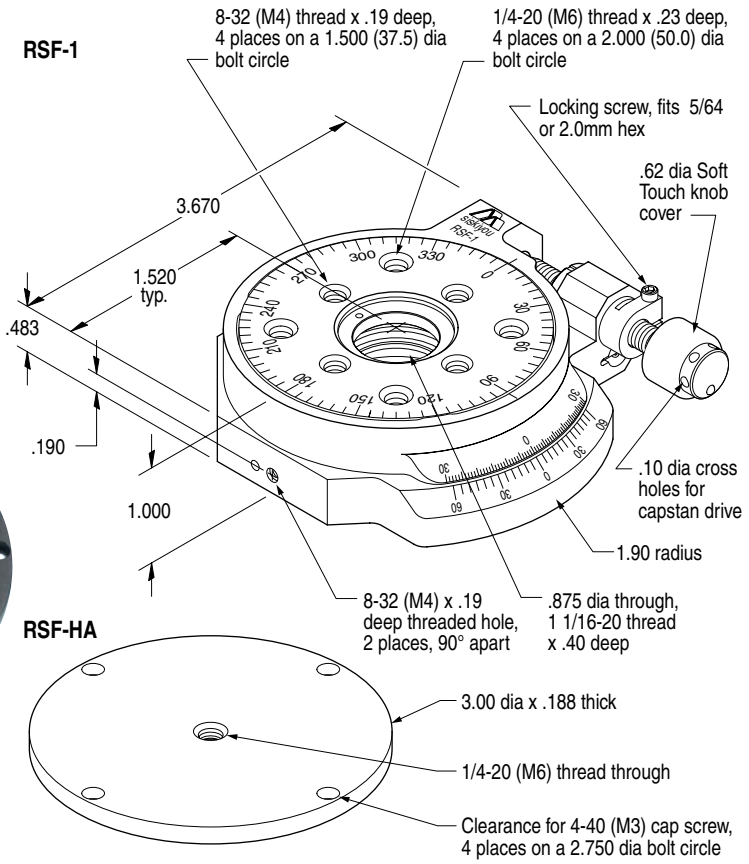
RSA-2.0

Rotary Manual — Ball Bearing

Polarizing Optics Positioner / RSF-1

Note that dimensions in parentheses (mm) reflect metric assembly features





Product Features

- 360° coarse manual adjustment
- ±10° fine adjustment
- Post or table mounting
- Vacuum compatible versions available upon request

Performance Specifications

Travel	
coarse	360° continuous
fine	± 10°
Maximum load	
when axis of rotation is vertical	10 lbs
when axis of rotation is horizontal	5 lbs
Minimum controllable motion	5 arc sec.

Related Products

T-1C prism table adapter	251
cube holders	304
RS-1.0i thread adapter	72
thread adapters	145

Order Information

rotation stage, 100TPI, manual adjustment	RSF-1
horizontal adapter plate with 4 screws (inset)	RSF-HA

Metric Option — for metric assembly features on this product, add '-M' after model number.

Rotation Stage

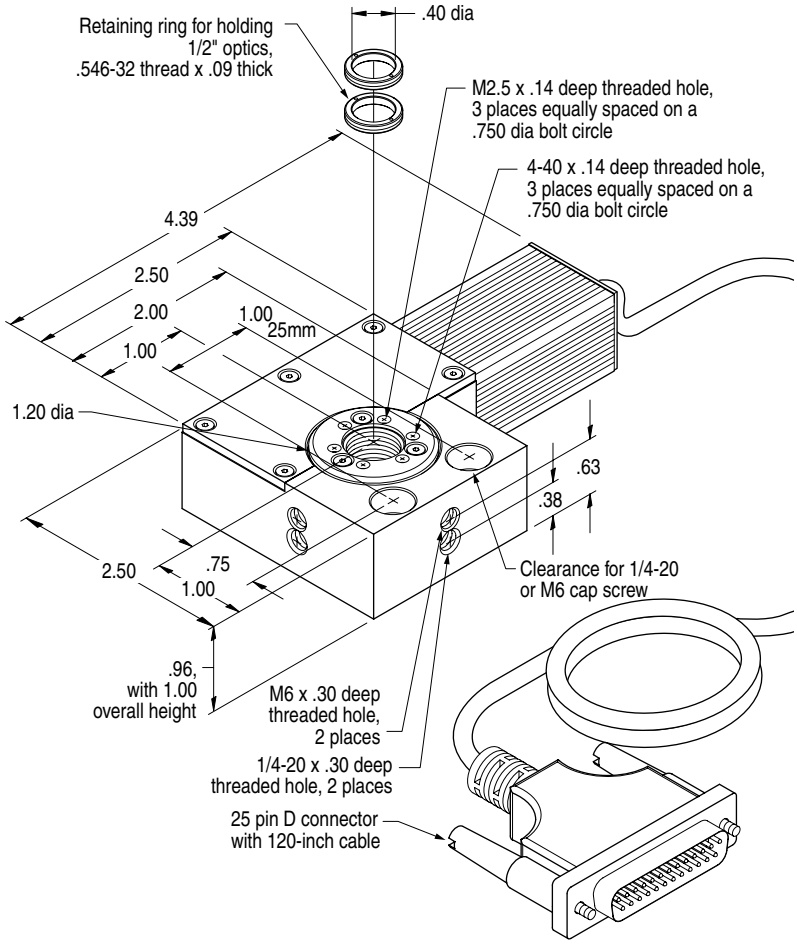
The RSF-1 is ideal for positioning 1.0 inch polarizing optics, or for rotating beamsplitters and prism cubes. This high precision ball bearing rotation stage combines 360° of coarse positioning with ±10° of manual adjustment using our 100TPI adjustment screw which enables 5 arc-minute resolution, 5 arc-second minimum controllable motion. For applications requiring hands-off adjustment the manual adjustment can be replaced with a 421 or 841 actuator for remote motorized positioning.

Mounting in the vertical (rotation along the optical axis) is achieved by attachment to one of the two 8-32 (M4) tapped holes on the perimeter. These attachment points put the adjustment screw in the vertical or horizontal plane. For horizontal applications (rotating beamsplitters and prism cubes perpendicular to the optical axis) the stage can also be mounted on our RSF-HA horizontal adapter.

The face of the RSF-1 includes four 8-32 (M4) and four 1/4-20 (M6) tapped holes for accommodating a wide variety of devices. The $1\frac{1}{16}$-20 I.D. thread (accommodates 1.0 inch optics) is supplied with two Delrin® retaining rings for securely holding delicate optics without damage.

Rotary Motorized **Ball Bearing** CE Certified

0.5-inch / RSA-0.5i



RSA-0.5i

Motorized Rotary Stage

The compact size and high performance of our RSA-5.0i motorized rotation stage make it ideal for motorized rotation applications in the laboratory as well as OEM systems. By employing our standard encoded DC servo motor, the overall thickness of the base is minimized to 1.0-inch [25-mm].

Standard mounting features include both 1⁄4-20 and M6 tapped holes on two edges for post or AS spacer mounting with the axis of rotation horizontal. Additionally, universal counterbores to fit imperial or metric spreads are included for attachment directly to a isolation table or platform with the axis of rotation vertical. The 0.5-inch inner diameter of the rotating dial accepts common 0.5-inch and 12-mm optics and is supplied with two Delrin® retaining rings. The dial has six tapped holes (3 each 4-40 and M2.5) on the face to attach other optical or mechanical elements.

The RSA-0.5i's compact design and right angle drive are ideal for close coupled optic stacking.

Product Features

- Compact size
- Quiet running DC servo motor
- Universal mounting
- Vacuum compatible and UV versions available upon request

Performance Specifications

Maximum load	
when axis of rotation is vertical	2 lbs
when axis of rotation is horizontal	0.5 lbs
Travel	360° continuous
Unidirectional repeatability	6 arc seconds
Backlash	100 arc seconds
Minimum controllable motion	6 arc seconds
Runout / wobble	530 arc seconds
Encoder counts per revolution	2,137,184
Maximum speed	10 rpm

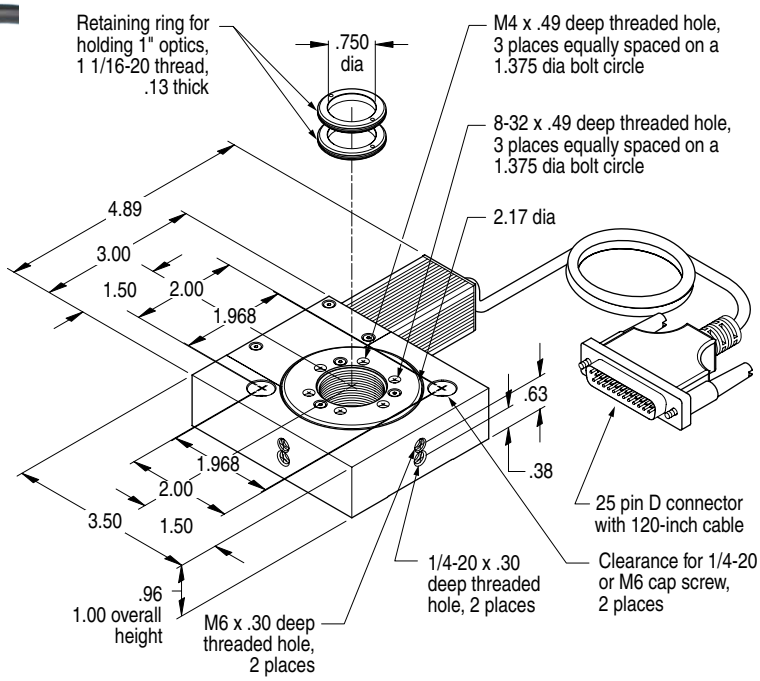
Related Products

MC1000e series motion controllers	beginning 22
MC2010 computer interface	27
RTC-A1, -A2, -A3 & -A4 adapters	132
manual version	71

Order Information

rotary stage, 0.5 inch, motorized	RSA-0.5i

RSA-1.0i



Product Features

- Quiet running DC servo motor
- Positive worm gear drive
- Flexible mounting features
- UV and Vacuum compatible versions available upon request

Performance Specifications

Maximum load	
when axis of rotation is vertical	8 lbs
when axis of rotation is horizontal	2 lbs
Travel	360° continuous
Unidirectional repeatability	6 arc seconds
Backlash	100 arc seconds
Minimum controllable motion	6 arc seconds
Runout / wobble	412 arc seconds
Encoder counts per revolution	3,885,740
Maximum speed	5 rpm

Related Products

MC1000e series motion controllers	beginning 22
MC2010 computer interface	27
manual version	72

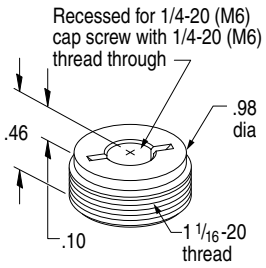
Order Information

motorized rotation stage, 1.0" aperture	RSA-1.0i
1 1/16-20 to 1/4-20 adapter	RS-1.0i
1 1/16-20 to M6 adapter	RS-1.0i-M

Adapter for RSA-1.0i

The RS-1.0i threaded adapter provides a change from a 1 1/16-20 internal thread to a 1/4-20 (M6) thread.

Also used on Model OG-1.0P series, polarizing gimbal mount, beginning on page 270.



Motorized Rotation Stage

The compact size and high performance of our RSA-1.0i motorized rotation stage make it ideal for motorized rotation applications in the laboratory as well as OEM systems. By employing our standard DC servo motor, the overall thickness of the base is minimized to 1.0-inch [25-mm]. Standard mounting features include both 1/4-20 and M6 tapped holes on two edges for post or AS spacer mounting with the axis of rotation horizontal. Additionally, universal slots (U.S. system and metric spread) are included for attachment directly to a isolation table or platform with the axis of rotation vertical. The 1.0-inch inner diameter of the rotating dial accepts common 1.0-inch and 25-mm optics and is supplied with two Delrin® retaining rings. The dial has six tapped holes (3 each 8-32 and M4) on the face to attach other optical or mechanical elements.

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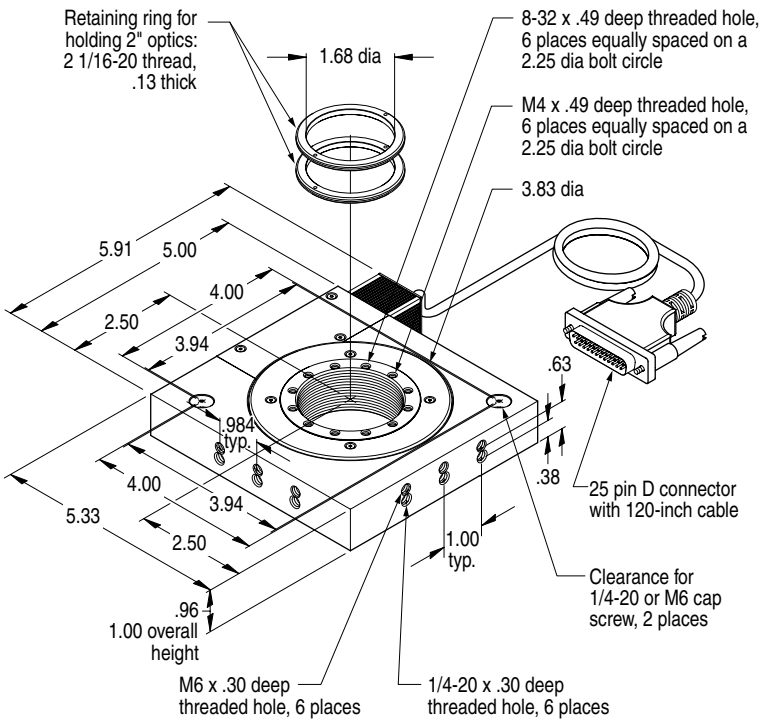
CE

Rotary Motorized | Ball Bearing | CE Certified

2.0-inch / RSA-2.0i



RSA-2.0i

Motorized Rotation Stage

The compact size and high performance of our RSA-2.0i motorized rotation stage make it ideal for motorized rotation applications in the laboratory as well as OEM systems. By employing our standard DC servo motor, the overall thickness of the base is minimized to 1.0-inch [25-mm].

Standard mounting features include both 1⁄4-20 and M6 tapped holes on two edges for post or AS spacer mounting with the axis of rotation horizontal. Additionally, universal slots (U.S. system and metric spread) are included for attachment directly to a isolation table or platform with the axis of rotation vertical. The 2.0-inch inner diameter of the rotating dial accepts common 2.0-inch and 50-mm optics and is supplied with two Delrin® retaining rings. The dial has twelve tapped holes (6 each 8-32 and M4) on the face to attach other optical or mechanical elements.

Product Features

- Quiet running DC servo motor
- Positive worm gear drive
- Flexible mounting features
- UV and Vacuum compatible versions available upon request

Performance Specifications

Maximum load	
when axis of rotation is vertical	12 lbs
when axis of rotation is horizontal	4 lbs
Travel	360° continuous
Unidirectional repeatability	10 arc seconds
Backlash	120 arc seconds
Minimum controllable motion	10 arc seconds
Runout / wobble	300 arc seconds
Encoder counts per revolution	6,994,345
Maximum speed	3 rpm

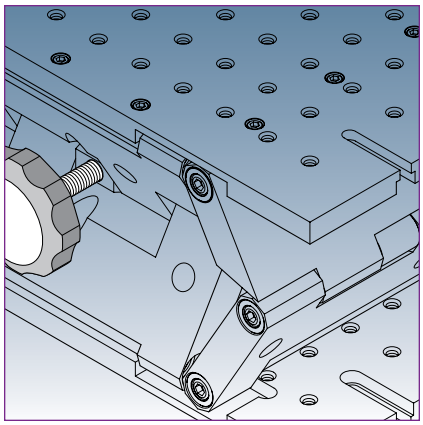
Related Products

MC1000e series motion controllers	beginning 22
MC2010 computer interface	27
manual version	72

Order Information

motorized rotation stage, 2.0" aperture	RSA-2.0i

Lab Jacks Manual



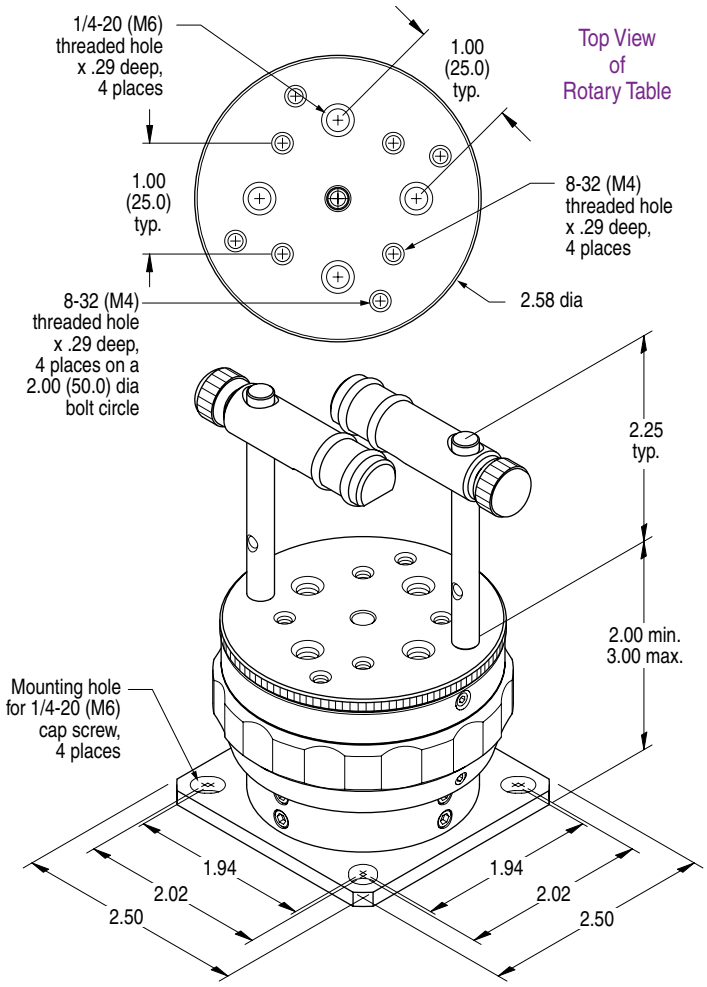
Lab jacks are useful tools for many laboratory or commercial applications. Generally used for positioning optical elements at the correct axis height, they are also used to position larger and heavier assemblies in similar applications. UV and vacuum compatible versions to $1x10^{-13}$ Torr are available upon request.

The RLJ-10 is a simple but effective "screw" design lab jack. The simple design has been improved by using tight-tolerance guide rods to minimize rotation of the upper platform during linear vertical translation. The upper platform has a built-in 360° rotation and is useful for positioning cube beamsplitters.

Our 540 and 560 manual lab jacks are built for high load applications and use solid aluminum construction to ensure long life under these loads. The unique "captured" pivot pin design and tight-tolerance machining guarantee minimal wobble and the best parallelism in the industry. The 540 is also available in a motorized DC servo motor driven model (page 81) and can be supplied with a stepper motor upon request.

Rotary, Compact / RLJ-1.0

Note that dimensions in parentheses (mm) reflect metric assembly features



RLJ-1.0

Rotary Lab Jack

The RLJ-1.0 is a compact vertical lab jack which includes a 360° rotating platform. Our unique vertical adjustment design virtually eliminates all backlash and provides a rock-solid, wobble-free platform at any height.

The notched adjustment ring provides non-rotating vertical travel over 1-inch (25-mm) with 0.01mm graduations. A recessed locking screw securely fixes the mount at the desired height to prevent inadvertent adjustments. The lockable, rotating platform has a knurled rim for coarse adjustment with graduations every 2° and is tapped with a wide array of 1/4-20 (M6) and 8-32 (M4) holes. Included with the RLJ-1.0 are two (2) T-1C prism table clamps. These clamps allow the user to mount prisms or beamsplitter cubes on the top of the rotating platform with ease and maximum clear aperture.

Product Features

- 360° rotating platform, lockable
- 2.0-inch (50-mm) minimum total height
- 1.0-inch (25-mm) travel range, lockable

Performance Specifications

Maximum static load	200 lbs
Maximum operational load	50 lbs
Rotational resolution	2°
Vertical resolution	10 µm
Parallelism over full travel	.001-inch (.5 milliradians)
Platform runout / wobble	.001-inch (.5 milliradians)

Related Products

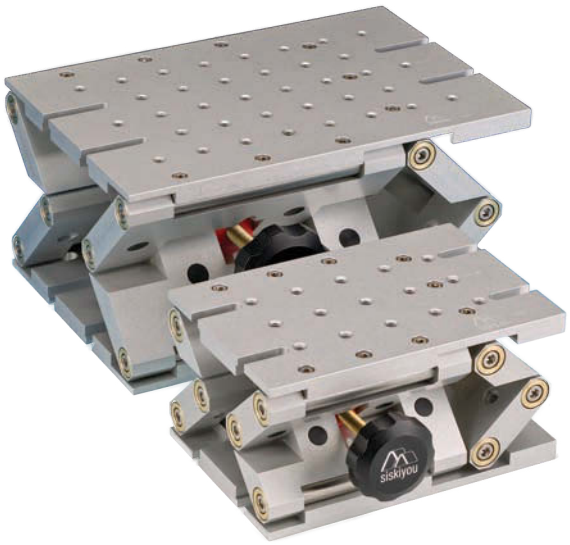
MPR series rods & accessories	136
DT-100 series dovetail slides	40
50.5cr series crossed roller stages	48

Order Information

lab jack, rotational platform, 1.0-inch (25-mm) travel	RLJ-1.0

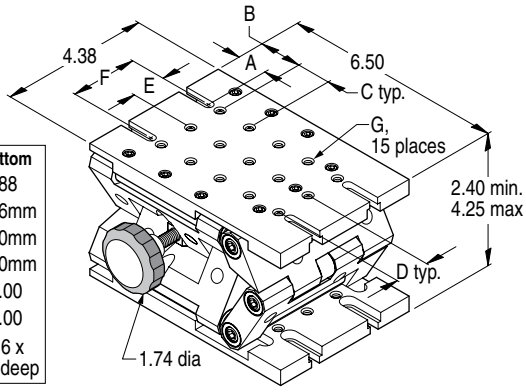
Metric Option — for metric assembly features on this product, add '-M' after model number.

Linear / 540 and 560



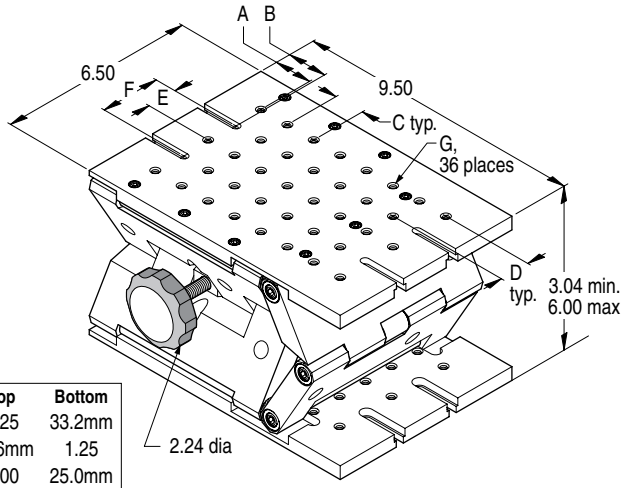
Model 540 and 560

Model 540



Dimension	Top	Bottom
A	22.2mm	.88
B	1.25	32.6mm
C	1.00	25.0mm
D	1.00	25.0mm
E	25.0mm	1.00
F	50.0mm	2.00
G thread	1/4-20 x .45 deep	M6 x .45 deep

Model 560



Dimension	Top	Bottom
A	1.25	33.2mm
B	33.6mm	1.25
C	1.00	25.0mm
D	1.00	25.0mm
E	25.0mm	1.00
F	50.0mm	2.00
G thread	1/4-20 x .45 deep	M6 x .45 deep

Product Features

- Two convenient sizes
- U.S. system and metric compatible
- Heavy load capacity

Performance Specifications

Minimum stack height	
540	2.40-inch [60.96-mm]
560	3.00-inch [76.20-mm]
Travel range	
540	1.85-inch [46.99-mm]
560	3.00-inch [76.20-mm]
Parallelism over full travel	
540	.006-inch [1 milliradian]
560	.009-inch [1 milliradian]
Maximum load over full travel	
540	60 lbs
560	80 lbs

Order Information

lab jack, 1.8-inch travel, manual	540
lab jack, 3.0-inch travel, manual	560

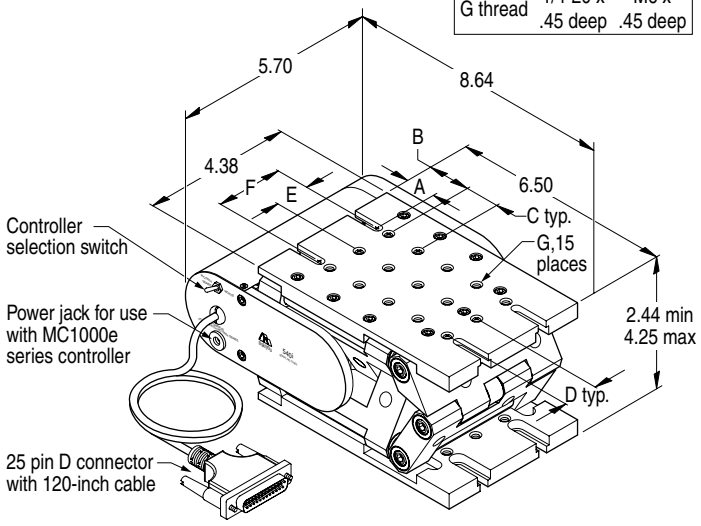
Manual Lab Jack

The 540 and 560 lab jacks incorporate a unique scissor design with low backlash pivots that make the platform virtually wobble-free at any location along the vertical travel. The large adjustment knob is attached to a rolled brass leadscrew to ensure smooth stiction-free adjustment even under heavy loads.

Both models use a unique concept of a single design for both U.S. system and metric compatibility. In one orientation, the top plate has an array of 1/4-20 tapped holes spaced on one-inch centers for the U.S. system; the bottom plate has slots set at two-inch centers for mounting to a U.S. system isolation table. With the lab jack turned over, the top plate now has an array of M6 tapped holes spaced on 25-mm centers for metric compatibility; the bottom plate now has slots set at 50-mm centers for mounting to a metric isolation table.

Model 540i

Dimension	Top	Bottom
A	22.2mm	.88
B	1.25	32.6mm
C	1.00	25.0mm
D	1.00	25.0mm
E	25.0mm	1.00
F	50.0mm	2.00
G thread	1/4-20 x .45 deep	M6 x .45 deep



Model 540i

Fully raised

Motorized Lab Jack

The 540i motorized lab jack incorporates common parts from our 540 lab jack and a powerful DC servo motor to produce a high load scissor jack design that is compatible with all of our closed loop controllers. A fully enclosed Gilmer belt drive, which ensures non-slip performance throughout the travel range, replaces the leadscrew knob drive on the manual 540 lab jack. Travel limit switches are used as end-of-travel stops to guarantee that no damage will be done to the motor, gearhead or mechanical train of the jack. When used with our MC1000e series controllers, the 540i uses a stand-alone power supply to drive the jack's DC servo motor. Alternatively, the MC2010's internal power supply has sufficient power to drive the 540i. A selector switch for the different controller configurations is located on the side of the lab jack.

For low-resolution OEM applications the 540i is available with either DC servo or stepper motors and may be controlled by either a keypad or foot switch. Please call for a quote 1-877-313-6418.

Product Features

- DC servo motor drive or optional stepper motor drive
- Quiet, smooth motion
- 40-lbs load capacity

Performance Specifications

Minimum stack height	2.44-inch [61.98-mm]
Travel range	1.81-inch [45.97-mm]
Parallelism over full travel	.005-inch [127-µm]
Maximum load capacity over full travel	40 lbs

Related Products

Model ***e*** motion controllers	beginning 22
MC2010 computer interface	27

Order Information

lab jack, 1.8-inch travel, motorized	540i

Micrometers / Actuators

TPI Adjustment Screw with SoftTouch™ knob cover installed on Model 331 Linear Stage

Since beginning in 1972, Siskiyou has produced over 1,500,000 precision adjustment assemblies. Manufacturing them with consistent high quality is an absolute requirement to maintain consistent tight tolerances and excellent feel. Siskiyou produces threaded adjusters in a range of 20 to 170 threads per inch. They are utilized in a vast range of applications, and are the foundation for many complex systems. They are figuratively the nuts and bolts that form the structure. Without a reliable way to adjust components, it would not be possible to obtain consistent performance from complex systems.

Our adjustment screws provide smooth and steady motion in coarse and ultrafine configurations. The design of our adjustment screws minimizes creep when no adjustments are being made. Tight manufacturing tolerances, along with hand-fitting of each assembly, ensures the best fit / greatest thread engagement in the industry.

Our 20, 40, 80, and 100TPI series adjustment screws are manufactured from precision rolled threaded stock, with an inherently smoother surface finish than machine-turned threads to minimize stiction. While thread wear is dependent on the application, the rolled thread design, incorporated with our solid brass collet, generally ensures life cycles of 80,000 or more. The collet is designed with an integral split clamp that enables the user to securely lock the device without damage to the precision thread.

The tip of the adjustment screw has been machined to accept a hard ball bearing (64 Rockwell) that is able to rotate in the end of the screw. This feature minimizes the amount of rotational torque transferred from the adjustment screw to the translation stage. Our new 170TPI adjustment screws have a resolution 4.25 times greater than a standard micrometer.

Our FAM series of fine adjustment micrometers use 100TPI threads for 2.5X the resolution of a standard micrometer. Like the rest of our adjustment Screws, they have an industry standard 3/8-inch (.375-inch) nose mount. All models of TPI adjustment screws are compatible with our 331 and 100cr/200cr/400cr linear stages. They come in three standard travel lengths: 0.5- inch [12mm], 1.0-inch [25mm] and 2.0-inch [50mm]. The circumference of the adjustment knob is graduated in .0002-inch [5-µm] increments for precise positioning.

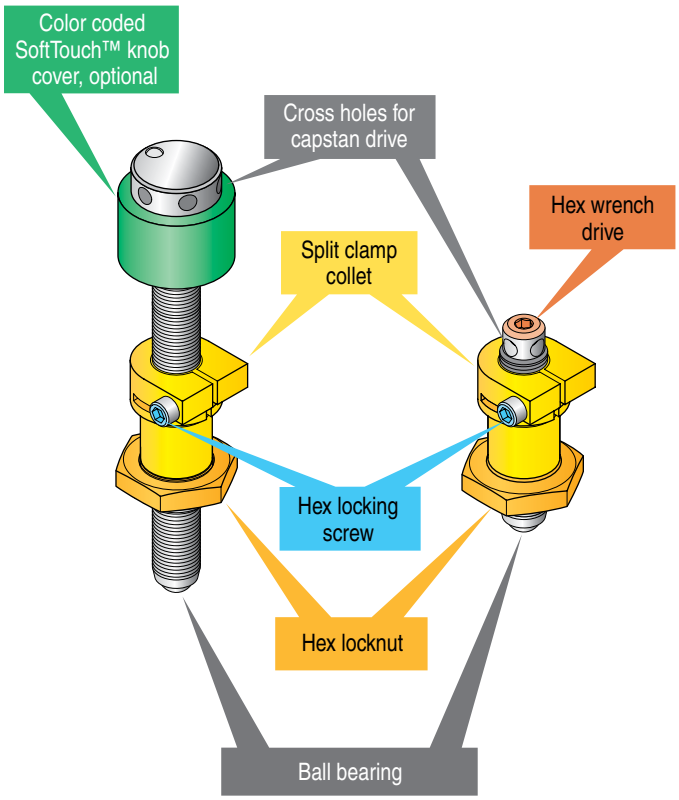
STC SoftTouch™ color coding covers

Four colors of SoftTouch™ knob caps are available for axis color coding of TPI series adjustment screws.

Order Information

SoftTouch™ caps 0.46 diameter (4-pack)	
Red	STC-R.4
Green	STC-GN.4
Yellow	STC-Y.4
Gray	STC-GR.4
assortment, one of each color	STC-A.4
SoftTouch™ caps 0.62 diameter (4-pack)	
Red	STC-R.6
Green	STC-GN.6
Yellow	STC-Y.6
Gray	STC-GR.6
assortment, one of each color	STC-A.6

The FAM series uses our precision 100TPI adjustment screws for sub-micron resolution.



Micrometers / Actuators

Micrometer Adjustment Screws

1/4" Diameter Bushing
Standard 84
Differential 84

TPI Adjustment Screws

1/4" Diameter Bushing
SoftTouch™ 86
Hex Drive 86

3/8" Diameter Bushing
SoftTouch™ 88
Hex Drive 88

Motorized

0.5", 1.0" and 2.0" Travel 90
5-mm and 8-mm Travel 91
12-mm and 25-mm Travel 91
1.0" and 2.0" Travel 93

Product Features

- Six pitches provide coarse to ultrafine resolution
- Standard or miniature screw sizes
- Knob/capstan or hex socket drive
- Color coding available
- Locks on all models

Performance Specifications

Minimum controllable motion	
20TPI	20 µm
40TPI	10 µm
80TPI	submicron
100TPI	submicron
127TPI	submicron
170TPI	submicron

Siskiyou's TPI adjustment screws incorporate our *one wrench* design that uses an industry standard 5/64 (2mm metric) hex wrench for locking, capstan adjustment and hex drive. The unique collet design incorporates a split clamp for presetting the feel of the adjustment screw as well as locking the screw movement. If the location of the locking screw is not desirable, simply back it out and replace in the opposite side.

Our TPI adjustment screws are available in 20, 40, 80, 100, 127 and a new 170 TPI version (found on page 130). The 40TPI series is a economical alternative to standard micrometers, when read-out location is not required. The new 170TPI versions produce resolution of 150µm/revolution, allowing manual sub-micron incremental motion without a differential thread.

TPI adjustment screws, except hex versions, come standard with black SoftTouch™ knob caps. For axis color coding, red, green, yellow and gray knob caps are available at no extra charge. To order, add: -R (red), -GN (green), -Y (yellow), or -GR (gray) to the end of the Model Number.

All models of TPI adjustment screws are compatible with our 331 and 100cr/200cr/400cr stages.

Micrometers / Actuators

Micrometer Adjustment Screws

Installed on
Model 100cr Stage

Siskiyou SM and micrometers use our 100 TPI (threads-per-inch) adjustment screws for submicron resolution. They are designed to fit 0.25" diameter shaft mounts, and are available in 0.5" and 1.0" travel versions, with 0.01" travel per revolution. Adjustment barrels are laser marked every 0.0005" / 10 microns. The SDM differential version uses a combination of our precision adjusters to provide 0.020" / 500 microns of fine adjustment, with precision of 20 microns per turn. The tip of the adjustment screw has been machined to accept a hard ball bearing (64 Rockwell) that is able to rotate in the end of the screw. This feature minimizes the amount of rotational torque transferred from the adjustment screw to the translation stage.

The coarse travel of the 0.25" and 0.5" versions can be locked — there's an easily visible scale for rough indication of coarse travel.
Siskiyou FAM series micrometers use the same 100 TPI adjustment screws as the SM series. The large diameter adjustment knob improves leverage and resolution, even with loads up to 100 pounds. The larger barrel allows laser marks every 0.0002" / 5 microns. They are available in 0.5", 1" and 2" travel version.

FDM differential versions use a combination of our precision adjusters to provide 0.030" / 762 microns of fine adjustment, with precision of 20 microns per turn. A large diameter coarse adjustment knob provides the leverage and resolution necessary to move loads up to 70 pounds. The tip of the adjuster does not rotate, to avoid placing rotational torque on sensitive loads. Laser marked graduations indicate every micron, for true sub-micron motion in a manual actuator. The 1.0" coarse travel can be locked, and also has scale for rough indication of coarse travel.

Product Features

- 1/4 and 3/8 inch collet mounts
- Standard and differential actuation
- Large adjustment knobs

Performance Specifications

See table at right for detailed specifications

Related Products

1/4 inch collet
- linear stage 50.5cr series 48
- linear stage 100.5cr series 48
- linear stage 150.5cr series 48

3/8 inch collet
- 331 stage 46
- 100cr stage 52
- 200cr stage 57

Performance Specifications

	1/4 Inch Collet		3/8 Inch Collet	
Series	SM	SDM	FAM	FDM
Travel, coarse	0.5, 1.0	0.25, 0.50	0.5, 1.0, 2.0	1.0
Travel, fine	—	.02 [508µm]	—	0.03 [762µm]
Resolution, coarse	0.0005 [12.7µm]	0.05 / 1mm	0.0002 [5µm]	0.05 / 1mm
Resolution, fine	—	1µm	—	1µm
Axial load[1]	40	40	100	70

1. Measured in pounds Lbs.

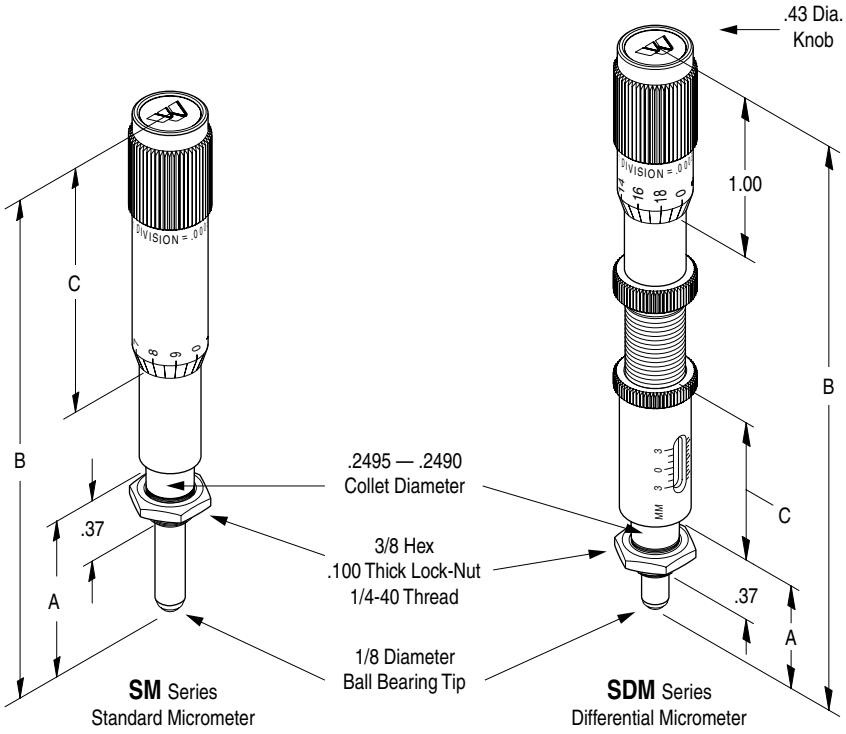
Order Information

	1/4 Inch Collet		3/8 Inch Collet	
Series	SM	SDM	FAM	FDM
Travel	Standard	Differential	Standard	Differential
0.25	—	SDM-0.25	—	—
0.50	SM-0.5	SDM-0.5	FAM-0.5	—
1.00	SM-1.0	—	FAM-1.0	FDM-1
2.00	—	—	FAM-2.0	—

Micrometer Adjustment Screws

1/4" Diameter Collet Standard SM and Differential SDM Micrometers

Drawings and CAD models available on our website.



SDM Series

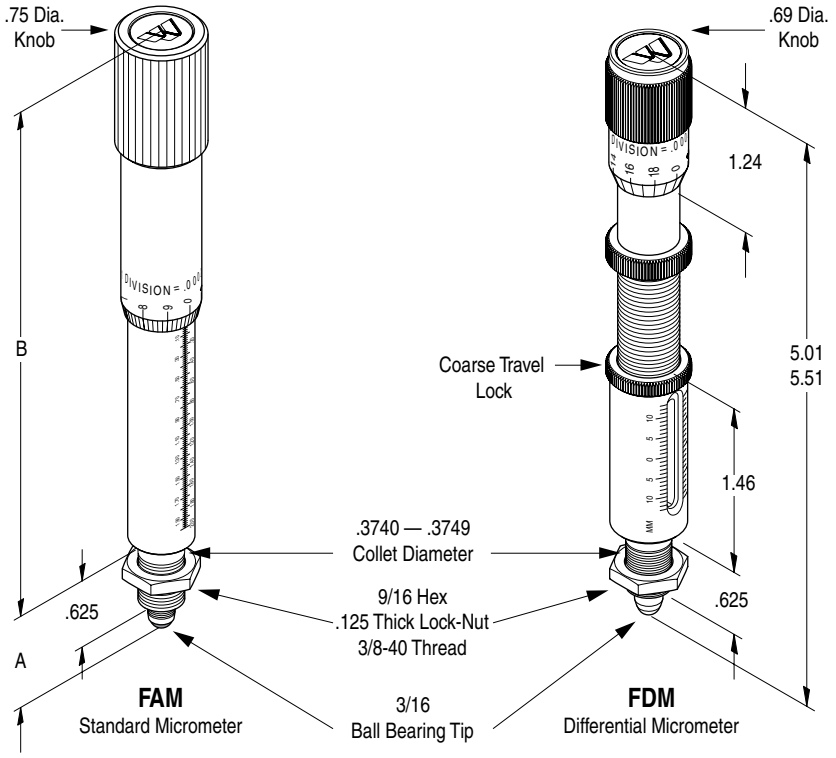
SM Series

Series	Travel	A [1]	B [2]	C
SM	0.50	.375	2.137	1.06
	1.00	.375	3.137	1.56
SDM	0.25	.494	2.956	.57
	0.50	.630	3.541	.77

1. Minimum 2. Maximum

3/8" Diameter Collet Standard FAM and Differential FDM Micrometers

Drawings and CAD models available on our website.



FAM Series

Series	Travel	A [1]	B [2]
FAM	0.50	.68	1.97
	1.00	.88	2.97
	2.00	.88	4.97

1. Minimum 2. Maximum

Series	Coarse Travel	Fine Travel
FDM	1.00	.030

Micrometers / Actuators

TPI Adjustment Screws

1/4" Collet with 80 or 100 Threads

SoftTouch™ and Hex Drive TPI Adjustment Screws

TPI Series

Siskiyou's 1/4-inch collet TPI series adjustment screws are ideal for OEM and custom applications, and are miniature versions of our 3/8-inch collet adjustment screws (see page 89). They feature single-wrench-size adjustment and locking screw hex drives. The brass collet includes a built-in travel-lock mechanism to reliably hold device positioning.

TPI series fine and ultrafine adjustment screws are available with 80 and 100 threads-per-inch pitches, producing industry leading resolutions — a cost-effective alternative to standard micrometers, where position read-out is not a requirement. Adjustment screw contact tips are fitted with a hardened ball bearing for exceptionally smooth adjustment.

With the exception of our hex drive units, standard TPI adjustment screws are fitted with 'black' SoftTouch™ drive-knob caps by default. Four (4) additional (interchangeable) color caps are available for user-defined, axis color coding. Factory installed red, green, yellow and/or gray color caps are available on request, and at no extra charge. To order custom color coded SoftTouch™ TPI screws simply add the following modifier codes: -R (red), -GN (green), -Y (yellow), or -GR (gray) to the end of the a model number.

Product Features

- 80 and 100 thread pitch
- Fits 1/4-inch collet diameter products
- Integrated travel lock
- SoftTouch™ or hex drive actuators
- Vacuum compatible versions available

Performance Specifications

See table at right for detailed specifications

Related Products

linear stage, 50.5cr series	48
linear stage, 100.5cr series	48
linear stage, 150.5cr series	48

Order Information		Model
caps, 0.46 diameter SoftTouch™		
Red	4-pack	STC-R.4
Green	4-pack	STC-GN.4
Yellow	4-pack	STC-Y.4
Gray	4-pack	STC-GR.4
assorted	4-pack, one of each color	STC-A.4

Performance Specifications

Thread Pitch	80	100
Travel [1]	318	254
Sensitivity [2]	sub-µ	sub-µ
Axial load [3]	40	40

1. Measured in µm/revolution 2. Measured in µm, Sensitivity is the minimum controllable motion 3. Measured in pounds Lbs.

Order Information

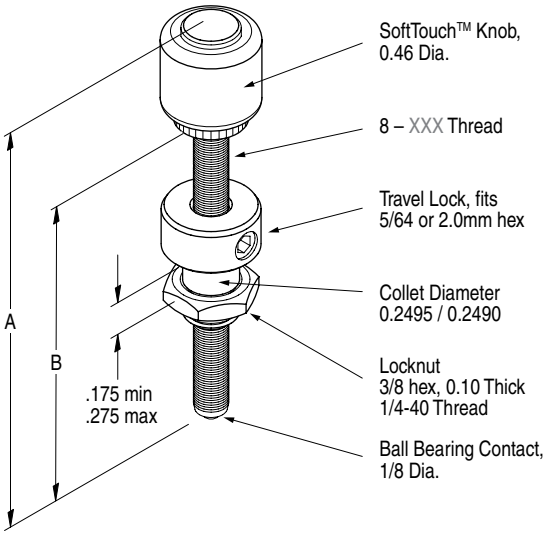
Thread Pitch	80	100
Travel	**SoftTouch™ Drive**	
0.50	8-80TPI-0.5	8-100TPI-0.5
1.00	8-80TPI-1.0	8-100TPI-1.0
Travel	**Hex Drive Standard**	
0.25	8-80TPI-0.2H	8-100TPI-0.2H
0.50	8-80TPI-0.5H	8-100TPI-0.5H

TPI Adjustment Screws

1/4" Collet with 80 or 100 Threads

SoftTouch™ Drive, 1/4" Diameter Collet

Drawings and CAD models available on our website.

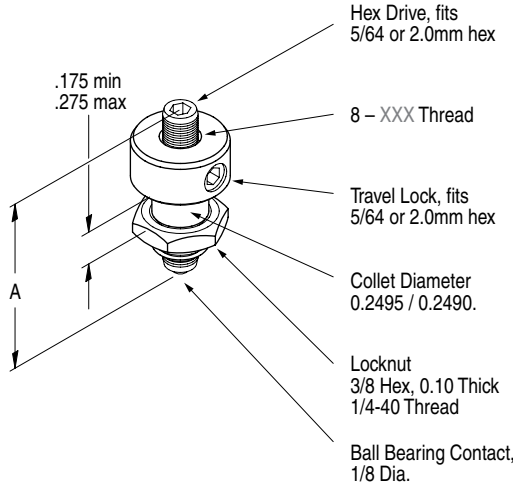


Travel	A	B
0.50	1.60	1.10
1.00	2.10	1.60

Hex Drive, 1/4" Diameter Collet Standard

Drawings and CAD models available on our website.

Standard Screw

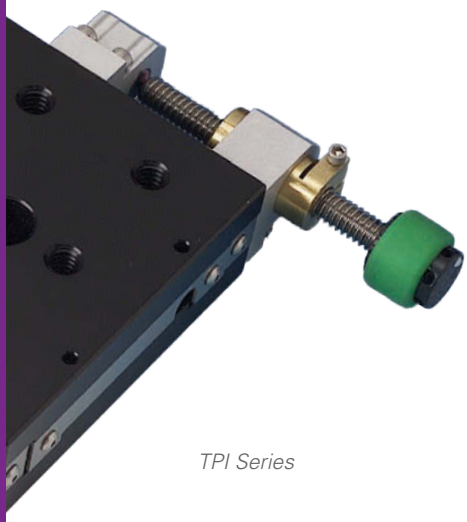


Travel	A	B
0.25	0.86	–
0.50	1.10	–

Micrometers / Actuators

TPI Adjustment Screws 3/8" Collet with 20, 40, 80, 100, 127 or 170 Threads

SoftTouch™ and Hex Drive TPI Adjustment Screws



TPI Series

Siskiyou TPI series adjustment screws are ideal for OEM and custom applications. They feature our single-wrench-size adjustment for capstan and hex drives, and locking screw. The unique collet design incorporates a split-clamp mechanism used to preset adjustment screw tension, as well as locking screw movement. If the location of the locking screw is not ideal, it can be backed out and inserted from the opposite side. TPI series coarse, fine and ultrafine adjustment screws are available in 20, 40, 80, 100, 127 and 170 threads-per-inch pitches.

The tip of the adjustment screw has been machined to accept a hard ball bearing (64 Rockwell) that is able to rotate in the end of the screw. This feature minimizes the amount of rotational torque transferred from the adjustment screw to the translation stage. The 170TPI's thread pitch has over 3 times the resolution of a standard micrometer, but does not include a location scale on the barrel.

Standard TPI adjustment screws (except for hex drive versions) are fitted with 'black' SoftTouch™ knob caps by default. Four (4) additional (inter-changeable) color caps are available for, user-defined, axis color coding. Factory installed red, green, yellow and/or gray color caps are available on request, and at no extra charge. To order custom color coded Soft-Touch™ TPI screws simply add the following modifier codes: -R (red), -GN (green), -Y (yellow), or -GR (gray) to the end of the a model number

Product Features

- 20, 40, 80, 100, 127 and 170 thread pitch
- Fits 3/8-inch collet diameter products
- Split-clamp lock
- SoftTouch™ or hex drive actuators
- Vacuum compatible versions available

Performance Specifications

See table at right for detailed specifications

Related Products

linear stage, 331 series	46
linear stage, 100cr series	52
linear stage, 100cr-A series	53
linear stage, HL-XY series	56
linear stage, 200cr series	57

Order Information		Model
caps, 0.62 diameter SoftTouch™		
Red	4-pack	STC-R.6
Green	4-pack	STC-GN.6
Yellow	4-pack	STC-Y.6
Gray	4-pack	STC-GR.6
assorted	4-pack, one of each color	STC-A.6

Performance Specifications

Thread Pitch	20	40	80	100	127	170
Travel [1]	1270	635	318	254	200	150
Sensitivity [2]	20	10	sub-µ	sub-µ	sub-µ	sub-µ
Axial load [3]	100	100	100	100	50	50

1. Measured in µm/revolution 2. Measured in µm, Sensitivity is the minimum controllable motion 3. Measured in pounds Lbs.

Order Information

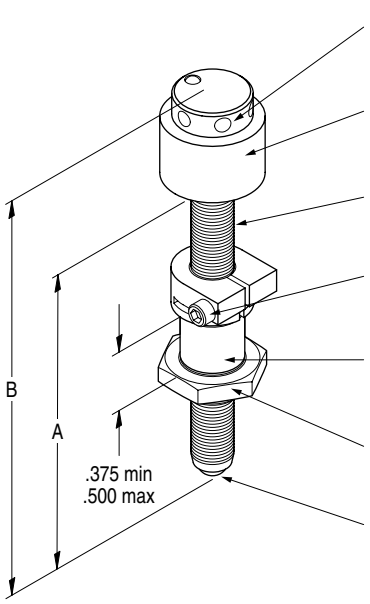
Thread Pitch	20	40	80	100	127	170
Travel	**SoftTouch™ Drive**					
0.50	20TPI-0.5	40TPI-0.5	80TPI-0.5	100TPI-0.5	127TPI-0.5	—
1.00	20TPI-1.0	40TPI-1.0	80TPI-1.0	100TPI-1.0	—	—
2.00	20TPI-2.0	40TPI-2.0	80TPI-2.0	100TPI-2.0	—	—
4.00	20TPI-4.0	40TPI-4.0	80TPI-4.0	100TPI-4.0	—	—
Travel	**Hex Drive Standard / Hex Drive Differential**					
0.25	20TPI-0.2H	40TPI-0.2H	80TPI-0.2H	100TPI-0.2H	127TPI-0.2H	170TPI-0.2H
0.50	20TPI-0.5H	40TPI-0.5H	80TPI-0.5H	100TPI-0.5H	—	170TPI-0.5H
0.50 [4]	—	—	—	100TPI-0.5d	—	—
1.00	20TPI-1.0H	40TPI-1.0H	80TPI-1.0H	100TPI-1.0H	—	—

4. Differential screw has 0.50 Coarse, and 0.03 Fine Travel; max. Axial load 70 Lbs.

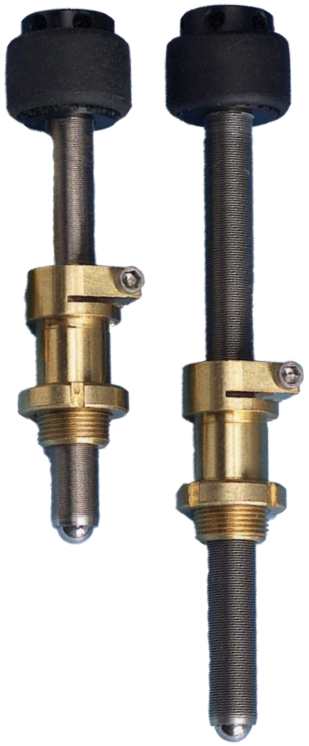
TPI Adjustment Screws 3/8" Collet with 20, 40, 80, 100, 127 or 170 Threads

SoftTouch™ Drive, 3/8" Diameter Collet

Drawings and CAD models available on our website.



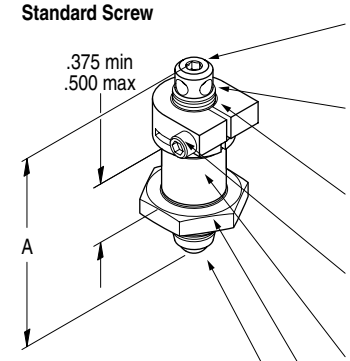
Travel	A	B
0.50	1.46	2.00
1.00	2.13	2.66
2.00	3.13	3.66
4.00	5.25	5.79



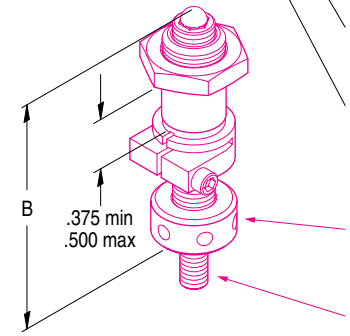
Hex Drive, 3/8" Diameter Collet Standard and Differential

Drawings and CAD models available on our website.

Standard Screw



Differential Screw



Hex Drive, fits
5/64 or 2.0mm hex
Capstan Drive,
with 0.10 Dia Holes
1/4-XXX Thread
Travel Lock, fits
5/64 or 2.0mm Hex
Collet Diameter
0.3749 / 0.3740
Locknut
9/16 Hex x 0.125 Thick
3/8-40 Thread
Ball Bearing Contact,
3/16 Dia.
1/8 Dia. on 20TPI
Capstan Drive
0.50 Dia. / 0.09 Dia.
Holes
8-80 Thread

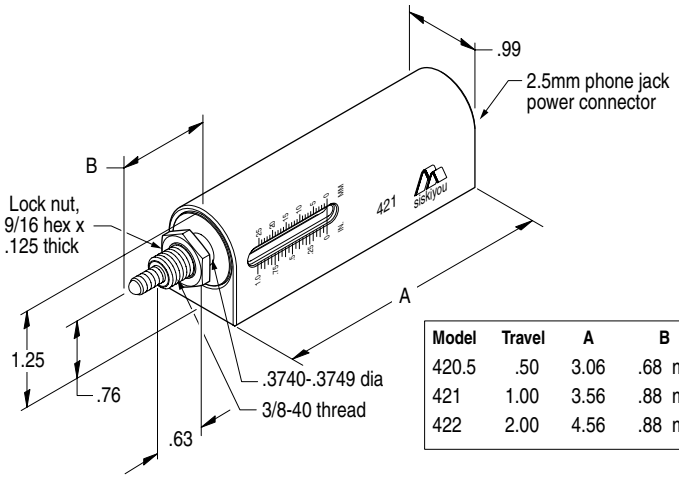
Travel	A	B
0.25	1.37	–
0.50	1.62	–
0.50		1.82 min 2.30 max
1.00	2.28	–

Motorized, 3/8" Bushing — Open Loop

0.5- to 2.0-inch Travel / 420 Series

Model 420.5

420 Series



Model	Travel	A	B
420.5	.50	3.06	.68 min.
421	1.00	3.56	.88 min.
422	2.00	4.56	.88 min.

Product Features

- Quick reference scale
- Microswitch travel limits
- 800 µm/second high speed
- Vacuum compatible versions available upon request

Performance Specifications

Maximum axial load	15 lbs
Minimum controllable motion/speed setting:	
Rapid	100 µm
Medium	15 µm
Slow / maximum	5 µm
Slow / minimum	1 µm

Related Products

331 stage	46
100cr stage	52
100cr-A stage	53
200cr stage	57
MC400 and MC401 controllers	28

Order Information

open loop actuator, 0.5 inch travel	420.5
open loop actuator, 1.0 inch travel	421
open loop actuator, 2.0 inch travel	422

Motorized Adjustment Screws

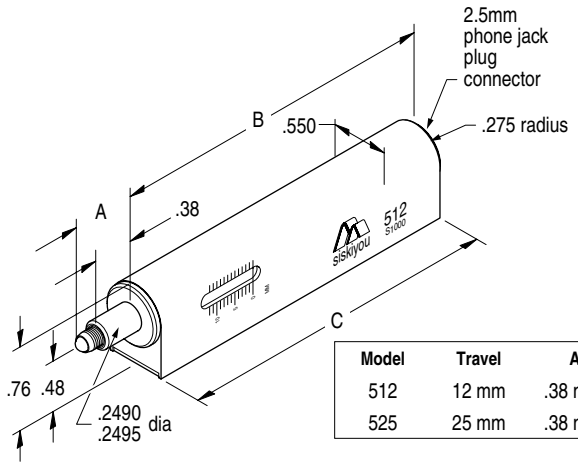
The 420 series open loop DC drives are designed as motorized replacements for our TPI adjustment screws and manual micrometers used on our 330 series, 100cr series, and 200cr series stages.

420 series drives are a cost-effective alternative to our 840 encoded actuators. Like the 840 actuators, 420 drives incorporate high quality lead screws, DC motors, and low backlash gearheads. Because of the quick reference scale, 420 series drives are ideal for applications where visual position feedback is available.

The 420 series drives have built-in microswitch travel limits that stop the drive prior to end of travel. This feature both eliminates the end of travel torque on the motor/gearhead and accidental end of travel damage to stages that are being driven. High-speed versions available upon request.

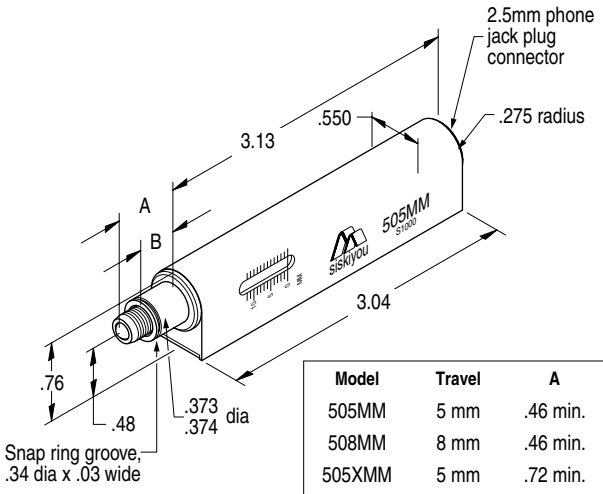
Motorized, 3/8" & 1/4" Bushing Open Loop CE Certified

12-mm and 25-mm Travel / 500 Series



Model	Travel	A	B	C
512	12 mm	.38 min.	3.13	3.04
525	25 mm	.38 min.	3.73	3.64

5-mm and 8-mm Travel / 500MM Series



Model	Travel	A	B	Use with
505MM	5 mm	.46 min.	.38	IM100, IVM100
508MM	8 mm	.46 min.	.38	IM200, IVM200
505XMM	5 mm	.72 min.	.60	IXM100
508XMM	8 mm	.72 min.	.60	IXM200

Model 512 and 508MM

Model 505MM Mirror Mount series (mirror mount not included)

Product Features

- Quick reference scale
- Microswitch travel limits
- .30 mm/second high speed
- UV, vacuum compatible, stepper or closed loop versions available upon request

Performance Specifications

Maximum axial load	10 lbs
Backlash	≤ 20 µm
Minimum controllable motion/speed setting	
Rapid	15 µm
Medium	8 µm
Slow/max.	3 µm
Slow/min.	1 µm

Related Products

MC500 & MC501 controllers	29
50.5cr, 100.5cr & 150.5cr stages	48
IM100 and IM200 mounts	200–213
IXM100 and IXM200 mounts	214–221
IVM100 & IVM200 mounts	224–225
IVM100/bs & IVM200/bs mounts	227

Order Information

open loop actuator, 12mm travel	512
open loop actuator, 25mm travel	525
open loop actuator, 5mm travel	505MM
open loop actuator, 8mm travel	508MM
open loop actuator for *eXtreme* 100 grade mounts, 5mm travel	505XMM
open loop actuator for *eXtreme* 200 grade mounts, 8mm travel	508XMM

Motorized Adjustment Screws and Motorized Mirror Mount Actuators

The 500 series open-loop actuators are designed to be used with our 50.5cr, 100.5cr or 150.5cr low profile crossed roller linear stages. They use 80TPI threads for high resolution positioning and have built-in travel limit switches to ensure they won't over-travel the stage and damage it. 12mm and 25mm versions are available and both versions have "Quick Reference" scales on two sides of the actuators.

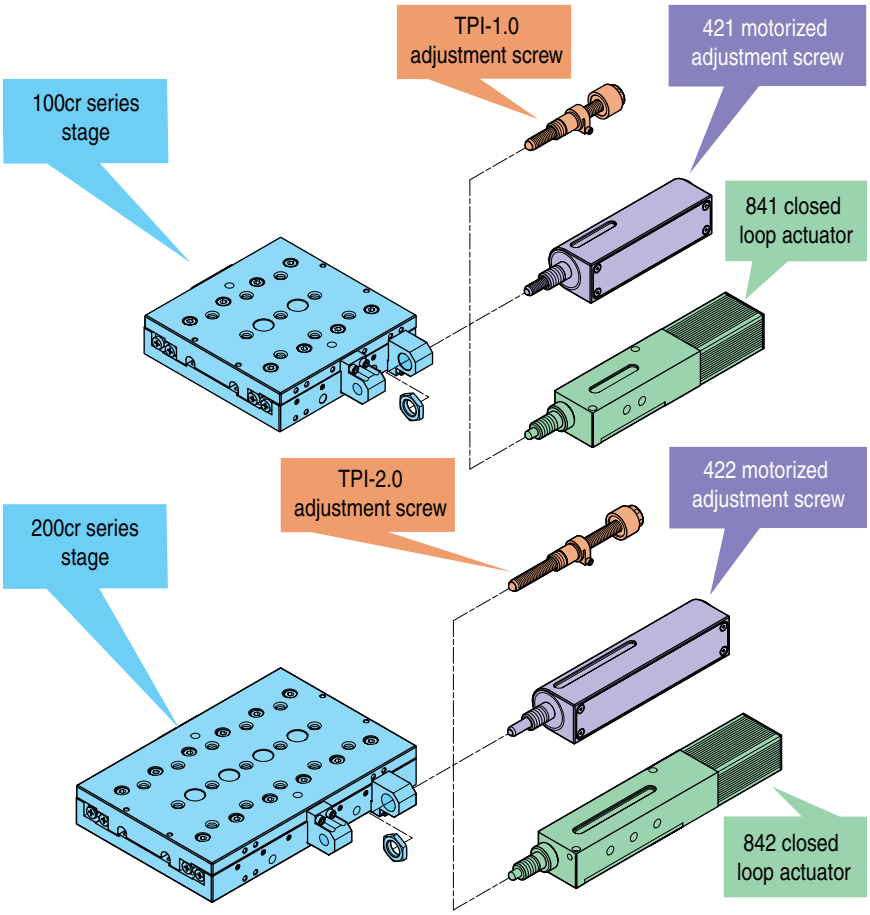
The 500MM series of open loop actuators are designed specifically for driving mirror mounts that use 3/8" brass bushings to mount their drive screws. Their compact design minimizes interference to other devices in the area. The simple design uses a quiet running DC servo motor, that is very stable even when powered down.

The 1/4-100 pitch drive screw maximizes resolution and has a floating ball tip to minimize rotational torque being transmitted to the mirror mount. These actuators come in four versions. The 505MM and 505XMM are for 1-inch optic series mounts and the 508MM and 508XMM are for 2-inch optic series mounts.

Micrometers / Actuators

Applications

Select the Siskiyou actuator, manual or motorized, that's perfect for your application. From a differential screw with 20 microns per turn sensitivity on the fine adjust down to 20 threads per inch, our custom rolled threads provide the ultimate in smoothness for manual positioning. Choose from either open loop motorized actuators, or closed loop actuators, with 0.1µm precision, for applications with keyboard control through our MC2010 controller. Our MC1000e series provide 0.2µm precision for application with pushbutton, joystick, rotary knob control for closed loop actuators. Mated to Siskiyou stages, these actuators provide the smoothest, most cost-effective positioning accuracy available.



Manual positioning screws, with 20, 40, 80, 100, 127 and 170 threads per inch, are available with either knob or hex drive. Knob versions are cross drilled at the top of the cap, for capstan style fine adjustments from above. Colored caps are available for axis identification in low light conditions. Included locks on many versions are non-influencing – tightening the lock produces no side torque to alter position. Available in either 8-100 or ¼-20 mounting hole format, replace expensive micrometers where you don't need a manual readout.

Our micrometers provide 100 thread per inch sensitivity, with laser marked barrels for clear vernier readout. Available with either 1/4" or 3/8" mounting barrel diameter, our in-house rolled threads provide smooth, low stiction actuation for load capacities up to 100 pounds. Differential micrometers, and screws without the readout barrel provide manual positioning equal to the sensitivity of much pricier motorized systems. With 18° rotation per micron in our differential thread, submicron manual adjustments are easily made.

Spreading the load over more bearing elements than competitor's stages gives Siskiyou crossed roller stages superior flatness and straightness of travel. With more bearings, stiction is reduced, greatly diminishing backlash when moving large loads. Actuators and stages sold separately.

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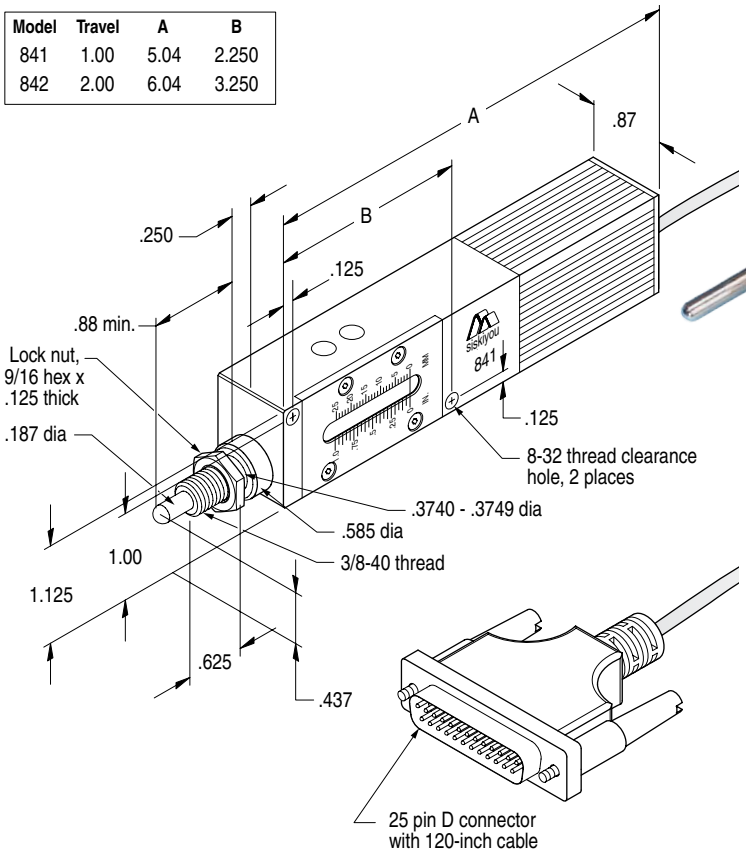
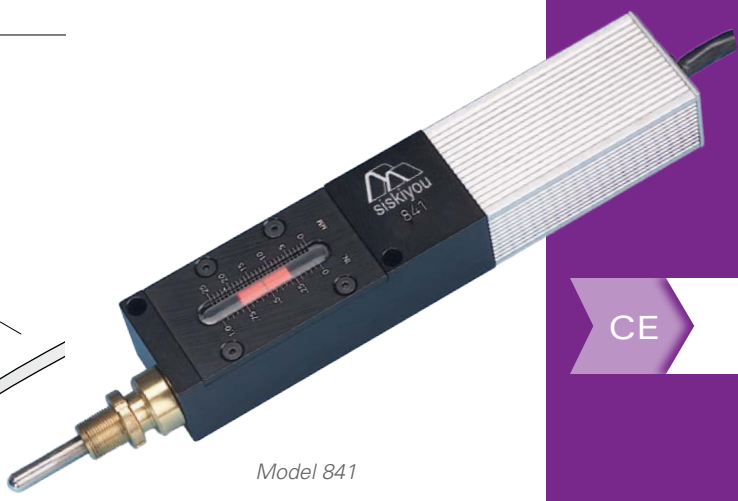
Motorized, 3/8" Bushing Closed Loop CE Certified

1.0- and 2.0-inch Travel / 840 Series

840 Series

Model	Travel	A	B
841	1.00	5.04	2.250
842	2.00	6.04	3.250





Model 841

CE

Motorized Adjustment Screws

The 840 series of encoded actuators incorporate a non-rotating tip to ensure accurate submicron positioning. The 840 series actuators' industry standard 0.375-inch nose mount will fit into any device that has a standard manual micrometer. The 9/16 hex lock nut can be used to attach to translation stages or for bulkhead mounting in flat panel applications.

840 actuators are a direct replacement drive for existing micrometers or TPI series screws on 331, 100cr, and 200cr stages. These actuators can be driven with all of our ***e*** series and MC2010 controllers and drive the actuator through a closed loop interface between the controller and the motor encoder. The closed loop connection ensures 0.2 µm and 0.1 µm resolution, respectively. The encoder coupling also enables the use of the DR1000 digital readout for repeated or relative positioning requirements.

Travel limit switches are designed inside of the device so that no unnecessary force is imposed on the motor or gear train at travel limit. All of our motorized systems use quiet running DC motors to ensure noise-free operation, even in sensitive electrophysiology experiments. High-speed versions available upon request.

Product Features

- Quick reference scale
- Microswitch travel limits / Forward limit adjustable
- 1.7 mm/second high speed
- Vacuum compatible versions available upon request

Performance Specifications

Maximum axial load	15 lbs
Backlash	≤ 5 µm
Point to point accuracy	± 2 µm

Related Products

331 translation stage	46
100cr translation stage	52
100cr-A translation stage	53
200cr translation stage	57
MC1000e-1 motion controller	22
MC1000e-R1/4T motion controller	24
MC1000e-J motion controller	26
MC1000e motion controller	22
MC1100e motion controller	22
MC1000e-R/T motion controller	25
MC2010 computer interface	27
DR1000 digital readout	31

Order Information

closed loop actuator, 1.0 inch travel	841
closed loop actuator, 2.0 inch travel	842

Platform assembled from standard parts, with microscope translator

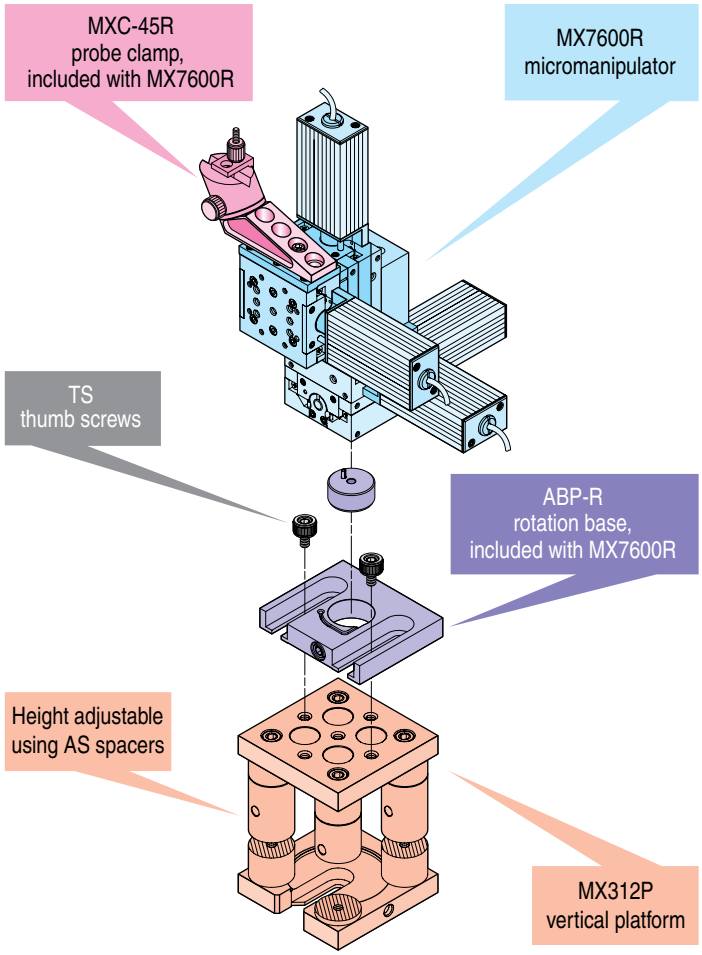
Introduction to Siskiyou Platforms

The platforms and support spacers in this section facilitate multidimensional experimentation. Their solid aluminum construction ensures rock solid stability around any experiment.

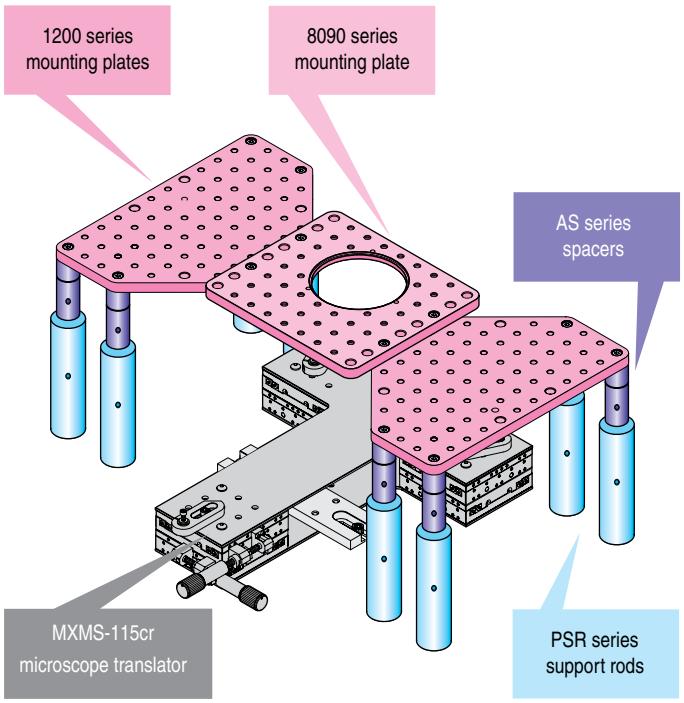
Our wide variety of platforms are designed with flexibility in mind. These platforms have 1/4-20 tapped holes for limitless attachment for any application, such as a fixed-stage platform for electrophysiology or a single vertical plane platform for optical mounting. The standard hole pattern facilitates the movement of devices between a platform and an isolation table top and is more economical than a custom plate.

A cast aluminum plate for the base material of our platforms ensures stability even when a large portion of the surface has been machined away. High speed CNC machining centers enable us to produce high quality platforms with a maximum of mounting holes at competitive prices. If magnetic attachment is required, small magnetic strips are available, found on page 117, that are cost-effective alternatives to manufacturing a solid steel platform that would typically cost four times as much as an aluminum platform.

Platforms provide vertical and angular solid surfaces for mounting micromanipulator stages.



Application



This application drawing shows our platform and spacer systems along with our microscope translator (microscope not shown). This is one way to construct a fixed-stage system for patch recording experiments. The photo on the preceding page also shows this type of setup, and the two combined show the flexibility of our equipment.

Platforms / Tables

Vertical and Angular

Vertical

3" square	96
5" square	97

Angular

3" square	98
5" square	99
Unlimited Angle	100
0°–45°	101

Plates and Tables

Mounting Plates

Large	102
Modular Tiles	106

Tables

Breadboards	108
Laboratory Tables	109

Rods and Spacers

Aluminum

4" to 10" Rods	110
1/8" to 6" Spacers	110
6" to 12" Rods	112
Post Clamp	112

The PSR series support rods and AS aluminum spacers are ideal for vertical or horizontal mounting of platforms as well as single devices. AS series spacers are available in sizes from 0.125- to 2.0-inches long. 1.5- and 2.0-inch versions can be attached end to end to achieve spacing of multiple lengths. Smaller sizes have a 1⁄4-20 clearance hole and are designed to be mounted directly under the platform and attached to the next spacer with the final 1⁄4-20 attachment screw. Our PSR support rods are machined from solid aluminum bar stock and are designed to be the base structure for our variety of platforms.

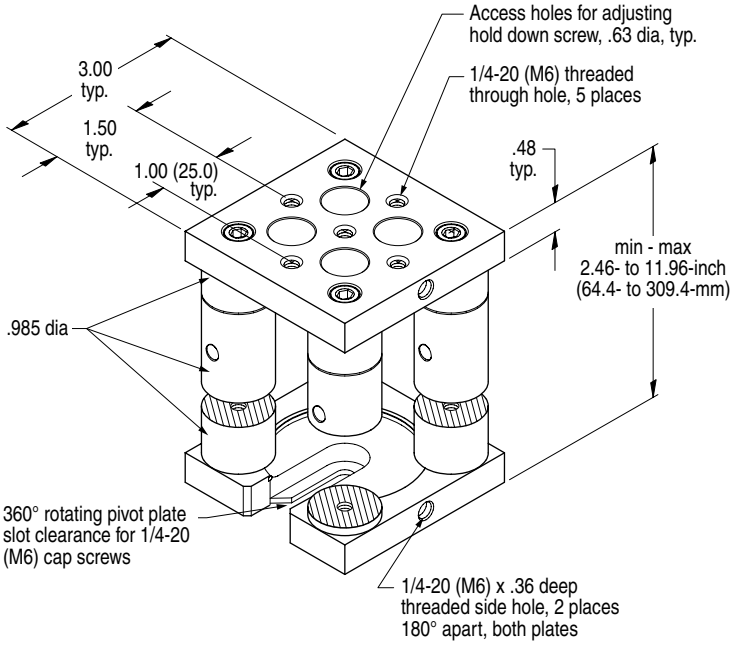
For custom configurations, variations in finish, or if you need help selecting the best platform configuration for your application, do not hesitate to contact us at 1-877-313-6418, or email tech@siskiyou.com.

Vertical

3.0 x 3.0 / MX312P

Note that dimensions in parentheses (mm) reflect metric assembly features

MX312P



Vertical Platform

The MX312P is a versatile platform for mounting a variety of hardware at any level on an isolation table or platform. A complete set of AS series spacers allows flexible vertical adjustment from 2.5- to 12.0-inches in 0.5-inch increments. Metric configurations adjust from 65- to 310- mm using a combination of spacers. This facilitates placing the platform height at the center of the depth of focus for research microscopes. To adjust the height of the platform, AS-1.5 and AS-2.0 series spacers are screwed together using 1⁄4-20 set screws. The top and the base plates are attached to the four columns with 1⁄4-20 cap screws through the counterbored holes. Smaller height adjustments are made by adding AS-.5 and AS-1.0 spacers to the top of the longer AS spacers. These are secured by the final attachment of the top plate with long 1⁄4-20 screws that go through the top plate and short spacers.

The MX312P base plate is equipped with a unique hold down pivot that allows secure single-bolt mounting anywhere on the mounting surface. The top mounting surface is 3.0-inch x 3.0-inch and has five 1⁄4-20 tapped holes for maximum mounting flexibility. The top plate is also drilled and tapped with 1⁄4-20 holes on two sides. These attachment points are designed to accept our MX-APC-T and MX-APT-T top plates. These adapter plates allow the experimenter to remove and replace equipment accurately and easily by loosening two flathead screws. A new assembly configuration allows simpler and faster change-out of spacers.

Product Features

- 2.5- to 12-inch vertical adjustability
- Solid aluminum construction
- Flexible mounting design
- Vacuum compatible versions available upon request

Related Products

MX-APC-T base plate	127
MX-APT-T base plate	127

Order Information

coarse vertical adjustment platform, 3.0"x3.0"	MX312P
MX312P top plate	MX312P-T
MX312P base plate	MX312P-B

Metric Option — for metric assembly features on this product, add '-M' after model number.

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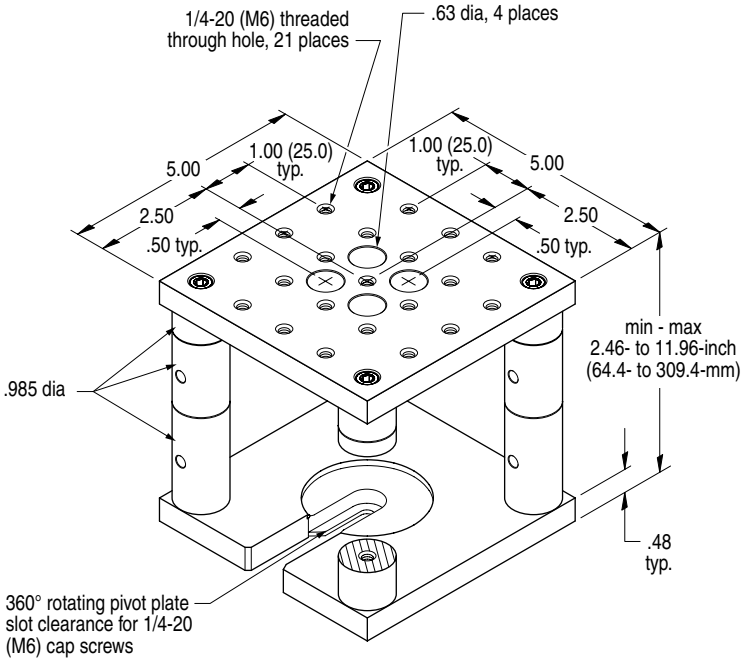
Vertical

5.0 x 5.0 / MX512P

Note that dimensions in parentheses (mm) reflect metric assembly features



MX512P

Vertical Platform

The MX512P is a versatile platform for mounting a variety of hardware at any level on an isolation table or platform. AS series spacers and hardware allow flexible vertical adjustment from 2.5- to 12.0-inches in 0.5-inch increments. To adjust the height of the platform AS-1.5 and AS-2.0 series spacers are screwed together using 1⁄4-20 set screws. The top and the base plates are attached to the four columns with 1⁄4-20 cap screws through the counterbored holes. Smaller height adjustments are made by adding AS-.5 and AS-1.0 spacers to the top of the longer AS spacers. These are secured by the final attachment of the top plate with long 1⁄4-20 screws that go through the top plate and short spacers.

The MX512P base plate is equipped with a unique hold down pivot that allows secure single-bolt mounting anywhere on the mounting surface — you're not confined to the mounting hole grid pattern on many isolation table tops. The top mounting surface is 5.0-inch x 5.0-inch and has twenty-one 1⁄4-20 tapped holes for maximum mounting flexibility. The top plate can be used as a stand-alone platform for mounting MX310 micromanipulators next to microscopes. This robust platform can hold many small devices or larger ones up to 300 pounds.

Product Features

- 2.5- to 12.0-inch vertical adjustability
- Solid aluminum construction
- Flexible mounting design
- Vacuum compatible versions available upon request

Related Products

MX310 micromanipulator	160
MX5T angular platform	99

Order Information

coarse vertical adjustment platform, 5.0"x5.0"	MX512P
MX512P top plate	MX512P-T
MX512P base plate	MX512P-B

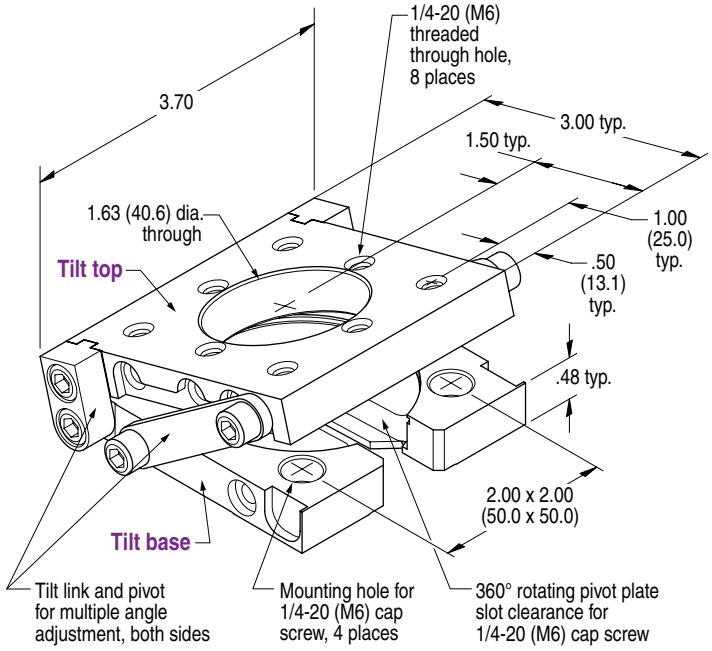
Metric Option — for metric assembly features on this product, add '-M' after model number.

Angular

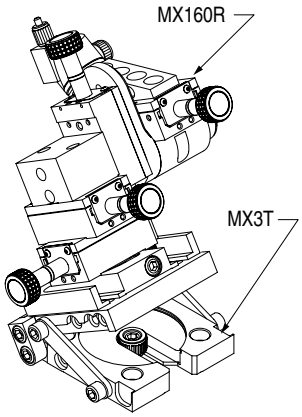
3.0 x 3.0 / MX3T

Note that dimensions in parentheses (mm) reflect metric assembly features

MX3T



Application



Product Features

- 5 preset angles
- Solid aluminum construction
- Flexible mounting design
- Vacuum compatible versions available upon request

Performance Specifications

Maximum load	50 lbs
Angular adjustment	0°, 15°, 30°, 45°, 90°

Related Products

MX110 micromanipulator	156
MX160 micromanipulator	157
MX1640 micromanipulator	159
MX6600 micromanipulator	164
MX7630 micromanipulator	168
MX7600 micromanipulator	169

Order Information

coarse angular tilt platform, 3.0"x3.0"	MX3T

Metric Option — for metric assembly features on this product, add '-M' after model number.

Angular Platform

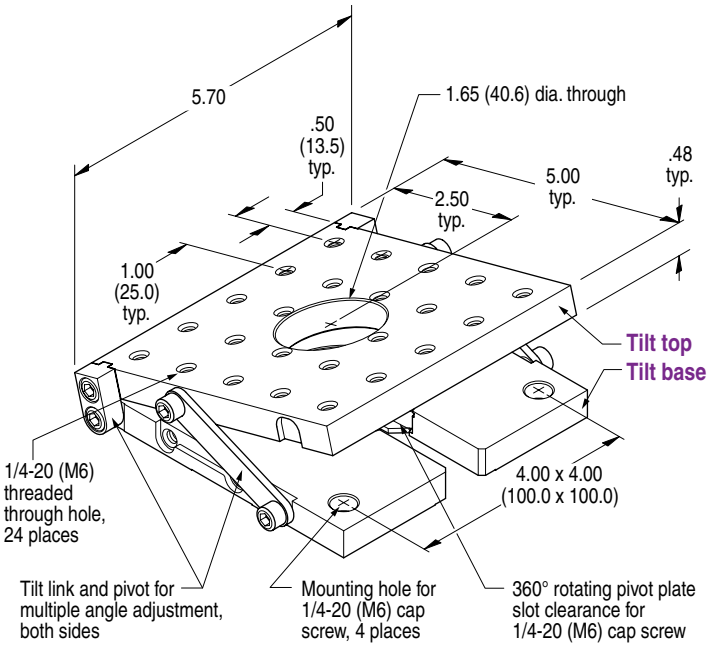
The MX3T's adjustable wedge design facilitates fixed angle setups. The 3.0-inch x 3.0-inch platform's top plate is fixed in place by two adjustable linking arms. They are secured by four 1⁄4-20 hex screws to ensure rock solid stability.

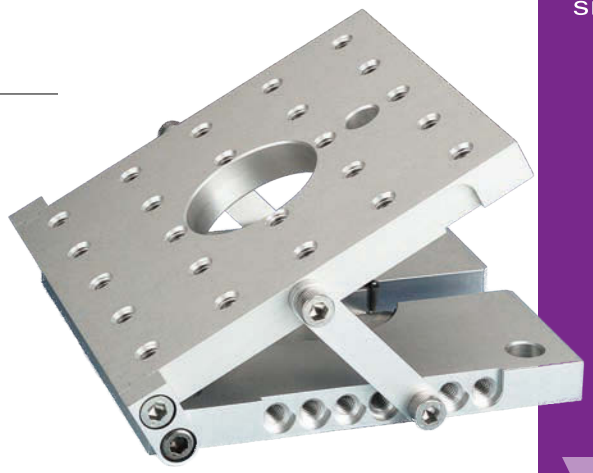
The angle is changed by loosening two 1⁄4-20 cap screws and removing two more. Move the adjustment legs to the desired position, replace the two cap screws, then lock down all four. The platform is locked in place and will not move or wobble. The MX3T base plate is equipped with a unique hold down pivot that allows secure single-bolt mounting anywhere on an experimental table.

Angular

5.0 x 5.0 / MX5T

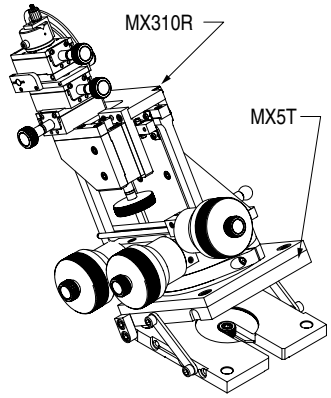
Note that dimensions in parentheses (mm) reflect metric assembly features





MX5T

Application



Angular Platform

The MX5T's adjustable wedge design facilitates fixed angle setups. The 5.0-inch x 5.0-inch platform's top plate is fixed in place by two adjustable linking arms. They are secured by four 1⁄4-20 hex screws to ensure rock solid stability.

The angle is changed by loosening two 1⁄4-20 cap screws and removing two more. Move the adjustment legs to the desired position, replace the two cap screws, then lock down all four. The platform is locked in place and will not move or wobble. The MX5T base plate is equipped with a unique hold down pivot that allows secure single-bolt mounting anywhere on an experimental table.

Product Features

- 5 preset angles
- Solid aluminum construction
- Flexible mounting design
- Vacuum compatible versions available upon request

Performance Specifications

Maximum load	50 lbs
Angular adjustment	0°, 15°, 30°, 45°, 90°

Related Products

MX512P platform	97
MX310 micromanipulator	160

Order Information

coarse angular tilt platform, 5.0"x5.0"	MX5T

Metric Option — for metric assembly features on this product, add '-M' after model number.

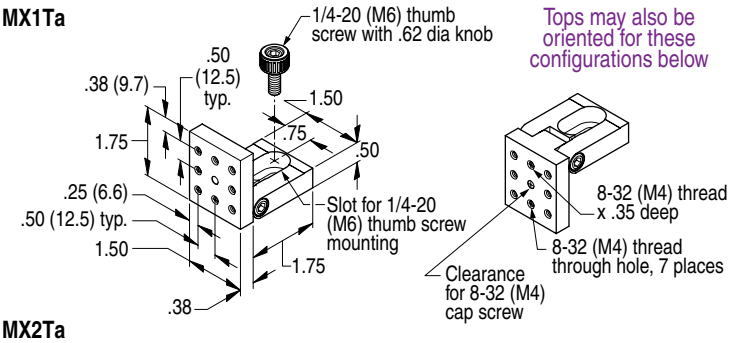
Angular

Unlimited Angle / MX1Ta, MX2Ta, MX3Ta

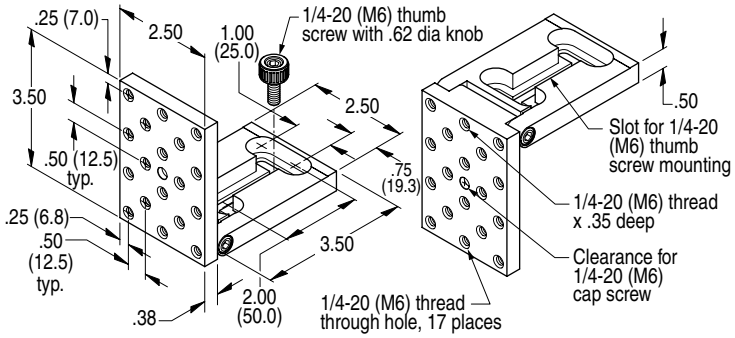
Note that dimensions in parentheses (mm) reflect metric assembly features

MX-Ta Series

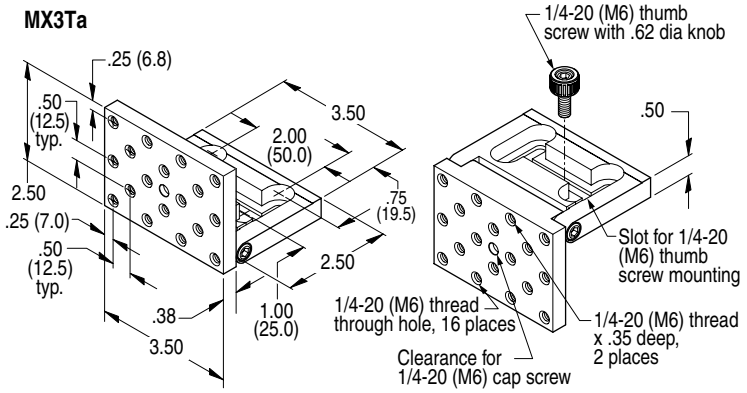
MX1Ta



MX2Ta



MX3Ta



Product Features

- Unlimited angular adjustment
- Solid aluminum construction
- Flexible mounting design
- Vacuum compatible versions available upon request

Performance Specifications

Maximum load	5 lbs
Angular adjustment	Unlimited

Related Products

MX10 micromanipulator	154
MX10-H micromanipulator	162
MX160 micromanipulator	157
MX1600 micromanipulator	159

Order Information

1.5-inch x 1.75-inch, 8 tapped 8-32 holes	MX1Ta
2.5-inch x 3.5-inch,18 tapped 1/4-20 holes	MX2Ta
3.5-inch x 2.5-inch, 18 tapped 1/4-20 holes	MX3Ta

Metric Option — for metric assembly features on this product, add '-M' after model number.

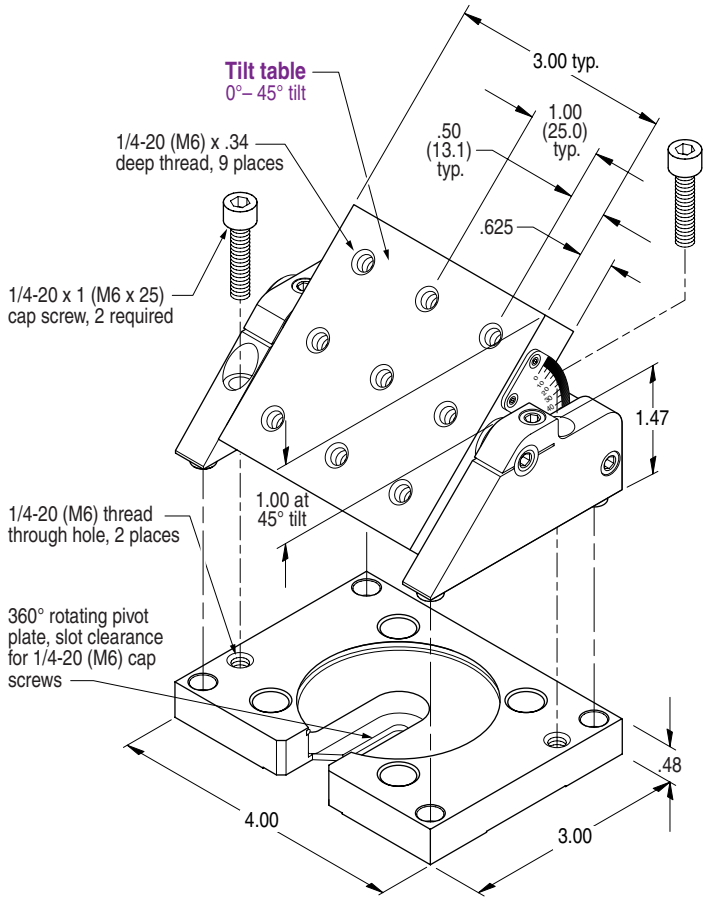
Angle Platforms

These adjustable angle platforms are easy to use and come in three convenient sizes. They are attached to the table top or bread board with a single 1⁄4-20 cap screw through a recessed slot for maximum positioning flexibility. Angular locking is done with a single cap screw that can be removed and relocated 180° to the opposite side to accommodate adjustment in limited space locations. These adjustable angle platforms are shipped in a "positive" vertical configuration (as shown in the photo), but they can also be reassembled to be used in a "negative" vertical configuration by removing the locking screw and rotating the mounting platform.

Angular

Infinitely Adjustable / MXT

Note that dimensions in parentheses (mm) reflect metric assembly features



MXT

MXT Angle Platform

The MXT is a small and stable tilt platform that works well where the angle of attack needs to be adjusted. The angle is adjusted by turning the knob in the back of the stage. The angle of the platform surface can be read on the scale that is mounted on the side of the stage opposite the locking screw. The stage is spring-loaded to minimize backlash. The non-influencing foil lock is activated by a laser marked knob on the side of the stage.

The top of the tilt stage is tapped 1/4-20 in nine places. The hole pattern is matched to accept Siskiyou's translation stages, rotation stages and micromanipulators.

The MXT base plate is equipped with a unique hold-down pivot that allows secure single-bolt mounting anywhere on the table.

The MXT's base can be removed from its tilt stage and conveniently positioned in your experiment. By setting the tilt stage back on the base, the location can be confirmed. After the stage is in the desired position, remove the tilt stage, lock down the base, replace the tilt stage, and lock it in place with the two 1/4-20 cap screws.

Product Features

- Infinitely adjustable from plane parallel through 45°
- Positive non-influencing lock
- 2° incremental scale
- Vacuum compatible versions available upon request

Performance Specifications

Angular range	0° – 45°
Minimum angular motion	30 arc sec.

Related Products

MX160 micromanipulator	157
MX1600 series micromanipulators	159
RSX-1.0 rotary stage	72

Order Information

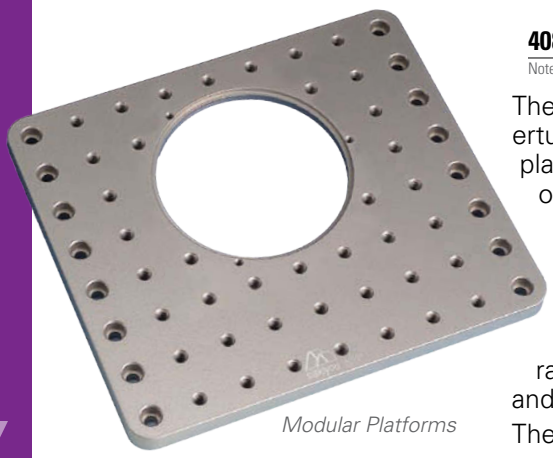
adjustable tilt platform	MXT

Metric Option — for metric assembly features on this product, add '-M' after model number.

Large Mounting Plates

4080 and 8090 Series

Note that dimensions in parentheses (mm) reflect metric assembly features



Modular Platforms

The 4080 and 8090 series of mounting platforms offer a variety of apertured platforms in standard and customer modified versions. These platforms may be used as stand-alone platforms directly on the surface of a table top or to add attachment points to an isolation table without tapped holes. They are also useful for building bridge systems around microscopes and can be supported with our PSR series support posts or AS series spacers. They have 1/4-20 clearance holes conveniently located near the edge of the plate to facilitate mounting to our PSR and AS series. Vertical or three dimensional configurations can be designed with the use of our BB series building blocks and AB-U universal angle bracket.

The material used in these platforms is cast aluminum. This material has more thermal stability than standard aluminum plate, and because of the manufacturing process it has no inherent stress. By using this material we supply you with a more stable product. If you decide to do some custom machining on the plates, you can be assured that they will not flex out of flatness like standard plate materials.

4080Ps may be used with PSR support rods to create a mounting platform along side of an experiment. They are designed to be the center platform in a fixed-stage setup. The 4080P has been relieved in the center to simplify custom machining for the experimenter's applications. The PSR platform support rods' 1.5-inch diameter makes them an ideal foundation for these platforms.

The 8090 series platforms are designed to be the sample platform under a microscope or as an apertured platform for passing a laser beam through. They come in two models: blank and with aperture. The 8090Pb has a solid surface with 1/4-20 mounting holes and a non-tapped section in the middle. This blank section is useful for custom machining either by us or by the end user. The 8090P has an industry standard 10.8 cm chamber aperture for mounting our PC-A perfusion chamber adapter or other microscope chamber systems.

Product Features

- Stable cast aluminum plate
- Center relieved for custom machining
- Pre-drilled / threaded 1/4-20 mounting surface
- Vacuum compatible versions available

Related Products

AS-1A spacers	110
PSR support rods	110
MS-4.0 magnetic strip	117
MS-6.0 magnetic strip	117
perfusion chambers	192

Order Information

platform plates	
4 x 8 inch	4080P
8 x 9 inch, blank	8090Pb
8 x 9 inch, aperture type	8090P
adapters / holders, perfusion chamber	
10.8cm dia	PC-A
11cm dia	PC-A11
holder	PC-S

Metric Option — for metric assembly features on this product, add '-M' after model number.

Perfusion Chamber Adapters

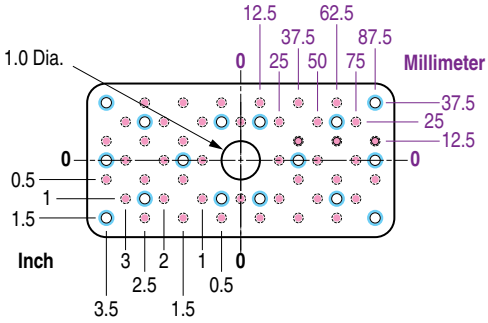
The PC-A chamber adapter allows the user to mount our PC-V & PC-H chambers into our 8090P platform. They are made of non-corrosive aluminum. The 10.8-cm diameter model is compatible with Olympus microscope stages and allows 360° rotation of the chamber. Alternatively, they also are available in a 11-cm diameter size. See page 192 for perfusion chamber details.

For custom configurations or if you need help selecting the best platform configuration for your application, do not hesitate to contact us at 1-877-313-6418.

4 x 8 x 0.5 Inch Plate / 4080P

Inch Millimeter Pattern... Mounting Holes: 16 each 1/4-20 (M6) Clearance / 44 each 1/4-20 (M6), Through

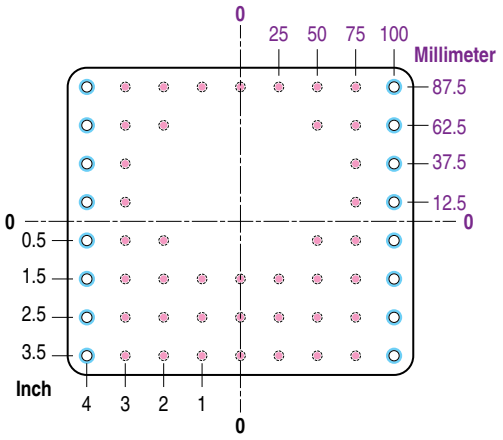
Plate is mirror-symmetric along vertical and horizontal center lines... for clarity single quadrant dimensions are shown.

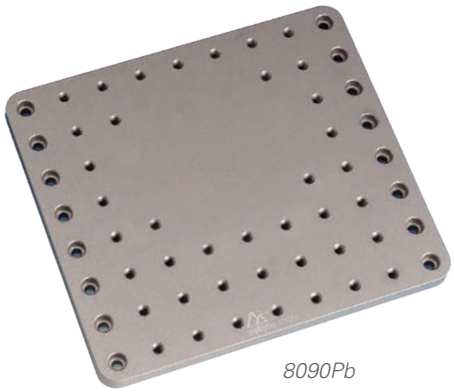


Large Mounting Plates

8 x 9 x 0.5 Inch Plate / 8090Pb

Inch Millimeter Pattern... Mounting Holes: 16 each 1/4-20 (M6) Clearance / 40 each 1/4-20 (M6) Through
Plate is mirror-symmetric along vertical and horizontal center lines... for clarity only single quadrant dimensions are shown.

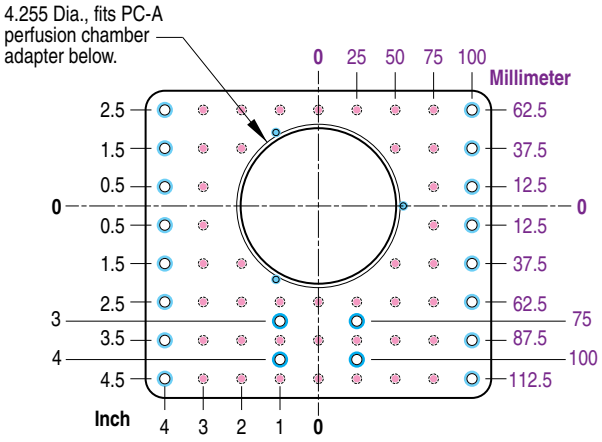


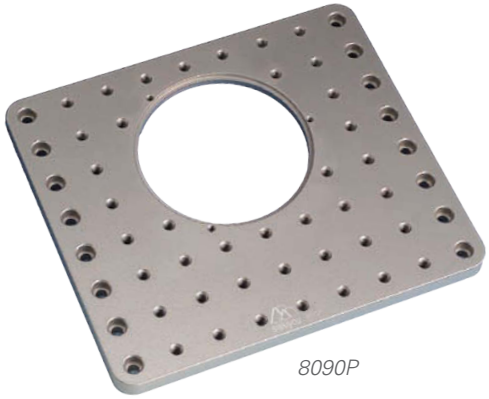


8090Pb

8 x 9 x 0.5 Inch Plate / 8090P

Inch Millimeter Pattern... Mounting Holes: 20 each 1/4-20 (M6) Clearance / 40 each 1/4-20 (M6), Through / 3 each 8-32 (M4), Through
Plate is mirror-symmetric along vertical center line... for clarity only half-plate dimensions are shown.

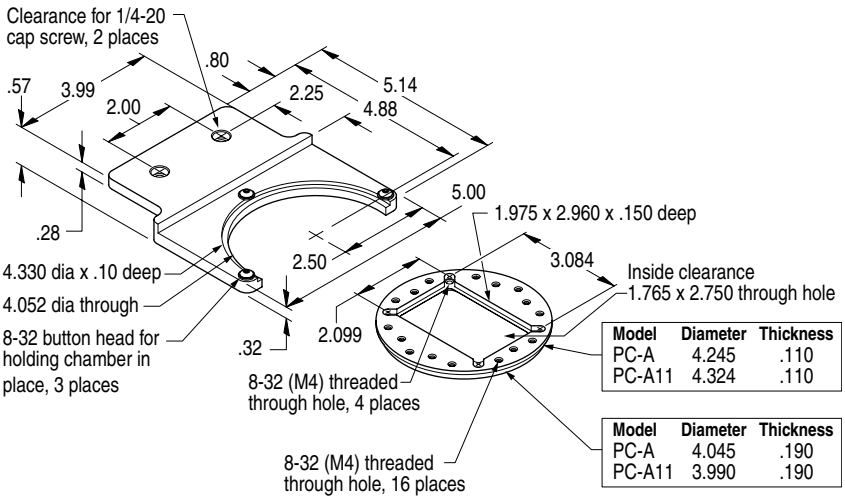




8090P

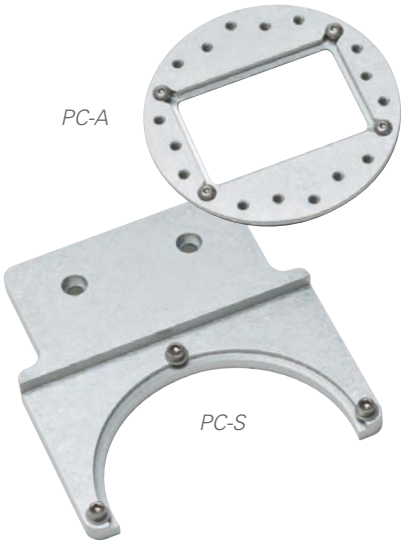
10.8 / 11cm Perfusion Chamber Adapters PC-A, PC-A11 and Holder PC-S

Note that dimensions in parentheses (mm) reflect metric assembly features.



Model	Diameter	Thickness
PC-A	4.245	.110
PC-A11	4.324	.110

Model	Diameter	Thickness
PC-A	4.045	.190
PC-A11	3.990	.190

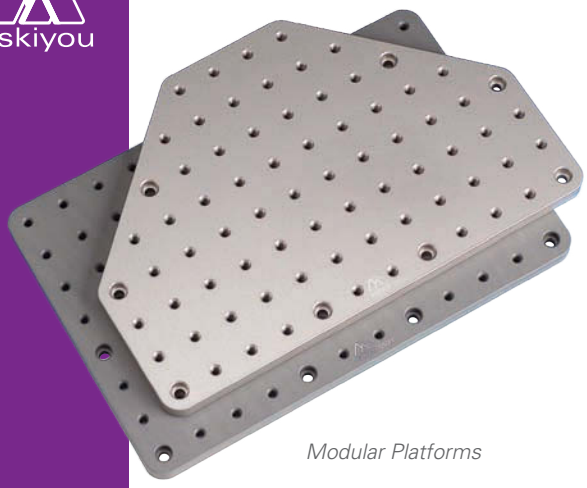


PC-A

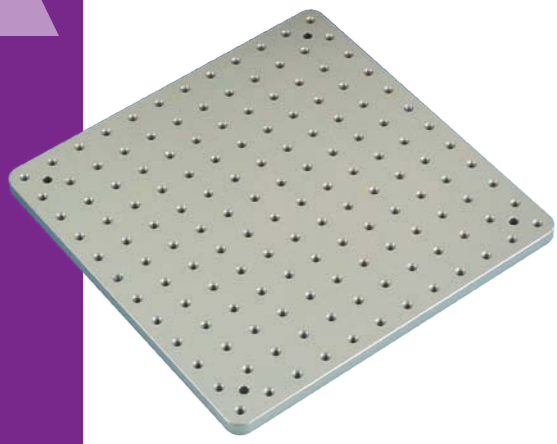
PC-S

Platforms / Tables

Large Mounting Plates



Modular Platforms



12000 Series

Our 1200 and 12000 series platforms are designed for maximum flexibility and machinability. With nine sizes to choose from, these solid aluminum platforms are an affordable option for added mounting surface.

These platforms may be used as stand-alone platforms directly on the surface of a table top or to add attachment points to an isolation table without tapped holes. They are also useful for building bridge systems around microscopes and can be supported with our PSR series support posts or AS series spacers. The 1200 series have 1⁄4-20 clearance holes conveniently located near the edge of the plate to facilitate mounting to our PSR and AS series. Vertical or three dimensional configurations can be designed with the use of our BB series building blocks and AB-U universal angle bracket.

The material used in these platforms is cast aluminum. This material has greater thermal stability than standard aluminum plate and, because of the manufacturing process, has no inherent stress. By using this material we supply you with a more stable product. If you decide to do some custom machining on the plates, you can be assured that they will not flex out of flatness like standard plate materials.

12, 18, 24 and 30 x 0.5 Inch Square and Rectangular Plates

■ Inch ■ Millimeter Pattern... Mounting Holes: 16 each 1/4-20 (M6) Clearance ○ (12120 plate only) / See table for 1/4-20 (M6), Threaded hole ● quantities. Plate is mirror-symmetric along vertical and horizontal center lines... for clarity single quadrant dimensions are shown

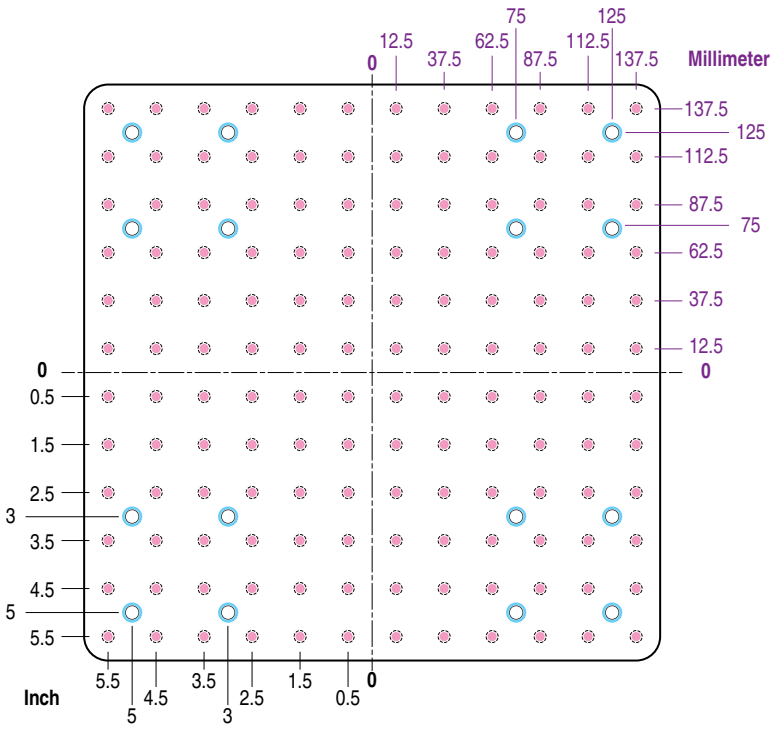


Plate Size	Holes[1]	Plate Size	Holes[1]
12 x 12[2]	144	24 x 24	576
12 x 24	288	24 x 30	720
18 x 18	324	30 x 30	900
18 x 30	540		

1. Number of threaded holes 2. 12 x 12 Plate, 'Only plate with clearance holes'

Product Features

- Stable cast aluminum plate
- Pre-drilled / threaded 1/4-20 mounting surface
- Vacuum compatible versions available

Related Products

AS-1A spacers	110
PSR support rods	110
MS-4.0 magnetic strip	117
MS-6.0 magnetic strip	117

Order Information

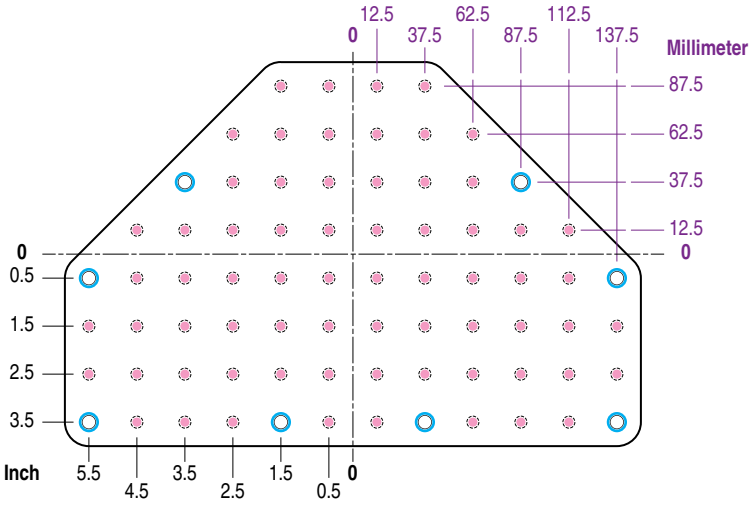
8 x 12 inch, beveled rectangular	1280P
8 x 12 inch, rectangular	1280Pr
12 x 12 inch, square	12120
12 x 24 inch, rectangular	12240
18 x 18 inch, square	18180
18 x 30 inch, rectangular	18300
24 x 24 inch, square	24240
24 x 30 inch, rectangular	24300
30 x 30 inch, square	30300

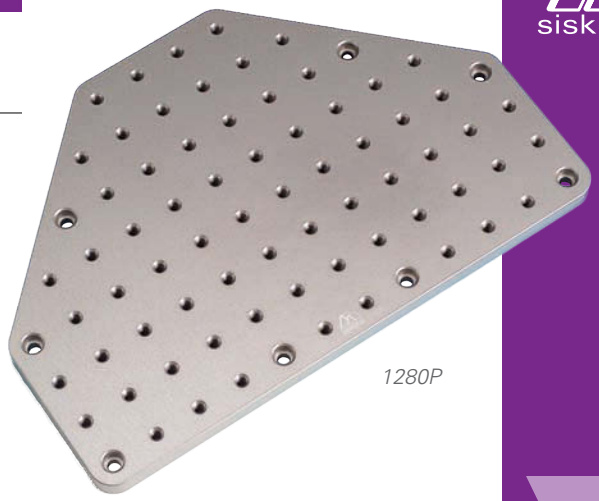
Metric Option — for metric assembly features on this product, add '-M' after model number.

Large Mounting Plates

8 x 12 x 0.5 Inch Plate / 1280P

Inch Millimeter Pattern... Mounting Holes: 8 each 1/4-20 (M6) Clearance / 68 each 1/4-20 (M6), Threaded
Plate is mirror-symmetric along vertical center line... for clarity only single quadrant dimensions are shown

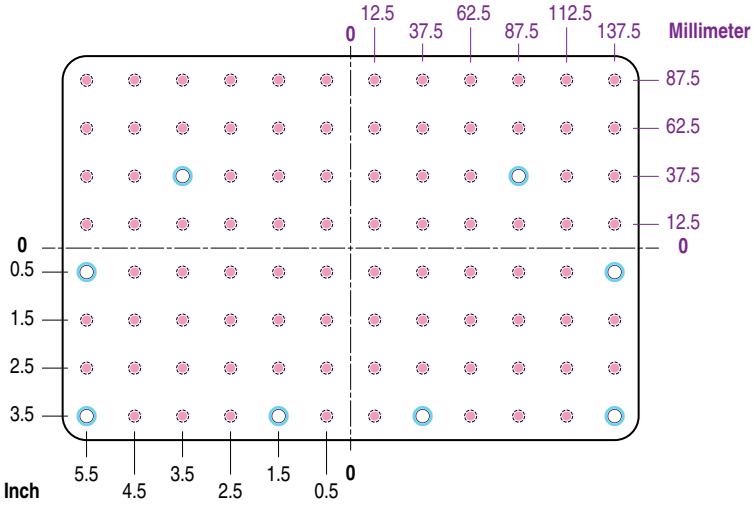


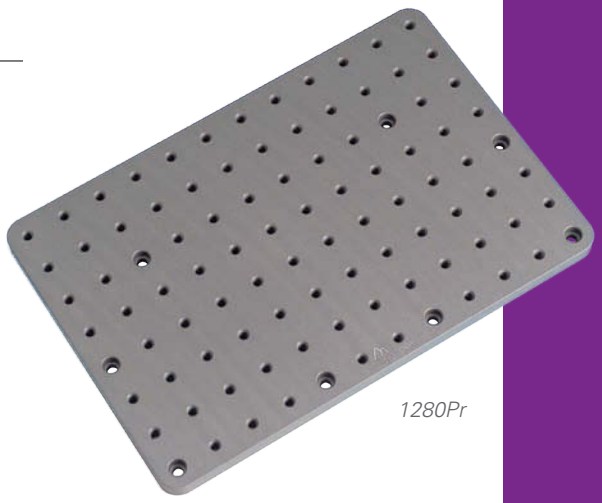


1280P

8 x 12 x 0.5 Inch Plate / 1280Pr

Inch Millimeter Pattern... Mounting Holes: 8 each 1/4-20 (M6) Clearance / 88 each 1/4-20 (M6), Threaded Through
Plate is mirror-symmetric along vertical center line... for clarity single quadrant dimensions are shown





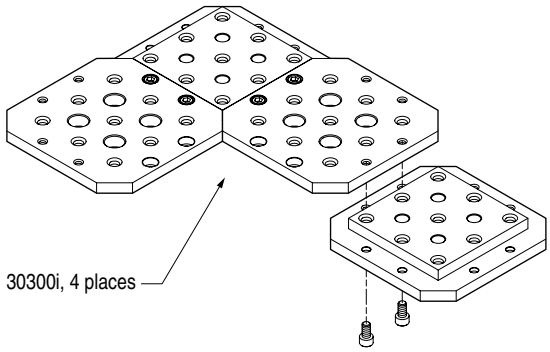
1280Pr

Modular Tiles

3.5☐ and 6.5☐ x 0.5 Inch Modular Tiles

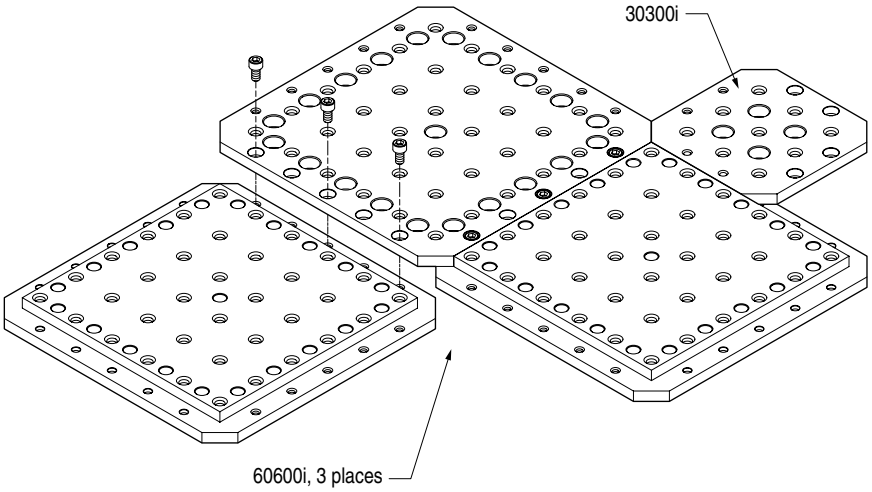
Modular Tiles

New



Mix and match to create your own unique platform.

The new 60600i platform "tiles" allow the user to build a variety of platform shapes and sizes.



Product Features

- Stable cast aluminum plate
- Pre-drilled, threaded 1/4-20 (M6) and 8-32 (M4)
- Vacuum compatible versions available

Related Products

BB-1.0 building blocks	124
BB-5.0 building blocks	124

Order Information

3.5 x 3.5 inch, square tile	30300i
6.5 x 6.5 inch, square tile	60600i

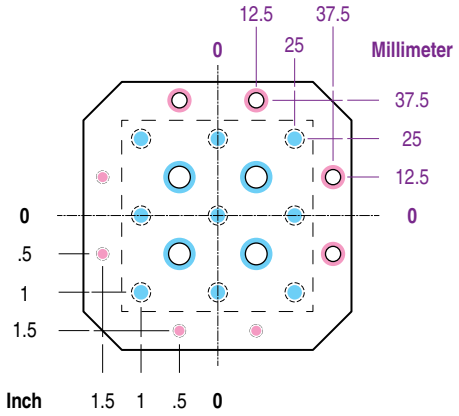
Metric Option — for metric assembly features on this product, add '-M' after model number.

Siskiyou 3" and 6" square tiles can be bolted together in virtually any configuration to create a mounting platform. When a regular breadboard is too big, these tiles can get your project or prototype built with just the right amount of space. For innovative optomechanical solutions, shop Siskiyou!

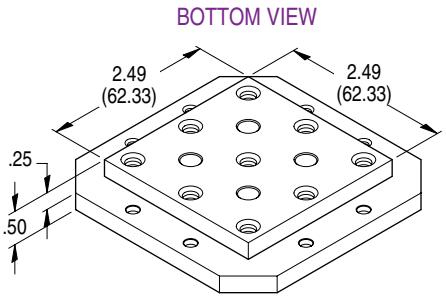
Modular Tiles

3.5☐ x 0.5 Inch Plate / 30300i

■ Inch ■ Millimeter Pattern... Mounting Holes: 1/4-20 (M6) Clearance ○, Threaded ● / 8-32 (M4) Clearance ○, Threaded ●
Plate is mirror-symmetric along vertical center line... for clarity single quadrant dimensions are shown



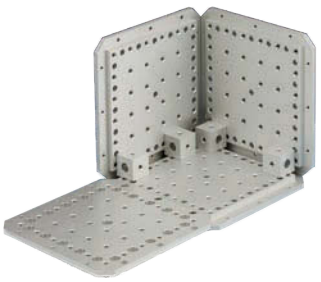
60600i

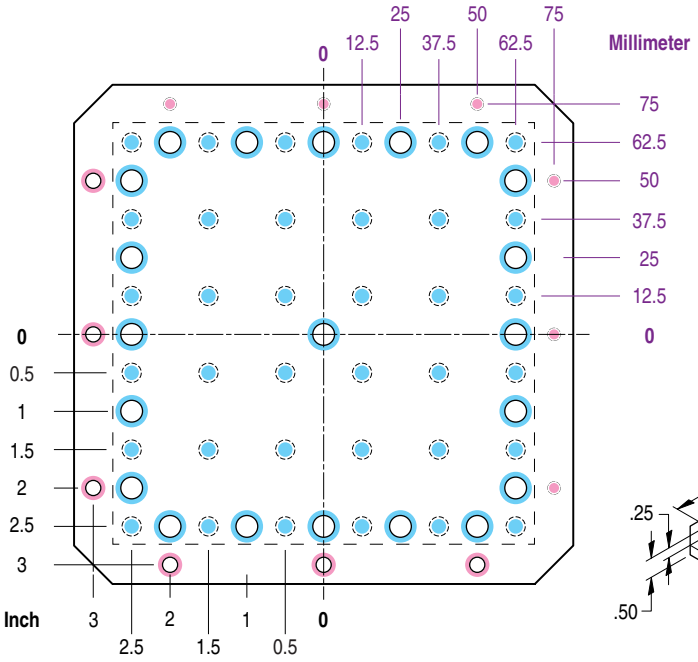


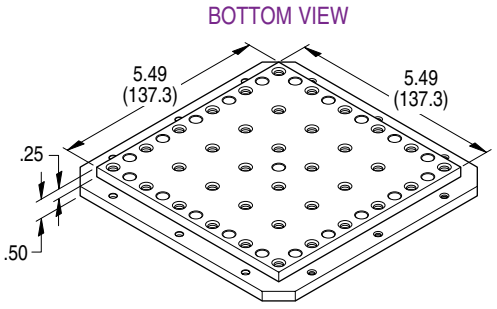
6.5☐ x 0.5 Inch Plate / 60600i

■ Inch ■ Millimeter Pattern... Mounting Holes: 1/4-20 (M6) Clearance ○, Threaded ● / 8-32 (M4) Clearance ○, Threaded ●
Plate is mirror-symmetric along vertical center line... for clarity single quadrant dimensions are shown

Application







New

Platforms / Tables

Lightweight Mounting Plates

75 Series

75 Series Breadboards

The 75 Series Breadboards minimize both weight and cost. Siskiyou has teamed up with industry leader TMC to offer these products that match with our platforms, support rods and other modular hardware. A patented (pat# 5,558,920) manufacturing technique allows TMC to form countersunk, tapped holes in a thin top skin of stainless steel. The holes are not drilled or punched, but fabricated in a way that effectively "thickens" the skin in a small ring around the threads and adds to the unit's rigidity. No inserts are used and the formed holes are countersunk and tapped 3 threads deep.

The 75 Series tops have relatively high levels of rigidity, as they utilize a standard steel core. They are ideal when light loads are anticipated and both low weight and low cost are the most crucial factors. The ultra-lightweight design weighs less than 9 lbs/ft^2 [44 kg/m^2].

Standard breadboards have 1/4-20 holes on 1-inch centers. Under all holes are CleanTop® II individual cups that make the core spillproof.

This lightweight design is available from stock in the sizes listed below. A full range of sizes and materials is available on a custom basis. Contact us for pricing and delivery for custom configurations.

Product Features

- Ultra-lightweight design
- Ferromagnetic stainless steel top and bottom skins
- CleanTop® II spillproof core

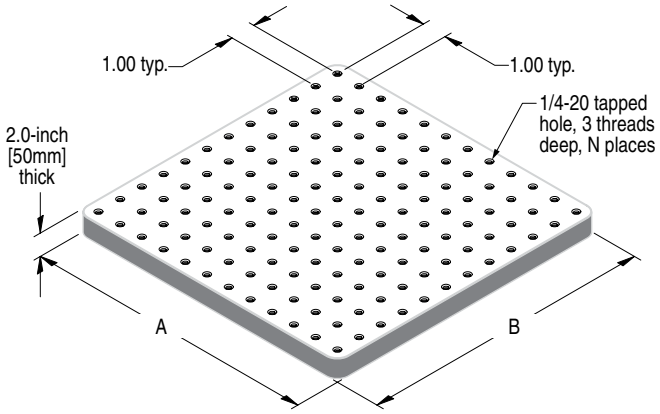
Performance Specifications

Materials	
Top skin	430 series ss, 0.075 in [2 mm] thk
Bottom skin	400 series ss, 0.075 in [2 mm] thk
Sidewalls	high-pressure laminate
Core	steel honeycomb, closed-cell, 0.010 in [0.2 mm] thk foil
Core shear modulus	275,000 psi [19,300 kg/cm2]
Core cell size	< 0.5 in2 [3 cm2]
Core density	13.3 lb/ft3 [230 kg/m3]
Flatness	± 0.005 in [0.13 mm]
Tapped holes	3 threads, backed by individual CleanTop® II cups

Order Information

19"x23" [450x600] 31 lb [14 kg]	75SSC-103-02
19"x47" [450x1200] 62 lb [28 kg]	75SSC-104-02
23"x23" [600x600] 37 lb [17 kg]	75SSC-113-02
23"x35" [600x900] 56 lb [25 kg]	75SSC-115-02
23"x47" [600x1200] 74 lb [34 kg]	75SSC-119-02
35"x47" [900x1200] 111 lb [50 kg]	75SSC-135-02

75 Series



Model	A	B	N
75SSC-103-02	19.00	23.00	396
75SSC-104-02	19.00	47.00	828
75SSC-113-02	23.00	23.00	484
75SSC-115-02	23.00	35.00	748
75SSC-119-02	23.00	47.00	1012
75SSC-135-02	35.00	47.00	1564

High-Performance Laboratory Tables

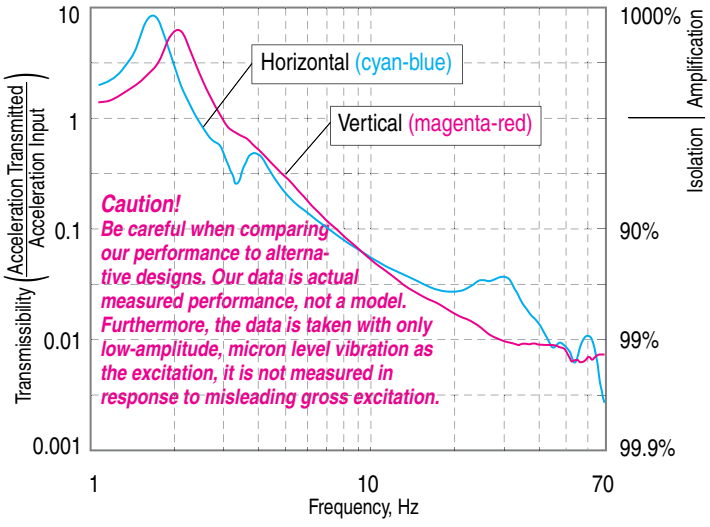
63-500 Series

63-500 Series Tables

The 63-500 Series High-Performance Lab Tables provide an excellent vibration-free working surface for loads up to 350 lb [160 kg]. Siskiyou has teamed up with isolation table industry leader TMC to offer these products that match with our platforms, support rods and other hardware. Now with modular construction, these tables are recommended for use in such diverse applications as electrophysiology, cell injection, ultramicrotomy, photomicroscopy, scanning tunneling microscopy, and confocal laser scanning microscopy. TMC's Patented Gimbal Piston™ Isolator has been proven by independent tests to consistently outperform the competition. It achieves both horizontal and vertical isolation down to very low input levels. An integral part of the Gimbal Piston, the thin-wall, Dacron®-reinforced, rolling diaphragm air seals are only 0.020 in. [0.5 mm] thick and extremely flexible. They do not stiffen the spring as thicker rubber diaphragms do, to maximize horizontal isolation. All systems are equipped with rugged all-aluminum height control valves. Virtually unbreakable, they are finger-adjustable with no need for tools. The standard model maintains height to ±0.050 in. [±1 mm]; the precision model, to ±0.005 in. [±0.1 mm]. Unique in the industry, TMC provides sturdy, tamperproof, built-in piston travel restraints. The restraints are completely independent of the table valves and have been ram-tested at forces above those produced by the pistons operating at full pressure. They cannot be decoupled accidentally and do not interfere with setting up and using the table, but simply protect against over-travel without the use of external bars that create hazardous pinch points. Heavy loads, including the top plate, can be safely removed from a table in full operation. Exclusive TMC tiebar gussets increase table frame rigidity. They compensate for the elimination of the front tiebar in order to provide knee and leg room. Table legs include built-in fine-thread 3 in. [75 mm] diameter screw jack levelers with 1/2 in. [13 mm] travel, provision for external adjustment and a handy adjustment wrench. The adjustable feet have a solid, slightly domed shape to assure solid, wobble-free contact with sloping or irregular floors. All table tops come with standard 1⁄4-20 x 1.0 tapped hole array.

63-500 Series

63-531 Vibration Isolation Performance



Product Features

- Gimbal Piston™ Isolators
- Rugged Built-in Leveling Feet
- Superior Table Tops

Accessories

• Front & Rear Support Bars • Armrest Pads
• Sliding Shelves • Raised Rear Shelf • Casters

Performance Specifications

Isolator natural frequency	
High input	Vert: 1.2 Hz, Horiz: 1.0 Hz
Low input	Vert: 1.5–2.0 Hz, Horiz: 1.2–1.7 Hz
Isolation efficiency	
@ 5 Hz	Vert: 70–85%, Horiz: 75–90%
@ 10 Hz	Vert: 90–97%, Horiz: 90–97%
Gross load capacity	1,400 lbs [640 kg]
Net load capacity	350 lbs [160 kg]
Facilities required	80 psi nitrogen or air

Order Information

isolator with 2-inch stainless steel laminate	
25"x36" [625x900]	63-511
30"x30" [750x750]	63-521
30"x36" [750x900]	63-531
isolator with 4-inch CleanTop® II	
30"x36" [750x900]	63-533
30"x48" [750x1200]	63-543
30"x60" [750x1500]	63-553

PSR and AS Series

Platforms / Tables

Support Rods & Spacers

PSR and AS Series

Note that dimensions in parentheses (mm) reflect metric assembly features

Platform Support Rods

Our PSR series platform support rods are a solid solution for supporting platforms or other mechanical hardware. Our PSR platform support rods are specifically designed to be used with our 1200 and 12000 series platforms. PSR platform support rods are cross drilled to accept a 3/16 hex wrench. This cross hole enables secure tightening to AS spacers, isolation table tops, or other mechanical devices. When used in conjunction with AS aluminum spacers, accurate placement of our platforms, manipulators, or other devices is easily achieved.

Aluminum Spacers

Use AS aluminum spacers for spacing of any device that needs to be adjusted in either the vertical or horizontal plane. AS spacers can be used by themselves or with ABP series base plates. They are also useful for added height adjustment on top of our PSR platform support rods. For horizontal applications use our BB-1.0 building block cube attached to the top of an AS spacer, then bolt another AS spacer to one or more of the four sides.

Individual size spacers are available in packages of 4 or in assortment kits. See ordering information at left and below.

Product Features

- Solid aluminum construction
- Sizes from 0.125- to 10.0-inch
- Cost-effective support system
- Vacuum compatible versions available upon request

Related Products

platforms	beginning 102
post mount clamp	112
perfusion chambers	192

Order Information

platform support rods	
4.0 inch	PSR-4.0
6.0 inch	PSR-6.0
10.0 inch	PSR-10.0
Aluminum spacers, Assortment kit	**AS-1A**
.125", package of 4	AS-.125
.250", package of 4	AS-.250
.500", package of 4	AS-.500
1.00", package of 4	AS-1.00
1.50", package of 4	AS-1.50
2.00", package of 4	AS-2.00
4.00", package of 1	AS-4.00
6.00", package of 1	AS-6.00

Metric Order Information

platform support rods	
100 mm	PSR-100
150 mm	PSR-150
250 mm	PSR-250
Aluminum spacers, Assortment kit	**AS-25A**
3 mm, package of 4	AS-3
7 mm, package of 4	AS-7
15 mm, package of 4	AS-15
25 mm, package of 4	AS-25
40 mm, package of 4	AS-40
50 mm, package of 4	AS-50
100 mm, package of 1	AS-100
150 mm, package of 1	AS-150

AS-1A — Inch Size — Aluminum Spacers, Assortment Kit

- One (1) of each spacer size AS-.125 through AS-2.00
- Two (2) 1/4-20 x 5/8 stainless steel set screws to attach AS-1.50 to AS-2.00

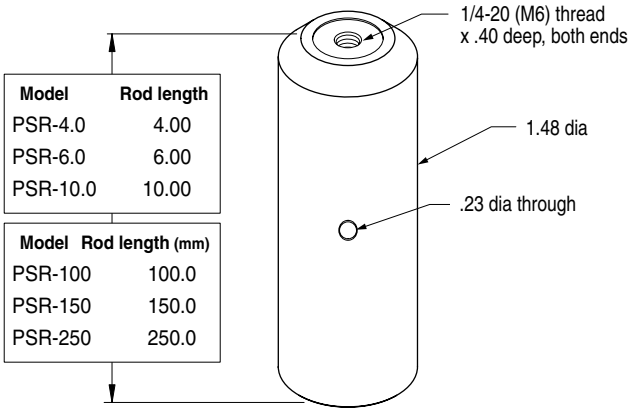
AS-25A — Metric Size — Aluminum Spacers, Assortment Kit

- One (1) of each spacer size AS-3 through AS-50
- Two (2) M6 x 15 stainless steel set screws to attach AS-40 to AS-50

Support Rods & Spacers

PSR Series

Note that dimensions in parentheses (mm) reflect metric assembly features



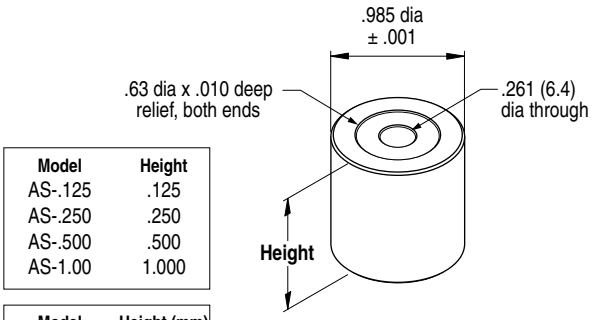
Model	Rod length
PSR-4.0	4.00
PSR-6.0	6.00
PSR-10.0	10.00

Model	Rod length (mm)
PSR-100	100.0
PSR-150	150.0
PSR-250	250.0

PSR Series

AS Series

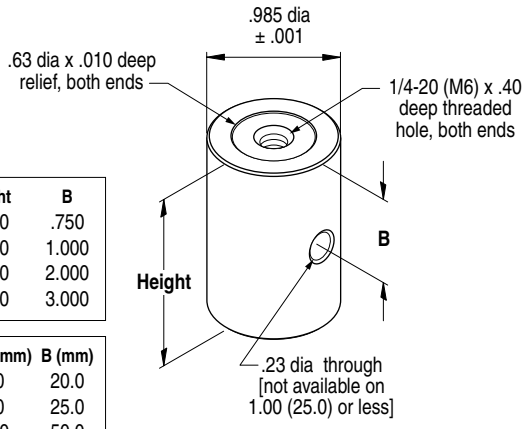
Note that dimensions in parentheses (mm) reflect metric assembly features



Model	Height
AS-.125	.125
AS-.250	.250
AS-.500	.500
AS-1.00	1.000

Model	Height (mm)
AS-3	3.0
AS-7	7.0
AS-15	15.0
AS-25	25.0

AS Series



Model	Height	B
AS-1.50	1.500	.750
AS-2.00	2.000	1.000
AS-4.00	4.000	2.000
AS-6.00	6.000	3.000

Model	Height (mm)	B (mm)
AS-40	40.0	20.0
AS-50	50.0	25.0
AS-100	100.0	50.0
AS-150	150.0	75.0

Post Mount Clamps on page 112

Large Mounting Posts

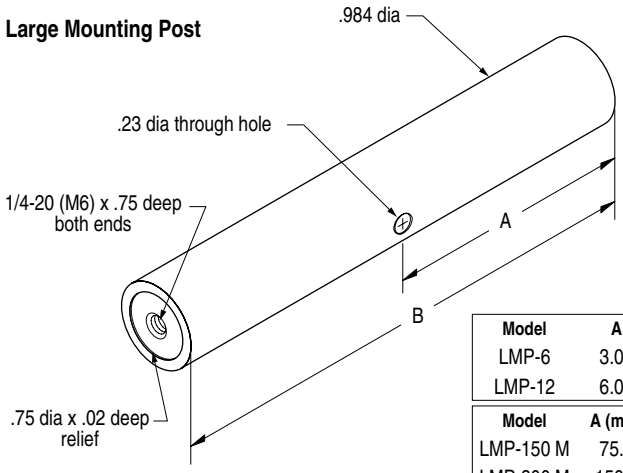
LMP Series

Note that dimensions in parentheses (mm) reflect metric assembly features

LMP Series

AS-C

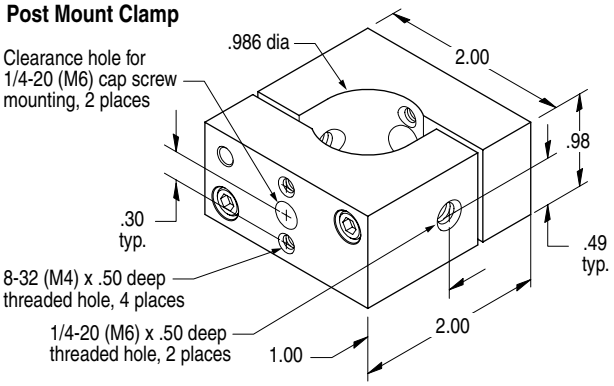
Large Mounting Post



Model	A	B
LMP-6	3.00	6.00
LMP-12	6.00	12.00

Model	A (mm)	B (mm)
LMP-150 M	75.0	150.0
LMP-300 M	150.0	300.0

Post Mount Clamp



Product Features

- High quality support post
- 1/4-20 tapped holes on each end
- Cross drilled for positive tightening
- Vacuum compatible versions available upon request

Related Products

AS series aluminum spacers	110
MX110 micromanipulator	156
MX6500 micromanipulator	165
MX7500 micromanipulator	170

Order Information

large mounting post, 6.0 inch	LMP-6
large mounting post, 12.0 inch	LMP-12
large mounting post, 150.0 mm	LMP-150
large mounting post, 300.0 mm	LMP-300
post clamp, nominal 1 inch post	AS-C
post clamp, metric model	AS-C-M

Large Mounting Posts

Our LMP series large mounting rods are a solid solution for supporting platforms or other mechanical hardware. The LMP large mounting post can be directly mounted to an isolation table top, PSR series platform support rods, or AS series spacers. LMP series mounting rods are cross drilled to accept a 3/16 hex wrench. This cross hole enables secure tightening to AS spacers, isolation table tops, or other mechanical devices.

The LMP's 0.984 diameter is the same as the mounting post for MX110s, MX6500s, and MX7500s. When used as a support leg for a fixed-stage platform, the LMP-6 can be used to attach any of these manipulators to create a rigid integrated mounting point.

Post Mount Clamp

The AS-C post clamp is designed to mount to our AS series and LMP series posts. The symmetrical design has a 1/4-20 clearance, 8-32 and 1/4-20 tapped holes conveniently located to attach a wide variety of devices. The clamp design will accommodate diameters from .950 inch to 1.25 inch. The AS-C is available in a metric version by adding "-M" to the Model number.

Introduction to Siskiyou adapters and other hardware

Whether you have chosen the metric (M6) or the U.S. system (1⁄4-20) as the basis of attachment in your lab, Siskiyou offers a variety of adapters to complete your installation.

Add anchors to flat metal surface.

Our full line of adapters starts out with a magnetic base and ends up with screw kits and thread adapters. The MG series of magnetic bases are available in a variety of sizes and holding forces. These magnetic bases are designed to be the interface between a magnetic mounting surface without conventional attachment holes and equipment that needs to be bolted down. Conversely we also have a selection of magnetic strips that enable the user to attach them to a nonmagnetic surface so that a magnet may be used to hold equipment in place.

Between magnetic bases and thread adapters is a variety of mounting plates, rail systems, support rods, and clamps – over 50 products in all. This group of products covers applications including vertical mountings of stages, additional mounting holes, and coarse linear or rotational positioning.

Screw kits and thread adapters provide secure attachment of equipment and are a necessary part of any lab. Our wide selection of thread adapters provides solutions to mismatching thread sizes and facilitates variations in metric or U.S. system threads.

Add feet for mounting rods or magnetic strips for holding wires and other metallic components.

These small magnetic bases are designed to be used with our MS series magnetic strips.

Section Contents

Adapters / Rails / Hardware

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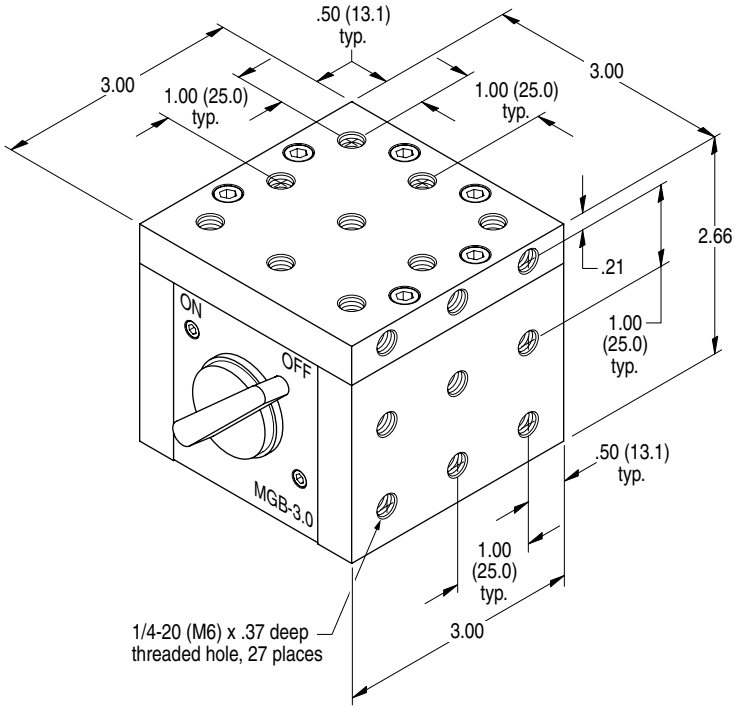
Magnetic Base

3.0 x 3.0 / MGB-3.0

Note that dimensions in parentheses (mm) reflect metric assembly features

MGB-3.0



Product Features

- Multiple mounting surfaces
- Simple on / off lever
- Solid holding force

Performance Specifications

holding force	70 lbs

Related Products

MX-APC-T base plate	127
MX-APT-T base plate	127
MX312P platform	96
micromanipulators	beginning 151

Order Information

magnetic base, 3.0 inch	MGB-3.0

Metric Option — for metric assembly features on this product, add '-M' after model number.

Magnetic Base

The MGB-3.0 magnetic base is designed to be used as a stable mounting platform for isolation tables lacking mounting holes, or on any magnetic surface. The 3.0-inch x 3.0-inch footprint has greater surface area and is more stable than similar magnetic bases. The magnetic field of the MGB-3.0 is activated through 45° rotation of a manual lever that is clearly marked ON and OFF.

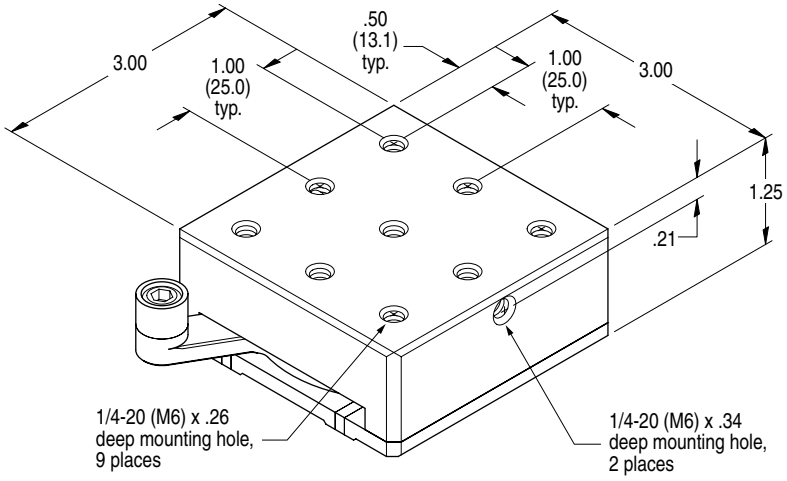
The MGB-3.0's 3.0-inch x 3.0-inch mounting surface is the perfect match for mounting our 331 stages, 831 stages, MX312P platforms, or MX3T tilt platforms. Three sides of the magnetic base have nine 1/4-20 mounting holes for added attachment flexibility.

The MGB-3.0 is also compatible with our MX-AP series top adapter plates. These adapter plates allow the experimenter to remove and replace equipment accurately and simply by loosening two flathead screws.

Magnetic Base

3.0 x 3.0 / MGB-3.0lp

Note that dimensions in parentheses (mm) reflect metric assembly features



MGB-3.0lp

New

Magnetic Bases

The MGB-3.0lp magnetic base is designed to be used as a stable mounting platform for isolation tables lacking mounting holes, or on any magnetic surface. The magnetic field of the MGB-3.0lp is activated through 60° rotation of a manual lever that is clearly marked ON and OFF.

The MGB-3.0lp's 3.0-inch x 3.0-inch mounting surface is the perfect match for mounting our 331 stages, 831 stages, MX312P platforms, or MX3T tilt platforms. The MGB-3.0lp is also compatible with our MX-AP series top adapter plates. These adapter plates allow the experimenter to remove and replace equipment accurately and simply by loosening two flathead screws

Product Features

- 1/4-20 tapped surface
- Low profile design
- Solid holding force

Performance Specifications

holding force	50 lbs

Related Products

MX-APC-T base plate	127
MX-APT-T base plate	127
MX312P platform	96
micromanipulators	beginning 151

Order Information

magnetic base, 3.0 inch low profile	MGB-3.0lp

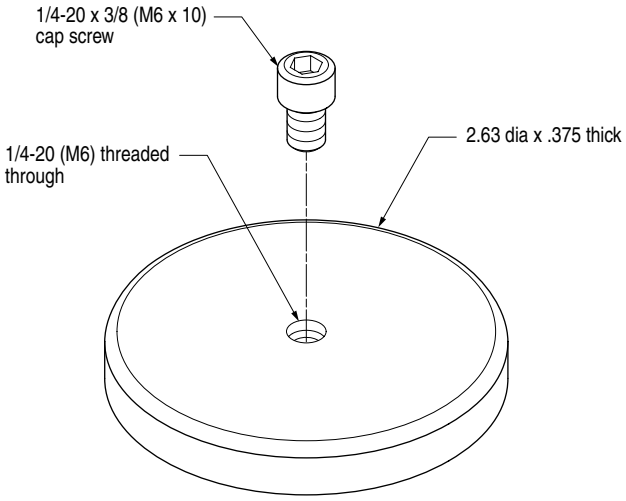
Metric Option — for metric assembly features on this product, add '-M' after model number.

Magnetic Base

Round Foot / MGF

Note that dimensions in parentheses (mm) reflect metric assembly features

MGF



Product Features

- 1/4-20 attachment point
- Low profile design
- Solid holding force

Performance Specifications

holding force	82 lbs
attachment point	1 x 1/4-20

Related Products

PSR series support rods	110
AS series spacers	110
LMP series mounting posts	112

Order Information

magnetic foot	MGF

Metric Option — for metric assembly features on this product, add '-M' after model number.

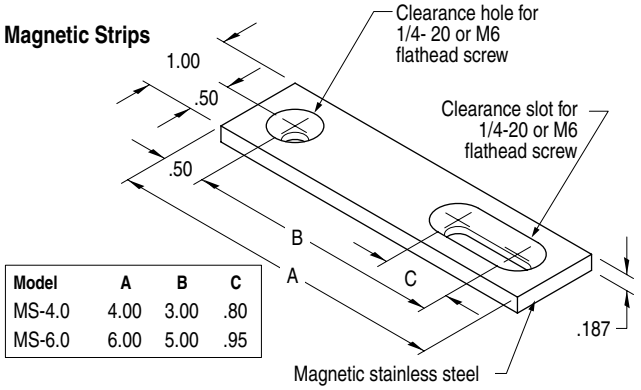
Magnetic Foot

The MGF magnetic feet are designed to be used as a stable attachment point for AS series spacers and PSR series platform support rods. This simple design is ideal for securely holding equipment to isolation tables lacking mounting holes. The rare earth magnet provides a solid attachment point for a variety of devices. The MGF can be used individually or in multiples when more strength or a wider footprint is needed.

The center of the MGF has a 1⁄4-20 tapped insert. By attaching a set screw to the bottom of an AS spacer or PSR support rod these support structures can be simply screwed into the MGF base. If your device is not compatible with 1⁄4-20 we have thread adapters (page 145) for a wide variety of U.S. system and metric threads.

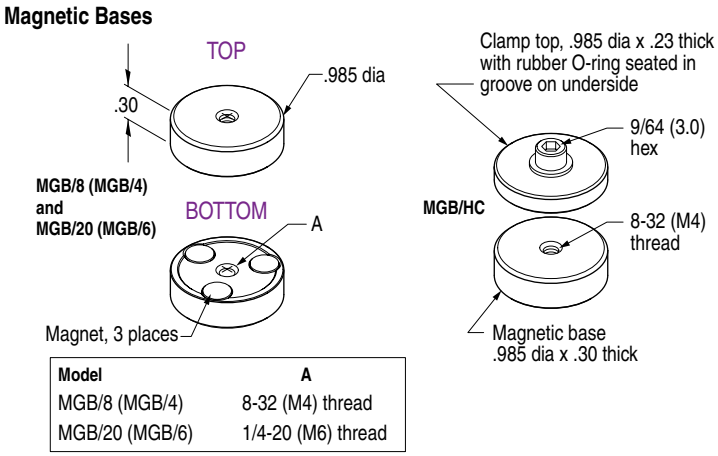
Magnetic Strips & Bases

1-inch Strip & 1-inch Diameter / MS Series



Model	A	B	C
MS-4.0	4.00	3.00	.80
MS-6.0	6.00	5.00	.95

MS Series



Model	A
MGB/8 (MGB/4)	8-32 (M4) thread
MGB/20 (MGB/6)	1/4-20 (M6) thread

MGB Series

Magnetic Strips

The MS series magnetic strips allow the user to create a magnetic interface on nonmagnetic surfaces. These magnetic strips are made from magnetic stainless steel and are a cost-effective alternative to solid steel platforms. The mounting holes accept either 1⁄4-20 or M6 flathead screws, included, set at 3.0- and 5.0-inch spacing. The MS series magnetic strips can be used individually or in multiples when more strength is needed.

The slim design of these magnetic strips adds minimally to the height of any setup. Our full line of platforms offer a variety of mounting options but can be limited by the nonmagnetic surface. By attaching these magnetic strips you can conveniently place a multitude of small wires or equipment.

Magnetic Bases

These small (1.0-inch diameter) magnetic bases are designed to be used with our MS series magnetic strips. The bases come in four tapped versions. The MGB/8 can be combined with our MPR post to create mounting solutions for many different applications. The MGB/HC hose clamp is available in a metric version by adding "-M" to the Model number.

Product Features

- Creates a magnetic mounting surface
- Magnetic stainless steel construction
- Mounting hardware included

Related Products

platforms beginning 102

Order Information

magnetic strip, 4.0 inch	MS-4.0
magnetic strip, 6.0 inch	MS-6.0
magnetic base, M4 tapped hole	MGB/4
magnetic base, M6 tapped hole	MGB/6
magnetic base, 8-32 tapped hole	MGB/8
magnetic base, 1/4-20 tapped hole	MGB/20
magnetic base, hose clamp	MGB/HC
metric model	MGB/HC-M

Mounting Blocks & Brackets

UMP-2.2 and AB-U

Note that dimensions in parentheses (mm) reflect metric assembly features

UMP-2.2

Universal Mounting Plate

The UMP-2.2 universal mounting plate is designed to provide mounting holes anywhere and in any orientation on microscope stages, isolation tables, or other components with 1⁄4-20 or M6 mounting holes.

The low profile and compact design of the UMP-2.2 adds minimally to the height of a setup. The UMP-2.2 is ideal for adapting a M6 mounting surface to a 1⁄4-20 hole spacing and comes complete with M6 and 1⁄4-20 hardware.

AB-U

Aluminum Base, Universal

The AB-U is a unique two-piece angle bracket that can be assembled into many different configurations. The two-piece design enables the construction of 90° plates and T-plates, two varieties of each, or two sets can be combined to create a box structure.

The AB-U is ideal for increasing mounting attachment points or making a vertical mounting surface.

Product Features

- Solid aluminum construction
- Mounting hardware included
- 1/4-20 interfaces

Related Products

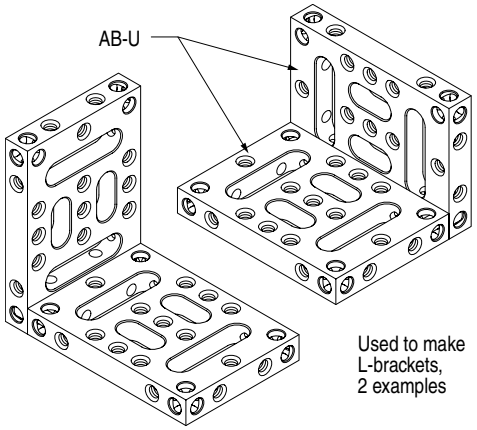
DT-300 stage	42
331 stage	46
100cr stage	52
100cr-A stage	53
100cri stage	64
200cr stage	57
200cri stage	64
831 stage	63

Order Information

universal mounting plate, 2.2 inch	UMP-2.2
aluminum base, universal, 2 pieces	AB-U

Metric Option — for metric assembly features on this product, add '-M' after model number.

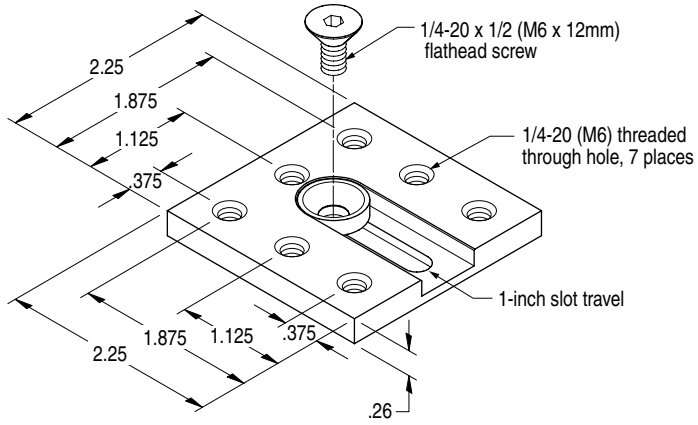
Application



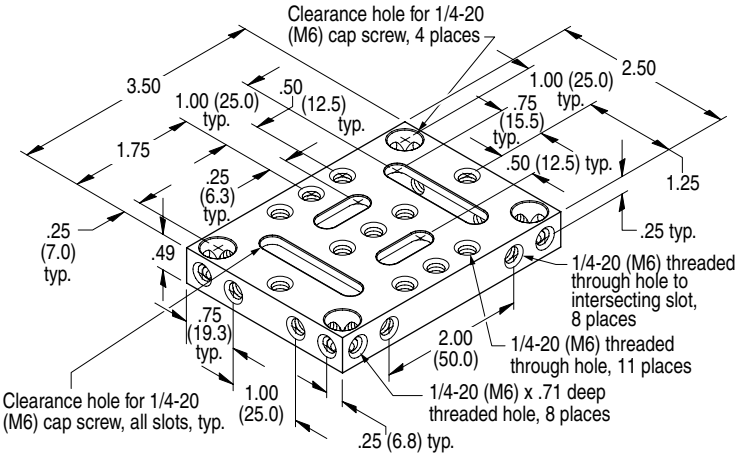
Mounting Blocks & Brackets

UMP-2.2 and AB-U

Note that dimensions in parentheses (mm) reflect metric assembly features



UMP-2.2



AB-U

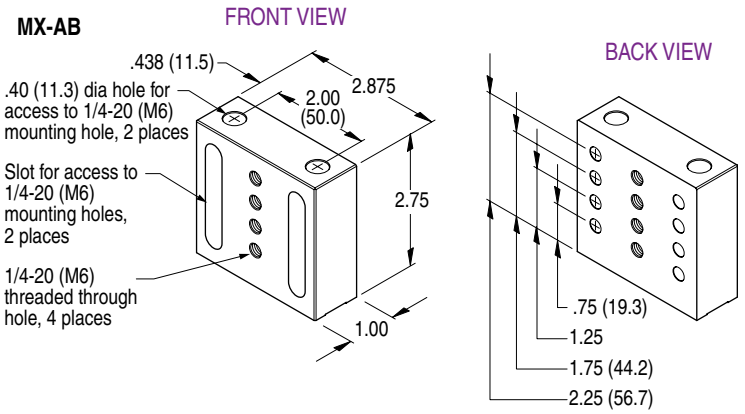
Mounting Blocks & Brackets

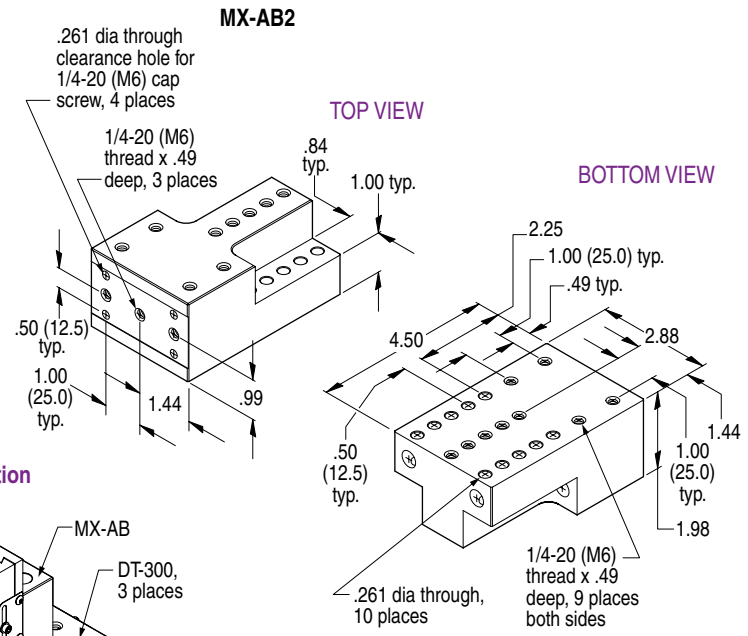
Right Angle Block and Base / MX-AB

Note that dimensions in parentheses (mm) reflect metric assembly features

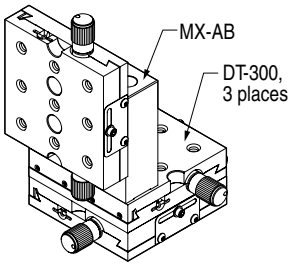
MX-AB

MX-AB2





Application



Product Features

- Solid aluminum construction
- Mounting hardware included
- 1/4-20 interfaces
- Vacuum compatible versions available upon request

Related Products

DT-300 stage	42
331 stage	46
100cr stage	52
200cr stage	57
MXT angle platform	101
100cri stage	64
200cri stage	64
831 stage	63

Order Information

adapter block	MX-AB
mounting base, 24 threaded 1/4-20 holes	MX-AB2

Metric Option — for metric assembly features on this product, add '-M' after model number.

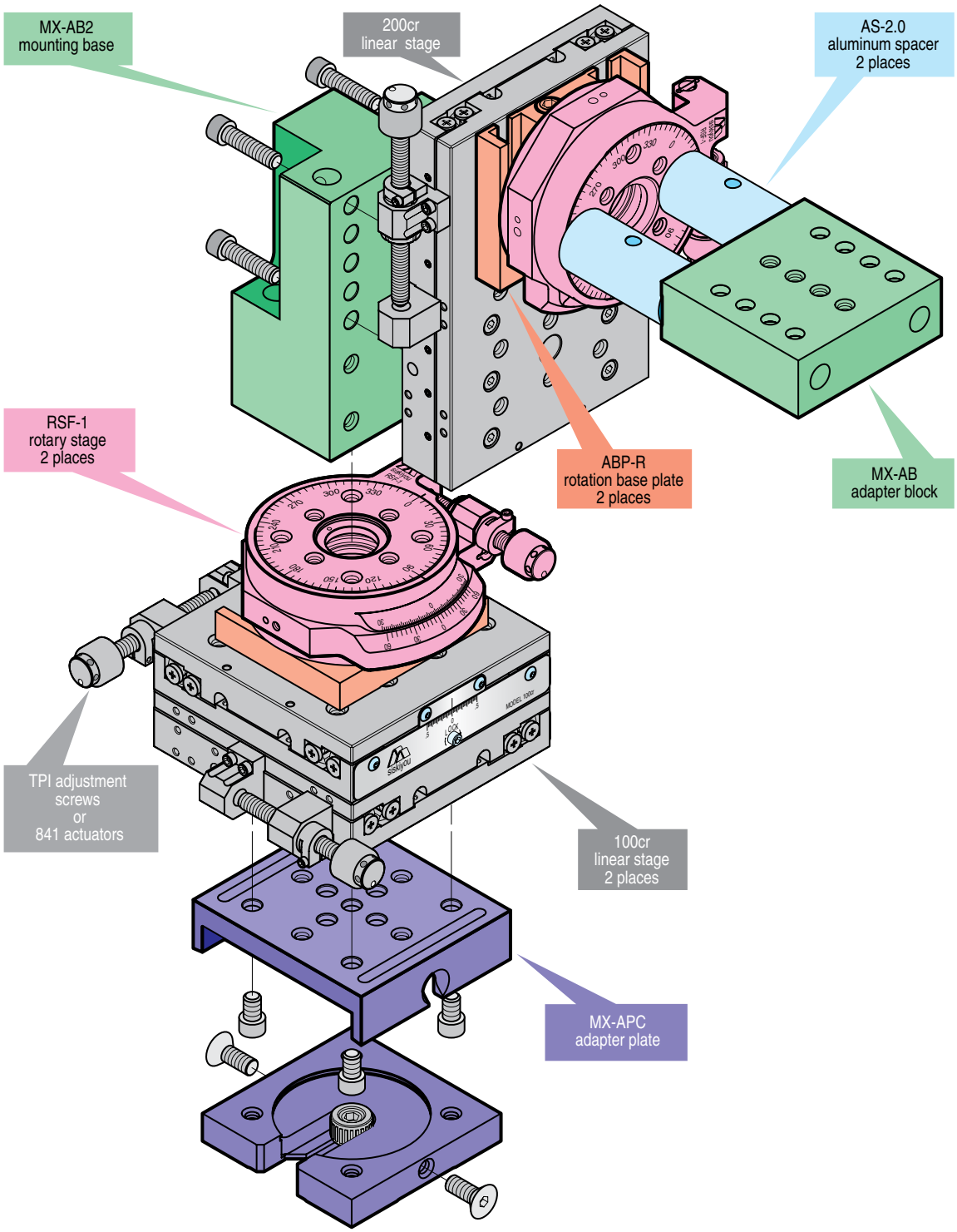
Adapter Block

The MX-AB right angle block is designed for mounting Z-axis stages to solid mounting surfaces or other stages. The MX-AB's simple design allows the user to configure many devices with 1/4-20 tapped holes into a vertical application. This angle bracket is designed for flexibility and allows the user to configure stages into XZ-, YZ-, or Z-axis versions.

Mounting Base

Although the MX-AB2 was designed to be used with the 200cr and 200cri stages, the 1.0-inch spaced mounting holes allow the user to create stand-alone Z-axis mounting or add a Z-axis to X / XY from any of our motorized or manual stages.

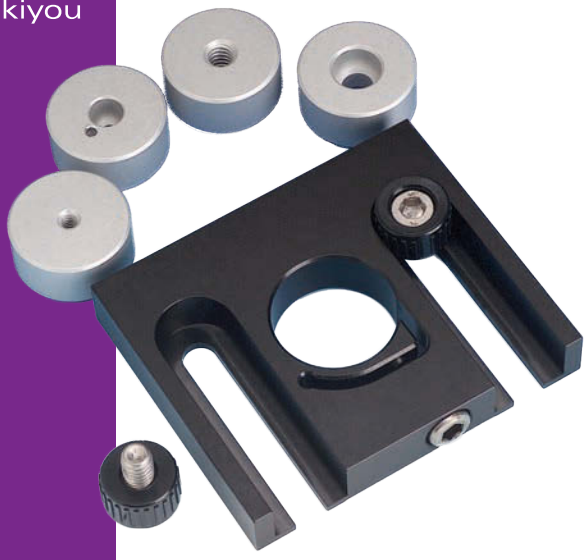
Application



Base Plate

Rotation / ABP Series and MX-RS

Note that dimensions in parentheses (mm) reflect metric assembly features



ABP-R Series

Aluminum Base Plate, Coarse Rotation

The ABP-R mounting base allows the user to coarsely adjust the position of a device both transversely and rotationally. The mounting slots on the ABP-R allow positioning between mounting holes on isolation tables and platforms while the center clamp enables 360 degrees of rotation of our adapter plugs.

Rotation Base Adapters

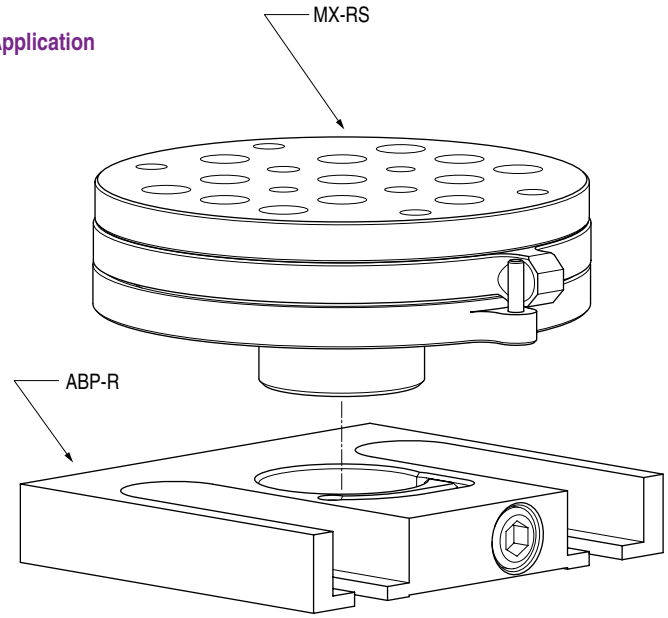
ABP-R1, -R2, -R3, and -R4 series of adapter plugs enable the user to benefit from the location flexibility of the ABP-R mounting base. These adapter plugs come in versions compatible with 1⁄4-20 or 8-32 attachments.

Repeatable Rotation Base

The MX-RS repeating rotation stage is designed to mount onto our ABP-R. The MX-RS uses a magnetic coupling to ensure submicron relocation. By combining the ABP-R with the MX-RS a multitude of devices can be positioned, rotated out of an experiment, and then returned with great accuracy.

The mounting surface of the MX-RS is laid out with 1⁄4-20 and 8-32 mounting holes and is compatible with our 1600, 7600, MX160, MX1600, MX6600, and MX7600 series of stages and manipulators. The repeatable design adds a level of flexibility to quick and precise electrode replacement.

Application



Product Features

- Coarse linear / rotation positioning
- Adapters for 1/4-20 or 8-32 mounting
- Mounting hardware included
- Vacuum compatible versions available upon request

Related Products

7600 stages	66
MX7630 micromanipulator	168
MX7600 micromanipulator	169
MX6600 micromanipulator	164

Order Information

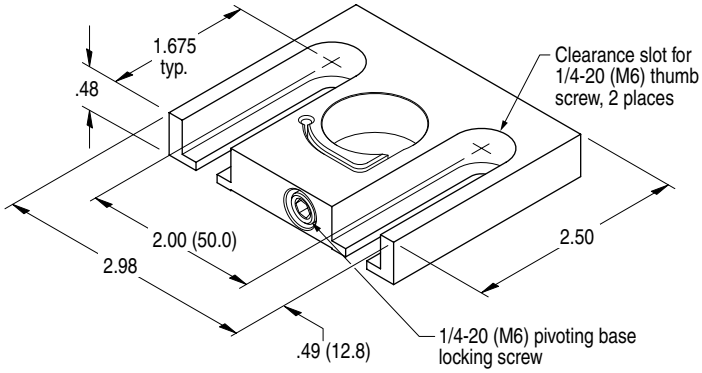
aluminum base plate, coarse rotation	ABP-R
rotation base adapter, 1/4-20 threaded	ABP-R1
rotation base adapter, 8-32 threaded	ABP-R2
rotation base adapter, 1/4-20 clearance, metric compatible	ABP-R3
rotation base adapter, 8-32 clearance, metric compatible	ABP-R4
repeatable rotation base	MX-RS

Metric Option — for metric assembly features on this product, add '-M' after model number.

Base Plate

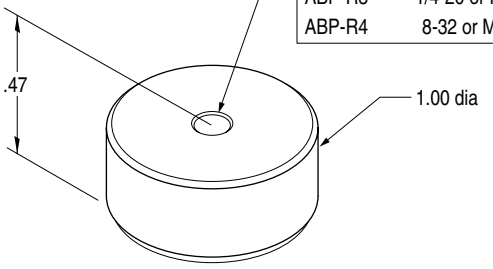
Rotation / ABP Series and MX-RS

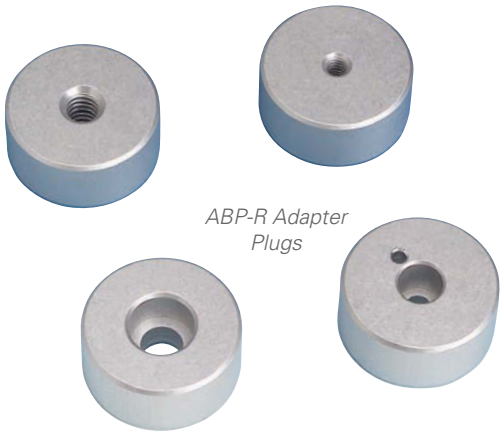
Note that dimensions in parentheses (mm) reflect metric assembly features



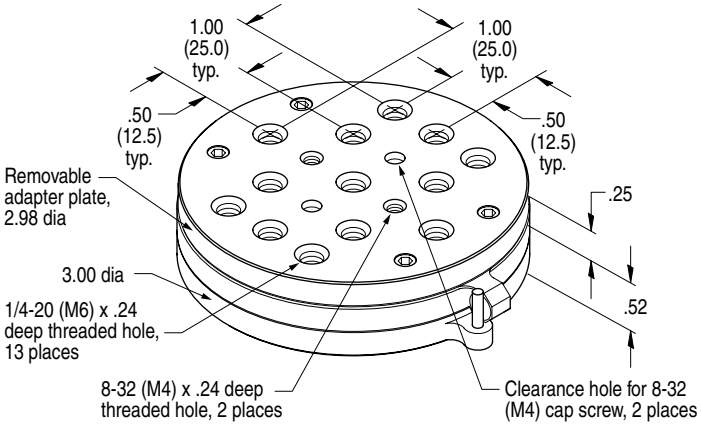
ABP-R

Model	Plug Mounting Feature
ABP-R1	1/4-20 (M6) thread through
ABP-R2	8-32 (M4) thread through
ABP-R3	1/4-20 or M6 clearance
ABP-R4	8-32 or M4 clearance





ABP-R Adapter Plugs



MX-RS

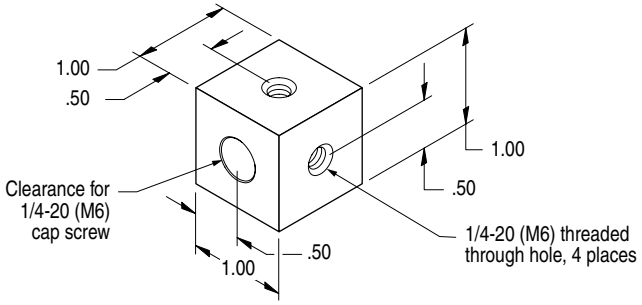
Base Plate

Building Blocks / BB Series

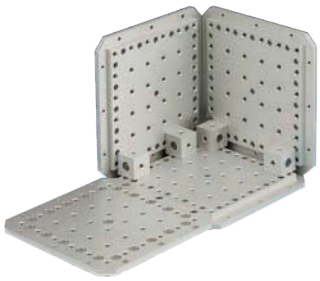
Note that dimensions in parentheses (mm) reflect metric assembly features

BB Series

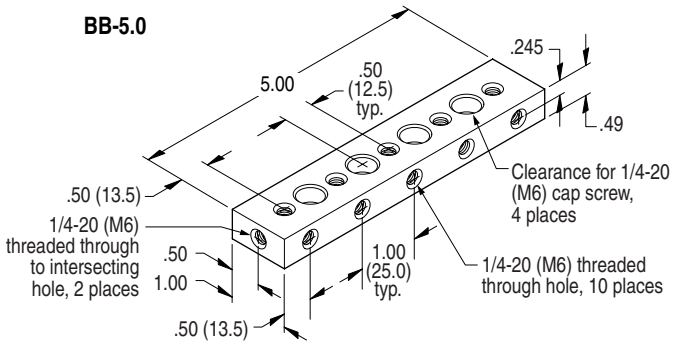
BB-1.0



Application



BB-5.0



Product Features

- Solid aluminum construction
- 1/4-20 interfaces
- Flexible design
- Vacuum compatible versions available upon request

Related Products

PRH precision rod holders	132
AS spacers	110
PR precision rods	132
modular tiles	106

Order Information

building block, 1.0 inch	BB-1.0
building block, 5.0 inch	BB-5.0

Metric Option — for metric assembly features on this product, add '-M' after model number.

Modular Building Blocks

BB series building blocks are simple construction components and are a cost-effective alternative to having expensive machine shops build *one-off* adapter/interface plates.

The BB-1.0 cube is designed to change the mounting surface by 90°. It has one 1/4-20 mounting hole and four 1/4-20 attachment points.

The BB-5.0 rail is designed with maximum attachment points, four 1/4-20 (M6) clearance holes and twelve 1/4-20 tapped holes.

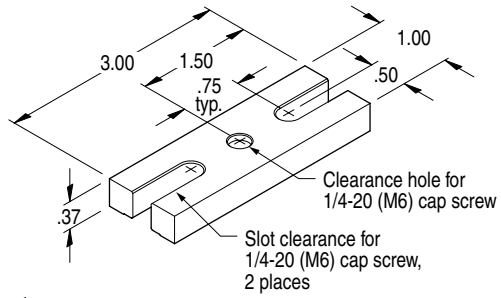
Base Plate

Translation / ABP-T Series

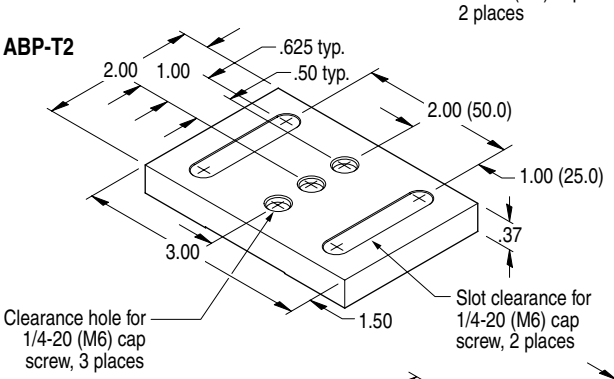
Note that dimensions in parentheses (mm) reflect metric assembly features

ABP Series

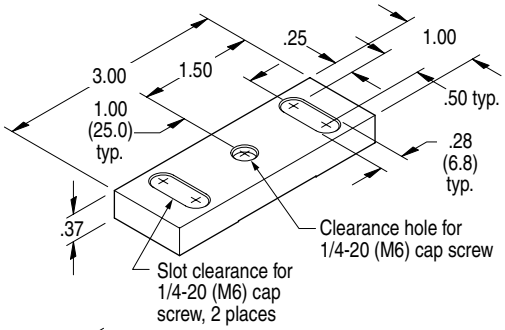
ABP-T1



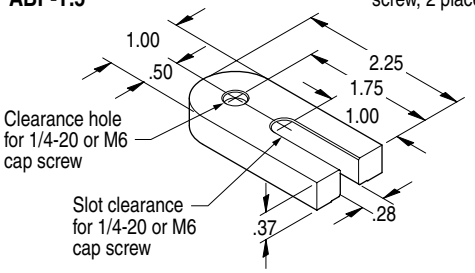
ABP-T2



ABP-T3



ABP-T.5



Product Features

- Coarse X- or Y-axis positioning
- 1/4-20 interfaces
- Solid aluminum construction
- Vacuum compatible versions available upon request

Related Products

PRH precision rod holders	132
AS spacers	110
PR precision rods	132

Order Information

aluminum base plate, .75 inch travel	ABP-T1
aluminum base plate, 2.0 inch travel	ABP-T2
aluminum base plate, .5 inch travel	ABP-T3
aluminum base plate, .75 inch travel, universal	ABP-T.5

Metric Option — for metric assembly features on this product, add '-M' after model number.

Aluminum Base Plates, Translation

The ABP-T series translation base plates are designed to mount PRH series precision rod holders and AS series spacers. These simple designs enable the user to place these or other devices in many locations on the mounting surface. The ABP-T series translation bases are a cost-effective alternative to having expensive machine shops build *one-off* adapter/interface plates.

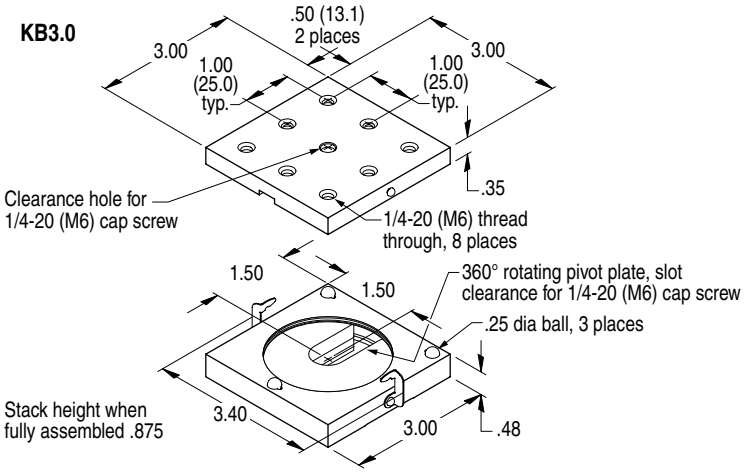
Base Plate

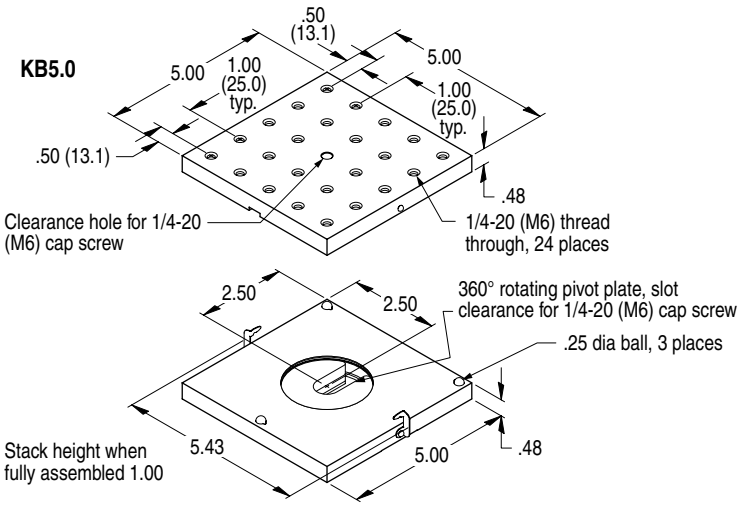
Kinematic / KB Series

Note that dimensions in parentheses (mm) reflect metric assembly features

KB Series

KB3.0 shown disassembled





Product Features

- Carbide location pads
- Flexible mounting design
- 1/4-20 interfaces
- Vacuum compatible versions available upon request

Related Products

PRH precision rod holders	132
AS spacers	110
ABP base plates	125

Order Information

kinematic base assembly, 3.0 inch	KB3.0
kinematic top only, 3.0 inch	KB3.0T
kinematic base assembly, 5.0 inch	KB5.0
kinematic top only, 5.0 inch	KB5.0T

Metric Option — for metric assembly features on this product, add '-M' after model number.

Kinematic Bases

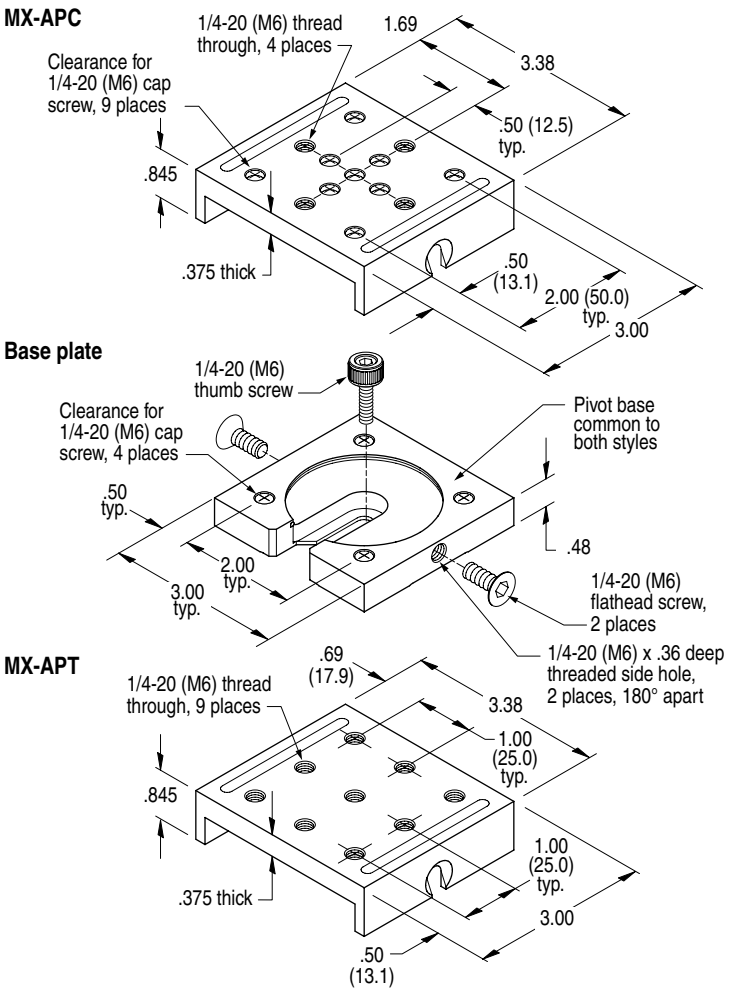
The KB series kinematic bases are designed for quick and precise removal/relocation of equipment in the experiment area. Hardened steel balls locating in carbide receivers assure submicron repeatability. Snap-on spring clips ensure solid locking of top mounting plates.

KB series kinematic base plates are equipped with a unique hold down pivot that allows secure single-bolt mounting anywhere on an isolation table, platform, or mounting surface. The top plates are tapped with 1/4-20 mounting holes on 1.0-inch centers. The related top plates can be purchased separately to facilitate a variety of equipment use.

Base Plate

Removable / MX-AP Series

Note that dimensions in parentheses (mm) reflect metric assembly features



MX-AP Series

Removable Base Plates

The MX-AP series adapter plates are specifically designed to speed up the cumbersome mounting and unmounting of translation stages stacked in an XY configuration. With the MX-AP series, it is no longer necessary to disassemble stacked stages to access the mounting screws of the lower stage. The XY stage is mounted to the MX-AP series top plate with four cap screws and the MX-AP series top plate is clamped to its base plate with two flathead Allen screws.

MX-AP series adapter plates come in two styles. The MX-APC top plate has nine clearance holes for 1⁄4-20 (M6) cap screws and four holes tapped 1⁄4-20 (M6). The MX-APT top plate has nine holes tapped 1⁄4-20 (M6). The base plate is equipped with a unique hold down pivot that allows secure single-bolt mounting anywhere on an experimental table.

MX-AP series top plates may be purchased separately and adapted to other devices for quick, simple removal, or replacement out-of and back-into the area of the experiment. Their unique attachment design is also compatible with our MGB-3.0 magnetic base and MX312P platforms.

Product Features

- Solid locking mechanism
- Flexible mounting design
- 1/4-20 interfaces
- Vacuum compatible versions available upon request

Related Products

MX312P platform	96
MX3T platform	98
MGB-3.0 magnetic base	114

Order Information

aluminum plate assembly, 1/4-20 (M6) clearance	MX-APC
aluminum plate assembly, 1/4-20 (M6) threaded	MX-APT
aluminum plate top only, 1/4-20 (M6) clearance	MX-APC-T
aluminum plate top only, 1/4-20 (M6) threaded	MX-APT-T

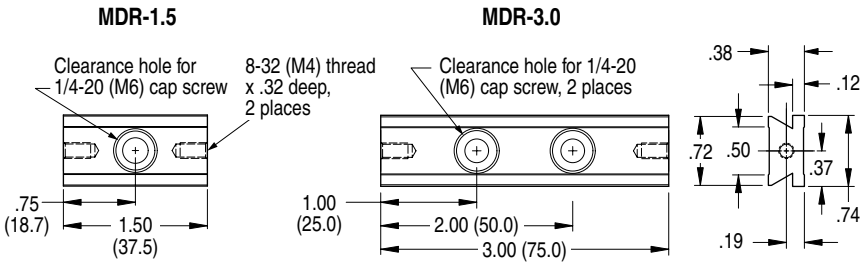
Metric Option — for metric assembly features on this product, add '-M' after model number.

Dovetail Rails & Carriers — Miniature

MDR Series

3/4" Rails, MDR Series — 1.5 and 3 Inch Lengths

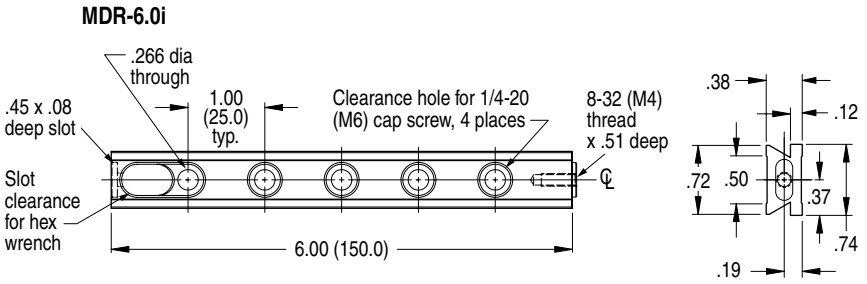
Note that dimensions in parentheses (mm) reflect metric assembly features

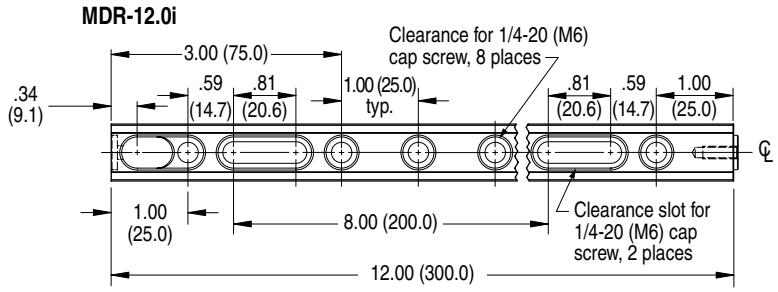


Modular by Design™

3/4" Rails, MDR Series — 6 and 12 Inch Lengths

Note that dimensions in parentheses (mm) reflect metric assembly features





Product Features

- Low profile design
- Modular flexibility
- Precision machined aluminum
- Vacuum compatible versions available upon request

Order Information

micro-dovetail rail, 1.5 inch length	MDR-1.5
micro-dovetail rail, 3.0 inch length	MDR-3.0
micro-dovetail rail, 6.0 inch length	MDR-6.0i
micro-dovetail rail, 12.0 inch length	MDR-12.0i

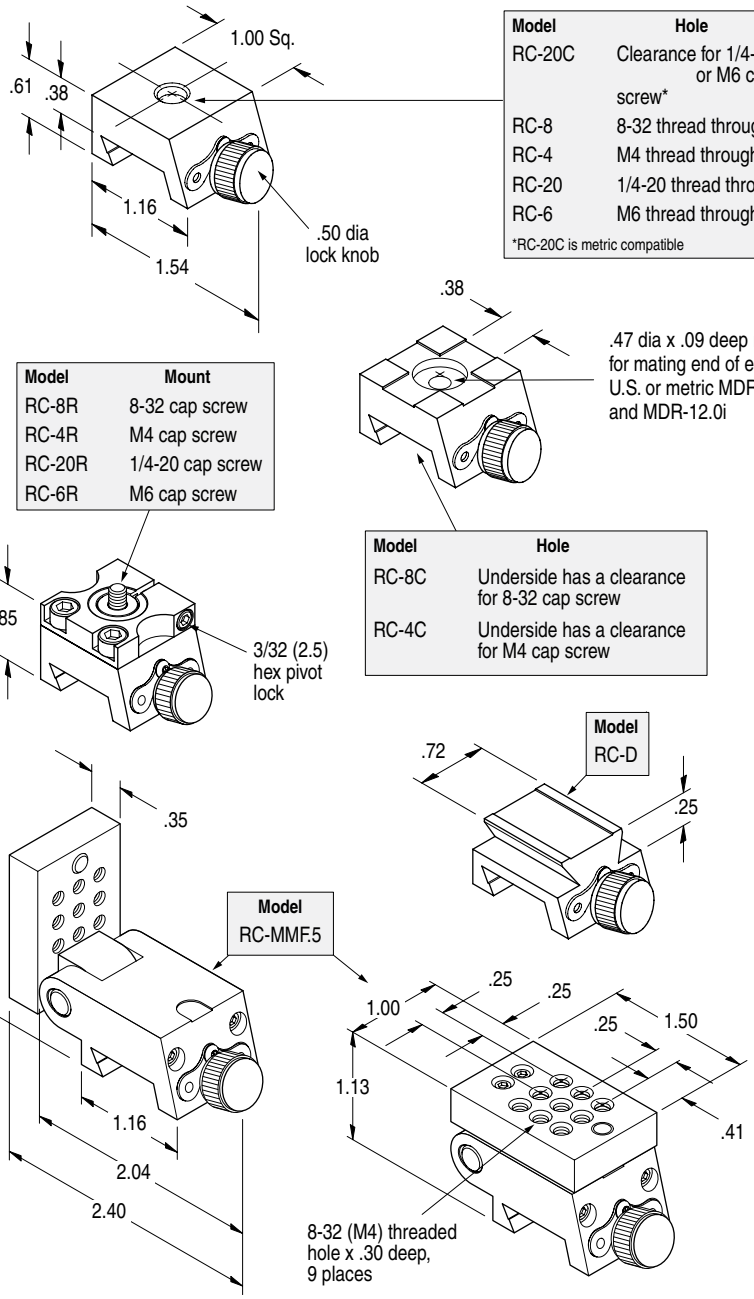
Metric Option — for metric assembly features on this product, add '-M' after model number.

Micro-Dovetail Rails

MDR micro-dovetail rails are compact, low profile rails that provide an in-line foundation and a three dimensional building block for a variety of component assemblies. The black anodized aluminum rails provide smooth carrier translation. Their precision dovetail construction allows components to be quickly attached, aligned, and rigidly held anywhere along the rails using RC rail carriers.

MDR micro-dovetail rails are available in lengths from 1.5- to 12.0-inches. The MDR-6.0i and MDR-12.0i ends are machined so that they can be bolted together to make any length of rail in 6-inch increments. MDR micro-dovetail rails may be secured at any angle on a microscope or laboratory table via counterbored clearance holes and slots.

Dovetail Rails & Carriers — Miniature



Product Features

- Unique snap-on feature
- Smooth coarse positioning
- 8-32, 1/4-20, M4 and M6 interfaces
- 5 arc-second repeatable mirror mount flipper
- Vacuum compatible versions available upon request

Order Information

rail carriers ~ imperial		
8-32	threaded	RC-8
8-32 /relief	clearance	RC-8C
8-32 /rotatable	cap screw	RC-8R
1/4-20 (M6)	clearance	RC-20C
1/4-20	threaded	RC-20
1/4-20 /rotatable	cap screw	RC-20R
orthogonal axis		RC-D
8-32	threaded	RC-MMF.5
rail carriers ~ metric		
M4	threaded	RC-4
M4 /relief	clearance	RC-4C
M4 /rotatable	cap screw	RC-4R
M6	threaded	RC-6
M6 /rotatable	cap screw	RC-6R
M4	threaded	RC-MMF.5-M

RC series rail carriers attach anywhere along MDR mini dovetail rails for quick and secure positioning of components. These one-piece aluminum RC rail carriers present a low profile and allow close spacing between components. Spring-loaded, hard polymer guides along the mating surface of the RC rail carriers ensure wobble-free sliding motion and dependable linear alignment along the MDR micro-dovetail rails. By backing out the clamping screw, any RC rail carrier can be positioned along the MDR micro-dovetail rail with a simple snap-on motion without removing the other carriers. Once in position, tighten the clamp screw fully for creep-free clamping. RC series rail carriers have attachments for either 8-32, 1/4-20, M4 or M6 mounting configurations. New to the line of RC rail carriers are the RC-20R and RC-8R. These simple but effective rail carriers allow the user to rotate the mounted device and lock it in place with one screw.

Dovetail Rails & Carriers — Large

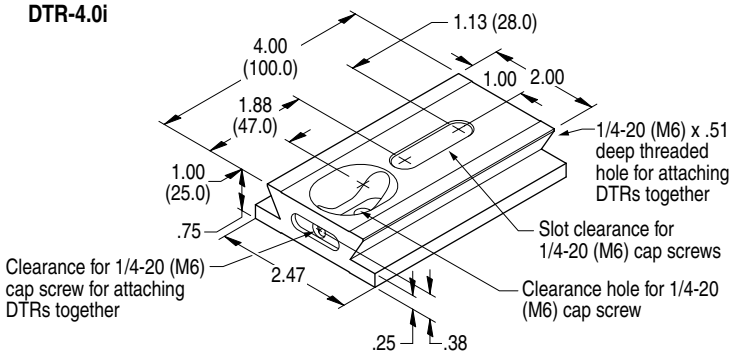
DTR Series

New

2.0" Rail, DTR Series — 4-inch Length

Note that dimensions in parentheses (mm) reflect metric assembly features

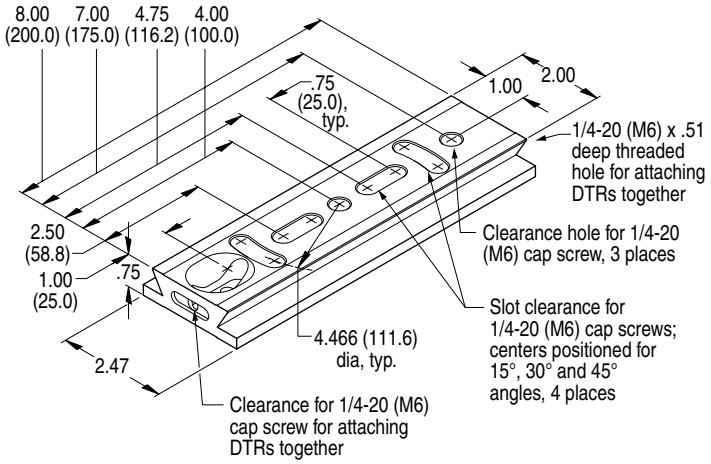
DTR-4.0i



2.0" Rail, DTR Series — 8-inch Length

Note that dimensions in parentheses (mm) reflect metric assembly features

DTR-8.0i



Product Features

- Low profile design
- Modular flexibility
- Precision machined aluminum
- Vacuum compatible versions available upon request

Related Products

CBH-1.0 beamsplitter mount	306
CFTx mounts	287
CLX mounts	275
IAG mounts	272–273
mirror mounts	200–234
flexure mounts	235–246
OGX mounts	269, 271
OTX mounts	254–259

Order Information

dovetail carrier, 0.5" wide	DTC-.50
dovetail carrier, 1.0" wide	DTC-1.0
dovetail carrier, 2.0" wide	DTC-2.0
dovetail rail, 4.0" length	DTR-4.0i
dovetail rail, 8.0" length	DTR-8.0i
dovetail rail, 100mm length, 50mm wide	DTR-100i
dovetail rail, 200mm length, 50mm wide	DTR-200i

Metric Option — for metric assembly features on this product, add '-M' after model number.

Siskiyou offers a wide variety of components with dowel pin pockets in the base that correspond to the dowel pin holes in these rail carriers. This prevents unwanted rotation of rail-mounted components, or when these components are used in an OEM setting.

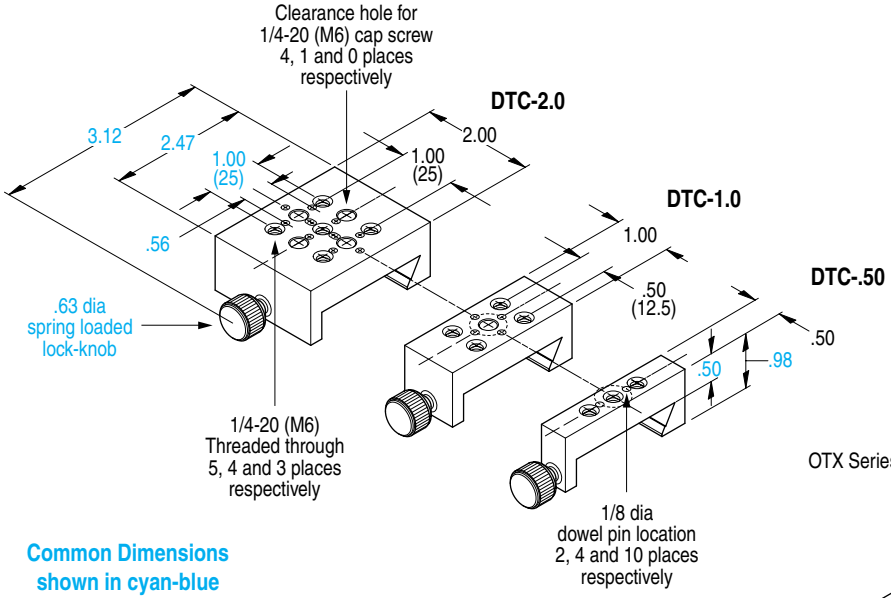
Dovetail Rails & Carriers — Large

2.0" Rail, DTC Series — Metric and US System

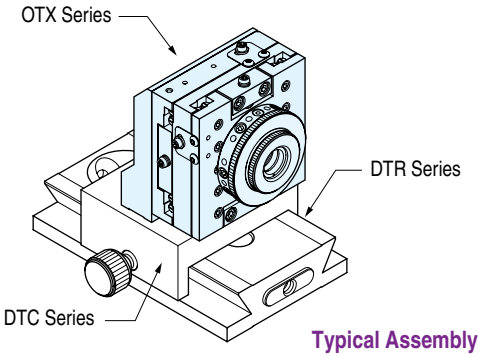
Note that dimensions in parentheses (mm) reflect metric assembly features

DTC Series

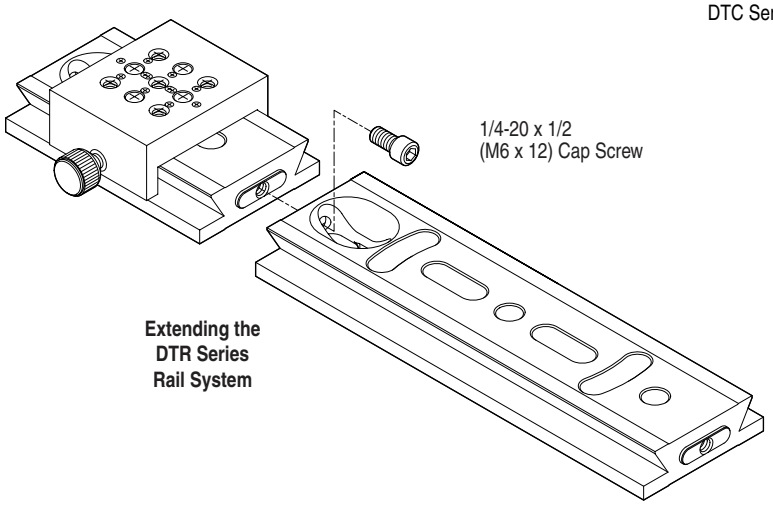
New



Common Dimensions shown in cyan-blue



Typical Assembly



Extending the DTR Series Rail System

Adapters / Rails / Hardware

Precision Rods, Holders & Accessories — 1/2" Diameter

Rods, Holders, Clamps and Accessories

Note that dimensions in parentheses (mm) reflect metric assembly features. Drawings and CAD models available on our website.

Siskiyou's 1/2" diameter precision rod system offers flexible and modular positioning in laboratory mechanical, life science or photonics applications. Positioning is attained using standard, single incremental-length rods, or in stacked combinations. Table mounting options include vertical rod holders or table clamps. Precision ground rods are fitted with removable 8-32 set screws to facilitate rod extension or device/sample attachment. Our PRH rod holder is fitted with a spring-loaded lock and is double-bored with three-point rod contact for smooth and wobble-free positioning. Accessories such as universal, cross-rod and rod collar clamps; and rotation / translation table clamps are available for maximum configurability and positioning flexibility, such as putting a tapped hole where you need it.

Product Features

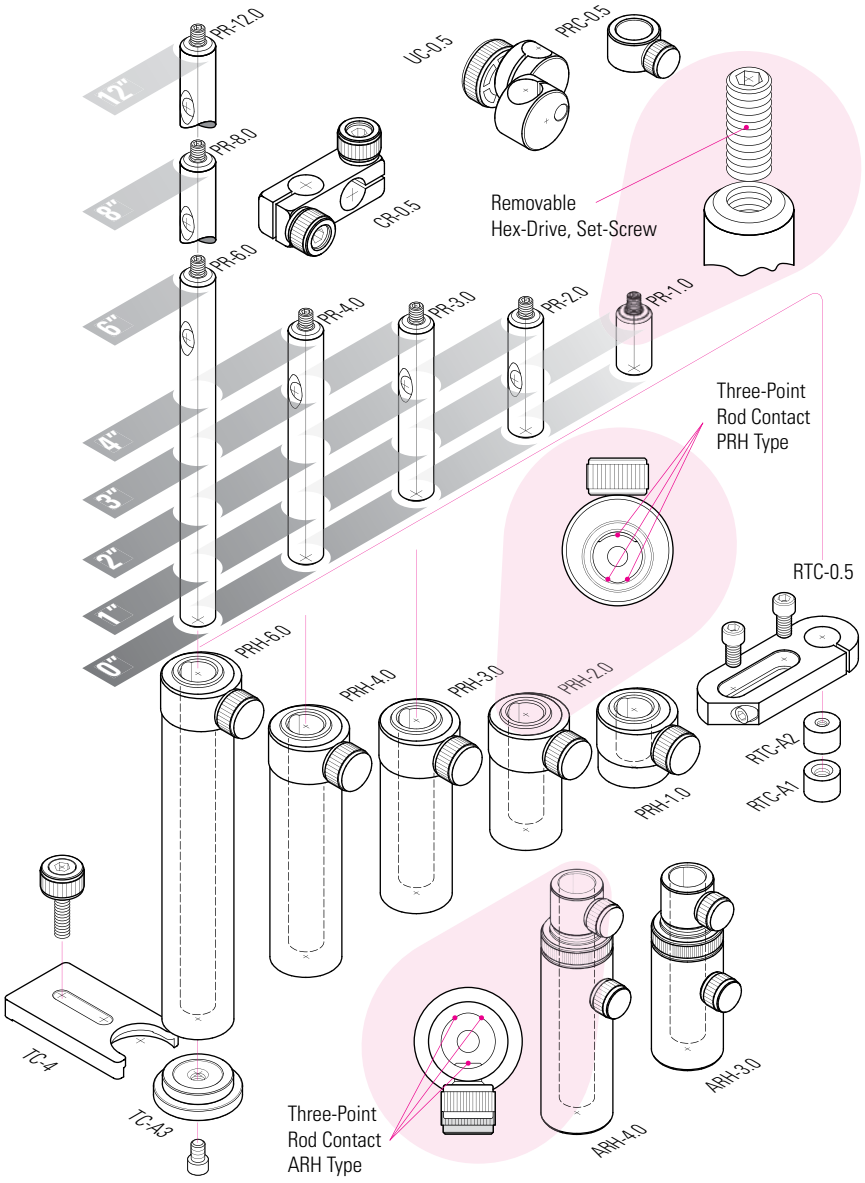
- Stainless, aluminum and brass construction
- Unique three-point rod contact
- Spring-loaded lock screw
- 1-, 2-, 3-, 4-, 6-, 8- and 12-inch length rods
- Removable 8-32 rod set screw interface
- 1/4-20 female rod and holder-base interface
- Vacuum compatible versions available

Related Products

TC-4, TC-A3 pedestal clamp / adapters	138

Order Information	Model
1" rod length	PR-1.0
2" rod length	PR-2.0
3" rod length	PR-3.0
4" rod length	PR-4.0
6" rod length	PR-6.0
8" rod length	PR-8.0
12" rod length	PR-12.0
1" holder length	PRH-1.0
2" holder length	PRH-2.0
3" holder length	PRH-3.0
3" holder length, adjustable	ARH-3.0
4" holder length	PRH-4.0
4" holder length, adjustable	ARH-4.0
6" holder length	PRH-6.0
clamp, rotation / translation	RTC-0.5
1/4-20 threaded adapter, 3-pack	RTC-A1
1/4-20 clearance adapter, 3-pack	RTC-A3
8-32 threaded adapter, 3-pack	RTC-A2
8-32 clearance adapter, 3-pack	RTC-A4
adapter assortment kit, 1 of each type	RTC-AA
clamp, rod collar	PRC-0.5
clamp, cross rod	CR-0.5
clamp, universal rod	UC-0.5

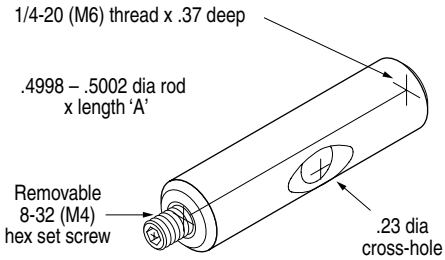
Metric Option — for metric assembly features on these products, add 'M' after model number.



Precision Rods, Holders & Accessories — 1/2" Diameter

Rods, 1/2" Precision

Note that dimensions in parentheses (mm) reflect metric assembly features. Drawings and CAD models available on our website.

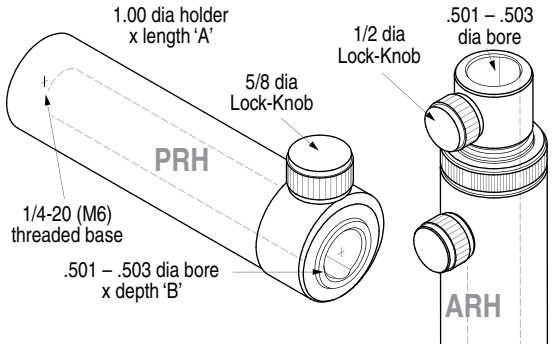


Model	A
PR-1.0 [1]	1.00
PR-2.0	2.00
PR-3.0	3.00
PR-4.0	4.00
PR-6.0	6.00
PR-8.0	8.00
PR-12.0	12.00

1. Does not have cross-hole

Holders, 1/2" Precision Rod

Note that dimensions in parentheses (mm) reflect metric assembly features. Drawings and CAD models available on our website.

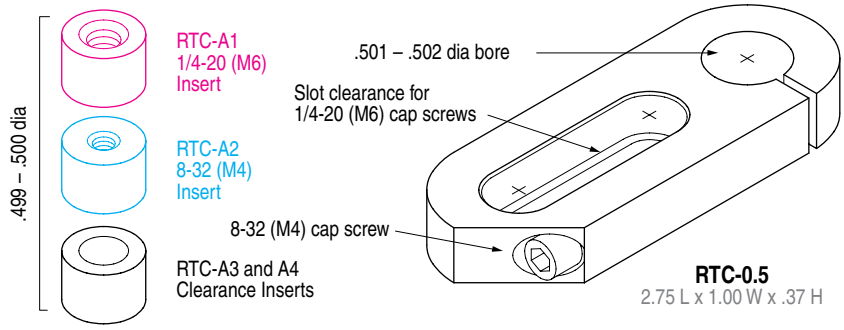


Model	A	B
PRH-1.0	1.00	0.70
PRH-2.0	2.00	1.70
PRH-3.0	3.00	2.70
ARH-3.0 [1]	3~3.5	
PRH-4.0	4.00	3.70
ARH-4.0 [1]	4~4.5	
PRH-6.0	6.00	5.70

1. Adjustable height models

Rotation — Translation Clamp, 1/2" Precision Rod

Note that dimensions in parentheses (mm) reflect metric assembly features. Drawings and CAD models available on our website.

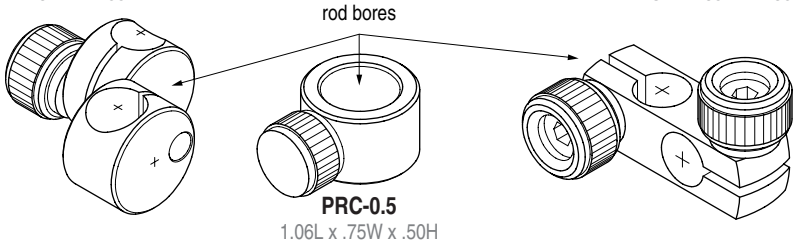


RTC-0.5
2.75 L x 1.00 W x .37 H

Universal Clamp, Collar and 90° Cross Clamp, 1/2" Precision Rod

Note that dimensions in parentheses (mm) reflect metric assembly features. Drawings and CAD models available on our website.

UC-0.5
1.63L x .1.62W x 1.00H



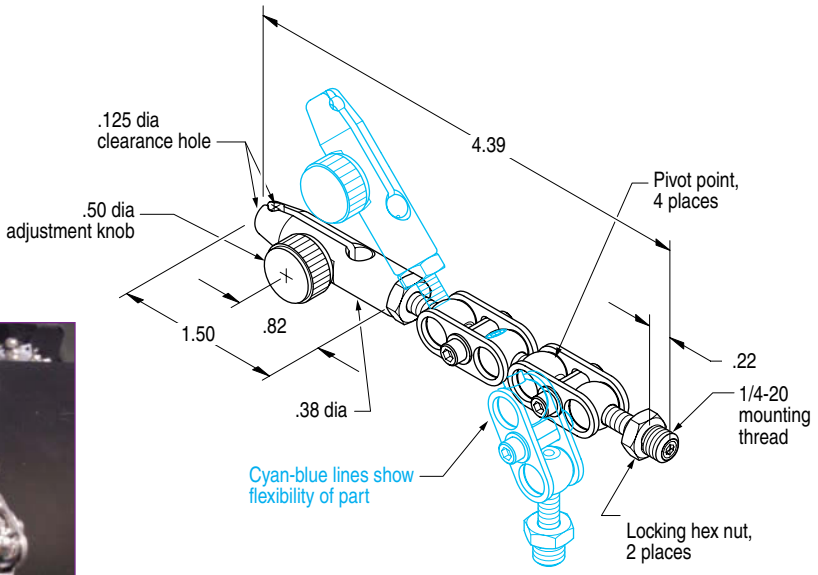
PRC-0.5
1.06L x .75W x .50H

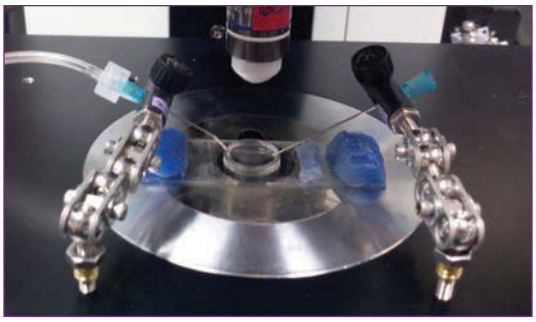
CR-0.5
2.13L x 1.60W x 1.60H

Universal Clamp

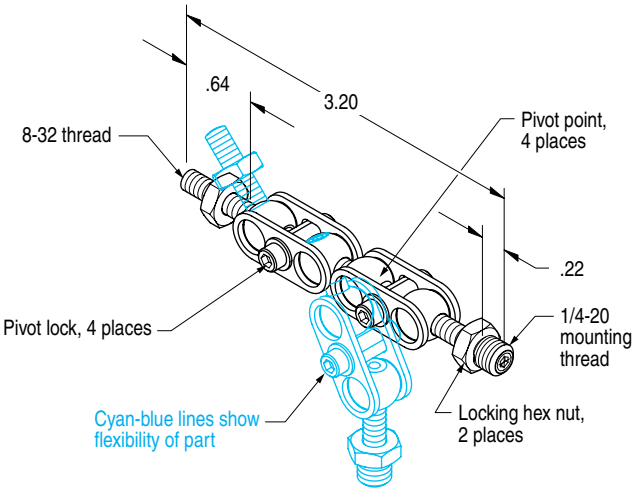
MXB-3h

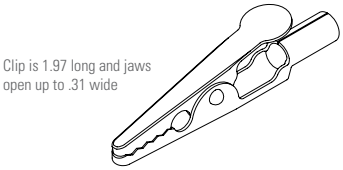
MXB-3h





MXB-3i



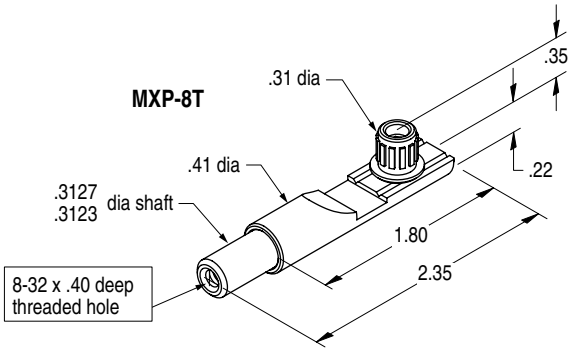


MXC-8T
page 175

MSC-1
page 135

MXP-8T
below right

MXP-8T



Product Features

- Firm-grip Delrin® knobs
- Convenient 8-32 and 1/4-20 mounting holes
- Quality machined construction
- Vacuum compatible versions available upon request

Related Products

8090P and 8090Pb platform plates	102
PC-A perfusion chamber adapter	102

Order Information

universal clamp (includes MSC-1)	MXB-3h
universal clamp (includes clip)	MXB-3i
miniature probe holder clamp	MXC-8T
miniature slide clamp	MSC-1
probe holder	MXP-8T

MXB-3h

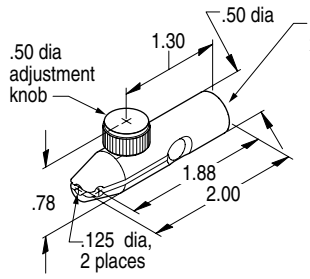
The MXB-3h is designed to replace wax and clay in mounting applications that don't require precise positioning. It comes with an insert to thread into either 1/4-20 or 8-32 tapped holes. Perfect for suction and stimulating electrodes, holding tubing - you name it! With much less drift than wax or clay, your experimental probes stay aligned.

Slide Clamps & C-Clamps

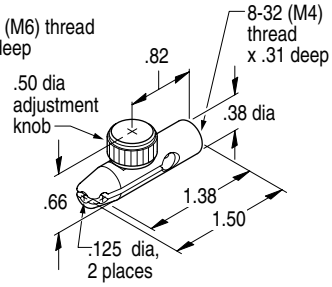
SC-1, MSC-1, CC-1 and CC-2

Note that dimensions in parentheses (mm) reflect metric assembly features

SC-1



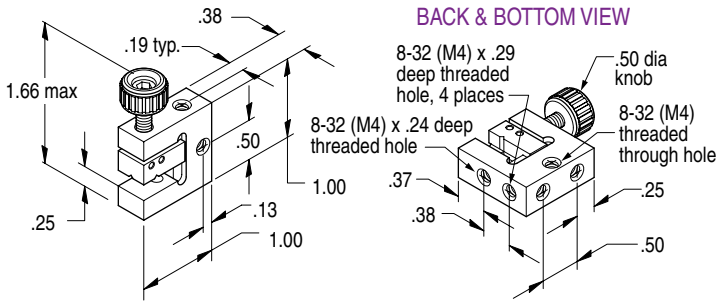
MSC-1



SC-1

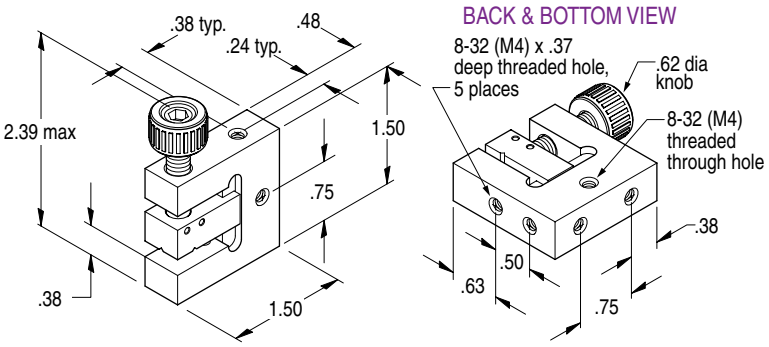
MSC-1

CC-1 Clamp jaws open to .25



CC-1

CC-2 Clamp jaws open to .375



CC-2

Slide Clamps

SC series slide clamps are convenient for holding thin objects, such as optical filters, transparencies, or even razor blades used as optical knife edges. A 1/4-20 or 8-32 set screw can be mounted in the end of the SC-1 or MSC-1 slide clamp, respectively, for attachment to the end of a PR or MPR precision rod. The SC-1 slide clamps can be held by a CR-0.5 or UC-0.5 rod clamps.

C-Clamps

The CC series C-clamps are useful for gripping odd shaped items that might not have the usual threaded attachment points. They are tapped 8-32 (M4) for attachment to PR and MPR series posts.

Product Features

- Firm-grip Delrin® knobs
- Convenient 8-32 and 1/4-20 mounting holes
- Quality machined construction
- Vacuum compatible versions available upon request

Related Products

PR precision rods	132
MPR miniature precision rods	136

Order Information

slide clamp	SC-1
miniature slide clamp	MSC-1
c-clamp, jaws open to .25 inch	CC-1
c-clamp, jaws open to .375 inch	CC-2

Metric Option — for metric assembly features on this product, add '-M' after model number.

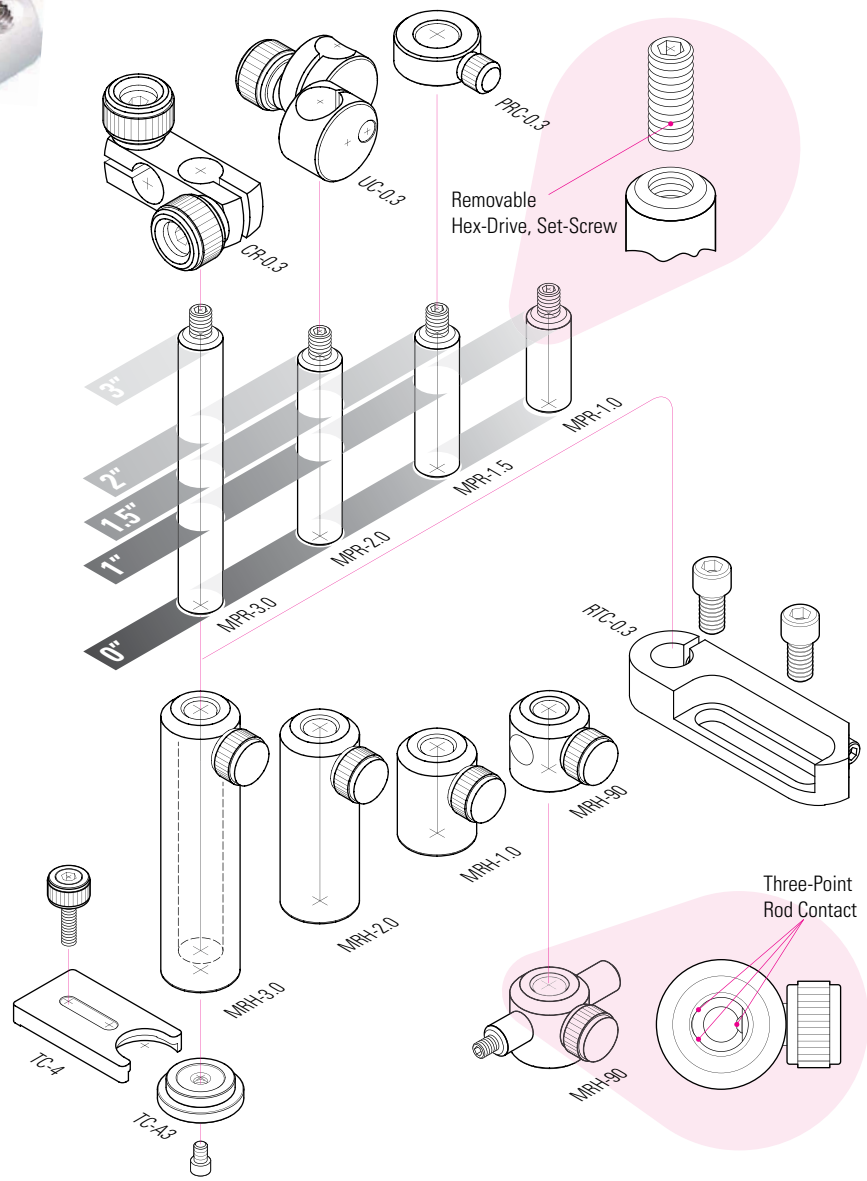
Adapters / Rails / Hardware

Precision Rods, Holders & Accessories — 5/16" Diameter

Rods, Holders, Clamps and Accessories

Note that dimensions in parentheses (mm) reflect metric assembly features. Drawings and CAD models available on our website.

Siskiyou's 5/16" diameter miniature rod system offers flexible and modular positioning in laboratory mechanical, life science or photonics applications. Positioning is attained using standard, single incremental-length rods, or in stacked combinations. Table mounting options include vertical rod holders or table clamps. Precision ground rods are fitted with removable 8-32 set screws to facilitate rod extension or device/sample attachment. Our MHR rod holder is fitted with a spring-loaded lock and is double-bored with three-point rod contact for smooth and wobble-free positioning. Accessories such as universal, cross-rod and rod collar clamps; and rotation / translation table clamps are available for maximum configurability and positioning flexibility.



Product Features

- Stainless, aluminum and brass construction
- Unique three-point rod contact
- Spring-loaded lock screw
- 1-, 1.5-, 2- and 3-inch length rods
- Removable 8-32 rod set screw interface
- 1/4-20 female holder-base interface
- Vacuum compatible versions available

Related Products

TC-4, TC-A3 pedestal clamp / adapters 138

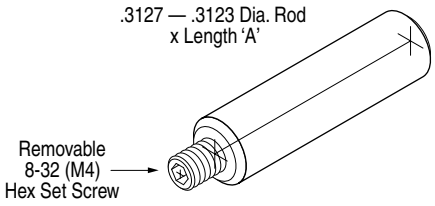
Order Information	Model
1" rod length	MPR-1.0
1.5" rod length	MPR-1.5
2" rod length	MPR-2.0
3" rod length	MPR-3.0
0.8" rod holder, 90°	MRH-90
1" rod holder	MRH-1.0
2" rod holder	MRH-2.0
3" rod holder	MRH-3.0
clamp, rotation / translation	RTC-0.3
clamp, rod collar	PRC-0.3
clamp, cross rod	CR-0.3
clamp, universal rod	UC-0.3

Metric Option — for metric assembly features on these products, add 'M' after model number.

Precision Rods, Holders & Accessories — 5/16" Diameter

Rods, 5/16" Miniature

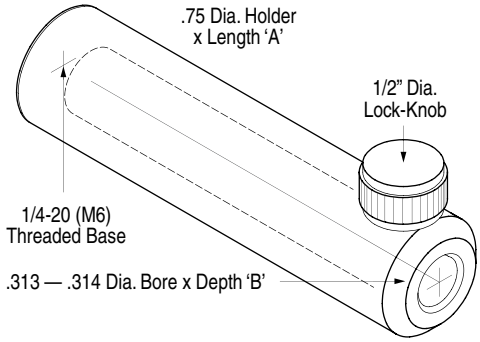
Note that dimensions in parentheses (mm) reflect metric assembly features. Drawings and CAD models available on our website.



Model	A
MPR-1.0	1.00
MPR-1.5	1.50
MPR-2.0	2.00
MPR-3.0	3.00

Holders, 5/16" Miniature Rod

Note that dimensions in parentheses (mm) reflect metric assembly features. Drawings and CAD models available on our website.

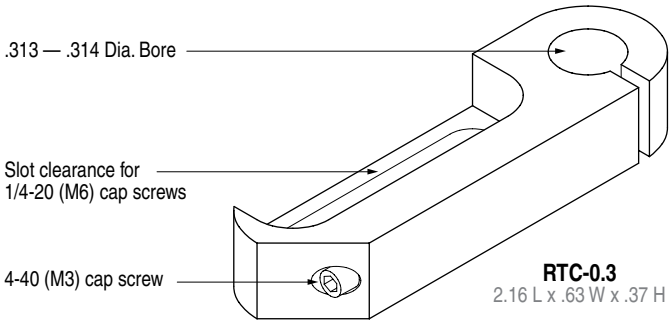


Model	A	B
MRH-90 [1]	0.73	0.51
MRH-1.0	1.00	0.78
MRH-2.0	2.00	1.78
MRH-3.0	3.00	2.78

1 Fitted with 90° Cross-Bore

Rotation — Translation Clamp, 5/16" Miniature Rod

Note that dimensions in parentheses (mm) reflect metric assembly features. Drawings and CAD models available on our website.



Universal Clamp, Collar and 90° Cross Clamp, 5/16" Miniature Rod

Note that dimensions in parentheses (mm) reflect metric assembly features. Drawings and CAD models available on our website.

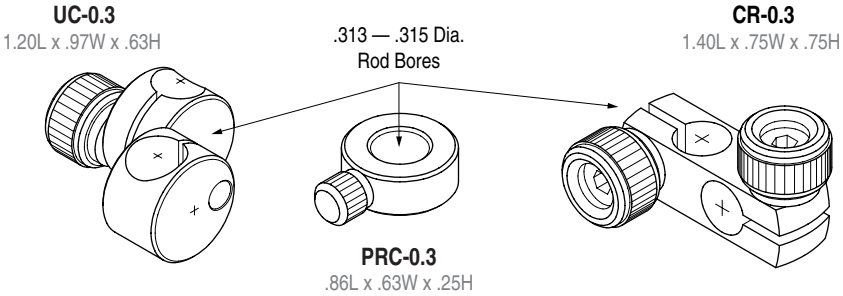


Table & Pedestal Clamps

Isolation Table Mounts / TC Series

Note that dimensions in parentheses (mm) reflect metric assembly features

TC Series

Table Clamps

Our TC series table clamps offer a secure method of mounting base plates to isolation tables for off-axis mounting applications. These simple but sturdy clamps can be used in a wide range of applications, such as cable management or base plate mounting.

The TC-1 and TC-2 use a bent wire to create the clamping finger. The clamp finger is set at 3/8-inch from its bottom surface and is ideal for holding our ABP and DMB base plates. The TC-2 has an added locator button that is designed to fit into 1⁄4-20 or M6 counterbores and slots. This feature ensures a more secure grasp of the base plate being mounted.

The TC-3 is the most flexible of the two designs and uses an adjustment screw to set the height of the clamp. This flexible design allows the TC-3 to be used to clamp devices from 1/16- to 1.0-inch thick. Its solid aluminum construction ensures solid clamping to the mounting surface.

Table / Pedestal Clamp

The TC-4 table clamp and related adapters are ideal for creating pedestal systems with our AS series spacers. They can also be used separately to create a low profile mounting system. The TC-4 uses a "captured" design to hold the adapters in place and are compatible with industry standard pedestal systems.

The TC-4 slides over the adapter

Product Features

- Holds devices in off-axis applications
- 3 sizes
- Mounting hardware included
- Vacuum compatible versions available upon request

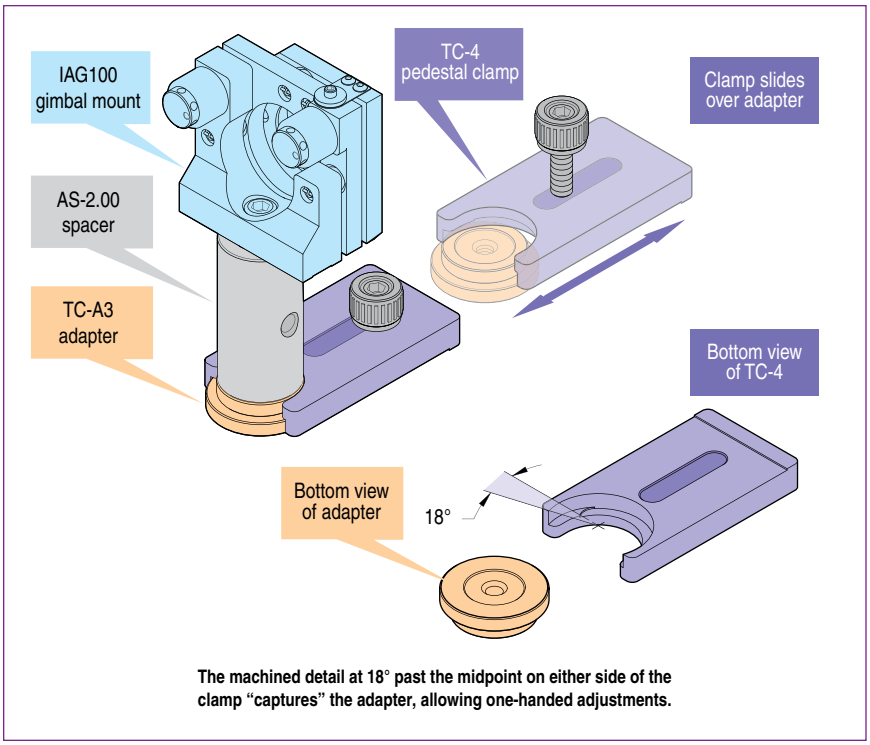
Related Products

ABP-T translation base plates	125
DMB device mounting base	266

Order Information

table clamp, 1.0 inch	TC-1
table clamp, 2.0 inch	TC-2
table clamp, 3.0 inch	TC-3
table / pedestal clamp, with 1/4-20 thumb screw	TC-4
adapter insert, 1/4-20 threaded hole	TC-A1
adapter insert, 8-32 threaded hole	TC-A2
adapter insert, 1/4-20 clearance hole, metric compatible	TC-A3
adapter insert, 8-32 clearance hole, metric compatible	TC-A4

Metric Option — for metric assembly features on this product, add '-M' after model number.

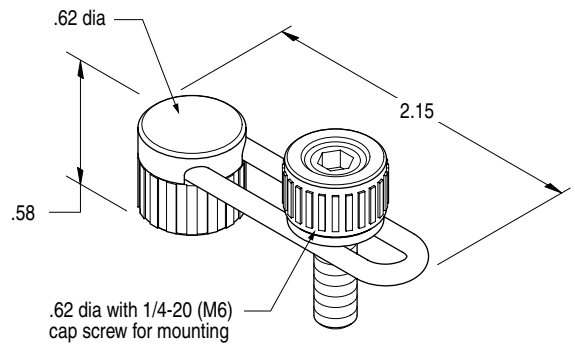


The machined detail at 18° past the midpoint on either side of the clamp "captures" the adapter, allowing one-handed adjustments.

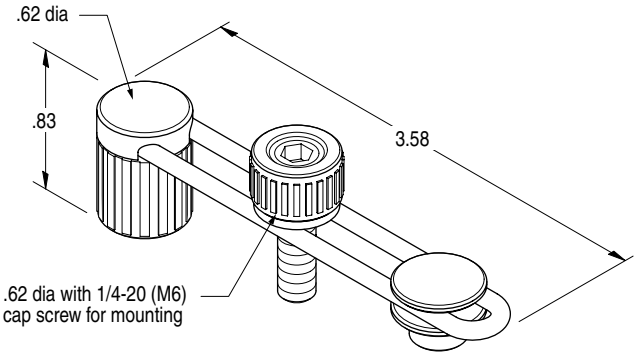
Table & Pedestal Clamps

Isolation Table Mounts / TC Series

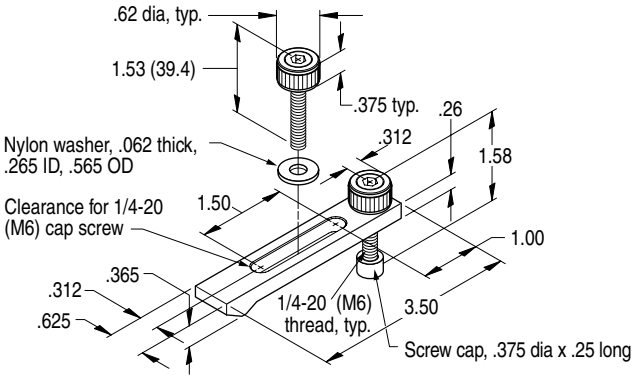
Note that dimensions in parentheses (mm) reflect metric assembly features



TC-1



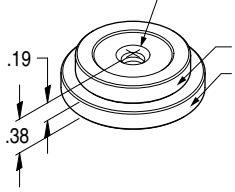
TC-2



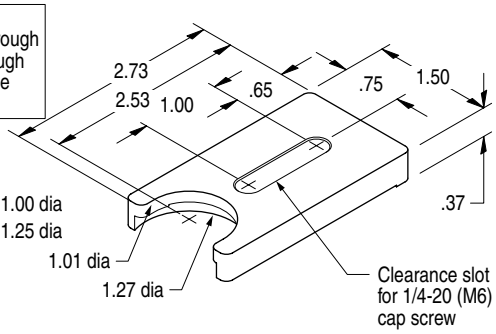
TC-3

Adapters

Model	Mounting Feature
TC-A1	1/4-20 (M6) thread through
TC-A2	8-32 (M4) thread through
TC-A3	1/4-20 or M6 clearance
TC-A4	8-32 or M4 clearance



Pedestal Clamp



TC-4

TC-A3

Adapters / Rails / Hardware

Lab Essentials Kits

Wide Applications / LEK Series

Whatever you need to build, Siskiyou has a kit to help you get started.

A variety of each of the most commonly used parts from these categories enable you to build many different configurations.

Bases and rod holders, rods and clamps, rod mounts, mirror mounts and optics holders—we have a kit that fits your needs.

Lab Essentials Kits

Wide Applications / LEK Series

LEK-1 Bases and Rod Holders

Model	Quantity	Page	Model	Quantity	Page
ABP-T1	10	125	PRH-1.0	10	132
ABP-T2	10	125	PRH-2.0	10	132
ABP-T.5	10	125	PRH-3.0	10	132
TS-0.5	2	144	PRH-4.0	5	132
TS-1.0	2	144	PRH-6.0	5	132
TC-3	20	138			

LEK-2 Rods and Clamps

Model	Quantity	Page	Model	Quantity	Page
MX1Ta	2	100	PR-4.0	10	132
CR-0.5	10	132	PR-6.0	10	132
UC-0.5	3	132	PR-8.0	5	132
PR-1.0	10	132	PR-12.0	5	132
PR-2.0	10	132	T-1	4	251
PR-3.0	10	132	T-1C	4	251

LEK-3 Rod Mounts

Model	Quantity	Page	Model	Quantity	Page
BB-1.0	10	124	AS-C	10	112
BB-5.0	10	124	AS-1A	10	110
TC-4	20	138	AS-4.00	10	110
TC-A1	15	138	AS-6.00	10	110
TC-A3	15	138			

LEK-4 Mirror Mounts and Optic Holders

Model	Quantity	Page	Model	Quantity	Page
AOC1.0	3	321	FOH-1.00	5	320
AOC2.0	3	321	FOH-2.00	3	320
AOC3.0	3	321	ORM1.0	2	318
MX-AB	2	120	IM100.P2a	3	200
SC-1	3	135	IM100.T2a	10	200
SFM	2	323	IM200.A2	2	210
PMH-SA	3	250	RSX-1.0	2	72
OR1.1R	2	318	T-1	2	251

LEK-5 Optic Holders

Model	Quantity	Page	Model	Quantity	Page
OR2.2R	3	319	FOH-1.00	10	320
OR1.50R	3	318	FOH-1.50	5	320
OR1.25R	2	318	FOH-2.00	10	320
OR2.150R	3	319	FOH-OB	3	320
FOH-.25	10	320	ORM1.0	8	318
FOH-.50	10	320	ORM2.0	6	319

Lab Essentials Kits ~ LEK1 through LEK5

Product Features

- Basic laboratory essentials
- Covers a wide range of applications
- Includes hardware, mounts and holders

Product Description

This reference page details the contents of each kit. For individual product specifications and drawings, refer to the page listed for each component.

Order Information

bases & rod holders	LEK1
rods & clamps	LEK2
rod mounts	LEK3
mirror mounts & optic holders	LEK4
optic holders	LEK5

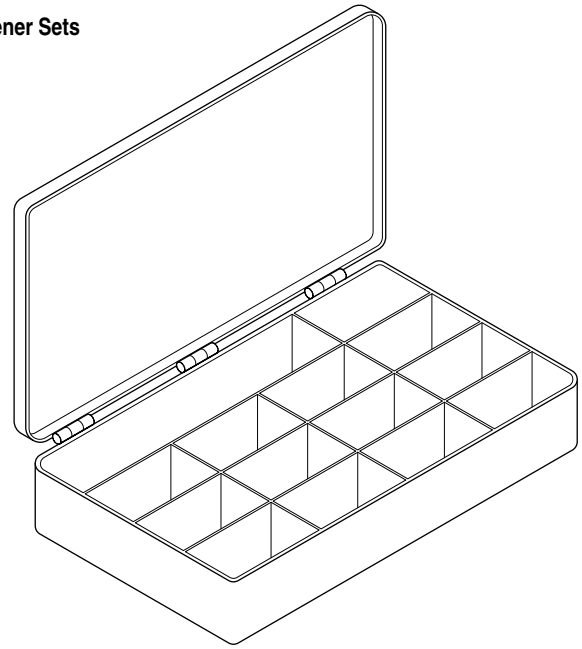
Metric Option — for metric assembly features on this product, add '-M' after model number.

Fasteners & Drivers

SW Series and PH-1

SW-1

Fastener Sets



Box dimensions
1.75 H x 11.0 W x 6.75 D

Bondhus® hex drivers in SW-1 boxed set
One each 3/16, 9/64 and 1/8

Fasteners & Drivers

The SW-1 screw and washer assortment has all the necessary hardware for building many different setups with our related products. The kit includes stainless steel cap screws for attaching AS series spacers to PSR series platform support rods. Also included is an assortment of stainless steel washers to act as an interface between the cap screws and valuable equipment. This interface allows secure attachment of equipment without damage. Also included are three Bondhus® Allen drivers in 3/16, 9/64, and 1/8 sizes to fit the screws provided.

The SW-1R replacement screw/washer sets are available without the box or Bondhus® drivers. The SW-2 assortment includes a box but without the drivers.

Platform Hardware

Our PH-1 platform hardware has the basic stainless steel cap screws, washers, and set screws needed to assemble our PSR platform support rods and AS series spacers to our 4080, 8090, 1200, and 12000 series platforms.

Product Features

- Stainless steel hardware
- Bondhus® hex drivers included in SW-1 boxed set
- Wide variety of screws and washers

Related Products

platforms beginning 102

Order Information

screw/washer kit, boxed assortment with drivers	SW-1
screw/washer kit, unboxed assortment	SW-1R
screw/washer kit, boxed assortment	SW-2
platform hardware kit, assortment	PH-1

Metric Option — for metric assembly features on this product, add '-M' after model number.

Fasteners & Drivers

SW Series and PH-1

SW-1 Boxed Fastener Assortment with Drivers

Quantity	Description	Quantity	Description
1	plastic storage box	50	1/4-20 x 0.75 hex set screw
1	3/16 Bondhus® driver	50	8-32 x 1.00 hex cap screw
1	9/64 Bondhus® driver	50	8-32 x 0.50 hex cap screw
1	1/8 Bondhus® driver	50	8-32 x 0.375 hex cap screw
25	1/4-20 x 1.50 hex cap screw	200	1/4 washer OD.370 x ID.255 x .020 thk
25	1/4-20 x 1.25 hex cap screw	100	1/4 washer OD.590 x ID.265 x .060 thk
25	1/4-20 x 1.00 hex cap screw	150	No. 8 washer OD.375 x ID.172 x .030 thk
25	1/4-20 x 0.75 hex cap screw		
50	1/4-20 x 0.625 hex cap screw		
50	1/4-20 x 0.375 hex cap screw		

SW-1

SW-1R Fastener Assortment

Quantity	Description	Quantity	Description
25	1/4-20 x 1.50 hex cap screw	50	8-32 x 1.00 hex cap screw
25	1/4-20 x 1.25 hex cap screw	50	8-32 x 0.50 hex cap screw
25	1/4-20 x 1.00 hex cap screw	50	8-32 x 0.375 hex cap screw
25	1/4-20 x 0.75 hex cap screw	200	1/4 washer OD.370 x ID.255 x .020 thk
50	1/4-20 x 0.625 hex cap screw	100	1/4 washer OD.590 x ID.265 x .060 thk
50	1/4-20 x 0.375 hex cap screw	150	No. 8 washer OD.375 x ID.172 x .030 thk
50	1/4-20 x 0.75 hex set screw		

SW-1R

SW-2 Boxed Fastener Assortment

Quantity	Description	Quantity	Description
1	plastic storage box	25	8-32 x 1.00 hex cap screw
25	1/4-20 x 1.25 hex cap screw	25	8-32 x 0.50 hex cap screw
25	1/4-20 x 1.00 hex cap screw	25	8-32 x 0.375 hex cap screw
25	1/4-20 x 0.75 hex cap screw	100	1/4 washer OD.370 x ID.255 x .020 thk
25	1/4-20 x 0.5 hex cap screw	100	1/4 washer OD.590 x ID.265 x .060 thk
25	1/4-20 x 0.375 hex cap screw	100	No. 8 washer OD.375 x ID.172 x .030 thk
25	1/4-20 x 0.75 hex set screw		

SW-2

PH-1 Fastener Assortment

Quantity	Description	Quantity	Description
4	1/4-20 x 2.00 hex cap screw	4	1/4-20 x 0.50 hex cap screw
4	1/4-20 x 1.50 hex cap screw	20	1/4-20 x 0.75 connecting screw
4	1/4-20 x 1.00 hex cap screw	4	1/4 washer OD.370 x ID.255 x .020 thk

PH-1

Metric Option

Fasteners & Drivers are available in metric assortments. See page 142 for ordering information and refer to the Siskiyou website for a list of the metric components included.

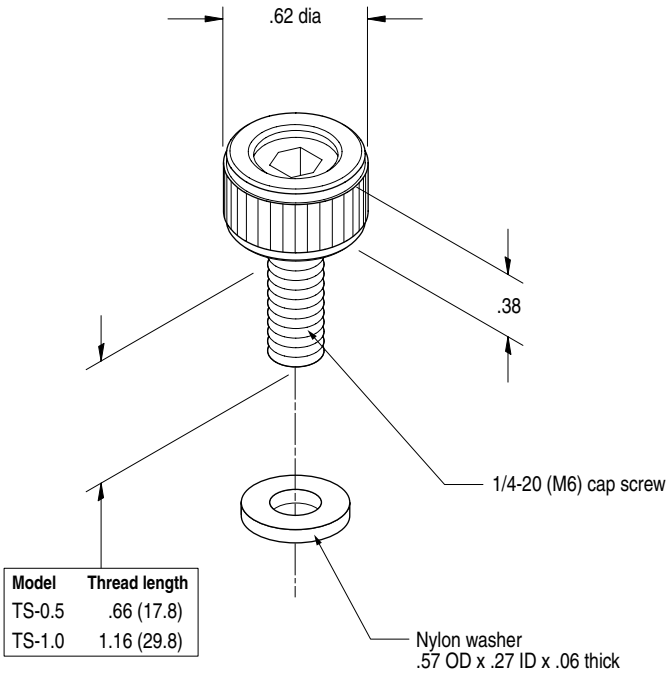
Thumb Screws

TS Series

Note that dimensions in parentheses (mm) reflect metric assembly features

TS Series

Thumb Screws



Model	Thread length
TS-0.5	.66 (17.8)
TS-1.0	1.16 (29.8)

Thumb Screws

TS series thumb screw kits are ideal for attaching equipment or simple base plates to isolation tables. Thumb screw kits come with nylon washers and Delrin® knob caps to protect the surface that they come in contact with. The integral cap screw enables hex wrench tightening when a more secure attachment is required.

Both TS-0.5 and TS-1.0 thumb screw sets can be used for attaching base plates and other devices with 1⁄4-20 clearance holes or slots to isolation tables.

Product Features

- Non-marring Delrin® knob cap
- 10 per package
- 2 sizes

Order Information

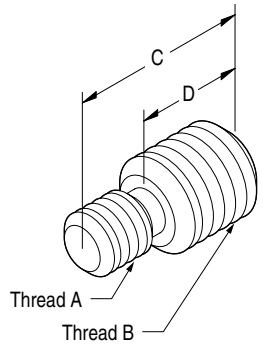
thumb screw kit, 0.5" thread, pkg of 10	TS-0.5
thumb screw kit, 1.0" thread, pkg of 10	TS-1.0

Metric Option — for metric assembly features on this product, add '-M' after model number.

Thread Adapters

Metric and US System

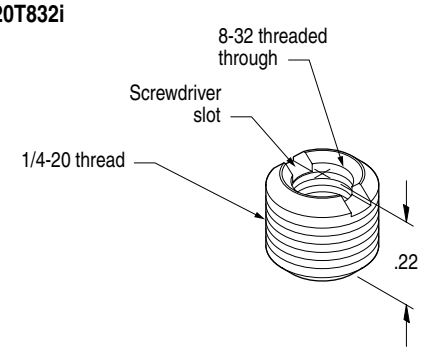
Thread adapters



Model	Thread A	Thread B	C	D
M4TM6	M4	M6	.45	.25
832TM6	8-32	M6	.45	.25
832TQ20	8-32	1/4-20	.45	.25
M4TQ20	M4	1/4-20	.45	.25
832TM4	8-32	M4	.40	.18
M6TQ20	M6	1/4-20	.50	.25

Thread adapters

Q20T832i



Product Features

- Provides metric to U.S. system conversion
- Brass construction
- 5 per package

Order Information ~ all packages of 5

thread adapter, M4 to M6	M4TM6
thread adapter, 8-32 to M6	832TM6
thread adapter, 8-32 to 1/4-20	832TQ20
thread adapter, M4 to 1/4-20	M4TQ20
thread adapter, 8-32 to M4	832TM4
thread adapter, M6 to 1/4-20	M6TQ20
thread adapter, M6 to M4, internal	M6TM4i M
thread adapter, 1/4-20 external to 8-32 internal	Q20T832i

Thread Adapters

With all the different equipment manufacturers, it is sometimes necessary to adapt metric to U.S. system threads. These simple thread conversion adapters enable you to convert mounting threads so that mounting incompatibility is not an issue. They are manufactured from solid brass and are sold in packages of 5.

Micromanipulators

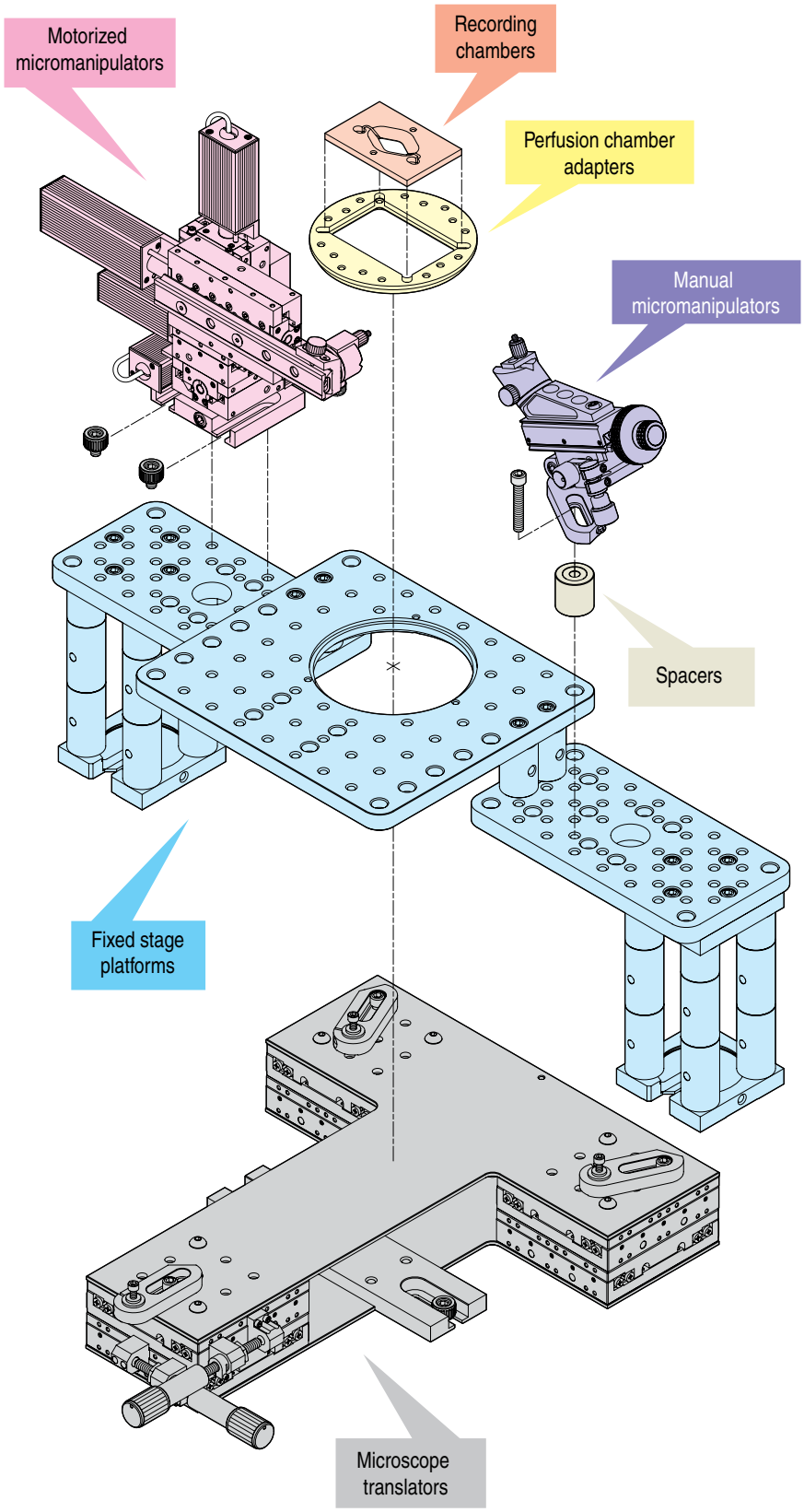
Introduction to Siskiyou micromanipulators

Siskiyou's Life Science product line has been refined utilizing the input provided by end users. Researchers, using our products in their own laboratories, accomplish much of the design testing of our products. This is an ongoing process. We constantly evaluate user feedback to improve our products and develop new products. Many of the features in our products are the result of a close relationship between our customers and our technical staff. Maintaining this dialogue ensures that we will continue to fulfill the needs of our customers. Input from our customers enabled us to develop simulated lab conditions at our facility which allowed us to design and build products with the high levels of stability needed to complete experiments successfully. While we may not be able to incorporate every suggestion into our products, we greatly value the feedback from the users of our equipment. Since the end user is at the heart of the process, there is no one better to know the demands placed on equipment.

Our customers require a great variety of configurations in laboratory experiments. This need for flexibility led to our v concept. This concept facilitates the incorporation of our products into the individual researcher's system with the least amount of alteration or disruption. The ability to reconfigure the devices ensures that they will not become obsolete when one experiment is completed, but will remain a useful piece of laboratory equipment for future experiments. Our technical staff is ready to help our users accomplish their goals. For us, technical assistance is a two-way street – we find it is an excellent way to learn what our customers' needs are, while providing information to help a user complete a setup. Maintaining direct contact with end users will ensure resolution of their problems or concerns and concurrently improve our service. Customer satisfaction is, and will remain, a top priority at Siskiyou. Our staff has found working with the biomedical community to be a rewarding and enjoyable experience.

Our manual micromanipulators come in three designs: dovetail, ball & rail bearing and crossed roller bearing. The difference among the three designs relates to load and precision of movement. Crossed roller stages are typically designed to carry heavier loads than either ball & rail bearing stages or dovetail stages, and to have smooth, wobble-free actuation. Descriptions of the three designs are given on page 36.

Section Contents



Micromanipulators

Micromanipulators

Manual 153-160
Low Profile, Base Mount, Post Mount & Huxley-Style

Hydraulic 161-165
1, 3 and 4 Axis, Base Mount & Post Mount

Motorized 166-170
Narrow Profile, Base Mount & Post Mount

Amplifiers and Clamps

Amplifier Electrode Holders 171

Headstage and Probe / Pipette 172

Repeatable Amplifier & Probe Clamps 174

External Focused Laser Guide 176

Microscope Translators

Crossed Roller Platforms 178-181

Microscope Platform 182

Economy & Crossed Roller 184–185

XYZ Chamber Shuttle 186

High Speed Solution Switcher 187

Infrared / Fluorescence 188

Related Products

Contrast Imaging Lens 190

Perfusion Chambers 192

Pipette Puller 194

Tissue Slicer 196

Electrical Isolator & Cable Clamp 197

Micromanipulators (continued)

Our dovetail MX10 and MX130 stages are compact manipulators designed for positioning stimulating electrodes and puffer pipettes. The ball & rail bearing MX160s are ideal for oocyte micro-injection and for positioning stimulating electrodes. The MX1600 series performs these tasks as well, with the addition of more precise positioning.

Most of our micromanipulators come in either post mount or base mount models. The post mount models are typically designed to be mounted next to a microscope or experiment and allow the experimenter to swing the entire manipulator out of the experimenting area. Our base mount versions are designed to be mounted to one of our platform systems, found on pages 94–112, or directly to a microscope platform. If microscope mounting is preferred, please do not hesitate to call; we can find the right laboratory mechanicals for attaching the manipulator.

Our hydraulic micromanipulators are water-based systems that are integrated into crossed roller bearing stages. By using water, we ensure a smooth response to dial controller input and minimize the drift found in oil based systems. The instant response found in our hydraulic manipulators is ideal for the impalement motion needed in intracellular recording. As with all hydraulic manipulators, service or maintenance must be performed on a regular basis. Our hydraulic manipulators come with an extended two (2) year warranty and will be filled at no charge within that period. After that period, they will need to be refilled every 18–24 months. There is a nominal fee for the refilling after the warranty period. In most cases, the manipulator will be returned in less than 10 working days.

All of our motorized micromanipulator systems use DC servo motors for smooth, precise, noise-free operation. Unlike stepper or piezoelectric driven manipulators, our DC systems have shielded power cables that need to be grounded at the ground lug of the controller junction box. DC servo motors are inherently more stable than stepper motors because they do not require current to hold position and therefore do not generate heat, causing extraneous drift. These systems are so stable that power may be disconnected while performing a patch recording without generating enough drift to lose connection.

Mechanical drift in an electrophysiology rig is one of the most difficult problems to overcome. Over the years, we have discovered that there are two main sources of drift that are typically overlooked by the experimenter. The first is the electrode holder in the amplifier headstage, and the second is the material used in headstage mounting rods. Electrode holders are typically made from poly-carbonate (plastic) that is very unstable when exposed to even the slightest thermal change. Our new ST50 series of Stable-tip electrode holders greatly reduce this thermal instability. See page 171 for additional information on the features and materials used. Another problem with the electrode holder is the rubber compression washers.

Amplifier electrode holders

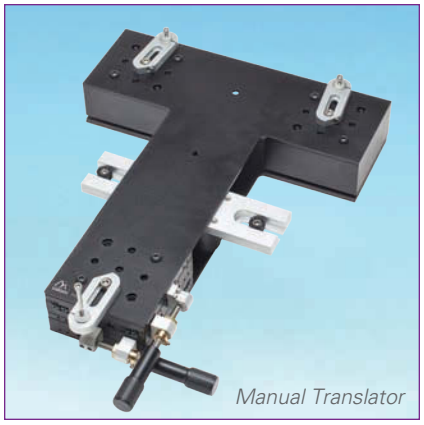
We have successfully addressed the first source of drift by replacing the plastic headstage mounting rod with a solid ceramic rod. The ceramic rod used in the MXE series of amplifier headstage mounts is literally "rock-solid" and is effective in resolving many temperature-related drift problems. We have models for most Axon, HEKA, and Warner Instru-

ments amplifiers. If you have an amplifier to be adapted to our MXE headstage mounts, please call us, and we can help with the modification. See pages 172–173 for product details.

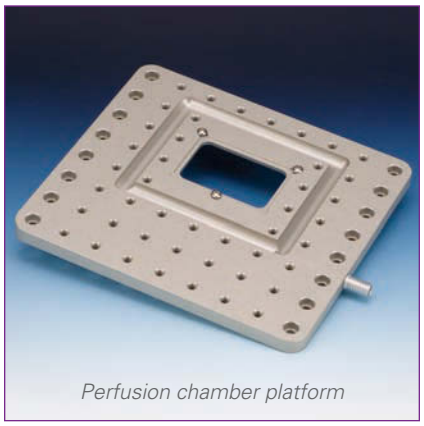
On fixed-stage electrophysiology rigs, it is critical to have a stable microscope translator that won't allow microscope drift independent of the recording chamber. Our MXMS series of microscope translators have been in use since 1998 (see pages 184–185). They come in a motorized crossed roller version and two manual versions – crossed roller and economy. The economy version is a perfect example of our working relationship with our customers. Following customers' recommendations, we were able to incorporate ball transfer pads typically used for package conveyer systems. This design provides significant cost savings to the user, and for applications of 700x magnification or less, they work well. For higher magnification and motorized models, a full crossed roller system is recommended. Both versions have mounting kits for Olympus, Nikon, Leica, and Zeiss microscopes. Manual versions can be ordered with either 20, 40, 80, or 100TPI adjustment screws.

The 8090c perfusion chamber platform is specifically designed with the electrophysiologist in mind (see pages 192–193). It includes adequate mounting holes and a drainage trough around the perimeter for solution overflows. The drainage trough is designed to protect your expensive microscope optics by funneling the solution to the outer edge of the platform and down the drainage tube to a safe location. The chamber receiver is located off-center and accepts our PC series perfusion chambers. These perfusion chambers use a simple design that incorporates a 22-mm square cover slip for the chamber bottom. The cover slip can be attached with vacuum grease, silicon, or parafilm. For added security, there are two plastic screws to secure the cover slip to the bottom of the chamber. A unique feature of our perfusion chambers is the use of inserted magnets for holding perfusion plumbing, ground plugs, and other devices that need to be secured close to the perfusion bath. For slicing cortical and hippocampal tissue, there is nothing faster than the MX-TS tissue slicer. Its classic design uses a simple winding system to create two slicing frames that are similar to an egg slicer. The winding system sets the wire spacing on the frames at 200-, 300- or 400-µm separations depending on the required thickness of the tissue. The tissue slicer itself is a guillotine design that drives the frame through the sectioned tissue and into an agarose bed. Once the tissue has been sliced, the frame, tissue, and agarose are removed from the slicer so that the tissue can be floated off in a buffer solution. The experimenters who use this device are impressed by the ease of operation and the minimal damage done to the tissue.

Headstage mount & probe/pipette holder

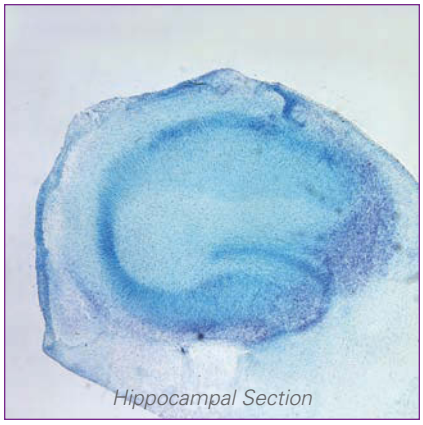


Manual Translator



Perfusion chamber platform

Micromanipulators (continued)



Hippocampal Section

The image at the left is a photograph of a hippocampal section sliced using the MX-TS. See page 196 for product details. Our improved EP-450 pipette puller is designed for ease of use and provides a consistent, repeatable electrode shape pull after pull. The unique design of the EP-450 allows for easy access of the loading mechanism. All the controls are set at a 45° angle to eliminate bending over or kneeling down to either load the glass or monitor your progress. The system is designed around the strict control of time for both the first and second pulls. In concert with voltage adjustments for the first pull and second pull, the clock allows you to monitor time for each pull and thus ensure a repeatable electrode shape. A variety of user defined electrode shapes may be reproduced by keeping a time/voltage/glass log for the different shapes. A front panel switch adjusts the voltage range for high or low temperature pipette glass.

Cortical & Hippocampal Tissue Slicer

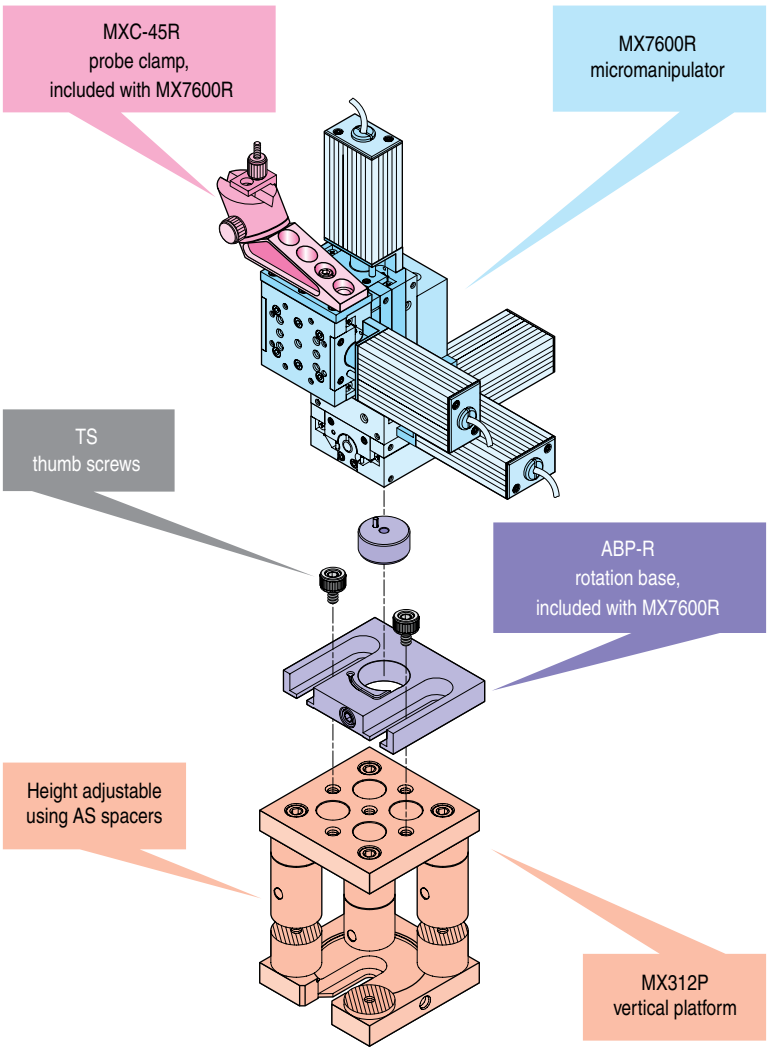
Pipette Puller

The term ***micromanipulator*** covers a broad spectrum of positioning equipment and applications. Selecting the right one for an application will save time and money.

Our manual manipulators fit into a wide variety of applications from micro-injection to short term patch clamp recording. Manual manipulators are available in base mount, post mount, or classic Huxley design. They are typically designed for relatively coarse 5- to 10-µm positioning requirements such as positioning stimulating electrodes, oocyte injection, or perfusion injection.

Our hydraulic micromanipulators are best suited for intracellular recording and short term patch clamp recording. The water-based system is superior to oil systems due to better thermal stability and superior compression characteristics of water versus oil. Due to the inherent non-compressibility of water, the micromanipulator responds instantaneously to quick rotations of the dial controller ensuring positive impalement of a cell for intracellular recording.

Vertical or angular platforms allow positioning of a micromanipulator at heights or angles particular to any requirement.



Micromanipulators (continued)

MX7800

Siskiyou makes a wide range of manipulators — manual, motorized and hydraulic — to address your specific application in the most economical fashion. Our manual manipulators with crossed roller bearings are ultra-stable, with up to 1" of travel, with the smallest crossed roller stages available to fit in tight places. Our dovetail manipulators are perfect for applications requiring small footprints, long probe-axis travel and multi-axis configurations.

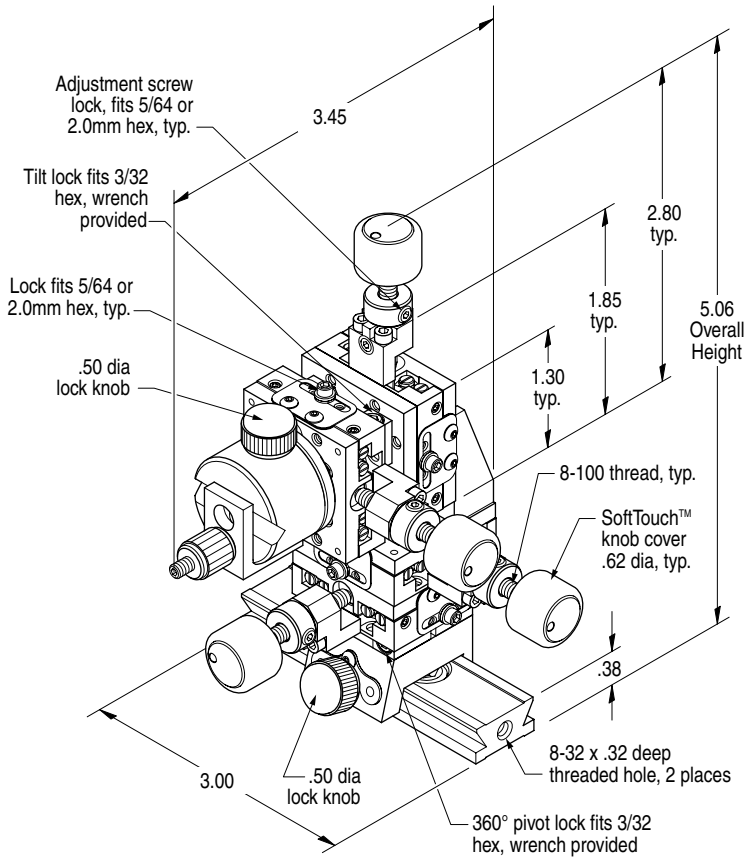
Siskiyou hydraulic manipulators, using non-compressible water instead of oil, are the ultimate in noise reduction — there's no motor, so there's zero noise. Our stainless steel bellows provide instant response and long life. The large control knobs provide sub-micron sensitivity. They're available in single-and multi-axis configurations, with long-travel full hydraulic motion or as an attachment to manual manipulators so you can get close with the manual manipulator, then make the final precise steps with hydraulics.

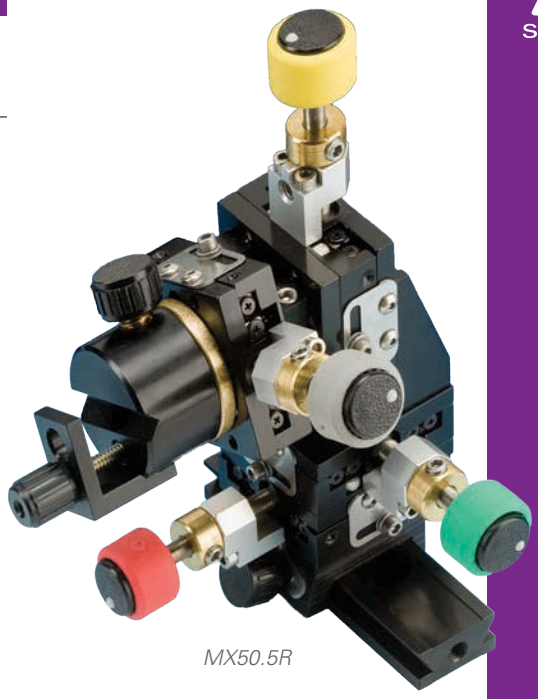
Siskiyou motorized manipulators set the standard for low drift performance. Our DC motors draw no current when they are not being commanded, unlike stepper or piezo motors, so they have the lowest possible electrical noise in a motorized system. ALL Siskiyou motorized manipulators use crossed roller bearing stages, for absolutely linear travel and negligible drift. Any or all axes can be motorized, and we have the pushbutton, rotary or joystick controller to fit your application.

If you have a system you would like modified or have an idea for a system using a combination of our manipulators, do not hesitate to contact us at 1-877-313-6418, or email tech@siskiyou.com.

Manual Crossed Roller Low Profile

4-axis / MX50.5 Series





MX50.5R

The MX50.5 series of manual manipulators are built from our low profile 50.5cr crossed roller stages. They provide four-axis control in a very small package. They are ideal for positioning stimulating electrodes, MX610 or MX630 hydraulic micromanipulators, puffer pipettes, suction pipettes or devices in a microscope's field of view. They come standard with 100TPI adjustment screws and large color coded knobs for improved feel and resolution.

The mounting base for this manipulator is our MDR-3.0 dovetail rail. It can be attached to one of our platforms or directly to a microscope stage. The rail allows you to easily remove the manipulator from the experiment area when it is not and use, and replace it back to the same location when needed again. The rail carrier on the manipulator has a coarse rotation feature to simplify the adjustment of the approach angle.

Like most of our micromanipulators, the MX50.5 series comes with a fourth adjustable axis to get true axial probing into the experiment. They also can be motorized with our 512 series motorized actuators.

Product Features

- Small package design
- Stable crossed roller stages in all axes
- Large adjustment knobs for improved feel and resolution

Performance Specifications

Travel per axis	.5 in [12 mm]
Maximum load	1 lb
Minimum controllable motion	submicron

Related Products

MXP probe/pipette holder	172
MX610 & MX630 micromanipulators	161
512 series actuators	91

Order Information

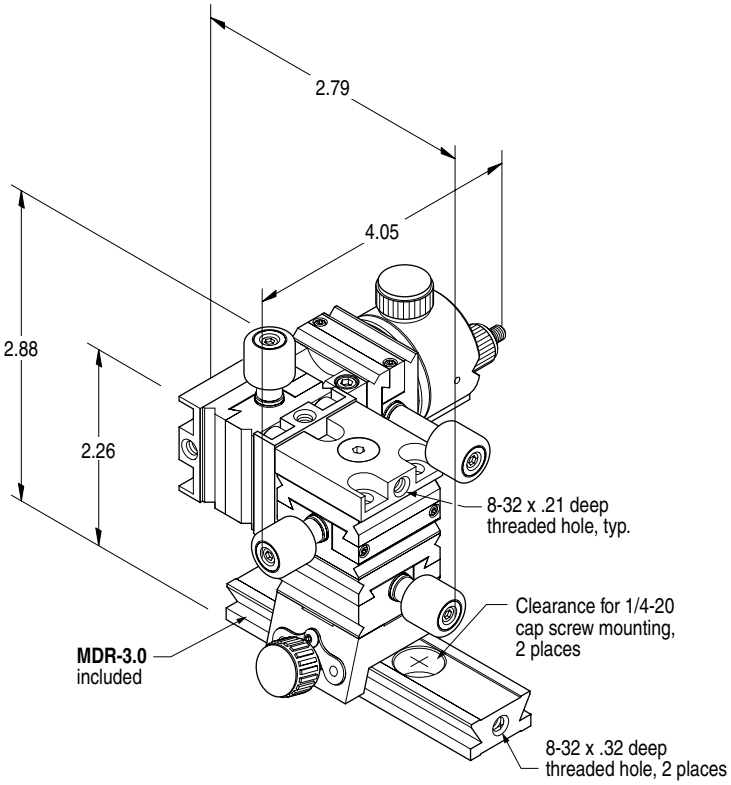
crossed roller manipulator, 3-axis, rh	MX50.5R
crossed roller manipulator, 3-axis, lh	MX50.5L

Micromanipulators

Manual Dovetail Slide Base Mount

4-axis / MX10

MX10R



Product Features

- Linear approach on probe axis
- 10-mm travel in all 4 axes
- Dovetail mounting rail for easy removal or replacement

Performance Specifications

Maximum load	0.5 lbs
Travel / axis	0.39 inch [10 mm]
Minimum controllable motion	5 µm

Related Products

MXP probe/pipette holder	172

Order Information

dovetail 4-axis stage, manual, rh	MX10R
dovetail 4-axis stage, manual, lh	MX10L

The MX10 is a miniature micromanipulator that is ideal for positioning applications that require micron-scale resolution. DT100 series stages use a precision rolled 80TPI lead screw for smooth positioning along their entire travel.

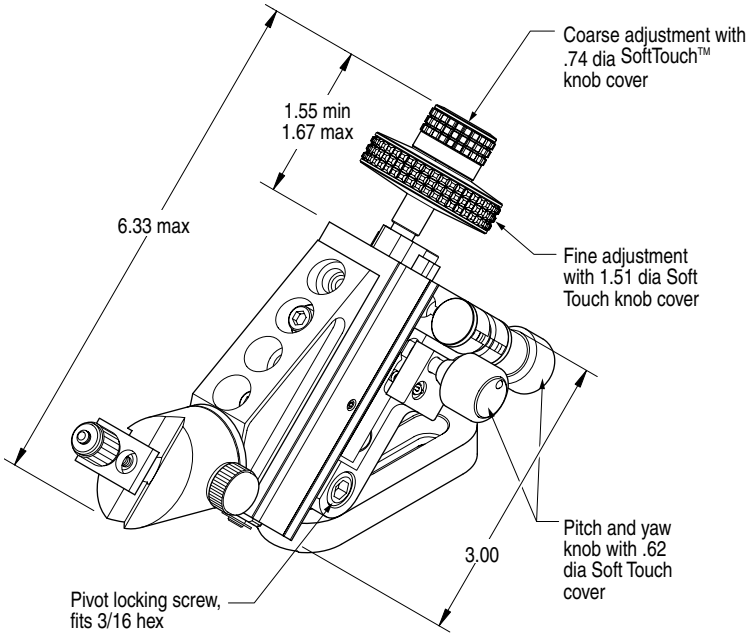
Our miniature dovetail slide uses an adjustable spring-loaded gib design. This feature ensures stability, straightness of travel and also works as a locking mechanism.

The device is equipped with a fourth axis which can be set at any angle through 360° of motion.

The compact size of the MX10 makes it ideal for stimulator applications. The mounting method makes removal and replacement very straightforward. The addition of a simple stop allows repeatable placement.

Manual Dovetail Slide Base Mount

4-axis / MX130



MX130R

The MX130 Manipulator is designed to maximize available space. The narrow profile design allows multiple manipulators to be placed in one quadrant.

The MX130 provides 42mm coarse and 3mm fine positioning travel in the X-axis. Two-and-a-half turns of the coarse adjustment knob will fully retract the device in the X-axis. The assembly is fitted with our MXC-45 probe clamp for easy changing of electrodes or other implements.

Y- and Z-axis adjustments are accomplished with the fine adjustment screws mounted on the back of the device. Additionally, the Z-axis adjustment screw may be configured with the knob on the top or the bottom, whichever provides the best access. The device angle is easily set by loosening the locking screw. The RTC-0.5 mounting base provides coarse rotational positioning and flexible mounting options of either base or post support. Left or right hand models allow additional flexibility to suit the application.

The extra length dovetail stage of the X-axis combined with the spring-loaded pivot mechanism (pat.# 6590723) of the other two axes provides a high level of stability. This allows for smooth and precise adjustments.

Product Features

- Repeating probe holder
- Combined coarse and fine control on X-axis
- Narrow space saving design

Performance Specifications

Travel range	
X axis, coarse/fast	42 mm
X axis, fine	3 mm
Pitch/Yaw	7°
Minimum controllable motion	
X axis, fine	5 µm
Pitch/Yaw	5 arc sec.

Related Products

MXP probe/pipette holder	172

Order Information

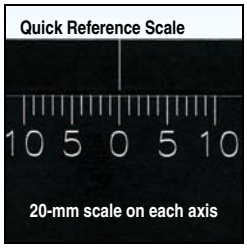
dovetail manipulator, 4-axis, rh	MX130R
dovetail manipulator, 4-axis, lh	MX130L

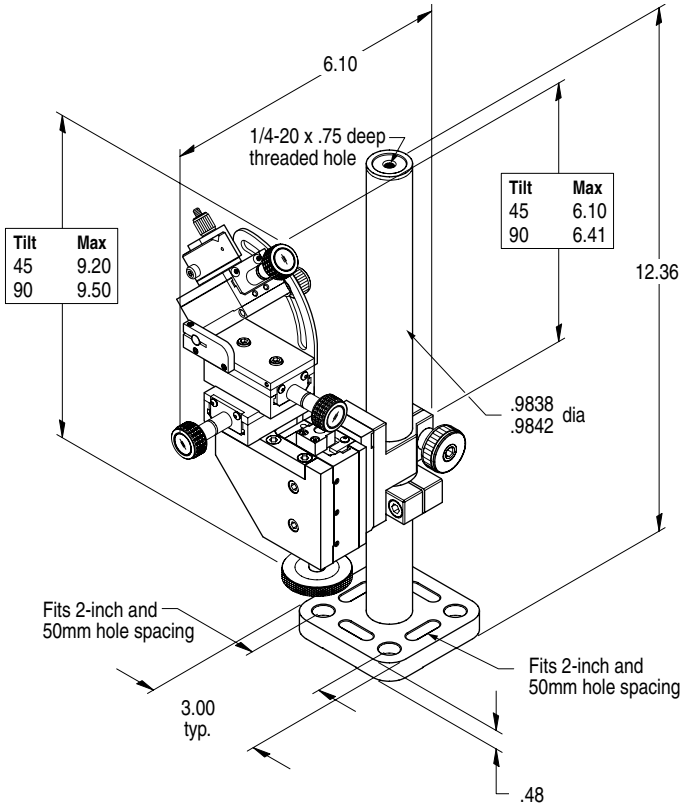
Micromanipulators

Manual Ball Bearing Post Mount

4-axis / MX110

MX110L





Product Features

- Rotatable post mount
- Linear approach on probe axis
- Mounting rod and base included

Performance Specifications

Maximum load	2 lbs
Travel / axis	0.86 inch [22 mm]
Minimum controllable motion	10 µm

Related Products

MX610 single-axis hydraulic	161
MX630 triple-axis hydraulic	161
MXP probe/pipette holder	172

Order Information

post mount manipulator, 4-axis, rh	MX110R
post mount manipulator, 4-axis, lh	MX110L

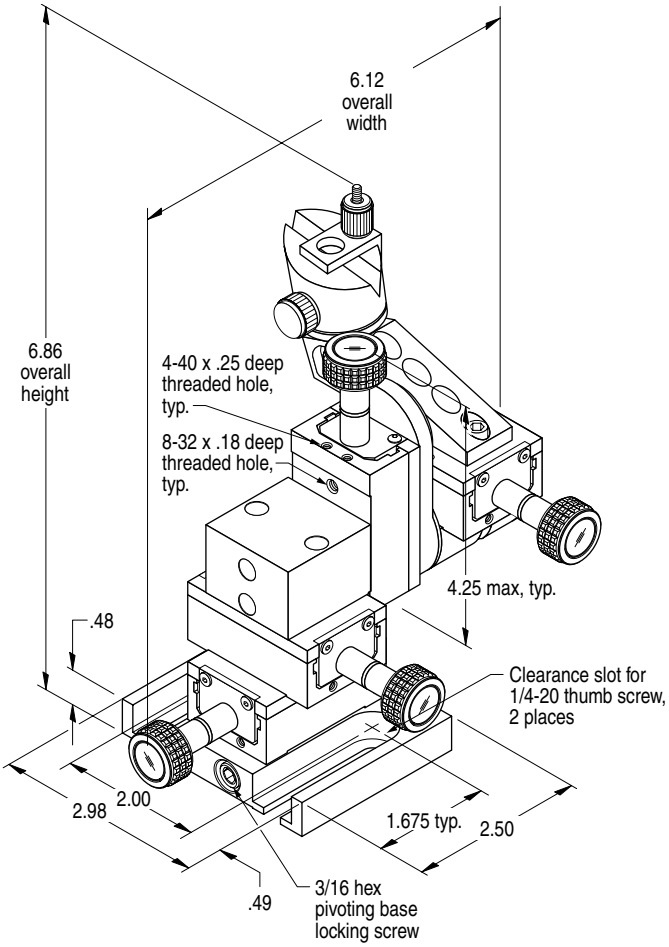
Unlike stages with rack and pinion drive, the MX110 uses a spring-loaded lead screw design against a solid stop, which ensures drift-free operation. The MX110 incorporates fast-pitch, screw drive positioning, and smooth ball bearing motion in the X, Y, Z, and probe axes for precision positioning.

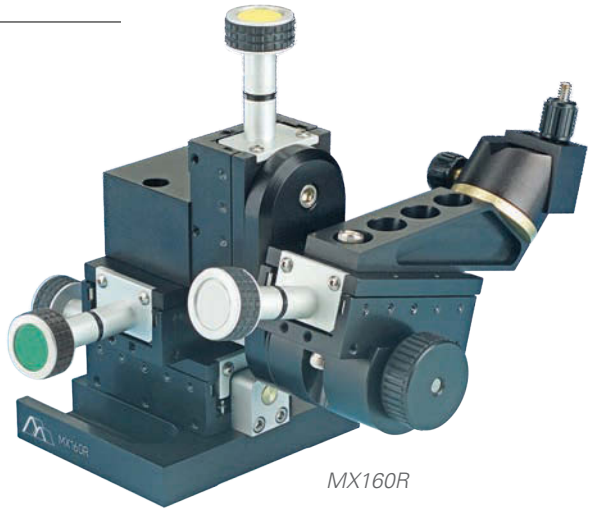
For added positioning versatility, the top stage tilts at any angle from 0° to 90°, and includes 22-mm of linear travel along the probe axis. This feature plus 22-mm of X-axis travel make the MX110 ideal for axial cell probing.

To make probe replacement efficient, the MX110 can be rotated away from the microscope and returned back to the original position using an adjustable stop. Color coded knob caps are used to identify axis location in low light conditions.

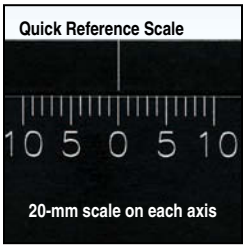
Manual Ball Bearing Base Mount

4-axis / MX160





MX160R



Unlike stages with rack and pinion drive, the MX160 uses a spring-loaded lead screw design against a solid stop, which ensures drift-free operation. The MX160 incorporates fast-pitch, screw drive positioning, and smooth ball bearing motion in the X, Y, Z, and probe axes for precision positioning. Color coded knobs are used to identify axis location in low light conditions.

For added positioning versatility, the top stage tilts at any angle through 360°, and includes 22-mm of linear travel along the probe axis. This feature plus 22-mm of X-axis travel make the MX160 ideal for axial cell probing.

The MX160 has our MXC-45 mounted to the probe axis. The MXC-45's built-in rotational stop allows easy electrode/pipette replacement. MX160s come standard with our ABP-R mounting plate. The design of this mounting plate enables coarse positioning between platform mounting holes as well as 360° of coarse rotational positioning. If rotation with a solid submicron level stop is required, the MX-RS rotation stage is designed to mount directly into the ABP-R as well as the MX160.

Product Features

- Rotatable mounting base
- Linear approach on probe axis
- Repeating probe holder

Performance Specifications

Maximum load	2 lbs
Travel / axis	0.86 inch [22 mm]
Minimum controllable motion	10 µm

Related Products

MX-RS rotation base	122
MX312P platform	96
MX610 single-axis hydraulic	161
MX630 triple-axis hydraulic	161
MXP probe/pipette holder	172

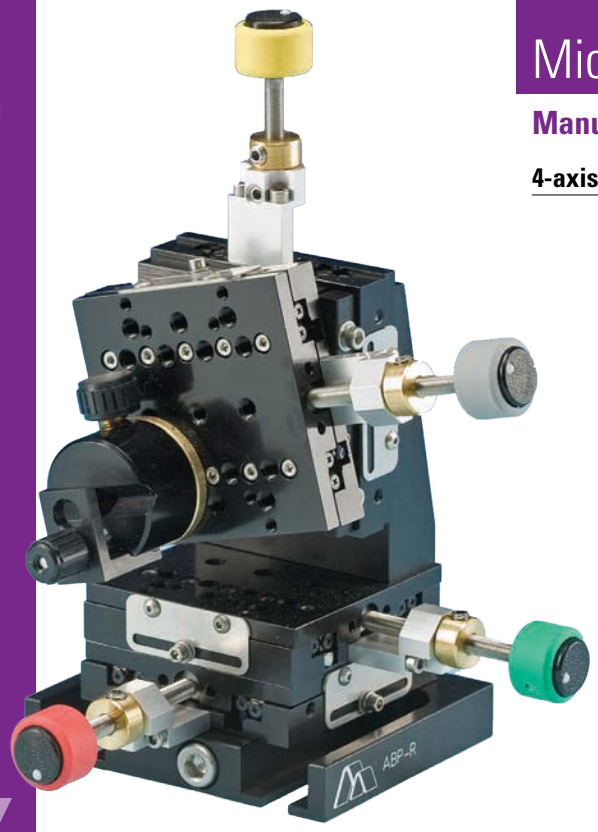
Order Information

ball bearing manipulator, 4-axis, rh	MX160R
ball bearing manipulator, 4-axis, lh	MX160L

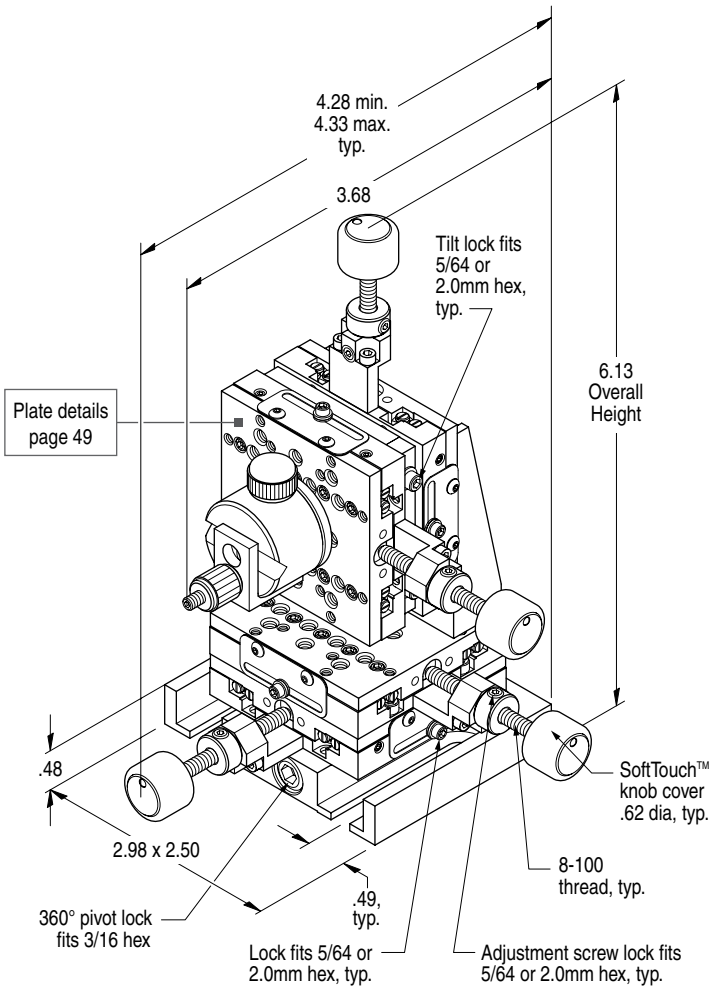
Micromanipulators

Manual Crossed Roller Base Mount

4-axis / MX100.5



MX100.5R



Product Features

- Small package design
- Stable crossed roller stages in all axes
- Large adjustment knobs for improved feel and resolution

Performance Specifications

Maximum load	2 lbs
Travel / axis	1.0 inch [25 mm]
Minimum controllable motion	submicron

Related Products

MXP probe/pipette holder	172
MX610 & MX630 micromanipulators	161
512 series actuators	91
ABP-R & MX-RS rotation bases	122
4080P platform	102

Order Information

manipulator, crossed roller, 4-axis, rh	MX100.5R
manipulator, crossed roller, 4-axis, lh	MX100.5L

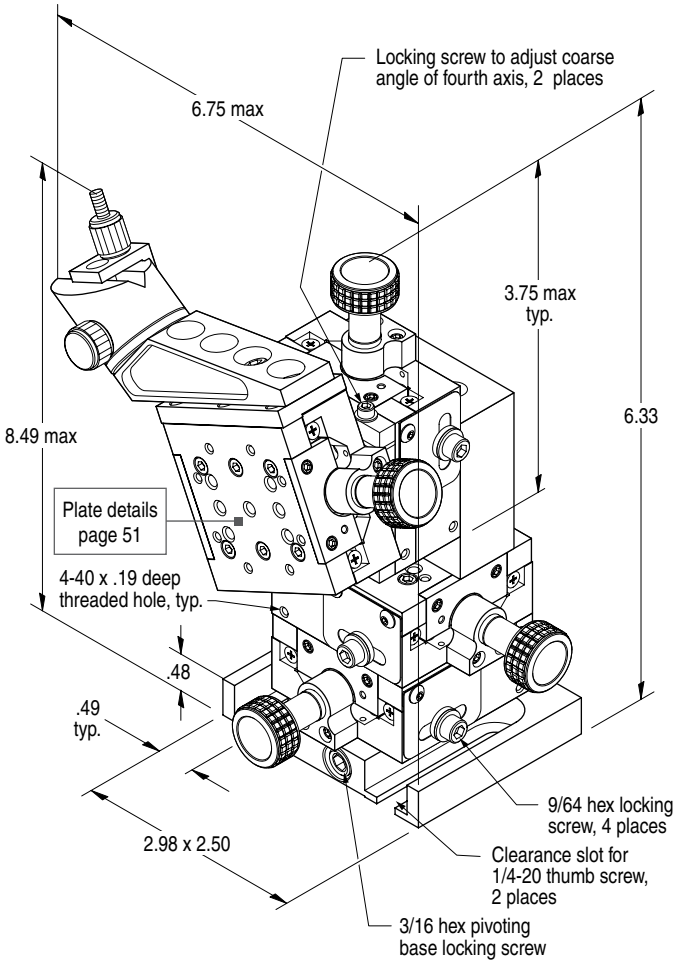
The MX100.5 series of manual manipulators are built from our low profile 100.5cr crossed roller stages and are ideal for positioning stimulating electrodes, MX610 or MX630 hydraulic micromanipulators, puffer pipettes, suction pipettes or the devices in a microscope's field of view. They come standard with 100TPI adjustment screws and large color coded knobs for improved feel and resolution.

The mounting base for this manipulator is our ABP-R and can be attached to one of our platforms or directly to a microscope stage with the use of our 4080P platform. This base has a coarse rotation built-in and can adapt to our MX-RS for high resolution repeatability.

Like most of our micromanipulators, the MX100.5 series comes with a fourth adjustable axis to get true axial probing into the experiment. They also can be motorized with our 512 series motorized actuators.

Manual Crossed Roller Base Mount

4-axis / MX1600 Series



MX1640R

The MX1600 series crossed roller micromanipulators are ideal for a wide range of submicron or micron-scale motion applications. The lead screws are spring-loaded against a solid stop to ensure drift-free operation. The MX1600 incorporates your choice of 20TPI, 40TPI, and 80TPI screw drive positioning for smooth crossed roller motion in the X, Y, Z, and probe axes.

The MX1600 has our MXC-45 mounted to the probe axis. The MXC-45's built-in rotational stop allows easy electrode/pipette replacement. MX1600s come standard with our ABP-R mounting plate. The design of this mounting plate enables coarse positioning between platform mounting holes as well as 360° of coarse rotational positioning. If rotation with a solid submicron level stop is required, the MX-RS rotation stage is designed to mount directly into the ABP-R as well as the MX1600 series.

Product Features

- Rotatable mounting base
- Linear approach on probe axis
- Repeating probe holder

Performance Specifications

Maximum load	2 lbs
Travel / axis	0.80 inch [20 mm]
Minimum controllable motion	
MX1620	10 µm
MX1640	5 µm
MX1680	submicron

Related Products

MX-RS rotation base	122
MX312P platform	96
MX610 single-axis hydraulic	161
MX630 triple-axis hydraulic	161
MXE amplifier headstage mount	172
MXP probe/pipette holder	172

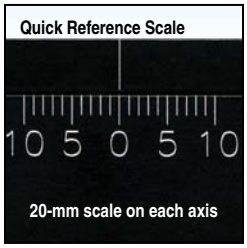
Order Information

crossed roller 20TPI manip., 4-axis, rh	MX1620R
crossed roller 20TPI manip., 4-axis, lh	MX1620L
crossed roller 40TPI manip., 4-axis, rh	MX1640R
crossed roller 40TPI manip., 4-axis, lh	MX1640L
crossed roller 80TPI manip., 4-axis, rh	MX1680R
crossed roller 80TPI manip., 4-axis, lh	MX1680L

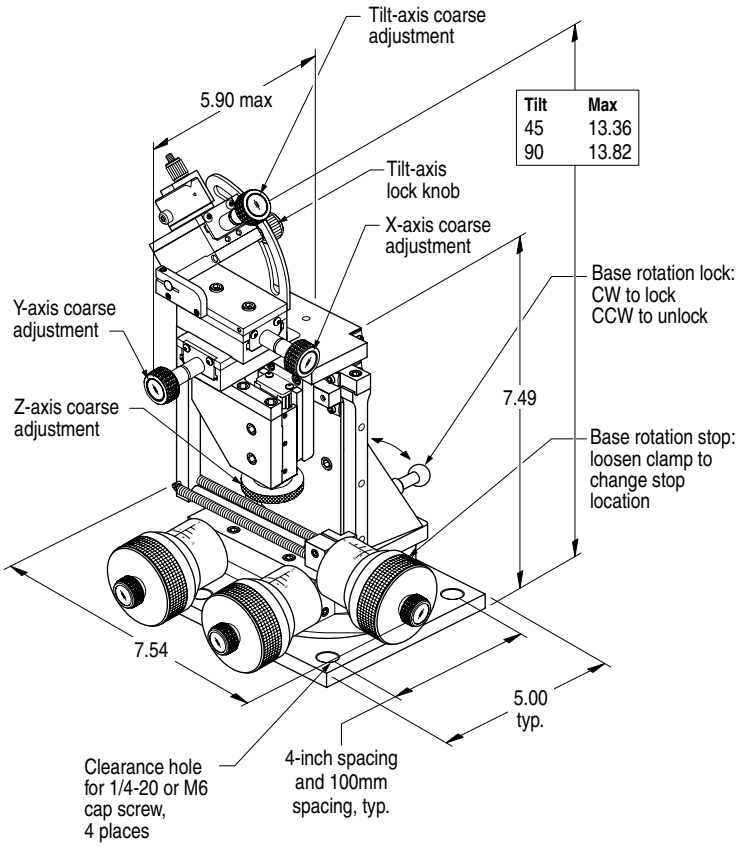
Manual — Flexure

Huxley-style / MX310

MX310L



MX310R



Product Features

- Classic Huxley flexure design
- 100 TPI ultrafine adjustment
- 20 TPI coarse adjustment

Performance Specifications

Maximum load	2 lbs
Travel / axis	
Coarse	0.86 inch [22 mm]
Fine	0.08 inch [2 mm]
Minimum controllable motion	
Coarse	10 µm
Fine	0.1 µm
Probe angle adjustment	0° - 90°

Related Products

MX512P platform	97
MX5T tilt platform	99
MXE amplifier headstage mount	172
MXP probe/pipette holder	172

Order Information

Huxley-style manipulator, rh	MX310R
Huxley-style manipulator, lh	MX310L

The time-tested MX310 Huxley-style micromanipulator is ideal for introductory level research and training course use. This stable flexure design has proven itself over the years, and has been improved with the addition of 100TPI adjustment screws for 0.1 µm fine resolution. For coarse positioning we have incorporated our MX110 stage. The spring-loaded lead screw design in the MX110 ensures drift-free operation.

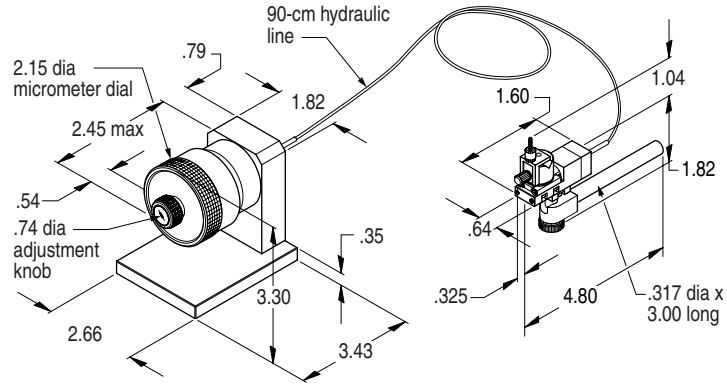
Coarse adjustment of the MX310 is achieved with our 5-axis MX110 manipulator mounted on the top of the flexure. For added positioning versatility, the top stage tilts at any angle from 0° to 90°, and includes 22-mm of linear travel along the probe axis.

The base of the MX310 is equipped with a lockable rotation stage with an adjustable stop. The adjustable stop allows for simple probe/pipette replacement by rotating the entire MX310 away from the microscope and returning it to the pre-aligned position.

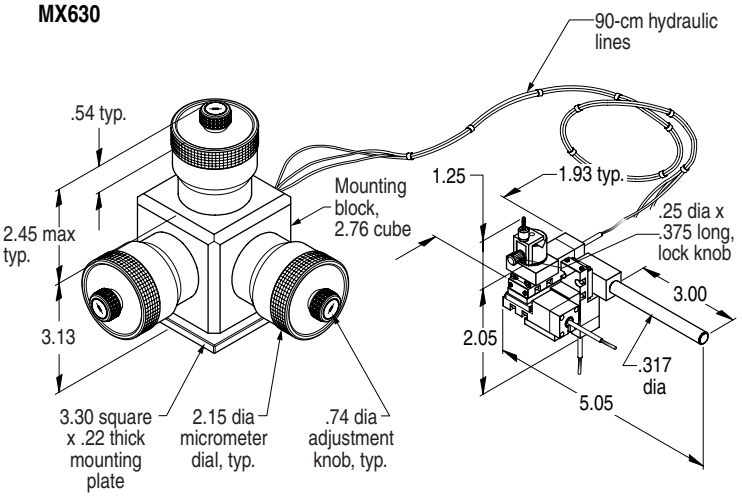
Hydraulic Crossed Roller

Single- and 3-axis / MX610 and MX630

MX610



MX630



MX630R *MX610*

Smooth motion and instant response to hand adjustments makes the MX630 and the MX610 ideal for long term intracellular recordings. The water-based hydraulic mechanism has a thermal expansion two to three times less than that of oil based systems, thus minimizing drift to less than 2 µm per hour at constant temperatures.

MX600 series hydraulic micromanipulators have crossed roller bearings in each axis. This along with a metal bellows system ensure precision movement and long life. The positioning dials use our ultrafine 127TPI adjustment screws to enable 0.5 µm resolution. Each hydraulic head-stage is equipped with a rotatable electrode/pipette holder that will hold diameters from 3- to 8-mm.

For added coarse positioning the MX600 series micromanipulator can be mounted on our MX110, MX160, MX1600, MX50.5 or MX100.5 series of manipulators.

Product Features

- Water based hydraulic system
- Less than 2 µm drift / hour
- Ideal for intracellular recording

Performance Specifications

Travel / axis	0.2 inch [5 mm]
Minimum controllable motion	0.5 µm

Hydraulic mechanism maintenance

Hydraulic manipulators come with a two-year warranty on the hydraulic drive. They will be refilled at no charge in the first 24 months. There is a nominal refilling fee after that. (see page 148)

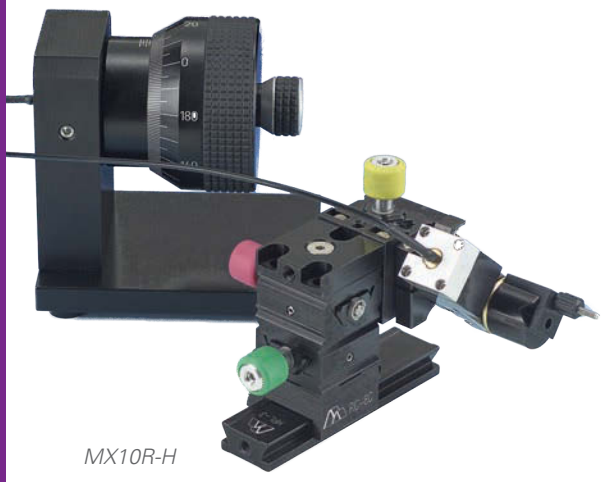
Related Products

MX160 micromanipulator	157
MX1640 micromanipulator	159
MX110 micromanipulator	156
MXE amplifier headstage mount	172
MXP probe/pipette holder	172

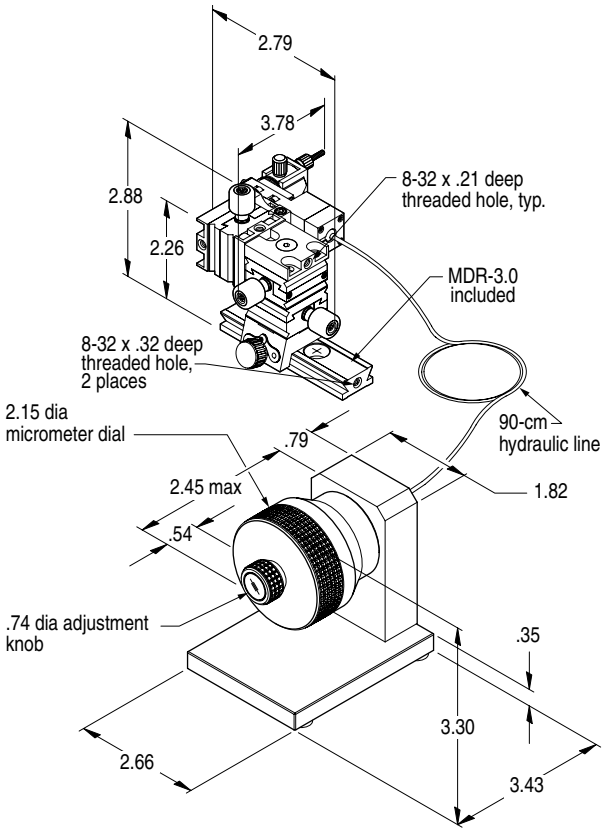
Order Information

hydraulic manipulator, single-axis	MX610
hydraulic manipulator, 3-axis, rh	MX630R
hydraulic manipulator, 3-axis, lh	MX630L

3-axis Stage / MX10-H



MX10R-H



Product Features

- 5-mm hydraulic linear approach on probe axis
- 10-mm travel in XYZ axes
- Dovetail mounting rail for easy removal or replacement

Performance Specifications

Maximum load	0.5 lbs
Travel / axis	
Dovetail axes	0.39 inch [10 mm]
Hydraulic axis	0.2 inch [5 mm]
Minimum controllable motion	
Dovetail axes	5 µm
Hydraulic axis	0.5 µm
Hydraulic mechanism maintenance	
Hydraulic manipulators come with a two-year warranty on the hydraulic drive. They will be refilled at no charge in the first 24 months. There is a nominal refilling fee after that. (see page 148)	

Related Products

MXP probe/pipette holder	172

Order Information

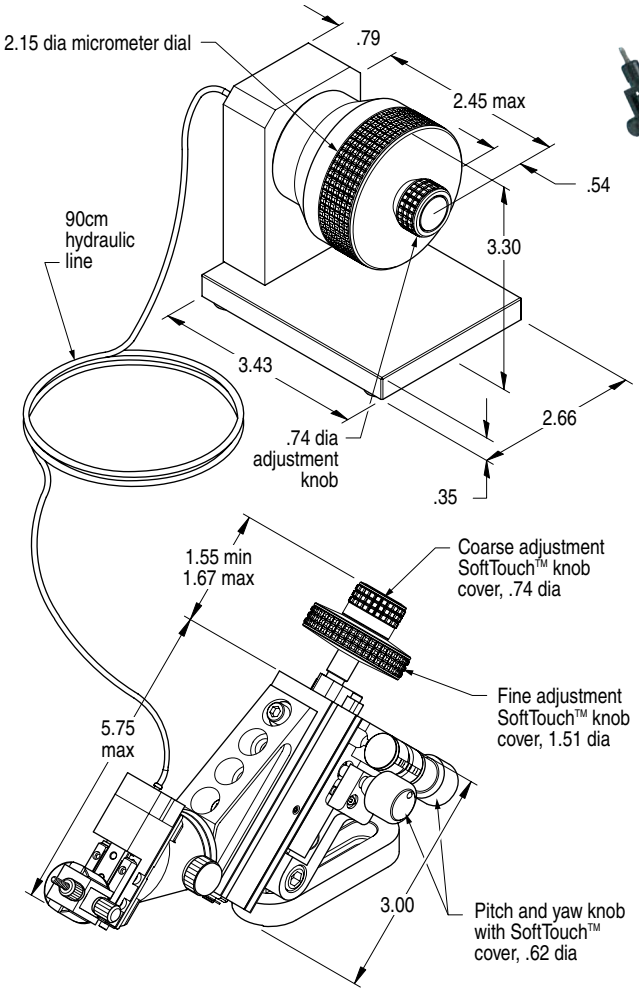
dovetail 3-axis stage with single hydraulic axis, rh	MX10R-H
dovetail 3-axis stage with single hydraulic axis, lh	MX10L-H

The MX10R-H is a miniature micromanipulator that is ideal for positioning applications that require submicron level resolution. In this design we have combined our DT100 series stages with the MX610 single-axis hydraulic manipulator. This combination enables the experimenter to use the fine positioning accuracy of the dovetail stage to get close to the desired location and then use the submicron resolution of the hydraulic stage to make the final adjustment. The hydraulic stage is mounted on a fourth axis which can be set at any angle through 360° of motion. The compact size of the MX10R-H makes it ideal for stimulator applications, puffer pipettes or micro-injection set-ups.

Our miniature dovetail slide uses an adjustable spring-loaded gib design and a precision rolled 80TPI lead screw for smooth positioning along its entire travel. These features ensure stability and straightness of travel over many years of use. The MDR-3.0 miniature dovetail rail makes mounting and replacement very straightforward. The addition of a simple stop allows repeatable placement.

Hydraulic **Integrated** **4-axis**

4-axis / MX130-H



MX130R-H

The MX130-H combines our popular MX130 manipulator with our single-axis MX610 hydraulic manipulator. This combination is ideal for intra-cellular recording and micro-injection applications. The MX130 manual manipulator has 38mm of coarse axial control along the probe axis (X) and 3.5mm of fine control in that same direction. The large fine control knob improves resolution and feel of the 100TPI fine adjustment screw and also helps the user differentiate between the fine and coarse control knobs without looking. Y-axis and Z-axis control of the MX130 is controlled with 100TPI adjustment screws and maximum travel is approximately 12mm.

The base of the MX130 uses our RTC-0.5 for maximum mount flexibility and has coarse angular adjustments to facilitate alignment under a microscope. The hydraulic stage of the MX610 is mounted to our MXC-45 and allows the stage to be rotated "out" of the experiment for easy electrode replacement. The fine hydraulic control of the MX610 that is mounted to the top of the MX130 uses our 127TPI adjustment screws to produce sub-micron resolution at the output of the device. This fine control is available across the entire 5mm length of travel of the MX610. On top of the hydraulic stage is a small probe clamp that will hold rod diameters from 3mm to 8mm.

Product Features

- Repeating probe holder
- Combined coarse and hydraulic control on X-axis
- Narrow space saving design

Performance Specifications

Travel range	
Dovetail axis, coarse/fast	38 mm
Dovetail axis, fine	3.5 mm
Pitch/Yaw	7°
Hydraulic stage	5 mm
Minimum controllable motion	
Dovetail axis, fine	5 µm
Pitch/Yaw	5 arc sec.
Hydraulic stage	0.5 µm

Hydraulic mechanism maintenance

Hydraulic manipulators come with a two-year warranty on the hydraulic drive. They will be refilled at no charge in the first 24 months. There is a nominal refilling fee after that. (see page 148)

Related Products

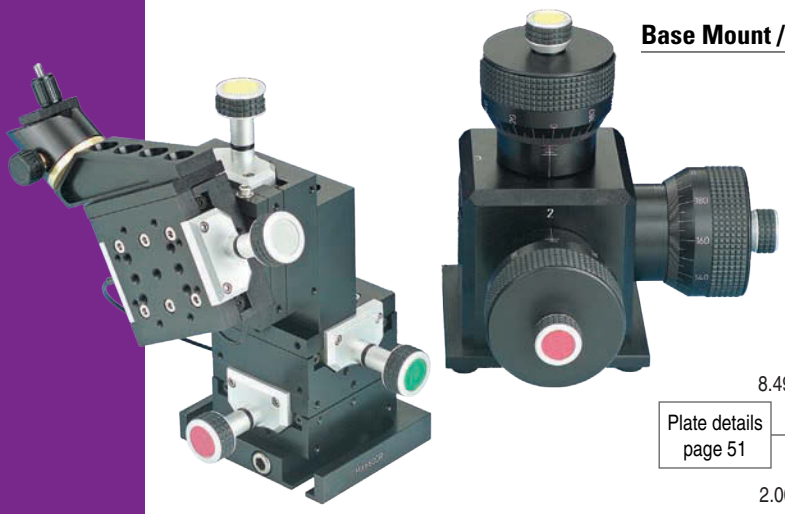
MXP probe/pipette holder	172
MXC-45 amplifier mount	174

Order Information

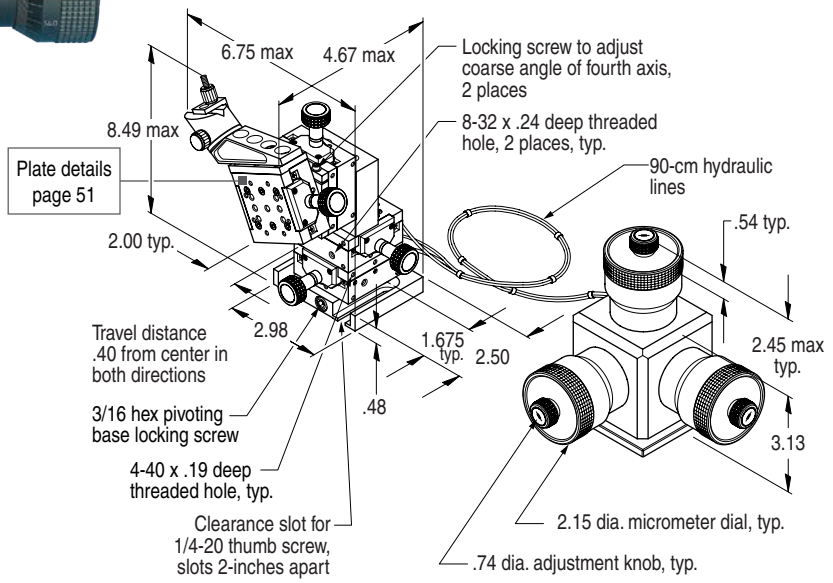
dovetail manipulator, hydraulic, 4-axis	MX130R-H

Hydraulic Integrated 3-axis

Base Mount / MX6600



MX6600R



Product Features

- Water based hydraulic system
- Less than 2 µm drift / hour
- Ideal for intracellular recording

Performance Specifications

Travel / axis	
Total	0.80 inch [20 mm]
Fine	0.2 inch [5 mm]
Minimum controllable motion	
Coarse	10 µm
Fine	0.5 µm
Hydraulic mechanism maintenance	

Hydraulic manipulators come with a two-year warranty on the hydraulic drive. They will be refilled at no charge in the first 24 months. There is a nominal refilling fee after that. (see page 148)

Related Products

MX312P platform	96
MX-RS rotation base	122
MXE amplifier headstage mount	172
MXP probe/pipette holder	172
MXC-45D amplifier mount	174

Order Information

hydraulic manipulator, base mount, rh	MX6600R
with MXC-45DR amplifier mount	MX6600/45DR
hydraulic manipulator, base mount, lh	MX6600L
with MXC-45DL amplifier mount	MX6600/45DL

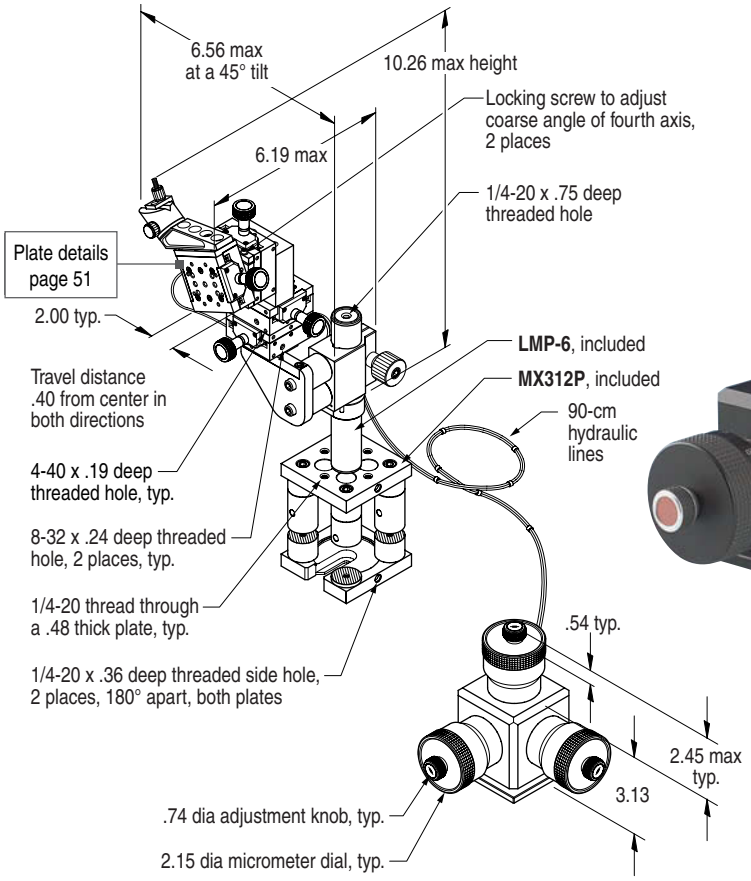
Smooth motion and instant response to hand adjustments makes the MX6600 ideal for long term intracellular recordings. The water-based hydraulic mechanism has a thermal expansion two to three times less than that of oil based systems, thus minimizing drift to less than 2 µm per hour at constant temperatures.

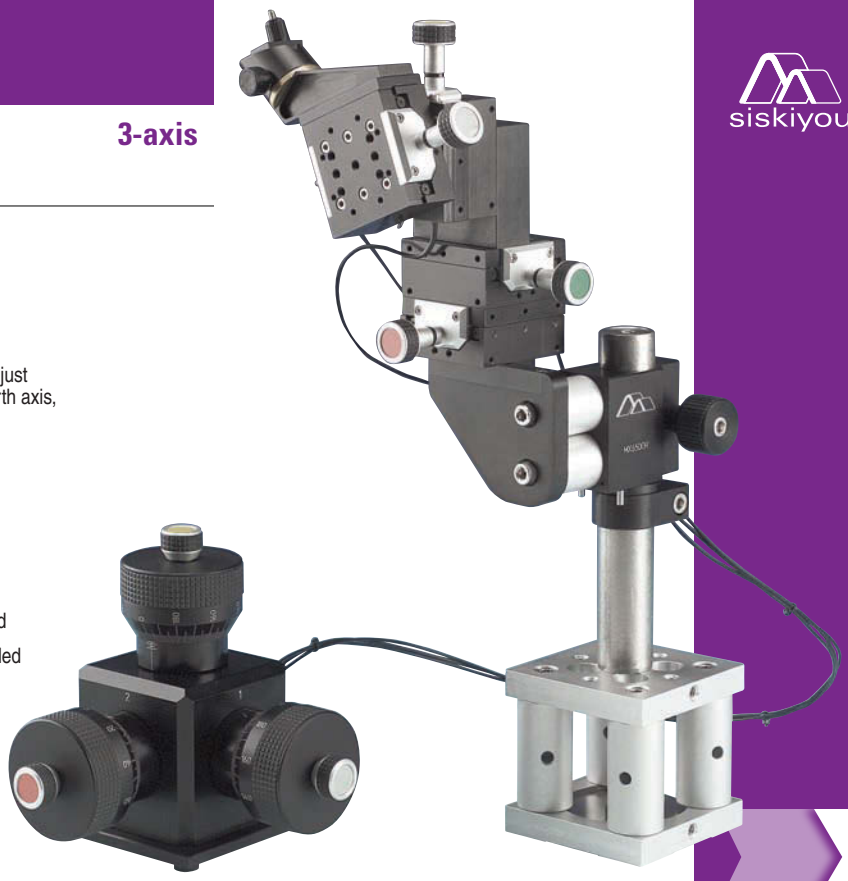
The MX6600 hydraulic micromanipulator is the integrated version of our MX1600 series manual crossed roller bearing manipulator. This design integrates the metal bellows system with our precision crossed roller stage to ensure precision movement and long life. The fine positioning dials on three axes use our ultrafine 127TPI adjustment screws to enable 0.5 µm resolution. The coarse positioning knobs on four axes incorporate 20TPI screw drive positioning for smooth motion in the X, Y, Z, and probe axes. The probe axis can be adjusted to the desired angle of approach from 0° to 180°.

The MX6600 has our MXC-45 mounted to the probe axis. The MXC-45's built-in rotational stop allows easy electrode/pipette replacement. MX6600s come standard with our ABP-R mounting plate. The design of this mounting plate enables coarse positioning between platform mounting holes as well as 360° of coarse rotational positioning. If rotation with a solid submicron level stop is required, the MX-RS rotation stage is designed to mount directly into the ABP-R as well as to the base of the MX6600.

Hydraulic Integrated 3-axis

Post Mount / MX6500





MX6500R

Smooth motion and instant response to hand adjustments makes the MX6500 ideal for long term intracellular recordings. The water-based hydraulic mechanism has a thermal expansion two to three times less than that of oil based systems, thus minimizing drift to less than 2 µm per hour at constant temperatures.

The MX6500 hydraulic micromanipulator is the integrated version of our 1600 series manual crossed roller bearing stages. This design integrates the metal bellows system with our precision crossed roller stage to ensure precision movement and long life. The fine positioning dials on three axes use our ultrafine 127TPI adjustment screws to enable 0.5 µm resolution. The coarse positioning knobs on four axes incorporate 20TPI screw drive positioning for smooth motion in the X, Y, Z, and probe axes. The probe can be adjusted to the desired angle of approach from 0° to 180°.

The MX6500 has our MXC-45 mounted to the probe axis. The MXC-45's built-in rotational stop allows easy electrode/pipette replacement. MX6500s come standard with our MX312P mounting platform, and LMP-6 mounting rod. This rod mounted configuration enables maximum flexibility in height adjustment and also allows the manipulator to be rotated out of the experiment area and back in place against a solid stop.

Product Features

- Water based hydraulic system
- Less than 2 µm drift / hour
- Ideal for intracellular recording

Performance Specifications

Travel / axis:	
Total	0.80 inch [20 mm]
Fine	0.2 inch [5 mm]
Minimum controllable motion:	
Coarse	10 µm
Fine	0.5 µm

Hydraulic mechanism maintenance

Hydraulic manipulators come with a two-year warranty on the hydraulic drive. They will be refilled at no charge in the first 24 months. There is a nominal refilling fee after that. (see page 148)

Related Products

MXE amplifier headstage mount	172
MXP probe/pipette holder	172
MXC-45D amplifier mount	174

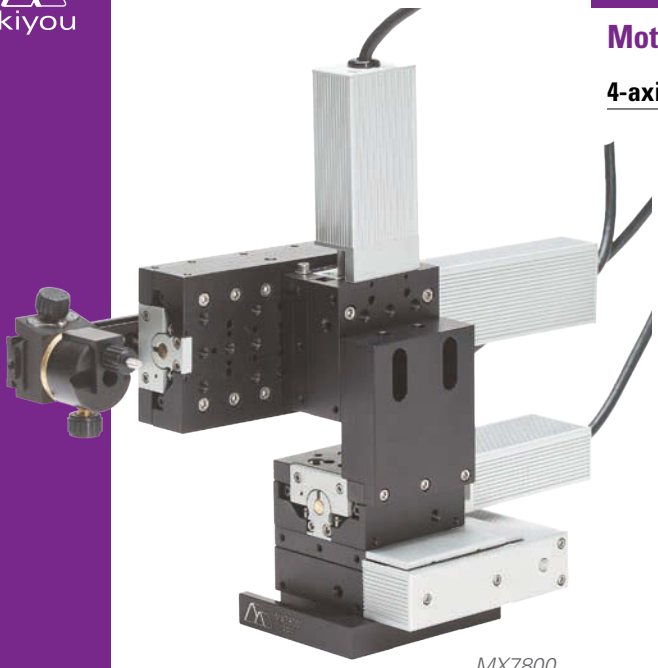
Order Information

hydraulic manipulator, post mount, rh	MX6500R
with MXC-45DR amplifier mount	MX6500/45DR
hydraulic manipulator, post mount, lh	MX6500L
with MXC-45DL amplifier mount	MX6500/45DL

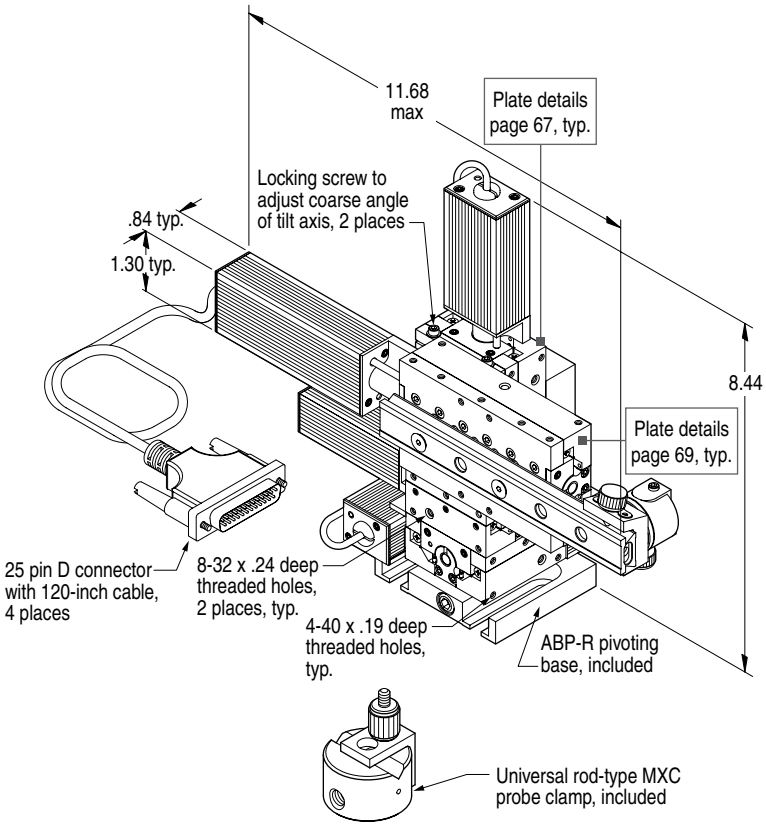
Micromanipulators

Motorized **Crossed Roller, Base Mount** CE Certified

4-axis / MX7800



MX7800



Product Features

- 50-mm travel axial stage
- Folded narrow Y-axis stage
- Dovetail and V-grooved headstage mounts included

Performance Specifications

Maximum load	5 lbs
Travel / axis	
X, Y and Z	0.80 inch [20 mm]
Tilt	1.96 inch [50 mm]
Minimum controllable motion each axis	0.1 µm
Backlash	≤ 5 µm
Point to point accuracy	± 2 µm

Related Products

MC1000e series controllers	beginning 22
DR1000 digital readout	31
MC2010 computer interface	27
MX-RS rotation base	122
MXS-400 device slider	60

Order Information

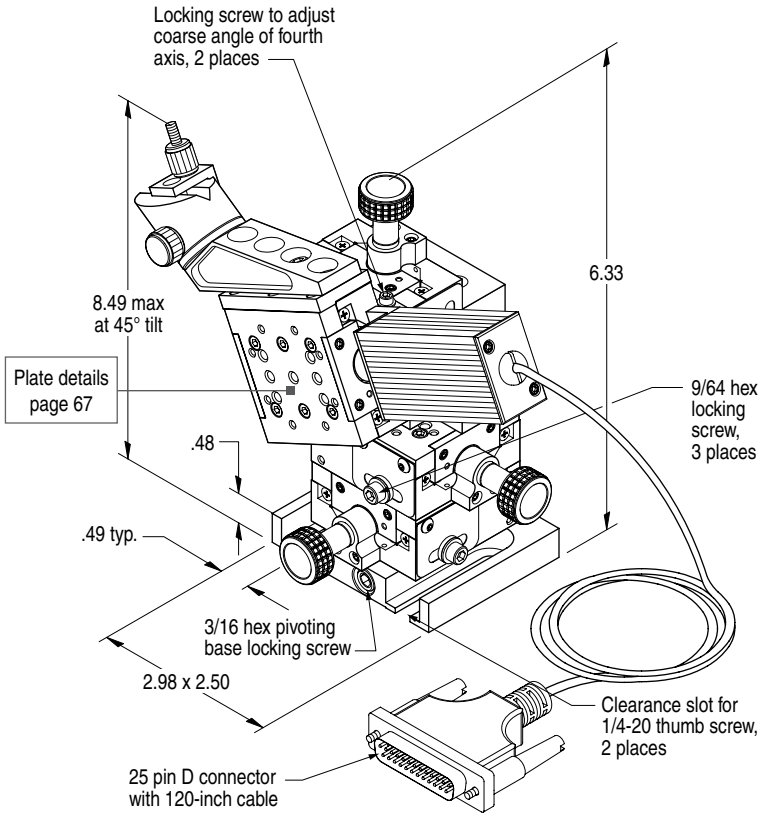
narrow 4-axis manipulator	MX7800

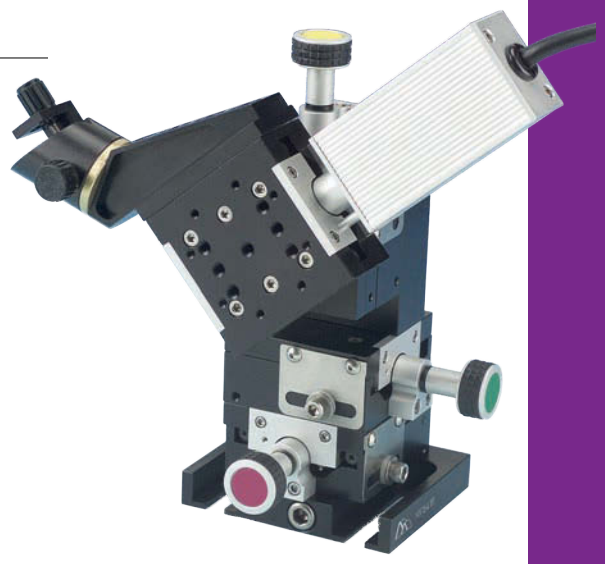
As patch-recording evolves, the need for more manipulation equipment for multiple recording experiments is becoming increasingly common. Previous micromanipulator designs allowed for easy placement of a single manipulator on the right and left sides of the microscope, but they did not allow for multiple manipulators on either side. The MX7800 crossed roller bearing micromanipulator uses the time-tested design of our 7600 and 7700 series stages along with a new folded Y-axis stage that narrows the footprint of the manipulator by half. This narrow design enables the mounting of as many as six micromanipulators in a semi-circle from side to side around the front of the microscope.

The MX7800's X, Y and Z axes have 20mm of travel, while the tilted axial axis has a full 50mm of travel to facilitate electrode change-out in tight quarters. This micromanipulator comes with both MXC and MXC-D style headstage mounts. Like our other DC servo motor driven manipulators, the MX7800s are compatible with all of our ***e*** series and MC2010 controllers and are driven through a closed loop interface between the controller and the motor encoder. This closed loop connection ensures 0.2µm resolution with the ***e*** series controllers and 0.1µm resolution with the MC2010. The encoder coupling enables the use of the DR1000 digital readout for repeated or relative positioning requirements. All cables are shielded to ensure noise-free operation during sensitive electrophysiology experiments. High-speed versions available upon request.

Motorized **Crossed Roller, Base Mount** CE Certified

Single-axis motorized, 3-axis manual / MX1641





MX1641R

The MX1641 series crossed roller micromanipulator is ideal for introductory level research and training course use. The lead screws are spring-loaded against a solid stop to ensure drift-free operation. The MX1641 incorporates 40TPI screw drive positioning for smooth crossed roller motion in the X, Y, and Z axes. The probe axis can be adjusted to the desired angle of approach from 0° to 180°, and incorporates our 7600 series motorized stage for 0.2 µm resolution.

The MX1641 has our MXC-45 mounted to the probe axis. The MXC-45's built-in rotational stop allows easy electrode/pipette replacement. MX1641 comes standard with our ABP-R mounting plate. The design of this mounting plate enables coarse positioning between platform mounting holes as well as 360° of coarse rotational positioning. If rotation with a solid submicron level stop is required, the MX-RS rotation stage is designed to mount directly into the ABP-R as well as the MX1641.

The MX1641 can be used with our ***e*** series and MC2010 controllers to drive the 7600 stage through a closed loop interface between the controller and the motor encoder. The closed loop connection ensures 0.2 µm and 0.1 µm resolution, respectively. The encoder coupling also enables the use of the DR1000 digital readout for repeated or relative positioning requirements. All cables are shielded to ensure noise-free operation during sensitive electrophysiology experiments. High-speed versions available upon request.

Product Features

- 1.7 mm/second rapid positioning on 4th axis
- 40 pitch adjustment in 3 manual axes
- Linear approach on motorized probe axis

Performance Specifications

Maximum load	2 lbs
Travel / axis	0.80 inch [20 mm]
Minimum controllable motion:	
Manual coarse	5 µm
Motorized 4th axis	0.1 µm
Backlash	≤ 5 µm
Point to point accuracy	± 2 µm

Related Products

MX-RS rotation base	122
MC1000e-1 controller	22
MC1000e-R1/4T controller	24
MX312P platform	96
MX3T tilt platform	98
MXC-45D amplifier mount	174
MXE amplifier headstage mount	172
MXP probe/pipette holder	172

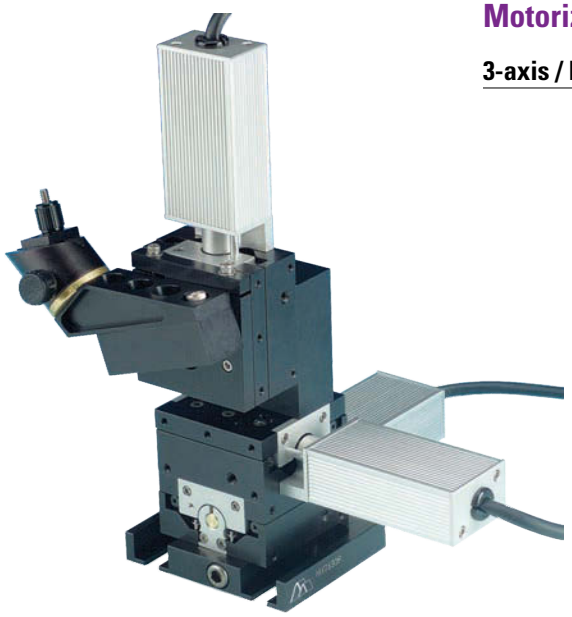
Order Information

motorized/manual manipulator, base mount, rh	MX1641R
motorized/manual manipulator, base mount, lh	MX1641L

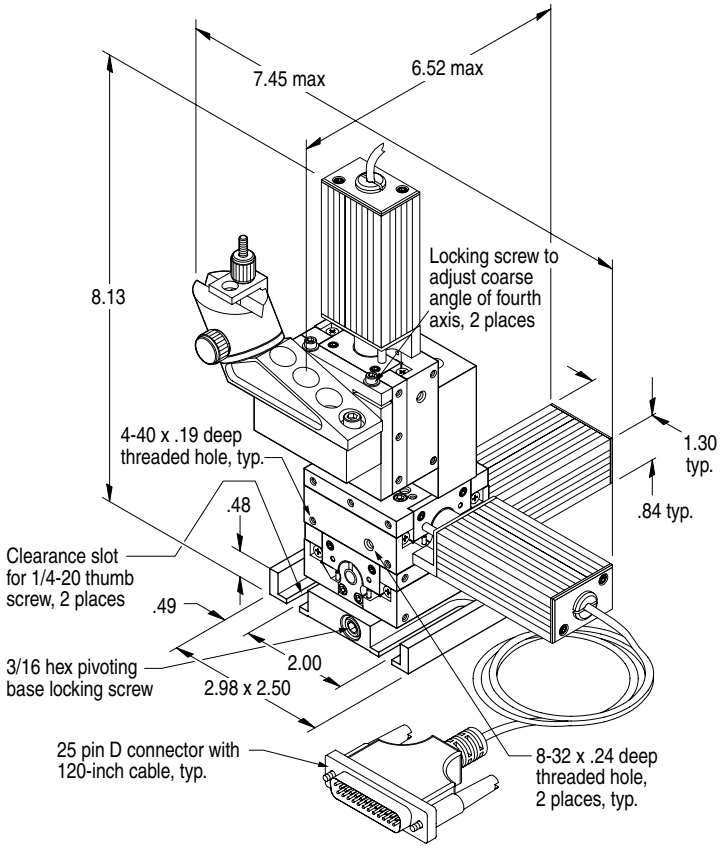
Micromanipulators

Motorized **Crossed Roller, Base Mount** CE Certified

3-axis / MX7630



MX7630R



Product Features

- 1.7 mm/second rapid positioning
- Coarse angular probe positioning
- Repeating probe holder

Performance Specifications

Maximum load	2 lbs
Travel / axis	0.80 inch [20 mm]
Minimum controllable motion	0.1 µm
Backlash	≤ 5 µm
Point to point accuracy	± 2 µm

Related Products

MC1000e-J controller	26
DR1000 digital readout	31
MX-RS rotation base	122
MX312P platform	96
MXC-45D amplifier mount	174
MXP probe/pipette holder	172
MXE amplifier headstage mount	172

Order Information

motorized manipulator, 3-axis, base mount, rh	MX7630R
motorized manipulator, 3-axis, base mount, lh	MX7630L

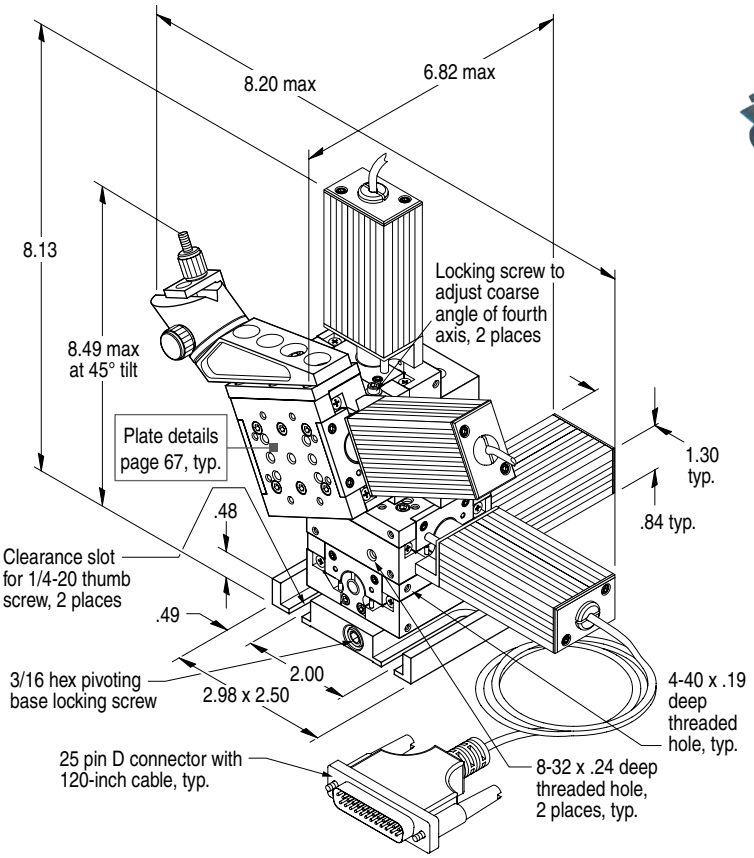
The MX7630 motorized crossed roller bearing micromanipulator is ideal for micro-injection applications. The MX7630 offers exceptionally smooth linear travel, and uses a precision preloaded lead screw to ensure drift-free operation. The motorized 3-axis micromanipulator incorporates our MXC-45 pipette holder mounted to an adjustable clamp on the Z axis. This clamp allows the MXC-45 to be adjusted to the desired angle of approach from 0° to 180°. The MXC-45's built-in rotational stop allows easy pipette replacement.

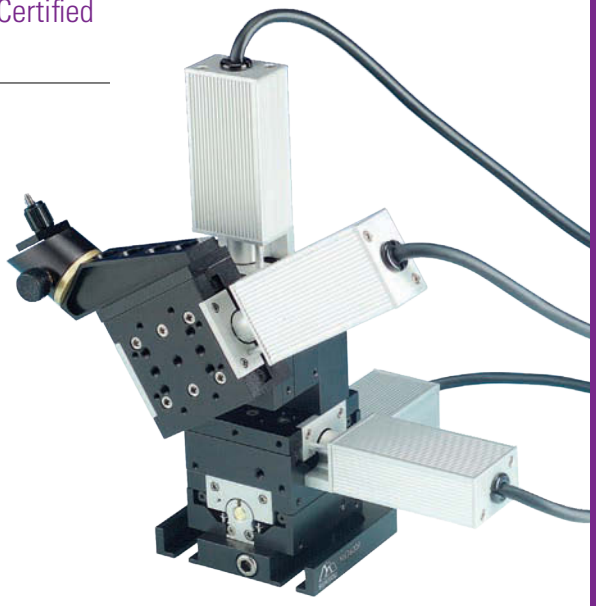
Our MC1000e-J is ideal for controlling the MX7630. The manipulators' drive system uses a closed loop interface between the controller and the motor encoder. The closed loop connection ensures 1.0 µm resolution. The encoder coupling also enables the use of the DR1000 digital readout for repeated or relative positioning requirements. All cables are shielded to ensure noise-free operation during sensitive electrophysiology experiments.

MX7630 micromanipulators come standard with our ABP-R mounting plate. The design of this mounting plate enables coarse positioning between platform mounting holes as well as 360° of coarse rotational positioning. If rotation with a solid submicron level stop is required, the MX-RS rotation stage is designed to mount directly into the ABP-R and has mounting holes for all 7630 stages. High-speed versions available upon request.

Motorized Crossed Roller, Base Mount CE Certified

4-axis / MX7600





MX7600R

The MX7600 motorized crossed roller bearing micromanipulator is ideal for patch recording experiments. The MX7600 offers exceptionally smooth linear travel and uses a precision preloaded lead screw to ensure drift-free operation. The motorized 4-axis micromanipulator incorporates our MXC-45 pipette holder mounted to an adjustable clamp on the probe axis. This clamp allows the MXC-45 and probe axis to be adjusted to the desired angle of approach from 0° to 180° for true axial approach. The MXC-45's built-in rotational stop allows easy pipette replacement.

The MX7600 can be used with our ***e*** series and MC2010 controllers to drive the 7600 stage through a closed loop interface between the controller and the motor encoder. The closed loop connection ensures 0.2 µm and 0.1 µm resolution, respectively. The encoder coupling also enables the use of the DR1000 digital readout for repeated or relative positioning requirements. All cables are shielded to ensure noise-free operation during sensitive electrophysiology experiments.

MX7600 series stages come standard with our ABP-R mounting plate. The design of this mounting plate enables coarse positioning between platform mounting holes as well as 360° of coarse rotational positioning. If rotation with a solid submicron level stop is required, the MX-RS rotation stage is designed to mount directly into the ABP-R and has mounting holes to attach to the base of the MX7600. High-speed versions available upon request.

Product Features

- 1.7 mm/second rapid positioning
- Linear approach on probe axis
- Repeating probe holder

Performance Specifications

Maximum load	2 lbs
Travel / axis	0.80 inch [20 mm]
Minimum controllable motion	0.1 µm
Backlash	≤ 5 µm
Point to point accuracy	± 2 µm

Related Products

MC1000e controller	22
MC1000e-R/T controller	25
MC1100e controller	22
MC2010 computer interface	27
DR1000 digital readout	31
MX-RS rotation base	122
MX312P platform	96
MXC-45D amplifier mount	174
MXP probe/pipette holder	172
MXE amplifier headstage mount	172

Order Information

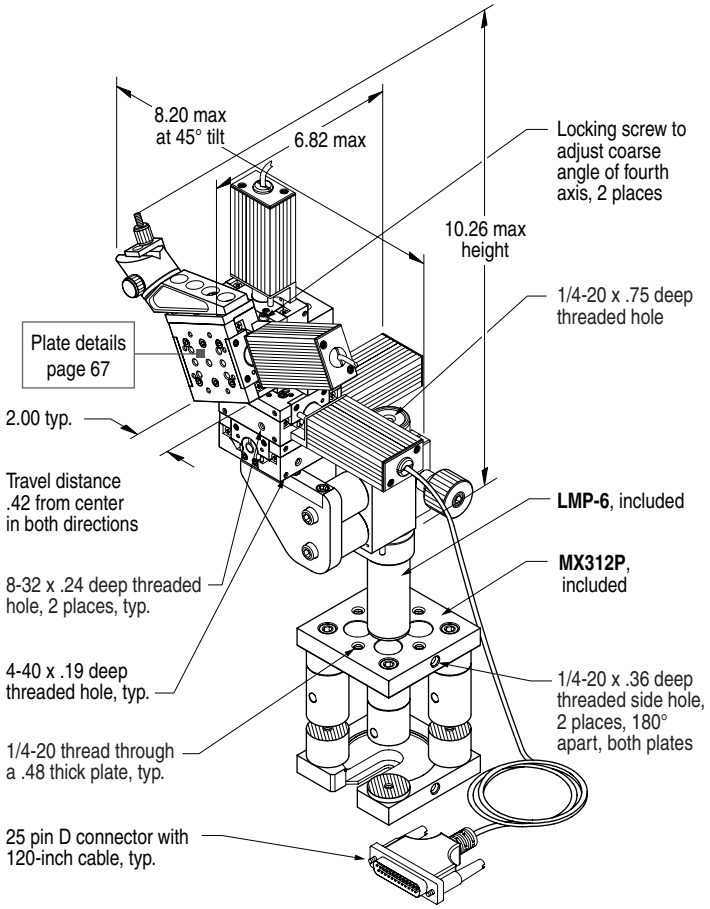
motorized manipulator, 4-axis, base mount, rh	MX7600R
motorized manipulator, 4-axis, base mount, lh	MX7600L

Micromanipulators

Motorized **Crossed Roller, Post Mount** CE Certified

4-axis / MX7500

MX7500R



Product Features

- 1.7 mm/second rapid positioning
- Linear approach on probe axis
- Mounting rod and base included

Performance Specifications

Maximum load	2 lbs
Travel / axis	0.80 inch [20 mm]
Minimum controllable motion	0.1 µm
Backlash	≤ 5 µm
Point to point accuracy	± 2 µm

Related Products

MC1000e controller	22
MC1000e-R/T controller	25
MC1100e controller	22
MC2010 computer interface	27
DR1000 digital readout	31
MX312P platform	96
MXC-45D amplifier mount	174
MXP probe/pipette holder	172
MXE amplifier headstage mount	172

Order Information

motorized manipulator, 4-axis, post mount, rh	MX7500R
motorized manipulator, 4-axis, post mount, lh	MX7500L

The MX7500 motorized crossed roller bearing micromanipulator is ideal for patch recording experiments. The MX7500 offers exceptionally smooth linear travel and uses a precision preloaded lead screw to ensure drift-free operation. The motorized 4-axis micromanipulator incorporates our MXC-45 pipette holder mounted to an adjustable clamp on the probe axis. This clamp allows the MXC-45 and probe axis to be adjusted to the desired angle of approach from 0° to 180° for true axial approach. The MXC-45's built-in rotational stop allows easy pipette replacement.

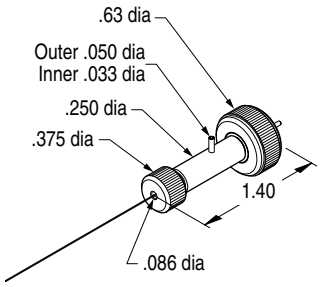
The MX7500 can be used with our ***e*** series and MC2010 controllers to drive the 7500 stage through a closed loop interface between the controller and the motor encoder. The closed loop connection ensures 0.2 µm and 0.1 µm resolution, respectively. The encoder coupling also enables the use of the DR1000 digital readout for repeated or relative positioning requirements. All cables are shielded to ensure noise-free operation during sensitive electrophysiology experiments.

MX7500s come standard with our MX312P mounting platform and LMP-6 mounting rod. This rod mounted configuration enables maximum flexibility in height adjustment and also allows the manipulator to be rotated out of the experiment area and back in place against a solid stop. High-speed versions available upon request.

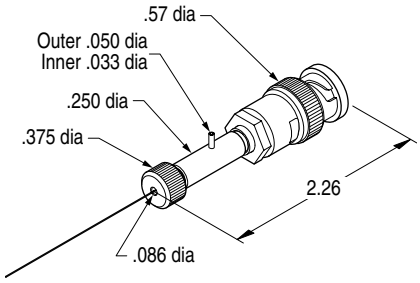
Amplifier Electrode Holders

Stable-tip / ST-50 Series

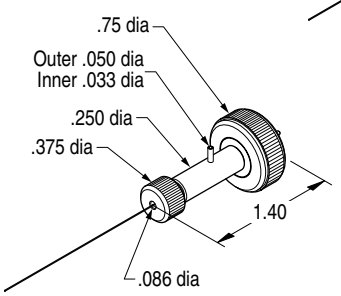
ST50-200/HS



ST50-BNC



ST50-CV



ST50 Series

The new Stable-tip electrode holders eliminate the final instability link in the electrophysiology experimental setup. We've taken a thermally stable base material and coated it with alumina oxide. This coating has two benefits: first, it is non-conductive so the holder does not act as an electrical antenna; second, it is very resistant to corrosion.

Under conditions of a high resistance electrode seal (gigaseal), the ST series electrode holder has a noise level of 0.79–0.80 pA RMS (5kHz filter); polycarbonate measured 0.78–0.79 pA (reported using an Axopatch 200B in whole-cell mode). The base material of the Stable-tip has a thermal expansion coefficient of 23µm/m°C versus 70µm/m°C of a polycarbonate holder. That is an improvement by a factor of three.

The use of fire polished glass is strongly recommended. The use of non-fire polished glass will wear out the seal prematurely.

When ordering, please specify the headstage amplifier to be used.

Product Features

- High thermal stability
- Low noise
- Versions for BNC and threaded headstage attachment

Performance Specifications

Thermal expansion coefficient, CTE linear 68°	
Polycarbonate	70 µm/m-°C
Stable-tip	23 µm/m-°C
Electronic noise characteristics	
Polycarbonate	0.78–0.79 pA
Stable-tip	0.79–0.80 pA

Order Information

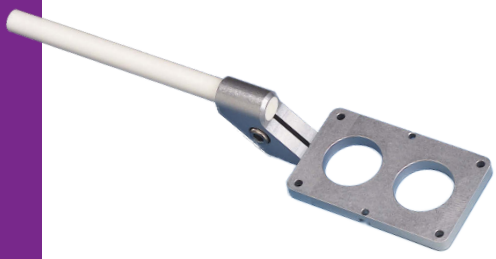
fits Axon 200/700 & HS-2A amplifiers	ST50-200/HS
fits amplifiers with BNC connectors	ST50-BNC
fits Axon CV-4 amplifiers	ST50-CV
spacer & seal kit	ST50

When ordering, specify the headstage amplifier to be used.

Micromanipulators

Headstage & Probe / Pipette

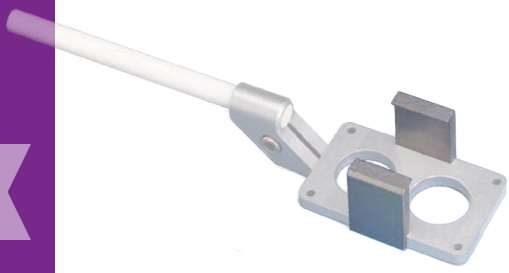
Solid Ceramic / MXE and MXP Series



Our MXE & MXP series of headstage mounts and pipette holders utilize ceramic rods to eliminate drift introduced by plastic mounting rods.

MXE Headstage Mounts

MXE headstage mounts come in a variety of lengths to accommodate a wide range of setups, and are compatible with Axopatch CV-4 headstages. MXE headstage mounts use a 5/16" diameter ceramic rod that is aligned to the mounting plate such that its axis of rotation is the same as the electrode on the amplifier headstage. Attachment of the headstage is accomplished by screwing it to the mounting platform with four cap screws, included.



MXE-HS Headstage Mounts

MXE-HS side clamps are designed to work with our MXE series headstage mounts.

MXE-HEKA Headstage Mount

MXE-HEKA headstage adapter plate is designed as an interface between our MXE series and the HEKA EPC-9 headstages. Attachment of the headstage is accomplished by screwing it to the adapter mounting plate with two screws, and then attaching that to the mounting platform with four cap screws, included.

Product Features

- Solid ceramic mounting rod
- Compatible with most amplifiers
- Eliminates drift

Order Information

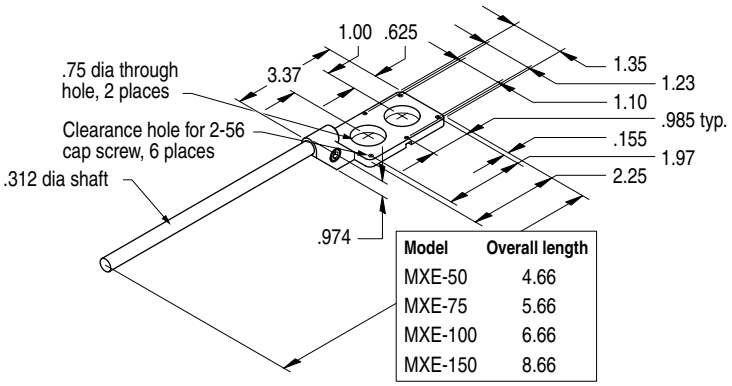
Axon CV-4 headstage mount, 4.66	MXE-50
Axon CV-4 headstage mount, 5.66	MXE-75
Axon CV-4 headstage mount, 6.66	MXE-100
Axon CV-4 headstage mount, 8.66	MXE-150
Axoclamp HS-2A/B headstage side clamps	MXE-HS
HEKA EPC-9 adapter	MXE-HEKA
probe holder, 3.37	MXP-50
probe holder, 4.37	MXP-75
probe holder, 5.37	MXP-100
probe holder, 7.37	MXP-150

MXP Probe / Pipette Holders

MXP probe / pipette holders use a 5/16" diameter ceramic mounting rod to ensure thoroughly stable and electrically isolated probe / pipette mounting. MXP probe / pipette holders come in a variety of lengths to accommodate the wide range of setups.

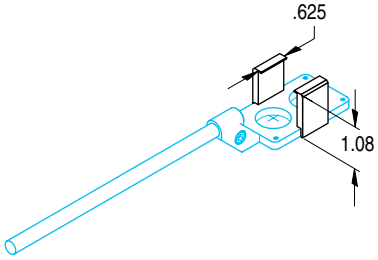
Headstage & Probe / Pipette

Solid Ceramic / MXE and MXP Series

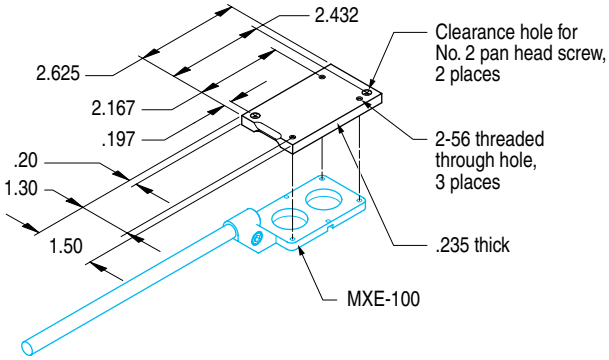


Model	Overall length
MXE-50	4.66
MXE-75	5.66
MXE-100	6.66
MXE-150	8.66

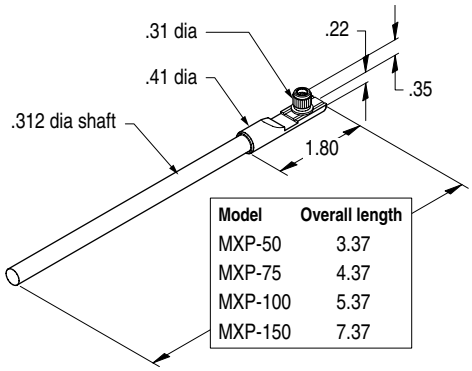
MXE Series



MXE-HS
(side clamp only)



MXE-HEKA



Model	Overall length
MXP-50	3.37
MXP-75	4.37
MXP-100	5.37
MXP-150	7.37

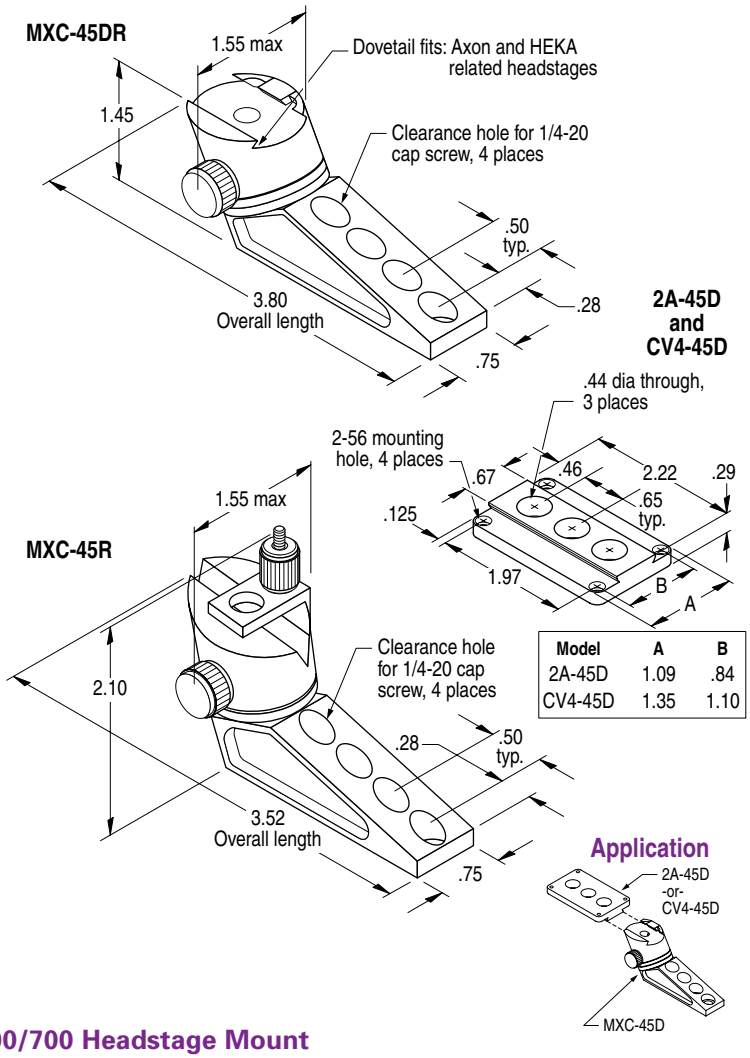
MXP Series

Repeatable Amplifier & Probe Clamps

Rotating Clamp / MXC-45 Series

MXC Series

CV4-45D or 2A-45D



Model	A	B
2A-45D	1.09	.84
CV4-45D	1.35	1.10

Application

Product Features

- Unique swing-out design
- Spring-loaded lock knob
- Compatible with Axon 200/700 series, HEKA EPC-10, and A-M Systems model 2400

Related Products

MX1641 micromanipulator	167
MX6600 micromanipulator	164
MX6500 micromanipulator	165
MX7630 micromanipulator	168
MX7500 micromanipulator	170
MX7600 micromanipulator	169
MXE amplifier headstage mount	172
MXP probe/pipette holder	172

Order Information

repeatable headstage mount for Axon 200/700 series and HEKA EPC-10, rh	MXC-45DR
repeatable headstage mount for Axon 200/700 series and HEKA EPC-10, lh	MXC-45DL
repeatable probe clamp, rh	MXC-45R
repeatable probe clamp, lh	MXC-45L
Axon 2A amplifier mount for MXC-45D series	2A-45D
Axon CV4 amplifier mount for MXC-45D series	CV4-45D

Axon 200/700 Headstage Mount

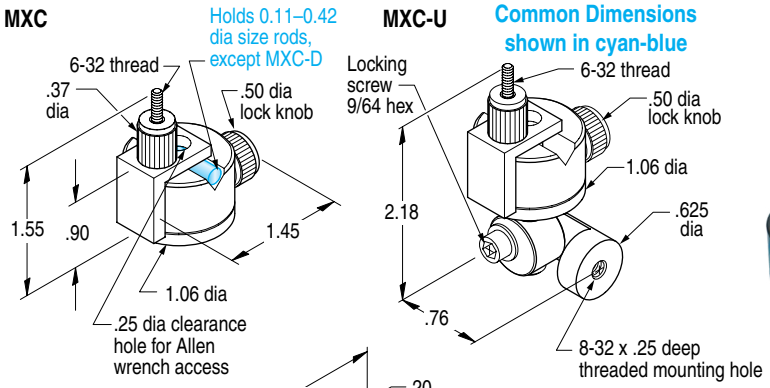
The MXC-45D's unique design allows repeatable electrode replacement with a simple but accurate rotating clamp. The top clamp of the MXC-45D is designed to be compatible with Axon CV200B, CV-7A, and HEKA EPC-10 headstages. *Note: The dovetail mounting feature must be ordered from HEKA.* The rotating portion is configured such that the probe / pipette rotates up and away from the experiment at a 45° angle through a full 180°. The repeatable stop returns to its location with micron-scale accuracy and the stop's orientation can be changed simply by loosening a single 1⁄4-20 cap screw.

Probe Clamp

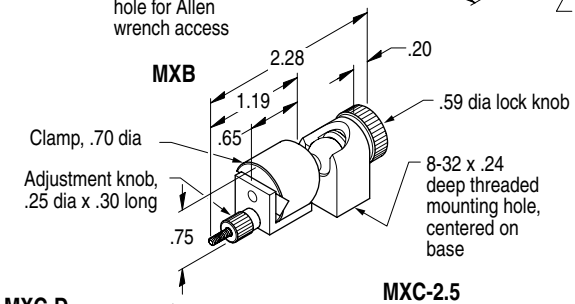
The MXC-45's unique design allows repeatable electrode replacement with a simple but accurate rotating clamp. The top clamp of the MXC-45 is designed to be compatible with headstage mounting rods from 3- to 10-mm in diameter. The rotating portion is configured such that the probe / pipette rotates up and away from the experiment at a 45° angle through a full 180°. The repeatable stop returns to its location with micron-scale accuracy and the stop's orientation can be changed simply by loosening a single 1⁄4-20 cap screw.

Repeatable Probe Clamps

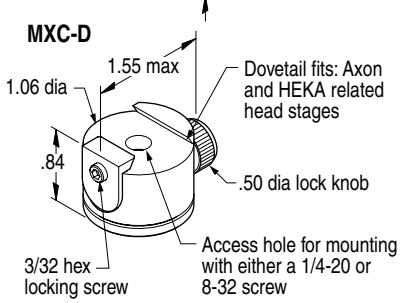
Rotating Clamp / MXB and MXC Series

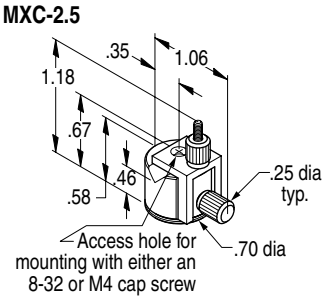


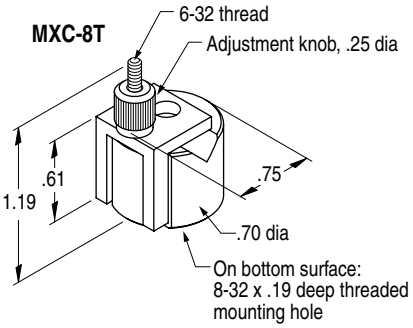
MXC Series



MXC-D







Probe Clamps & Holder

The MXC rotatable probe clamp has 180° of rotation with a repeatable position stop for the replacement of probe/pipettes. The repeatable stop returns to its location with micron-scale accuracy and the stop's orientation can be changed simply by loosening a single 1⁄4-20 cap screw. A 1⁄4-20 mounting screw, included, allows the easy attachment of this versatile probe / pipette clamp to devices with 1⁄4-20 tapped holes. The MXC can also be mounted to devices with 8-32 (included), M4, or M6 attachment.

The MXB probe holder clamp incorporates a simple ball joint design that allows 360° of rotation, and 110° of added pivoting freedom. The base of the MXB has a 8-32 tapped hole for attaching MPR series rods that come in 1.0, 1.5, 2.0, and 3.0 inch lengths.

The MXC-U incorporates our MXC probe / pipette clamp with a pivoting joint. This joint allows the experimenter to locate the probe / pipette axis at compound angles. Locking the MXC-U at the appropriate angle is accomplished with a single lock screw. The MXC-U comes with the same repeatable stop as the MXC.

The MXC-D is compatible with the dovetail on the Axon 200 and 700 series headstages and the HEKA EPC-10 headstage. *Note: The dovetail mounting feature must be ordered from HEKA.* The MXC-2.5 is a miniature version of the MXC rotatable probe clamp.

Product Features

- Post or base mount
- Rotates 180°
- Spring-loaded lock knob

Related Products

MXE amplifier headstage mount	172
MXP probe/pipette holder	172
MPR miniature precision rods	136

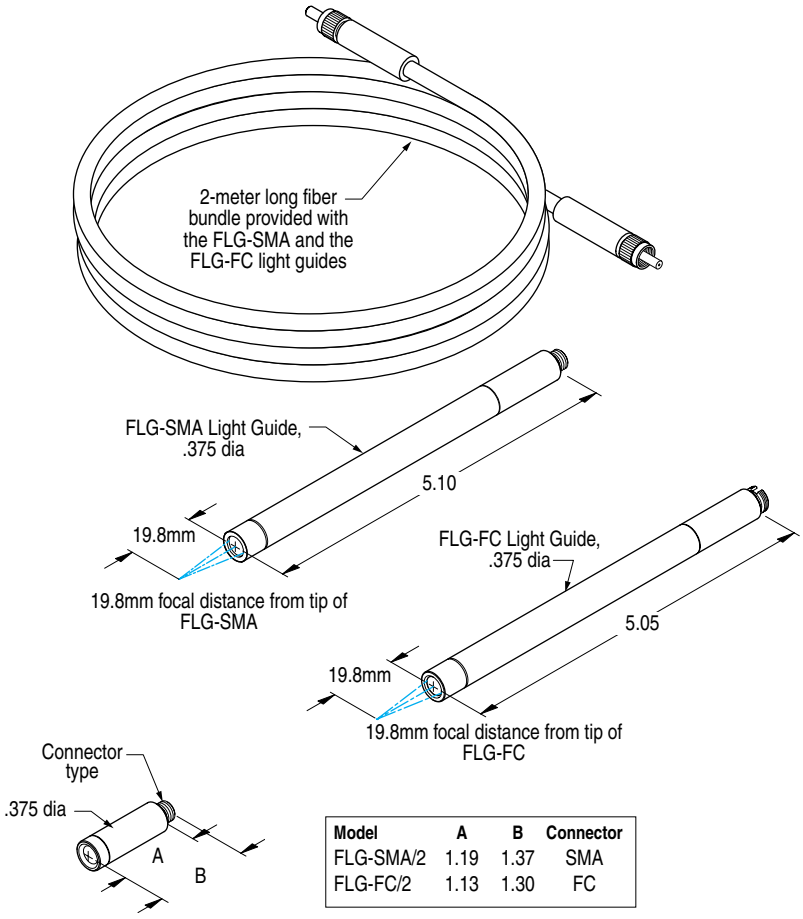
Order Information

rotatable probe clamp	MXC
universal probe holder clamp	MXB
universal probe/pipette clamp	MXC-U
Axon and HEKA clamp	MXC-D
miniature rotatable probe clamp	MXC-2.5
miniature probe holder clamp	MXC-8T

External Focused LASER Guide

2-meter Cable / FLG-SMA and FLG-FC

FLG-SMA with 2-meter fiber cable, optional SM-CFT not included



Model	A	B	Connector
FLG-SMA/2	1.19	1.37	SMA
FLG-FC/2	1.13	1.30	FC

Product Features

- UV-Visible
- 2-meter fiber with 600µm fiber core
- Pre-coupled collimating tube with focal point 19.8mm working distance from tip of tube or collimated output

Performance Specifications

Maximum fiber power handling	20 watts

Related Products

SM-CFT fiber coupler	284
CFC fiber chucks	288
micromanipulators	beginning 153

Order Information

fiber light guide, SMA with 2-meter fiber	FLG-SMA
fiber light guide, FC with 2-meter fiber	FLG-FC
fiber light guide SMA connector	FLG-SMA/2
fiber light guide FC connector	FLG-FC/2
fiber cable, SMA connector	OFC001
fiber cable, FC connector	OFC002

LASER Fiber Light Guide

FLG-SMA and FLG-FC fiber light guides are ideal for bringing laser light into an experiment independent of the microscope optics. The 2-meter fiber cable has a 600 micron core to maximize coupling efficiency across a wide range of wavelengths and input powers. It is ideal for light-stimulation experiments or for ablating samples at higher power settings. We use industry standard SMA and FC connectors on the fiber and the collimating tube.

The assembly contains two aspheric lenses, one to collect and collimate the light from the fiber, and the other to capture the collimated light and focus it to a spot 19.8mm away from the tip of the tube. The focusing tube is 5.0" long and only .375" in diameter so it can be mounted in one of our micromanipulators and manipulated into tight locations, such as next to a microscope objective, where the long working distance is useful.

SMA and FC connectorized fibers may be connected to existing connectorized laser sources or used with our single-mode fiber couplers, SM-CFT shown above. Other fiber types and sizes are available for specific powers and wavelengths — please call for availability.

Micromanipulators

Microscope Translators & Stages

Siskiyou translating platforms, with manual or motorized drives, are available for most upright and inverted microscopes. They allow you to move the platform instead of the microscope to find a new recording location while you're still recording from your original patch site. They're available exclusively with crossed roller stages for stiction-free repositioning – you won't jolt your sample when you make adjustments. The inherent stability of our construction maintains the focal plane of the microscope, while sensitive experiments aren't disturbed. Support platforms are color coded to match the top platform, to ensure that the correct support platform is matched with it's support location. The platforms are machined from stress-free aluminum tooling plate, which provides the flattest platforms available.

With our variety of platforms, we have the perfect solution for your upright, inverted or confocal scope for slice and live animal recording.

The cutouts on the inverted platform accommodate the illumination tower common to all inverted scopes. Height-matched platform supports are machined to precise flatness to maintain flatness of the focal plane.

The cutouts on the platform for upright scopes are angled to provide the maximum area for manipulators and related hardware to be mounted in close proximity to the focal plane. Height-matched platform supports are machined to precise flatness to maintain flatness of the focal plane.

Product Features

- 20, 40, 80 and 100 pitch adjustment screws
- Available for upright and inverted microscopes
- Full crossed roller bearings
- Lockable travel (manual versions)

Performance Specifications

Load, maximum centered	100 lb
Travel	
X axis	1.0 inch – 2.0 inch / 25mm–50mm
Y axis	1.0 inch / 25mm
Controlable motion, minimum	
20 pitch screw	20 µm
40 pitch screw	10 µm
80 pitch screw	Submicron
100 pitch screw	Submicron

Related Products

PC-A perfusion chambers	192
micromanipulators	beginning 153

Order Information

Olympus IX series— inverted	
motorized	MXIX/AOi.2
manual	MXIX/AO
Olympus BX series — upright	
motorized	MXOPi.2
motorized	MXOPi.2-SL
manual	MXOP
manual	MXOP-SL
Zeiss AxioObserver— inverted	
motorized	MXIX/AOi.2
manual	MXIX/AO
Zeiss 2FS and AxioExaminer FS — upright	
motorized	MXZPi.2
manual	MXZP
Zeiss LSM — upright	
motorized	MXZPi-LSM
manual	MXZP-LSM

Metric Option — for metric assembly features on this product, add '-M' after model number.

Microscope XY Platform

CE Certified

Siskiyou microscope platforms allow you to maintain a patch while moving around to select your next target cell. Rotating slots in the base of the mounting columns allow you to tighten down to the table without exactly matching up to the tapped hole pattern on your tabletop — very useful when you don't want to move the microscope. Passive crossed roller stages at the three non-driven corners provide low stiction, vibration-free translation to minimize effects on the translated tissue.

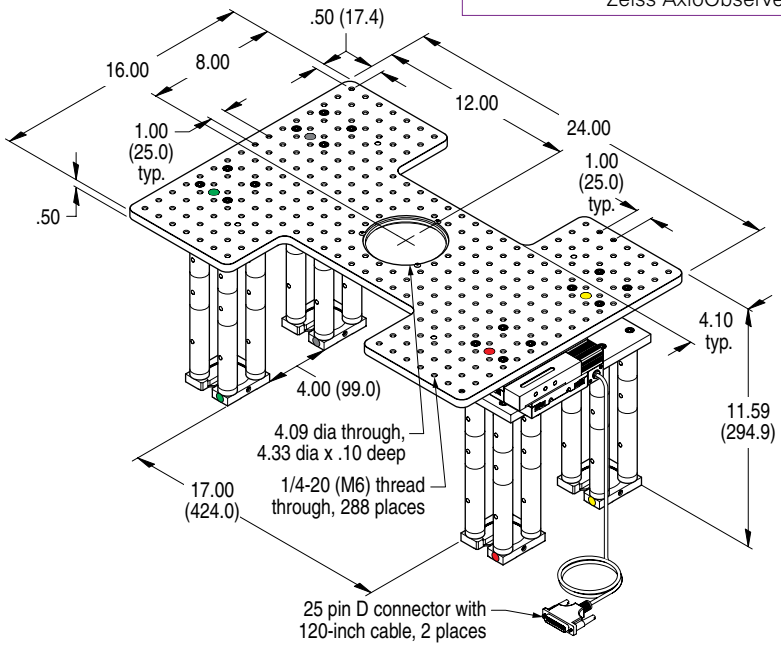
New

Motorized / MXIX/AOi.2

Travel: X Axis 2.0 inch / 50mm Y Axis 1.0 inch / 25mm

Note that dimensions in parentheses (mm) reflect metric assembly features

Model	Microscopes
MXIX/AOi.2	Olympus IX and Zeiss AxioObserver



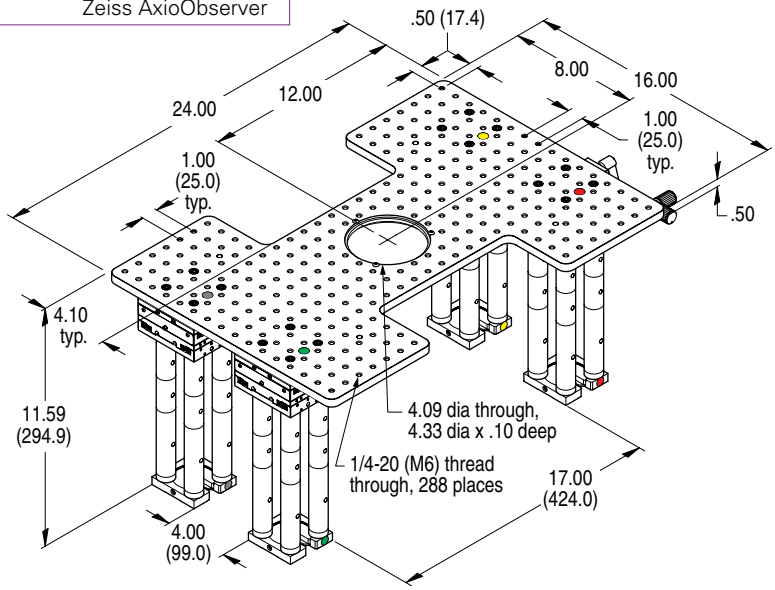
Manual / MXIX/AO

Travel: X and Y Axis 1.0 inch / 25mm

Note that dimensions in parentheses (mm) reflect metric assembly features

Model	Microscopes
MXIX/AO	Olympus IX and Zeiss AxioObserver

MXIX top plates are 0.50 inch thick and fitted with 288x 1/4-20 (M6) threaded mounting holes spaced on 1.0 (25mm) centers. Central aperture has a 4.09" bore and 4.33" x 0.10" counter bore.



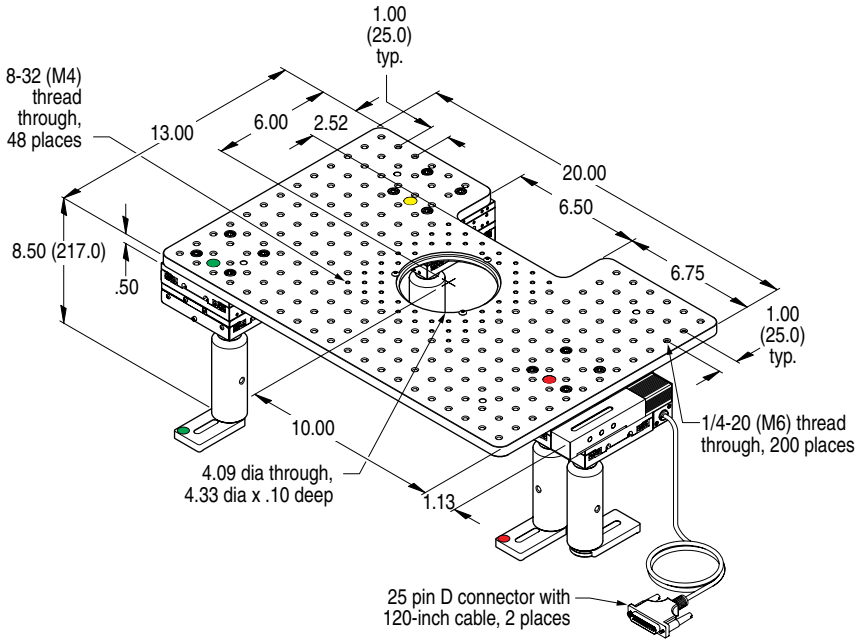
Microscope XY Platform

CE Certified

Motorized / MXZPi-LSM

Travel: X and Y Axis 1.0 inch / 25mm

Note that dimensions in parentheses (mm) reflect metric assembly features

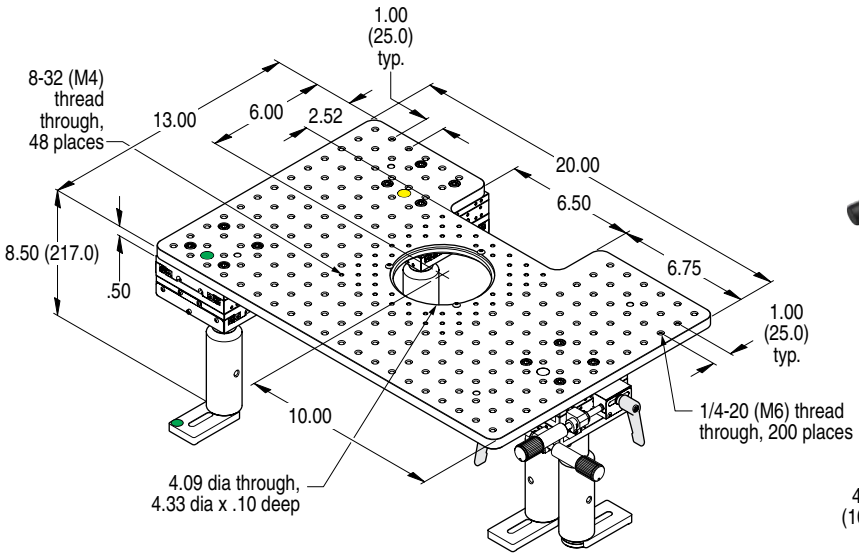


Siskiyou scope translators are designed to provide an absolutely flat mounting surface for the perfusion chamber — even a fraction of a degree tilt leads to drift. To that end, our breadboards are made from tooling plate, and spacers machined to tight thickness tolerances, and then assembled in the factory so individual support columns are precisely matched. Color coded dots on stage/column assemblies relate to matching color coded locations on the breadboard, so the final assembly is absolutely flat, front to back and side to side.

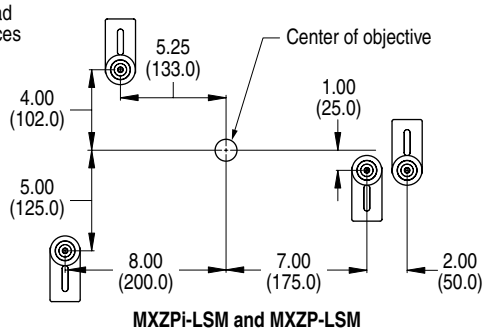
Manual / MXZP-LSM

Travel: X and Y Axis 1.0 inch / 25mm

Note that dimensions in parentheses (mm) reflect metric assembly features



MXZPi-LSM and MXZP-LSM top plates are 0.50 inch thick and are fitted with 48x 8-32 (M4) and 200x 1/4-20 (M6) threaded mounting holes spaced on 1.0 (25mm) centers. Central aperture has a 4.09" bore and 4.33" x 0.10" counter bore.



MXZPi-LSM and MXZP-LSM Mounting Position Layout

New

Microscope XY Platform

CE Certified

Motorized / MXOPi.2 and MXZPi.2

Travel: X Axis 2.0 inch / 50mm Y Axis 1.0 inch / 25mm

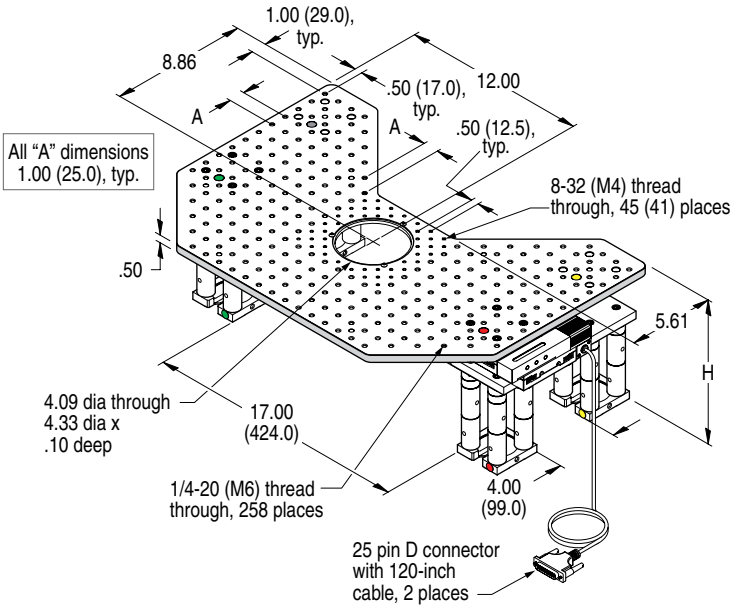
Note that dimensions in parentheses (mm) reflect metric assembly features

Model	Height H	Width x Depth	Microscopes
MXOPi.2	7.84 (198.0)	24.00 x 16.50	Olympus BX
MXZPi.2	8.46 (216.0)	24.00 x 16.50	Zeiss 2FS / AxioExaminer FS

MXZPi.2

MXOP and MXZP top plates are 0.50 inch thick and are fitted with 45x 8-32 (41x M4) and 258x 1/4-20 (M6) threaded mounting holes spaced on 1.0 (25mm) centers. Central aperture has a 4.09" bore and 4.33" x 0.10" counter bore.

New



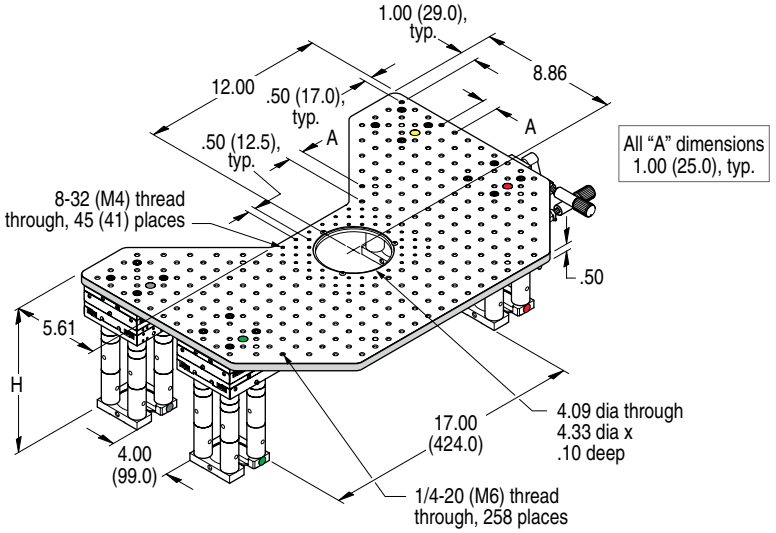
MXZP

Manual / MXOP and MXZP

Travel: X and Y Axis 1.0 inch / 25mm

Note that dimensions in parentheses (mm) reflect metric assembly features

Model	Height H	Width x Depth	Microscopes
MXOP	7.84 (198.0)	24.00 x 16.50	Olympus BX
MXZP	8.46 (216.0)	24.00 x 16.50	Zeiss 2FS / AxioExaminer FS



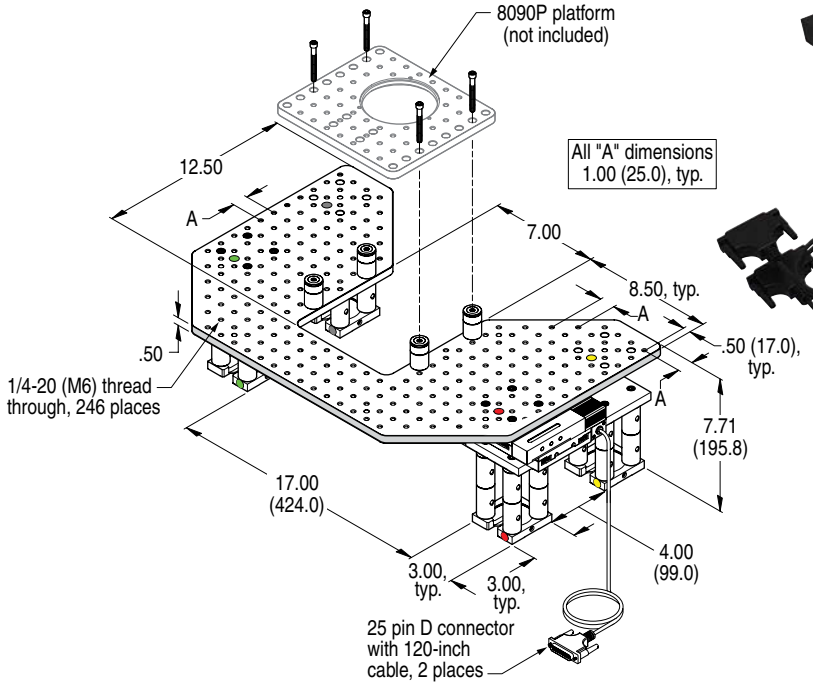
Microscope XY Platform

CE Certified

Motorized / MXOPi.2-SL

Travel: X Axis 2.0 inch / 50mm Y Axis 1.0 inch / 25mm

Note that dimensions in parentheses (mm) reflect metric assembly features

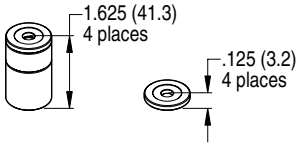


MXOPi.2-SL

Additional spacers are included with each translator, four (4) each: 0.125 0.50 1.00	
With additional spacer(s) in place	Platform Height with 8090P (not included)
None	8.21 (209)
.125	8.34 (212)
1.625	9.84 (250)

New

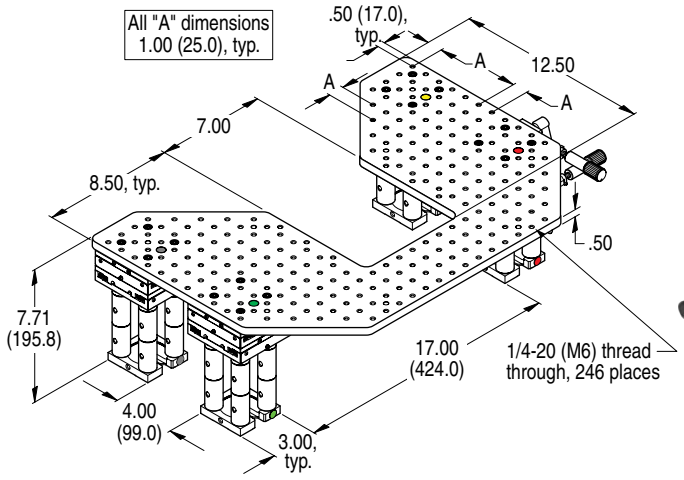
With the Siskiyou 8090P upper plate, as shown above, you can easily change the sample platform height to accommodate different experiments. Spacers and cap screws are supplied to provide the mounting heights shown in the table; different heights of screw and spacer combinations are available on request.

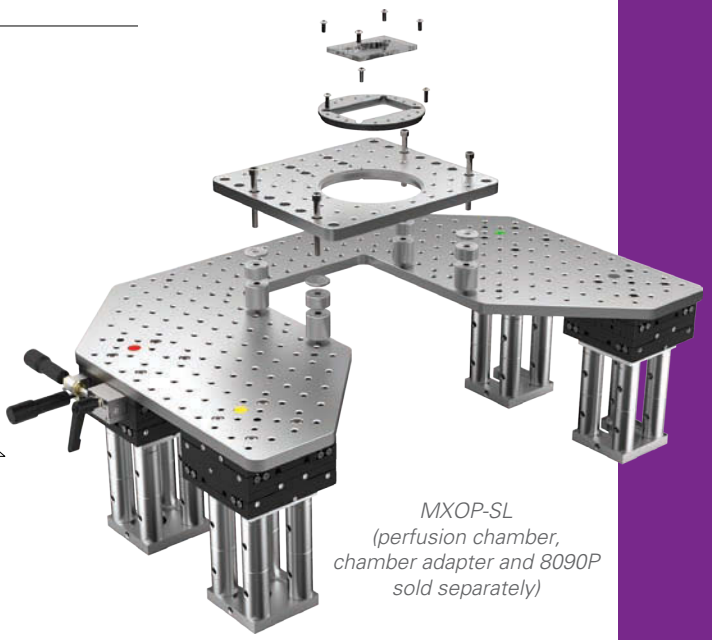


Manual / MXOP-SL

Travel: X and Y Axis 1.0 inch / 25mm

Note that dimensions in parentheses (mm) reflect metric assembly features



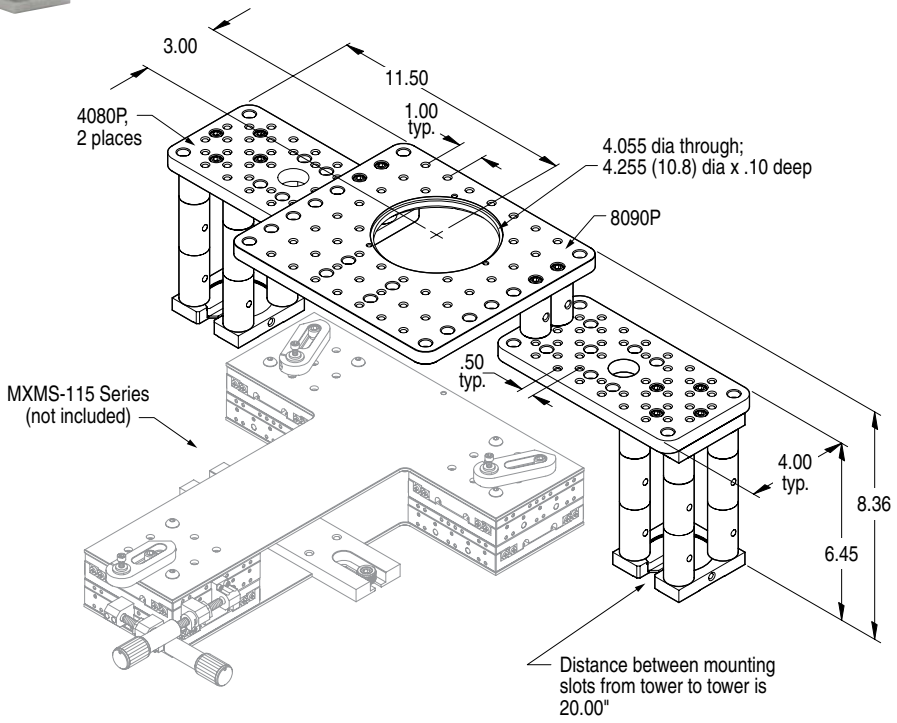


MXOP-SL
(perfusion chamber, chamber adapter and 8090P sold separately)

Fixed-stage Platform

Microscope Platform / MXAE

MXAE



New

Product Features

- Solid aluminum construction
- Flexible mounting design

Related Products

PC-A perfusion chambers	192
micromanipulators	beginning 153
MXMS microscope translators	184–185

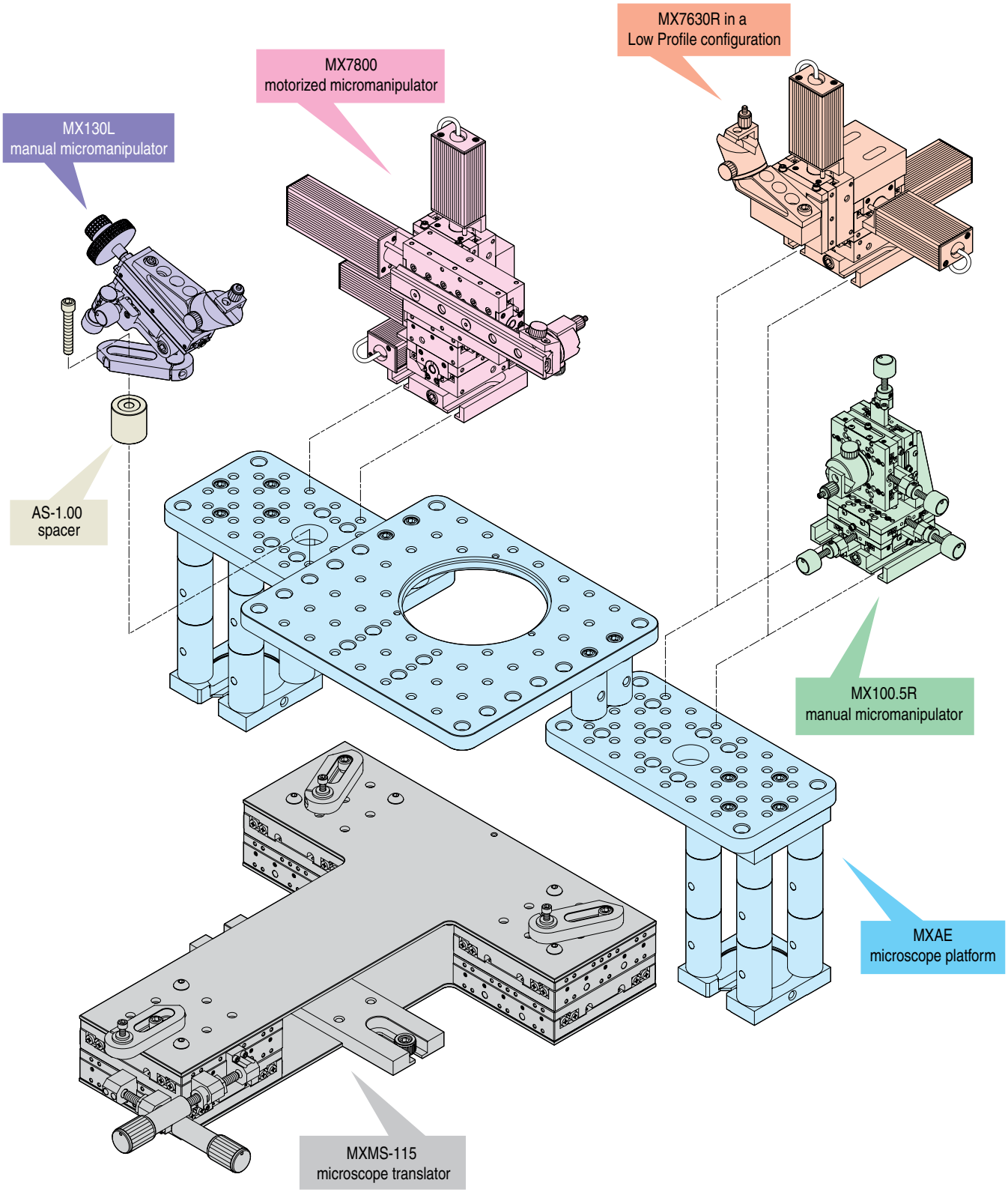
Order Information

microscope platform	MXAE

Siskiyou is unique in providing platforms designed for absolute flatness. Threaded height adjusters or columns locked by set screws cannot achieve the level of flatness we provide through the use of aluminum MIC-6 tooling plate and precisely machined spacers. This allows you to create platforms where different sides can be at different heights to achieve the most desirable angle for probe approach under microscope objectives.

The robust nature of our designs, and simple, but precise machining provides affordable yet flexible design approaches that can be easily reconfigured in your lab — you're not stuck with a platform you can't change as your experiments evolve. Our time-tested designs are the best choice for perfusion chamber platforms.

Application

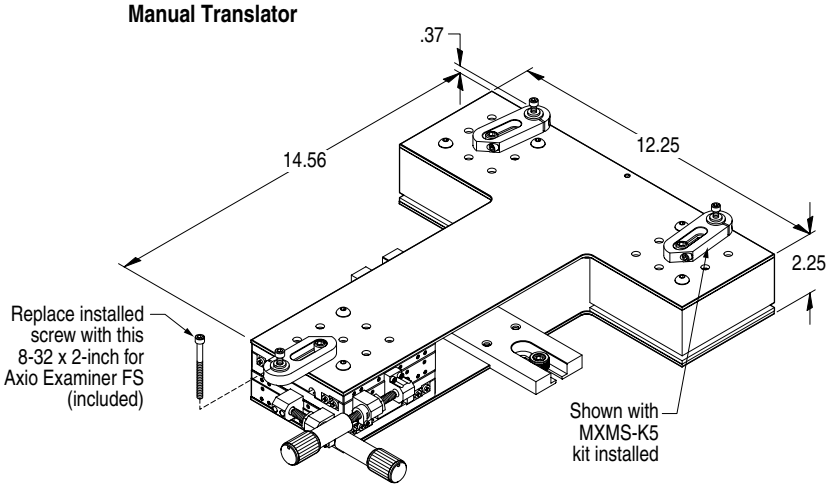


Microscope Translators — Manual

Economy / MXMS-100 Series

Manual translator

Manual Translator



Siskiyou fixed-stage microscope manipulators	Microscope Manufacturers			
	Olympus	**Leica**	**Nikon**	**Zeiss**
MXMS-115 series K3-KIT			E600FN	
MXMS-115 series K4-KIT			E600FN1	
MXMS-115 series K2-KIT	BX51WI BX61WI			
MXMS-115 series K5-KIT				Axio Examiner FS
MXMS-150 series K1-KIT	IX70 IX-81	DM IR	TE2000	Axiovert 200

Drawing shown with K-5 kit installed.

Product Features

- 20-, 40-, 80-, or 100-pitch drive screws
- Compatible with fixed-stage microscopes
- Time-tested design

Performance Specifications

Maximum load	200 lbs, centered
Travel / axis	1.0 inch [25 mm]
Minimum controllable motion	
20 TPI	10 µm
40 TPI	5 µm
80 TPI	submicron
100 TPI	submicron

Order Information

Please include the manufacturer name and model of your microscope when ordering a microscope translator.

manual microscope translator, 14.56"x12.25"	MXMS-115-xx
manual microscope translator, 20.50"x12.25"	MXMS-150-xx

Clamp Kits

fits Zeiss and Leica fixed-stage scopes	MXMS-K1
fits Olympus BX51/61 WI scopes	MXMS-K2
fits Nikon E600FN scope	MXMS-K3
fits Nikon FN1	MXMS-K4
fits Zeiss Axio Examiner FS	MXMS-K5

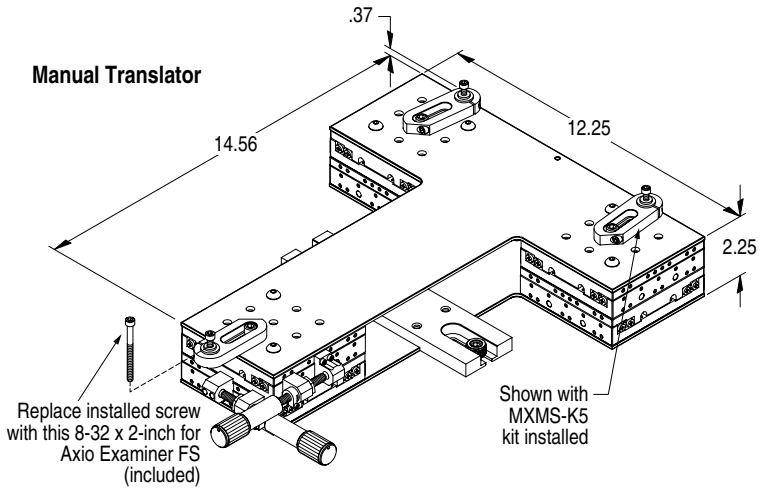
Our economy MXMS-100 series microscope translators are designed to be stable XY translators for fixed stage experiments. MXMS-100 series translators have a full 25 mm of XY translation and use ball transfer pads in the back two bearing locations. The design is optimized for experiments using 4X – 40X objectives.

Our economy models are only available in manual versions and can be fitted with either 20, 40, 80, or 100 TPI adjustment screws with resolution from 20 µm down to 5 µm, respectively. *Please specify which pitch of adjustment screw you require when ordering.* Replace -xx in the Model Number with the desired thread. Example: For a MXMS-115 with 40TPI adjustment screws, order Model Number MXMS-115-40.

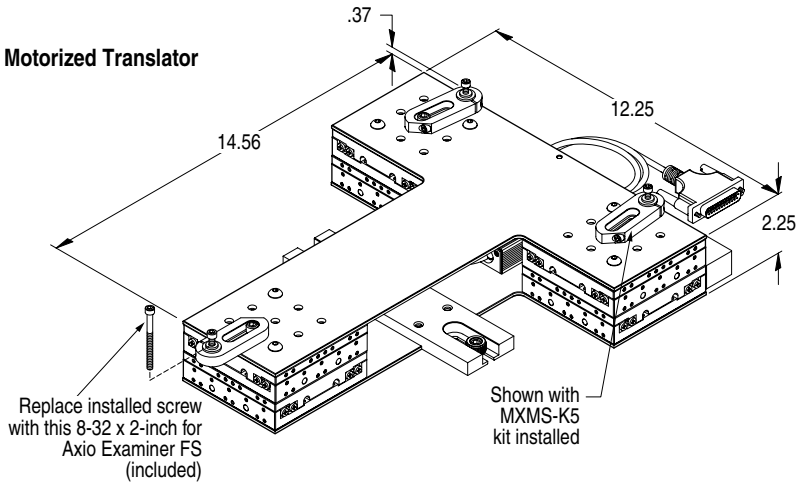
MXMS-100 series stages can be sized to fit most microscopes. *Please include the manufacturer name and model of your microscope when ordering.* A clamp kit appropriate for your microscope will be included.

Microscope Translators Manual & Motorized CE Certified

Crossed Roller / MXMS-100cr and MXMS-100cri Series



Manual translator



Our MXMS-100cr series microscope translators are stable XY translators for fixed stage experiments using objectives 60X and up. MXMS-100cr series translators have a full 25 mm of XY translation with crossed roller bearing stages at all three locations.

These translators are available in motorized and manual versions. Motorized versions can be controlled with any ***e*** series and MC2010 controllers. Our controllers drive the stage through a closed loop interface between the controller and the motor encoder. The closed loop connection ensures 0.2 µm and 0.1 µm resolution, respectively. The encoder coupling also enables the use of the DR1000 digital readout for repeated or relative positioning requirements. All cables are shielded to ensure noise-free operation during sensitive electrophysiology experiments. Manual versions can be fitted with either 20, 40, 80, or 100 TPI adjustment screws with resolution from 20 µm down to 5 µm, respectively. *Please specify which pitch of adjustment screw you require when ordering.* Replace -xx in the Model Number with the desired thread. They can be sized to fit most microscopes. *Please include the manufacturer name and model of your microscope when ordering.* Mounting hardware appropriate for your microscope will be included.

Product Features

- 20-, 40-, 80-, or 100-pitch drive screws
- Compatible with fixed-stage microscopes
- Full crossed roller stage support

Performance Specifications

Maximum load	200 lbs, centered
Travel / axis	1.0 inch [25 mm]
Minimum controllable motion	
Manual	page 184
Motorized	
Backlash	≤ 5 µm
Point to point accuracy	± 2 µm

Related Products

MC1000e-J motion controller	26

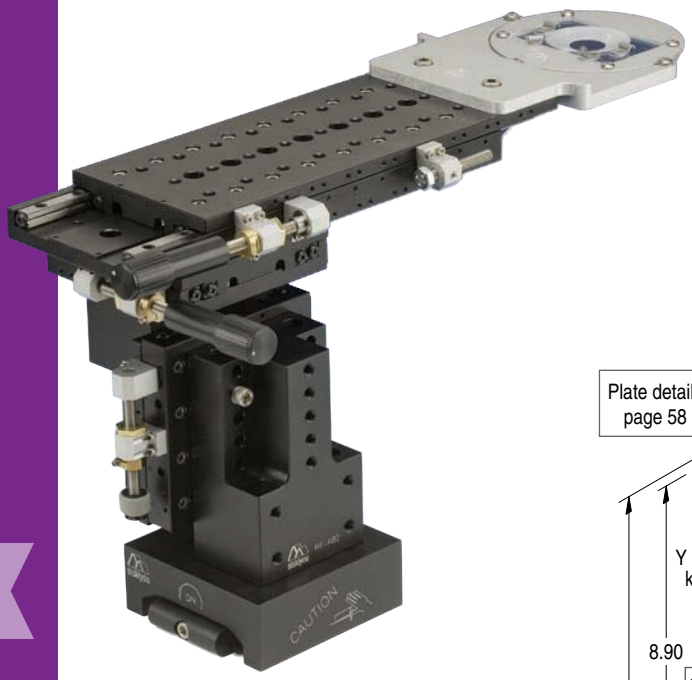
Order Information

Please include the manufacturer name and model of your microscope when ordering a microscope translator.

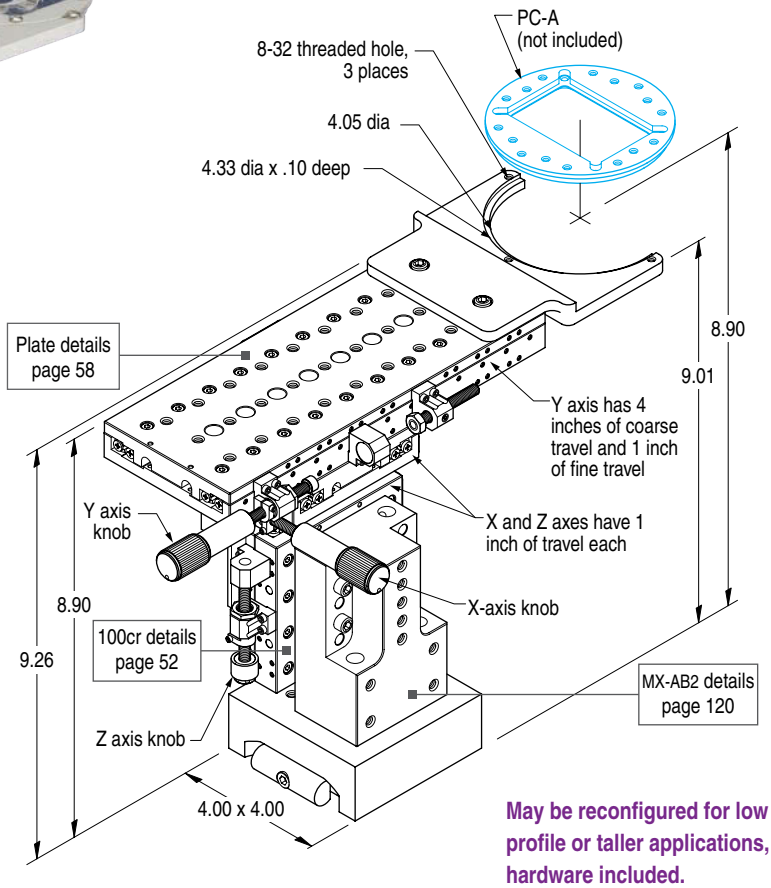
manual crossed roller microscope translator, 14.56"x12.25"	MXMS-115cr-xx
motorized crossed roller microscope translator, 14.56"x12.25"	MXMS-115cri
manual crossed roller microscope translator, 20.50"x12.25"	MXMS-150cr-xx
motorized crossed roller microscope translator, 20.50"x12.25"	MXMS-150cri

XYZ Chamber Shuttle

Crossed Roller / MX100S



MX100S shown with PC-R chamber, not included



May be reconfigured for low profile or taller applications, hardware included.

Product Features

- Retractable chamber shuttle
- Magnetic coupling on Y-axis maintains positioning control while "in" position
- Modular design

Performance Specifications

Maximum load	10 lbs
Travel	
X- and Z-axis	1.0 inch [25 mm]
Y-axis	4.0 inch [100 mm]
Minimum controllable motion, 40TPI	10 µm

Related Products

PC series chambers	192
long travel adjustment screws	59

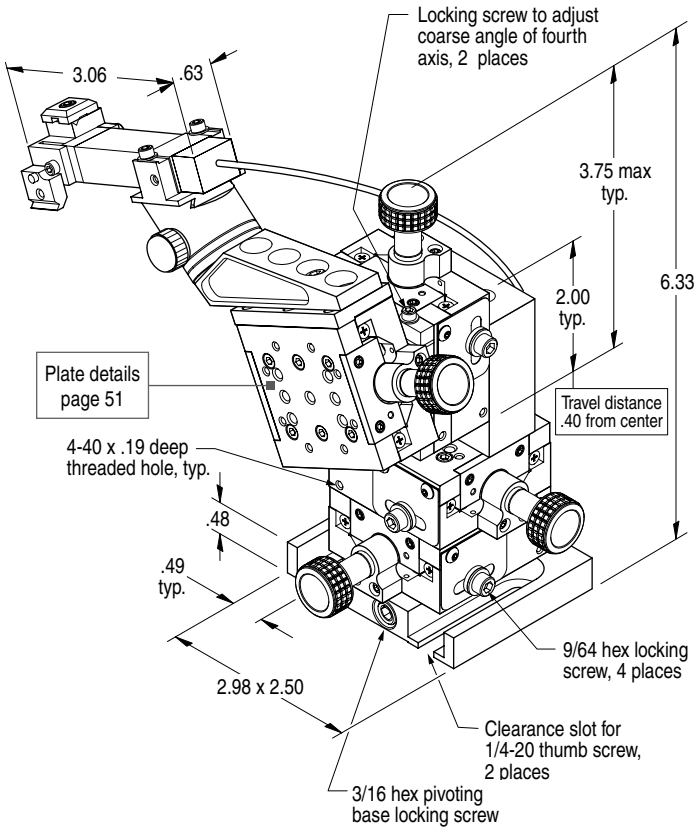
Order Information

modular XYZ shuttle system	MX100S

The MX100S is ideal for experiments where removal of the sample chamber needs to be done repeatedly. The upper Y-axis stage uses our 400cr stage with our **Lt**-series long-travel adjustment screws. These adjustment screws use a magnet stop-block (pat. pend.) that keeps the adjustment screw in contact while the stage is "in" position, allowing the user to fine adjust the Y-axis location as needed. To move the chamber "out" of the experimental area, simply slide the stage back to the opposite end of the stage travel and its coarse stop block contacts the magnet and holds the stage in place. *Other chamber systems are post mounted and require you to rotate the chamber out of the system…this only works if you don't have any equipment on one or both sides!* The modular design uses our 100cr crossed roller stages as the X- and Z-axis of this stable platform. We also use a rock-solid magnetic base to maximize holding force (300lbs) and maximize mounting flexibility. The MX-AB2 is used to connect the crossed roller stages and gives maximum height/orientation flexibility.

High Speed Solution Switcher

Piezo Movement / MXPZT-300



MXPZT-300

Detail

One pre-plumbed theta glass pipette is included with each system.

The MXPZT-300 series solution switcher uses a high-speed piezo flexure guided nanopositioner to move pipette tips in solution switching applications. It switches theta glass solution streams with respect to the recording electrode very close to the theoretical maximum velocity; typical cellular response curves are under 200 microseconds. This system is ideal for measuring cellular response to drugs or other elements in solution.

Piezo movement is triggered by either input from common recording amplifier equipment or by Siskiyou software *via* a LabVIEW™ interface that can control distance, frequency and dwell time. The MXPZT-300 also includes the piezo amplifier box and the Input-Shaping® board, which significantly reduces pipette tip vibration. It can be re-programmed to virtually eliminate resonances unique to your specific configuration.

The piezo flexure guided nanopositioner with 250 microns of lateral travel is mounted to our ultra-stable MX1640 crossed roller micromanipulator (page 159). The MX1640 has 20mm of travel in all four axes. The fourth axis can be set at any angle to select the desired approach. This axis incorporates our MXC-45 to allow rotation of the piezo/pipette assembly up and out of the experiment for easy glass replacement. The base of the MX1640 has a built-in coarse adjustment for rotation of the entire manipulator, or can be used with our MX-RS rotation stage (page 122) for more precise motion. Visit the DOWNLOADS section at www.siskiyou.com for more complete data on switching speed and Input-Shaping® algorithm in the MXPZT-300 Instruction Manual.

Product Features

- 250 µm travel range
- Less than 3 msec full travel
- 4-axis manual manipulator included

Performance Specifications

PZT head	
Travel	250 µm
Minimum controllable motion	0.3 nm
Command input	–10 V to +10 V
MX1640 manual manipulator	
Maximum load	2 lbs
Travel / axis	0.80 inch [20 mm]
Minimum controllable motion	5 µm

Related Products

MX-RS rotation base	122

Order Information

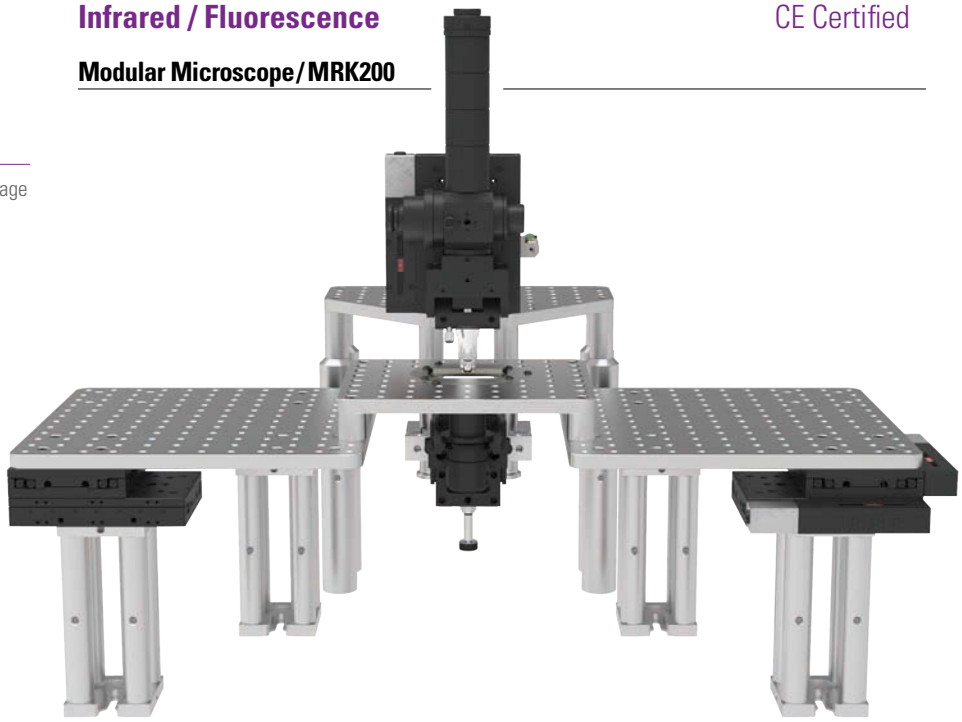
piezo solution switcher, rh	MXPZT-300R
piezo solution switcher, lh	MXPZT-300L

Micromanipulators

Infrared / Fluorescence

CE Certified

Modular Microscope / MRK200



Product Features

- 2.0-inch (50mm) motorized X, Y and Z (focus) stage travel
- Open frame design
- 2-position objective flipper
- Allows easy chamber access
- Allows easy interchangeability of filter sets

CE

Performance Specifications

IPS200 motorized platform	
Maximum load	100 lbs, centered
Travel XY axes	2.0 inch (50 mm)
Minimum controllable motion	
MC2010	< 1 µm
MC1000e-J	5 µm
MC1000e	1 µm
MRK100 camera tower	
Travel manual XY	1.0 inch (25 mm)
Travel motorized focus	2.0 inch (50 mm)

Related Products

DR1000 digital readout	31
MX130 micromanipulator	155
MX7600 micromanipulator	169
e series motion controllers	beginning 22
perfusion chambers	192

Order Information

2.0 inch motorized XY platform	IPS200
camera tower, *includes, 2.0 inch focus drive, upper optics tube, and condenser with LED illumination (LED type needs to be specified)*	MRK100
filter sets *each set includes excitation, dichroic, and emission filters*	
IS-GFP filter set (FITC/RSGFP/Fluo 3/Dio Acradine Orange(+DNA))	IS-GFP
IS-RFP filter set (ET-CY3)	IS-RFP
IS-TRITC/Cy3 filter set (ER-DSRed)	IS-TRITC/Cy3
IS-YFP filter set (ET-EYFP)	IS-YFP

Build complete imaging systems for virtually any application with Siskiyou MRK modules. The IPS200 motorized XY platform supports and the MRK100 imaging tower are the backbone for custom microscope systems. The IPS200 is a fully motorized XY stage with 50mm of travel at 0.2µm resolution with a handheld controller. The center chamber platform is easily set at various heights for various sample thicknesses. The center chamber is an industry standard 10.8cm diameter that accepts a wide variety of components. The modular MRK200 system uses our 200cr series stages for 50mm of X and Y travel. The large travel range maximizes access to the chamber and manipulators, while facilitating mounting of stereotaxic holders for *in vivo* experiments.

The MRK100 is a camera tower with IS-GCI condenser lens, LED light source (IR or warm white – others available on request) and upper optics tube. The upper optics tube is mounted to a Z-axis focus drive with 50mm of motorized travel. This stage can be connected to our DR1000 digital read-out to facilitate returning to the focal plane.

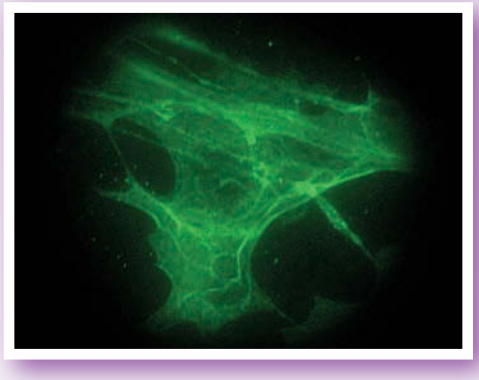
The objective mount is a two position "flipper" for high and low magnification objectives. Above the objective flipper is a CBH-1 beamsplitter module containing a dichroic beamsplitter tube assembly. Inside of the assembly is a single position dichroic/ emission-filter mount. This mount can be slid into position for fluorescence experiments and out of the light path for gradient contrast imaging experiments. On the opposite side (right) of the CBH-1 assembly is a port for introducing virtually any light source – liquid crystal light guide from a fluorescence source, LED, fiber coupled or free-space laser. It has a port for the excitation filter. CBH-1 modules can be stacked to accommodate more than one light source or detector. Above the CBH-1 module(s) is a tube lens and C-mount to accommodate your camera. You can configure a complete system that's easy to modify as your experiment evolves – with Siskiyou MRK modules

Infrared / Fluorescence

CE Certified

Modular Microscope / MRK200

Nucleus Accumbens
Medium spiny neurons 250 micron slices imaged with Hamamatsu CCD camera and controller through an Olympus 40X UM Plan Fluorite water lens with 0.80 NA.



Fluorescence image of cultured neuroblastoma cells (SH5Y cells)

Images courtesy of Zach Jeanes
R.A. Morrisett Laboratory, College of Pharmacy
University of Texas at Austin.

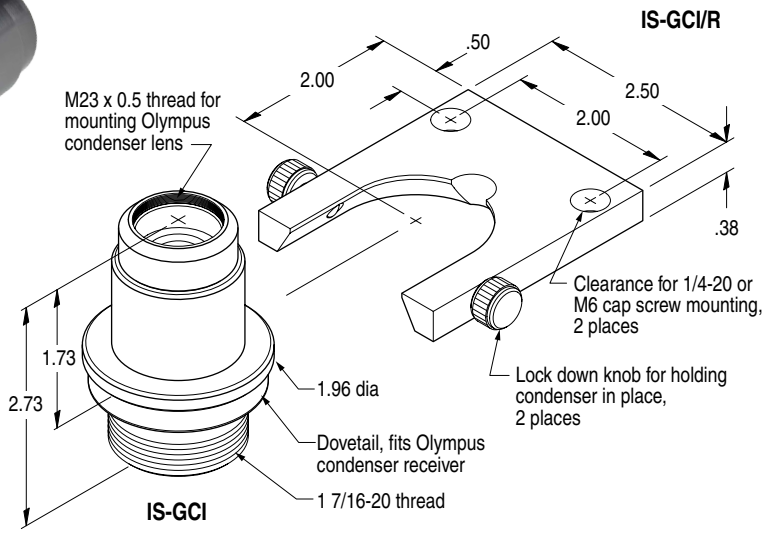
IPS200 axes actuator scale detail

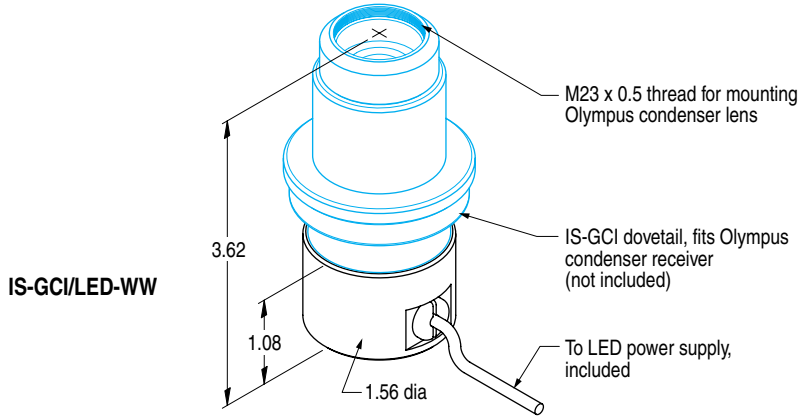
MRK100 imaging tube assembly

Contrast Imaging Lens

Contrast Imaging Tube and LED Light Source / IS-GCI and IS-GCI/LED-WW

New





Product Features

- Gradient contrast imaging
- Lens tube fits Olympus condenser receivers
- Lens tube accommodates Olympus condenser lens
- Stable LED power supply

Performance Specifications

IS-GCI/LED-WW
- 5 Watt – warm white LED
- 150 lm luminous flux/radiant flux
- Color temperature (CCT) 2870–3700K, peak at 590nm

IS-GCI/LED-NIR
- 5 Watt far red LED
- 310 mW luminous flux/radiant flux
- 735 nm wavelength

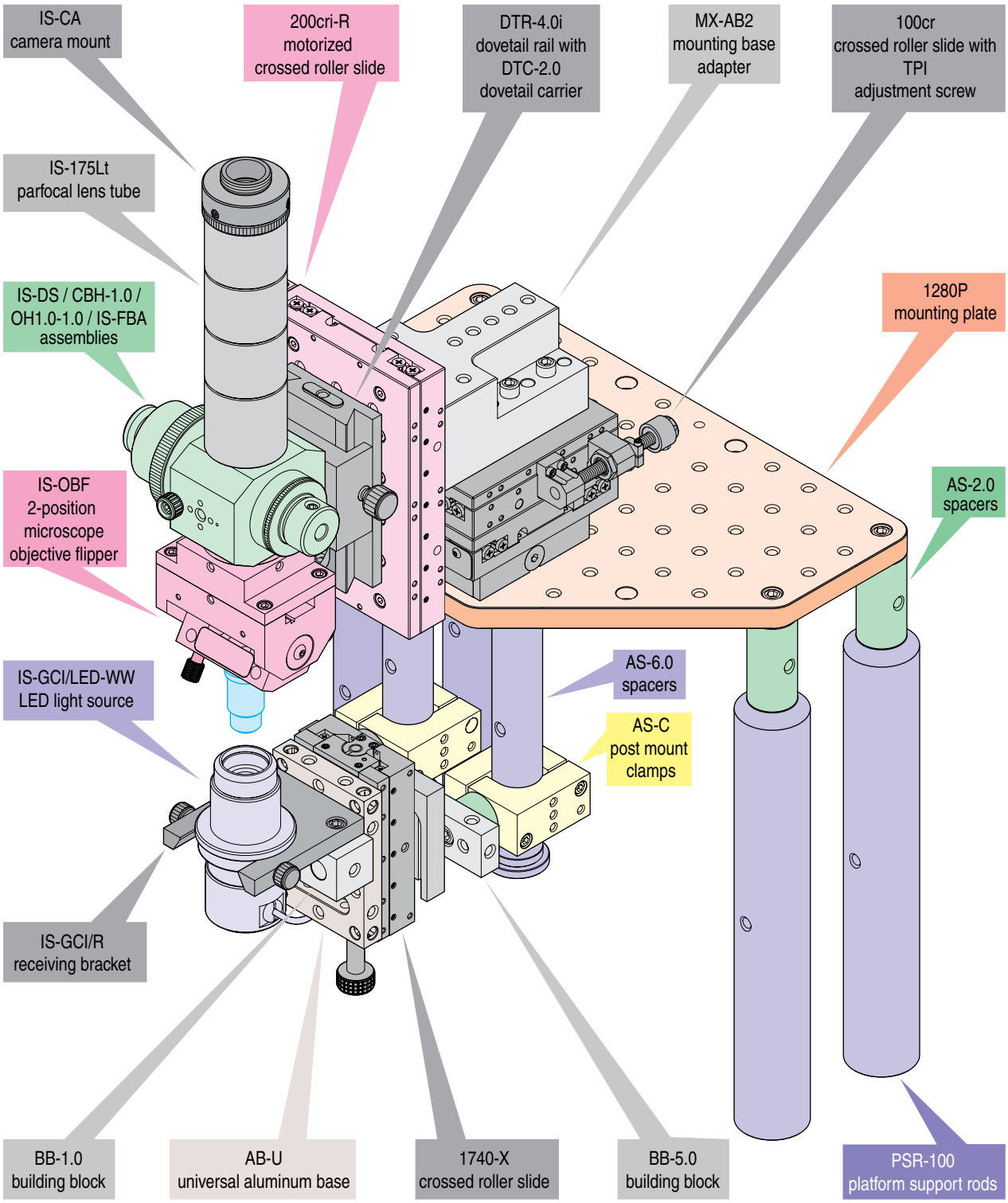
Dimensions 5.00 W x 2.50 H x 6.50 D

Order Information

gradient contrast condenser lens tube	IS-GCI
LED light source – near-infrared	IS-GCI/LED-NIR
LED light source – warm white	IS-GCI/LED-WW
IS-GCI mounting receiver	IS-GCI/R

Siskiyou's GCI condenser, available with or without an internal LED illuminator, provides a contrast gradient across the sample for contrast enhancement similar to that provided by phase contrast or DIC — without requiring special objectives. You can use your standard fluorescence objectives, easily visualizing the electrode and then switching to fluorescence imaging. The LED is available in standard white light and enhanced IR versions to maximize tissue penetration depth. Simply rotate the condenser to adjust for maximum contrast on the features of interest, then tighten the lockscrew. The quiet DC LED power supply has a rheostat for intensity adjustment.

Application



New

Micromanipulators

Perfusion Chambers — Horizontal, Vertical, Round & Slide

LEXAN® / PC Series

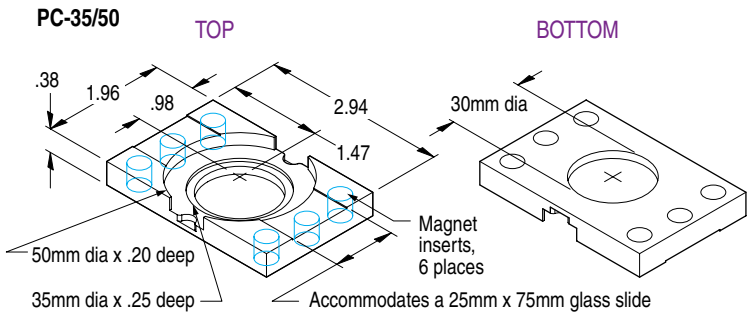
Note that dimensions in parentheses (mm) reflect metric assembly features

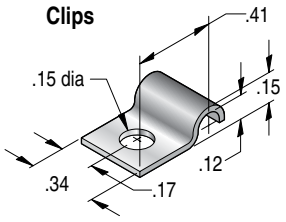
Perfusion Chambers & Clips

Perfusion Chambers

The PC series perfusion chambers have embedded magnets that are conveniently located to retain perfusion plumbing and ground plugs. They are designed to fit into our 8090c fixed-stage platform. A standard 22 mm cover slip is used to create the chamber bottom that is attached with vacuum grease, silicon, or parafilm (use a heat gun to gently melt the parafilm). There are two plastic retention screws for added security. Both openings accept 13-mm round cover slips for cultured specimens.

PC series chambers come in four styles: horizontal, vertical, round and a new version PC-35/50 that holds 35mm & 50mm Petri dishes and 25mm x 75mm slides. All models have two small but very powerful magnets located next to the input/output reservoirs and two more located closer to the recording chamber. The PC-35/50 has six such magnets. The location of these magnets securely hold your perfusion plumbing or ground wiring close to the final location.





8090c Platform

The 8090c perfusion chamber platform is specifically designed with the electrophysiologist in mind. With adequate mounting holes and a drainage trough around the perimeter for solution overflows. The 8090c is ideal for fixed-stage electrophysiology setups. The drainage trough is designed to protect your expensive microscope optics by funneling the solution to the outer edge of the platform and down the drainage tube to a safe location.

The chamber receiver is located off of center and accepts our PC series perfusion chambers. Clearance holes along the right and left hand edges allow mounting as a stand-alone fixed-stage or as the center chamber platform in a bridged platform setup.

Product Features

- Non-corrosive LEXAN® construction
- Embedded magnets
- 22-mm coverslip chamber bottom

Related Products

AS-1A spacers	110
PSR support rods	110
MS-4.0 magnetic strip	117
MS-6.0 magnetic strip	117
8090P platform	102

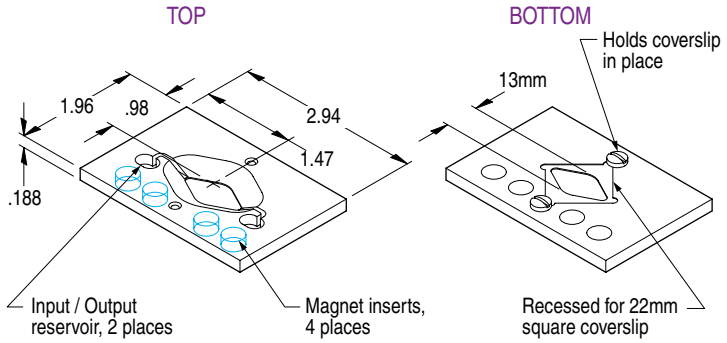
Order Information

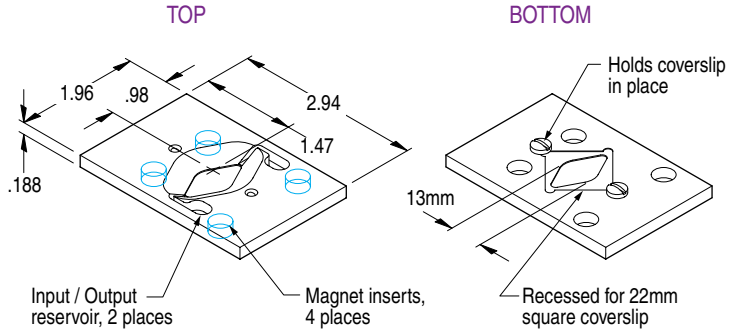
perfusion chamber, horizontal, with 4 clips	PC-H
perfusion chamber, vertical, with 4 clips	PC-V
perfusion chamber, round, with 4 clips	PC-R
perfusion chamber, holds 35mm & 50mm Petri dishes or 25mm x 75mm glass slides	PC-35/50
clips only, pkg of 5	PC-HC
chamber platform, 8.0"x9.0" with drain	8090c
chamber platform, 8.0"x9.0" with drain metric version	8090c-M

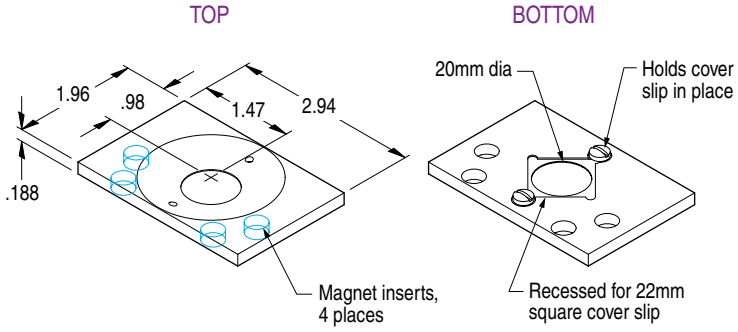
Perfusion Chambers — Horizontal, Vertical, Round & Slide

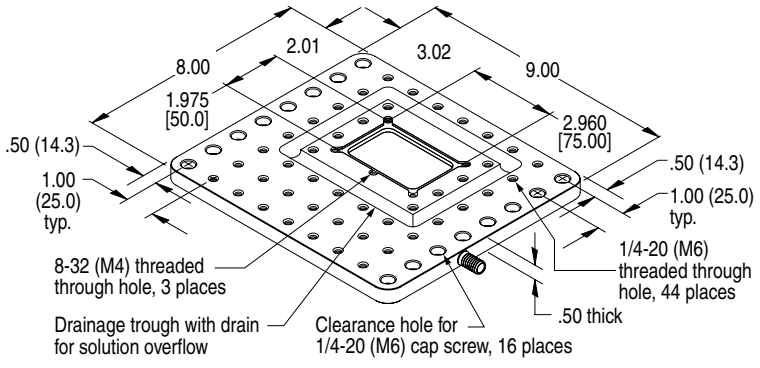
LEXAN® / PC Series

Note that dimensions in parentheses (mm) reflect metric assembly features

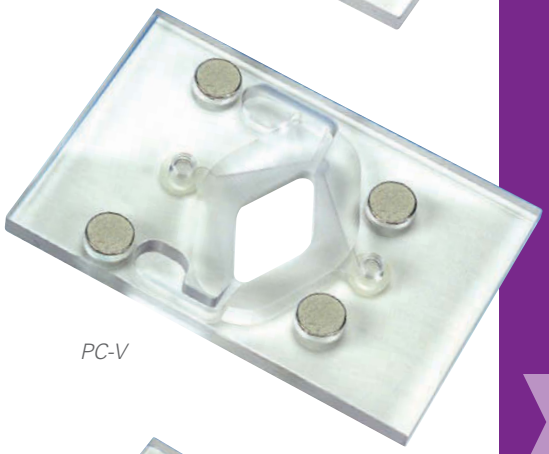






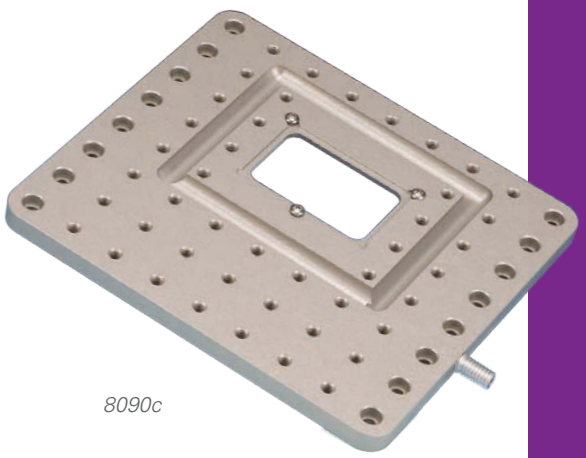


PC-H



PC-V

PC-R



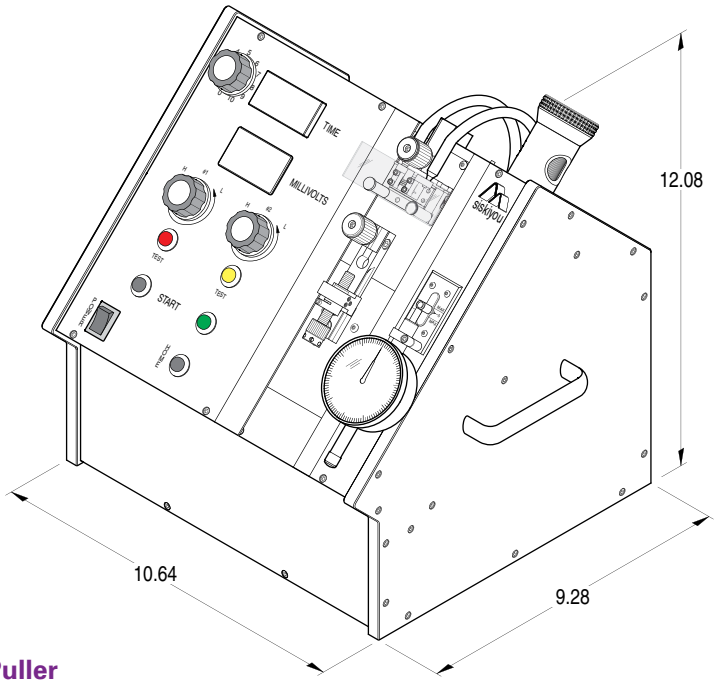
8090c

Pipette Puller — Automated, Repeatable — CE Certified

Multi-user Compatible / EP-450

EP-450

CE



Pipette Puller

Originally designed to pull patch-recording electrodes, the improved EP-450 can now pull a wide variety of electrode shapes, including sharp electrodes for microinjection and intracellular experiments. This dual stage pipette puller uses several unique methods to make consistent electrodes pull after pull. The theory of operation is based on time management and precise voltage control of the heating element for both first and second pulls. By varying the time and temperature, the user can create a pipette shape and length consistently and repeatedly.

The EP-450 has been designed to be multi-user friendly. A simple data log book is included to record electrode glass type, electrode glass diameter, first pull time, first pull voltage, dwell time, pipette symmetry, pull tension, second pull time and second pull voltage. Using this information, any user can easily reestablish their settings and recreate a specific electrode shape. The robust filament maintains stable heat characteristics over thousands of pulls — you won't need to change your pulling parameters frequently to respond to filament changes.

The EP-450 has a unique ergonomic design. It is comfortable for the user to operate on a daily basis. It has been constructed for easy access to the loading mechanism, which eliminates operator bending and kneeling. All controls are set at a 45° angle for comfortable viewing. A fine pitch 100TPI pipette stop adjustment screw makes it very easy to balance the upper and lower electrodes to ensure symmetric electrode lengths every pull. The filament carriage travels from the first pull location to the second pull location and has a micrometer dial read-out for fine adjustment. The carriage also has a simple heat shield that uses a standard 25mm x 75mm microscope slide to protect the element during the pull process. For more details, contact Siskiyou or see our web site at www.siskiyou.com

Product Features

- Two-stage, automated
- Ergonomic design
- Multi-user and multi-shape capability

Performance Specifications

Pipette glass size range	
minimum	1 mm [0.039 inch]
maximum	3 mm [0.119 inch]
Pullable pipette materials	borosilicate glass aluminosilicate glass leaded patch glass
Weight	33 pounds
Electrical requirements	
Input power	120 VAC, 50/60 Hz or 220 VAC
Power usage	24 Watts

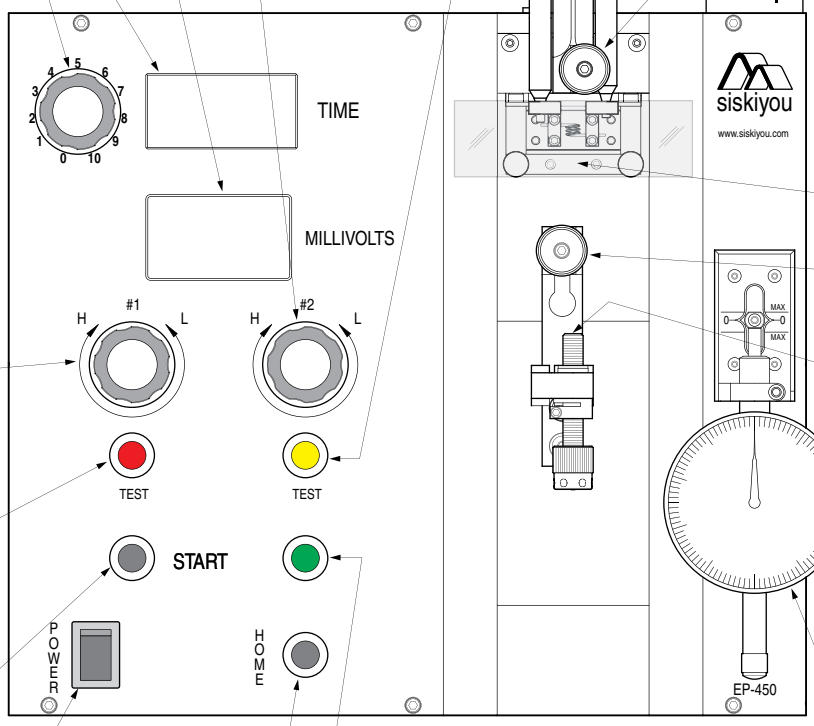
Related Products

MXP probe/pipette holder	172

Order Information

two-stage automated pipette puller	EP-450

EP-450 Front Panel



Digital display
Shows millivolt readings of filament voltage for first and second pulls.

Digital display
Shows time in seconds for first and second pulls.

Dwell time setting
Sets a delay between first and second pull.
Setting is in seconds.

First pull voltage adjustment
Turn dial clockwise to increase voltage.

First pull voltage test
Push/hold button to set/test first pull voltage.

Start button
Green light must be on.

On/Off switch

Second pull voltage adjustment
Turn dial clockwise to increase voltage.

Second pull voltage test
Push/hold button to set/test second pull voltage.

Home position button
Returns filament carriage to home location.

System "Ready" light
Lit up green light indicates the system is ready to run.

Upper pipette clamp

Pull length adjustment
Positive adjustment (+) makes pipette longer.
Adjustment shown on ***Dial indicator***, bottom right.

Second pull filament location adjustment
Adjust filament carriage location for second pull.
Knob recessed in cutout.

Filament carriage

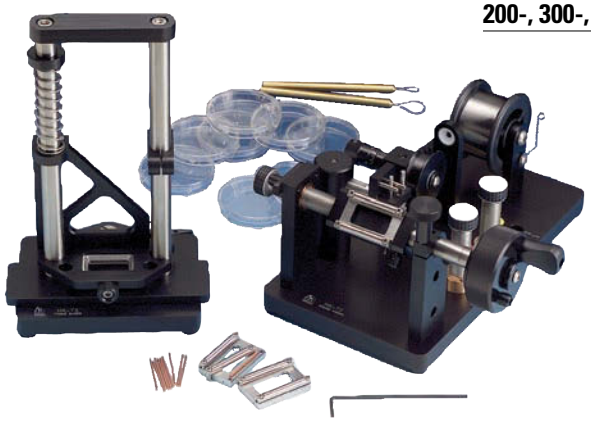
Lower pipette clamp

Pipette stop
Adjustment for balancing upper and lower pipette lengths.

Dial indicator
Indicates adjustment in pipette length as set by ***Pull length adjustment***, upper right.

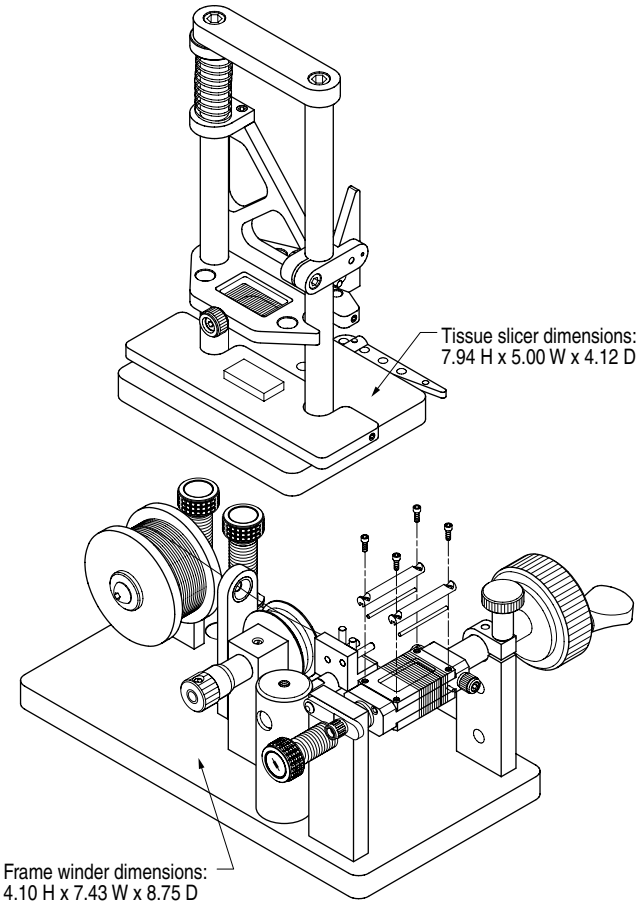
Tissue Slicer — Cortical & Hippocampal

200-, 300-, 400-mm Thickness / MX-TS



MX-TS

Hippocampal Section



Summary of operation

1. Select the thickness of the tissue to be sliced.
2. Wind two sets of slicing frames using the frame winder.
3. Mount the pre-wound slicing frames in the guillotine slicer mechanism.
4. Set tissues on a bed of agarose at the base of the slicer.
5. Raise the slicing frame by sliding the carriage up, compressing the spring, until the trigger lock engages.
6. Release the trigger.
7. Release the frame and return the slicer to its top position.
8. Remove the sample plate and the sliced tissue is floated off in a buffer bath.

Product Features

- Fast method for slicing tissue
- 200-, 300-, or 400-µm slices
- Minimal tissue damage

Order Information

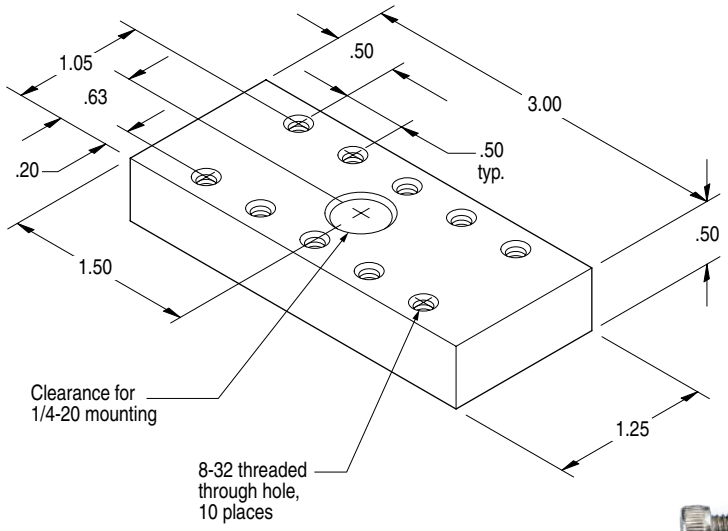
tissue slicer	MX-TS
tissue slicer, extra frames, pkg of 2	MX-TS-FS
tissue slicer, clamping wires, pkg of 100	MX-TS-CW
tissue slicer, 20 µm tungsten wire, 1000-foot spool	MX-TS-TW

The MX-TS tissue slicer consistently slices sectioned cortical or hippocampal tissue to either a 200-, 300-, or 400-µm thickness in a straightforward operation. Thicknesses are selected by simply replacing the lead screw on the frame winder. This style of tissue slicer ensures consecutive slices of the specifically sectioned area.

The MX-TS tissue slicer comes complete with an instructional video, frame winder, frame accelerator, 4 frames, 100 clamping wires, 1000 feet of 20-µm tungsten wire, and 20 Petri dishes.

Electrical Isolator and Cable Clamp

10-lead connection / GB-10

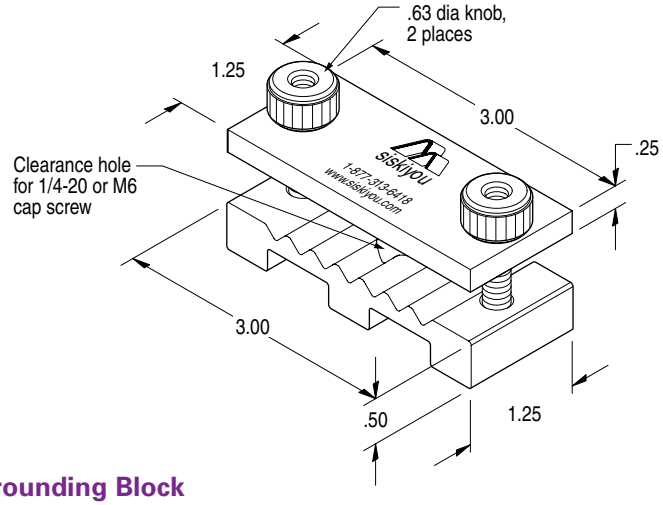


Product Features

- Solid aluminum construction
- 1/4-20 hex drive anchor screw
- 8-32 hex drive electrical connectors, 10 screws

GB-10

Bolt and Magnetic / CC-BD and CC-MG



CC-BD

Grounding Block

Electrophysiology experiments require that your electrical equipment is not adding to the data that you are trying to collect. This simple and cost effective grounding block will localize and organize the ground circuit in your system. The GB-10 comes with all the hardware needed to mount the block to your isolation table and attach up to 10 single leads.

Cable Clamps

The CC-BD (bolt) and CC-MG (magnetic) are simple cable organizers. These simple cable clamps are a ideal way to organize electrical wiring or small tubing in your set-up. They are designed with seven V-grooves and a simple clamping plate to hold various size cables or wires from .10 to .40 inch diameter. The CC-BD comes with one 1/4-20 and one M6 cap screw for attachment to a bread board, isolation table or platform with a tapped hole array. The CC-MG uses an embedded rare-earth magnet for mounting to any magnetic surface. Custom OEM versions are available upon request.

Product Features

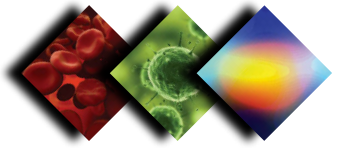
- Solid aluminum construction
- Mounting hardware included
- Secures cables 18 gauge or larger
- Vacuum compatible versions available upon request

Related Products

motion controllers	beginning 22
motorized stages	beginning 63
motorized drives	beginning 90

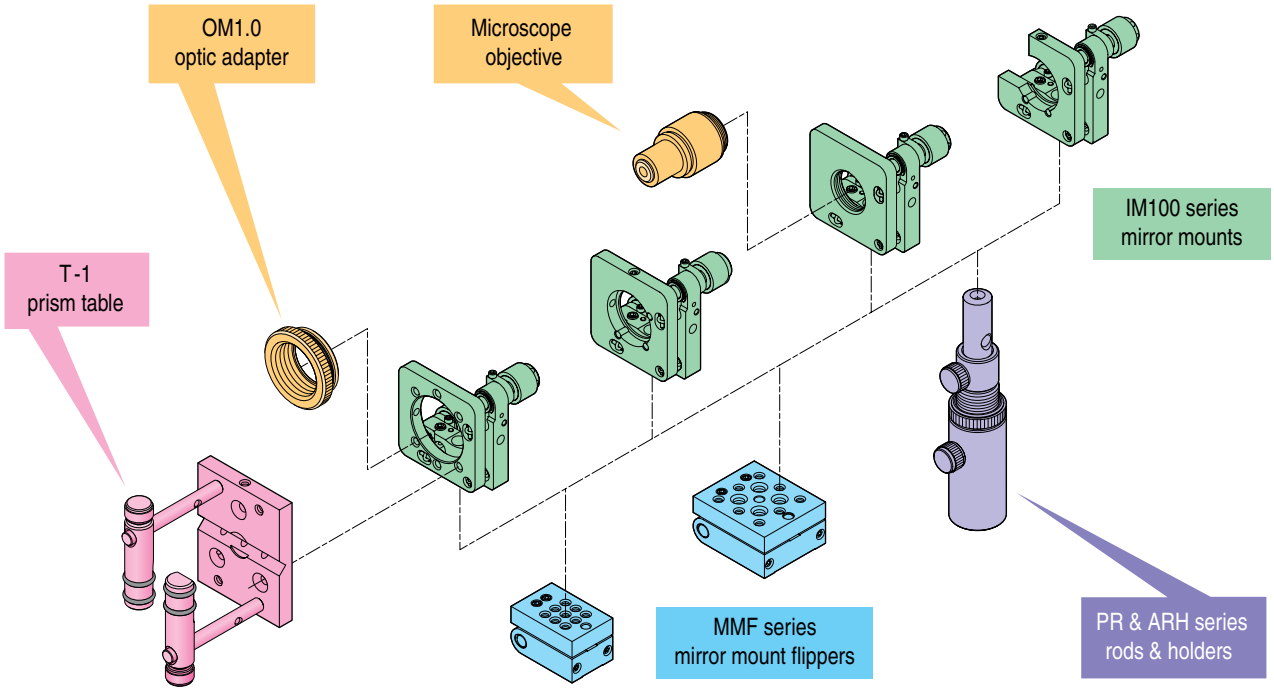
Order Information

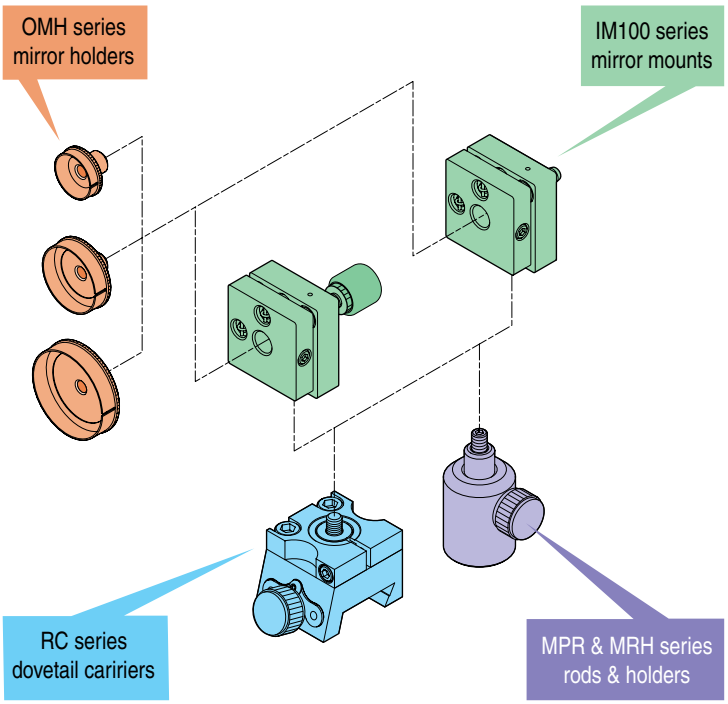
grounding block, 10 locations	GB-10
cable clamp, bolt style	CC-BD
cable clamp, magnetic (not shown)	CC-MG



Mirror Mounts

Applications

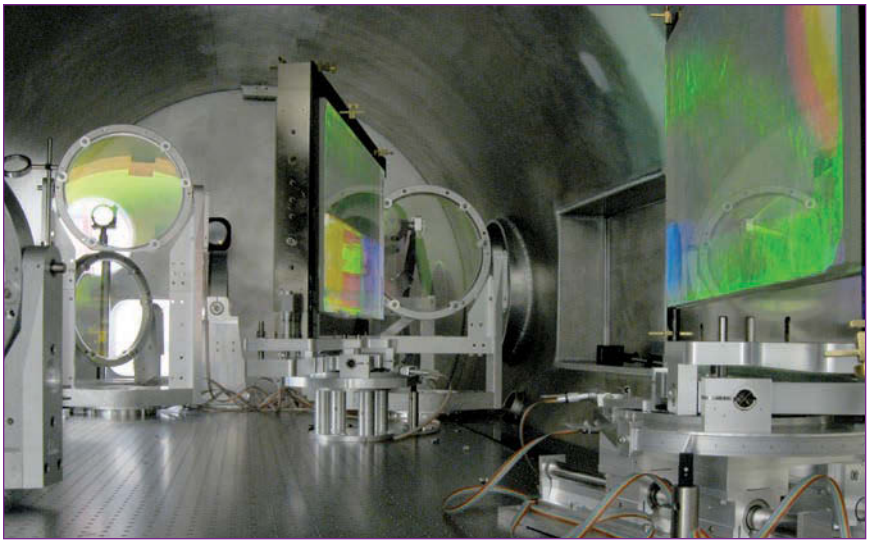




The product trees shown here are only a sampling of the modularity of our Photonics product line. The examples display some of the various optics mounts, precision rods and holders, mirror mount flippers and dovetail carriers that are compatible with our research and industrial mirror mounts.

The Minimum Controllable Motion (MCM) Reference Chart is a summary of the angular travel range and resolution for our most common mirror mounts. This chart facilitates comparisons among the various models. Travel ranges are mechanically accurate to the mount, and the MCM is calculated for a rotation of one degree. Since these are all manually adjusted, the minimum controllable motion is an approximation and should only be used as a reference point.

Model	Travel Pitch / Yaw	MCM Pitch / Yaw
CVM100	7° / 6°	4.6 / 3.6 arc sec
IAG100	8°	8.0 arc sec
IAG200	8°	4.7 arc sec
IM05 Series	10°	8.6 arc sec
IM100 Series	8°	3.8 arc sec
IM100-LPA	8°	3.8 arc sec
IM100-T/B	8°	3.8 arc sec
IM100.1H	10°	8.3 arc sec
IM200 Series	8°	2.5 arc sec
IVM100.5 (K)	8°	7.9 arc sec
IVM100 (K)	8°	3.8 arc sec
IVM200 (K)	8°	2.3 arc sec
IXF.50 Series	6°	8.2 arc sec
IXF.75 Series	6°	5.5 arc sec
IXF1.0 Series	5°	4.5 arc sec
IXM100 Series	8°	3.8 arc sec
IXM200 Series	8°	2.5 arc sec
OGX-1.0	7°	8.1 / 5.4 arc sec
OGX-2.0	6° / 7°	6.0 / 5.3 arc sec
RM80-1H	10°	10.4 arc sec
RM80-0.5H	16°	22.8 arc sec
RM80-0.75H	11°	14.8 arc sec



Section Contents

Mirror Mounts

Mirror Mounts

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2.0" Optic, 2 Axis 202

Industrial Grade
0.5" Optic, 2 & 3 Axis 204
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Mirror Mount Flipper 252

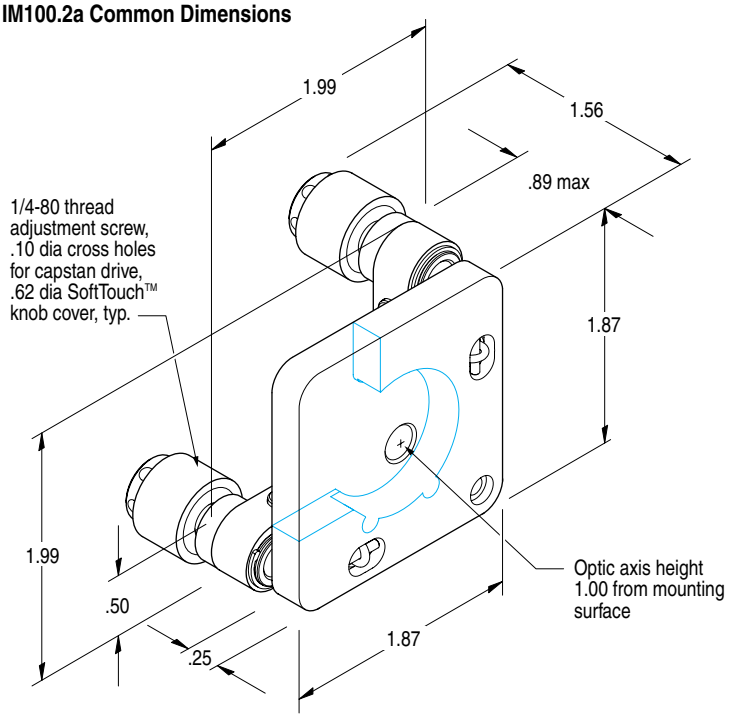
Mirror Mounts

Economy Mounts — 1-inch Optic

2-axis / IM100 Series

IM100.2a Series

IM100.2a Common Dimensions



Product Features

- 80TPI adjustment screws
- Color coded axis knobs
- Good value

Performance Specifications

Travel / axis	8°
Minimum controllable motion	3.8 arc sec.

Related Products

PR precision rods	132
IM100.H horizontal adapter	222
T-1 prism clamp	251
OMH series & OM1.0 optic mounts	247
SF spatial filter objective	291
cross-reference table	302

Order Information

economy mount, 80TPI, platform	IM100.P2a
economy mount, 80TPI, microscope objective	IM100.M2a
economy mount, 80TPI, 1.0" optic	IM100.A2a
economy mount, 80TPI, 1.25" through aperture	IM100.T2a
economy mount, 80TPI, 1.0" optic cutaway, right hand side	IM100.C2a
economy mount, 80TPI, 1.0" optic cutaway, left hand side	IM100.C2La

Economy Mounts

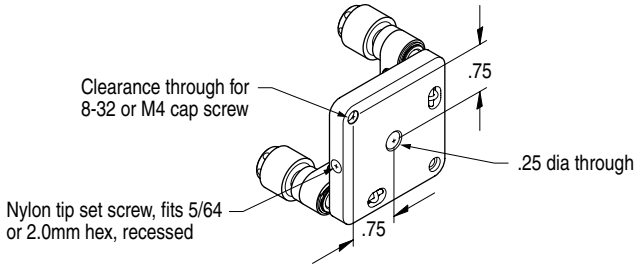
These economy grade kinematic optic mounts offer exceptional performance with a wide variety of flexible options. Our IM100 series mounts use precision rolled 80TPI adjustment screws for excellent resolution and feel in the hand. The solid 3/8-inch thick aluminum backplate offers two 8-32 [M4] mounting options for right or left hand compatibility.

Our IM100 series mounts use a full "L" cutaway back for maximum clear aperture. Within the backplate we use precision-rolled 80TPI adjustment screws with hardened steel balls that run on carbide pads to provide stable movement. The 80TPI adjustment screws run in "full-hard" brass bushings which are individually matched to ensure the best fit in the industry.

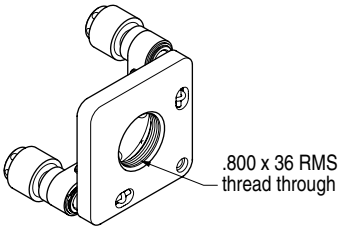
All models use our SoftTouch™ color coded knob caps for easy axis identification in low light conditions.

Economy Mounts — 1-inch Optic

2-axis / IM100 Series

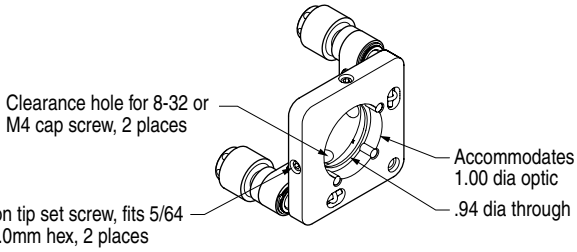


IM100.P2a



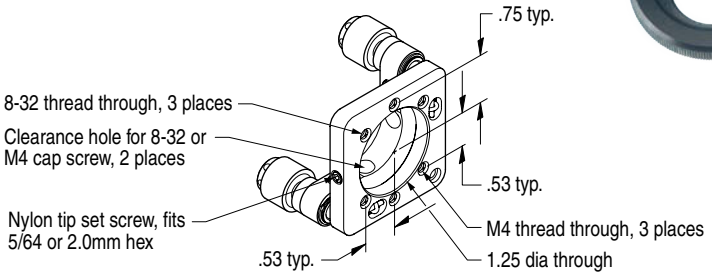
SF Objective

IM100.M2a



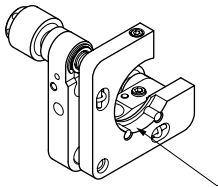
OM1.0

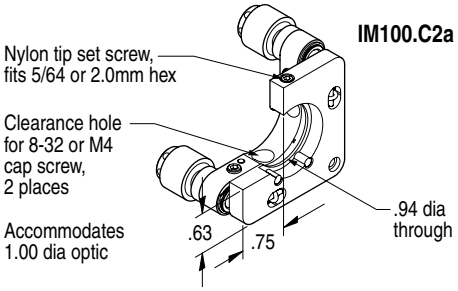
IM100.A2a



IM100.T2a

IM100.C2La





IM100.C2a

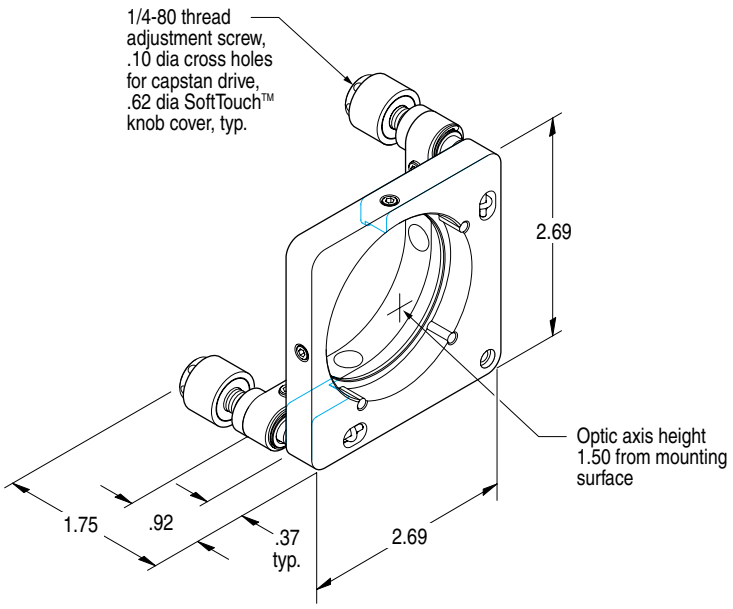
IM100.C2a

Economy Mounts — 2-inch Optic

2-axis / IM200 Series

IM200.2a Series

IM200.2a Common Dimensions



Product Features

- 80TPI adjustment screws
- Color coded axis knobs
- Good value

Performance Specifications

Travel / axis	8°
Minimum controllable motion	2.5 arc sec.

Related Products

PR precision rods	132
cross-reference table	302

Order Information

economy mount, 80TPI, 2.0" optic	IM200.A2a
economy mount, 80TPI, 2.0" optic cutaway, right hand side	IM200.C2a
economy mount, 80TPI, 2.0" optic cutaway, left hand side	IM200.C2La

Economy Mounts

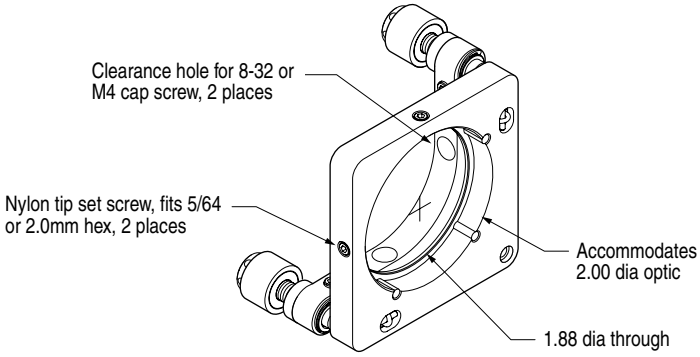
These economy grade kinematic optic mounts offer exceptional performance with a wide variety of flexible options. Our IM200 series mounts use precision rolled 80TPI adjustment screws for excellent resolution and feel in the hand. The solid 3/8-inch thick aluminum backplate offers two 8-32 [M4] mounting options for right or left hand compatibility.

Our IM200 series mounts use a full "L" cutaway back for maximum clear aperture. Within the backplate we use precision-rolled 80TPI adjustment screws with hardened steel balls that run on carbide pads to provide stable movement. The 80TPI adjustment screws run in "full-hard" brass bushings which are individually matched to ensure the best fit in the industry.

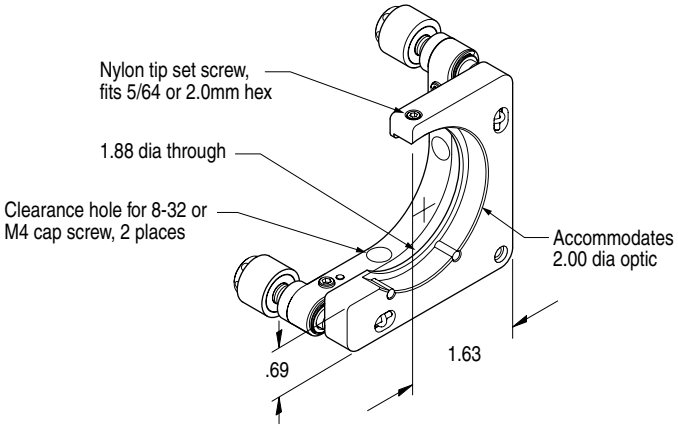
All models use our SoftTouch™ color coded knob caps for easy axis identification in low light conditions.

Economy Mounts — 2-inch Optic

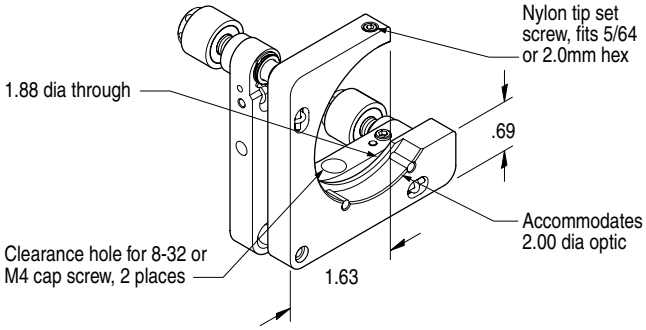
2-axis / IM200 Series



IM200.A2a



IM200.C2a

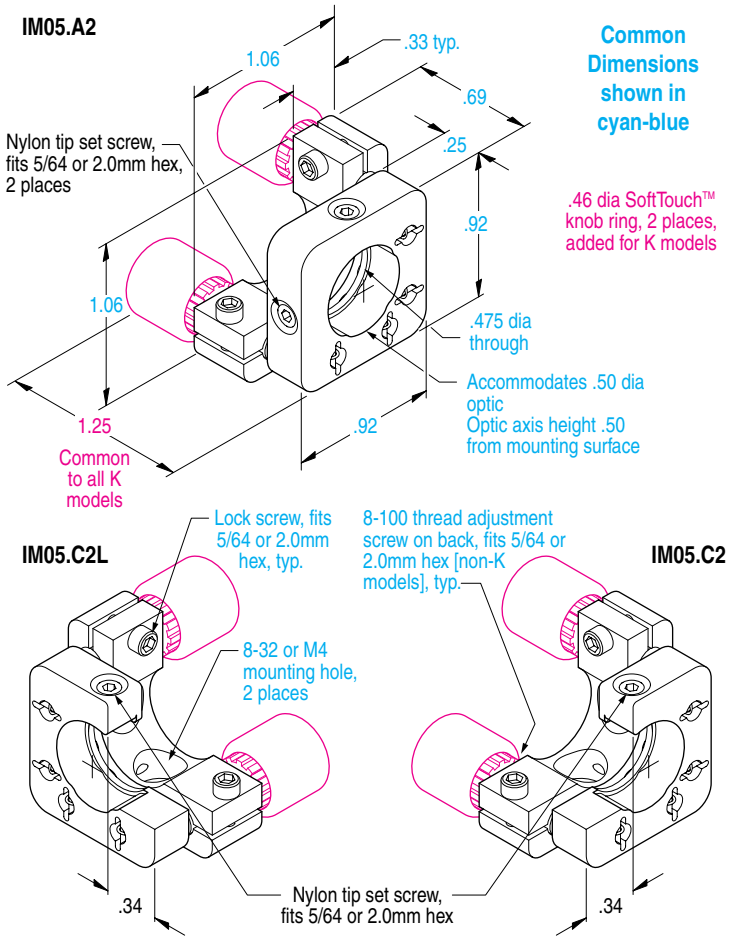


IM200.C2La

Industrial Grade — 0.5-inch Optic

2-axis / IM05.2 Series

IM05.C2



Product Features

- 100 pitch lockable adjustment screws
- Right and left hand cutaway versions
- 3/8-inch thick back plate
- Vacuum compatible versions available upon request

Performance Specifications

Travel / axis	10°
Minimum controllable motion	8.6 arc sec.

Related Products

PR precision rods	132
RTC series clamps	132, 136

Order Information

industrial mount, 100TPI, 0.5 inch optic	IM05.A2
industrial mount, 100TPI, 0.5 inch optic cutaway, right hand side	IM05.C2
industrial mount, 100TPI, 0.5 inch optic cutaway, left hand side	IM05.C2L

Knob Option — for SoftTouch™ knob features on this product, add '/K' after Model Number.

Industrial Grade, 2-axis

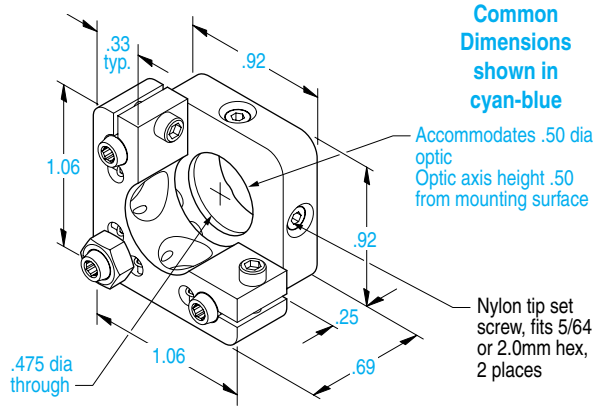
These industrial grade kinematic optic mounts offer exceptional performance with a wide variety of flexible options. Our IM05.2 series mounts use precision rolled 100TPI adjustment screws for excellent resolution and feel in the hand. The solid 3/8-inch thick aluminum back plate offers two 8-32 [M4] mounting options for right or left hand compatibility. These mounts use a full "L" cutaway back for maximum clear aperture. The IM05.C2 versions have a cutaway front face to optimize tight beam layouts, and are available in right hand or left hand versions.

Within the back plate we use our lockable 100TPI adjustment screws with hard carbide ball bearings that run on hardened rods to provide stable movement. These adjustment screws incorporate our *one wrench* design for optic mounting, adjustment and locking. The 5⁄64 hex adjustment screws may be replaced by SoftTouch™ knobs for finger adjustment.

Industrial Grade — 0.5-inch Optic

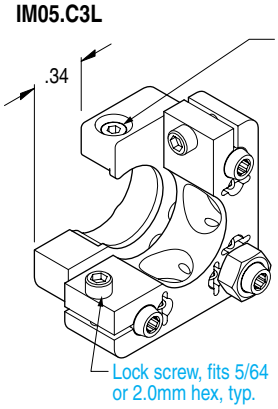
3-axis / IM05.3 Series

IM05.A3



IM05.A3

IM05.C3L



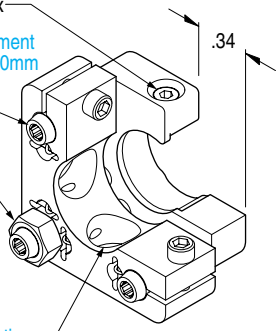
Nylon tip set screw, fits 5/64 or 2.0mm hex

8-100 thread adjustment screw, fits 5/64 or 2.0mm hex, typ.

1/4 hex lock nut

8-32 or M4 mounting hole, 2 places

IM05.C3



Industrial Grade, 3-axis

These industrial grade kinematic optic mounts offer exceptional performance with a wide variety of flexible options. Our IM05.3 series mounts use 3 precision rolled 100TPI adjustment screws with excellent resolution and feel in the hand. The 3-axis adjustment is ideal for laser cavity applications. The solid 3/8-inch thick aluminum back plate offers two 8-32 [M4] mounting options for right or left hand compatibility. These mounts use a full "L" cutaway back for maximum clear aperture. The IM05.C3 versions have a cutaway front face to optimize tight beam layouts, and are available in right hand or left hand versions.

Within the back plate we use our lockable 100TPI adjustment screws with hard carbide ball bearings that run on hardened rods to provide stable movement. Two adjustment screws incorporate our *one wrench* design for optic mounting, adjustment and locking, while the third axis requires an additional wrench. Two of the hex adjustment screws may be replaced by SoftTouch™ knobs, as shown on page 204, for finger adjustment, with the third axis retaining its 5⁄64 hex adjustment screw and 1⁄4 hex lock nut.

Product Features

- 3-axis 100 pitch lockable adjustment screws
- Right and left hand cutaway versions
- 3/8-inch thick back plate
- Vacuum compatible versions available upon request

Performance Specifications

Travel / axis	10°
Minimum controllable motion	8.6 arc sec.

Related Products

PR precision rods	132
RTC series clamps	132, 136

Order Information

industrial mount, 100TPI, 0.5 inch optic	IM05.A3
industrial mount, 100TPI, 0.5 inch optic cutaway, right hand side	IM05.C3
industrial mount, 100TPI, 0.5 inch optic cutaway, left hand side	IM05.C3L

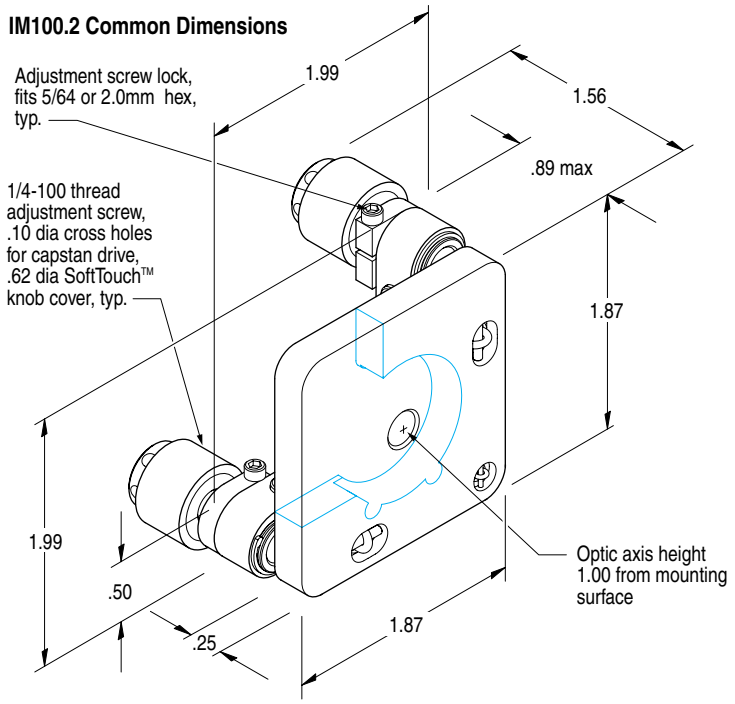
Knob Option — for SoftTouch™ knob features on this product, add '/K' after Model Number.

Industrial Grade — 1-inch Optic

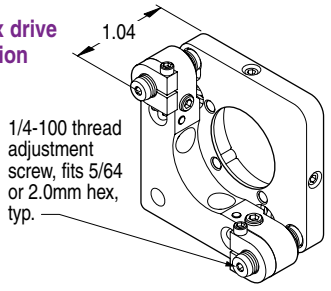
2-axis / IM100.2 Series

IM100.2 Series

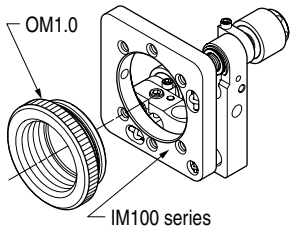
IM100.2 Common Dimensions



Hex drive option



Application



Product Features

- 100 pitch lockable adjustment screws
- Color coded axis knobs
- Patented spring-loaded pivot point
- Vacuum compatible versions available upon request

Performance Specifications

Travel / axis	8°
Minimum controllable motion	3.8 arc sec.

Related Products

PR precision rods	132
RTC-0.5 clamp	132
IM100.H horizontal adapter	222
OMH series & OM1.0 optic mounts	247
T-1 prism clamp	251
SF spatial filter objective	291
cross-reference table	302

Order Information

industrial mount, 100TPI, platform	IM100.P2
industrial mount, 100TPI, microscope objective	IM100.M2
industrial mount, 100TPI, 1.0" optic	IM100.A2
industrial mount, 100TPI, 1.25" through aperture	IM100.T2
industrial mount, 100TPI, 1.0" optic cutaway, right hand side	IM100.C2
industrial mount, 100TPI, 1.0" optic cutaway, left hand side	IM100.C2L

Hex Drive Option — for hex drive on this product, add '-H' after Model Number.

Industrial Mounts

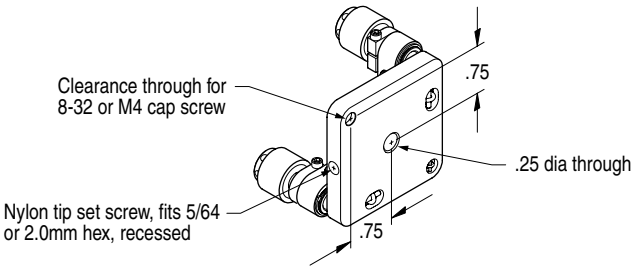
These industrial grade kinematic optic mounts offer exceptional performance with a wide variety of flexible options. Our IM100 series mounts use precision rolled 100TPI adjustment screws for excellent resolution and feel in the hand. The solid 3/8-inch thick aluminum back plate offers two 8-32 [M4] mounting options for right or left hand compatibility. Our unique spring-loaded pivot (pat.# 6590723) ensures a stability that far exceeds other mounts.

Our IM100 series mounts use a full "L" cutaway back for maximum clear aperture. Within the back plate we use our lockable 100TPI adjustment screws with hardened steel balls that run on carbide pads to provide stable movement. These adjustment screws incorporate our *one wrench* design for capstan adjustment and locking. The unique collet design incorporates a split clamp for presetting the feel of the adjustment screw, as well as locking. If the location of the locking screw is not desirable, simply back it out and replace in the opposite side. The 100TPI collars also can be rotated in the back plate for maximum access flexibility.

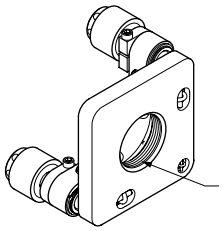
All models use our SoftTouch™ color coded knob caps for easy axis identification in low light conditions.

Industrial Grade — 1-inch Optic

2-axis / IM100.2 Series

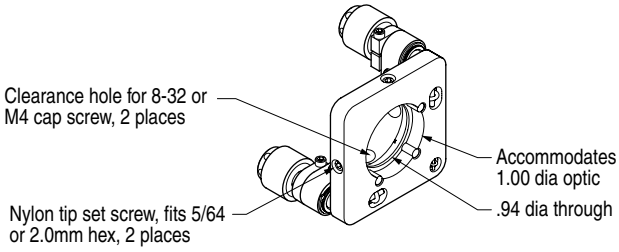


IM100.P2



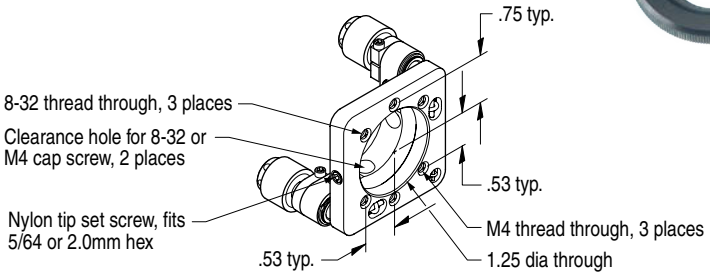
SF Objective

IM100.M2



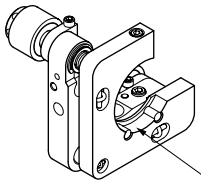
OM1.0

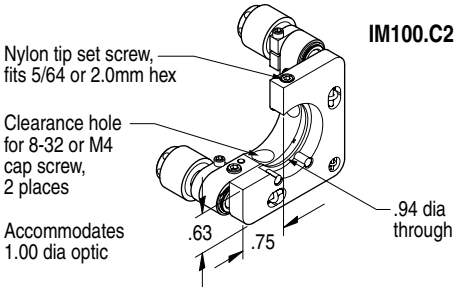
IM100.A2



IM100.T2

IM100.C2L





IM100.C2

IM100.C2

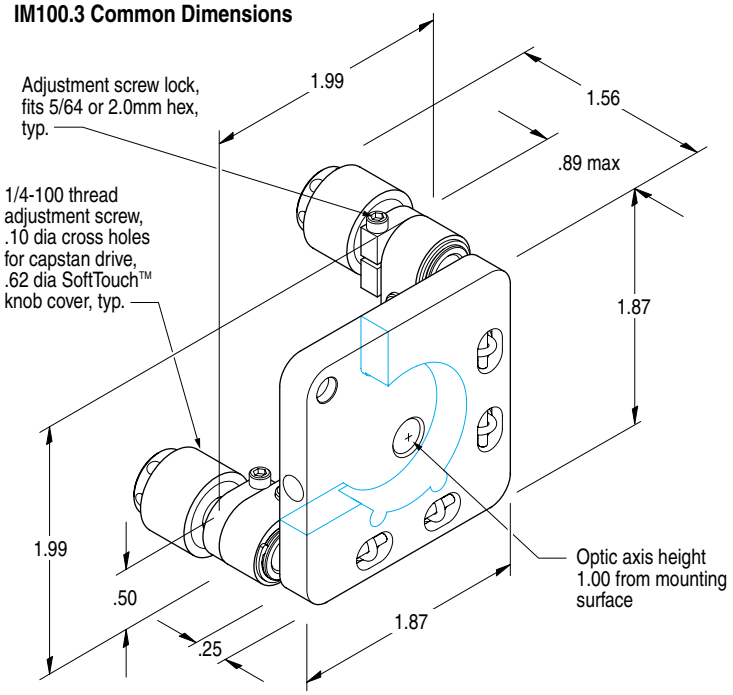
Mirror Mounts

Industrial Grade — 1-inch Optic

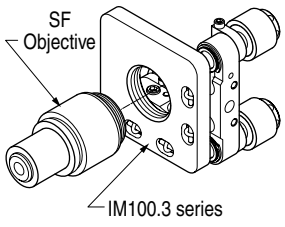
3-axis / IM100.3 Series

IM100.3 Series

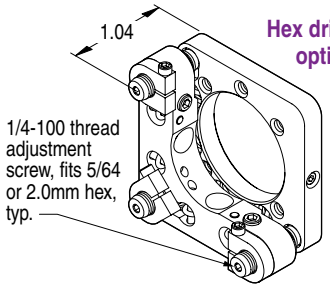
IM100.3 Common Dimensions



Application



Hex drive option



Product Features

- 100 pitch lockable adjustment screws
- Color coded axis knobs
- Third axis adjustment
- Vacuum compatible versions available upon request

Performance Specifications

Travel / axis	8°
Minimum controllable motion	3.8 arc sec.

Related Products

PR precision rods	132
RTC-0.5 clamp	132
IM100.H horizontal adapter	222
OMH series & OM1.0 optic mounts	247
T-1 prism clamp	251
SF spatial filter objective	291
cross-reference table	302

Order Information

industrial mount, 100TPI, platform	IM100.P3
industrial mount, 100TPI, microscope objective	IM100.M3
industrial mount, 100TPI, 1.0" optic	IM100.A3
industrial mount, 100TPI, 1.25" through aperture	IM100.T3
industrial mount, 100TPI, 1.0" optic cutaway, right hand side	IM100.C3
industrial mount, 100TPI, 1.0" optic cutaway, left hand side	IM100.C3L

Hex Drive Option — for hex drive on this product, add '-H' after Model Number.

Industrial Mounts

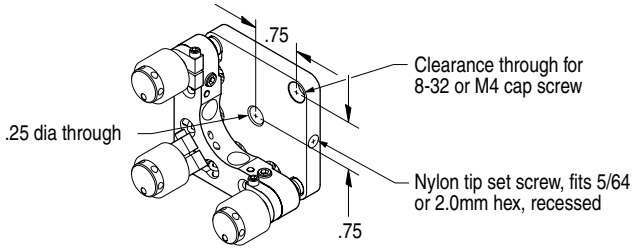
These industrial grade kinematic optic mounts offer exceptional performance with a wide variety of flexible options. Our IM100 series mounts use precision rolled 100TPI adjustment screws for excellent resolution and feel in the hand. The solid 3/8-inch thick aluminum back plate offers two 8-32 [M4] mounting options for right or left hand compatibility.

Our IM100 series mounts use a full "L" cutaway back for maximum clear aperture. Within the back plate we use our lockable 100TPI adjustment screws with hardened steel balls that run on carbide pads to provide stable movement. These adjustment screws incorporate our *one wrench* design for capstan adjustment and locking. The unique collet design incorporates a split clamp for presetting the feel of the adjustment screw, as well as locking. If the location of the locking screw is not desirable, simply back it out and replace in the opposite side. The 100TPI collars also can be rotated in the back plate for maximum access flexibility.

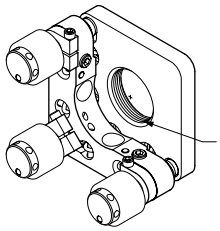
All models use our SoftTouch™ color coded knob caps for easy axis identification in low light conditions.

Industrial Grade — 1-inch Optic

3-axis / IM100.3 Series

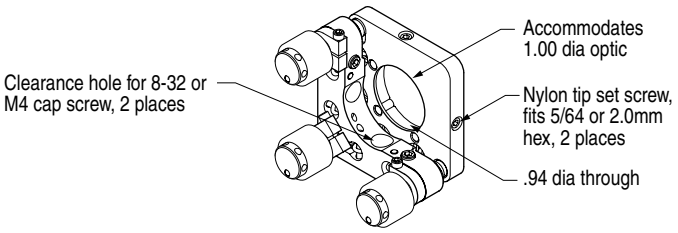


IM100.P3



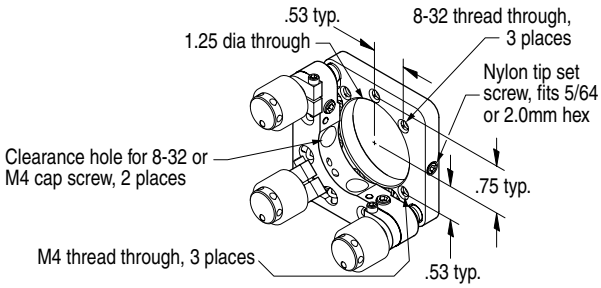
SF Objective

IM100.M3



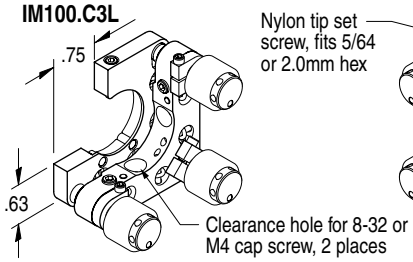
OM1.0

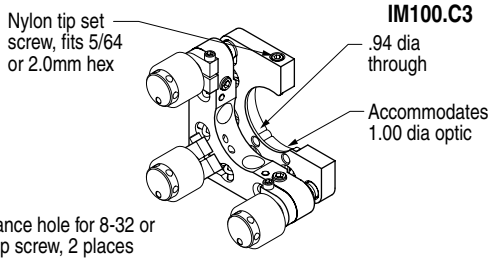
IM100.A3



IM100.T3

IM100.C3L





IM100.C3

IM100.C3

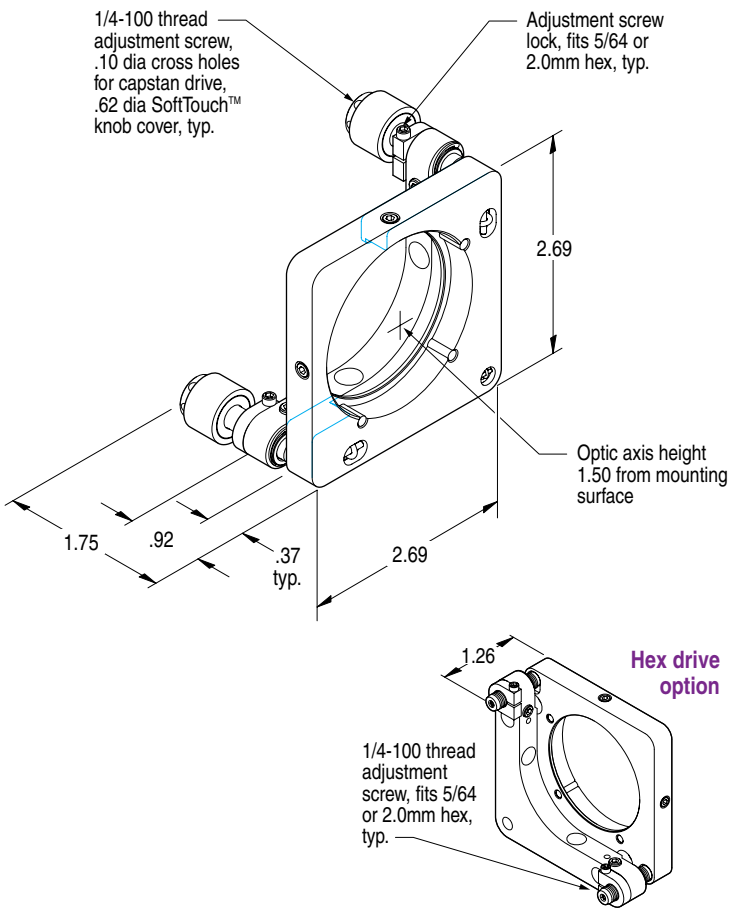
Mirror Mounts

Industrial Grade — 2-inch Optic

2-axis / IM200.2 Series

IM200.2 Series

IM200.2 Common Dimensions



Product Features

- 100 pitch adjustment screws
- Color coded axis knobs
- Patented spring-loaded pivot point
- Vacuum compatible versions available upon request

Performance Specifications

Travel / axis	8°
Minimum controllable motion	2.5 arc sec.

Related Products

PR precision rods	132

Order Information

industrial mount, 100TPI, 2.0" optic	IM200.A2
industrial mount, 100TPI, 2.0" optic cutaway, right hand side	IM200.C2
industrial mount, 100TPI, 2.0" optic cutaway, left hand side	IM200.C2L

Hex Drive Option — for hex drive on this product, add '-H' after Model Number.

Industrial Mounts

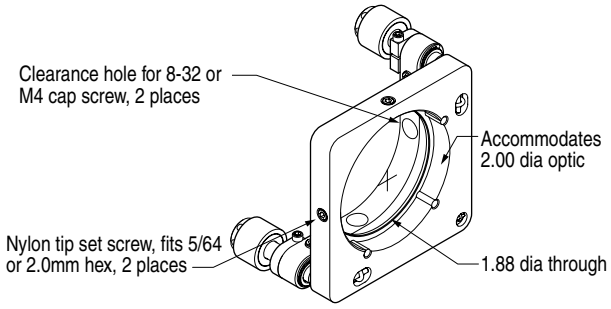
These industrial grade kinematic optic mounts offer exceptional performance with a wide variety of flexible options. Our IM200 series mounts use precision rolled 100TPI adjustment screws for excellent resolution and feel in the hand. The solid 3/8-inch thick aluminum back plate offers two 8-32 [M4] mounting options for right or left hand compatibility. Our unique spring-loaded pivot (pat.# 6590723) ensures a stability that far exceeds other mounts.

Our IM200 series mounts use a full "L" cutaway back for maximum clear aperture. Within the back plate we use our lockable 100TPI adjustment screws with hardened steel balls that run on carbide pads to provide stable movement. These adjustment screws incorporate our *one wrench* design for capstan adjustment and locking. The unique collet design incorporates a split clamp for presetting the feel of the adjustment screw, as well as locking. If the location of the locking screw is not desirable, simply back it out and replace in the opposite side. The 100TPI collars also can be rotated in the back plate for maximum access flexibility.

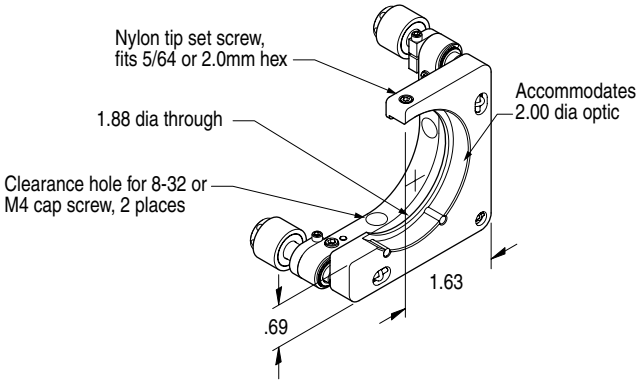
All models use our SoftTouch™ color coded knob caps for easy axis identification in low light conditions.

Industrial Grade — 2-inch Optic

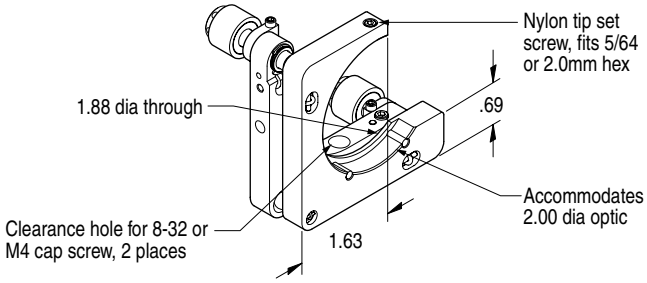
2-axis / IM200.2 Series



IM200.A2



IM200.C2



IM200.C2L

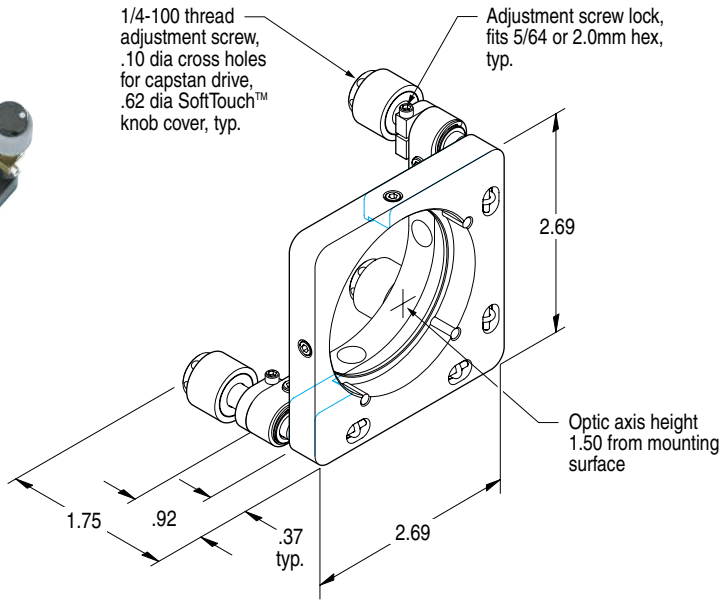
Mirror Mounts

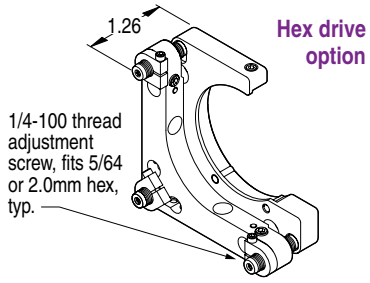
Industrial Grade — 2-inch Optic

3-axis / IM200.3 Series

IM200.3 Series

IM200.3 Common Dimensions





Product Features

- 100 pitch lockable adjustment screws
- Color coded axis knobs
- Third axis adjustment
- Vacuum compatible versions available upon request

Performance Specifications

Travel / axis	8°
Minimum controllable motion	2.5 arc sec.

Related Products

PR precision rods	132

Order Information

industrial mount, 100TPI, 2.0" optic	IM200.A3
industrial mount, 100TPI, 2.0" optic cutaway, right hand side	IM200.C3
industrial mount, 100TPI, 2.0" optic cutaway, left hand side	IM200.C3L

Hex Drive Option — for hex drive on this product, add '-H' after Model Number.

Industrial Mounts

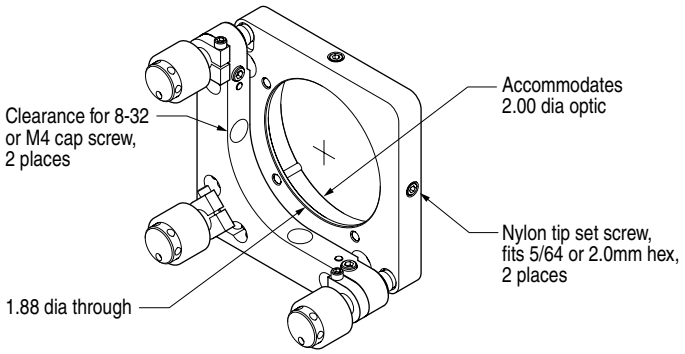
These industrial grade kinematic optic mounts offer exceptional performance with a wide variety of flexible options. Our IM200 series mounts use precision rolled 100TPI adjustment screws for excellent resolution and feel in the hand. The solid 3/8-inch thick aluminum back plate offers two 8-32 [M4] mounting options for right or left hand compatibility.

Our IM200 series mounts use a full "L" cutaway back for maximum clear aperture. Within the back plate we use our lockable 100TPI adjustment screws with hardened steel balls that run on carbide pads to provide stable movement. These adjustment screws incorporate our *one wrench* design for capstan adjustment and locking. The unique collet design incorporates a split clamp for presetting the feel of the adjustment screw, as well as locking. If the location of the locking screw is not desirable, simply back it out and replace in the opposite side. The 100TPI collars also can be rotated in the back plate for maximum access flexibility.

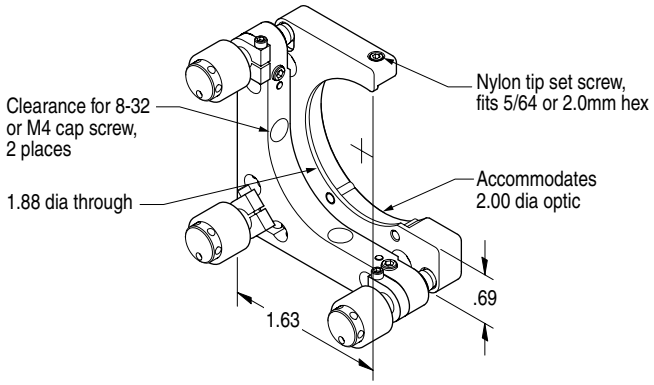
All models use our SoftTouch™ color coded knob caps for easy axis identification in low light conditions.

Industrial Grade — 2-inch Optic

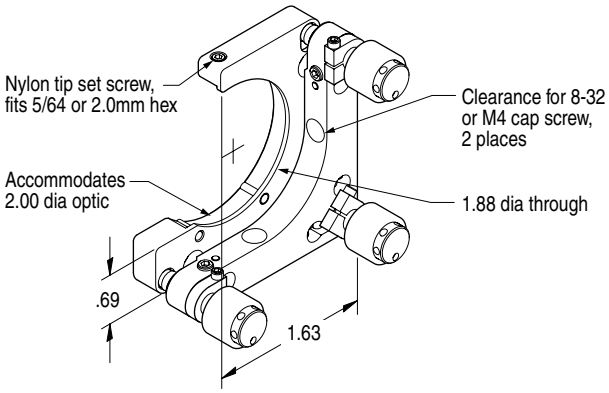
3-axis / IM200.3 Series



IM200.A3



IM200.C3

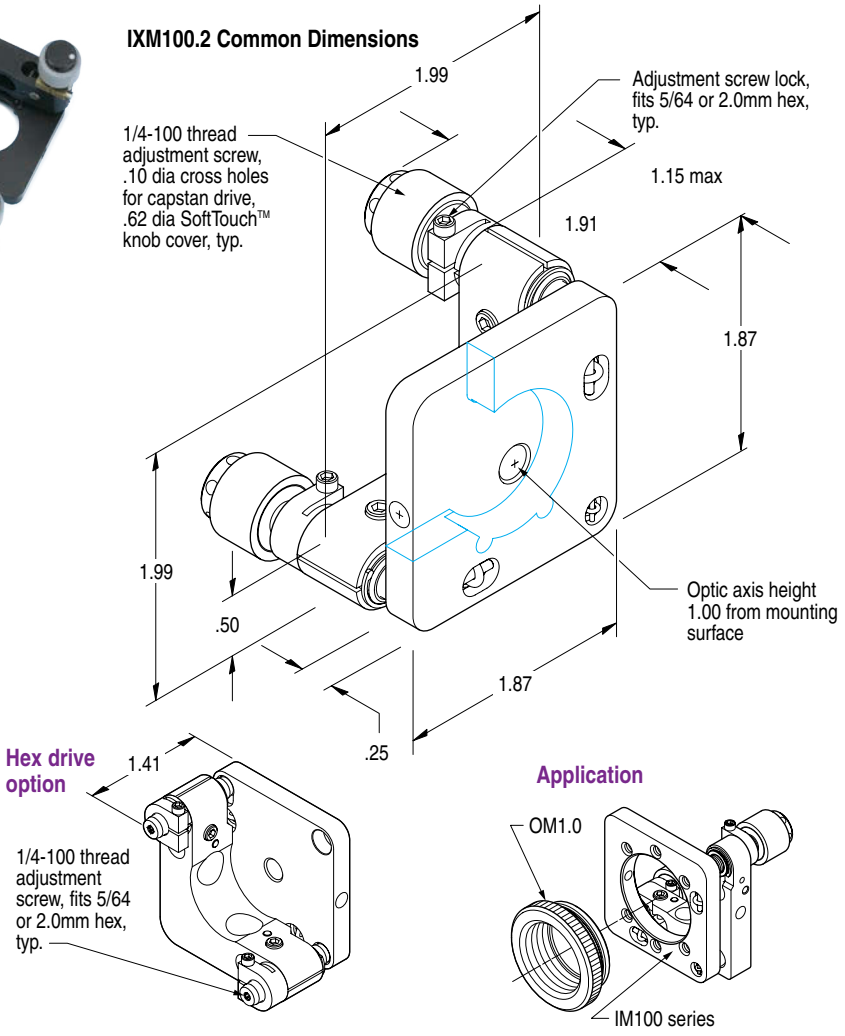


IM200.C3L

eXtreme Grade — 1-inch Optic

2-axis / IXM100.2

IXM100.2 Series



Product Features

- 100 pitch lockable adjustment screws
- Color coded axis knobs
- Patented spring-loaded pivot point
- Vacuum compatible versions available upon request

Performance Specifications

Travel / axis	8°
Minimum controllable motion	3.8 arc sec.

Related Products

AS spacers	110
PR precision rods	132
RTC-0.5 clamp	132
IM100.H horizontal adapter	222
OMH series & OM1.0 optic mounts	247
T-1 prism clamp	251
SF spatial filter objective	291

Order Information

industrial mount, 100TPI, platform	IXM100.P2
industrial mount, 100TPI, microscope objective	IXM100.M2
industrial mount, 100TPI, 1.0" optic	IXM100.A2
industrial mount, 100TPI, 1.25" through aperture	IXM100.T2
industrial mount, 100TPI, 1.0" optic cutaway, right hand side	IXM100.C2
industrial mount, 100TPI, 1.0" optic cutaway, left hand side	IXM100.C2L

Hex Drive Option — for hex drive on this product, add '-H' after Model Number.

Industrial *eXtreme* Mounts

These Industrial *eXtreme* optical mounts offer the most stability found in the industry with a wide variety of flexible options. Our IXM100 series mounts use precision rolled 100TPI adjustment screws for excellent resolution and feel in the hand. The solid 5/8-inch thick aluminum back plate offers two 1/4-20 [M6] mounting options for right or left hand compatibility. Our unique spring-loaded pivot (pat.# 6590723) ensures a stability that far exceeds other mounts.

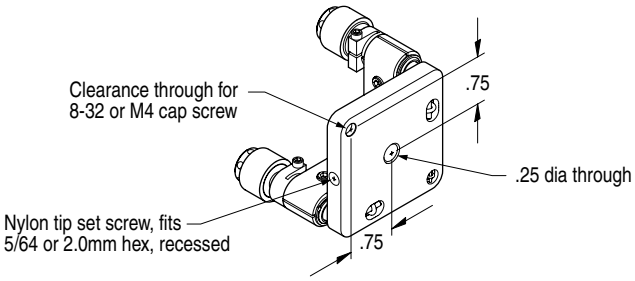
Our IXM100 series mounts use a full "L" cutaway back for maximum clear aperture. Within the back plate we use our lockable 100TPI adjustment screws with hardened steel balls that run on carbide pads to provide stable movement. These adjustment screws incorporate our *one wrench* design for capstan adjustment and locking. The unique collet design incorporates a split clamp for presetting the feel of the adjustment screw, as well as locking. If the location of the locking screw is not desirable, simply back it out and replace in the opposite side. The 100TPI collars also can be rotated in the back plate for maximum access flexibility.

All models use our SoftTouch™ color coded knob caps for easy axis identification in low light conditions.

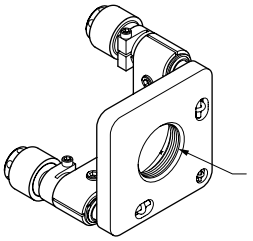
eXtreme Grade

1-inch Optic

2-axis / IXM100.2

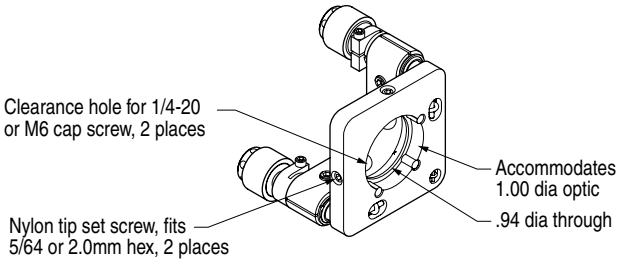


IXM100.P2



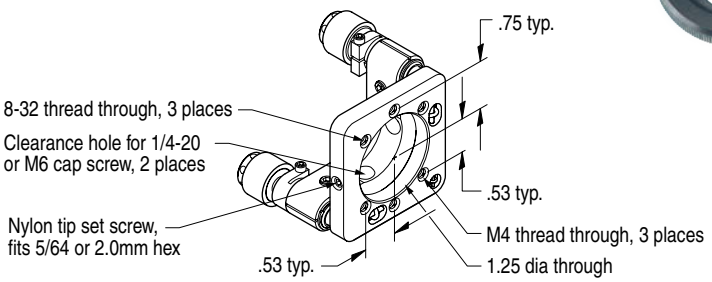
SF Objective

IXM100.M2



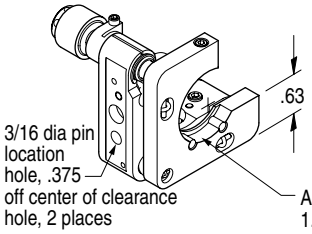
OM1.0

IXM100.A2

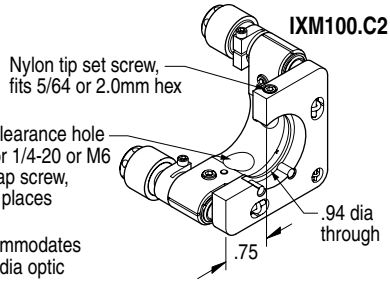


IXM100.T2

IXM100.C2L



IXM100.C2

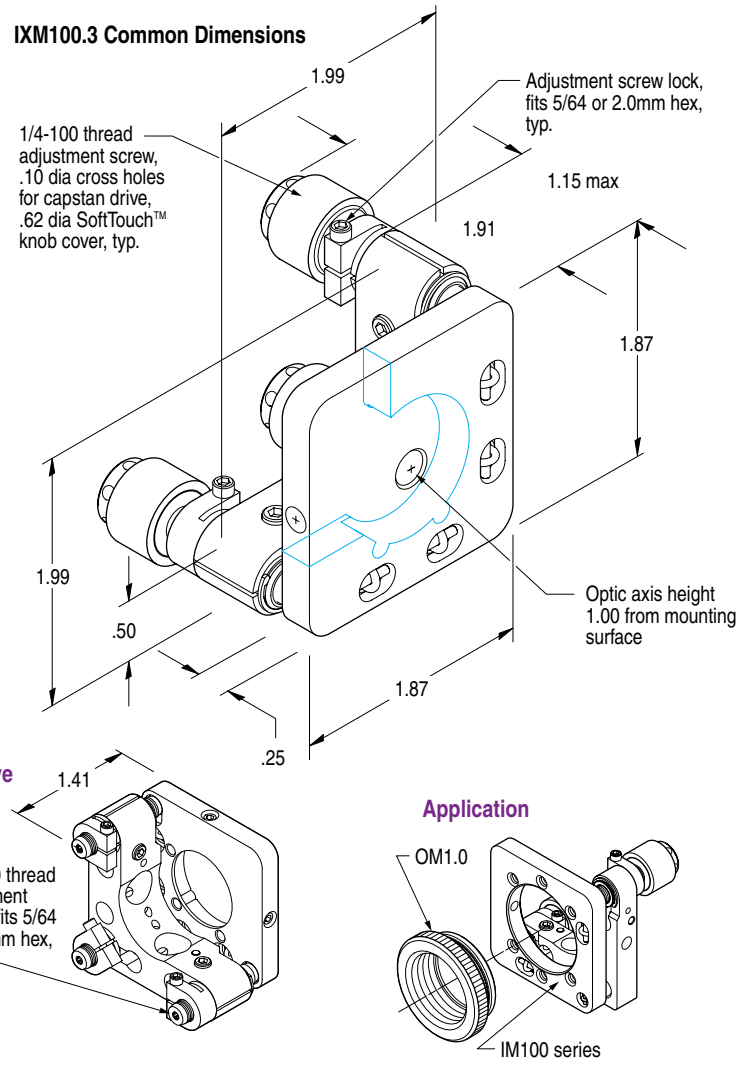


IXM100.C2

eXtreme Grade — 1-inch Optic

3-axis / IXM100.3

IXM100.3 Series



Product Features

- 100 pitch lockable adjustment screws
- Color coded axis knobs
- Third axis adjustment
- Vacuum compatible versions available upon request

Performance Specifications

Travel / axis	8°
Minimum controllable motion	3.8 arc sec.

Related Products

AS spacers	110
PR precision rods	132
RTC-0.5 clamp	132
IM100.H horizontal adapter	222
OMH series & OM1.0 optic mounts	247
T-1 prism clamp	251
SF spatial filter objective	291

Order Information

industrial mount, 100TPI, platform	IXM100.P3
industrial mount, 100TPI, microscope objective	IXM100.M3
industrial mount, 100TPI, 1.0" optic	IXM100.A3
industrial mount, 100TPI, 1.25" through aperture	IXM100.T3
industrial mount, 100TPI, 1.0" optic cutaway, right hand side	IXM100.C3
industrial mount, 100TPI, 1.0" optic cutaway, left hand side	IXM100.C3L

Hex Drive Option — for hex drive on this product, add '-H' after Model Number.

Industrial *eXtreme* Mounts

These Industrial *eXtreme* optical mounts offer the most stability found in the industry with a wide variety of flexible options. Our IXM100 series mounts use precision rolled 100TPI adjustment screws for excellent resolution and feel in the hand. The solid 5/8-inch thick aluminum back plate offers two 1/4-20 [M6] mounting options for right or left hand compatibility.

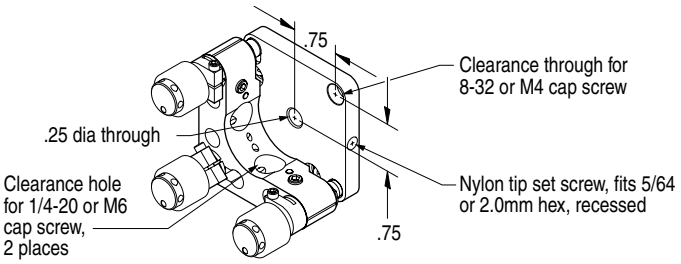
Our IXM100 series mounts use a full "L" cutaway back for maximum clear aperture. Within the back plate we use our lockable 100TPI adjustment screws with hardened steel balls that run on carbide pads to provide stable movement. These adjustment screws incorporate our *one wrench* design for capstan adjustment and locking. The unique collet design incorporates a split clamp for presetting the feel of the adjustment screw, as well as locking. If the location of the locking screw is not desirable, simply back it out and replace in the opposite side. The 100TPI collars also can be rotated in the back plate for maximum access flexibility.

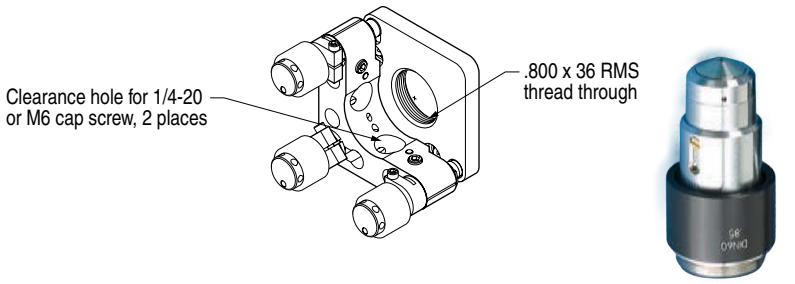
All models use our SoftTouch™ color coded knob caps for easy axis identification in low light conditions.

eXtreme Grade

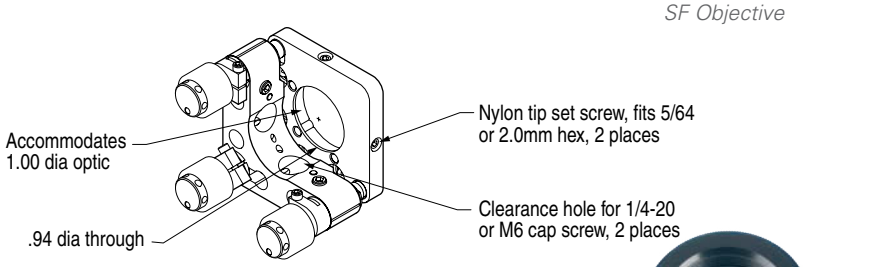
1-inch Optic

3-axis / IXM100.3

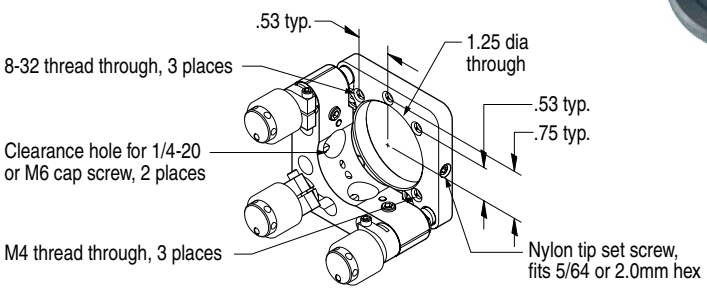




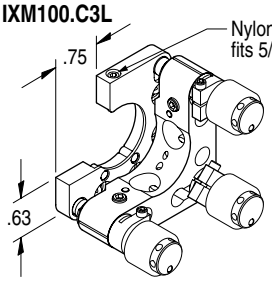
SF Objective



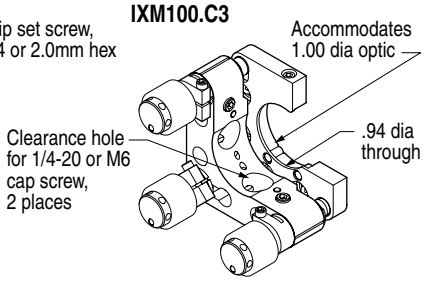
OM1.0



IXM100.C3L



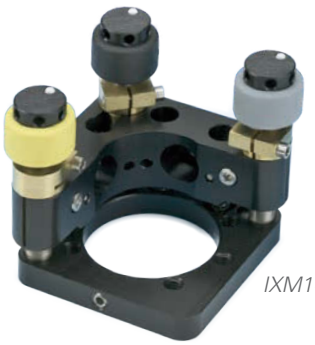
IXM100.C3



IXM100.P3

IXM100.M3

IXM100.A3



IXM100.T3

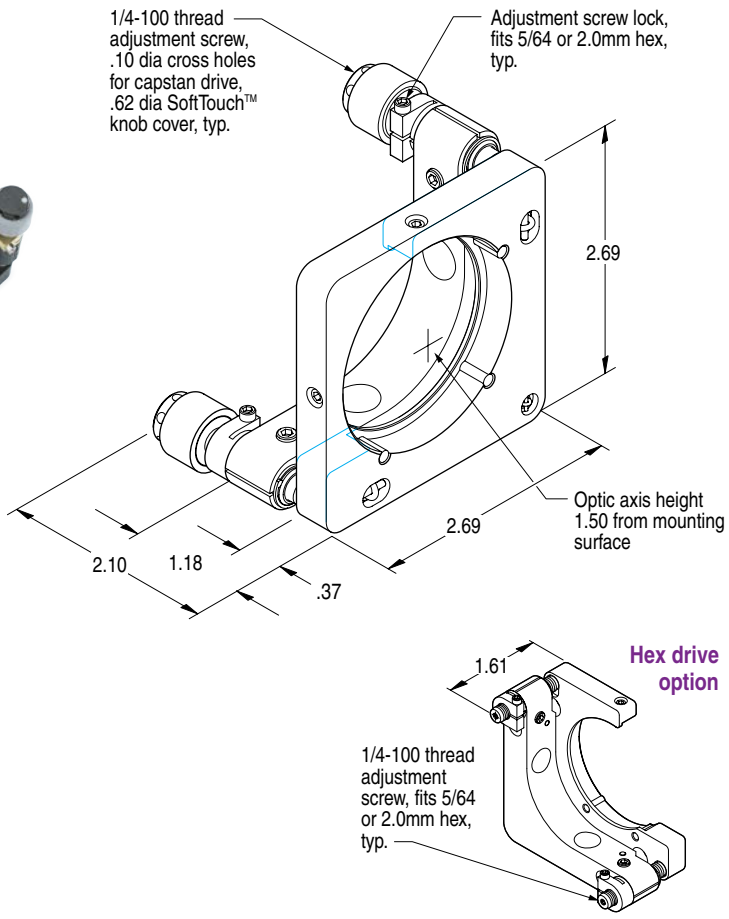
IXM100.C3

eXtreme Grade — 2-inch Optic

2-axis / IXM200.2

IXM200.2 Series

IXM200.2 Common Dimensions



Product Features

- 100 pitch lockable adjustment screws
- Color coded axis knobs
- Patented spring-loaded pivot point
- Vacuum compatible versions available upon request

Performance Specifications

Travel / axis	8°
Minimum controllable motion	2.5 arc sec.

Related Products

AS spacers	110
PR precision rods	132

Order Information

industrial mount, 100TPI, 2.0" optic	IXM200.A2
industrial mount, 100TPI, 2.0" optic cutaway, right hand side	IXM200.C2
industrial mount, 100TPI, 2.0" optic cutaway, left hand side	IXM200.C2L

Hex Drive Option — for hex drive on this product, add '-H' after Model Number.

Industrial *eXtreme* Mounts

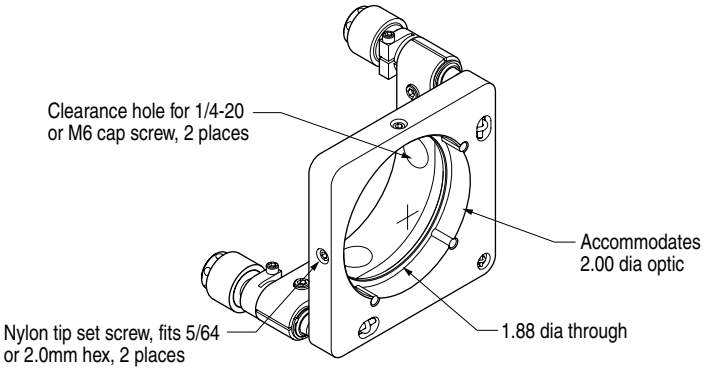
These Industrial *eXtreme* optical mounts offer the most stability found in the industry with a wide variety of flexible options. Our IXM200 series mounts use precision rolled 100TPI adjustment screws for excellent resolution and feel in the hand. The solid 5/8-inch thick aluminum back plate offers two 1⁄4-20 [M6] mounting options for right or left hand compatibility. Our unique spring-loaded pivot (pat.# 6590723) ensures a stability that far exceeds other mounts.

Our IXM200 series mounts use a full "L" cutaway back for maximum clear aperture. Within the back plate we use our lockable 100TPI adjustment screws with hardened steel balls that run on carbide pads to provide stable movement. These adjustment screws incorporate our *one wrench* design for capstan adjustment and locking. The unique collet design incorporates a split clamp for presetting the feel of the adjustment screw, as well as locking. If the location of the locking screw is not desirable, simply back it out and replace in the opposite side. The 100TPI collars also can be rotated in the back plate for maximum access flexibility.

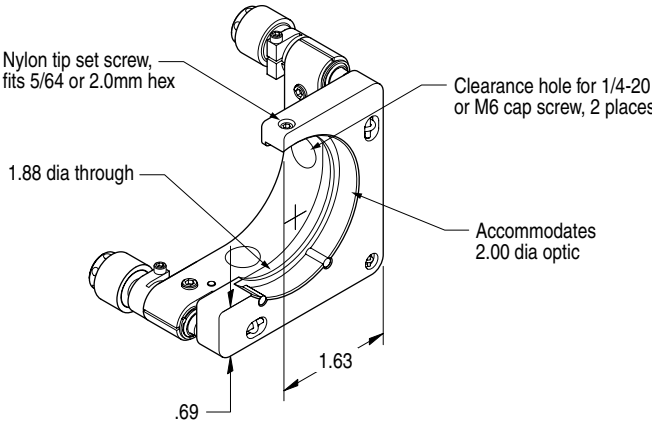
All models use our SoftTouch™ color coded knob caps for easy axis identification in low light conditions.

eXtreme Grade — 2-inch Optic

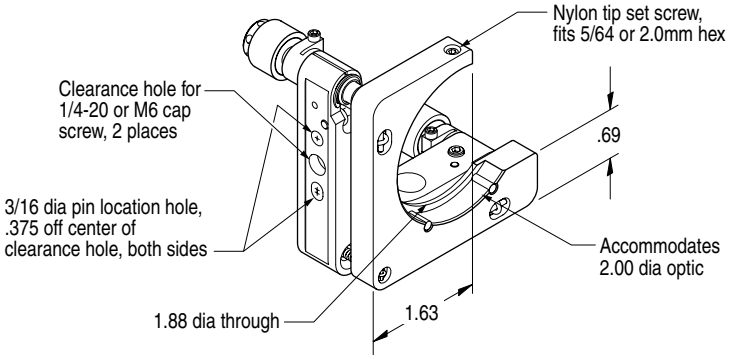
2-axis / IXM200.2



IXM200.A2



IXM200.C2



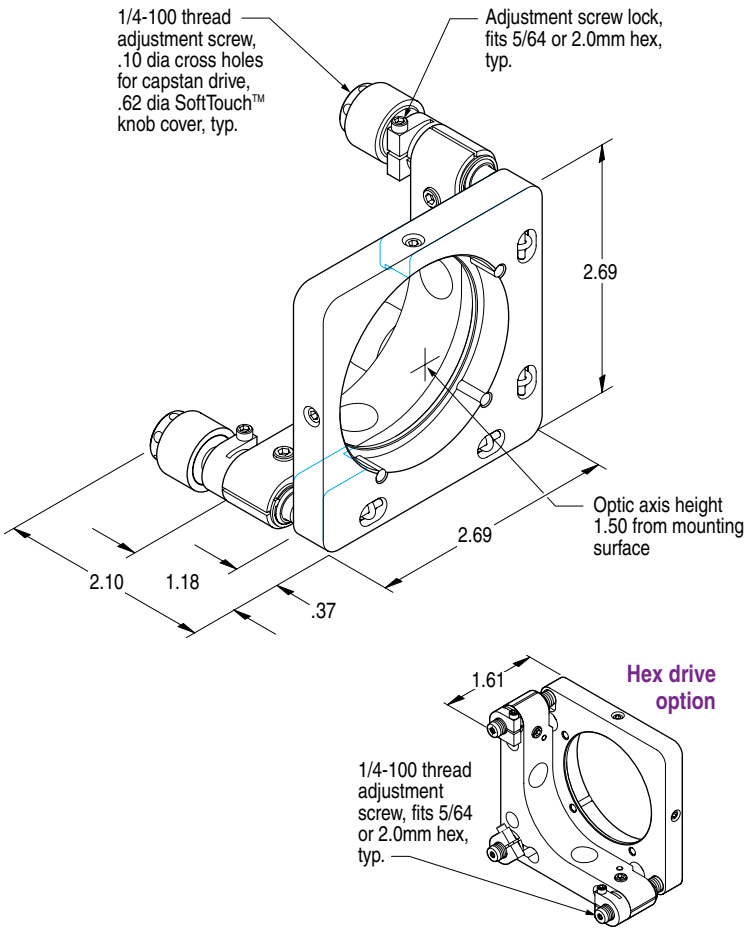
IXM200.C2L

eXtreme Grade — 2-inch Optic

3-axis / IXM200.3

IXM200.3 Series

IXM200.3 Common Dimensions



Product Features

- 100 pitch lockable adjustment screws
- Color coded axis knobs
- Third axis adjustment
- Vacuum compatible versions available upon request

Performance Specifications

Travel / axis	8°
Minimum controllable motion	2.5 arc sec.

Related Products

AS spacers	110
PR precision rods	132

Order Information

industrial mount, 100TPI, 2.0" optic	IXM200.A3
industrial mount, 100TPI, 2.0" optic cutaway, right hand side	IXM200.C3
industrial mount, 100TPI, 2.0" optic cutaway, left hand side	IXM200.C3L

Hex Drive Option — for hex drive on this product, add '-H' after Model Number.

Industrial *eXtreme* Mounts

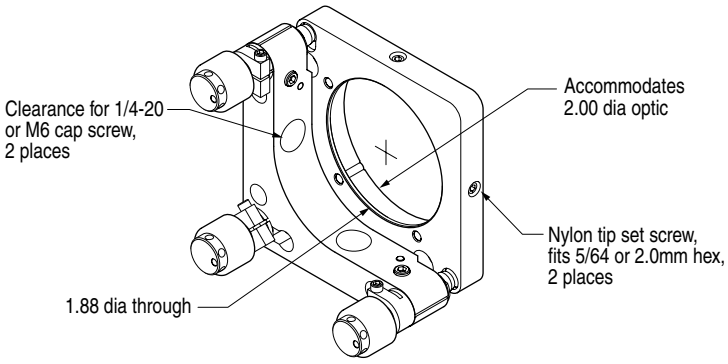
These Industrial *eXtreme* optical mounts offer the most stability found in the industry with a wide variety of flexible options. Our IXM200 series mounts use precision rolled 100TPI adjustment screws for excellent resolution and feel in the hand. The solid 5/8-inch thick aluminum back plate offers two 1/4-20 [M6] mounting options for right or left hand compatibility.

Our IXM200 series mounts use a full "L" cutaway back for maximum clear aperture. Within the back plate we use our lockable 100TPI adjustment screws with hardened steel balls that run on carbide pads to provide stable movement. These adjustment screws incorporate our *one wrench* design for capstan adjustment and locking. The unique collet design incorporates a split clamp for presetting the feel of the adjustment screw, as well as locking. If the location of the locking screw is not desirable, simply back it out and replace in the opposite side. The 100TPI collars also can be rotated in the back plate for maximum access flexibility.

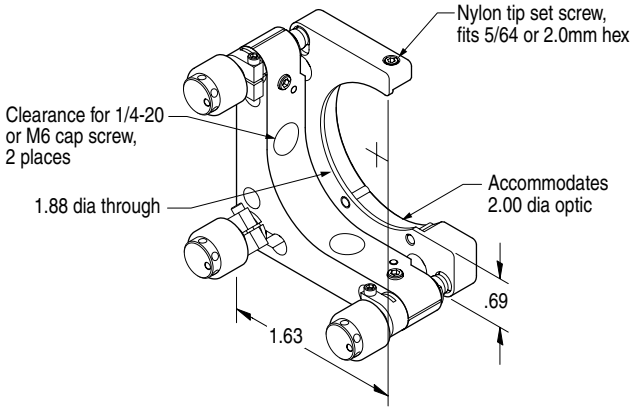
All models use our SoftTouch™ color coded knob caps for easy axis identification in low light conditions.

eXtreme Grade — 2-inch Optic

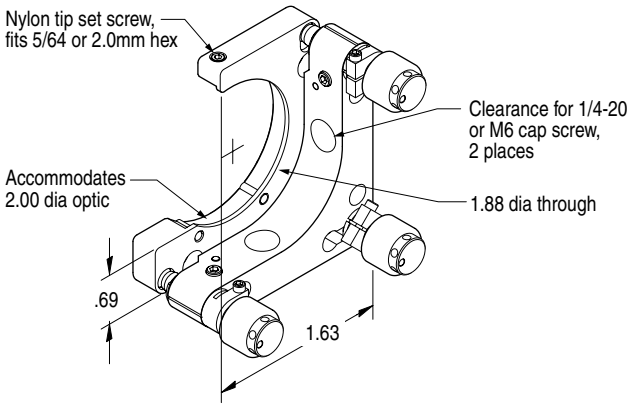
3-axis / IXM200.3



IXM200.A3



IXM200.C3

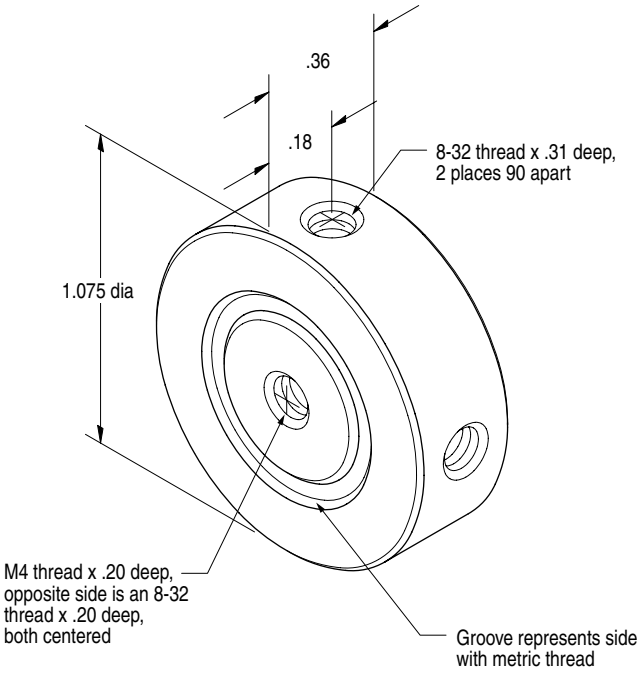


IXM200.C3L

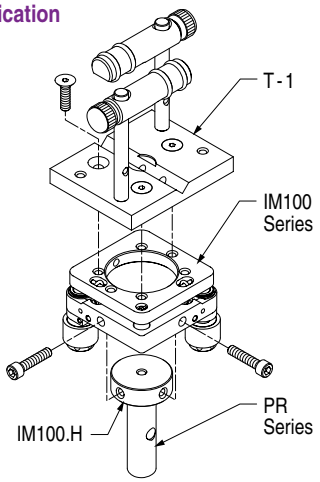
Horizontal Adapter

IM100 Series compatible / IM100.H

IM100.H



Application



Product Features

- Metric or U.S. system thread attachment
- Compatible with IM series mounts
- Mounting hardware included
- Vacuum compatible versions available upon request

Related Products

IM100 series mirror mounts 206

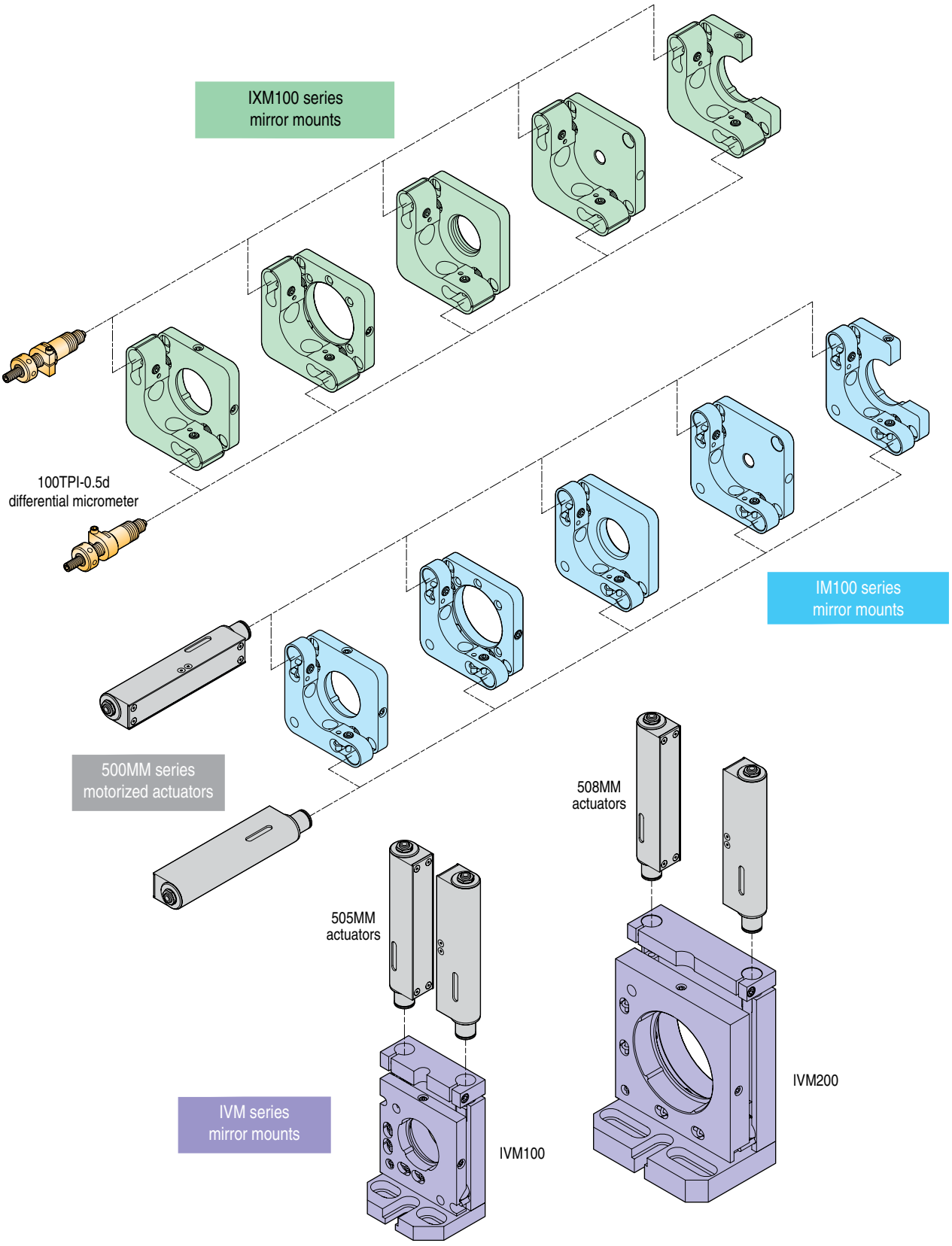
Order Information

industrial mount, horizontal adapter	IM100.H

Industrial Mount Adapter

The IM100.H is designed as a horizontal adapter for our IM100 series industrial mounts. This simple adapter is designed to be mounted in the back plate of the IM100 series mounts and enables the mount to be used horizontally as a tilt table or mounted to a flat panel. The IM100.H uses two 8-32 button head screws, included, to attach it to the mirror mount back plate. The IM100.H is tapped for metric (M4) or U.S. system (8-32) mounting.

Applications



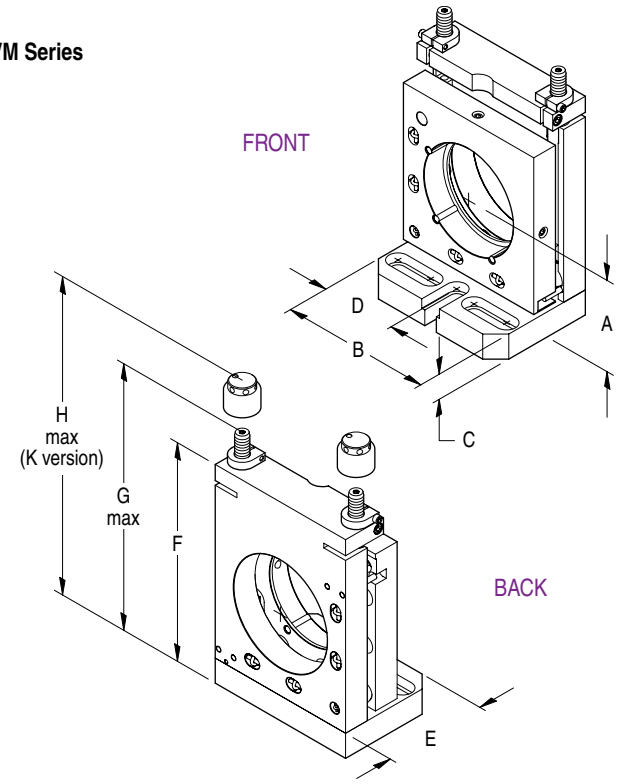
Mirror Mounts

Top Adjusted

0.5- to 2.0-inch optic / IVM100 Series

IVM Series

IVM Series



Model Name	Optic Size	Dimension A	B	C	D	E	F	G	H
IVM100.5	.50	1.00	1.00	.29	.50	.98	1.94	2.10	2.60
IVM 100	1.00	1.50	2.00	.31	1.00	1.48	3.10	3.53	4.07
IVM200	2.00	2.13	3.00	.50	1.50	2.06	4.36	4.87	5.41

Product Features

- Zero-crosstalk
- 100TPI adjustment screws
- Patented spring-loaded design
- Vacuum compatible versions available upon request

Performance Specifications

Travel / axis	8°
Minimum controllable motion	
IVM100.5	7.9 arc sec.
IVM100	3.8 arc sec.
IVM200	2.3 arc sec.

Related Products

AS spacers	110
PR precision rods	132

Order Information

0.5-inch mirror mount, top adjust	IVM100.5
1.0-inch mirror mount, top adjust	IVM100
2.0-inch mirror mount, top adjust	IVM200

Knob Option — for SoftTouch™ knob features on this product, add '/K' after Model Number.

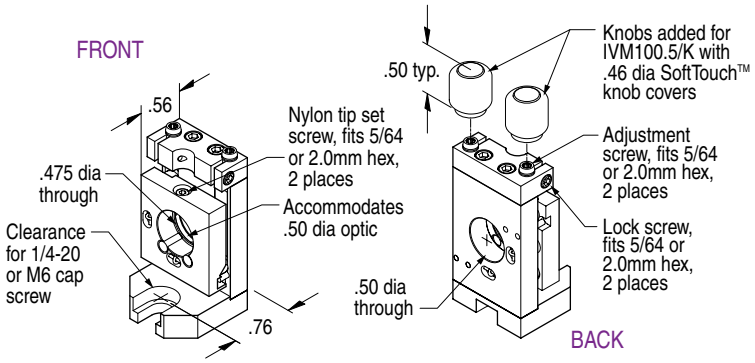
Top Adjusted Mirror Mounts

These top adjusted or vertical optical mounts have our unique zero-crosstalk system that guarantees true orthogonal motion between the tip and tilt axes. By using our patented spring-loaded pivot (pat.# 6590723), these mounts are the most stable in the industry, far exceeding other mounts. Parallel stainless steel guide rods constrain adjustment screw travel, eliminating crosstalk. Our IVM series mounts use precision rolled 100TPI adjustment screws for excellent resolution and touch. They come with either 5/64 hex adjustments or capstan knob caps with SoftTouch™ covers. Like all of our "**I**" series mounts, the IVMs use our *one wrench* design that allows the user to secure the optic, orient the adjustment locks, adjust the optic position, and lock the mount all with one wrench. These mounts come in three sizes: 0.5 inch, 1.0 inch, and 2.0 inch, with other sizes and configurations available upon request.

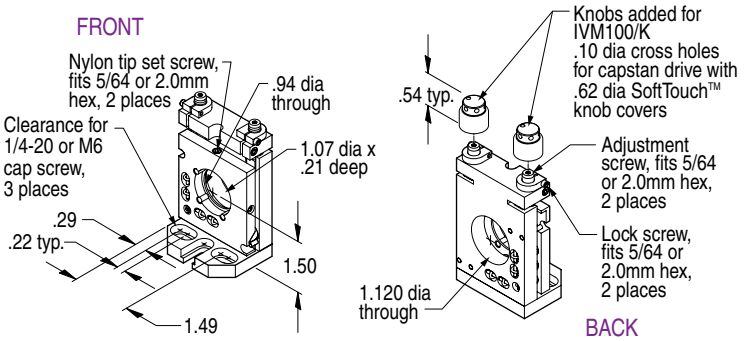
Top Adjusted

0.5- to 2.0-inch optic / IVM100 Series

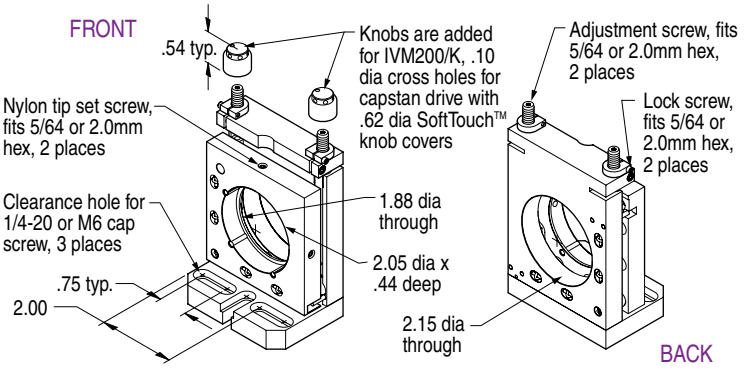
IVM100.5



IVM100



IVM200

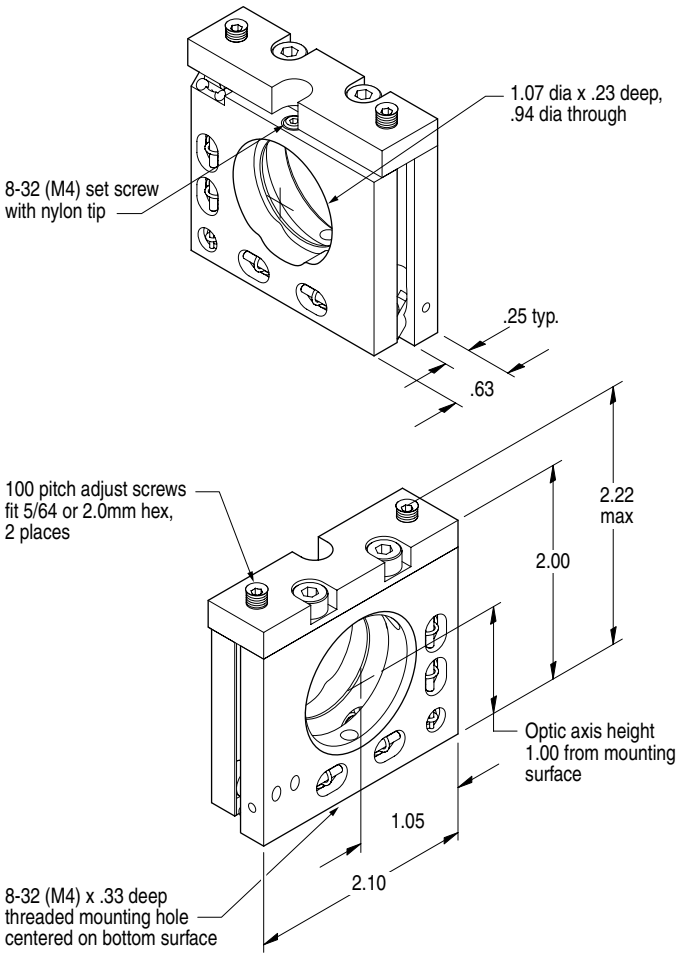


Compact Vertical Mount

1.0-inch optic / CVM100

Note that dimensions in parentheses (mm) reflect metric assembly features

CVM100



Product Features

- Low profile
- 100TPI adjustment screws
- Patented pivot design
- UV compatible versions available upon request

Performance Specifications

Pitch	7°
Yaw	6°
Minimum controllable motion	
Pitch	4.6 arc sec.
Yaw	3.6 arc sec.

Related Products

PR precision rods	132
RTC-0.5 clamp	132

Order Information

compact vertical mount, 1.0 inch optic	CVM100

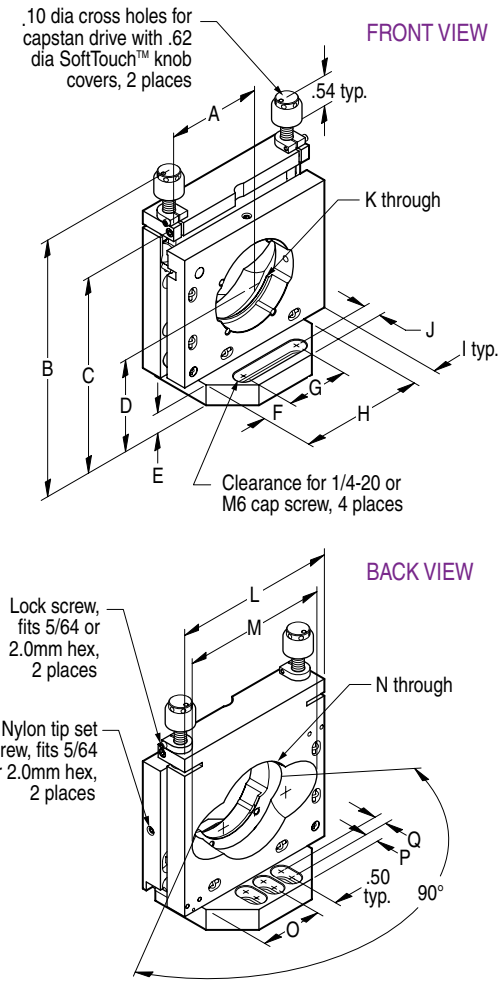
Metric Option — for metric assembly features on this product, add '-M' after model number.

Compact Vertical Mount

The CVM100 is a low profile version of our popular IVM100 series mirror mount. The new compact design is ideal for applications in which space or height is critical. The optical axis height is 1.00 inch from the mounting surface. It incorporates our unique zero-crosstalk system that guarantees true orthogonal motion between the tip and tilt axes. 100TPI adjustment screws are used to control the fine pitch/yaw resolution of this mount, and the screws are swaged at the top to prevent over-adjustment. To ensure rock-solid stability we incorporate our patented spring-loaded pivot (pat# 6590723) with four other springs that are aligned with the individual axes of rotation.

Beamsplitter Mount

1.0- and 2.0-inch optic / IVM100 and IVM200



Dimen. letter	1.00 optic	2.00 optic
A	1.32	1.98
B	4.07	5.46
C	3.10	4.36
D	1.50	2.13
E	.31	.50
F	.58	.75
G	1.00	1.50
H	2.15 x 2.10	3.00 x 2.94
I	.25	.48
J	.33	.44
K dia	.94	1.88
L	2.64	3.96
M	1.77	3.53
N dia	1.12	2.15
O	1.08	1.50
P	.30	.32
Q	.10	.30

IVM100/bs and IVM200/bs

Beamsplitter Mount

Our new beamsplitter versions of our popular IVM series mounts incorporate large 45° clear aperture cutouts on the backplate and unique mounting plate configurations to facilitate mounting at various angles up to 45°. These top adjusted or vertical optical mounts have our unique zero crosstalk system that guarantees true orthogonal motion between the tip and tilt axes.

By using our patented spring-loaded pivot (pat.# 6590723), these mounts are the most stable in the industry, far exceeding other mounts. Our IVM series mounts use precision rolled 100TPI adjustment screws for excellent resolution and touch. They come with capstan knob caps with SoftTouch™ covers. Like all of our "**I**" series mounts, the IVMs use our *one wrench* design that allows the user to secure the optic, orient the adjustment locks, adjust the optic position, and lock the mount all with one wrench. These mounts come in two sizes: 1.0 inch, and 2.0 inch, with other sizes and configurations available upon request.

Product Features

- Large clear aperture
- Zero crosstalk
- Patented spring loaded design
- UV and Vacuum compatible versions available upon request

Performance Specifications

Travel / axis	8°
Minimum controllable motion	
IVM100/bs	3.8 arc sec.
IVM200/bs	2.3 arc sec.

Order Information

1.00 inch optic	IVM100/bs
2.00 inch optic	IVM200/bs

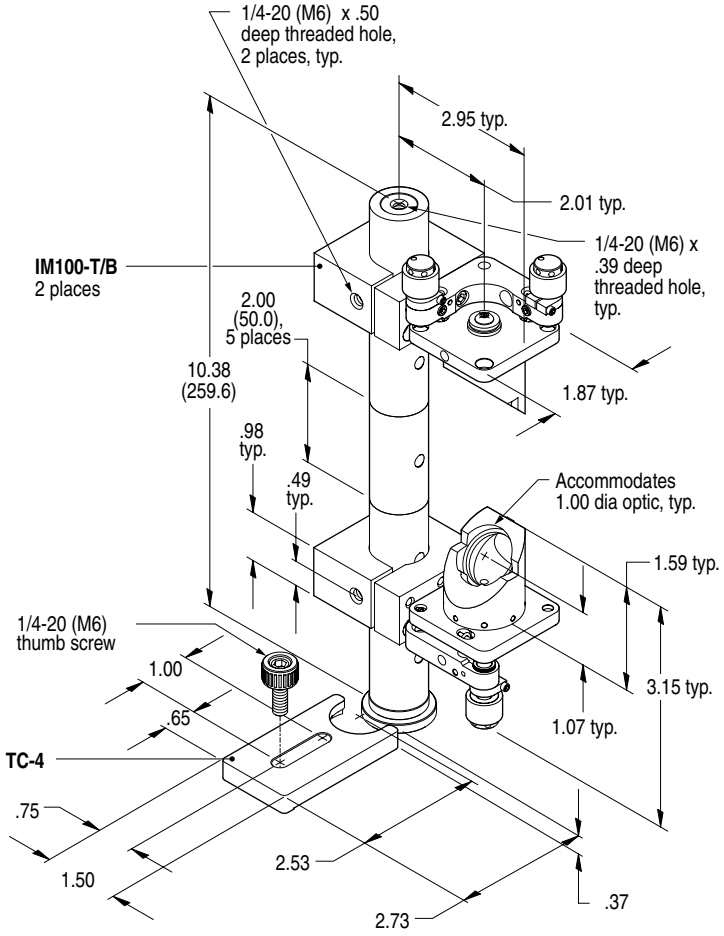
Periscope, Industrial Grade

1.0-inch optic / IM100 Series

Note that dimensions in parentheses (mm) reflect metric assembly features

TC-4 Table Clamp included in assembly

IM100-LPA Assembly



Product Features

- 1.0-inch tower design
- 100TPI tip/tilt adjustment
- Flexible fork clamp mounting
- Vacuum compatible versions available upon request

Performance Specifications

Travel / axis	8°
Minimum controllable motion	3.8 arc sec.

Related Products

AS spacers & clamps	beginning 110

Order Information

1.0 inch optic, LASER periscope assembly, industrial grade	IM100-LPA
1.0 inch optic, clamp/mirror mount/optic holder, individual unit for top or bottom mount	IM100-T/B

Metric Option — for metric assembly features on this product, add '-M' after model number.

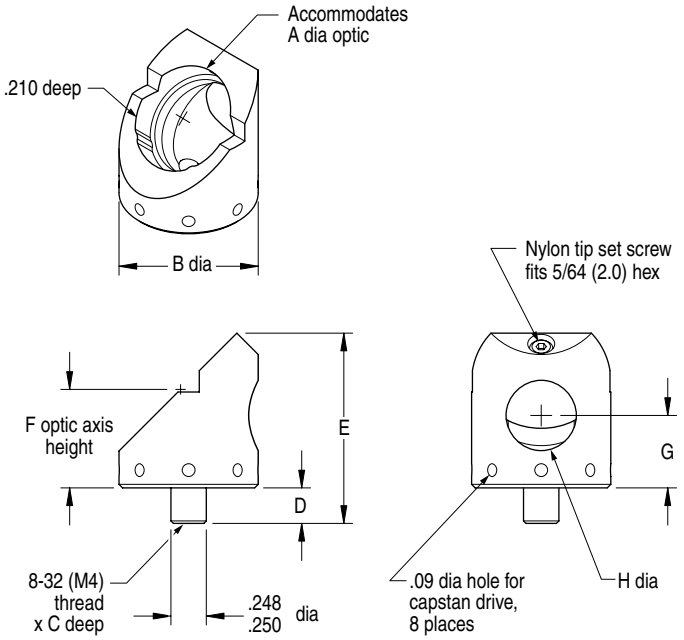
Industrial Grade LASER Periscope Mount

Our periscope assembly combines our industrial grade IM100 series mounts, AS series spacers, AS-C clamp, and TC-4 clamp fork to create a beam steering periscope, perfect for introducing a free-space beam into a microscope experiment. The combination of these robust components creates a very stable and flexible mounting platform. The IM100 series mounts have our patented spring-loaded pivot (pat.# 6590723) and a unique 45° optic holder that uses our capstan drive design to rotate the optic while keeping your fingers out of the beam path. The AS series spacers are 2.0 inch in length and can be added for more height. The AS-C clamp is design to fit our AS series spacers and has 1/4-20 (M6) and 8-32 (M4) attachments on four sides. The TC-4 fork clamp allows the user to position the periscope assembly anywhere on the isolation table top — even between the mounting holes.

45-degree Adapters

0.5- to 1.0-inch optic / OMH/45 Series

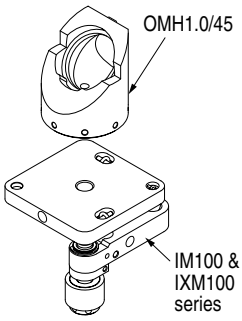
Note that dimensions in parentheses (mm) reflect metric assembly features



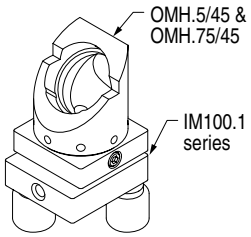
OMH Series

Model	A	B	C	D	E	F	G	H
OMH.5/45	.500	.980	.30	.250	1.34	.750	.590	.375
OMH.75/45	.750	.980	.30	.250	1.34	.693	.510	.500
OMH1.0/45	1.000	1.360	.37	.375	1.96	1.070	.880	.700

Application



Application



The OMH series of 45° optic adapters is designed to mount into our full range of mirror mounts including the IM100 and IXM100 series. Their simple design enables the experimenter to build adjustable periscope assemblies for 0.5-inch (12-mm), 0.75-inch (19-mm), or 1.0-inch (25-mm) mirrors. They use a single 8-32 (M4) nylon tipped set screw to securely hold the mirror in place without damaging it. All models incorporate our *one wrench* design, in which the same wrench is used to lock the optic in place and adjust the angle of the adapter via the series of capstan holes around the circumference of the adapter.

Product Features

- 0.5-, 0.75- and 1.0-inch adapter
- Hex screw for easy mirror replacement
- Compatible with RM and IM series mounts
- Vacuum compatible versions available upon request

Related Products

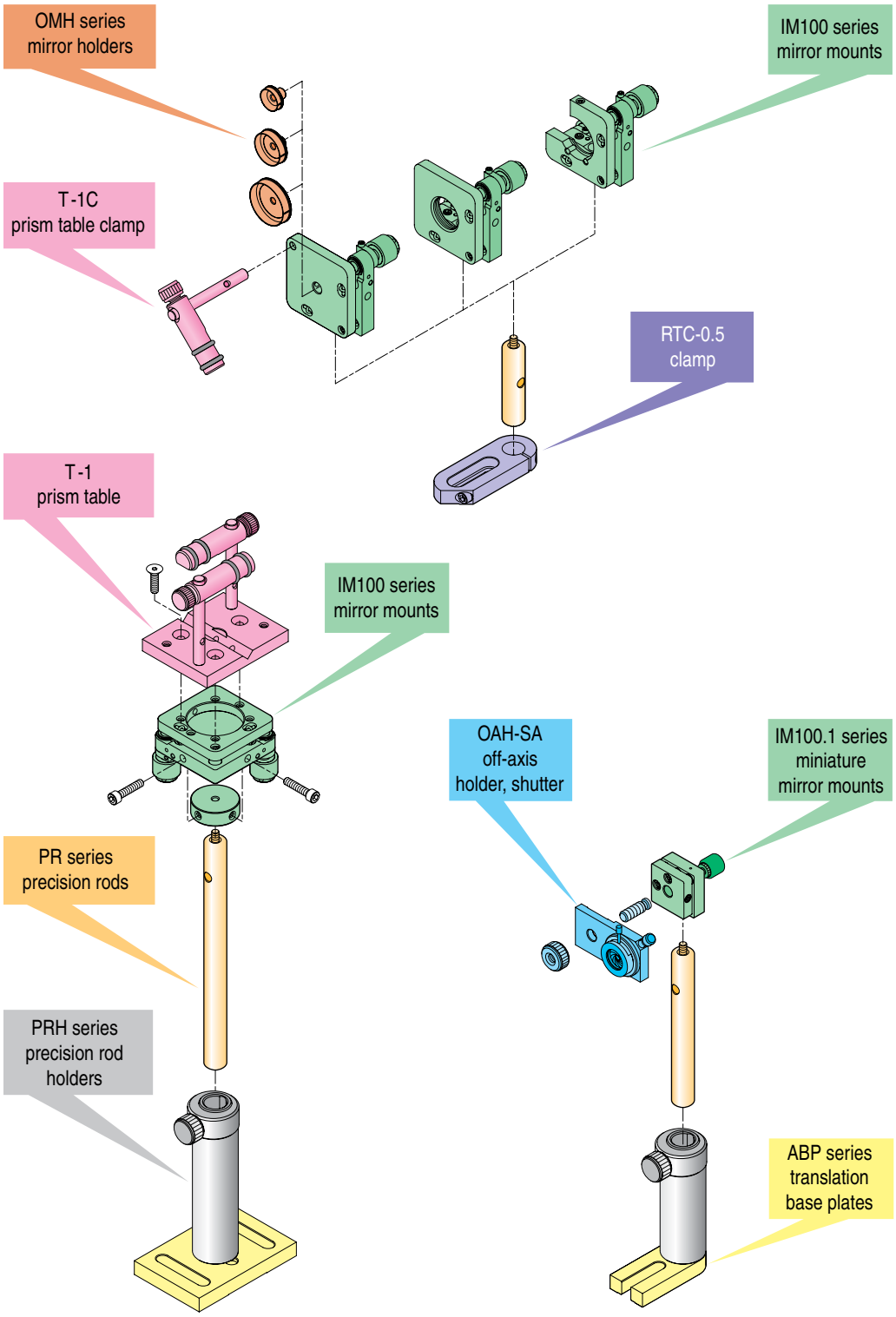
IM100.P2 mirror mount	206
IM100.P3 mirror mount	208
IXM100.P2 industrial mount	214
IXM100.P industrial mount	216
IM100.1 miniature mount	231
RM80-1 research mount	232
RM80-0.75 research mount	233

Order Information

45° mirror holder, 0.5 inch optic	OMH.5/45
45° mirror holder, 0.75 inch optic	OMH.75/45
45° mirror holder, 1.0 inch optic	OMH1.0/45

Metric Option — for metric assembly features on this product, add '-M' after model number.

Adapters & Related Products Applications

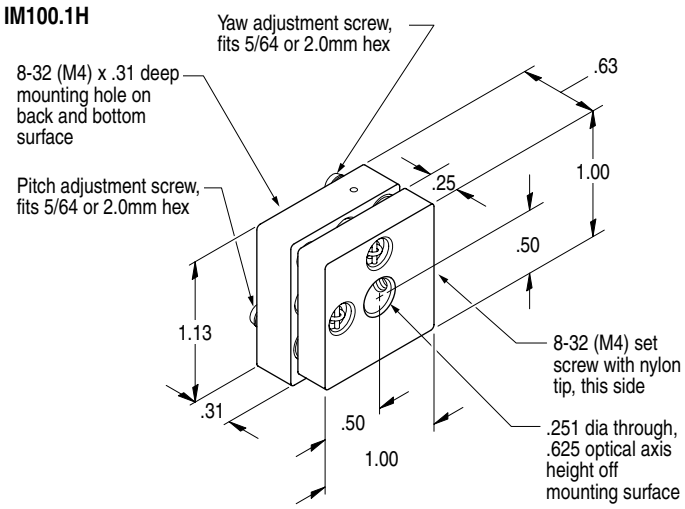


Miniature — .25-inch Optic

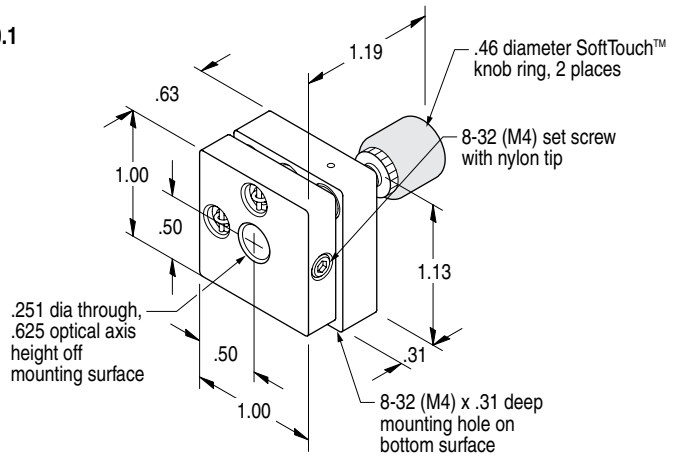
0.5–1.0-inch optic / IM100.1 Series

Note that dimensions in parentheses (mm) reflect metric assembly features

IM100.1H



IM100.1



IM100.1H

IM100.1

Industrial Mounts

Ideal for tight spaces, the IM100-1 and IM100-1H are designed to be used with our OMH series optical mirror holders. The 5/16-inch thick back plate uses 100TPI precision rolled adjustment screws with hardened steel balls that run on carbide pads to provide stable movement.

The adjustment knobs for the IM100-1 use our color coded SoftTouch™ knob caps for comfortable operation and easy axis recognition in low light conditions. A 5/16 hex wrench is used to adjust the IM100-1H, which minimizes inadvertent movement.

Both models have one 8-32 mounting hole on the edge of the back plate for vertical mounting and another 8-32 mounting hole on the face of the back plate for horizontal mounting on our PR or MPR series mounting rods.

Product Features

- 100 pitch adjustment screws
- SoftTouch™ or hex adjustment versions
- Vertical or horizontal mounting
- Vacuum compatible versions available upon request

Performance Specifications

Travel / axis	10°
Minimum controllable motion	8.3 arc sec.

Related Products

PR precision rods	132
MPR miniature precision rods	136
OMH1.0 mirror holder	247
OMH.75 mirror holder	247
OMH.5 mirror holder	247
optic mounts, OAH series	248
cross-reference table	302

Order Information

industrial mount, 100TPI, hex drive	IM100.1H
industrial mount, 100TPI, knob drive	IM100.1

Metric Option — for metric assembly features on this product, add '-M' after model number.

Mirror Mounts

Miniature

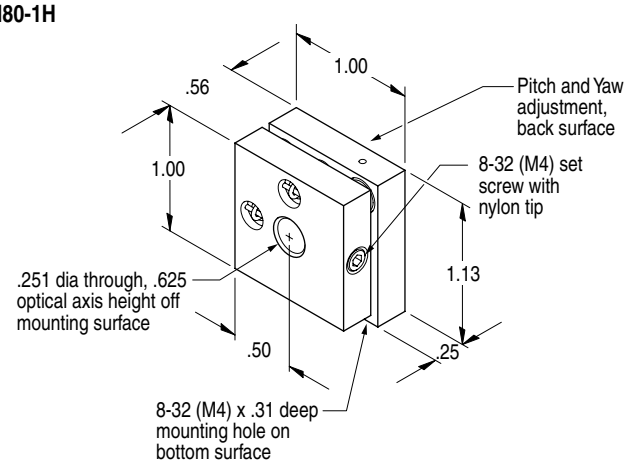
0.5–1.0-inch optic / RM80-1H

Note that dimensions in parentheses (mm) reflect metric assembly features

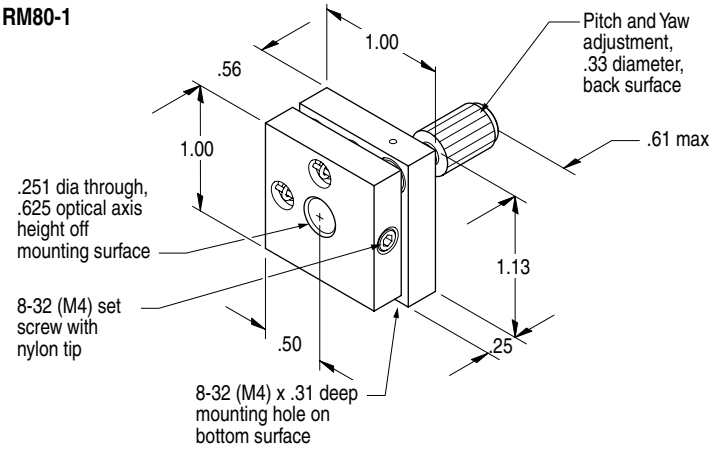
RM80-1H

RM80-1

RM80-1H



RM80-1



Product Features

- 80 pitch adjustment screws
- Knob or hex adjustment versions
- Vertical or horizontal mounting
- Vacuum compatible versions available upon request

Performance Specifications

Travel / axis	10°
Minimum controllable motion	10.4 arc sec.

Related Products

PR precision rods	132
MPR miniature precision rods	136
OMH1.0 mirror holder	247
OMH.75 mirror holder	247
OMH.5 mirror holder	247
OAH series optic mounts	248
cross-reference table	302

Order Information

research mount, 80TPI, hex drive	RM80-1H
research mount, 80TPI, knob drive	RM80-1

Metric Option — for metric assembly features on this product, add '-M' after model number.

Research Mounts

One of the smallest OEM mounts commercially available, the RM80-1 and RM80-1H are designed to be used with our OMH series optical mirror holders. The 1/4-inch thick back plate uses 80TPI precision rolled adjustment screws to provide stable movement.

The adjustment screws for the RM80-1 use knurled Delrin® screw caps to ensure non-slip finger adjustments. A 5/64 hex wrench is used to adjust the RM80-1H, which minimizes inadvertent movement.

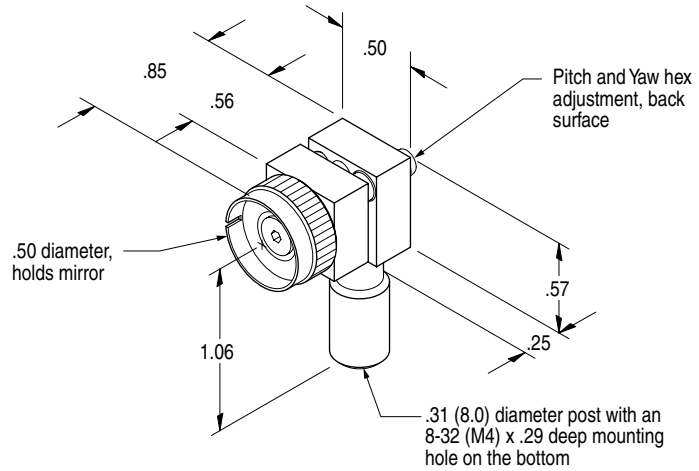
Both models have one 8-32 mounting hole on the edge of the back plate for vertical mounting and another 8-32 mounting hole centered on the face of the back plate for horizontal mounting on our PR or MPR series mounting rods.

Miniature

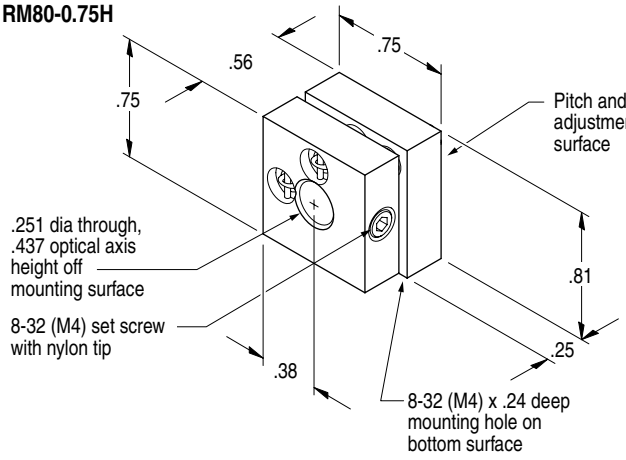
0.5- and 0.75-inch optic / RM80-0.5H and RM80-0.75H

Note that dimensions in parentheses (mm) reflect metric assembly features

RM80-0.5H



RM80-0.75H



RM80-0.5H

RM80-0.75H

Research Mounts

This is an ultra-stable miniature version of our RM series mirror mounts. These 0.75- and 0.50-inch models of our RM use the same precision rolled 80TPI adjustment screws for stable movement. A 5/64 hex wrench is used to adjust the hex drive screws on both models, which minimizes inadvertent movement from having two finger-adjusted control knobs in close proximity.

The RM80.75H is compatible with our OMH series optic holders, and the RM80.50H comes with its own mounting post and 0.5-inch optic holder. Both models have one 8-32 mounting hole on the edge of the back plate for vertical mounting and another 8-32 mounting hole centered on the face of the back plate for horizontal mounting on our PR or MPR series mounting rods.

Product Features

- 80 pitch adjustment screws
- Hex adjustment
- Vertical or horizontal mounting
- Vacuum compatible versions available upon request

Performance Specifications

Travel / axis	
RM80-0.5H	16°
RM80-0.75H	11°
Minimum controllable motion	
RM80-0.5H	22.8 arc sec.
RM80-0.75H	14.8 arc sec.

Related Products

PR precision rods	132
MPR miniature precision rods	136
OMH1.0 mirror holder	247
OMH.75 mirror holder	247
OMH.5 mirror holder	247

Order Information

research mount, 80TPI, hex drive	RM80-0.5H
research mount, 80TPI, hex drive	RM80-0.75H

Metric Option — for metric assembly features on this product, add '-M' after model number.

Mirror Mounts

Flexure Mounts Introduction

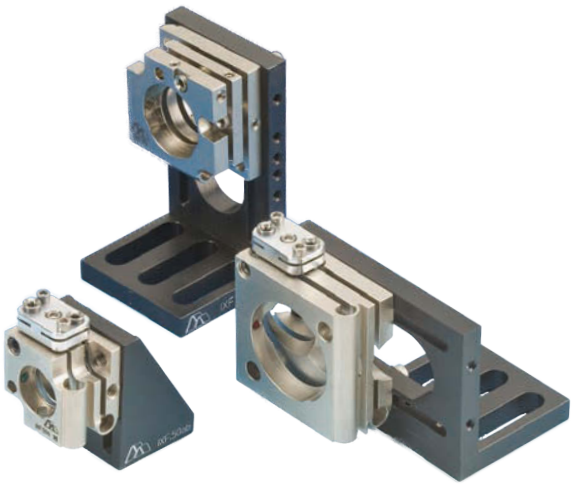
IXF.50mb monolithic mounting block

Siskiyou monolithic flexures are machined from a single piece of metal. Hex-adjust only, they are an ideal OEM component, not prone to accidental misalignment. Since they are not stamped, formed or welded, there are no built-in stresses. Rolled threads provide a silky-smooth adjustment feel to the #8 adjusters, which are swaged to prevent overtravel. They're available for 0.5", 0.75", 1.0" and 2.0" diameter optics, for both transmitted light and 45° beamsplitter applications.

Top adjust versions have a patent-pending mechanism to eliminate rotational torque being applied to the axis under adjustment. Designed to be either panel or bracket-mounted; Siskiyou flexures provide the ultimate in stability, even in challenging environments. The monolithic construction results in substantially better heat conduction from one side of the component to the other, for quicker response to changes in temperature.

IXF.50ti mounted to IXF.50mb

They have a hole pattern on the front to accommodate mounting objects other than standard sized optical elements. Aluminum versions are vacuum and UV-compatible out of the box at no extra charge. Nickel plated steel versions have greater mechanical stiffness — great if you're mounting something other than a typical optical element. Single-axis versions can be stacked to provide a wide variety of adjustment axis combinations. Custom / OEM versions available. The continually expanding line up of Siskiyou flexures — a robust choice for your OEM optical layout.



IXF series flexure mounts, mounted to related IXFab series angle brackets

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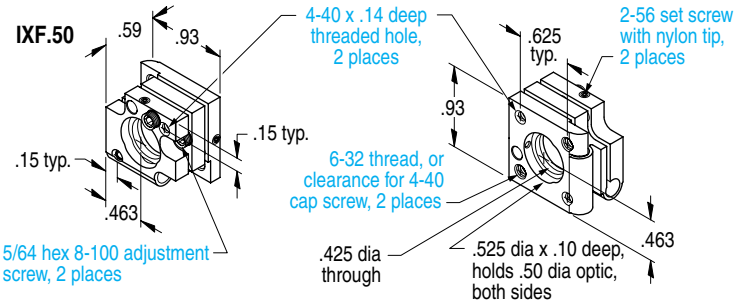
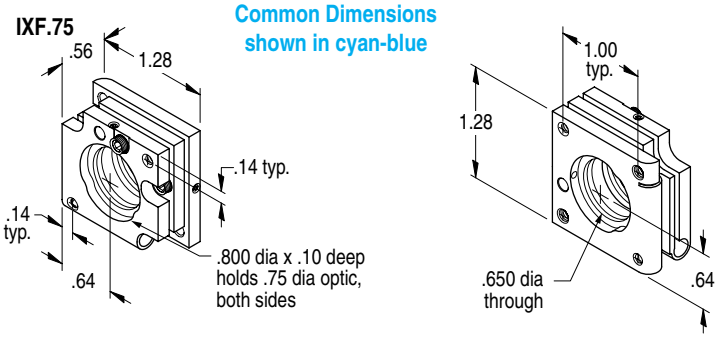
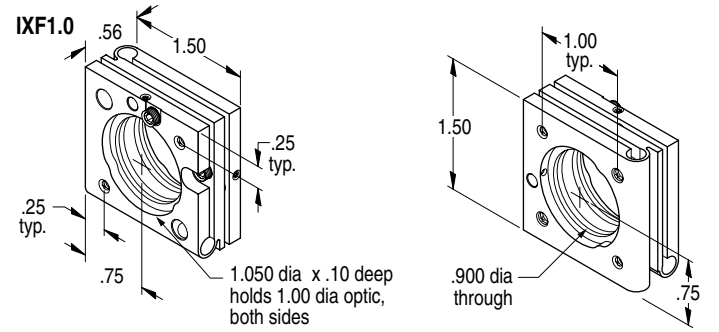
Flexure Mounts

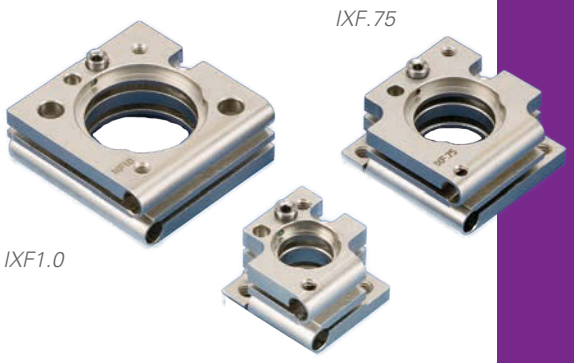
0.5- to 1.0-inch optic / IXF Series



Common Dimensions shown in cyan-blue







Product Features

- 100TPI adjustment screws
- One-piece construction
- Nickel plated

Performance Specifications

Model	Pitch	Yaw	Minimum controllable motion
IXF.50	6°	6°	8.2 arc sec.
IXF.75	6°	6°	5.5 arc sec.
IXF1.0	5°	5°	4.5 arc sec.

Related Products

IXFmb series mounting blocks	242
IXFab series angle brackets	246

Order Information

flexure mount, 0.5-inch optic	IXF.50
flexure mount, 0.75-inch optic	IXF.75
flexure mount, 1.0-inch optic	IXF1.0

Flexure Mounts

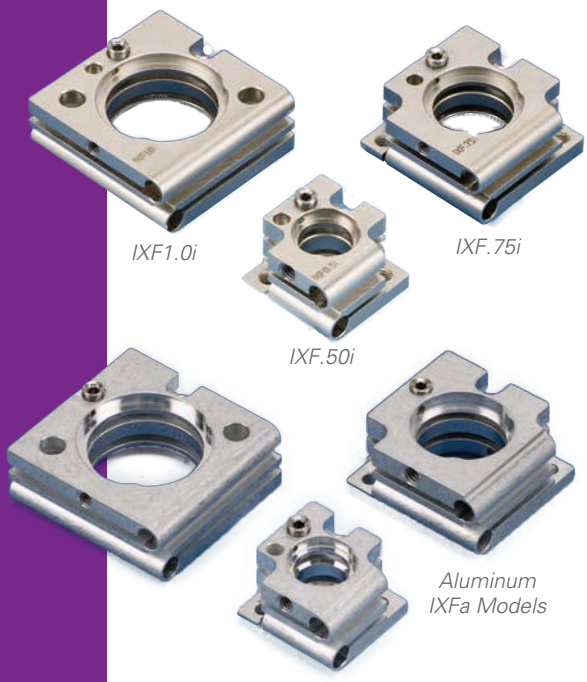
IXF series monolithic flexure mounts are specifically designed for OEM applications. They have a wide variety of optic mounting options, including bulkhead mounting as either a front adjusted or through-the-bulkhead adjusted mount. They use our 100TPI rolled thread adjustment screws for low stiction fine adjustments and are swaged at the end to prevent over-travel of the mount. The IXF series mounts are manufactured from one solid piece of spring steel, then nickel plated so they will not corrode and can be used in UV laser environments.

Mirror Mounts

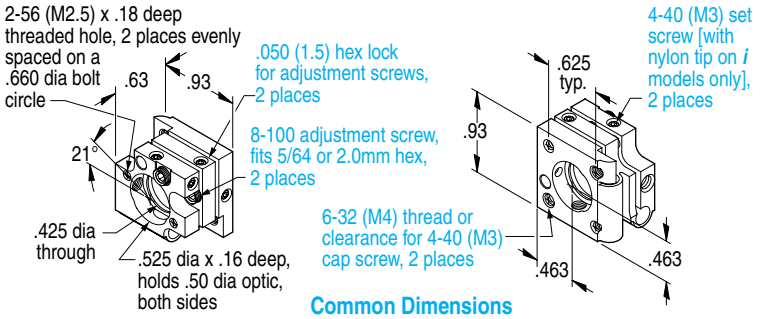
Flexure Mounts

0.5- to 1.0-inch optic / IXFi Series

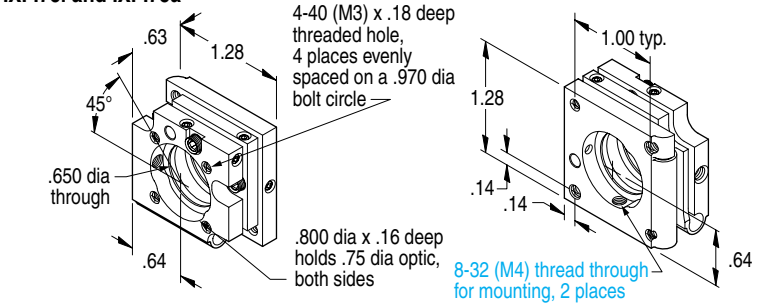
Note that dimensions in parentheses (mm) reflect metric assembly features



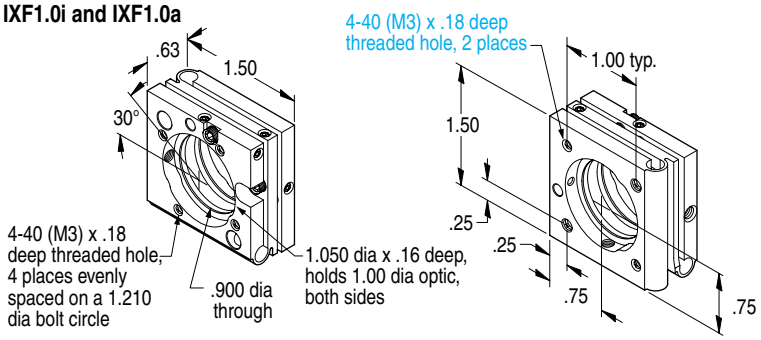
IXF.50i and IXF.50a



IXF.75i and IXF.75a



IXF1.0i and IXF1.0a



Product Features

- Lockable 100TPI adjustment screws
- One-piece construction
- Nickel plated
- UV and vacuum compatible versions available

Performance Specifications, also for *a* versions

Model	Pitch	Yaw	Minimum controllable motion
IXF.50i	6°	6°	8.2 arc sec.
IXF.75i	6°	6°	5.5 arc sec.
IXF1.0i	5°	5°	4.5 arc sec.

Related Products

IXFmb series mounting blocks	242
IXFab series angle brackets	246

Order Information

flexure mount, 0.5-inch optic	IXF.50i
flexure mount, 0.75-inch optic	IXF.75i
flexure mount, 1.0-inch optic	IXF1.0i
Aluminum models	
flexure mount, 0.5-inch optic	IXF.50a
flexure mount, 0.75-inch optic	IXF.75a
flexure mount, 1.0-inch optic	IXF1.0a

Metric Option — for metric assembly features on this product, add '-M' after model number.

Flexure Mounts

The IXFi series monolithic flexure mounts are a new line of mounts that are specifically designed for OEM applications. They have a wide variety of optic mounting options, including bulkhead mounting as either a front adjusted or through the bulkhead adjusted mount. In addition, these versions have 8-32 (M4) mounting holes on two edges for post mounting and locks on the adjustment screws.

These mounts use our 100TPI rolled thread adjustment screws for low stiction fine adjustments and are swaged at the end to prevent over-travel of the mount. The IXFi series mounts are manufactured from one solid piece of spring steel, then nickel plated so they will not corrode and can be used in ultraviolet laser environments.

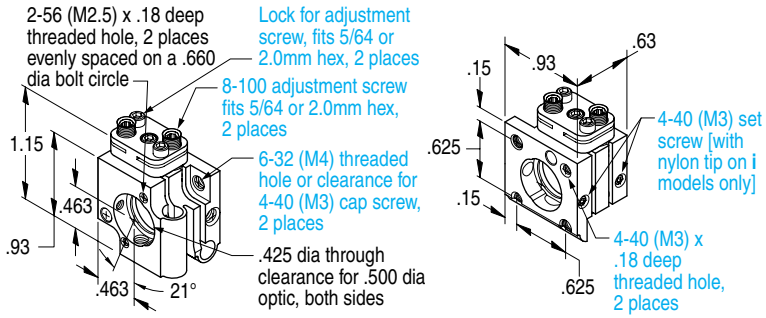
These models are also available in aluminum versions as a lower cost option. Aluminum models exhibit the same performance specifications as the steel models. Custom OEM versions available in steel and aluminum.

Flexure Mounts — Top Adjustable

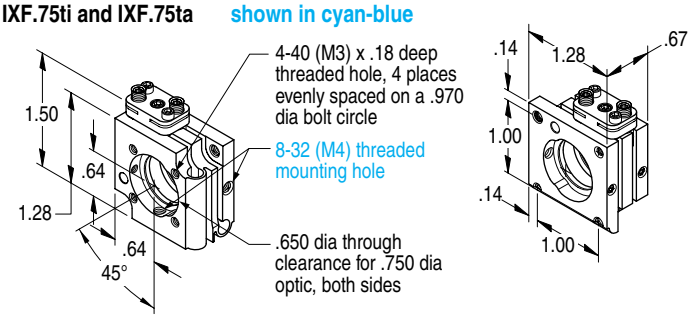
0.5- to 1.0-inch optic / IXFti Series

Note that dimensions in parentheses (mm) reflect metric assembly features

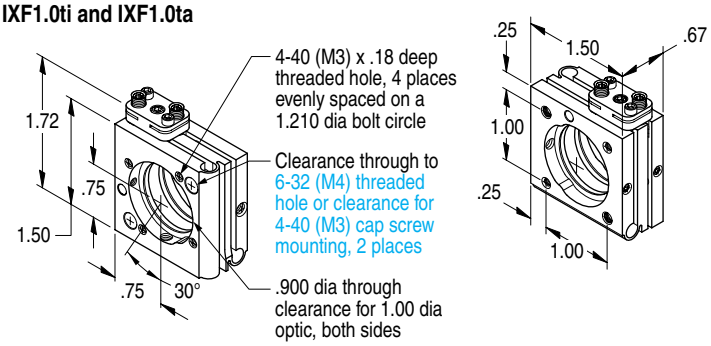
IXF.50ti and IXF.50ta



IXF.75ti and IXF.75ta — Common Dimensions shown in cyan-blue



IXF1.0ti and IXF1.0ta



Flexure Mounts, Top Adjustable

The IXFi series monolithic flexure mounts are specifically designed for OEM applications. They have a wide variety of optic mounting options, including bulkhead mounting as either a front adjusted or through-the-bulkhead adjusted mount. We offer two styles of mounting brackets. Additionally, these versions have 8-32 (M4) mounting holes on two edges for post mounting, as well as set screw locks on the adjustment screws.

They use our 100TPI rolled thread adjustment screws for low stiction fine adjustments and are swaged at the end to prevent over-travel of the mount. The IXFi series mounts are manufactured from one solid piece of spring steel, then nickel plated so they will not corrode and can be used in ultraviolet laser environments. These models are also available in aluminum version; for "flight" or vacuum applications. Aluminum models exhibit the same performance specifications as the steel models. Custom OEM versions available in steel and aluminum.

Product Features

- Top adjustable design
- 100TPI lockable adjustment screws
- Nickel plated

Performance Specifications, also for *a* versions

Model	Pitch	Yaw	Minimum controllable motion
IXF.50ti	6°	6°	8.2 arc sec.
IXF.75ti	6°	6°	5.5 arc sec.
IXF1.0ti	5°	5°	4.5 arc sec.

Related Products

IXFmb series mounting blocks 242
IXFab series angle brackets 246

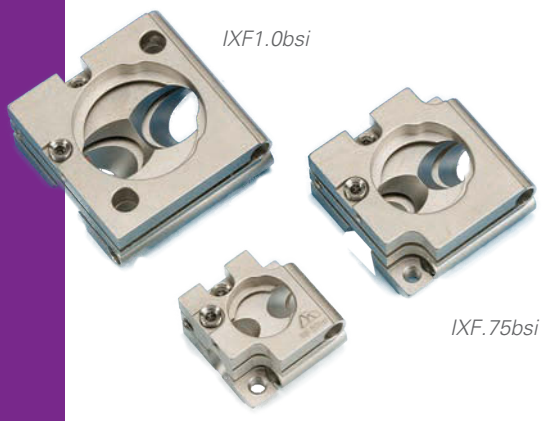
Order Information

flexure mount, 0.5-inch optic, top adjust	IXF.50ti
flexure mount, 0.75-inch optic, top adjust	IXF.75ti
flexure mount, 1.0-inch optic, top adjust	IXF1.0ti
Aluminum models	
flexure mount, 0.5-inch optic, top adjust	IXF.50ta
flexure mount, 0.75-inch optic, top adjust	IXF.75ta
flexure mount, 1.0-inch optic, top adjust	IXF1.0ta

Metric Option — for metric assembly features on this product, add '-M' after model number.

0.5- to 1.0-inch optic / IXFbs Series

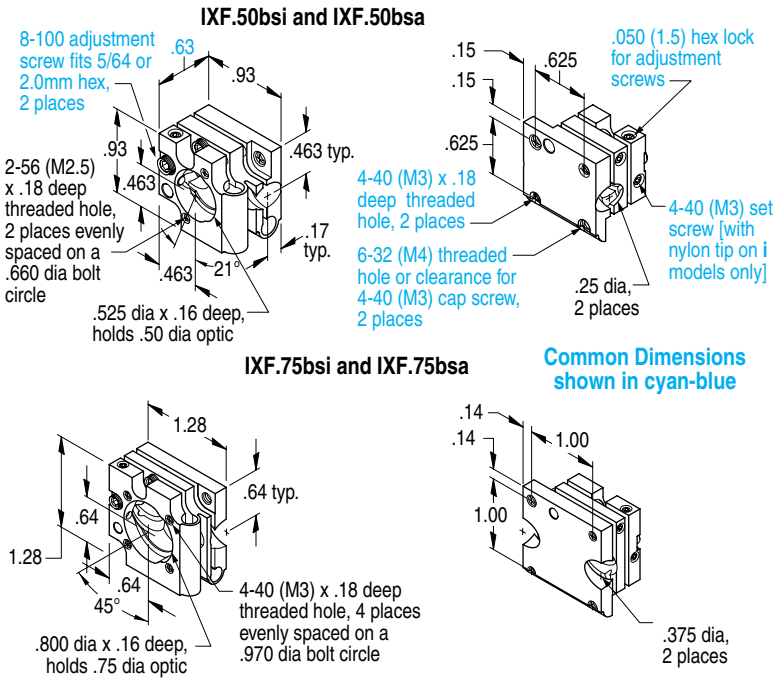
Note that dimensions in parentheses (mm) reflect metric assembly features



IXF1.0bsi

IXF.75bsi

IXF.50bsi



Product Features

- Built-in 45° clear apertures
- Monolithic construction
- 100TPI lockable adjustment screws

Performance Specifications, also for *a* versions

Model	Pitch	Yaw	Minimum controllable motion
IXF.50bsi	6°	6°	8.2 arc sec.
IXF.75bsi	6°	6°	5.5 arc sec.
IXF1.0bsi	5°	5°	4.5 arc sec.

Related Products

IXFmb series mounting blocks	242
IXFab series angle brackets	246

Order Information

flexure mount, 0.5-inch optic, beamsplitter	IXF.50bsi
flexure mount, 0.75-inch optic, beamsplitter	IXF.75bsi
flexure mount, 1.0-inch optic, beamsplitter	IXF1.0bsi
Aluminum models	
flexure mount, 0.5-inch optic, beamsplitter	IXF.50bsa
flexure mount, 0.75-inch optic, beamsplitter	IXF.75bsa
flexure mount, 1.0-inch optic, beamsplitter	IXF1.0bsa

Metric Option — for metric assembly features on this product, add '-M' after model number.

Flexure Mounts, Beamsplitter

The IXFbs series are a new version of our popular IXFi monolithic flexure mounts. This new variation incorporates the same features as our IXFis but has clear apertures cut out to maximize beam clearance for beam-splitter applications. These cutouts are set at 45°, and are large enough to accommodate beam angle variations of ±5°.

They use our 100TPI rolled thread adjustment screws for low stiction fine adjustments and are swaged at the end to prevent over-travel of the mount. The IXFbs series mounts are manufactured from one solid piece of spring steel, then nickel plated so they will not corrode and can be used in ultraviolet laser environments.

These models are also available in aluminum version; for "flight" or vacuum applications. Aluminum models exhibit the same performance specifications as the steel models. Custom OEM versions available in steel and aluminum.

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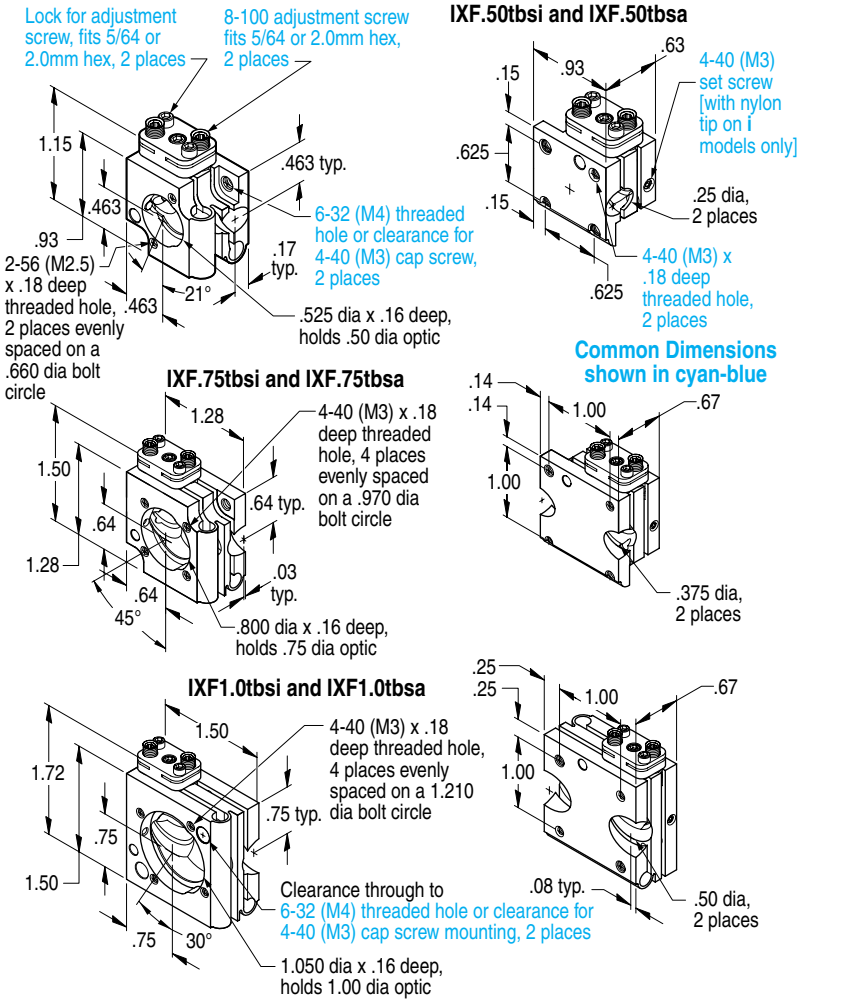
Flexure Mounts — Beamsplitter, Top Adjustable

0.5- to 1.0-inch optic / IXFtbs Series

Note that dimensions in parentheses (mm) reflect metric assembly features



Flexure Mounts, Beamsplitter, Top Adjustable

The IXFtbs series are a new version of our popular IXFi monolithic flexure mounts. This new variation incorporates the same features as our IXFi but has the tip/tilt adjustments moved to create a top adjusted flexure. This feature is ideal for applications where accessibility to the mount is limited and our standard model can't be accessed. Built into the top adjustment mechanism is a simple split-clamp lock for the 100TPI adjustment screws. These locks work best when they are pre-loaded prior to adjustment, adjustment made, then locked in place. We have also added clear aperture cutouts to maximize beam clearance for beamsplitter applications. These cutouts are set at 45°, but are large enough to accommodate beam angle variations of ±5°. These mounts use our 100TPI rolled thread adjustment screws for low stiction fine adjustments and are swaged at the end to prevent over-travel of the mount. The IXFtbs series mounts are manufactured from one solid piece of spring steel, then nickel plated so they will not corrode and can be used in ultraviolet laser environments. These models are also available in aluminum version; for "flight" or vacuum applications. Aluminum models exhibit the same performance specifications as the steel models. Custom OEM versions available in steel and aluminum.

Product Features

- Top adjustable design
- Built-in 45° clear apertures
- Monolithic construction
- 100TPI lockable adjustment screws

Performance Specifications, also for *a* versions

Model	Pitch	Yaw	Minimum controllable motion
IXF.50tbsi	6°	6°	8.2 arc sec.
IXF.75tbsi	6°	6°	5.5 arc sec.
IXF1.0tbsi	5°	5°	4.5 arc sec.

Related Products

IXFmb series mounting blocks 242
IXFab series angle brackets 246

Order Information

0.5-inch optic, beamsplitter, top adjust	IXF.50tbsi
0.75-inch optic, beamsplitter, top adjust	IXF.75tbsi
1.0-inch optic, beamsplitter, top adjust	IXF1.0tbsi
Aluminum models	
0.5-inch optic, beamsplitter, top adjust	IXF.50tbsa
0.75-inch optic, beamsplitter, top adjust	IXF.75tbsa
1.0-inch optic, beamsplitter, top adjust	IXF1.0tbsa

Metric Option — for metric assembly features on this product, add '-M' after model number.

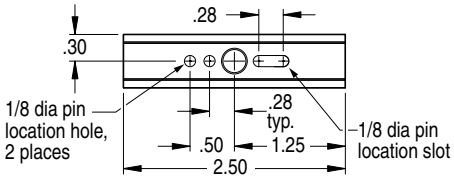
Flexure Mounts

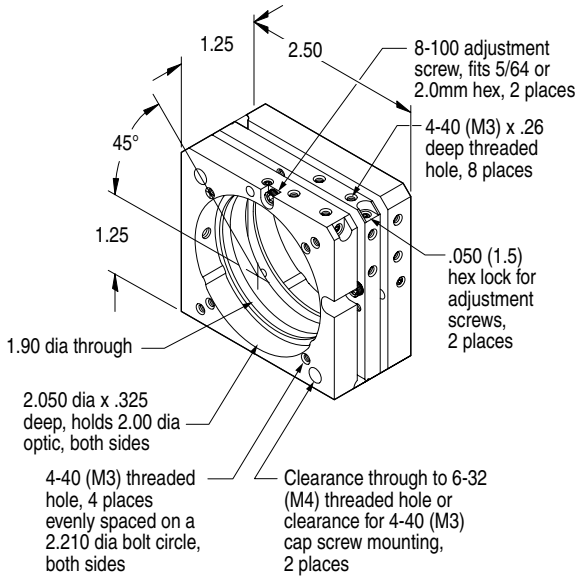
2.0" Optics / IXF2.0i and IXF2.0a

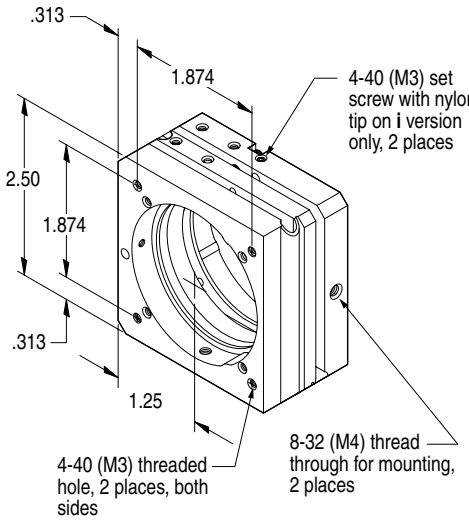
Note that dimensions in parentheses (mm) reflect metric assembly features

IXF2.0a

IXF2.0mb
mounting block, page 242, with
Bottom View shown below







Product Features

- Lockable 100TPI adjustment screws
- One-piece construction
- Nickel plated
- UV and vacuum compatible versions available

Performance Specifications

Model	Pitch	Yaw	Minimum controllable motion
IXF2.0i	5°	5°	2.4 arc sec.
IXF2.0a	5°	5°	2.4 arc sec.

Related Products

IXF2.0mb mounting block	242

Order Information

flexure mount, 2.0" optic	IXF2.0i
flexure mount, 2.0" optic, aluminum model	IXF2.0a

Metric Option — for metric assembly features on this product, add '-M' after model number.

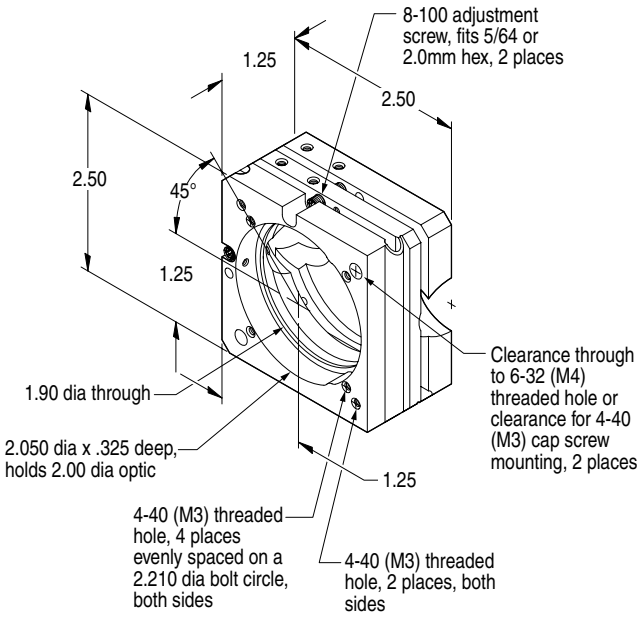
We now offer a 2.00" version of our popular IXF monolithic flexure mounts, available in front-adjust standard and beamsplitter configurations. The beamsplitter version has clear aperture cutouts to maximize beam clearance for beamsplitter applications. These cutouts are set at 45°, but are large enough to accommodate variations out to ±5°. These mounts use our 100TPI rolled thread adjustment screws for low stiction fine adjustments and are swaged at the end to prevent over-travel of the mount. Motorized actuators can be mounted for remote control applications. The aluminum version is vacuum compatible as a standard feature. Custom OEM versions available in steel and aluminum.

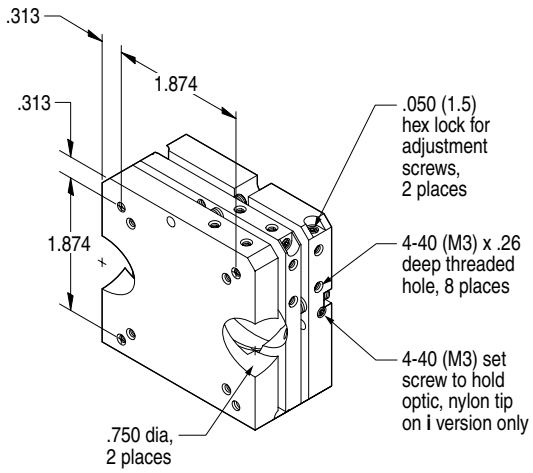
New

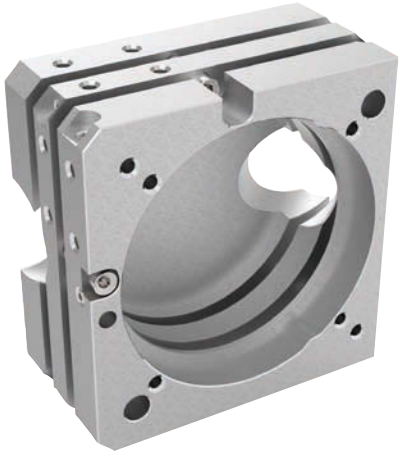
Flexure Mounts

2.0" Optics / IXF2.0bsi and IXF2.0bsa

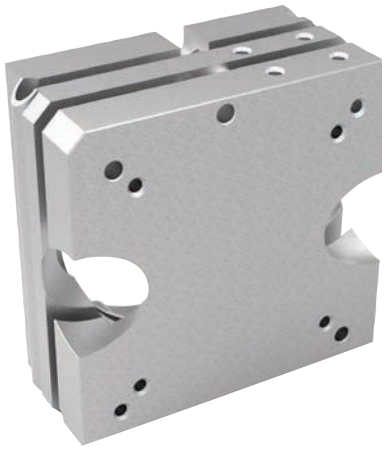
Note that dimensions in parentheses (mm) reflect metric assembly features







IXF2.0bsi



New

For the ultimate in stability in systems using 2" optics, Siskiyou 2" beamsplitters are available in both aluminum and nickel-plated steel versions. They accommodate input or exit beams with a 45°±5° propagation angle. These mounts use our 100TPI rolled thread adjustment screws for low stiction fine adjustments. The adjusters are swaged at the end to prevent over-travel of the mount. Motorized actuators can be mounted for remote control applications. The aluminum version is vacuum compatible as a standard feature. Matching mounting blocks with pin pockets in the base are available separately. Custom OEM versions available in steel and aluminum.

Product Features

- Lockable 100TPI adjustment screws
- One-piece construction
- Nickel plated
- Built-in 45° clear apertures
- UV and vacuum compatible versions available

Performance Specifications

Model	Pitch	Yaw	Minimum controllable motion
IXF2.0bsi	5°	5°	2.4 arc sec.
IXF2.0bsa	5°	5°	2.4 arc sec.

Related Products

IXF2.0mb mounting block 242

Order Information

flexure mount, 2.0" optic, beamsplitter IXF2.0bsi
flexure mount, 2.0" optic, beamsplitter aluminum model IXF2.0bsa

Metric Option — for metric assembly features on this product, add '-M' after model number.

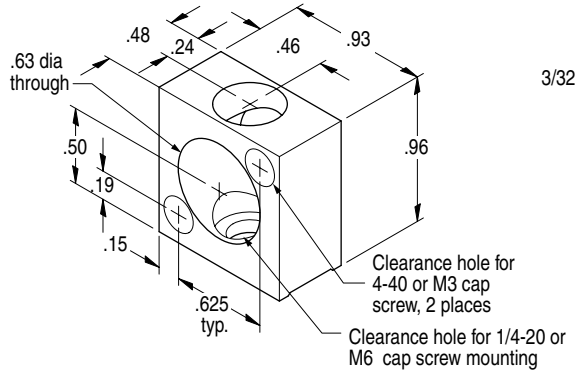
Flexure Mounts

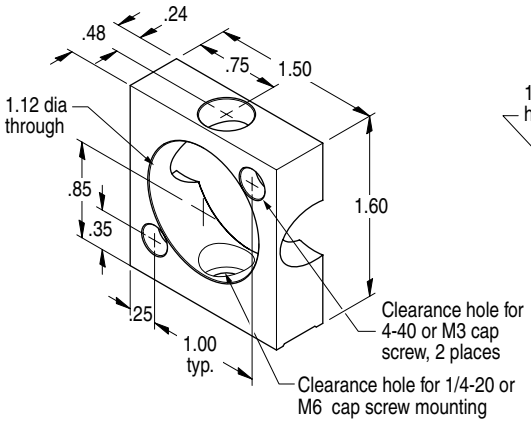
IXF Mounting Blocks / IXF.50mb, IXF1.75mb and IXF2.0mb

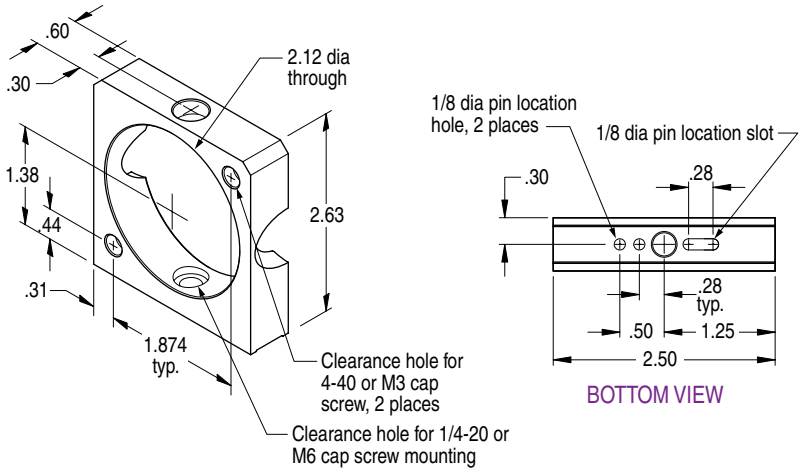
IXF.50mb

IXF1.75mb

IXF2.0mb







New

Product Features

- Stable table-top or AS spacer mounting option for the IXF series flexure mounts
- Two pin holes in bottom mounting surface for OEM registration pins
- Monolithic design

Related Products

IXF series flexure mount	235
IXF.i series flexure mount	236
IXF.ti series flexure mount	237
IXF.bs series flexure mount	238
IXF.tbs series flexure mount	239

Order Information

flexure mount, mounting block, 0.5" optic	IXF.50mb
flexure mount, mounting block, 0.75" and 1.0" optic	IXF1.75mb
flexure mount, mounting block, 2.0" optic	IXF2.0mb

The IXF.mb mounting block provides an easy and robust method for mounting Siskiyou monolithic flexures. Pin pockets in the base prevent unwanted rotation and positive lateral attachment — with pins in place, parts can't shift laterally or experience unwanted rotation. They mount from the top, so access in tight places is simple. If you have a tight optical layout, Siskiyou monolithic flexures and mounting blocks provide the ultimate in stability and vibration resistance.

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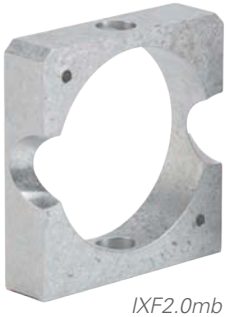
Applications



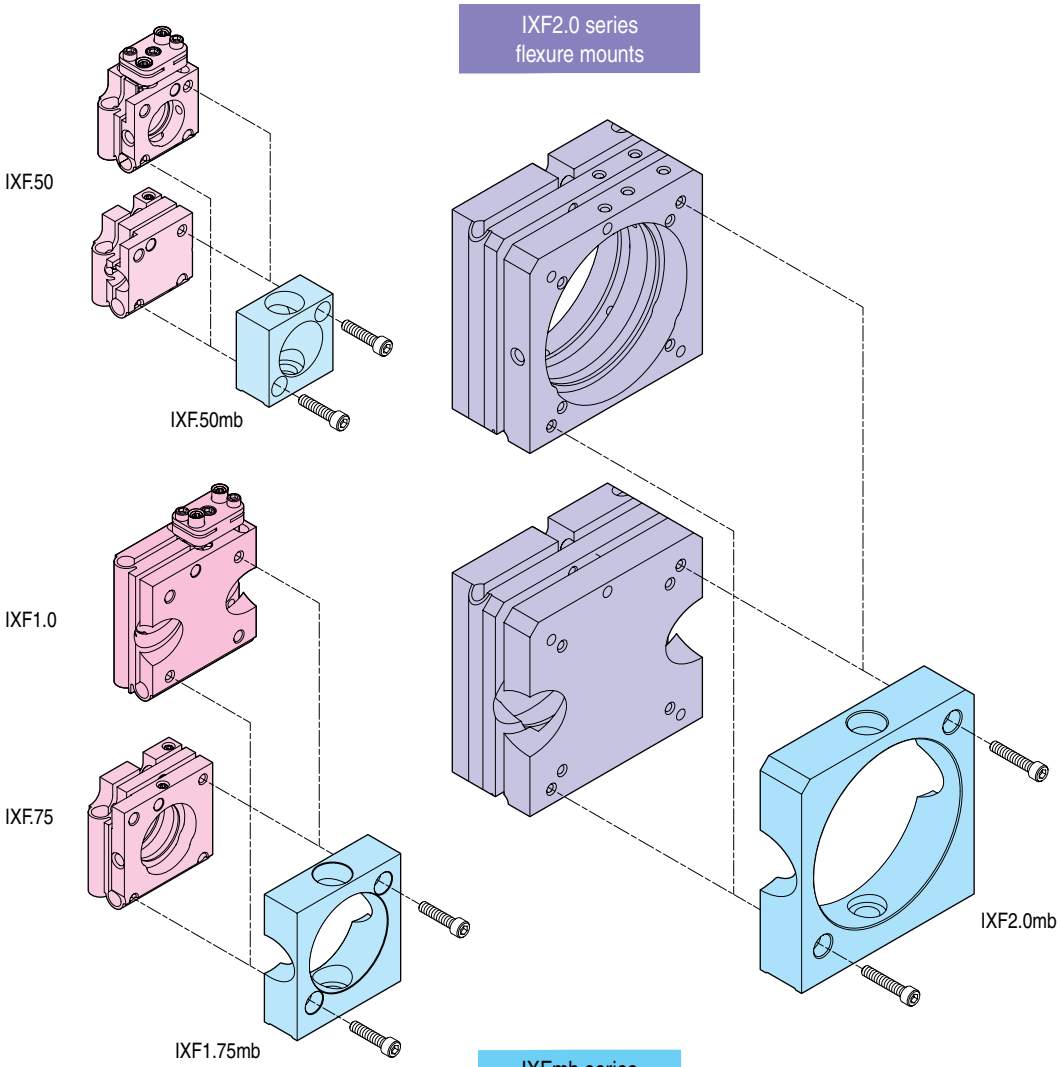
IXF2.0mb

IXF2.0a

IXF.50mb
with IXF.50ti attached

IXF series
flexure mounts

IXF2.0 series
flexure mounts

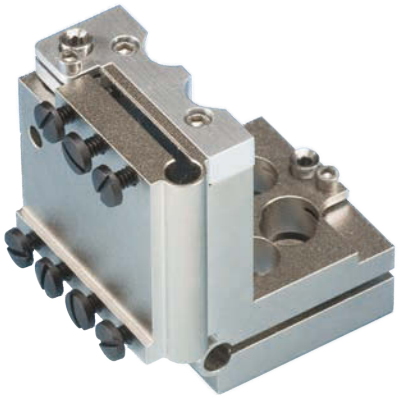


IXFmb series
mounting blocks

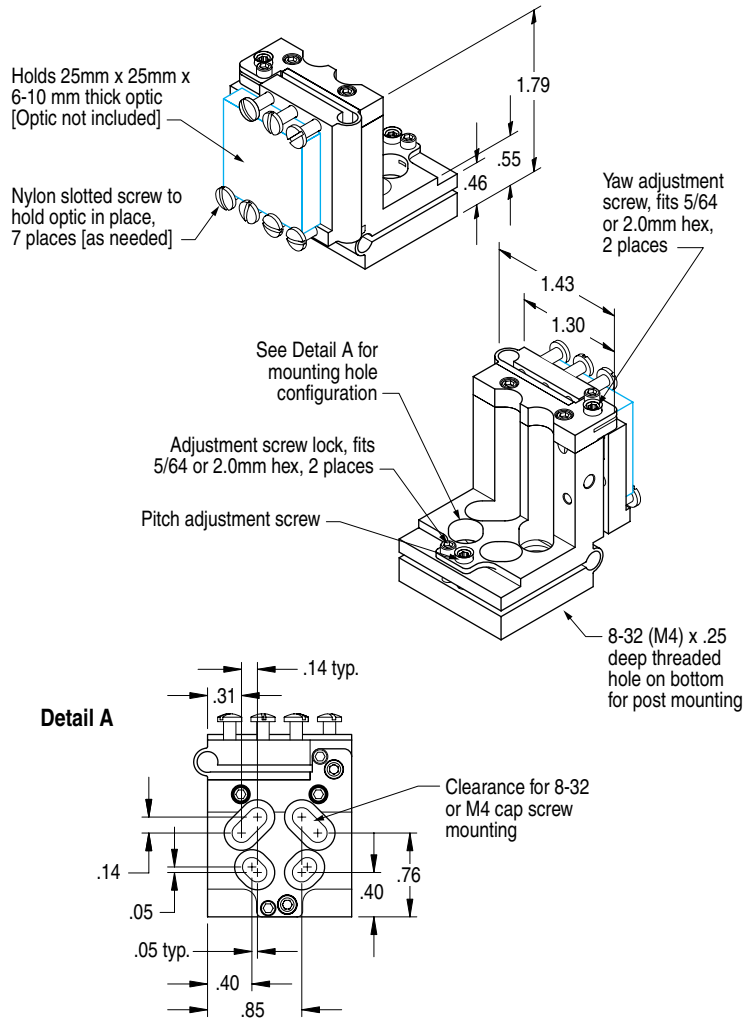
New

25mm x 30mm Diffraction Grating / IXF.GM

Note that dimensions in parentheses (mm) reflect metric assembly features



IXF.GM



Product Features

- Lockable top adjusted grating mount
- Compatible with rotation and linear stages
- Nickel plated

Performance Specifications, both i and a versions

Pitch	6°
Yaw	6°
Minimum controllable motion	5.5 arc sec.

Related Products

RS series manual rotation stages	72
RS series motorized rotation stages	76
.25dt series dovetail stages	38
.5cr series crossed roller stages	48

Order Information

25mm x 30mm grating mount	IXF.GMi
Aluminum models	
25mm x 30mm grating mount	IXF.GMa

Metric Option — for metric assembly features on this product, add '-M' after model number.

Flexure Mounts, Grating

The IXF.GM is a new flexure design that incorporates the same features of our popular IXF series into a top adjusted diffraction grating mount. The grating platform is sized to hold 25mm x 25mm x 6mm, or 25mm x 30mm x 6mm diffraction gratings. The design uses nylon pan-head screws to hold the optic in place with minimal damage.

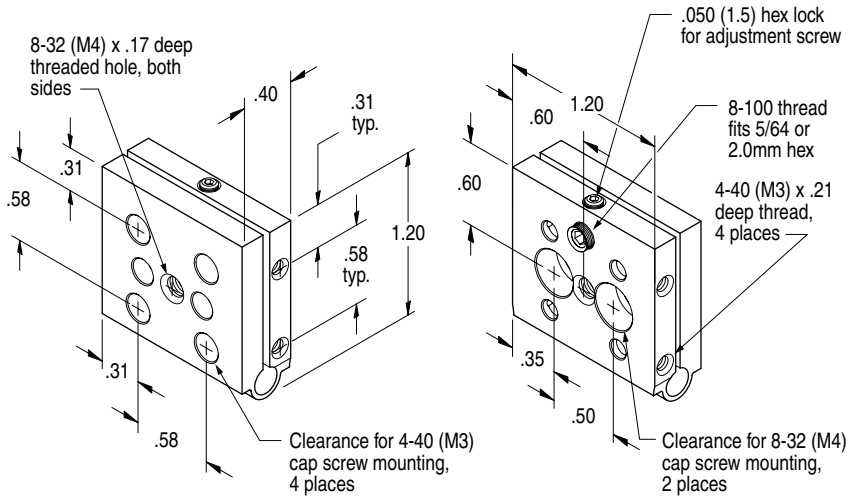
Built into the top adjustment mechanism is a simple split-clamp lock for the 100TPI adjustment screws. These locks work best when they are pre-loaded prior to adjustment, the adjustment is made and then locked in place.

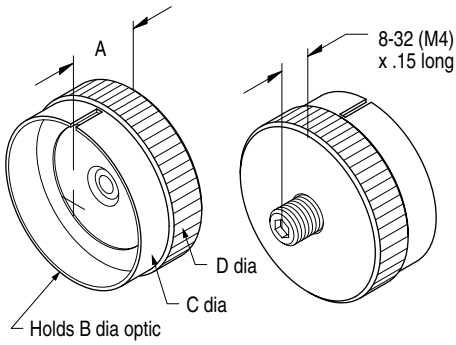
The base of the IXF.GM has a single 8-32 (M4) tapped hole for post mounting. Also included are four counterbored slots that can be accessed from the top for mounting to our RS series rotation stages or our .25dt dovetail and .5cr crossed roller stages for added coarse alignment.

Flexure Mounts — Single-Axis

IXF.S and OMH.T Series

Note that dimensions in parentheses (mm) reflect metric assembly features





Model	A	B	C	D
OMH.5T	.30	.50	.53	.56
OMH.75T	.35	.75	.78	.81
OMH1.0T	.38	1.00	1.03	1.06

IXF.Si

Upright tilt / tip variation

Flexure Mounts, Single-Axis

The IXF.S single-axis flexure is designed with the same features as our popular IXFi series flexure mounts on page 236. We have split the two-axis design into a modular design that is useful where only one-axis for tilt is required. The base of the IXF.S has a single 8-32 (M4) tapped hole for mounting, as well as one on the top for attachment. Also included are two counterbored holes that can be accessed from the top for mounting to our .25dt dovetail and .5cr crossed roller stages for translation. On the edge of this mount are 4-40 tapped holes that correspond with clearance counterbores that are accessed from the bottom. These are used to create upright tip/tilt mounts as shown in the insert on this page.

These mounts use our 100TPI rolled thread adjustment screws for low stiction fine adjustments and are swaged at the end to prevent over-travel of the mount. The IXF.S series mounts are manufactured from one solid piece of spring steel, then nickel plated so they will not corrode and can be used in ultraviolet laser environments.

These models are also available in aluminum versions as a lower cost option. Aluminum models exhibit the same performance specifications as the steel models. Custom OEM configurations are available in the aluminum version only.

Product Features

- Modular design
- 100TPI lockable adjustment screw
- Monolithic construction

Performance Specifications, both i and a versions

Travel	5°
Minimum controllable motion	4.5 arc sec.

Related Products

.25dt series dovetail stages	38
.5cr series crossed roller stages	48

Order Information

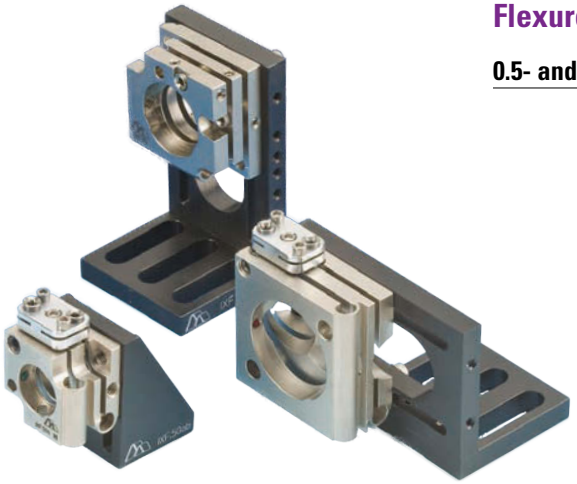
single-axis flexure mount	IXF.Si
Aluminum models	
single-axis flexure mount	IXF.Sa
optic mount, 0.5-inch	OMH.5T
optic mount, 0.75-inch	OMH.75T
optic mount, 1.0-inch	OMH1.0T

Metric Option — for metric assembly features on this product, add '-M' after model number.

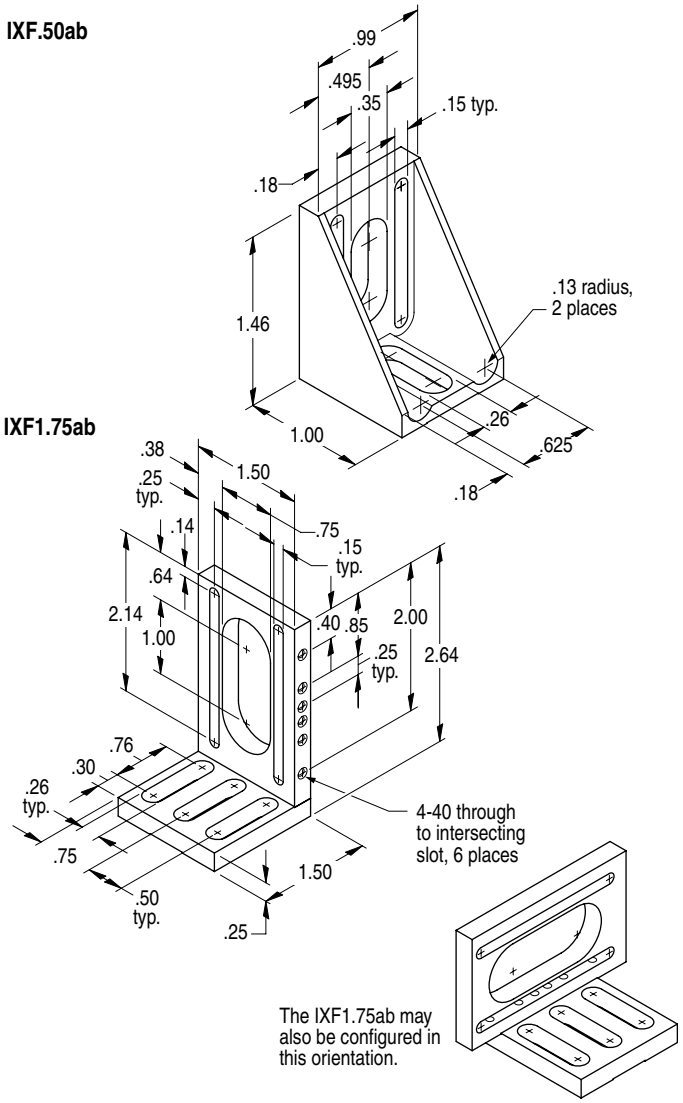
Mirror Mounts

Flexure Mounts — Angle Brackets

0.5- and 0.75-inch / IXF.50ab and IXF1.75ab



IXF Angle Brackets



Product Features

- Stable mounting option for the IXF series flexure mounts
- Monolithic design for the 0.5-inch version
- Modular design for 0.75- and 1.0-inch versions

Related Products

IXF series flexure mount	235
IXF.i series flexure mount	236
IXF.ti series flexure mount	237
IXF.bs series flexure mount	238
IXF.tbs series flexure mount	239

Order Information

flexure mount, angle bracket	IXF.50ab
flexure mount, angle bracket	IXF1.75ab

Flexure Mounts, Angle Brackets

The IXF.50ab is a monolithic one-piece angle bracket designed to mount ALL of our IXF.5 series flexure mounts and provide the utmost stability. They are built from a single piece of aluminum and anodized black. The IXF1.75ab is a modular design that is a stable mounting option for our IXF1.0 and IXF.75 series of flexure mounts. The two-piece design allows multiple mounting configurations as shown in the photo on this page. The two-piece design maximizes the clear aperture for our beamsplitter versions of the IXF series on page 239.

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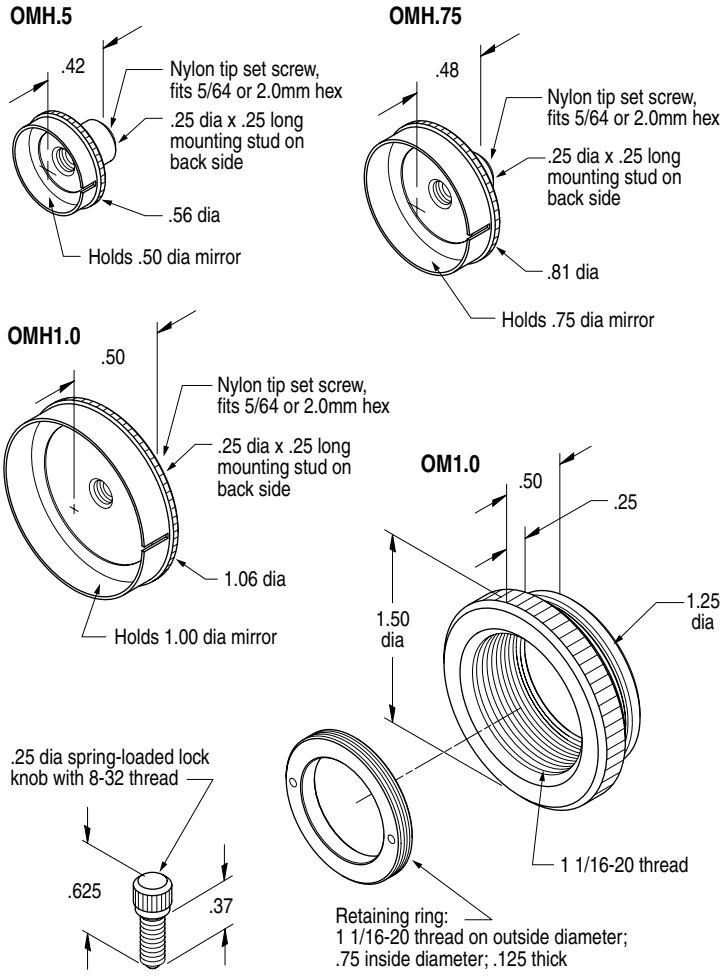
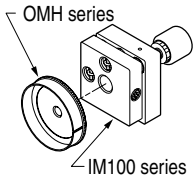
Mirror Holders & Adapter

0.5- to 1.0-inch optic / OMH Series

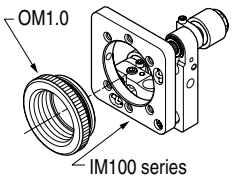


Application



OMH Series

Application



OM1.0

Optic Mirror Holders

The OMH series of optical mirror holders are compatible with our IM100 series mirror mounts. The aluminum construction is a cost-effective way to hold 0.5-, 0.75-, and 1.0-inch mirrors.

All models have a 0.25-inch mounting stud on the back that fits into the front face of our IM series mounts. There is a set screw in the stud to simplify the changing of damaged optics. The set screw can be removed to mount the OMH series of holders on the end of PR or MPR series rods.

Optic Mount

The OM1.0 is designed to mount 1.0-inch optics into our IM100.T2 mirror mounts. This 1.0-inch optic holder is ideal for polarizers, beamsplitters, and quarter-wave plates. The OM1.0 comes complete with Delrin® retaining rings and a spring-loaded lock knob to facilitate mounting. Once the spring-loaded lock knob is mounted into the mirror mount, the OM1.0 can be quickly snapped in and out for optic replacement. The outside edge of the OM1.0 is knurled for non-slip finger rotation.

Product Features

- 0.5-, 0.75-, and 1.0-inch mirrors
- Compatible with RM and IM series mounts
- Vacuum compatible versions available upon request

Related Products

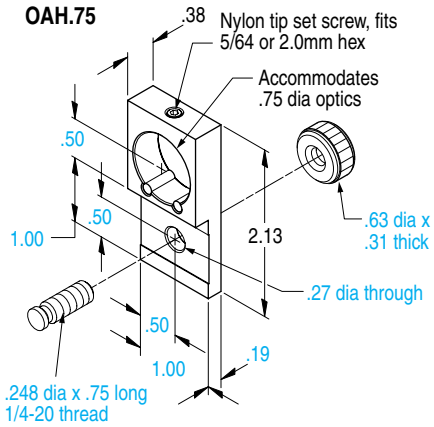
RM80 miniature optic mounts	beginning 232
IM100.P & .T series mirror mounts	beginning 206
IXM100.P & .T series mirror mounts	beginning 214

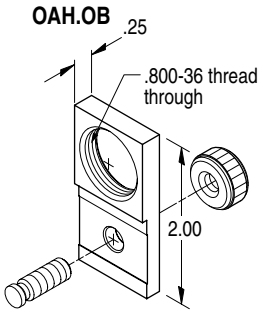
Order Information

optical mirror holder, 0.5 inch optic	OMH.5
optical mirror holder, 0.75 inch optic	OMH.75
optical mirror holder, 1.0 inch optic	OMH1.0
optical mount adapter, 1.0 inch optic	OM1.0

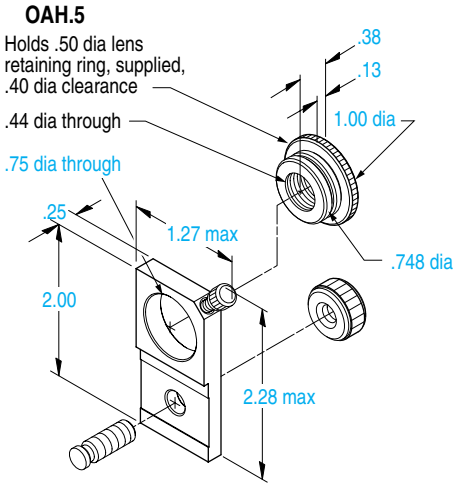
0.25- to 0.75-inch optic / OAH Series

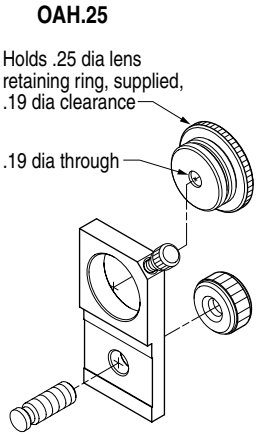
OAH Series



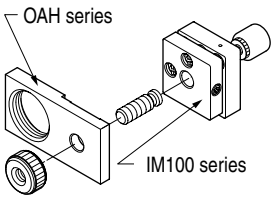


Common Dimensions shown in cyan-blue





Application



Off-Axis Holders

Our OAH series of off-axis optic holders are designed to be mounted on the front face of RM80-1 and IM100-1 mirror mounts. These off-axis mounts come with all the mounting hardware necessary to be attached in four different orientations on our mounts. Their small design is ideal for optics in the 0.25- to 0.75-inch range.

The OAH series of optic holders are designed to facilitate mounting of optics in close proximity to one another. The off-axis concept allows the mirror mount to be positioned to one side (right, left, top, or bottom) of the beam path. The OAH optic holder aligns the optic in the beam path and still retains the positioning features of the mirror mount. By using this approach and staggering mounts from side to side, optics may be mounted within 1/4-inch of each other.

Product Features

- Compatible with RM and IM series mounts
- Compact design for close optics stacking
- Mounting hardware included
- Vacuum compatible versions available upon request

Related Products

IM100.1 mirror mount	231
RM80-1 mirror mount	232

Order Information

off-axis holder, 0.75 inch optic	OAH.75
off-axis holder, microscope objective	OAH.OB
off-axis holder, 0.5 inch optic	OAH.5
off-axis holder, 0.25 inch optic	OAH.25

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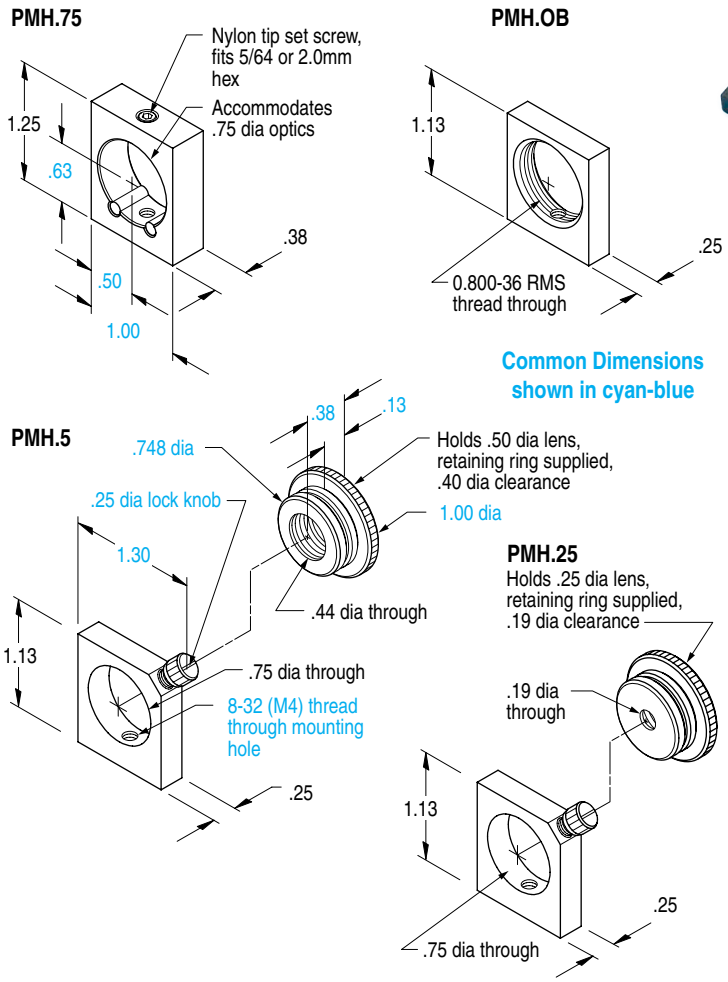
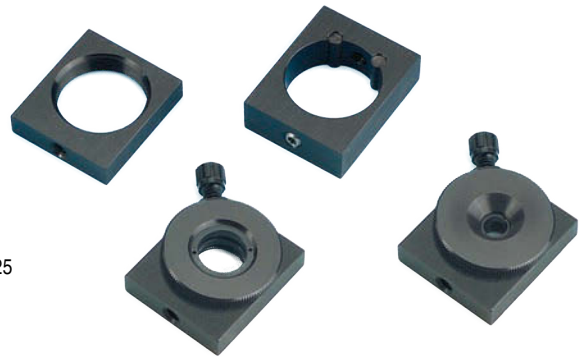
Optic Mounts — Rod

0.25- to 0.75-inch optic / PMH Series

Note that dimensions in parentheses (mm) reflect metric assembly features





PMH Series

Post Mount Holders

Our PMH series of post mounted optic holders are designed to be mounted on our MPR series miniature precision rods. Their small design is ideal for optics in the 0.25- to 0.75-inch range.

The PMH series of optic holders are ideal for mounting optics in smaller layouts. The post mount design works well with our MPR miniature rods. By combining these holders and miniature rod systems with our MDR dovetail rail systems, a multitude of miniature experiments can be performed.

Product Features

- Compatible with PR and MPR series rods
- Microscope objective, 0.25-, 0.5-, or 0.75-inch optic versions
- Compact design for close optics stacking
- Vacuum compatible versions available upon request

Related Products

MPR miniature precision rods 136

Order Information

post mount holder, 0.75 inch optic	PMH.75
post mount holder, microscope objective	PMH.OB
post mount holder, 0.5 inch optic	PMH.5
post mount holder, 0.25 inch optic	PMH.25

Metric Option — for metric assembly features on this product, add '-M' after model number.

Mirror Mounts

Miniature Shutter

Post-mount and Off-axis / PMH-SA and OAH-SA

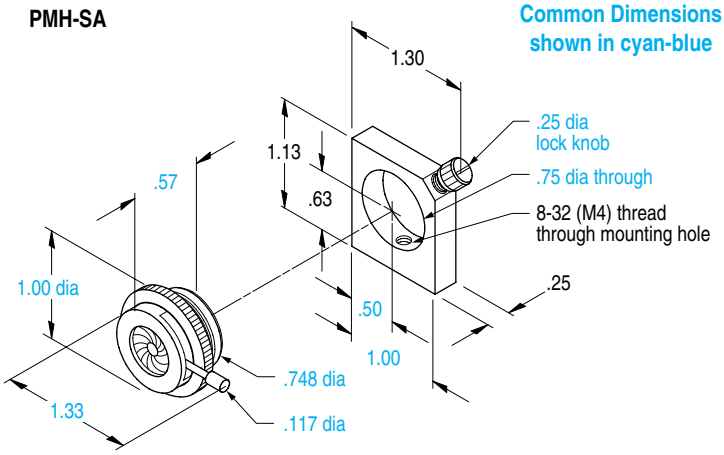
Note that dimensions in parentheses (mm) reflect metric assembly features

PMH-SA

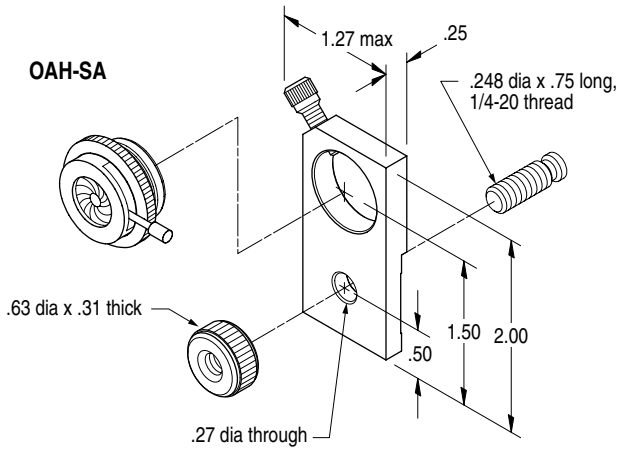
OAH-SA

PMH-SA

Common Dimensions shown in cyan-blue



OAH-SA



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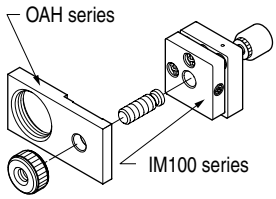

Product Features

- Rod mount or off-axis mount versions
- Shutter rotates for optimal lever location
- 12 mm full open to 1 mm full closed
- Vacuum compatible versions available upon request

Related Products

MPR rods	136
IM100.1H mirror mount	231
IM100.1 miniature mount	231
RM80-1H research mount	232
RM80-1 research mount	232
RM80-0.5H research mount	233
RM80-0.75H research mount	233

Order Information

post mount holder, shutter	PMH-SA
off-axis holder, shutter	OAH-SA

Metric Option — for metric assembly features on this product, add '-M' after model number.

Rod Mount & Off-Axis Holders

Our off-axis and post mounted 0.5-inch shutters are ideal for spatial filter targeting. These precision shutters are made in Germany and have been adapted to our OAH and PMH mounting system.

The OAH off-axis shutter is designed to facilitate mounting in close proximity to other optics. The off-axis concept allows the mirror mount to be positioned to one side (right, left, top, or bottom) of the beam path. The OAH optic holder aligns the optic in the beam path and still retains the positioning features of the mirror mount. By using this approach and staggering mounts from side to side, optics may be mounted within 1/4-inch of each other.

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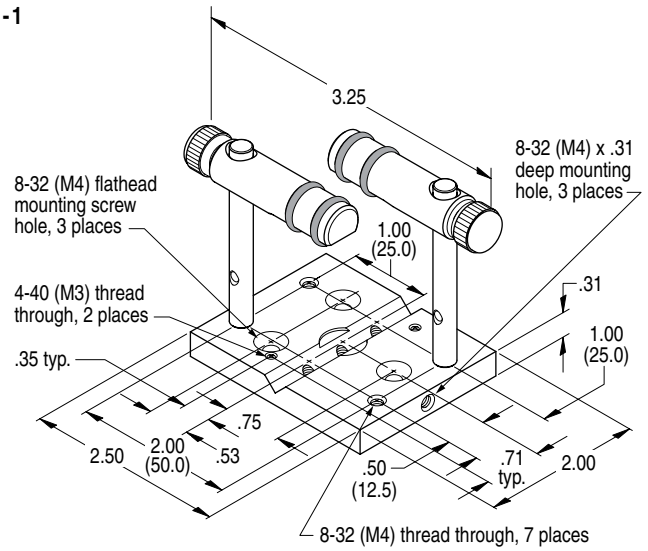
Adapter, Prism Table

IM100.T2 compatible / T-1

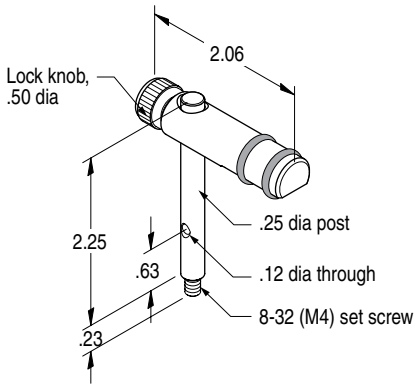
Note that dimensions in parentheses (mm) reflect metric assembly features

T-1

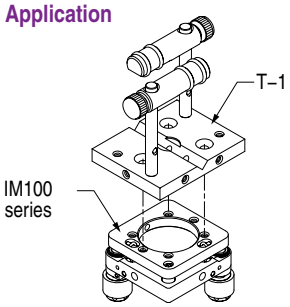


T-1 with T-1C replacement clamp

T-1C



Application



Prism Table

The T-1 prism table is designed to mount prisms and beamsplitter cubes to our IM100.T2 mirror mounts. This versatile design incorporates T1-C clamps with a self-aligning V-groove and O-ring pads to ensure secure damage-free holding.

The T-1 prism table has a variety of 8-32 mounting holes for fixed vertical or horizontal optic mounting. T-1C clamps may be purchased separately for attachment to our IM100.P2 mirror mount or for your specific mounting requirements.

Product Features

- Compatible with RM and IM series mounts
- Adjustable non-marring optic clamps
- Centering V-groove
- Vacuum compatible versions available upon request

Related Products

IM100.P2 lens mount	206
IM100.T2 lens mount	206

Order Information

prism table	T-1
prism table clamp	T-1C

Metric Option — for metric assembly features on this product, add '-M' after model number.

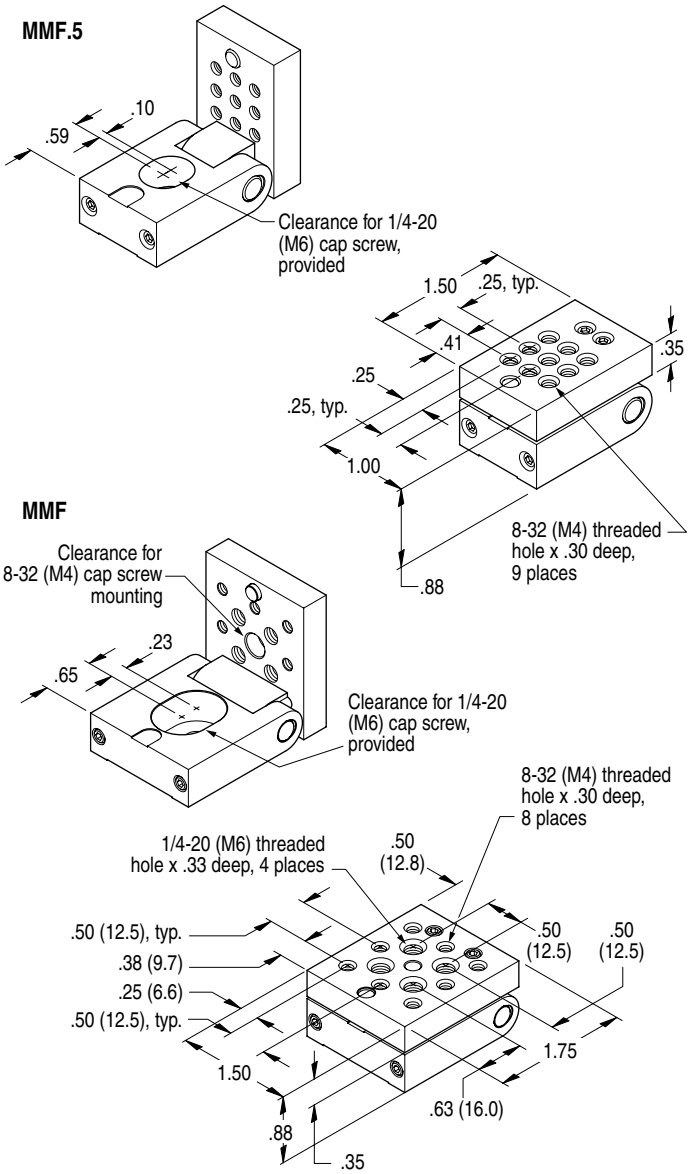
Mirror Mounts

Mirror Mount Flipper

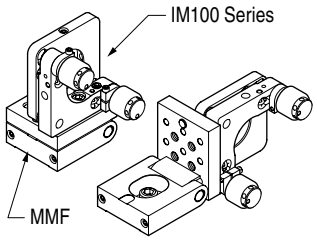
MMF.5 and MMF

Note that dimensions in parentheses (mm) reflect metric assembly features

MMF.5 *MMF*



Application



Product Features

- Solid aluminum construction
- Unique zero-wobble pivot design
- 5 arc second repeatability
- Vacuum compatible versions available upon request

Related Products

IM series mirror mount	beginning 204
IXM series industrial mount	beginning 214
IVM series mirror mount	224

Order Information

mirror mount flipper	MMF.5
mirror mount flipper	MMF

Metric Option — for metric assembly features on this product, add '-M' after model number.

Mirror Mount Flipper

The MMF mirror mount flipper is designed to be used in set-ups where optics or detectors need to be in place for one experiment, and then removed for another. The unique zero-wobble pivot design ensures sub-arc second repeatability. A simple magnetic coupler holds the two plates together in the closed position.

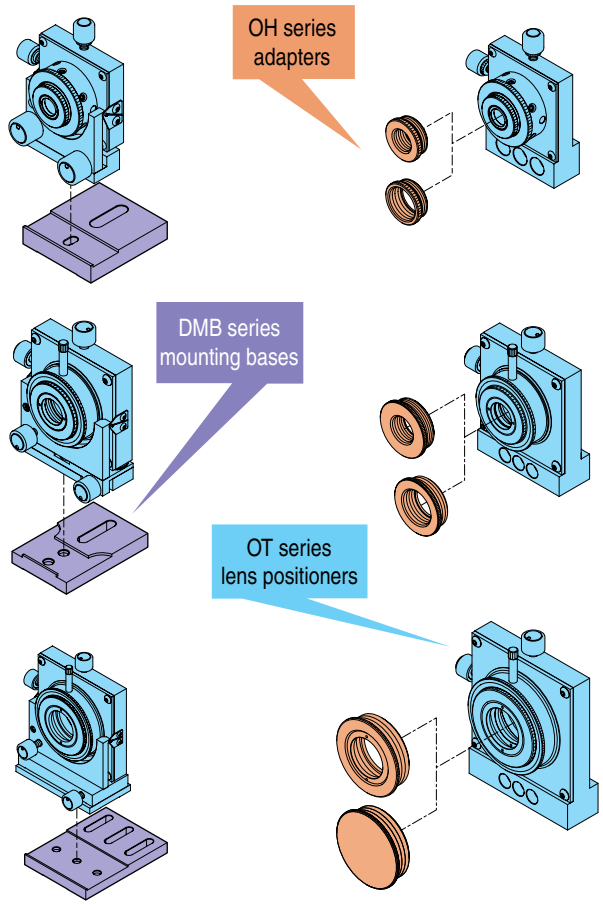
Lens Positioners

Our OT series optic translators and OG series of optical gimbal mounts use our color coded SoftTouch™ knob caps in both the non-lockable and lockable versions. These knob caps are comfortable to use and provide quick axis location in low light conditions. 80-pitch screws are the basis for smooth, accurate positioning of all models from the smallest mount to the largest.

To meet the demands of many different applications we have XY, XYZ, and 5-axis OT series optic translators in three sizes. In the OG series of optical gimbal mounts we have 1.0-inch, 2.0-inch, 1.0-inch polarizer and cylindrical lens versions. For more robust OEM requirements these mounts are also available in lockable versions. Our locks securely hold the internal axis mechanism, an improvement over other mounts that only lock the adjustment screws. This feature ensures that the mount will stay in place even when shipped around the world. The entire OT series comes standard with Delrin® retaining rings and a separate optic adapter. Additional adapters include ones for microscope objectives or various standard apertures, as well as a solid version to be machined for your custom optic.

The new OTX series are an even more robust OEM version of our OT Translators. They are designed to absorb a 4G jolt without moving more than 5 microns. Locks on all axes make them perfect for applications where any misalignment during shipping can't be tolerated.

Applications



Section Contents

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2.0" to 2.25" Optic, 2 to 5 Axis	264
Adapters	
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1.0" Optic Adapters	263
1.5" Optic Adapters	265
Device Mounting Base	266

This product tree shows the compatibility of our lens positioners with various mounting bases and aperture adapters.

Lens Positioners

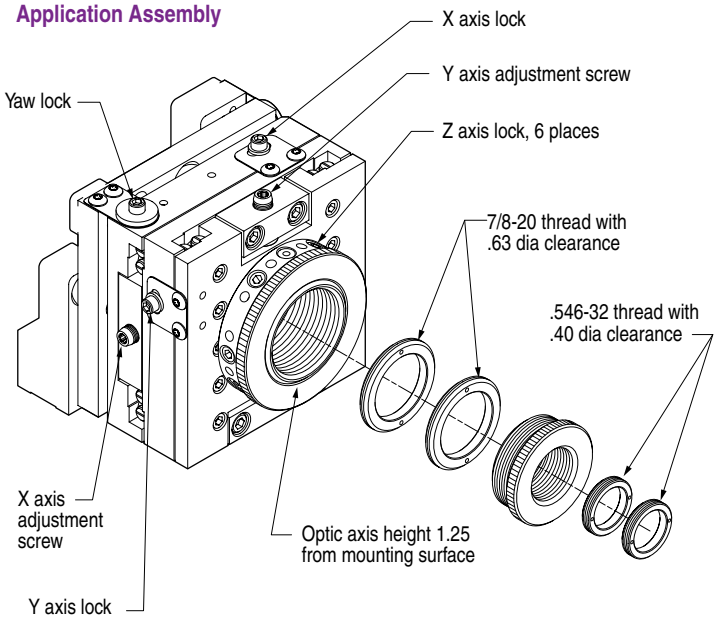
eXtreme Grade — 2- to 5-axis

0.5–0.8-inch optic / OTX.5 Series

Note that dimensions in parentheses (mm) reflect metric assembly features

OTX.5 Series

Application Assembly



Adjustment screws have 8-100 threads and fit either 5/64 or 2.0mm hex, typ.

Locks fit either 5/64 or 2.0mm hex, typ.

New

Product Features

- 100 pitch adjustment screws
- High precision crossed roller design
- All axes lockable
- 0.5-inch optic holder included

Performance Specifications

Travel	
X and Y axes	0.125 inch (3 mm)
Z axis	0.250 inch (6 mm)
Pitch and Yaw	5°
Minimum controllable motion	
X, Y, and Z axes	submicron
Pitch and Yaw	5 arc sec.

Related Products

OH.5 series optic holder	261
dovetail rails & carriers, DTR & DTC series	130

Order Information

optic translator, 0.5"–0.8" optic, 2-axis	OTX.5-2
optic translator, 0.5"–0.8" optic, 3-axis	OTX.5-3
optic translator, 0.5"–0.8" optic, 5-axis	OTX.5-5

Metric Option — for metric assembly features on this product, add '-M' after model number.

Optic Translators

The new OTX.5 series optical translators are a OEM version of our popular OT.5 series. These compact optical translators incorporate crossed roller bearings for zero crosstalk between X & Y axis adjustments. Precision rolled 100TPI adjustment screws enable submicron adjustment across the full travel of these axes. Foil locks on all axes have been tested to 4g's to ensure they won't come out of adjustment — even during shipping.

The Z-axis on the OTX.5-3 and OTX.5-5 uses an internal 80 pitch thread. The drive knob for the Z-axis has 6 locking screws and 6 capstan drive holes — you can adjust or lock at any orientation. Adjustment of the Z (focus) axis does not rotate the optical element when the dial is turned. The inner sleeve, in which the optical element is held, does not rotate — it moves like a camera lens. This keeps optical axis height constant, and polarization orientation is maintained.

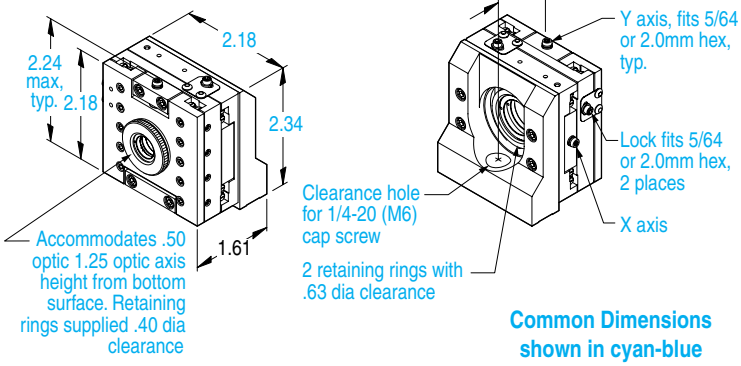
The OTX.5-5 uses our patented spring-loaded (pat.# 6590723) pivot for the tip/tilt of the XYZ stage. Though the motion is not true gimbal, it rotates about the optical center. One clear benefit of this design is the location of the adjustment screws above the beam path. Like many of our mirror mounts, the OTX.5 series uses our *one wrench* design. This allows the user to adjust the optic position — and lock all axes — with one wrench.

The OTX.5 optical translators are compatible with our OH.5 series of optics holders, from a standard 0.25-inch optic to custom optic mountings.

***eXtreme* Grade** **2- to 5-axis**

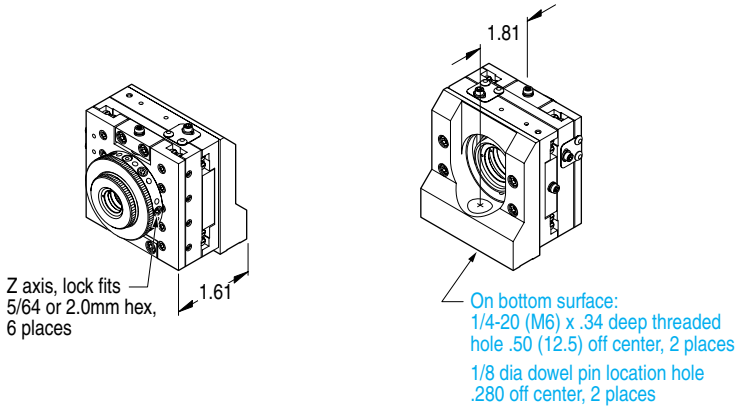
0.5–0.8-inch optic / OTX.5 Series

Note that dimensions in parentheses (mm) reflect metric assembly features



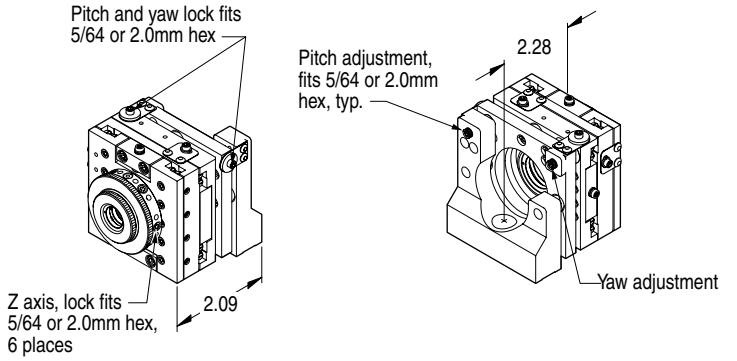
OTX.5-2

Common Dimensions shown in cyan-blue

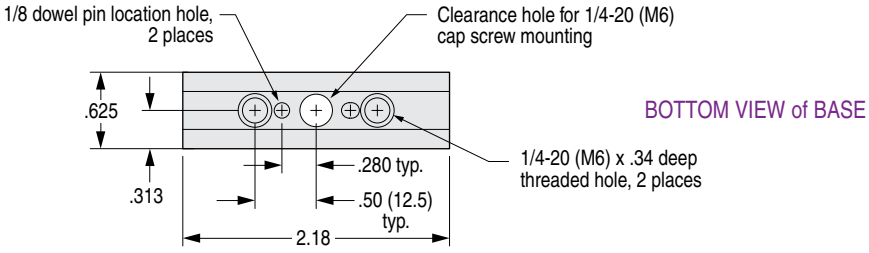


OTX.5-3

New



OTX.5-5



BOTTOM VIEW of BASE

Lens Positioners

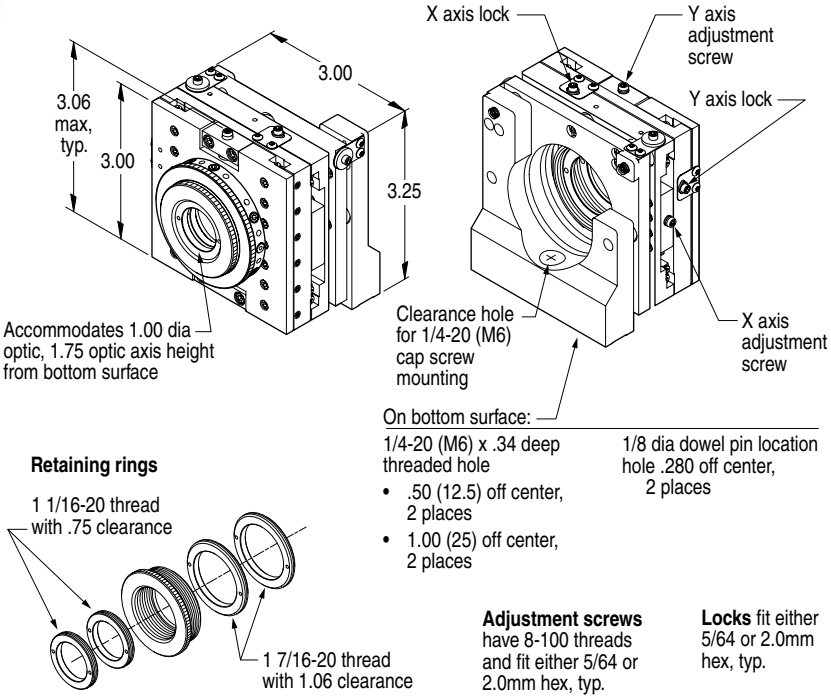
eXtreme Grade — 2- to 5-axis

1.0-inch optic / OTX1.0 Series

Note that dimensions in parentheses (mm) reflect metric assembly features

OTX1.0 Series

OTX1.0 Common Dimensions



New

Product Features

- 100 pitch adjustment screws
- High precision crossed roller design
- All axes lockable
- 1.0-inch optic holder included

Performance Specifications

Travel	
X and Y axes	0.125 inch (3 mm)
Z axis	0.250 inch (6 mm)
Pitch and Yaw	5°
Minimum controllable motion	
X and Y axes	submicron
Z axis	10 µm
Pitch and Yaw	5 arc sec.

Related Products

OH1.0 series optic holder	263
dovetail rails & carriers, DTR & DTC series	130

Order Information

optic translator, 1.0" optic, 2-axis	OTX1.0-2
optic translator, 1.0" optic, 3-axis	OTX1.0-3
optic translator, 1.0" optic, 5-axis	OTX1.0-5

Metric Option — for metric assembly features on this product, add '-M' after model number.

Optic Translators

The new OTX1.0 series optical translators are an OEM version of our popular OT1.0 series. These compact optical translators incorporate crossed roller bearings for zero crosstalk between X & Y axis adjustments. Precision rolled 100TPI adjustment screws enable submicron adjustment across the full travel of these axes. Foil locks on all axes have been tested to 4g's to ensure they won't come out of adjustment — even during shipping.

The drive knob for the Z-axis has 6 locking screws and 6 capstan drive holes — you can adjust or lock at any orientation. Adjustment of the Z (focus) axis does not rotate the optical element when the dial is turned. The inner sleeve, in which the optical element is held, does not rotate — it moves like a camera lens. This keeps optical axis height constant, and polarization orientation is maintained.

The OTX1.0-5 uses our patented spring-loaded (pat.# 6590723) pivot for the tip/tilt of the XYZ stage. Though the motion is not true gimbal, it rotates about the optical center. One clear benefit of this design is the location of the adjustment screws above the beam path. Like many of our mirror mounts, the OTX1.0 series uses our *one wrench* design. This allows the user to adjust the optic position, and lock all axes with one wrench.

The OTX1.0 optical translators are compatible with our OH1.0 series of optics holders, from a standard 0.50-inch optic to custom optic mountings.

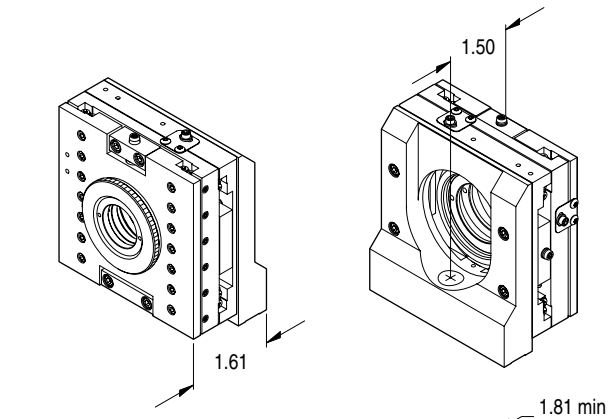
Lens Positioners

eXtreme Grade

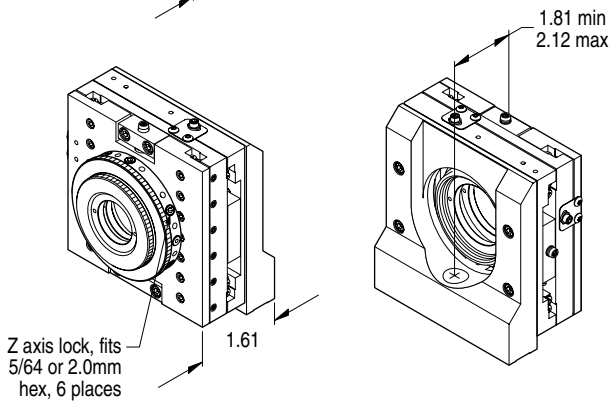
2- to 5-axis

1.0-inch optic / OTX1.0 Series

Note that dimensions in parentheses (mm) reflect metric assembly features

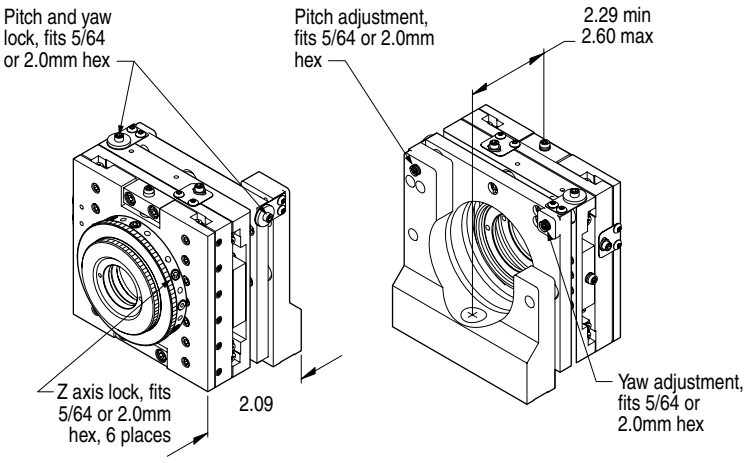


OTX1.0-2

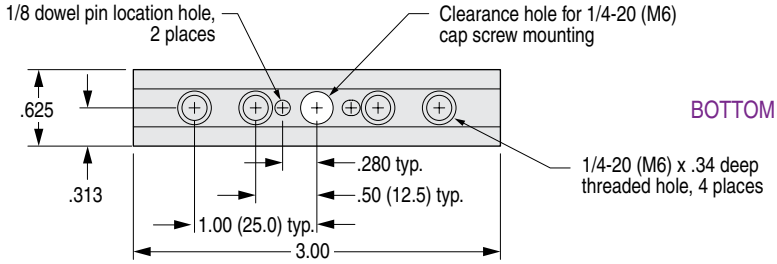


OTX1.0-3

New



OTX1.0-5



BOTTOM VIEW of BASE

Lens Positioners

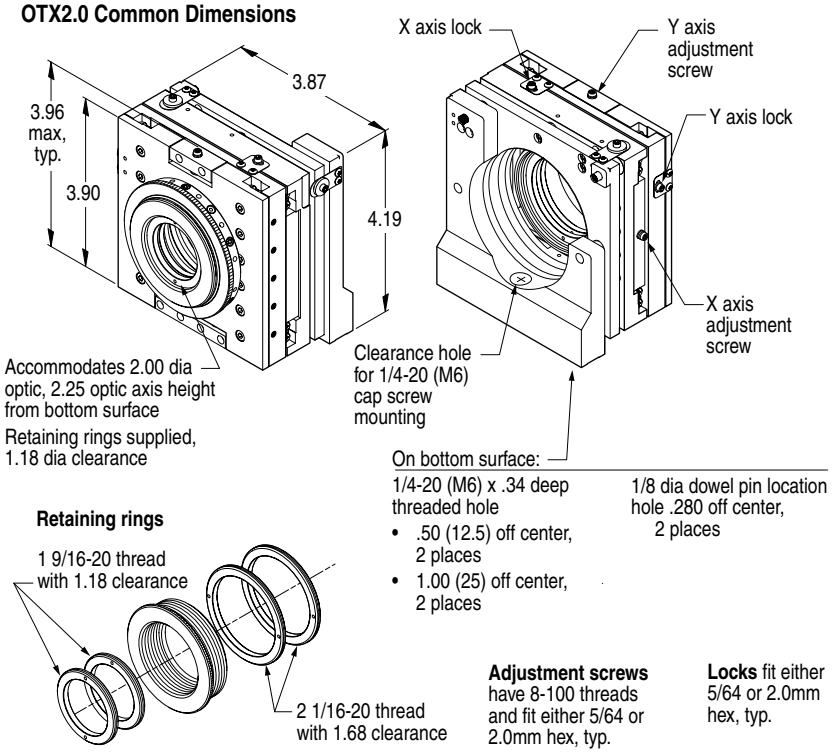
***eXtreme* Grade** **2- to 5-axis**

2.0-inch optic / OTX2.0 Series

Note that dimensions in parentheses (mm) reflect metric assembly features

OTX2.0 Series

OTX2.0 Common Dimensions



New

Product Features

- 100 pitch adjustment screws
- High precision crossed roller design
- All axes lockable
- 1.5-inch optic holder included

Performance Specifications

Travel	
X and Y axes	0.125 inch (3 mm)
Z axis	0.250 inch (6 mm)
Pitch and Yaw	5°
Minimum controllable motion	
X and Y axes	submicron
Z axis	10 µm
Pitch and Yaw	5 arc sec.

Related Products

OH2.0 series optic holder	265
dovetail rails & carriers, DTR & DTC series	130

Order Information

optic translator, 2.0" optic, 2-axis	OTX2.0-2
optic translator, 2.0" optic, 3-axis	OTX2.0-3
optic translator, 2.0" optic, 5-axis	OTX2.0-5

Metric Option — for metric assembly features on this product, add '-M' after model number.

Optic Translators

The new OTX2.0 series optical translators are an OEM version of our popular OT2.0 series. These compact optical translators incorporate small crossed roller bearings for zero crosstalk between X & Y axis adjustments. Precision rolled 100TPI adjustment screws enable submicron adjustment across the full travel of these axes. Foil locks on all axes have been tested to 4g's to ensure they won't come out of adjustment — even during shipping. The Z-axis on the OTX2.0-3 and OTX2.0-5 uses an internal 80 pitch thread.

The drive knob for the Z-axis has 6 locking screws and 6 capstan drive holes — you can adjust or lock at any orientation. Adjustment of the Z (focus) axis does not rotate the optical element when the dial is turned. The inner sleeve, in which the optical element is held, does not rotate — it moves like a camera lens. This keeps optical axis height constant, and polarization orientation is maintained.

The OTX2.0-5 uses our patented spring-loaded (pat.# 6590723) pivot for the tip/tilt of the XYZ stage. Though the motion is not true gimbal, it rotates about the optical center. One clear benefit of this design is the location of the adjustment screws above the beam path. Like many of our mirror mounts, the OTX2.0 series uses our *one wrench* design. This allows the user to adjust the optic position, and lock all axes with one wrench.

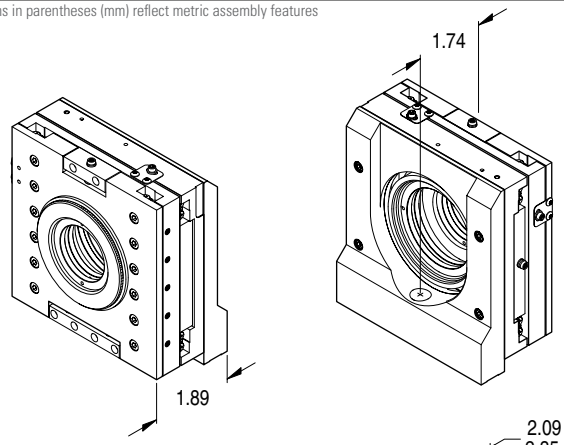
The OTX2.0 optical translators are compatible with our OH2.0 series of optics holders, from a standard 1.50-inch optic to custom optic mountings.

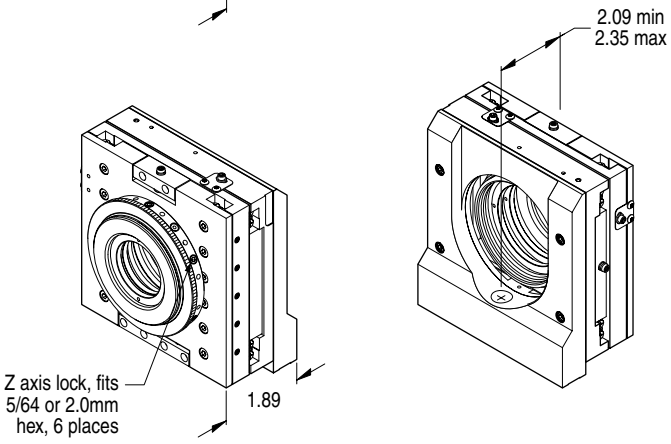
eXtreme Grade

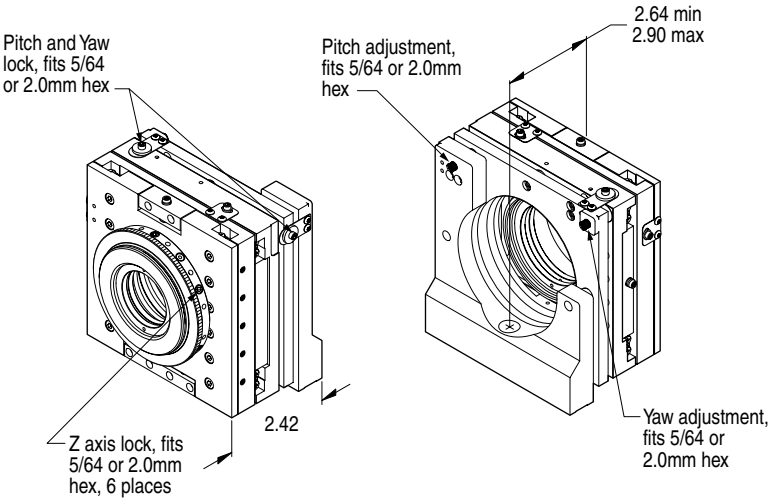
2- to 5-axis

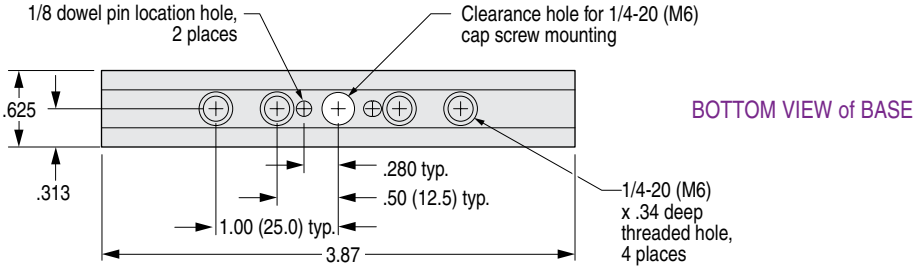
2.0-inch optic / OTX2.0 Series

Note that dimensions in parentheses (mm) reflect metric assembly features









BOTTOM VIEW of BASE

OTX2.0-2

OTX2.0-3

New

OTX2.0-5

Lens Positioners

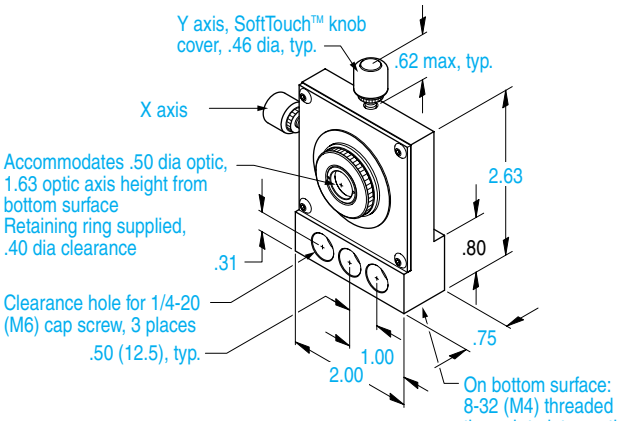
Compact Design

0.5- to 0.8-inch optics / OT.5 Series

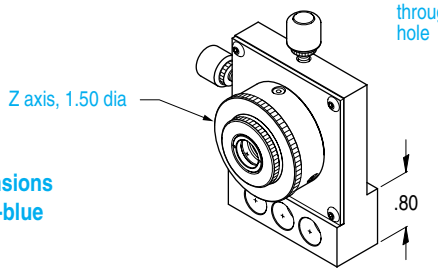
Note that dimensions in parentheses (mm) reflect metric assembly features

OT.5 Series

OT.5-2

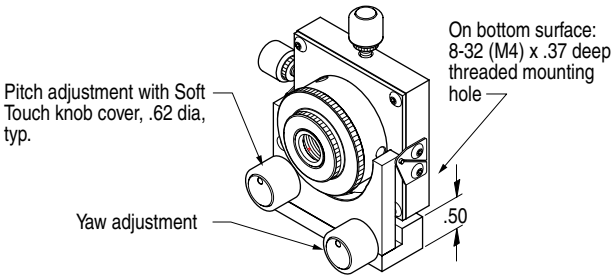


OT.5-3



Common Dimensions shown in cyan-blue

OT.5-5



Product Features

- 80 pitch adjustment screws
- 2-, 3-, and 5-axis versions
- 0.5-inch optic holder included
- Vacuum compatible versions available upon request

Performance Specifications

Travel	
X and Y axes	0.12 inch (3.1 mm)
Z axis	0.25 inch (6.3 mm)
Pitch and Yaw	5°
Minimum controllable motion	
X, Y, and Z axes	1 µm
Pitch and Yaw	5 arc sec.

Related Products

RTC-0.5 clamp	132
DMB.2 mounting plate	266
OH.5-B optic holder	261
OH.5-OB optic holder	261
OH.5-.50 optic holder	261
OH.5-.25 optic holder	261

Order Information

optic translator, 0.8" optic, 2-axis	OT.5-2
optic translator, 0.8" optic, 3-axis	OT.5-3
optic translator, 0.8" optic, 5-axis	OT.5-5

Metric Option — for metric assembly features on this product, add '-M' after model number.

Optic Translators

The compact design of our OT.5 optical translators makes them ideal for crowded beam path applications. They use 80TPI adjustment screws for precise positioning in XY-, XYZ-, or 5-axis gimbaled models.

The Z-axis is designed like focus on a camera lens — rotating the adjuster moves the lens in and out, but the optical center of the lens does not move / the optic does not rotate. Optical axis height is constant and polarization orientation is maintained. The Y-axis knob in all models uses a unique capture screw design to ensure no drift due to overloading in that axis.

All models use our SoftTouch™ color coded knob caps for easy axis identification in low light conditions.

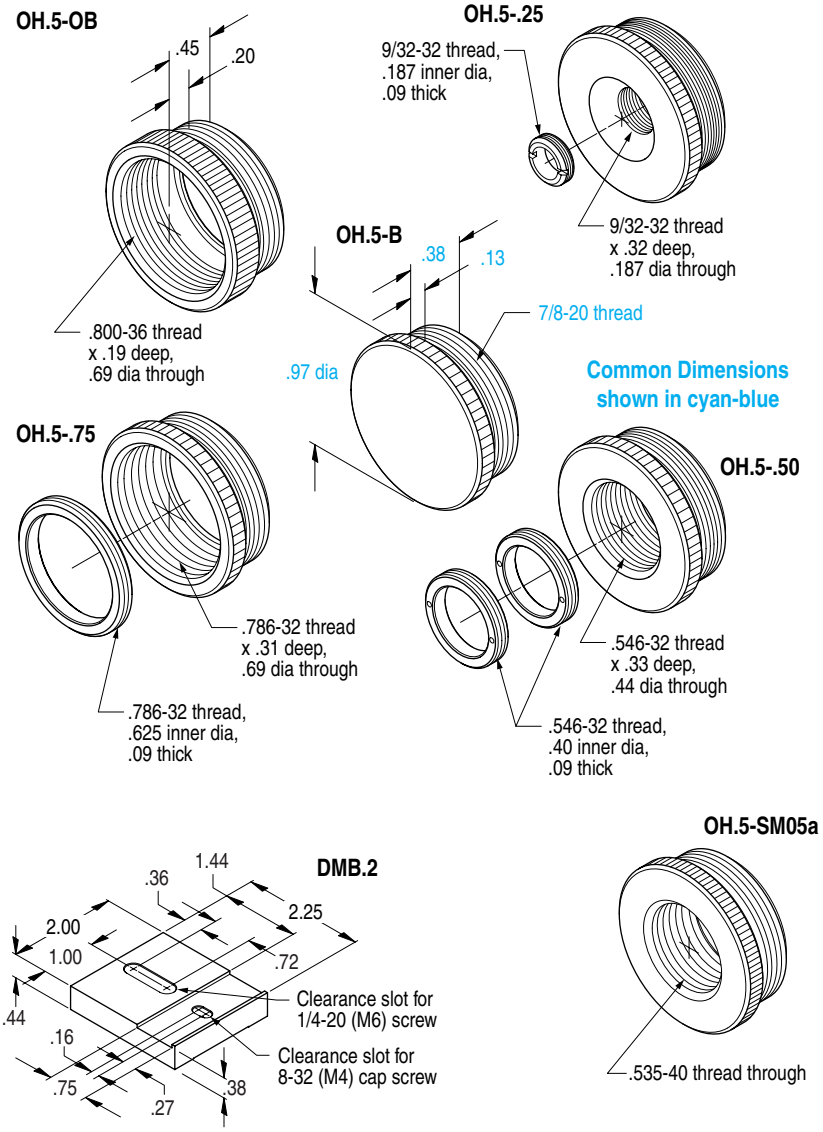
The OT.5 optical translators are compatible with our OH.5 series of optics holders, from a standard 0.25-inch optic to custom optic mountings.

GMP
GENERAL MICROTECHNOLOGY & PHOTONICS

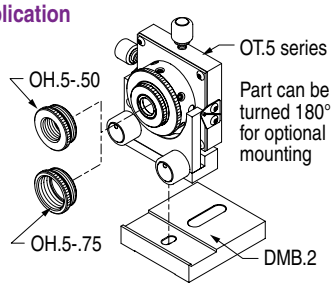
siskiyou

Adapters

0.25- to 0.75-inch optic / OH.5 Series and DMB.2



Application



Product Features

- Microscope objective version
- Solid version for customer modifications
- Delrin® retaining rings
- Vacuum compatible versions available upon request

Related Products

OT.5 series optic translator	260

Order Information

optic holder, 0.5", blank adapter	OH.5-B
optic holder, 0.5", microscope objective	OH.5-OB
optic holder, 0.5", 0.25" adapter	OH.5-.25
optic holder, 0.5", 0.50" adapter	OH.5-.50
optic holder, 0.5", 0.75" adapter	OH.5-.75
0.5" tube adapter	OH.5-SM05a
mounting base for OT.5 series	DMB.2

Optic Holders

The OH.5 series optic holders are compatible with our OT.5 optical translators. These solid aluminum optic holders screw into the center 7/8-20 thread of the OT.5 series. The outer edge of the holder is knurled to ensure non-slip insertion and removal. All versions are coated with a non-reflective black anodized coating.

The 0.25-, 0.50-, and 0.75-inch versions come with non-marring Delrin® retaining rings. The OH.5-B is a solid version for customer modification to fit custom optic requirements. We can also build OEM versions to fit your needs – please call for a price quote.

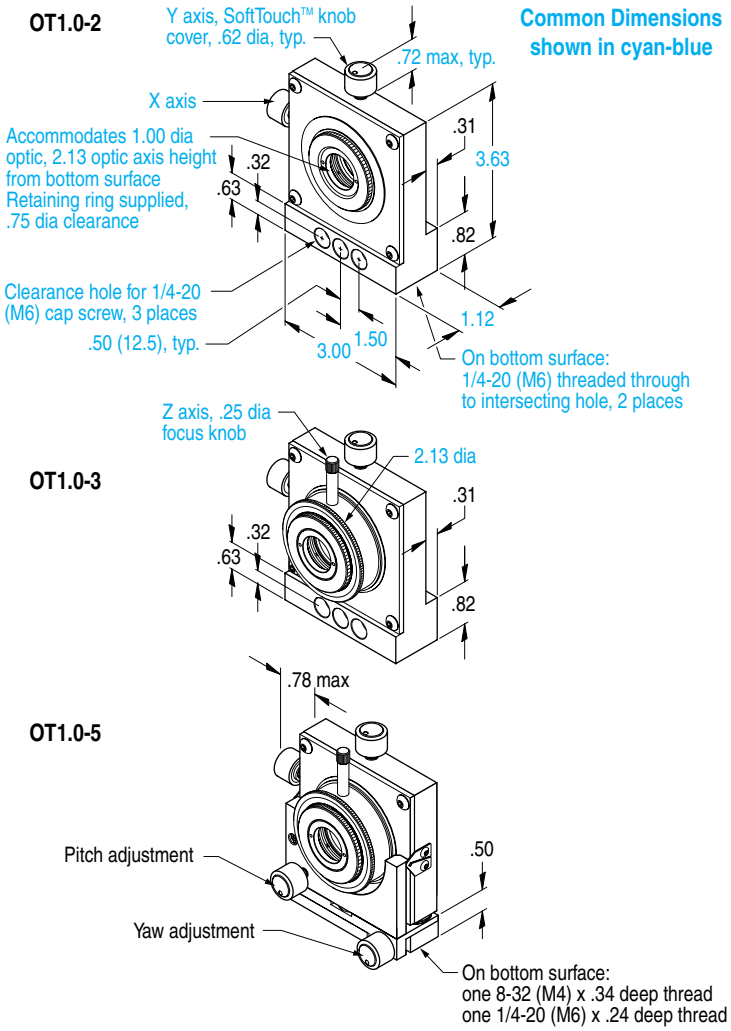
Lens Positioners

Compact Design

1.0- to 1.375-inch optics / OT1.0 Series

Note that dimensions in parentheses (mm) reflect metric assembly features

OT1.0 Series



Product Features

- 80 pitch adjustment screws
- 2-, 3-, and 5-axis versions
- 1.0-inch optic holder included
- Vacuum compatible versions available upon request

Performance Specifications

Travel	
X and Y axes	0.187 inch (4.7 mm)
Z axis	0.25 inch (6.3 mm)
Pitch and Yaw	11°
Minimum controllable motion	
X and Y axes	1 µm
Z axis	10 µm
Pitch and Yaw	4 arc sec.

Related Products

DMB.1 mounting plate	266
OH1.0-1.0 optic holder	263
OH1.0-B optic holder	263
OH1.0-OB optic holder	263

Order Information

optic translator, 1.375" optic, 2-axis	OT1.0-2
optic translator, 1.375" optic, 3-axis	OT1.0-3
optic translator, 1.375" optic, 5-axis	OT1.0-5

Metric Option — for metric assembly features on this product, add '-M' after model number.

Optic Translators

The thin design of our OT1.0 optical translators makes them ideal for crowded beam path applications. They use 80TPI adjustment screws for precise positioning in XY-, XYZ-, or 5-axis gimbaled models.

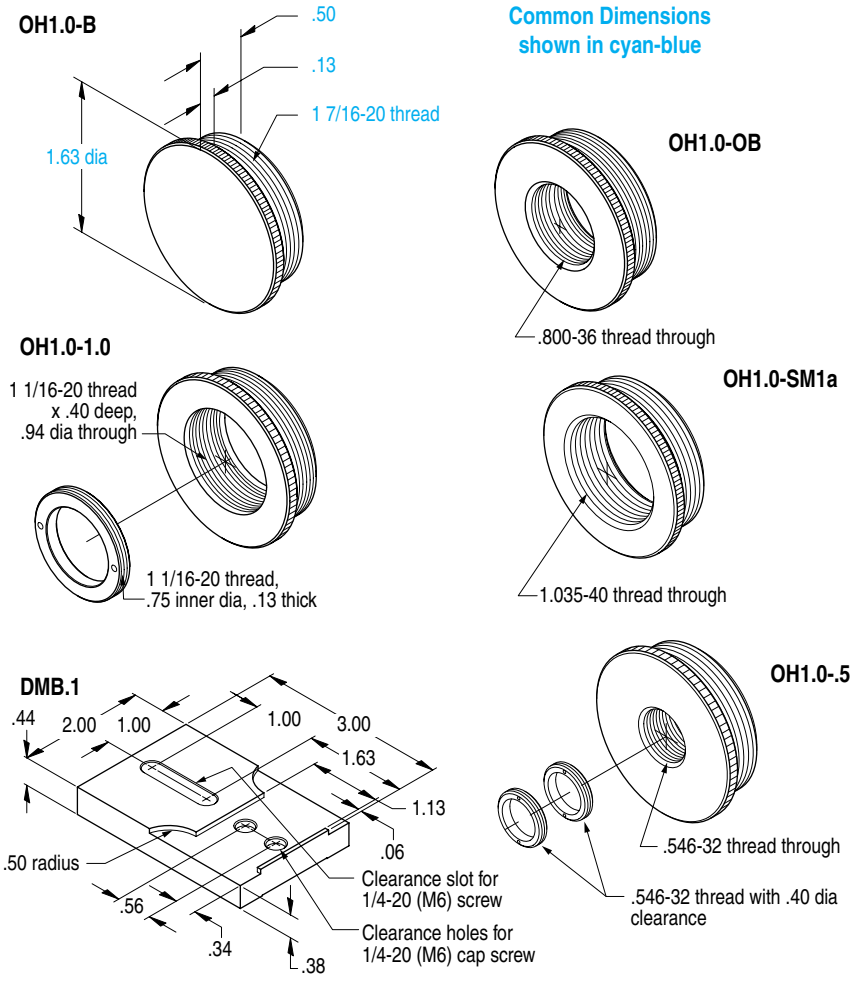
The Z-axis is designed like focus on a camera lens — rotating the adjuster moves the lens in and out, but the optical center of the lens does not move / the optic does not rotate. Optical axis height is constant and polarization orientation is maintained. The Y-axis knob in all models uses a unique capture screw design to ensure no drift due to overloading in that axis.

All models use our SoftTouch™ color coded knob caps for easy axis identification in low light conditions.

The OT1.0 optical translators are compatible with our OH1.0 series of optics holders, from a standard 0.50-inch optic to custom optic mountings.

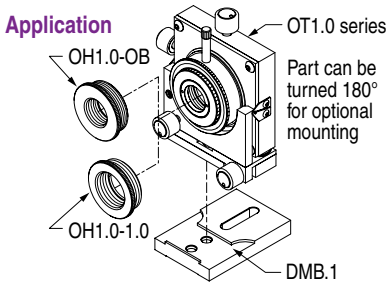
Adapters

1.0-inch optic / OH1.0 Series and DMB.1



OH1.0 Series

DMB.1



Optic Holders

The OH1.0 series optic holders are compatible with our OT1.0 optical translators. These solid aluminum optic holders screw into the center 1 1/16-20 thread of the OT1.0 series. The outer edge of the holder is knurled to ensure non-slip insertion and removal. All versions are coated with a non-reflective black anodized coating.

The 1.0-inch version comes with non-marring Delrin® retaining rings. The OH1.0-B is a solid version for customer modification to fit custom optic requirements. We can also build OEM versions to fit your needs – please call for a price quote.

Product Features

- Microscope objective version
- Solid version for customer modifications
- Delrin® retaining rings
- Vacuum compatible versions available upon request

Related Products

OT1.0 series optic translator	262
OTX1.0 series optic translator	256

Order Information

optic holder, 1.0", blank adapter	OH1.0-B
optic holder, 1.0", microscope objective	OH1.0-OB
optic holder, 1.0", 1.0" adapter	OH1.0-1.0
optic holder, 0.5", mounts in OT1.0 and OTX1.0 series	OH1.0-.5
lens tube adapter, 1.0" adapter	OH1.0-SM1a
device mounting base, 2.00" x 3.00"	DMB.1

Lens Positioners

Compact Design

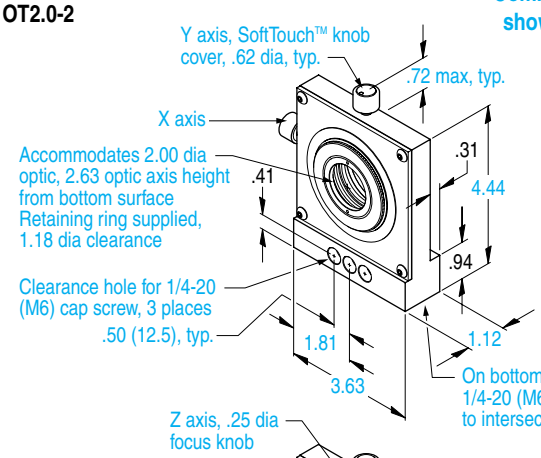
2.0- to 2.25-inch optics / OT2.0 Series

Note that dimensions in parentheses (mm) reflect metric assembly features

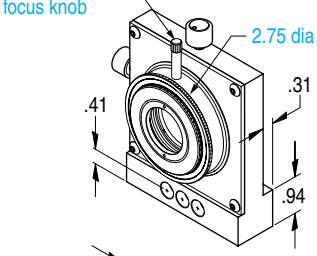
OT2.0 Series

Common Dimensions shown in cyan-blue

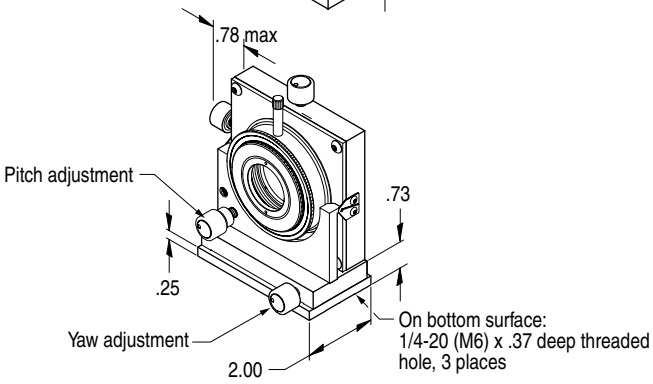
OT2.0-2



OT2.0-3



OT2.0-5



Product Features

- 80 pitch adjustment screws
- 2-, 3-, and 5-axis versions
- 1.5-inch optic holder included
- Vacuum compatible versions available upon request

Performance Specifications

Travel	
X and Y axes	0.187 inch (4.7 mm)
Z axis	0.25 inch (6.3 mm)
Pitch and Yaw	10°
Minimum controllable motion	
X and Y axes	1 µm
Z axis	10 µm
Pitch and Yaw	3 arc sec.

Related Products

DMB.3 mounting plate	266
OH2.0-1.5 optic holder	265
OH2.0-B optic holder	265

Order Information

optic translator, 2.0" optic, 2-axis	OT2.0-2
optic translator, 2.0" optic, 3-axis	OT2.0-3
optic translator, 2.0" optic, 5-axis	OT2.0-5

Metric Option — for metric assembly features on this product, add '-M' after model number.

Optic Translators

The compact design of our OT2.0 optical translators makes them ideal for crowded beam path applications. These compact optical translators use 80TPI adjustment screws for precise positioning in XY-, XYZ-, or 5-axis gimbaled models.

The Z-axis is designed like focus on a camera lens — rotating the adjuster moves the lens in and out, but the optical center of the lens does not move / the optic does not rotate. Optical axis height is constant and polarization orientation is maintained. The Y-axis knob in all models uses a unique capture screw design to ensure no drift due to overloading in that axis.

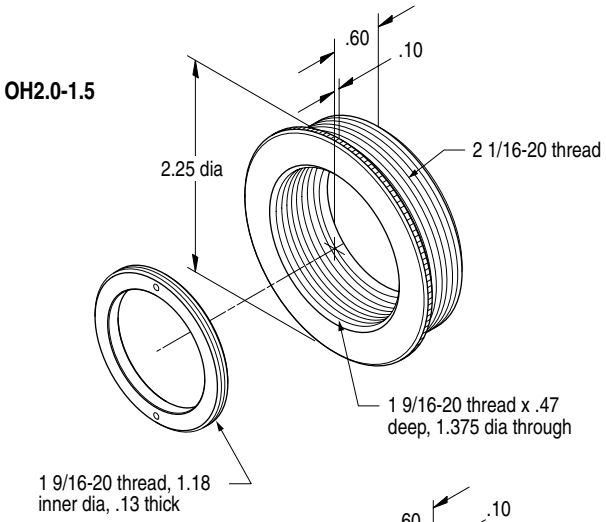
All models use our SoftTouch™ color coded knob caps for easy axis identification in low light conditions. The OT2.0 optical translators are compatible with our OH2.0 series of optics holders, from a standard 1.50-inch optic to custom optic mountings.

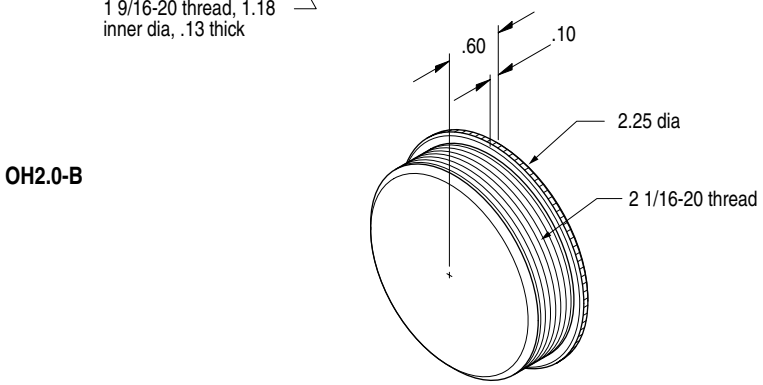
GMP
GENERAL MICROTECHNOLOGY & PHOTONICS

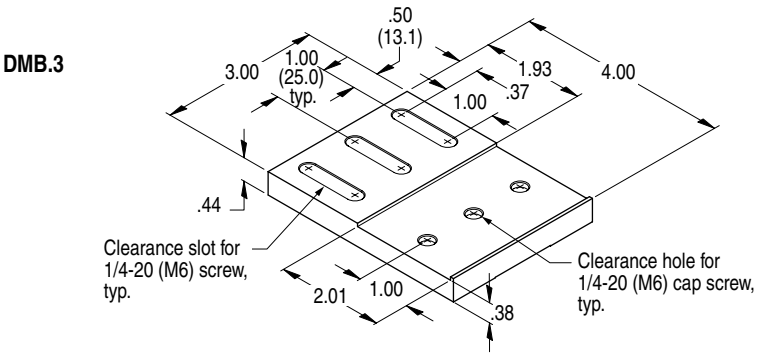
siskiyou

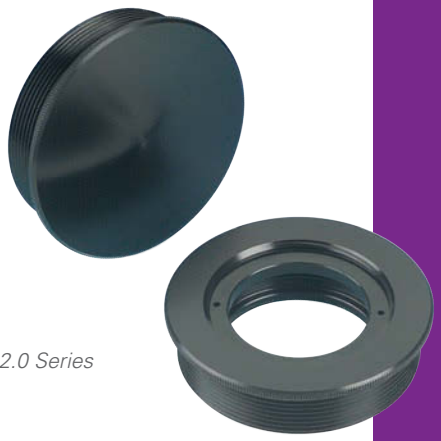
Adapters

1.5-inch optic / OH2.0 Series and DMB.3





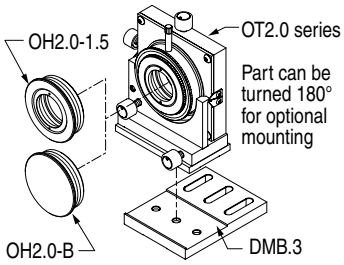




OH2.0 Series

DMB.3

Application



Optic Holders

The OH2.0 series optic holders are compatible with our OT2.0 optical translators. These solid aluminum optic holders screw into the center 2 1/16-20 thread of the OT2.0 series. The outer edge of the holder is knurled to ensure non-slip insertion and removal. All versions are coated with a non-reflective black anodized coating.

The 1.5-inch version comes with non-marring Delrin® retaining rings. The OH.5-B is a solid version for customer modification to fit custom optic requirements. We can also build OEM versions to fit your needs – please call for a price quote.

Product Features

- Delrin® retaining rings
- Solid version for customer modifications
- Anodized aluminum construction
- Vacuum compatible versions available upon request

Related Products

OT2.0 series optic translator	264
OTX2.0 series optic translator	258

Order Information

optic holder, 2.0", 1.5 inch adapter	OH2.0-1.5
optic holder, 2.0", blank adapter	OH2.0-B
device mounting base, 3.00" x 4.00"	DMB.3

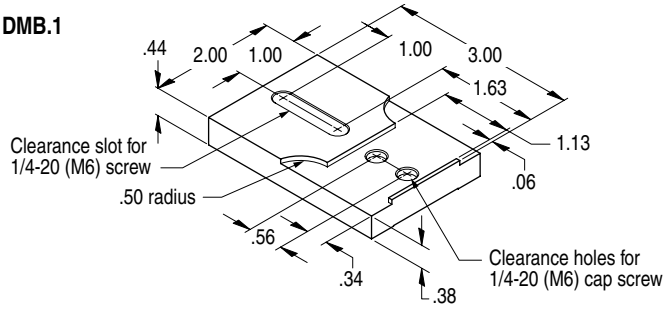
Device Mounting Base

2"x3", 2"x2.25" and 3"x4" / DMB Series

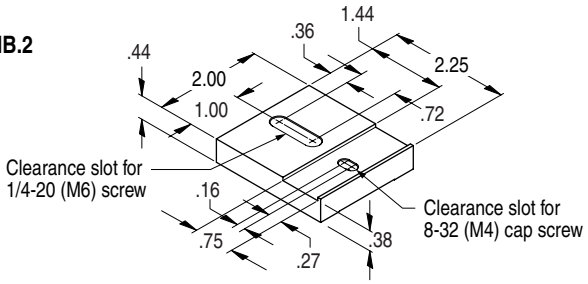
Note that dimensions in parentheses (mm) reflect metric assembly features

DMB.1 DMB.3 DMB.2

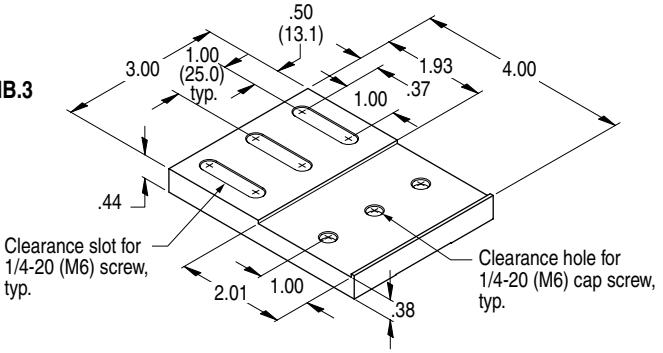
DMB.1



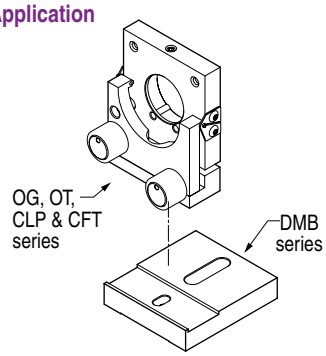
DMB.2



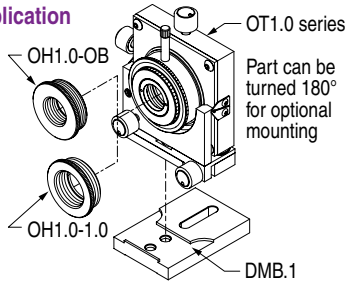
DMB.3



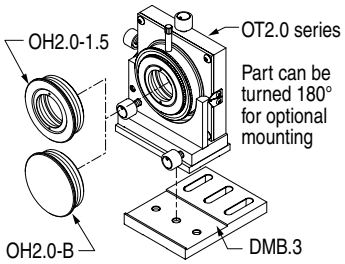
Application



Application



Application



Product Features

- Compatible with OT, OG, and CLP series mounts
- 1/4-20 and M6 table mounting
- Solid aluminum construction
- Vacuum compatible versions available upon request

Related Products

PR precision rods	132
OT series optic translator	beginning 260
CLP3 series cylindrical lens positioner	274
CFT series fiber translator	286
OG series gimbal mount	beginning 268
cross-reference table	302

Order Information

device mounting base, 2.00"x3.00"	DMB.1
device mounting base, 2.00"x2.25"	DMB.2
device mounting base, 3.00"x4.00"	DMB.3

Metric Option — for metric assembly features on this product, add '-M' after model number.

Device Mounting Bases

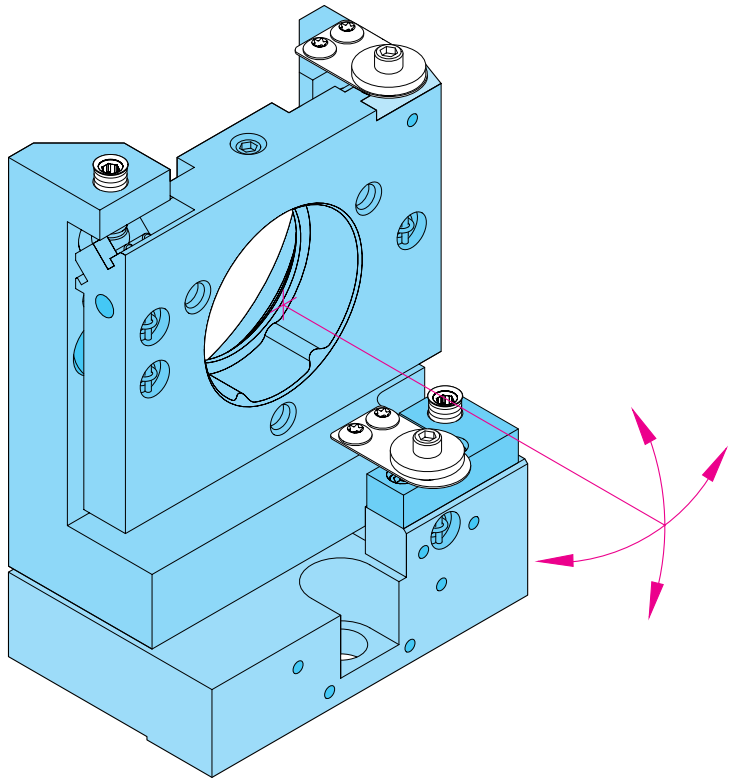
Our DMB series of device mounting bases facilitates axial and non-axial mounting on platforms and isolation tables. These low profile device mounting bases are ideal in instances where it is necessary to mount our optical translators (pages 254–264) directly to an isolation table or platform. The DMB series adds minimally to the height of the device and the cost. These devices are securely mounted to the appropriate base with 8-32 or 1/4-20 hardware. Mounting to a platform or isolation table is done with our TS series thumb screws.

Gimbal Mounts / Laser Diode Positioner

Our gimbaled lens positioners cover a broad spectrum of optic configurations. The simple 2-axis models are the basis for more complex positioning requirements, including rotational positioning for polarizers or cylindrical lenses. All models use precision rolled 80TPI adjustment screws for pitch/yaw adjustment. Our lockable models include non-influencing locks that securely hold the mechanism in place.

Providing X, Y, tip and tilt in a small robust package, the 4-axis LDP laser diode positioner is ideal for industrial applications, and includes a safety shutter for security. Our OT.5-5SF spatial filter uses our OT.5 series optic translator as the basis for its mechanical design and is a compact solution for cleaning up your light source.

Both bare fiber and connectorized fiber translator systems round out this section. The BFT series of fiber translators are available in 3- and 5-axis versions as well as polarizing and non-polarizing models. The BFC series of fiber chucks slide into the BFT translators and cover a variety of fiber sizes from 80 µm to 1 mm, as well as GRIN rods. Our CFT connectorized fiber translators come in 3- and 5-axis polarized models. These translators are compatible with the CFC fiber chucks, and the chucks are connectorized to fit SMA, NTT, and ATT fiber connectors.



Section Contents

Gimbal Mounts

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Almost Gimbal

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1.0" Optic, Polarizing	273

Laser Diode Positioner

Front & Back Adjustable	276
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Gimbal Mounts

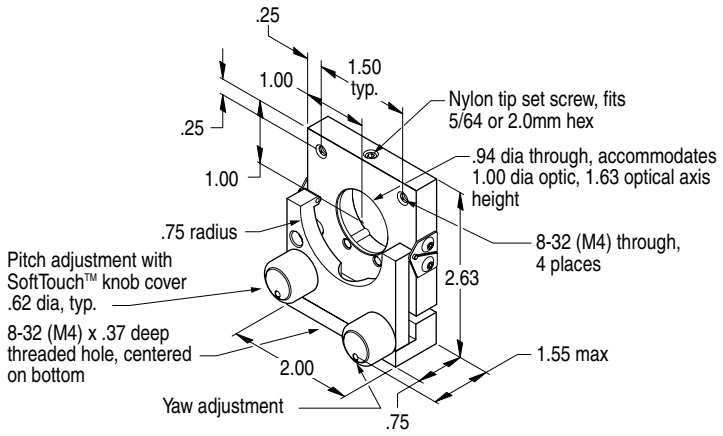
Standard

1 and 2 Inch

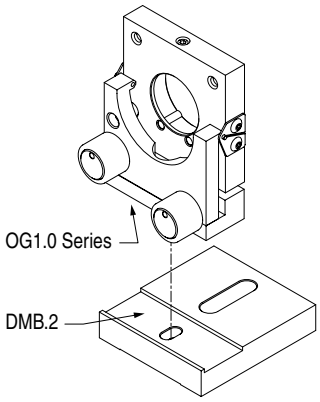
OG-2.0

1 Inch, Standard Gimbal Mount / OG-1.0

Note that dimensions in parentheses (mm) reflect metric assembly features

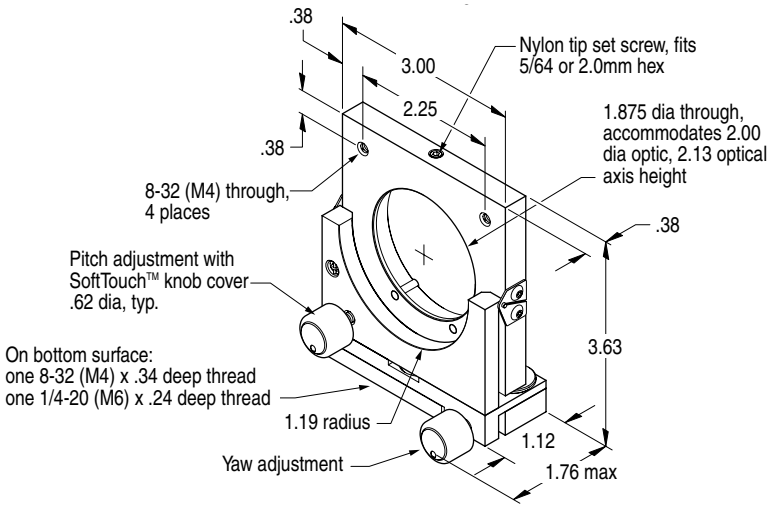


Application



2 Inch, Standard Gimbal Mount / OG-2.0

Note that dimensions in parentheses (mm) reflect metric assembly features



Product Features

- 80 pitch adjustment screws
- 3-point optic mounting
- Maximized clear aperture
- Vacuum compatible versions available

Performance Specifications

Travel / axis	
OG-1.0	12°
OG-2.0	8.5°
Minimum controllable motion	
OG-1.0	10 arc sec.
OG-2.0	6 arc sec.

Related Products

DMB.1 mounting plate	266
DMB.2 mounting plate	266

Order Information

standard optical gimbal, 1.0 inch	OG-1.0
standard optical gimbal, 2.0 inch	OG-2.0

Metric Option — for metric assembly features on this product, add '-M' after model number.

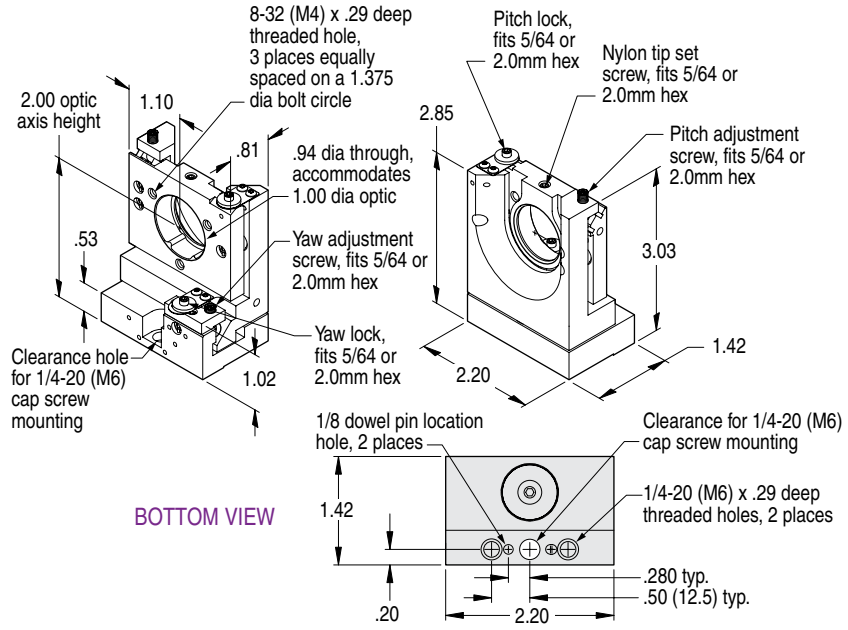
The OG series of optical gimbal mounts offer a compact and robust mounting platform for laser cavity applications. Both the OG-1.0 and OG-2.0 use our precision rolled 80TPI adjustment screws for accurate gimbaled positioning.

3-point location pads hold optic securely in place. Added 8-32 mounting holes give increased mounting flexibility for non-standard optic configurations. All models use our SoftTouch™ color coded knob caps for easy axis identification in low light conditions.

eXtreme **1 and 2 Inch**

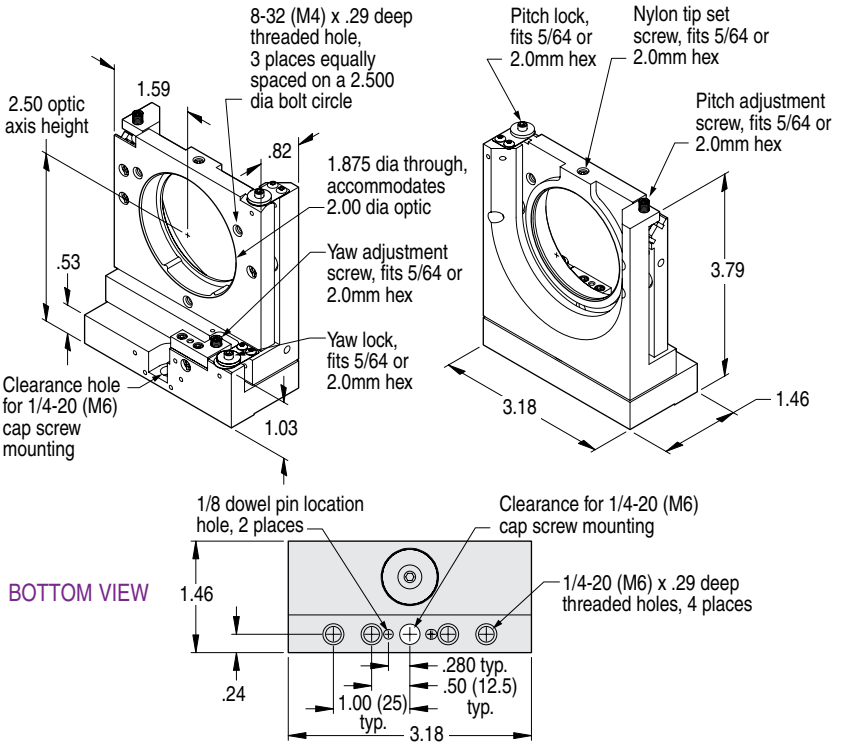
1 Inch, *eXtreme* Gimbal Mount / OGX-1.0

Note that dimensions in parentheses (mm) reflect metric assembly features



2 Inch, *eXtreme* Gimbal Mount / OGX-2.0

Note that dimensions in parentheses (mm) reflect metric assembly features



The OGX series of gimbal mounts offers the ultimate in stability and ease-of-adjustment in a true gimbal mount. Adjustable and lockable from above, this new series of mount provides maximum clear aperture in a gimbal mount. Based on the lock architecture of our OTX optical translators, these mounts can take a 4G jolt without moving 5 microns — you can design them into applications where long-term stability is specified. Siskiyou *eXtreme* gimbal mounts — optimized for *eXtreme* conditions!

OGX-1.0 front

OGX-1.0 back

OGX-2.0 back

New

Product Features

- 100 pitch adjustment screws
- 3-point optic mounting
- Maximized clear aperture
- Vacuum compatible versions available

Performance Specifications

Travel / axis	
OGX-1.0	7° pitch and yaw
OGX-2.0	6° pitch, 7° yaw
Minimum controllable motion	
OGX-1.0	8.1 arc sec pitch, 5.4 arc sec yaw
OGX-2.0	6.0 arc sec pitch, 5.3 arc sec yaw

Related Products

dovetail rails & carriers, DTR & DTC series	130
TC-4 table/pedestal clamp	138

Order Information

eXtreme optical gimbal, 1.0 inch	OGX-1.0
eXtreme optical gimbal, 2.0 inch	OGX-2.0

Metric Option — for metric assembly features on this product, add '-M' after model number.

Gimbal Mounts

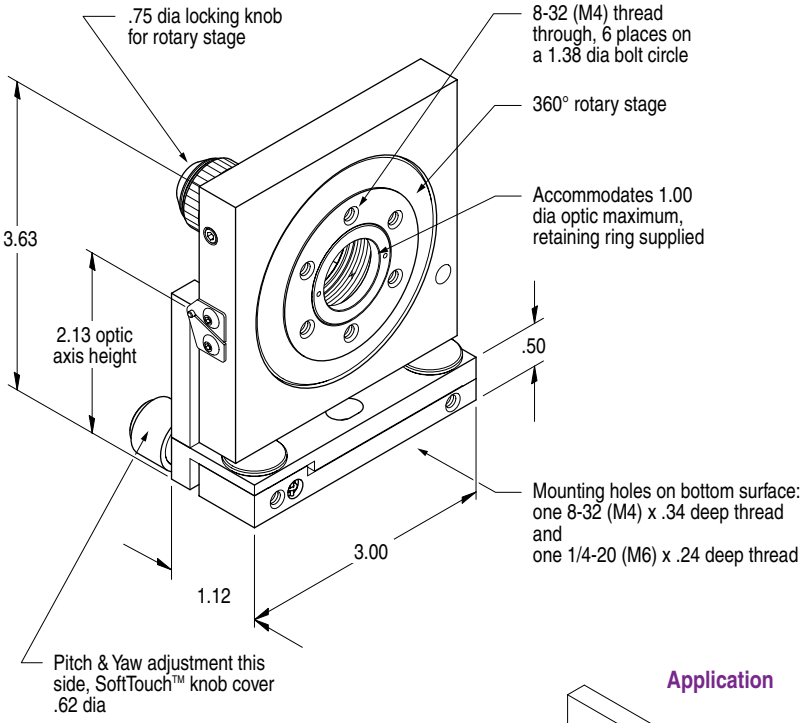
Standard, Polarizing — 1 Inch

1.0-inch optic / OG-1.0P

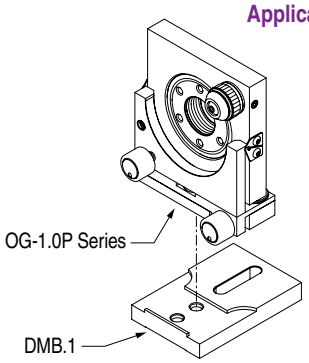
Note that dimensions in parentheses (mm) reflect metric assembly features

OG-1.0P

back, with RS-1.0i adapter



Application



Product Features

- 80 pitch adjustment screws
- Pitch & Yaw adjustment
- 360° lockable rotation
- Vacuum compatible versions available upon request

Performance Specifications

Travel / axis	
Pitch and Yaw	8.5°
Rotation	360°
Minimum controllable motion	
Pitch and Yaw	6 arc sec.
Rotation	30 arc min.

Related Products

DMB.1 mounting plate	266
OH.5 series optic holder	261
RS-1.0i thread adapter	72

Order Information

optical gimbal, 1.0 inch polarizing	OG-1.0P

Metric Option — for metric assembly features on this product, add '-M' after model number.

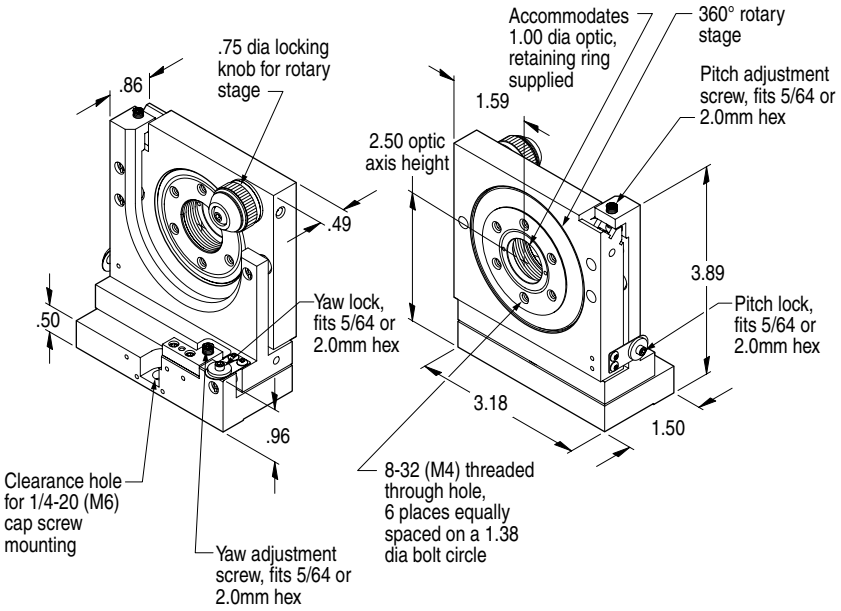
The OG series of polarizing optical gimbal mounts offer a compact and robust mounting platform for polarizers, beamsplitters, and quarter-wave plates. They use our precision rolled 80TPI adjustment screws for accurate gimbaled positioning and our SoftTouch™ color coded knob caps for easy axis identification in low light conditions.

Built into the gimbaled face plate is the rotational system from our RSA-1.0 rotation stage. A fine adjustment knob controls angular positioning through a 360° scale, graduated in 2° increments. The rotating platform can be securely locked in position by a non-influencing lock that is integrated into the fine adjustment knob. The center aperture of the rotating dial accepts 1.0-inch optics or OH.5 optic holders and comes with Delrin® retaining rings. Added 8-32 mounting holes in the dial face give increased mounting flexibility for non-standard optic configurations.

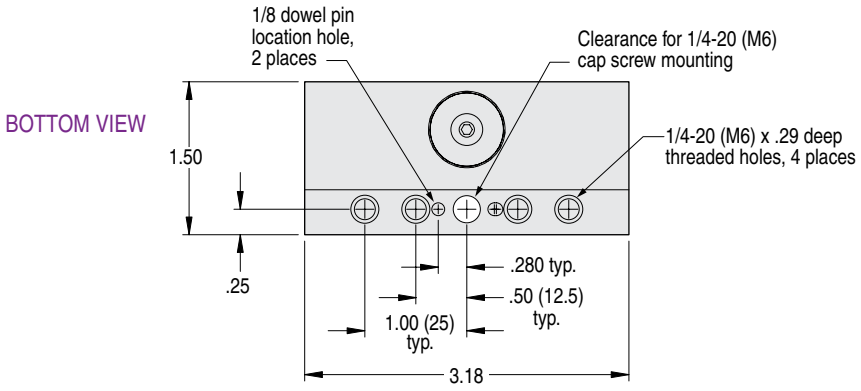
eXtreme, Polarizing — 1 Inch

1.0-inch optic, Polarizing / OGX-1.0P

Note that dimensions in parentheses (mm) reflect metric assembly features



OGX-1.0P



Siskiyou *eXtreme* polarizing mounts combine rotation on the optical axis, tip and tilt adjustment into a robust package that's adjustable from the top. All 3 axes are lockable, and the adjustment knob is at the top of the assembly for simple access. A variety of optical elements can be mounted in the rotating aperture with our OH series holders. Pin pockets in the base provide for rock-solid attachment to your optical chassis. Our *eXtreme* series is just what you need for critical applications.

Product Features

- 100 pitch adjustment screws
- Pitch & Yaw adjustment
- 360° lockable rotation
- Vacuum compatible versions available upon request

New

Performance Specifications

Travel / axis	
Pitch and Yaw	7°
Rotation	360°
Minimum controllable motion	
Pitch	5.5 arc sec.
Yaw	5.1 arc sec.
Rotation	30 arc min.

Related Products

dovetail rails & carriers, DTR & DTC series	130
TC-4 table/pedestal clamp	138
OH.5 series optic holder	261
RS-1.0i thread adapter	72

Order Information

eXtreme optical gimbal, 1.0 inch polarizing OGX-1.0P

Metric Option — for metric assembly features on this product, add '-M' after model number.

Gimbal Mounts

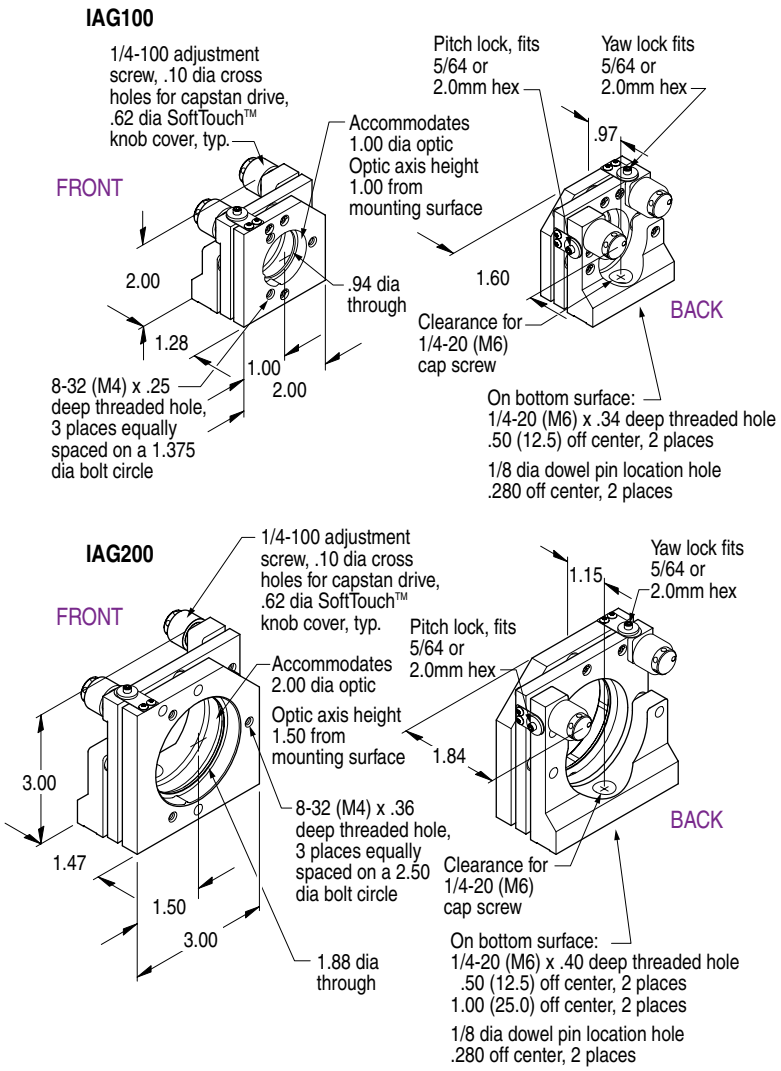
Almost Gimbal Mounts — 1 and 2 Inch

1.0- and 2.0-inch optic / IAG100 and IAG200

Note that dimensions in parentheses (mm) reflect metric assembly features

IAG100

IAG200



Product Features

- Upper adjustment screw location
- 100TPI adjustment screws
- Patented spring-loaded design
- Vacuum compatible versions available upon request

Performance Specifications

Travel / axis	8°
Minimum controllable motion	
IAG100	8.0 arc sec.
IAG200	4.7 arc sec.

Related Products

AS spacers	110
PR precision rods	132

Order Information

1.0 inch optic mount	IAG100
2.0 inch optic mount	IAG200

Hex Drive Option — for hex drive on this product, add '-H' after Model Number.

Metric Option — for metric assembly features on this product, add '-M' after model number.

For both Options — add '-H-M' after model number.

Almost Gimbal Mounts

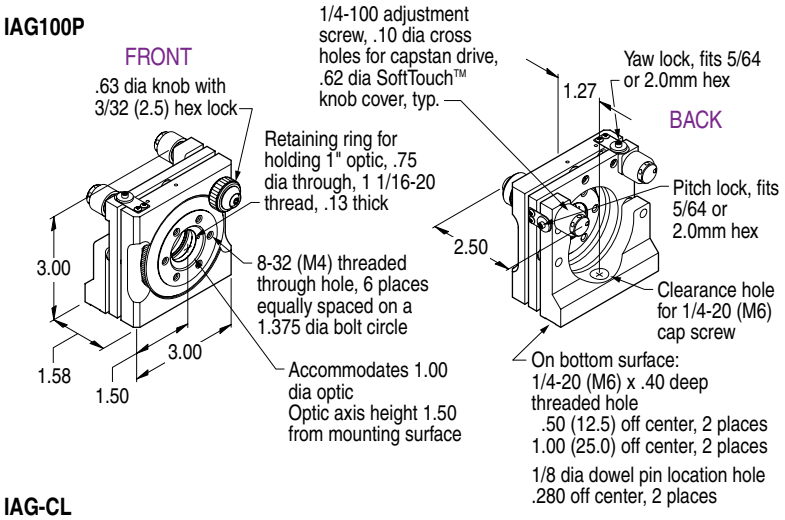
These unique mounts use our patented spring-loaded design (pat.#6590723) to create a mount that is neither Kinematic or Gimbal in its positioning of the optics. Though the motion most closely resembles a gimbal design by rotation about the optical center, the real attraction of these mounts is the location of the adjustment screws above the beam path. Our IAG series mounts use precision rolled 100TPI adjustment screws for excellent resolution and feel in the hand and come with our capstan knob caps with SoftTouch™ covers. Like all of our "**I**" series mounts the IAGs use our *one wrench* design. This allows the user to secure the optic, adjust the optic position, and lock the mount all with one wrench.

Almost Gimbal Mounts, Polarizing — 1 Inch

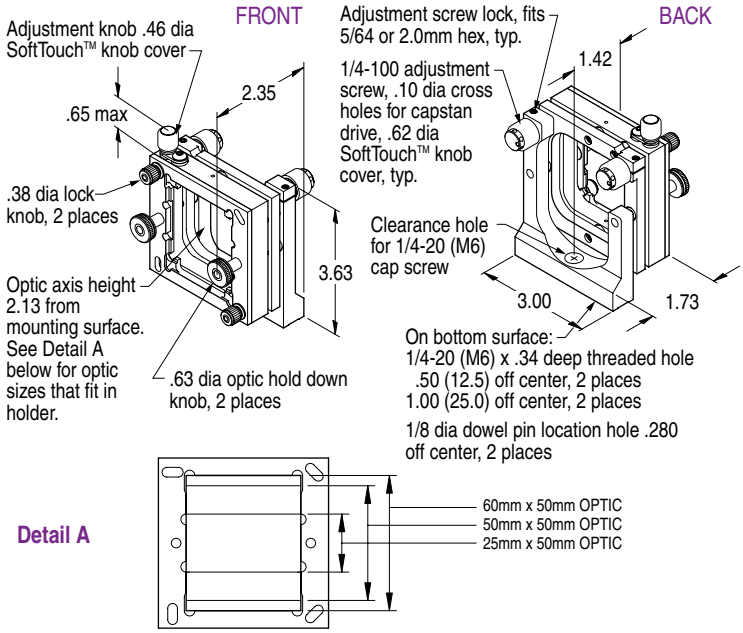
1.0-inch optic / IAG100P and IAG-CL

Note that dimensions in parentheses (mm) reflect metric assembly features

IAG100P



IAG-CL



IAG100P

IAG-CL

Product Features

- Upper adjustment screw location
- 100TPI adjustment screws
- Integrated optic polarization
- Vacuum compatible versions available upon request

Performance Specifications

Travel / axis	
Pitch and Yaw	8°
Roll	6°
Minimum controllable motion	
Pitch and Yaw	4.7 arc sec.
Roll	
IAG100P	30 arc min.
IAG-CL	6 arc sec.

Related Products

AS spacers	110
PR precision rods	132

Order Information

1.0 inch polarizing optic mount	IAG100P
cylindrical lens positioner	IAG-CL

Metric Option — for metric assembly features on this product, add '-M' after model number.

Almost Gimbal Mounts

These unique mounts use our patented spring-loaded design (pat.#6590723) to create a mount that is neither Kinematic or Gimbal in its positioning of the optics. Though the motion most closely resembles a gimbal design by rotation about the optical center, the real attraction of these mounts is the location of the adjustment screws above the beam path. The IAG-P combines the convenience of the upper adjustment screw location with an integrated rotation stage (RSA-1.0) that enables the user to orient polarizing optics precisely. Our IAG series mounts use precision rolled 100TPI adjustment screws for excellent resolution and feel in the hand and come with our capstan knob caps with SoftTouch™ covers. Like all of our "**I**" series mounts the IAGs use our *one wrench* design. This allows the user to secure the optic, adjust the optic position, and lock the mount all with one wrench.

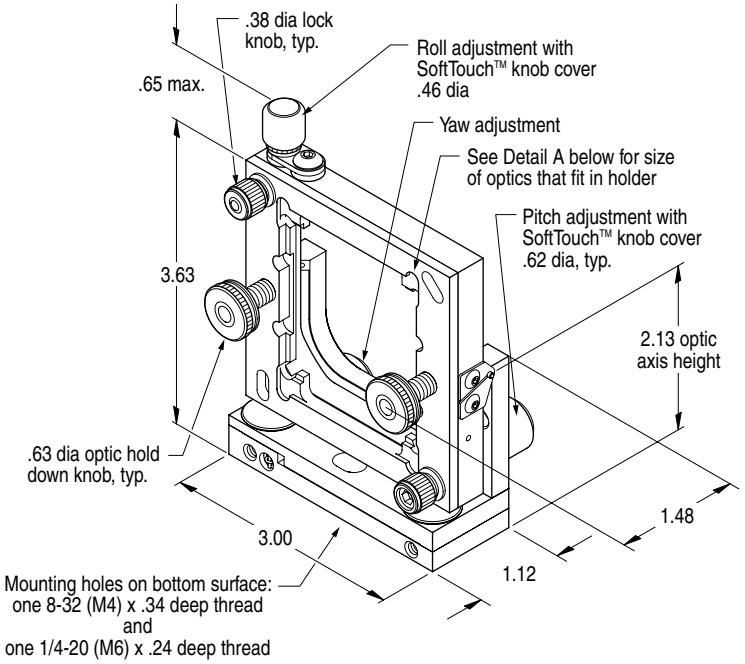
Gimbal Mounts

Cylindrical Lens

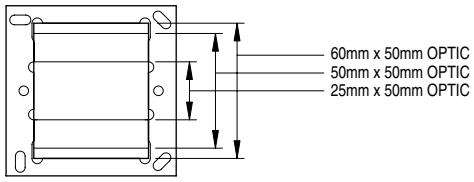
3-axis / CLP3

Note that dimensions in parentheses (mm) reflect metric assembly features

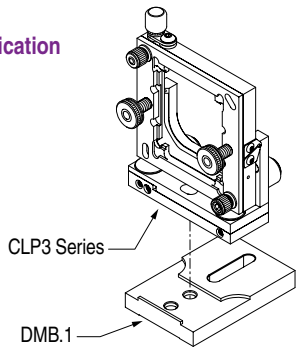
CLP3



Detail A



Application



Product Features

- 80 pitch adjustment screws
- 3 axes of motion
- Maximized clear aperture
- Vacuum compatible versions available upon request

Performance Specifications

Travel / axis	
Pitch and Yaw	8.5°
Roll	6°
Minimum controllable motion	6 arc sec.

Related Products

DMB.1 mounting plate	266

Order Information

cylindrical lens positioner, 3-axis	CLP3

Metric Option — for metric assembly features on this product, add '-M' after model number.

Cylindrical Lens Positioner

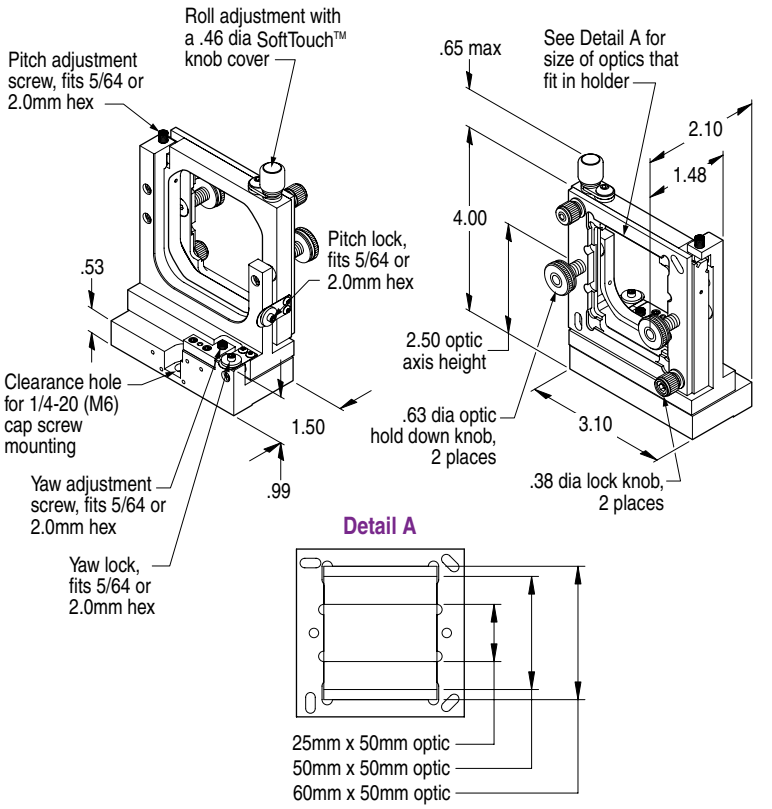
The CLP3 cylindrical lens polarizer uses our time-tested OG-2.0 gimbal as a sturdy positioning platform. They use our precision rolled 80TPI adjustment screws for accurate gimbaled positioning and our SoftTouch™ color coded knob caps for easy axis identification in low light conditions.

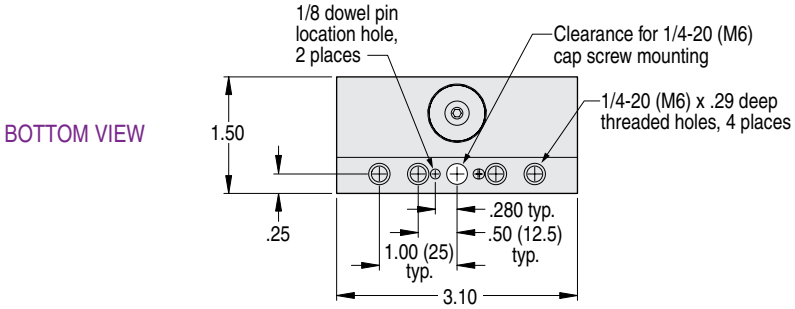
Rotational adjustment about the optical axis is achieved by a top mounted 80TPI adjustment screw and has a top viewed reference scale for easy alignment. Non-marring Delrin® mounting knobs hold the lens securely in place. The front mounting plate can be easily rotated to change the beam output by 90°.

eXtreme Cylindrical Lens

3-axis / CLX-3

Note that dimensions in parentheses (mm) reflect metric assembly features





Siskiyou *eXtreme* cylindrical lens mounts combine rotation on the optical axis, tip and tilt adjustment into a robust package that's adjustable from the top. The unique frame accommodates three different sizes of cylindrical lens. The adjustment knob for the rotational axis lets you square up the lens to an input beam, or position an output beam's axis with high precision. It's at the top of the assembly for simple access. Pin pockets in the base provide for rock-solid attachment to your optical chassis. Based on the lock architecture of our OTX optical translators, these mounts can take a 4G jolt without moving 5 microns once they are locked into position. Our *eXtreme* series is just what you need for critical applications.

CLX-3

New

Product Features

- 100 pitch adjustment screws
- 3 axes of motion
- Maximized clear aperture
- Vacuum compatible versions available upon request

Performance Specifications

Travel / axis	
Pitch	6 degrees
Yaw	7 degrees
Roll	6 degrees
Minimum controllable motion	
Pitch	4.8 arc sec.
Yaw	5.1 arc sec.
Roll	6 arc sec.

Related Products

dovetail rails & carriers, DTR & DTC series	130
TC-4 table/pedestal clamp	138

Order Information

cylindrical lens positioner, *eXtreme* grade, 3-axis	CLX-3

Metric Option — for metric assembly features on this product, add '-M' after model number.

Laser Diode Positioner

Front & Back Adjustable

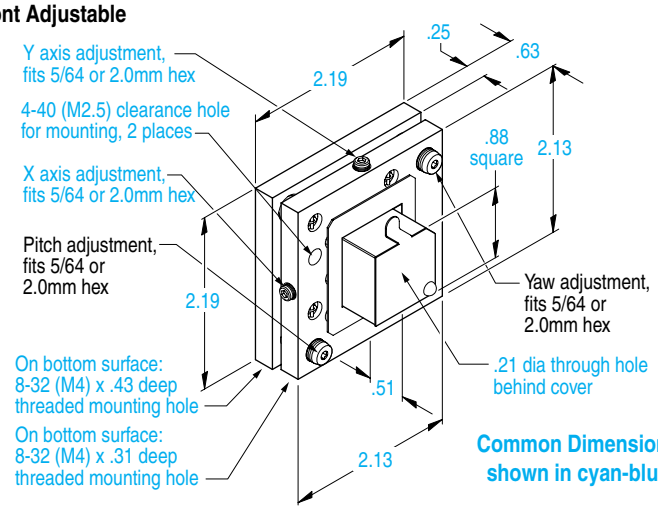
5-axis / LDP-1 Series

Note that dimensions in parentheses (mm) reflect metric assembly features

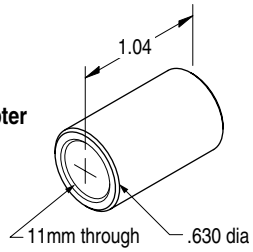
LDP-1B

LDP-1

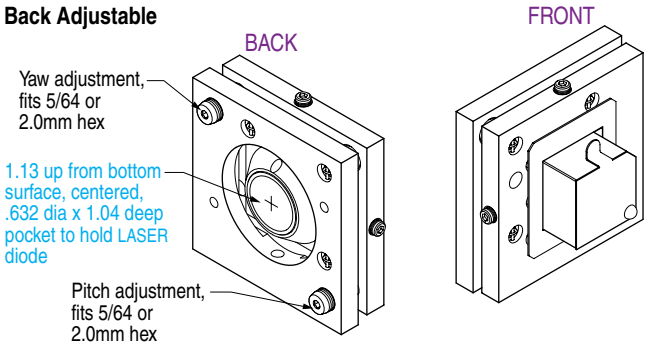
LDP-1
Front Adjustable



LDP-11a Adapter



LDP-1B
Back Adjustable



Product Features

- 80 pitch adjustment screws
- 4 axes of adjustment
- Safety shutter
- Vacuum compatible versions available upon request

Performance Specifications

Travel	
X and Y axis	0.12 inch (3.1 mm)
Pitch and Yaw	8°
Minimum controllable motion	
X and Y axis	1 µm
Pitch and Yaw	4.8 arc sec.

Related Products

PR precision rods 132

Order Information

laser diode positioner, front adjustable	LDP-1
laser diode positioner, back adjustable	LDP-1B
11-mm laser diode adapter	LDP-11a

Metric Option — for metric assembly features on this product, add '-M' after model number.

Laser Diode Positioners

The LDP laser diode positioner uses the XY & tip/tilt mechanics from our popular BFT-5 fiber positioner (page 293) to create a compact 4-axis laser diode mount. The X and Y axis have 0.12-inches (3mm) of travel and are adjusted via 80TPI fine pitch screws. Tip/tilt motion uses 80TPI screws and have a total of 8-degrees of motion.

Both the LDP-1 and LDP-1B have 8-32 (M4) tapped holes on two edges for convenient mounting to PR series post. The LDP-1 has 4-40 clearance holes accessed from the front so that it can be bulkhead mounted off its back side leaving the tip/tilt adjustment screws accessible from the front. The LDP-1B has the same 4-40 clearance holes, but has the tip/tilt adjustments on the back side, allowing for through the bulkhead adjustments. The inner diameter of these laser diode positioners is 16mm and we have a 11mm adapter (LDP-11a) to accommodate the most common diode can sizes (other sizes available upon request). The LDP-1 and LDP-1B both have built-in safety shutters.

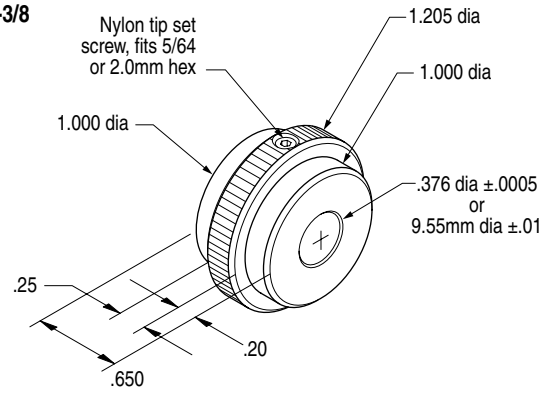
GMP GENERAL MICROTECHNOLOGY & PHOTONICS

siskiyou

Module Holder

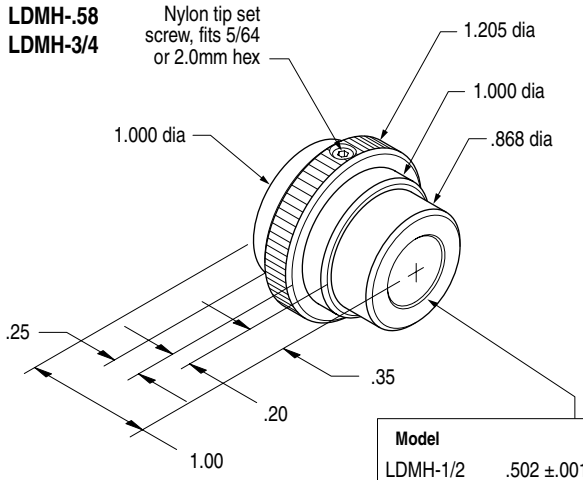
Mirror Mount Adapters / LDMH Series

LDMH-3/8



LDMH Series

LDMH-1/2
LDMH-.58
LDMH-3/4



Model	Bore dia		
LDMH-1/2	.502 ±.001	or	12.75mm ±.03
LDMH-.58	.582 ±.001	or	14.78mm ±.03
LDMH-3/4	.752 ±.001	or	19.10mm ±.03

Product Features

- Compatible with mirror mounts and rotation stages
- Fits most common LASER diode sizes
- Excellent heat sink qualities

Performance Specifications

Material	aluminum
Lock screw	soft nylon tip

Related Products

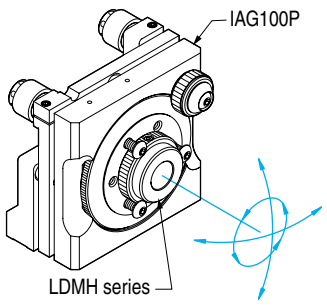
RSA-1.0 rotary stage	72
RSA-1.0i rotary stage	76
IM100.A2 mirror mount	206
IXM100.A2 industrial mount	214
CVM100 mirror mount	226
IAG100 & IAG100P mounts	272–273
OG-1.0 gimbal mount	268
OG-1.0P gimbal mount	270

Order Information

laser diode module holder, 3/8-inch diameter	LDMH-3/8
laser diode module holder, 1/2-inch diameter	LDMH-1/2
laser diode module holder, .58-inch diameter	LDMH-.58
laser diode module holder, 3/4-inch diameter	LDMH-3/4

Laser Diode Module Adapters

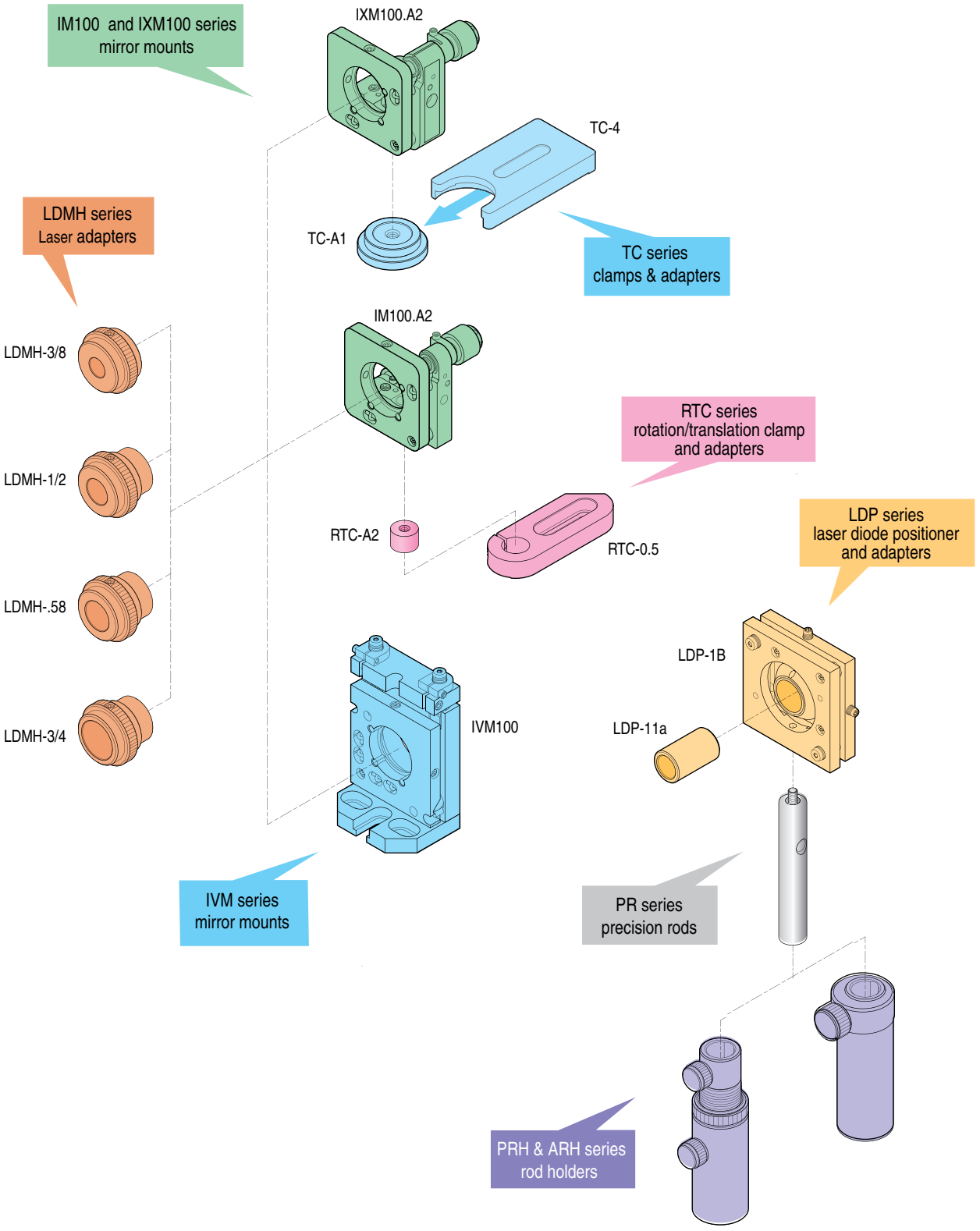
Application



The LDMH series of laser diode module adapters are an economical solution for holding common spot or line generating devices in a wide variety of our optical mounts. All four sizes will easily drop in to any of our 1.0-inch mirror mounts to control spot elevation and azimuth location. To control rotation of line generating modules, they will bolt into our RSA-1.0 rotation stages with three 8-32 [M4] buttonhead or cap screws. For three axis control of elevation, azimuth and rotation, they will bolt into our IAG100-P and OG-1.0P gimbal mounts.

Gimbal Mounts / Laser Diode Positioner

Applications



Fiber Translators / Spatial Filter

The BFT series of bare fiber translators come in XYZ, XYZ polarizing, 5-axis, and 5-axis polarizing to meet the demands of a variety of fiber positioning requirements. These fiber translators use our variety of BFC series fiber chucks to securely but gently hold fibers from 80 µm to 1mm. 80-pitch screws are the basis for smooth accurate positioning, and incorporate our color coded SoftTouch™ knob caps to provide quick axis location in low light conditions.

Completing the fiber translators are our CFT connectorized fiber translators. These translators have the same features as the BFT series but are designed for our CFC connectorized fiber chucks. These fiber chucks are compatible with SMA, NTT, and ATT fiber connectors, and they come with a graduated dial for polarizing.

For the ultimate in fiber positioning and flexibility, Models 3010 and 3018 are the most innovative fiber holders on the market today. These self-aligning fiber holders can be purchased separately or mounted as a 5-axis manual fiber aligner in the FP1600 and GR1600 series fiber positioners.

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Alignment Systems	
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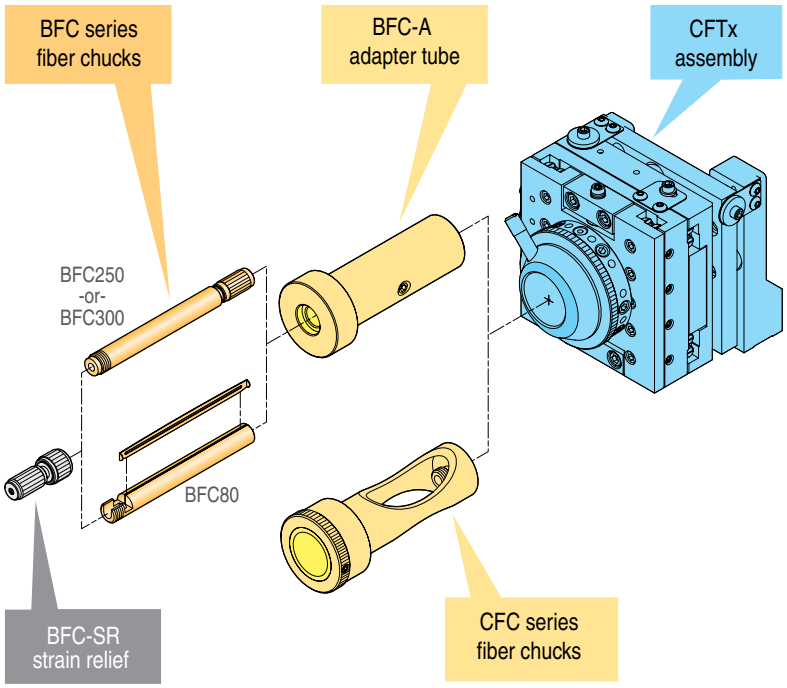
5 Axis, GRIN Rod / Ferrule	297
Self-aligning Fiber Holder	298
GRIN Rod / Ferrule Fiber Holder	298
Pitch / Yaw Mount	
2.0" x 2.0"	300
4.0" x 4.0" and 5.0" x 8.0"	301



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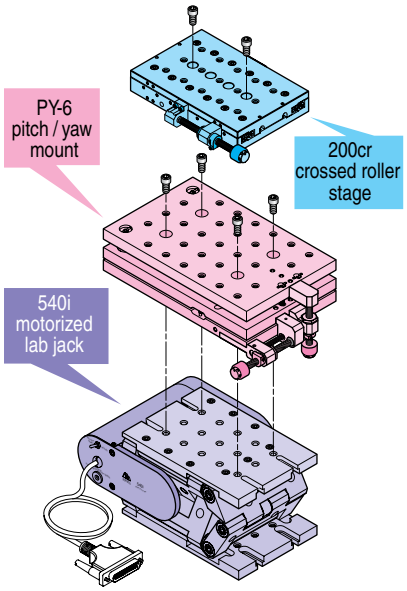
Fiber Translators / Spatial Filter (continued)

Our advanced line of fiber positioners are utilized in combination with other Siskiyou modular components to create the ultimate in drift-free manual fiber alignment systems. Our high precision 1600 series crossed roller stages are the foundation of these positioners and are available in 40TPI and 80TPI manual versions.

The PY-2 pitch / yaw mount and our 3000 series of fiber holders are used with the 50.5cr series of crossed roller stages. The PY-2 uses our unique (pat.# 6590723) spring-loaded pivot design to create a solid adjustable platform. The 3000 series Model 3010 fiber holder uses converging V-grooves to self-align the fiber being positioned. A camera shutter release cable opens or closes the jaws in a highly efficient motion. Our Model 3018 GRIN / ferruled fiber holder uses the same mechanics as the Model 3010 but has jaws for holding GRIN rods or ferruled fibers. The Model 3018 is ideal for positioning ferruled fibers in tight communications packages.

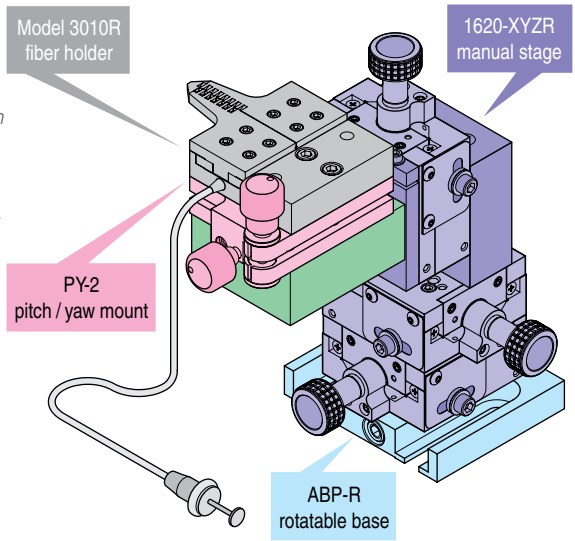


The PY-4 and PY-6 are designed for heavier and larger applications than the PY-2 that is used in our FP1600 & GR1600 series positions. Like the PY-2, these larger versions incorporate the same patented pivot design (pat.# 6590723), but they have been engineered to hold larger loads to ensure rock-solid load capability even under the most extreme conditions. The PY-6 is designed to attach directly to our 540 lab jack to position large devices such as lasers with height, azimuth and elevation control. The PY-6 can be driven by our motorized 420 or 840 series DC servo actuators for even greater positioning accuracy. 100cr or 200cr stages can be mounted between the PY-6 and the 540 lab jack for added X or XY alignment.

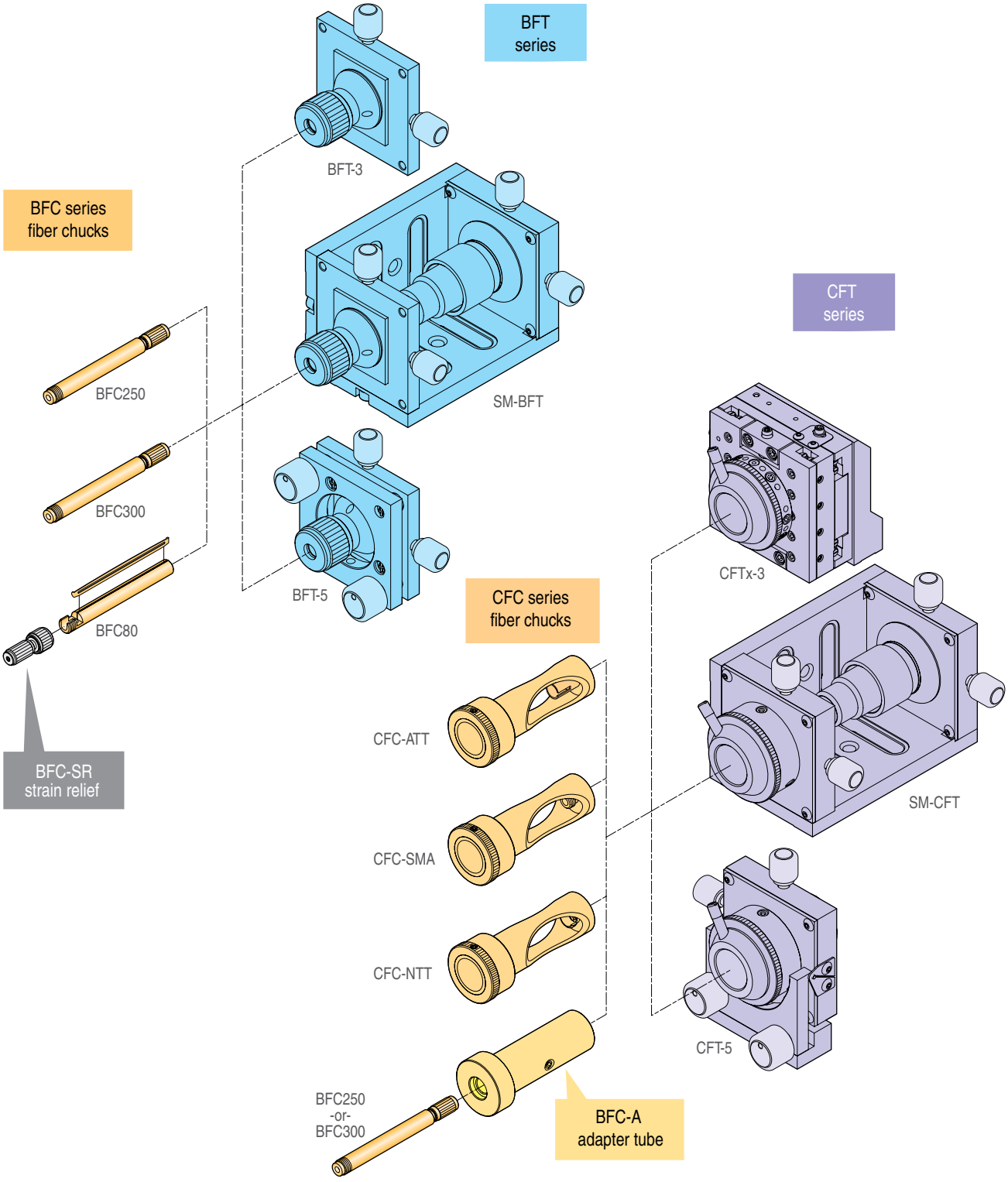
The PY-4 is designed to attach to our DT-300, 331 or 100cr series stages for increased X, XY or XYZ positioning. There's a PY series mount to provide precise pitch and yaw control for a variety of loads and sizes, with optional linear stages to create high accuracy multi-axis platforms

Larger size Pitch / Yaw Mounts provide azimuthal and elevation positioning while ensuring rock-solid load capability even under the most extreme conditions.

The assembly shown here is constructed from components from our Laboratory Mechanicals and Photonics sections. The combination makes up our FP1620 fiber positioner.



Applications



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Fiber Translators

eXtreme Single-mode Fiber Coupler

Lockable 5-axis / SM-CFTx

Note that dimensions in parentheses (mm) reflect metric assembly features

The Siskiyou SM-CFTx uses our robust OTX series technology, designed to take a 4G jolt without moving 5 microns — with the axes locked, your coupling won't drift! With crossed roller stages, there's no hysteresis during adjustment. The SM-CFTx uses an aspheric lens that focuses to a diffraction-limited, < 5 micron spot to maximize coupling efficiency. Microscope objectives won't sufficiently focus to a spot size small enough for good coupling efficiency with single-mode cores. It's available for both bare and connectorized fibers. The on-axis translation is non rotational, so you maintain polarization state during adjustment. Hex-adjust screws minimize the possibility of accidental re-positioning. Our steering lens desensitizes the adjustment, so you're much less likely to overshoot the core — see the applications note below

New

Product Features

- Aspheric coupling lens for diffraction-limited performance
- Axis locks
- Non-rotating focus adjustment
- Crossed roller construction

Performance Specifications

Travel	
X and Y axes	0.125 inch (3 mm)
Z axis	0.250 inch (6 mm)
Minimum controllable motion	
X, Y, and Z axes	submicron

Related Products

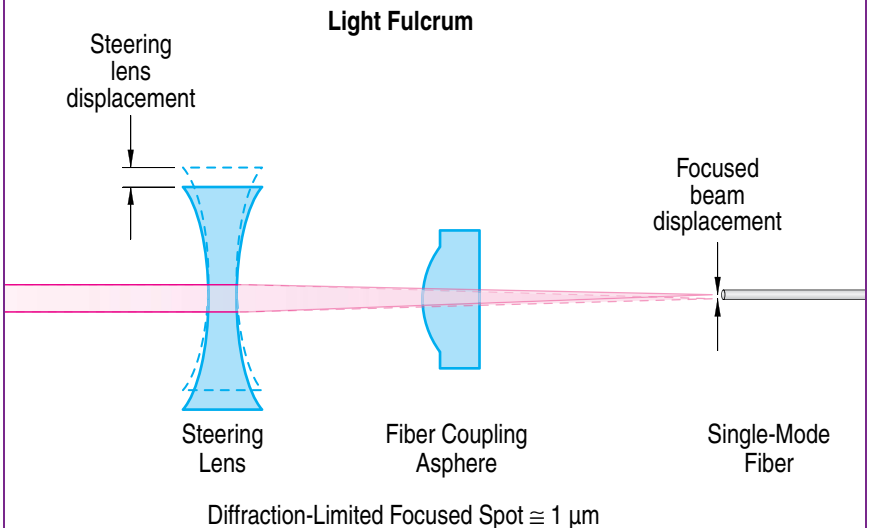
CFC connectorized fiber chuck	288
BFC-A bare fiber chuck adaptor	288
BFC bare fiber chuck	294
OFC001 fiber cable	176

Order Information

single-mode fiber coupler	SM-CFTx

Light Fulcrum Theory of Operation

The steering lens in the SM-CFTx is a long focal length lens located in close proximity to the back focal plane of the asphere. This effectively changes the beam's focal point to the end of the fiber. Any motion of the steering lens tilts the input beam entering the asphere which, in turn, causes a much smaller motion of the focused spot entering the fiber. This reduces adjustment sensitivity by a factor equal to the ratio of the focal length of the steering lens to the focal length of the asphere. For our steering lens / asphere combination, this ratio is approximately 14:1, so when the steering lens adjustment knob is rotated 20 degrees, the focused spot moves only 1 micron. The translation of the light fulcrum has a negligible effect on the angle of incidence of the beam as it enters the fiber core.

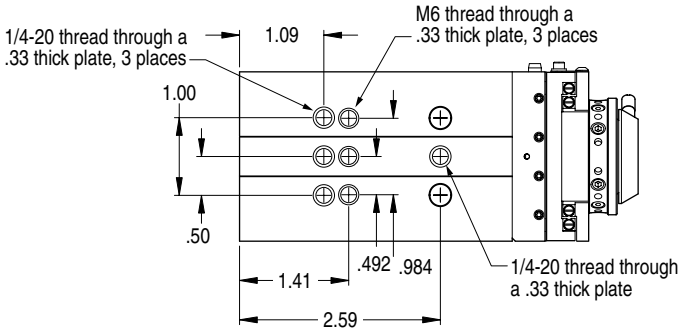


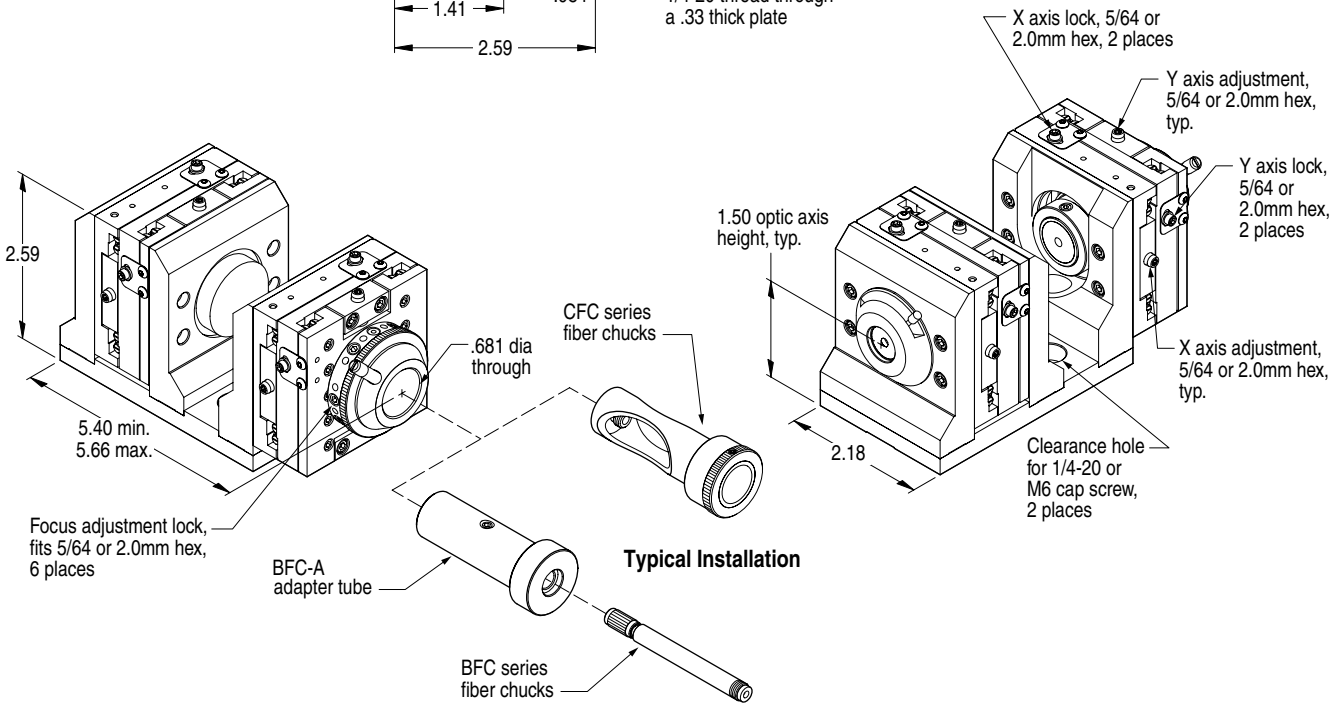
eXtreme Single-mode Fiber Coupler

Lockable 5-axis / SM-CFTx

Note that dimensions in parentheses (mm) reflect metric assembly features

BOTTOM VIEW





Typical Installation

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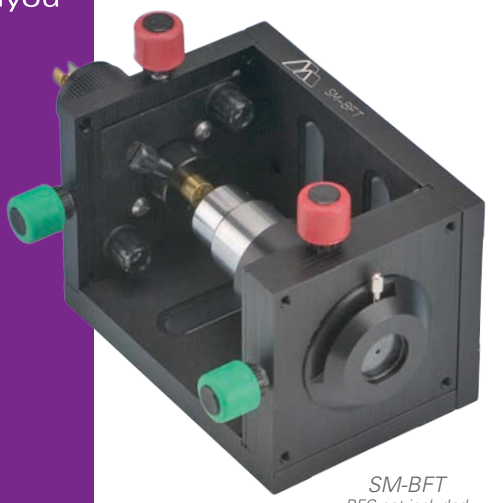
Fiber Translators

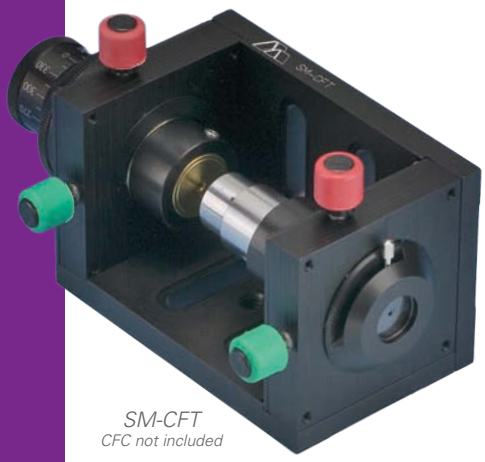
Multi-mode Fiber Coupler

Bare and Connectorized Fiber / SM-BFT and SM-CFT

Note that dimensions in parentheses (mm) reflect metric assembly features



SM-BFT
BFC not included



SM-CFT
CFC not included

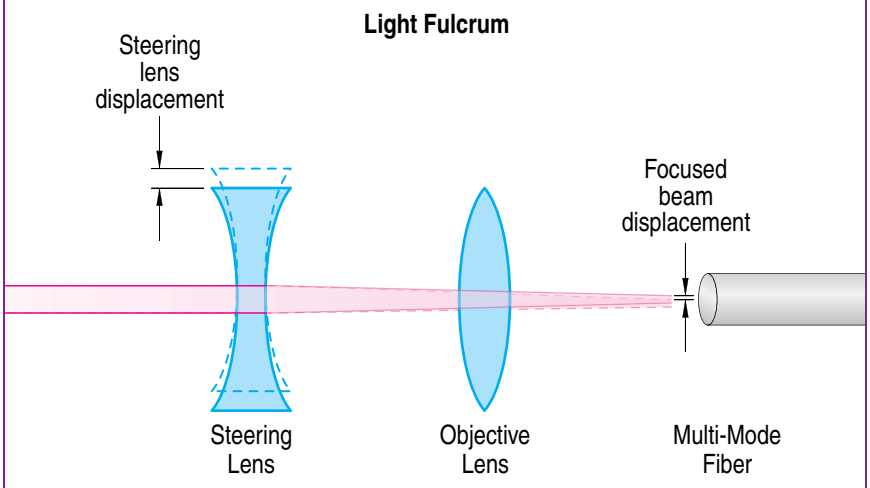
Aligning laser light into the core of a multi-mode fiber requires sub-micron resolution and a high level of stability. For this demanding task, most of today's fiber couplers are either flexure designs or motorized and automated alignment systems. Both configurations are expensive. The SM series of fiber couplers replaces these sometimes costly systems with a simple concept that creates a "light fulcrum" to increase the resolution of the system. The light fulcrum operation is described below. By using one of our standard fiber positioners, either the BFT-3 or CFT-3, and the OT.5-2 lens positioner, along with a stable connecting bracket, Siskiyou has created a robust and compact fiber alignment system. The simplicity results in a less costly alignment solution.

The SM-BFC comes with a 20x objective and mounted focusing lens. Holding a fiber requires one of our BFC series of bare fiber chucks, page 294, which are available in sizes to hold fibers from 80µm to 1mm. A connectorized fiber version is available in the SM-CFT. It comes with a 20x objective and mounted focusing lens, but requires our CFC connectorized fiber chucks, page 288, for fibers with SMA, NTT or ATT connectors.

Adjustment of the Z (focus) axis does not rotate the fiber when turned. The inner sleeve, in which the fiber is held, does not rotate, so optical axis height is constant and polarization orientation is maintained.

Light Fulcrum Theory of Operation

The steering lens in the SM-BFT and SM-CFT is a long focal length lens that is located in close proximity to the rear focal plane of the objective lens. This effectively changes the laser beam's focal point to the end of the fiber. Any motion of the steering lens tilts the input beam entering the objective lens which, in turn, causes a much smaller motion of the focused spot entering the fiber. This reduced motion is equal to the ratio of the focal length of the steering lens and the objective. For a 20x objective the ratio is approximately 30:1, so when the steering lens is translated 3.2-µm, the focused beam only moves 0.1-µm. The translation of this light fulcrum has negligible effect on the angle of incidence of the beam as it hits the end of the fiber.



Product Features

- 0.1 µm resolution
- Bare or connectorized fiber versions
- Multiple mounting options

Performance Specifications

Adjustment screws	80TPI
Pre-alignment of LASER input	Iris diaphragm
Optical axis height	1.25-inches (31.8-mm)
Objective	20x

Related Products

BFC bare fiber chucks	294
CFC connectorized fiber chucks	288

Order Information

multi-mode fiber coupler, for bare fibers	SM-BFT
multi-mode fiber coupler, for connectorized fibers	SM-CFT

Metric Option — for metric assembly features on this product, add '-M' after model number.

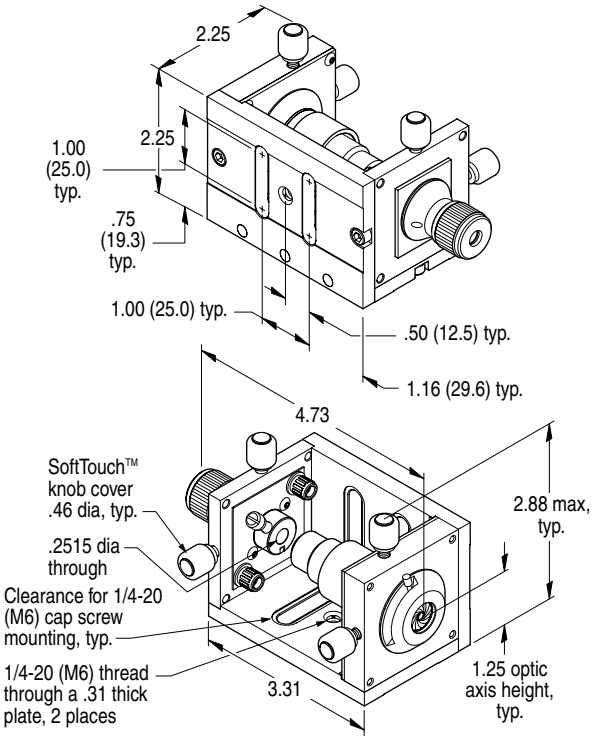
GMP GENERAL MICROTECHNOLOGY & PHOTONICS

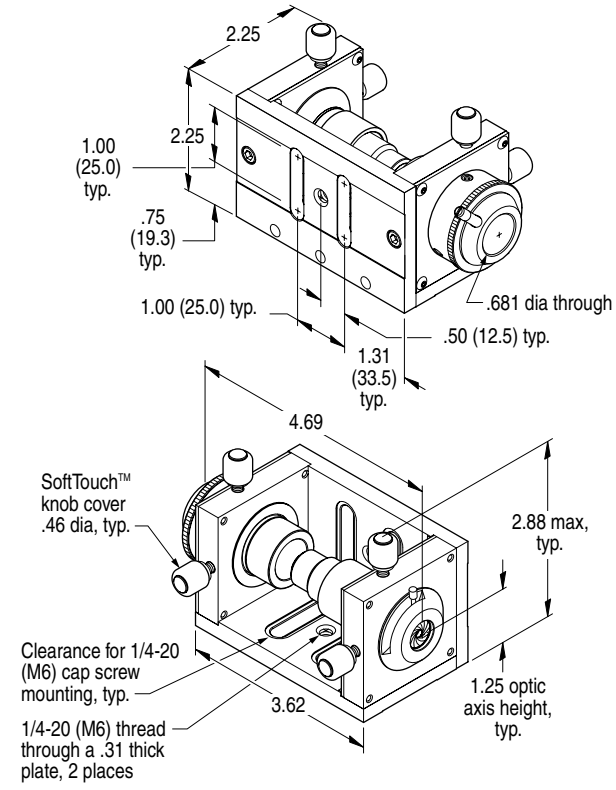
siskiyou

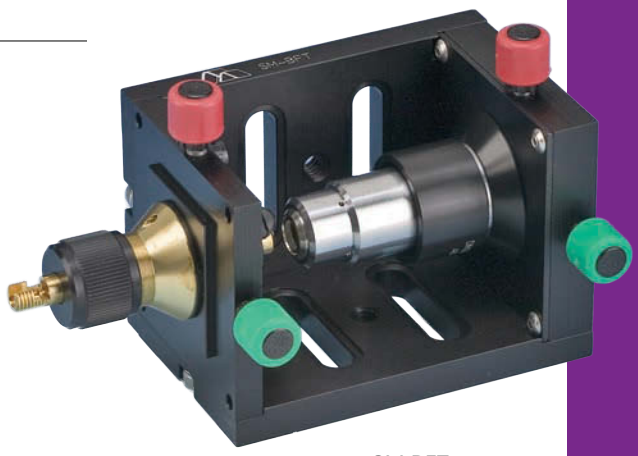
Multi-mode Fiber Coupler

Bare and Connectorized Fiber / SM-BFT and SM-CFT

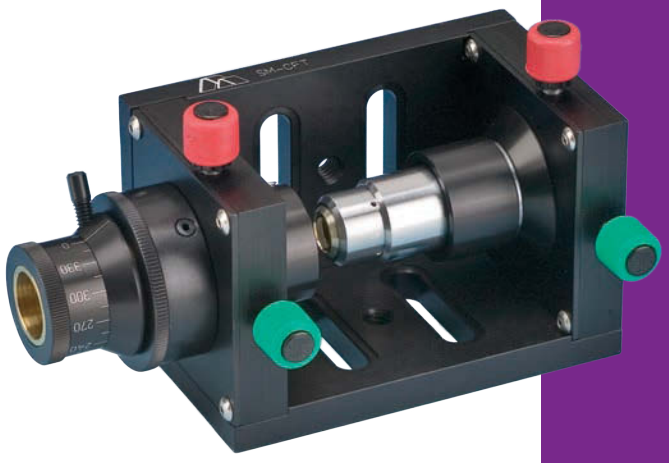
Note that dimensions in parentheses (mm) reflect metric assembly features







SM-BFT
BFC not included



SM-CFT
CFC not included

Fiber Translators

Compact Connectorized Fiber Translators

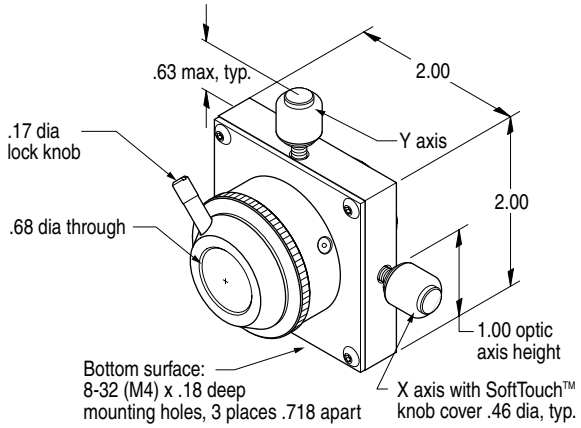
3-axis and 5-axis / CFT-3 and CFT-5

Note that dimensions in parentheses (mm) reflect metric assembly features

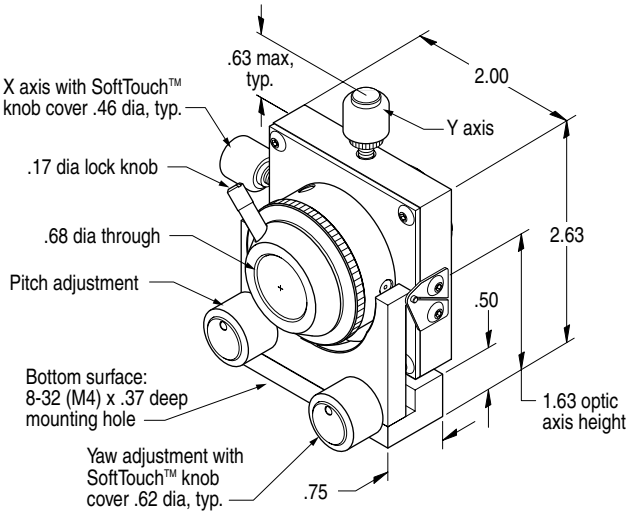
CFT-3

CFT-5

CFT-3



CFT-5



Product Features

- 80 pitch adjustment screws
- Rod or base mounting
- Compatible with CFC series fiber chucks

Performance Specifications

Travel / axis	
X and Y	0.12 inch (3.1 mm)
Z	0.25 inch (6.3 mm)
Pitch and Yaw	5°
Minimum controllable motion	
X, Y, and Z	1 µm
Pitch and Yaw	5 arc sec.

Related Products

DMB.2 mounting plate	266
CFC series fiber chucks	288

Order Information

connectorized fiber translator, 3-axis	CFT-3
connectorized fiber translator, 5-axis	CFT-5

Metric Option — for metric assembly features on this product, add '-M' after model number.

The compact design of our CFT series of fiber translators make them ideal for crowded beam path applications. This compact fiber translator uses our OT.5-5 as the basis for this small package. 80TPI adjustment screws are used for precise positioning of the 3- and 5-axis systems. The CFT series uses our SoftTouch™ color coded knob caps for easy axis identification in low light conditions. The Y-axis knob uses a unique capture screw design to ensure no drift due to overloading in that axis.

CFT fiber translators are compatible with our CFC fiber chucks. These fiber chucks are compatible with the most commonly used connectors. A solid brass body with finger cutouts is used to facilitate the attachment of the connector to the chuck. The graduated dial is marked 360° in 15° increments.

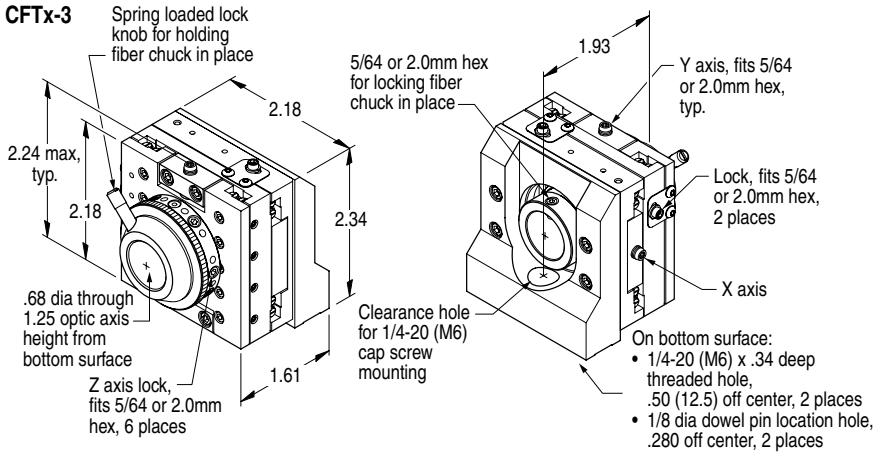
Adjustment of the Z (focus) axis does not rotate the fiber when turned. The inner sleeve, in which the fiber is held, does not rotate, so optical axis height is constant and polarization orientation is maintained.

eXtreme Connectorized Fiber Translators

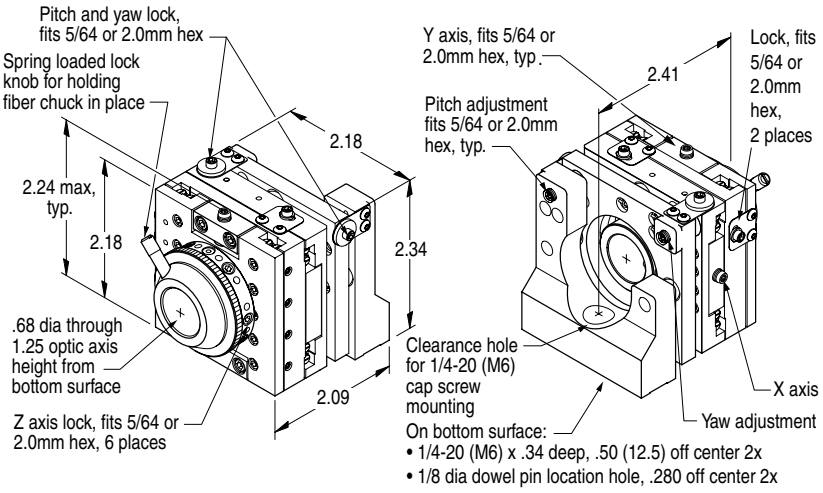
3-axis and 5-axis / CFTx-3 and CFTx-5

Note that dimensions in parentheses (mm) reflect metric assembly features

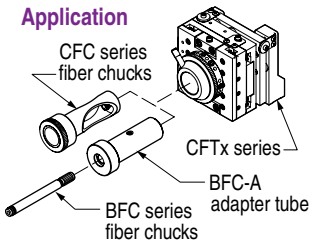
CFTx-3



CFTx-5



Application



The robust design of our CFTx series of fiber translators makes them ideal for critical applications in tough environments, and to maintain alignment during shipping. Based on the rock-solid OTX lens positioners, these fiber translators can take a 4G jolt without moving more than 5 microns when the axes are locked. 100TPI rolled-thread screws are used for precise positioning, with hex adjusters to prevent accidental misalignment. The Z-axis adjustment boasts an 80-pitch internal thread for precise focusing.

CFTx fiber translators are compatible with our CFC fiber chucks, and are available for SMA, ATT or NTT connectors. A solid brass body with finger cutouts is used to facilitate the attachment of the connector to the chuck. The graduated 360° dial is marked in 15° increments.

Adjustment of the Z (focus) axis does not rotate the fiber when turned. The inner sleeve, in which the fiber is held, does not rotate, so optical axis height is constant and polarization orientation is maintained.

Product Features

- 100 pitch adjustment screws
- Rod or base mounting
- Compatible with CFC series fiber chucks

New

Performance Specifications

Travel	
X and Y axes	0.125 inch (3 mm)
Z axis	0.250 inch (6 mm)
Pitch and Yaw	5°
Minimum controllable motion	
X, Y, and Z axes	submicron
Pitch and Yaw	5 arc sec.

Related Products

DMB.2 mounting plate	266
CFC series fiber chucks	288

Order Information

eXtreme connectorized fiber translator, 3-axis	CFTx-3
eXtreme connectorized fiber translator, 5-axis	CFTx-5

Metric Option — for metric assembly features on this product, add '-M' after model number.

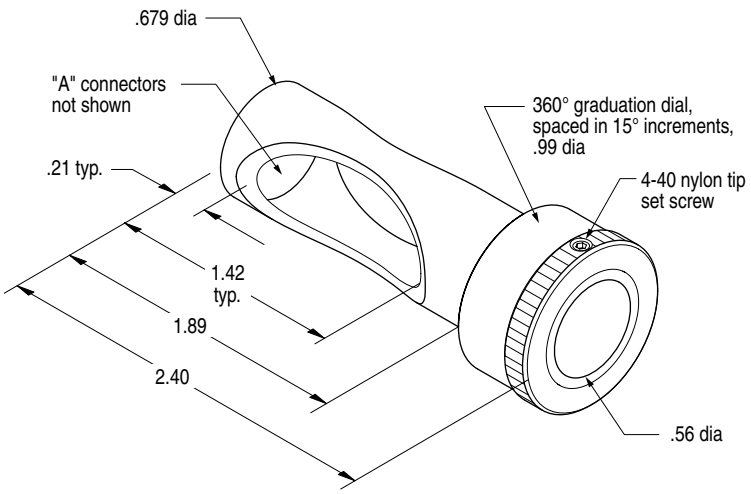
Fiber Translators

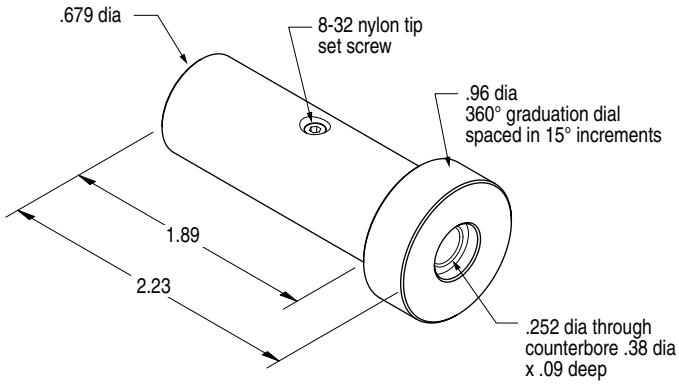
Connectorized Fiber Chucks

SMA, NTT & ATT Compatible / CFC Series and BFC-A

CFC Series

BFC-A





Product Features

- SMA, NTT, and ATT compatible
- Graduated dial for polarizing
- Compatible with CFT series fiber translators

"A" Connector Specifications

CFC-SMA	Amphenol 905/906 SMA
CFC-NTT	FC (NTT compatible)
CFC-ATT	AT&T ST

Related Products

CFT series fiber translator	286
CFTx series fiber translator	287
BFC fiber chucks	294
optical fiber cable	176

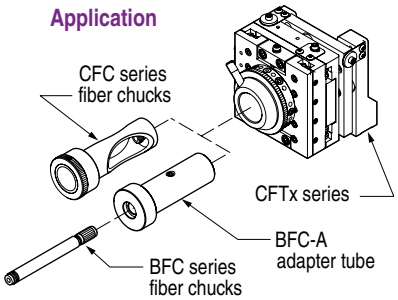
Order Information

connectorized fiber chuck, Amphenol 905/906 SMA	CFC-SMA
connectorized fiber chuck, FC connectors (NTT compatible)	CFC-NTT
connectorized fiber chuck, AT&T ST connectors	CFC-ATT
bare fiber chuck adapter	BFC-A

Connectorized Fiber Chucks

Our CFC connectorized fiber chucks are compatible with our CFT series fiber translators, and come with a graduated dial to facilitate polarization adjustments. These fiber chucks are compatible with the most commonly used connectors. A solid brass body with finger cutouts is used to facilitate the attachment of the connector to the chuck. The graduated dial is marked 360° in 15° increments.

Application



Our connectorized fiber chucks are compatible with our CFT series of fiber translators. When used together, three or five axes of precision motion are attainable.

GMP GENERAL MICROTECHNOLOGY & PHOTONICS

siskiyou

Spatial Filter

Figure 1

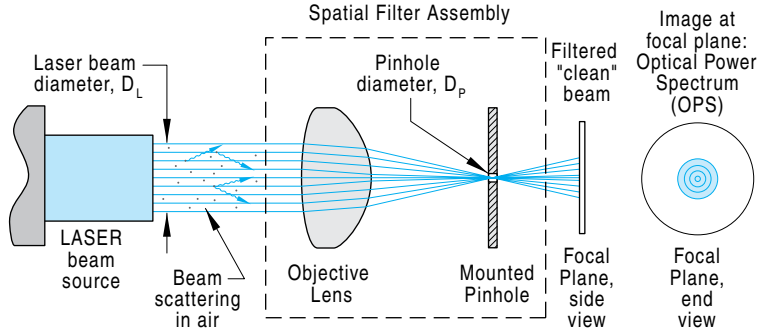
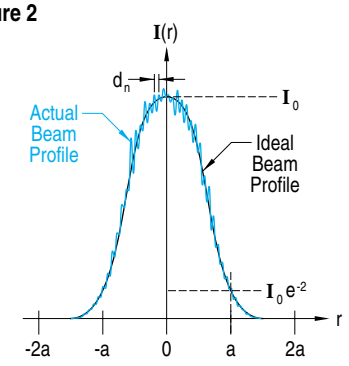


Figure 2



$$I(r) = I_0 e^{-2\left[\frac{r}{a}\right]^2} \quad \text{where} \quad I_0 = \left[\frac{2P_T}{\pi a^2}\right]$$

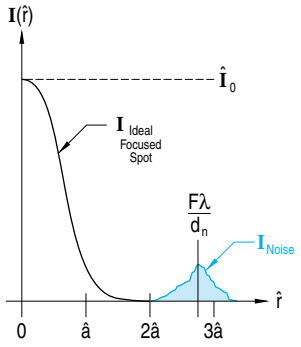
$$I_{Actual} = I(r) + \Delta I_{Noise}$$

a = Laser beam radius at $I_0 e^{-2}$

P_T = Total laser beam power

d_n = Average "wavelength" of noise

Figure 3



$$\hat{I}(\hat{r}) = \hat{I}_0 e^{-2\left[\frac{\hat{r}}{\hat{a}}\right]^2} \qquad \hat{a} = \frac{F\lambda}{\pi a}$$

where

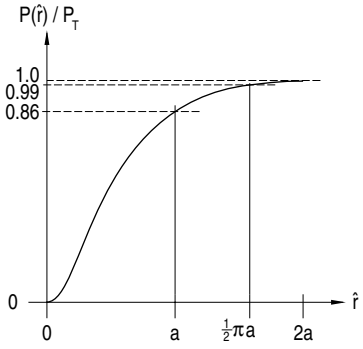
F = Focal length, objective lens

λ = Wavelength, laser beam

$\hat{r}$ = Radius distance within OPS

â = Radius of OPS Gaussian at $\hat{I}(\hat{r}) = \hat{I}_0 e^{-2}$

Figure 4



$$P(\hat{r}) / P_T = 1 - e^{-\frac{1}{2}\left[\frac{\pi a D_P}{F\lambda}\right]^2}$$

where

D_P= Diameter, pinhole

F = Focal length, objective lens

λ = Wavelength, laser beam

a = Laser beam radius = $\frac{1}{2} D_L$

A spatial filter assembly for a laser beam is shown schematically in Figure 1.

At its source, a laser beam is coherent and exhibits a clean, smooth intensity profile, close to the bell-shaped Gaussian curve in Figure 2.

As the beam passes through air and objective lens, it becomes scattered by particles in the air and defects in the objective. Its actual intensity profile varies from the ideal as shown in Figure 2. The beam is said to be contaminated with spatial noise.

Spatial noise is random and varies rapidly over any distance. An average "wavelength" of noise, d_n, is much smaller than the laser beam size. As a beam with wavelength λ is focused through an objective lens with focal length F, the noise appears as a concentric annulus with radius $F\lambda/d_n$, as shown in Figure 3.

A spatial filter assembly consisting of an objective lens, pinhole, alignment, and focusing axes can be used to remove the undesirable noise while transmitting most of the beam's energy. For a laser beam diameter of D_L and pinhole diameter of D_P, the ratio of energy passed to total energy is graphed in Figure 4.

The selection of a pinhole diameter is based on maximizing the amount of energy passed while blocking spatial wavelengths smaller than the diameter of the initial laser beam.

The minimum noise wavelength, $d_{n(min)}$, allowed to pass by the pinhole is determined by:

$$d_{n(min)} = \frac{2F\lambda}{D_P}$$

and since this wavelength is much smaller than the laser beam diameter, the filtered beam has an intensity profile very close to the ideal intensity profile.

Siskiyou's Spatial Filter assembly with 5-axes of adjustment is detailed on page 290.

Matched pairs of objective lenses and mounted pinholes are given on page 291. Selection criteria and size determination are outlined in a formula on that page.

Fiber Translators

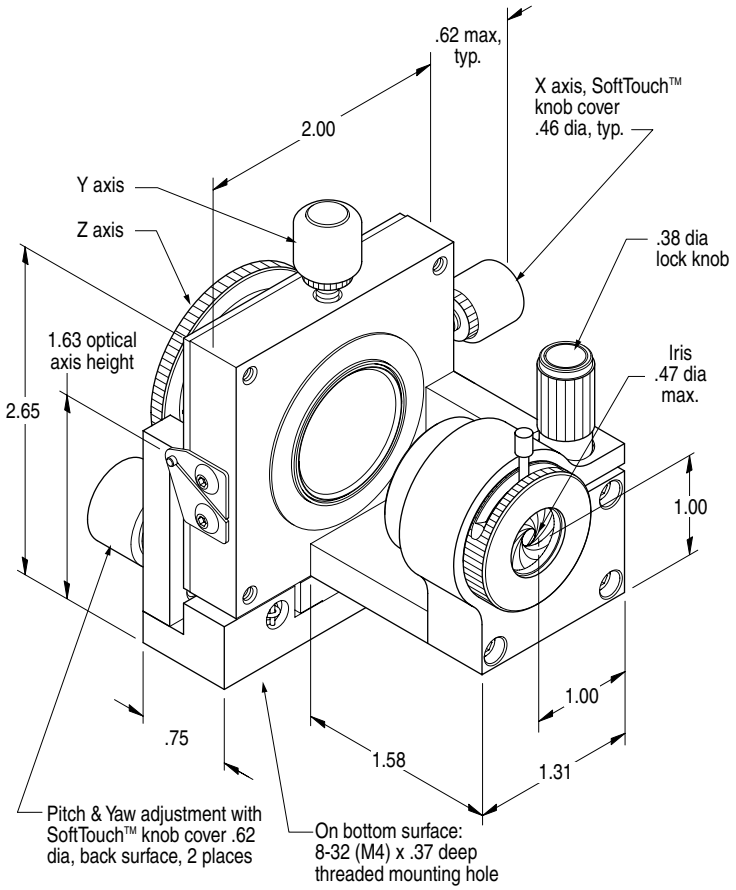
Spatial Filter

5-axis / OT.5-5SF

Note that dimensions in parentheses (mm) reflect metric assembly features

OT.5-5SF

back



Product Features

- 80 pitch adjustment screws
- Compact design
- Vacuum compatible versions available upon request

Performance Specifications

Travel / axis	
X and Y	0.12 inch (3.1 mm)
Z	0.25 inch (6.3 mm)
Pitch and Yaw	5°
Minimum controllable motion	
X, Y, and Z	1 µm
Pitch and Yaw	5 arc sec.

Related Products

SF series objectives & pinholes	291
DMB.2 mounting plate	266
cross-reference table	302

Order Information

optical translator, 0.5 inch, 5-axis, spatial filter	OT.5-5SF

Metric Option — for metric assembly features on this product, add '-M' after model number.

Optic Translator, Spatial Filter

The compact design of our OT.5-5SF spatial filter makes it ideal for crowded beam path applications. This compact spatial filter incorporates our OT.5-5 as the basis for this small package. We use 80TPI adjustment screws for precise positioning of all 5 axes and use our SoftTouch™ color coded knob caps for easy axis identification in low light conditions. The Y-axis knob uses a unique capture screw design to ensure no drift due to overloading in that axis.

The OT.5-5SF is simple to align. The first step is a rough alignment done by eye before the device is even tied down to the experiment. This is done by opening the iris and looking through the objective as the unit is held up toward the room light. Adjust the vertical and horizontal position of the pinhole until a spot of light is seen. Center this spot and then focus it with the axial adjustment. This procedure generally results in some light getting through the pinhole when the spatial filter is positioned in the laser beam. Once this is done it usually only takes minor translation of the pinhole and/or tilting of the whole assembly to get into full alignment.

Adjustment of the Z (focus) axis does not rotate the fiber when turned. The inner sleeve, in which the fiber is held, does not rotate, so optical axis height is constant and polarization orientation is maintained.

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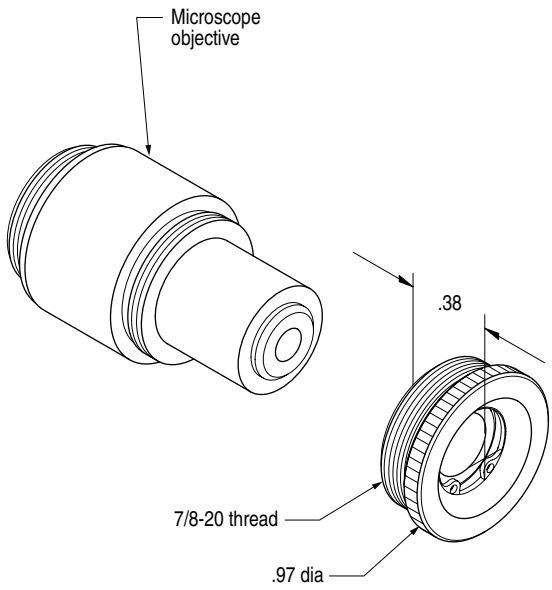
Spatial Filter

5- to 50-micron Pinhole diameter / SF Series



Size Selection and Determination

- An objective lens should be selected depending on the amount of beam expansion required.
- The size of the appropriate pinhole required to complete the assembly may be approximately determined by the expression:

$$D_P = \frac{2.4\,\lambda\,F}{D_L}$$

where D_P = Pinhole diameter
λ = Wavelength of light
F = Focal length of objective lens
D_L = Laser beam diameter

Mounted Pinholes

Integrated into the OT.5-5SF is an iris shutter/objective mount. A complete assortment of the most common objectives and mounted pinholes are available. See the Size Selection and Determination above to determine which combination of objective lens and pinhole is best for your application.

Product Features

- Stainless steel precision pinholes
- Interchangeable
- 5 common sizes
- Vacuum compatible versions available upon request

Performance Specifications

Pinhole diameter	
5 micron	± 1 µm
10 micron	± 1 µm
15 micron	± 2 µm
25 micron	± 3 µm
50 micron	± 5 µm

Related Products

OT.5-5SF spatial filter	290

Order Information

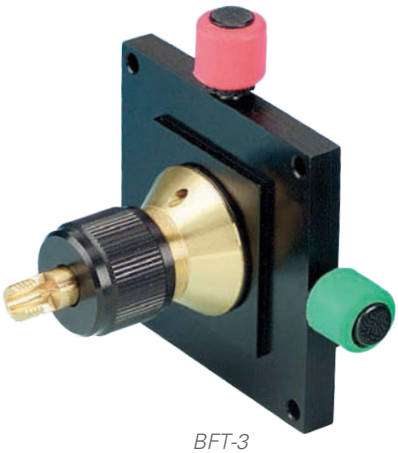
Objectives	
4x objective with 50 micron pinhole	SF-4X/50
10x objective with 25 micron pinhole	SF-10X/25
20x objective with 15 micron pinhole	SF-20X/15
40x objective with 10 micron pinhole	SF-40X/10
60x objective with 5 micron pinhole	SF-60X/5
Pinholes	
50 micron pinhole	PH/50
40 micron pinhole	PH/40
35 micron pinhole	PH/35
25 micron pinhole	PH/25
15 micron pinhole	PH/15
10 micron pinhole	PH/10
5 micron pinhole	PH/5

Fiber Translators

Bare Fiber & Polarizing

3-axis / BFT-3 Series

Note that dimensions in parentheses (mm) reflect metric assembly features

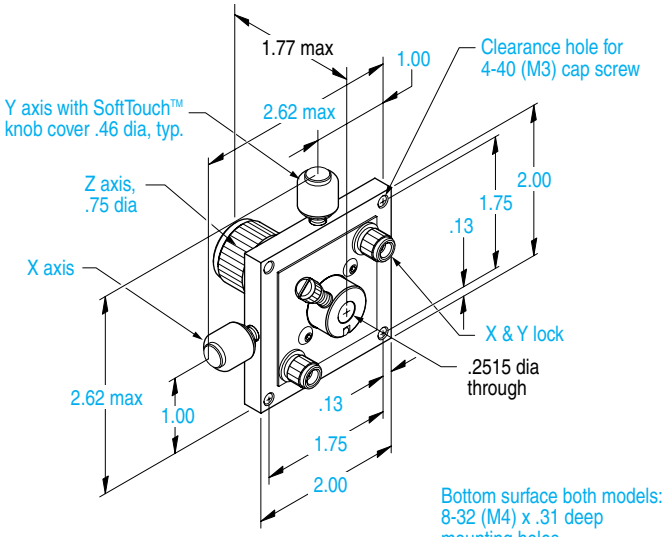


BFT-3
BFC fiber chuck not included

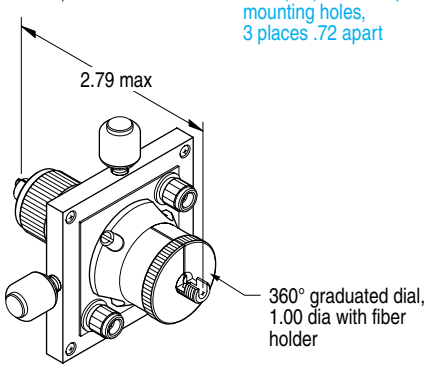
BFT-3P

BFT-3

Common Dimensions shown in cyan-blue



BFT-3P



Product Features

- 80 pitch adjustment screws
- Rod mounting
- Lockable XY axis

Performance Specifications

Travel / axis	0.12 inch (3.1 mm)
Minimum controllable motion	1 µm

Related Products

PR precision rods	132
BFC fiber chucks	294
cross-reference table	302

Order Information

bare fiber translator, 3-axis	BFT-3
bare fiber translator, 3-axis, polarization preserving fibers	BFT-3P

Metric Option — for metric assembly features on this product, add '-M' after model number.

3-Axis Bare Fiber Translators

Our BFT-3 bare fiber translators are compatible with BFC series fiber chucks for polarizing and non-polarizing applications. The BFT fiber translators use 80TPI adjustment screws for precise positioning of XY- and Z-axis, and use our SoftTouch™ color coded knob caps in the X and Y axes for easy axis identification in low light conditions.

Both models are lockable and use axis travel locking in the X and Y axes, not adjustment screw locking, for secure non-influencing axis locking. Mounting is along the bottom of the translator via three 8-32 mounting holes, or they can be face/bulkhead mounted with four 4-40 clearance holes in the face. The BFT-3P is for polarization preserving fibers and comes with a graduated dial that is marked in 15° increments.

Adjustment of the Z (focus) axis does not rotate the fiber when turned. The inner sleeve, in which the fiber is held, does not rotate, so optical axis height is constant and polarization orientation is maintained.

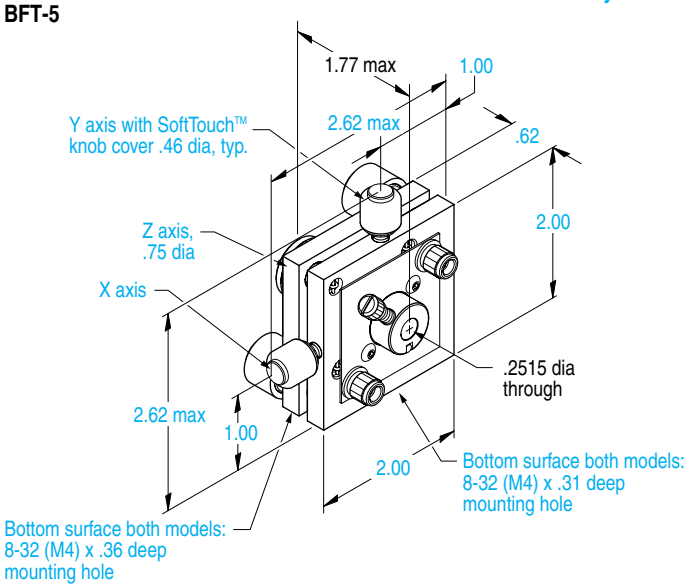
Bare Fiber & Polarizing

5-axis / BFT-5 Series

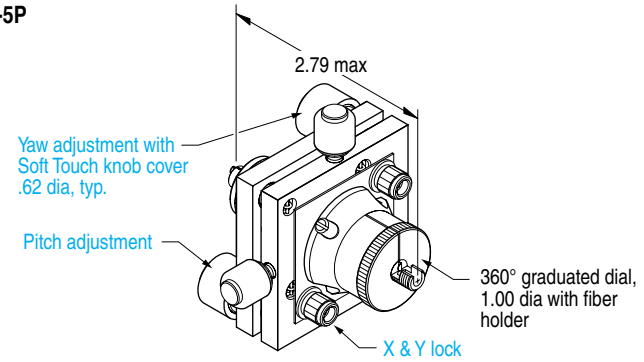
Note that dimensions in parentheses (mm) reflect metric assembly features

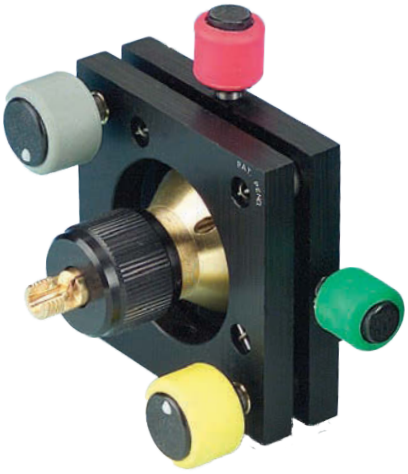
Common Dimensions shown in cyan-blue

BFT-5



BFT-5P





BFT-5
BFC fiber chuck not included

BFT-5P

5-Axis Bare Fiber Translators

Our BFT-5 bare fiber translators are compatible with BFC series fiber chucks for polarizing and non-polarizing applications. The BFT fiber translators use 80TPI adjustment screws for precise positioning of all five axes and use our SoftTouch™ color coded knob caps in four of the five axes for easy axis identification in low light conditions.

Both models are lockable and use axis travel locking in the X and Y axes, not adjustment screw locking, for secure non-influencing axis locking. Mounting is along the bottom of the translator via three 8-32 mounting holes. The BFT-5P is for polarization preserving fibers and comes with a graduated dial that is marked in 15° increments.

Adjustment of the Z (focus) axis does not rotate the fiber when turned. The inner sleeve, in which the fiber is held, does not rotate, so optical axis height is constant and polarization orientation is maintained.

Product Features

- 80 pitch adjustment screws
- Rod mounting
- Lockable XY axis

Performance Specifications

Travel / axis	
X, Y, and Z	0.12 inch (3.1 mm)
Pitch and Yaw	8°
Minimum controllable motion	
X, Y, and Z	1 µm
Pitch and Yaw	4.8 arc sec.

Related Products

PR precision rods	132
BFC fiber chucks	294
cross-reference table	302

Order Information

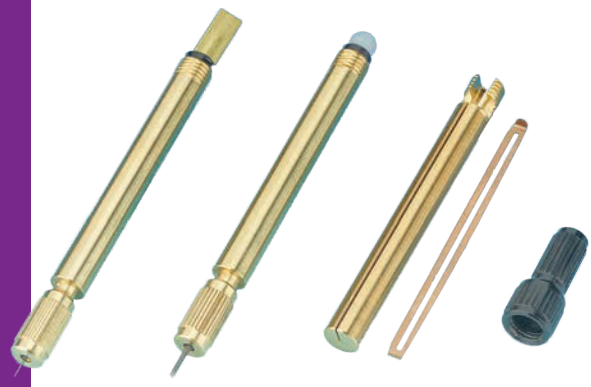
bare fiber translator, 5-axis	BFT-5
bare fiber translator, 5-axis, polarization preserving fibers	BFT-5P

Metric Option — for metric assembly features on this product, add '-M' after model number.

Fiber Translators

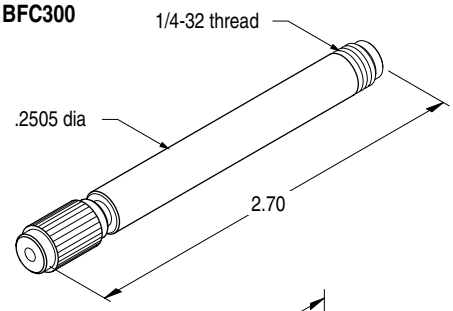
Fiber Chucks

80-µm to 1-mm diameter Fibers / BFC Series

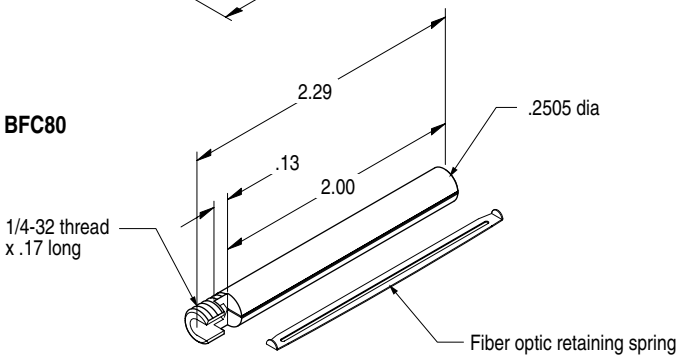


BFC Series

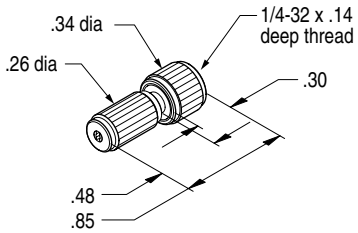
BFC250 and BFC300



BFC80



BFC-SR



Bare Fiber Chucks

The BFC series of bare fiber chucks are compatible with fibers from 80 µm to 1 mm diameters. When used with our BFT series fiber translators these fiber chucks are a flexible means to hold fibers precisely without damage. The precision diameter of the BFC fiber chucks enable a smooth slip fit into our fiber translators.

The BFC250 and BFC300 use a tapered jaw design to securely hold fibers in place without damage. Our BFC250 uses a solid brass four-jaw design that holds the fiber in place with the simple twist of the knurled end cap. The BFC300 uses a Delrin® two-jaw design that is also clamped by the twist of the end cap.

The BFC80 is made from solid brass and uses a leaf spring to secure the fiber along the entire length of the 0.010-inch slot that runs parallel to the diameter of the BFC80. The clamping action of the BFC80 occurs when it is slid into one of the BFT series of fiber translators.

All models are threaded on the end to accept the BFC-SR stain relief. This simple stain relief uses a Delrin® two-jaw design that is clamped by the twist of the knurled end cap.

Product Features

- 80 µm to 1 mm fiber chucks
- Compatible with BFT series fiber translators
- Strain relief available for all models

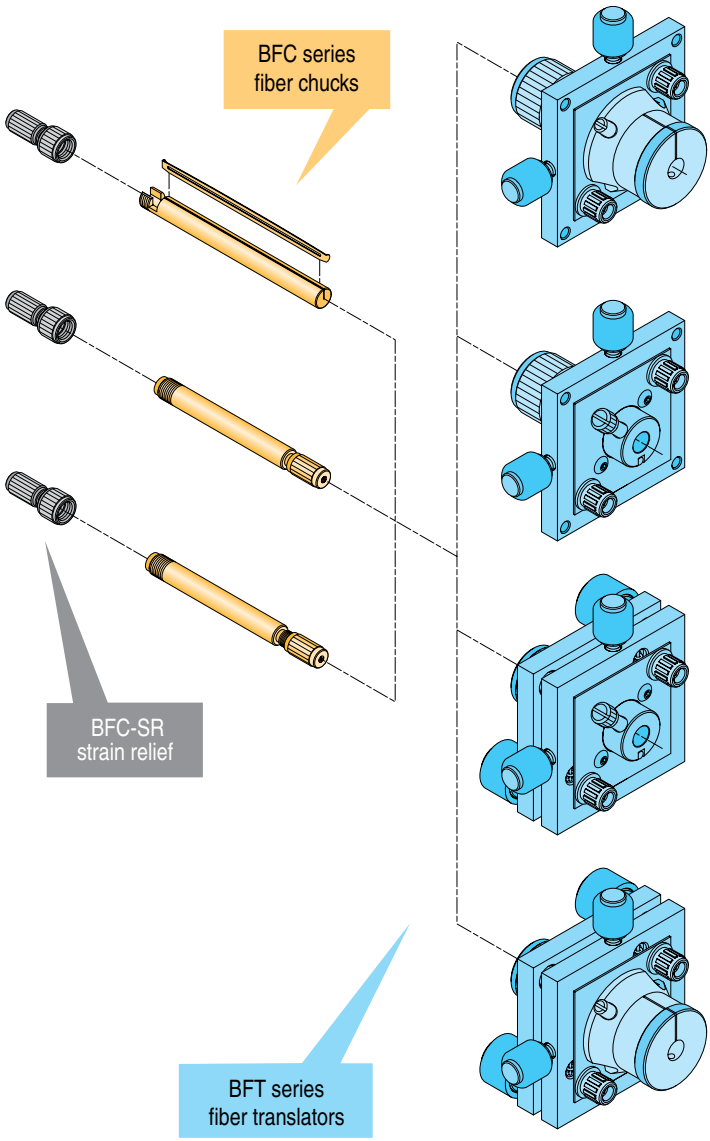
Related Products

BFT fiber translators 292

Order Information

bare fiber chuck, 300 µm to 1 mm	BFC300
bare fiber chuck, 125 µm to 250 µm	BFC250
bare fiber chuck, 80 µm to 200 µm	BFC80
bare fiber chuck, strain relief	BFC-SR

Applications



This product tree shows the compatibility of our BFT fiber translators and the BFC fiber chucks.

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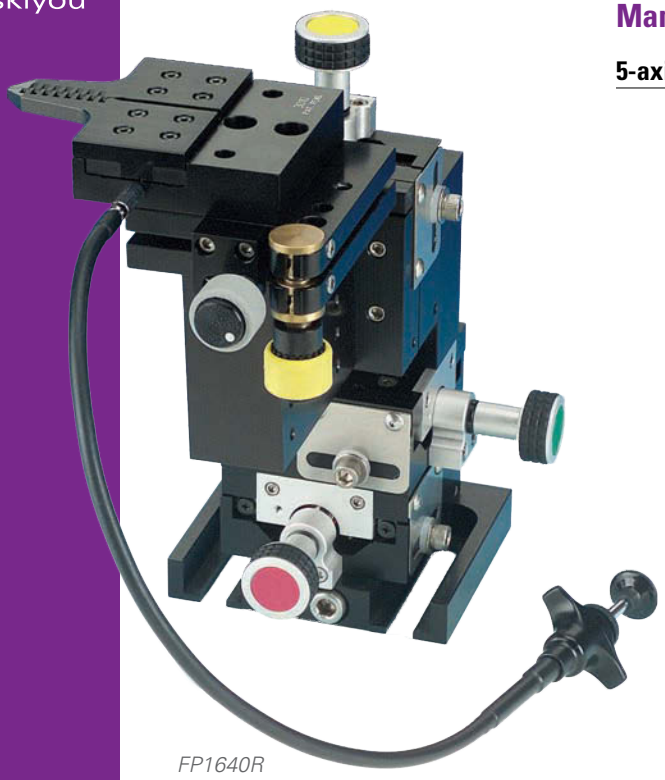
GMP SA	Main office: Avenue des Baumettes 17	CH-1020 Renens	Tél. 021 633 21 21	Fax. 021 633 21 29	info@gmp.ch
GMP SA	Büro Zürich: Dübendorfstrasse 11a	CH-8117 Fällanden	Tel. 044 825 34 00	Fax. 044 825 34 01	info@gmp.ch

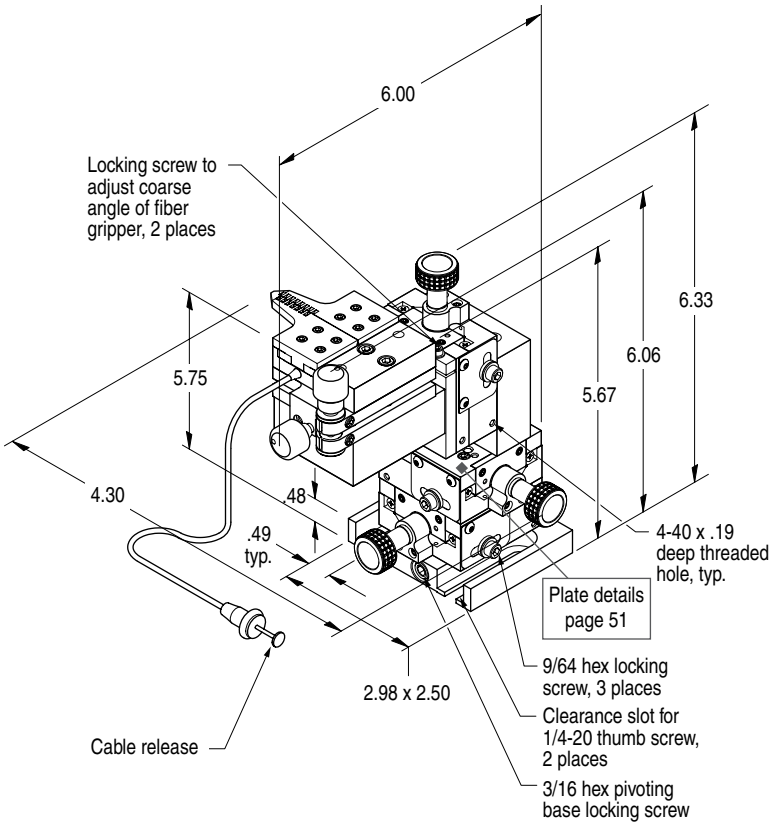
Fiber Translators

Manual

5-axis / FP1600 Series



FP1640R



Product Features

- Self-aligning fiber holder
- Precision crossed roller stages
- Color coded axis knobs

Performance Specifications

Core sizes	110 to 125 µm
Travel / axis	
X, Y, and Z	0.80 inch [20 mm]
Pitch and Yaw	7°
Minimum controllable motion	
X, Y, and Z	
FP1640	5 µm
FP1680	submicron
Pitch and Yaw	5 arc sec.

Related Products

MX-RS rotation base	122

Order Information

manual fiber positioner, 40TPI, rh	FP1640R
manual fiber positioner, 40TPI, lh	FP1640L
manual fiber positioner, 80TPI, rh	FP1680R
manual fiber positioner, 80TPI, lh	FP1680L

Manual Fiber Positioners

The FP1600 series fiber alignment system uses our 1600 series crossed roller stages for precise fiber alignment. This precise fiber alignment system is a modular assembly of our 1600 series stages, Model 3010 fiber holder, and PY-2 pitch / yaw mount. The modular design gives the user maximum flexibility while maintaining a stable working platform.

Our 1600 series stages use either 40TPI or 80TPI precision rolled lead screws for smooth positioning along their entire travel. These lead screws are spring-loaded against a solid stop to ensure drift-free operation. A non-influencing foil lock is integrated into the 1600 series stages and color coded SoftTouch™ knob caps are used to identify axis location, helpful in low light conditions.

FP1600 series stages come standard with our ABP-R mounting plate. The design of this mounting plate enables coarse positioning between platform mounting holes as well as 360° of coarse rotational positioning. If rotation with a solid submicron level stop is required, the MX-RS rotation stage is designed to mount directly into the ABP-R and has mounting holes for all 1600 series stages.

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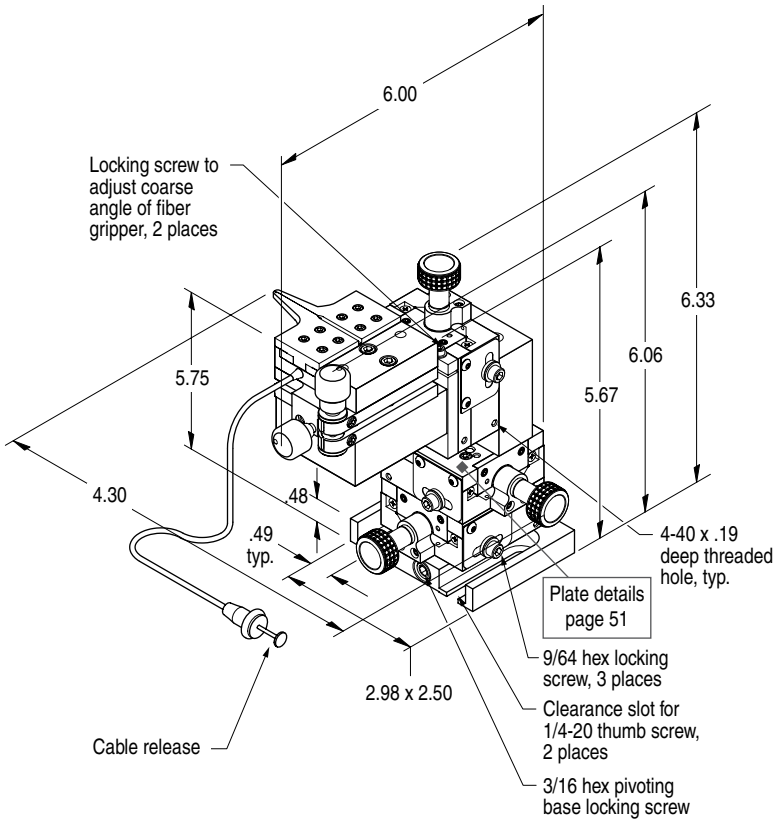
Manual

5-axis / GR1600 Series



GR1640R

Manual GRIN Rod / Ferrule Positioners

The GR1600 series GRIN rod/ferrule fiber alignment system uses our 1600 series crossed roller stages for precise fiber alignment. This precise fiber alignment system is a modular assembly of our 1600 series stages, Model 3018 GRIN rod/ferruled fiber holder, and PY-2 pitch / yaw mount. The modular design gives the user maximum flexibility while maintaining a stable working platform.

Our 1600 series stages use either 40TPI or 80TPI precision rolled lead screws for smooth positioning along their entire travel. These lead screws are spring-loaded against a solid stop to ensure drift-free operation. A non-influencing foil lock is integrated into the 1600 series stages and color coded SoftTouch™ knob caps are used to identify axis location, helpful in low light conditions.

GR1600 series stages come standard with our ABP-R mounting plate. The design of this mounting plate enables coarse positioning between platform mounting holes as well as 360° of coarse rotational positioning. If rotation with a solid submicron level stop is required, the MX-RS rotation stage is designed to mount directly into the ABP-R and has mounting holes for all 1600 series stages.

Product Features

- Self-aligning GRIN / ferruled fiber holder
- Precision crossed roller stages
- Color coded axis knobs

Performance Specifications

Rod sizes	1 to 2 mm
Travel / axis	
X, Y, and Z	0.80 inch [20 mm]
Pitch and Yaw	7°
Minimum controllable motion	
X, Y, and Z	
GR1640	5 µm
GR1680	submicron
Pitch and Yaw	5 arc sec.

Related Products

MX-RS rotation base	122

Order Information

manual GRIN/ferrule positioner, 40TPI, rh	GR1640R
manual GRIN/ferrule positioner, 40TPI, lh	GR1640L
manual GRIN/ferrule positioner, 80TPI, rh	GR1680R
manual GRIN/ferrule positioner, 80TPI, lh	GR1680L

Fiber Translators

Fiber & GRIN Holders

110µm Fiber – 2mm GRIN Rod Lens / 3010 and 3018

Model 3010R

Model 3018R

Self-Aligning Fiber Holder

The Model 3010 fiber holder is designed to quickly and securely align the fiber by simply activating the plunger release. The Model 3010 uses a crossing X pattern to align the fiber with the clamping jaws. The camera shutter release simplifies opening / closing and can be locked in the open position.

An 8-32 and 4-40 mounting hole pattern common to our 1600 and 7600 stages is used for attachment. Attach the 3010 to the PY-2 to provide pitch/yaw adjustment.

GRIN Rod / Ferrule Holder

The 3018 GRIN rod / ferruled fiber holder is designed to quickly and securely align the fiber by simply activating the plunger release. The 3018 uses a V-groove to align the GRIN rod / ferruled fiber with the clamping jaws. The camera shutter release simplifies opening / closing and can be locked in the open position.

An 8-32 and 4-40 mounting hole pattern common to our 1600 and 7600 stages is used for attachment. Attach the 3018 to the PY-2 to provide pitch/yaw adjustment.

Product Features

- Self-aligning design
- Right or left hand models
- Convenient cable actuation

Performance Specifications

Model 3010	
Core sizes	110 to 125 µm
Model 3018	
Rod sizes	1 to 2 mm

Related Products

PY-2 base plate	300
1600 XYZ stages	50
7600 XYZ stages	66

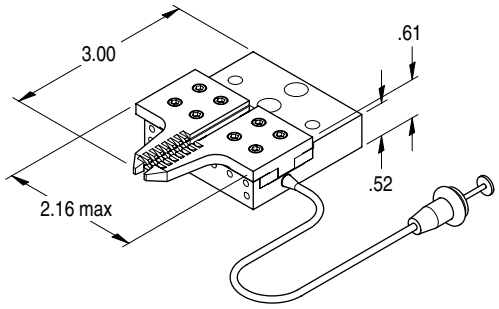
Order Information

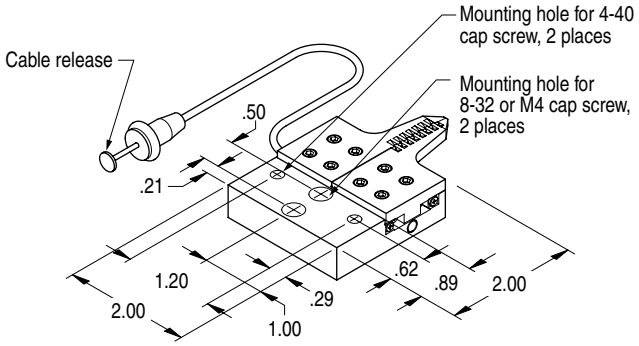
self-aligning fiber holder, rh	3010R
self-aligning fiber holder, lh	3010L
GRIN rod/ferrule holder, rh	3018R
GRIN rod/ferrule holder, lh	3018L

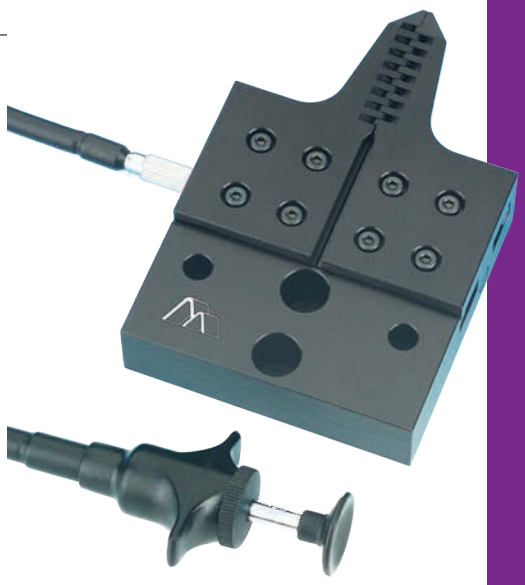
Fiber Translators

Fiber & GRIN Holders

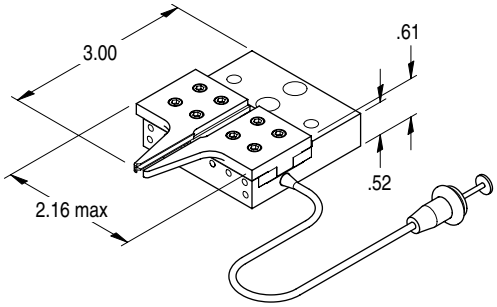
110µm Fiber – 2mm GRIN Rod Lens / 3010 and 3018

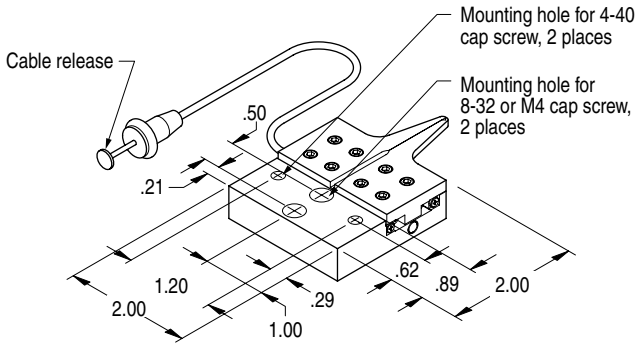






Model 3010R





Model 3018R

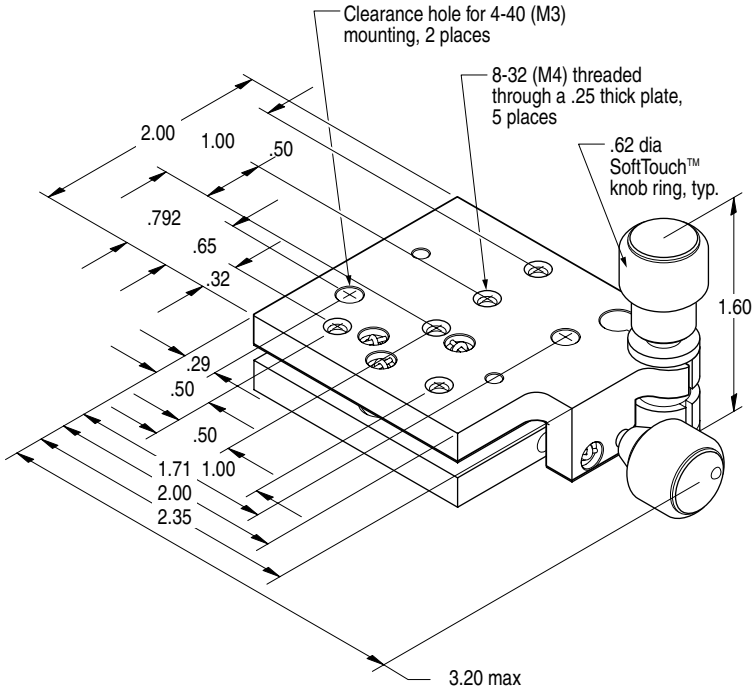
Fiber Translators

Pitch / Yaw Mount

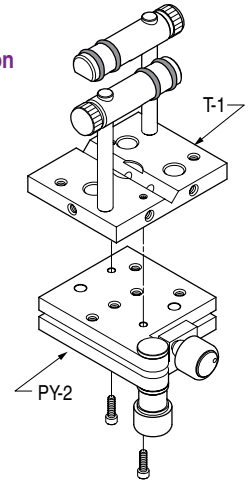
2.0-inch x 2.0-inch / PY-2

Note that dimensions in parentheses (mm) reflect metric assembly features

PY-2



Application



Product Features

- 80 pitch adjustment screws
- Right or left hand convertible
- Patented spring-loaded pivot point
- Vacuum compatible versions available upon request

Performance Specifications

Travel / axis	
Pitch and Yaw	7°
Minimum controllable motion	
Pitch and Yaw	5 arc sec.

Related Products

3010 fiber holder	298
3018 fiber holder	298

Order Information

pitch/yaw mount, 2.0" x 2.0"	PY-2

Metric Option — for metric assembly features on this product, add '-M' after model number.

Pitch / Yaw Mount

The PY-2 pitch / yaw mount is designed to be used in conjunction with the Model 3010 fiber holder and 1600 or 7600 series translation stages. The axially loaded pivot mechanism (pat.# 6590723) provides a stable platform that gives 7° of pitch and yaw motion.

The PY-2 is designed as a modular component that integrates with many devices. To facilitate multiple configurations the yellow knob pitch adjustment screw and stop can be removed and the position switched by the user. 80TPI adjustment screws are used for precise positioning and our color coded SoftTouch™ knob caps provide easy axis identification in low light conditions.

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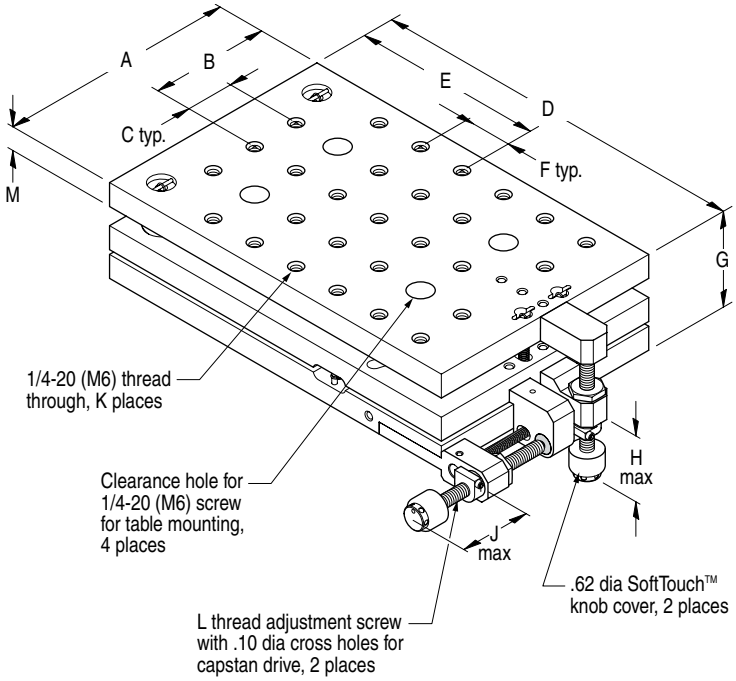
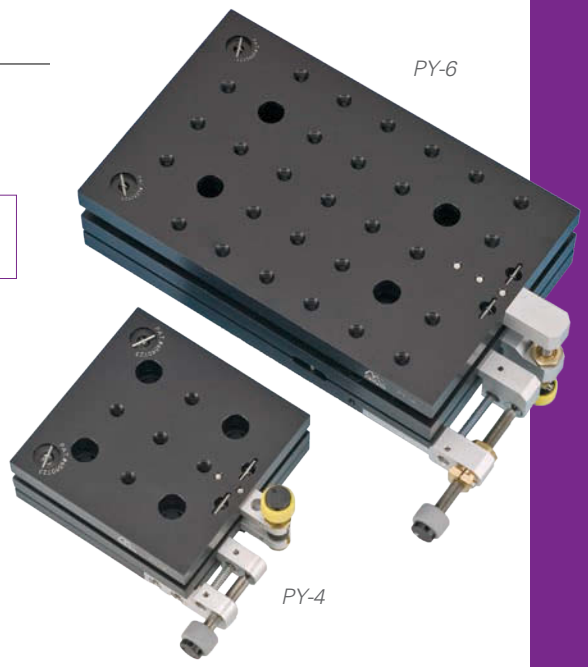
Pitch / Yaw Mount

4.0 x 4.0 and 5.0 x 8.0 / PY-4 and PY-6

Note that dimensions in parentheses (mm) reflect metric assembly features

Model	A	B	C	D	E	F	G	H	J	K	L	M
PY-4	4.00	2.00	1.00 (25.0)	4.00	2.00	1.00 (25.0)	1.50	1.20	1.11	5	1/4-80	.43
PY-6	5.00	2.50	1.00 (25.0)	8.00	4.00	1.00 (25.0)	2.00	1.65	2.19	28	1/4-40	.50





Product Features

- 40 and 80 pitch adjustment screws
- High load capacity
- Patented spring-loaded pivot point
- Vacuum compatible versions available upon request

Performance Specifications

Adjustment / axis	
Pitch	
PY-4	± 4°
PY-6	± 3°
Yaw	
PY-4	± 4°
PY-6	± 5°
Load capacity (centered)	
PY-4	40 lbs
PY-6	80 lbs
Minimum controllable motion	
Pitch and Yaw	1.7 arc seconds, typical

Related Products

DT-300 translation stage	42
331 translation stage	46
100cr translation stage	52
540, 540i, and 560 lab jacks	80–81

Order Information

pitch/yaw mount, 4.0" x 4.0"	PY-4
pitch/yaw mount, 5.0" x 8.0"	PY-6

Metric Option — for metric assembly features on this product, add '-M' after model number.

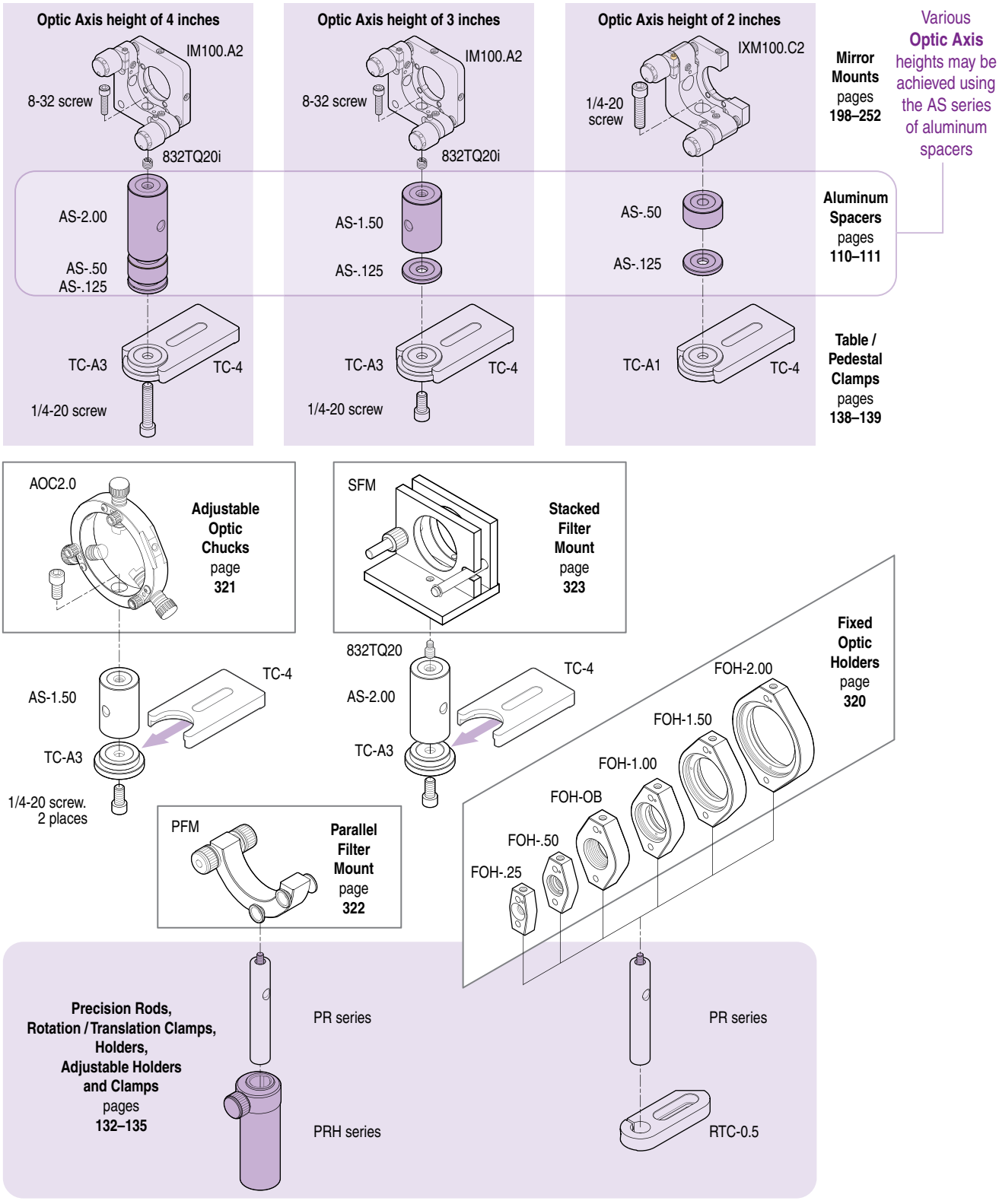
Pitch / Yaw Mount

The PY-4 and PY-6 are designed for heavier and larger applications than the PY-2 on the preceding page. Like the PY-2 these larger versions incorporate the same patented pivot design (pat.# 6590723), but they have been engineered to hold larger loads to ensure rock-solid load capability even under the most extreme conditions. The PY-6 can be driven with our motorized 420 or 840 series DC servo actuators for even greater position accuracy.

The PY-4 is designed to attach to our DT-300, 331, or 100cr stages for increased X, XY, or XYZ positioning. The PY-6 is designed to attach to our 540 series of manual and motorized lab jacks for increased Z-axis alignment. In this configuration, it is also possible to stack two 100cr stages between the PY-6 and the 540 lab jack, one for linear control and one for passive support. Depending on the size of the device to be positioned, all of the PY series mounts are ideal for providing azimuthal and elevation positioning for a variety of optical elements.

Optics Accessories

Cross-Reference Chart



Section Contents

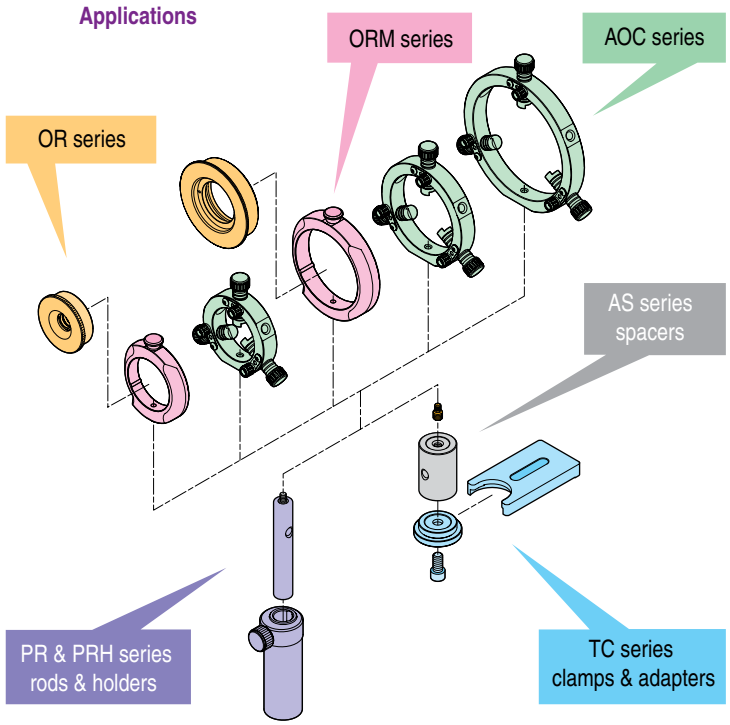
The optic accessories on the following pages, typically used for holding an optic, are designed with minimal adjustments to keep costs low. Some are fixed sizes and some will hold a range of optic sizes and related fixed-axis height risers and bases. Some hold a specific sized optic but have the ability to rotate for polarization of the optic while others are a simple Z-axis or focus mount.

There is also a system for fixed axis mounting of our optic accessories and mirror mounts. This fixed axis system is ideal for research or industrial applications where holding an optic or corner mirror at a specific height is necessary. This fixed axis system is a cost-effective alternative to having a machine shop build *one-off* adapter blocks.

In instances when it is necessary to mount our optical translators (pages 254–265) directly to an isolation table or platform we have low profile device mounting bases. The DMB series add minimally to both the height of the device and the cost.

Two styles of filter holders round out our optical accessories section. The PFM is a unique cutaway design that securely holds two 50-mm x 50-mm filters parallel to each other. The SFM uses a simple slide clamp design to securely hold a filter stack in place without damage.

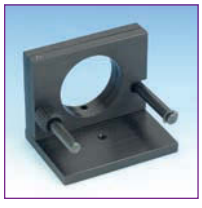
The product tree shown here is only a sampling of the modularity of our Photonics product line. The example shown here relates to our Optics Chucks, Optic Rotators, and related spacers, clamps, adapters, support rods and holders.



Optics Accessories

Optic Tubes & Mounts

1.0" Cubes	306
Dichroic Filter Slider	307
Light Source Holder	308
Camera Adapter	309
Beamsplitter Connector	310
Objective Flipper	311
Optical Focus Translator	312
Objective Focal Tube	313
Dovetail Adapters	314
Pinhole Positioner	316
0.5" Cubes	317
Optic Rotators	318
Fixed Optic Holders	320
Adjustable Optics Chucks	321
Parallel Filter Mount	322
Stacked Filter Mount	323
Pockels Cell Mount	324



Cube Holders, C-mount and Objective Flipper / 1-inch Cubes / CBH-1.0 IS Series

New to our CBH-1.0 cube beamsplitter mount is a full array of adapters and optic holders that allow you to build a simple microscope, as well as one capable of simultaneous contrast and fluorescence imaging of neurological tissue samples for electrophysiology. In many cases, this system is a lower-vibration alternative to less-robust "cage" systems.

The versatility of the CBH-1.0 and CBH-0.5 cube beamsplitter mounts make them an indispensable tool in any optics laboratory. The modular design enables optics that are commonly used with beamsplitters, such as wave plates, polarizers, filters, lenses and mirrors, to be quickly attached or removed. Specific combinations can be assembled to create optical isolators, T-splitters and variable attenuators. Cube holders can be stacked for the addition of multiple detectors, and adapted to the top of existing microscopes to add fluorescence capability. They have tapped holes for post mounting by either the U.S. system (8-32 or 1/4-20) or metric (M4 or M6) threads.

CBH-1.0 with cube holder

The IS-CA has a C-mount thread on one side for mounting a camera with matching thread. On the other end is the mating thread for attaching to the CBH-1.0. There is also an internal thread for mounting optional 1.0-inch optics and a slip-joint for aligning the camera image.

For fluorescence imaging, the IS-FBA is designed to screw into an optional OH1.0-1.0 and has a mounting hole and locking screw for a fiber light source.

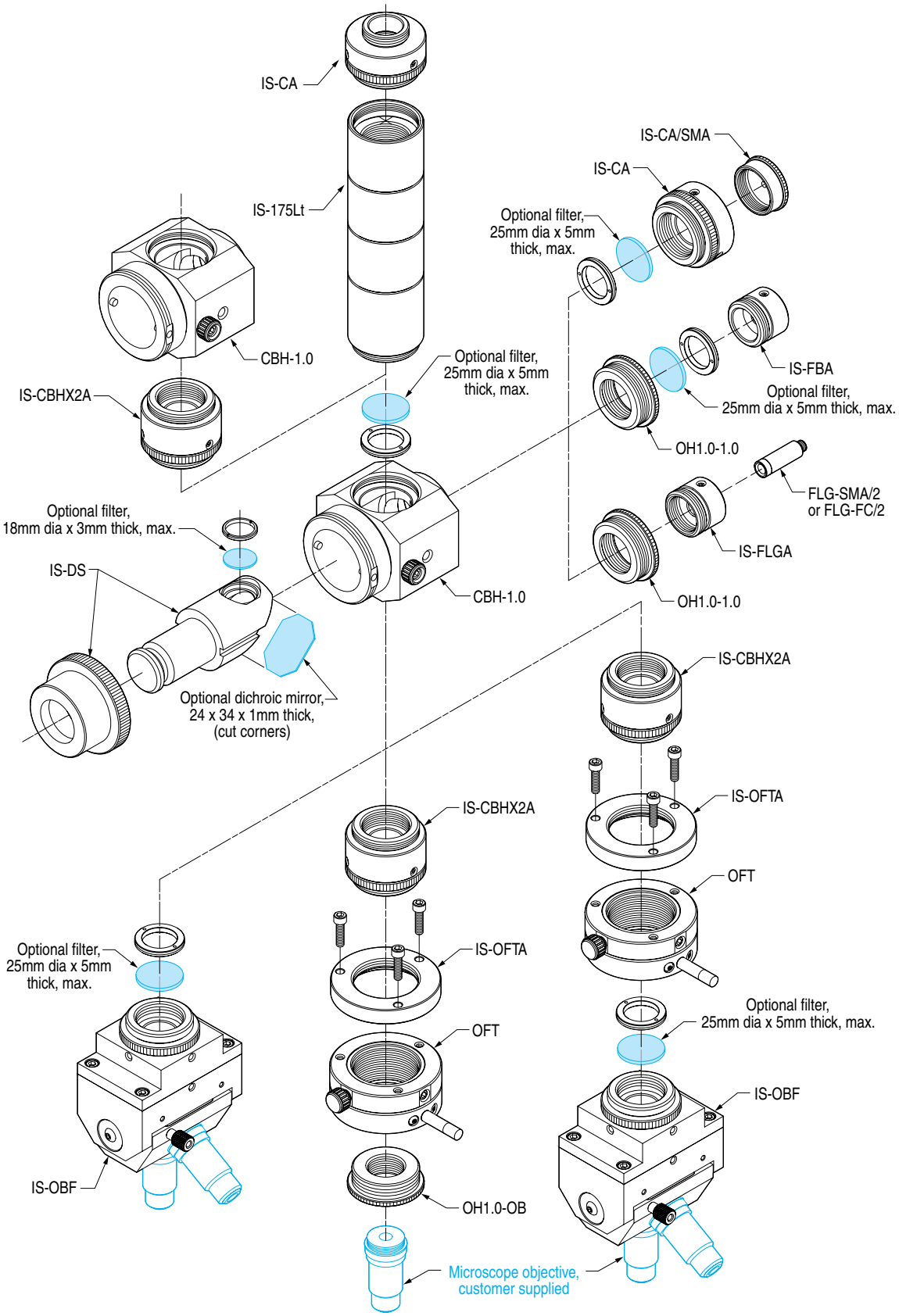
The IS-DS dichroic slider replaces the stock cube holder and is designed to slide the dichroic beamsplitter and emission filter into and out of the imaging path of the camera.

The IS-OBF is a two-position microscope objective flipper that attaches to the CBH-1.0. It has a receiver on the top for optional 1.0-inch optics. The two-position flipper is magnetically coupled in each position and uses ball bearing movement to ensure parfocal alignment.

The IS-CA/SMA lets you couple the image onto a fiber for photon counting or spectroscopy applications, or bring a given wavelength into the image *via* an SMA fiber.

Optics Assembly

IS Assemblies

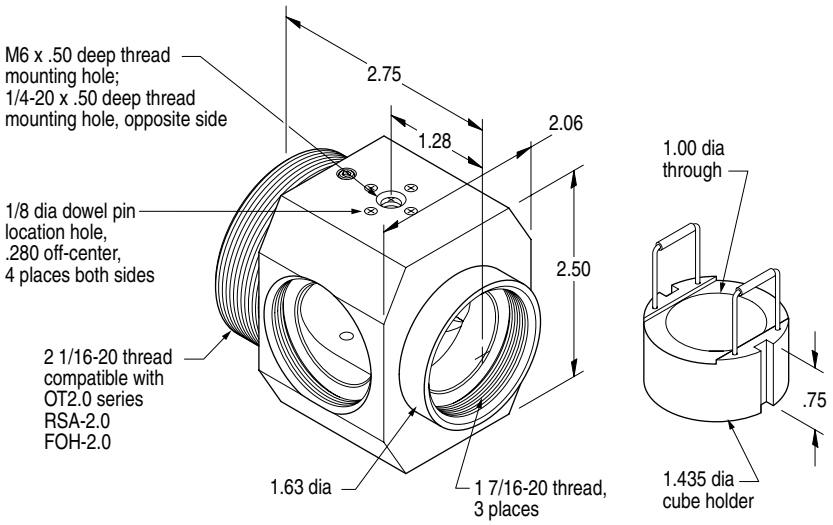


Optics Tubes & Mounts

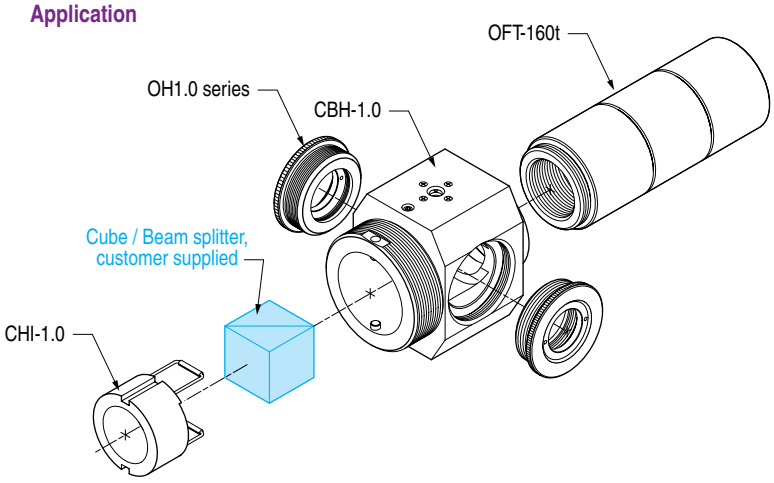
Beamsplitter Mount / CBH-1.0 and CHI-1.0

CBH-1.0

CHI-1.0



Application



Product Features

- Secure cube beamsplitter mount
- Build open-frame microscopes
- Add detectors and light sources to Infinity-corrected microscopes

Performance Specifications

Post mount	8-32 [M4] or 1/4-20 [M6]

Related Products

RSA-2.0 rotary stage	72
OH1.0 series optic holder	263
IS assemblies	305
dovetail rails & carriers, DTR & DTC series	130

Order Information

cube beamsplitter holder for 1.0-inch cubes	CBH-1.0
cube beamsplitter holder for 1.0-inch cubes	CHI-1.0
camera mount with C-mount thread	IS-CA
mount for fiber light source	IS-FBA
2-position microscope objective flipper	IS-OBF

Mount cube beamsplitters securely while allowing access to four of the 6 cube facets. Or, use an IS-DS slider to bring in a dichroic, split or fully-reflective mirror instead of using a cube beamsplitter. Optional accessories provide mounting locations for filters, quarter wave plates, light sources, fiber inputs, cameras, detectors, microscope objectives and other optical components. Beamsplitter mounts can be stacked, offering a robust alternative to rod-based "cage" systems. Placed on rail carriers, they slide relative to each other along the same optical axis.

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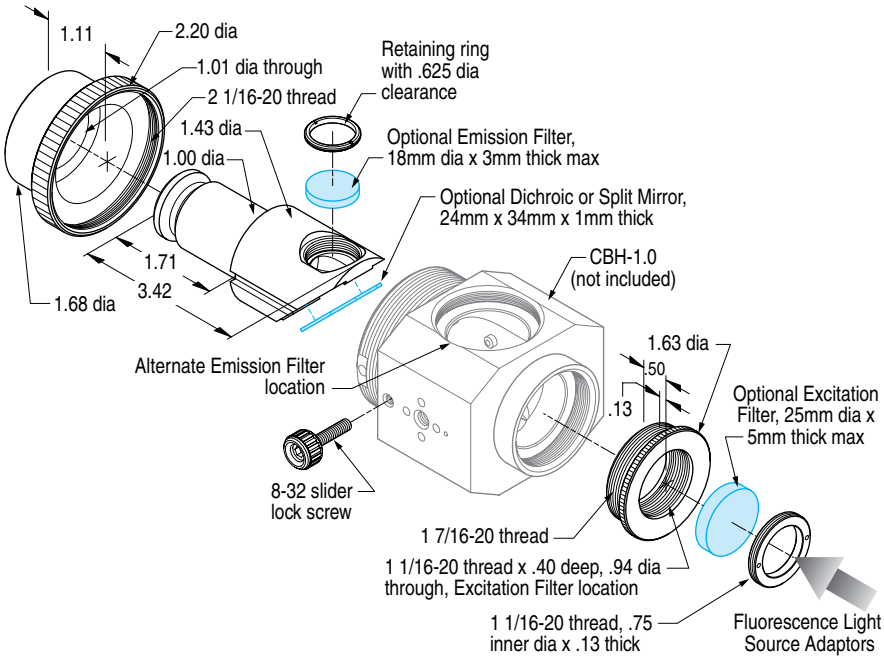
Optics Tubes & Mounts

Dichroic Filter Slider / IS-DS



With the IS-DS, you can add fluorescence capability to your infinity-corrected microscope, or build your own open-frame fluorescence imaging system. Stack CBH modules for multi-color fluorescence. Bring in a light guide or laser: free-space or connectorized fiber. Mount a camera above the emission filter for imaging. Split mirrors can also be mounted in the dichroic location for various applications.

Filters sold separately.

Product Features

- Allows easy interchangability of filter sets
- Allows two optical elements to slide in and out of the image path
- Lockable slider

Performance Specifications

Alignment	45° alignment of dichroic filter/mirror

Related Products

IS assemblies	305

Order Information

dichroic filter slider	IS-DS
filter sets	
each set includes excitation, dichroic, and emission filters	
IS-GFP filter set (FITC/RSGFP/Fluo 3/Dio Acradine Orange(+DNA))	IS-GFP
IS-RFP filter set (ET-CY3)	IS-RFP
IS-TRITC/Cy3 filter set (ER-DSRed)	IS-TRITC/Cy3
IS-YFP filter set (ET-EYFP)	IS-YFP
fully reflective mirror	IS-FRM
50% reflective, 50% transmissive mirror	IS-50/50

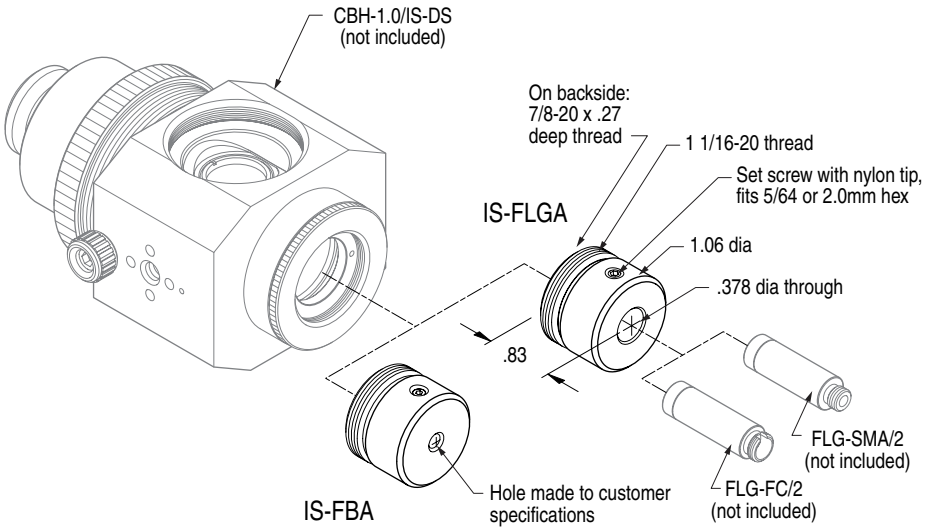
New

Optics Tubes & Mounts

Fiber Light Guide Adapters / IS-FBA and IS-FLGA

IS-FLGA

IS-FBA



New

Product Features

- Fiber light guide
- Liquid crystal light guide
- Connectorized fiber optic

Performance Specifications

IS-FBA machined to customer specifications

Related Products

FLG-SMA/2 light guide	176
FLG-FC/2 light guide	176

Order Information

mount for the light source	IS-FBA
mount for fiber light guide	IS-FLGA

The IS-FBA attaches to the CBH by threading into the optic holder outside the excitation filter location. It allows you to add a variety of light sources. Give us the diameter of your light guide and we'll drill out the IS-FBA to your specifications — a set screw provides a secure lock for the cable; we can supply a thumbscrew for frequent changes of external light guides. If you have a fiber-coupled laser (SMA or FC), add the FLG/2 and get a collimated beam into your microscope. Add a pinhole to control the laser spot size on your sample. Add a different light source to your microscope — easily!

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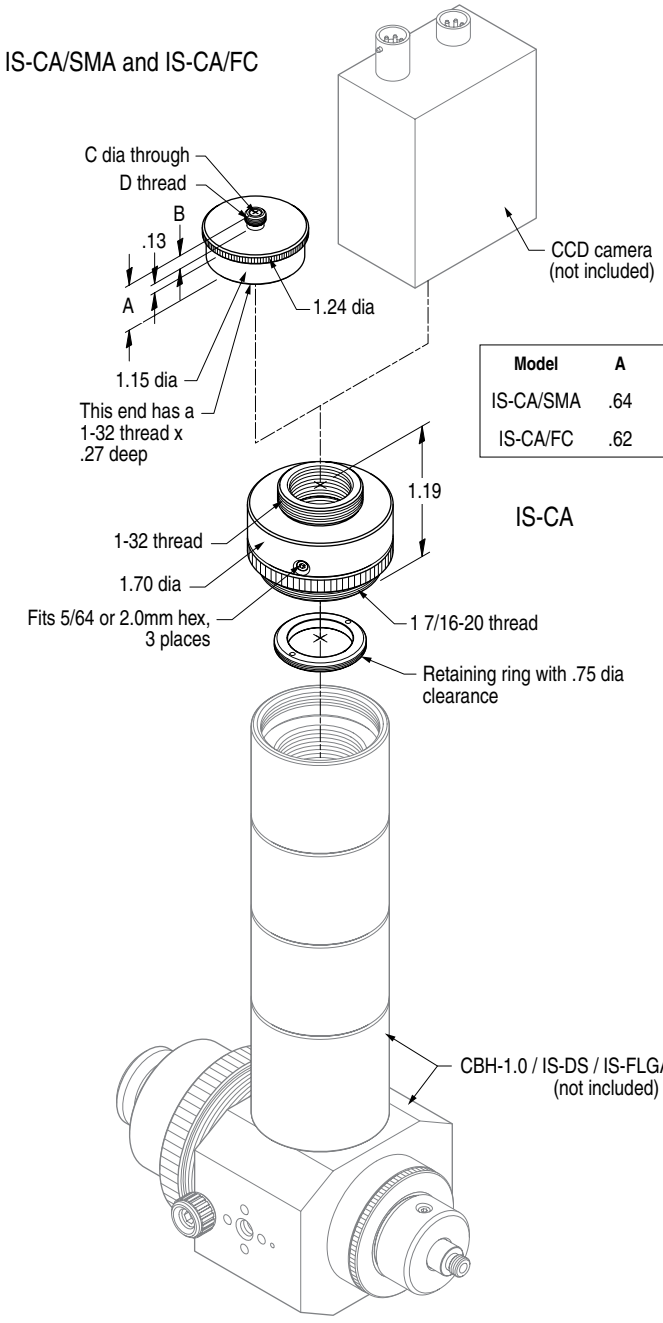
Optics Tubes & Mounts

Camera C-mount Adapter / IS-CA/SMA and IS-CA



Model	A	B	C	D
IS-CA/SMA	.64	.19	.136	SMA
IS-CA/FC	.62	.17	.100	FC

IS-CA/SMA

IS-CA

With the CBH module and the IS-CA series mounts, you can add a camera or detector to your existing microscope or turn CBH modules into your own custom imaging system. Connect one end of a SMA (or FC) fiber to the IS-CA/SMA (or IS-CA/FC), and the other end to a spectrometer – with a mirror mounted in the IS-DS, you can couple all the light to the spectrometer. With a 600 micron core fiber and a 40X microscope objective, 15 micron diameter fluorescent beads show clear peaks, even when they aren't perfectly centered. For this application, the CBH module can be mounted in either infinity space or to the C-mount above your microscope, so you can add cameras easily.

New

Product Features

- Micro-spectroscopy
- Photon counting
- Detector addition

Performance Specifications

Industry standard connectors to fiber cables
C-mount thread to camera

Related Products

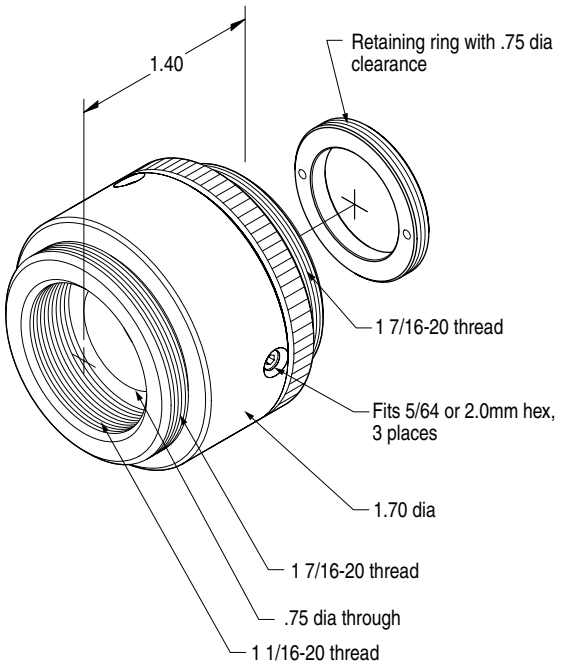
optical fiber cables 176

Order Information

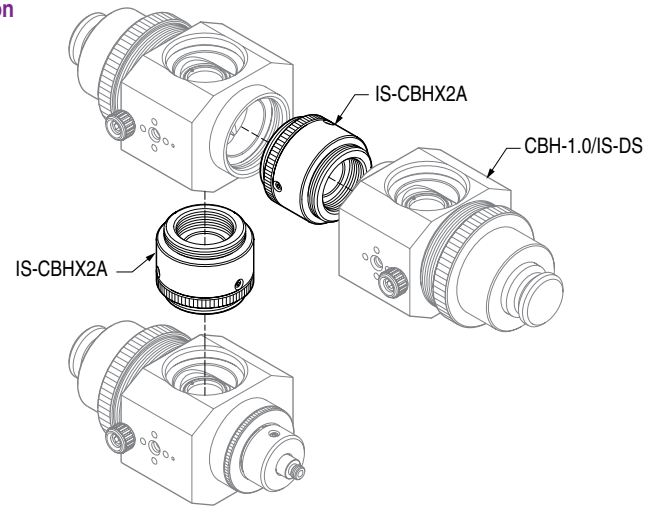
camera mount with C-mount thread	IS-CA
FC fiber to C-mount adapter	IS-CA/FC
SMA fiber to C-mount adapter	IS-CA/SMA

Optics Tubes & Mounts

CBH-1.0 to CBH-1.0 Coupler / IS-CBHX2A



Application



New

Create a complete optical system by connecting CBH beamsplitter modules with the IS-CBHX2A connector. With multiple input and output ports, you can configure a wide variety of experiments, easily switching light sources and detectors. Internal filter locations and sliding mirror modules allow combined fluorescence and contrast imaging, imaging and spectroscopy, multiple light source inputs with imaging, one or two objectives — or C-mount lenses. Pin pockets on the CBH correspond to pins on our new DTR dovetail rails — CBH modules can slide along the same optical axis! All components are modular, so what used to take hours to set up can be done in minutes. Use Siskiyou components to modularize your experiments.

Product Features

- Series or parallel module stacking
- More robust than "cage" systems

Related Products

CBH-1.0 beamsplitter mount	306
IS assemblies	305

Order Information

CBH-1.0 to CBH-1.0 adapter	IS-CBHX2A

GMP GENERAL MICROTECHNOLOGY & PHOTONICS

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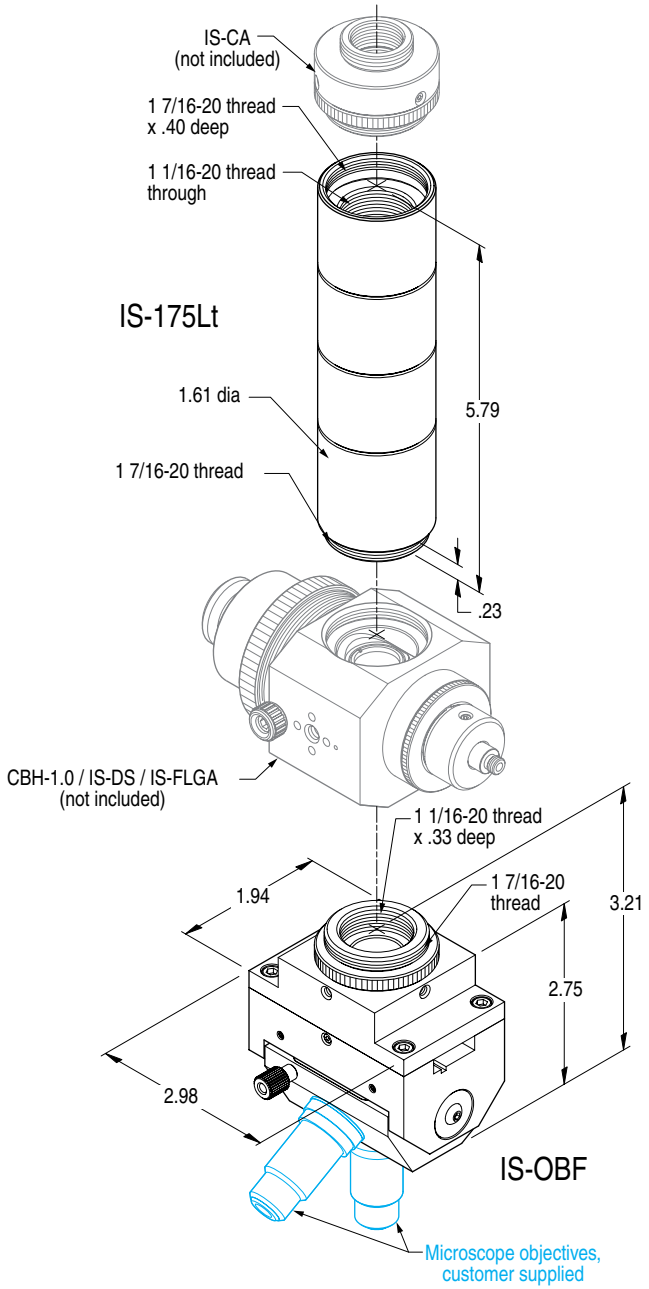
Optics Tubes & Mounts

Two-position Microscope Objective Flipper / IS-OBF



IS-OBF
(objectives not included)

IS-175Lt

New

With the new IS-175Lt lens tube to optimize objective parfocality, the Siskiyou IS-OBF objective flipper lets you build a very compact imaging/ research microscope with 2 objectives. It's very useful in applications like cell probing, where the sideways motion of a turret would disturb the sample. Mounted on a DTR series optical rail with a translation stage for focusing, you can put a sophisticated microscope in many places inaccessible to a standard full-sized microscope.

Product Features

- Solid aluminum construction
- Smooth ball bearing pivot
- Positive magnetic latching from 60° pivot

Performance Specifications

Threads	0.800-36 RMS threads

Related Products

IS-CA camera mount	309
CBH-1.0 beamsplitter mount	306
IS assemblies	305

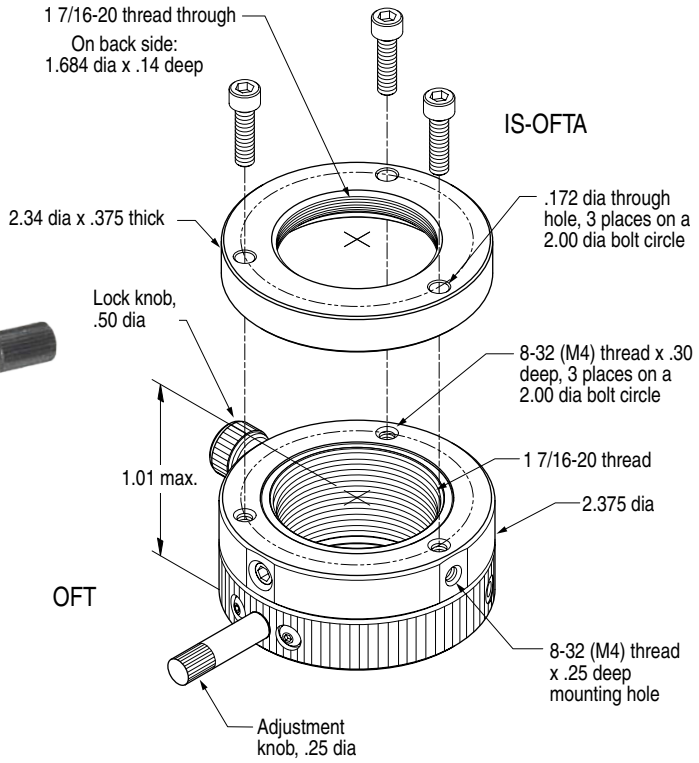
Order Information

two-position microscope objective flipper	IS-OBF
parfocal lens tube	IS-175Lt

Optics Tubes & Mounts

Optical Focus Translator / OFT and IS-OFTA adapter

Note that dimensions in parentheses (mm) reflect metric assembly features



New

Product Features

- 1/4-20 and 8-32 mounting
- 0.2-inch focus range
- Vacuum compatible versions available upon request

Performance Specifications

Travel	0.25 inch (6 mm)
Minimum controllable motion	10 µm

Related Products

IS-CBHX2A adapter	310
IS-OBF objective flipper	311
IS assemblies	305
CBH-1.0 beamsplitter mount	306

Order Information

optical focus translator, 1.0 inch	OFT
optical focus translator adapter	IS-OFTA
optical focus translator, 160mm tube	OFT-160t

Metric Option — for metric assembly features on this product, add '-M' after model number.

Optical Focus Translator

The OFT optical focus translator allows the user to simply adjust the focus of an optic along the optical axis. The simple cam design is able to translate 0.25-inch in 30° of rotation of the focusing lever. Once in position the OFT can be locked with a Delrin® knob. Adjustment of the Z (focus) axis does not rotate the optical element when the lever is turned. The inner sleeve, in which the optical element is held, does not rotate, so optical axis height is constant and polarization orientation is maintained.

Vertical or horizontal mounting of the OFT is made simple with multiple 8-32 and 1⁄4-20 tapped holes on its diameter and back face. The OFT is compatible with our OH1.0 series of optic holders.

A 160mm tube length for DIN type objectives is achieved by combining the IS-CA camera mount, OFT-160t 160mm tube and OFT with our OH1.0-OB (shown on page 313). The IS-CA has a C-mount thread on one side for mounting a camera with matching thread. On the other end is the mating thread for attaching to the OFT-160t. There is an inner 1 1/16-20 thread all the way through the OFT-160t. The OFT-160t is threaded directly into the inner sleeve of the OFT. On the opposite side of the OFT the objective is attached to the OFT with an OH1.0-OB objective adapter.

Also used as a lens tube for mounting 1.0 inch optics, the OFT160t can be added to the optic ports of the CBH-1.0 cube beamsplitter holder.

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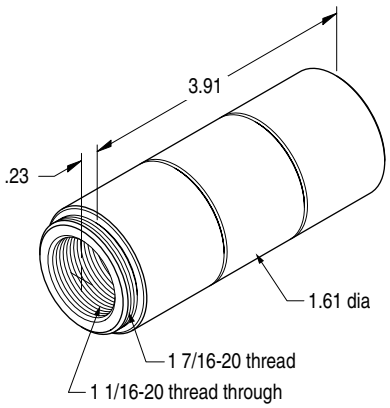
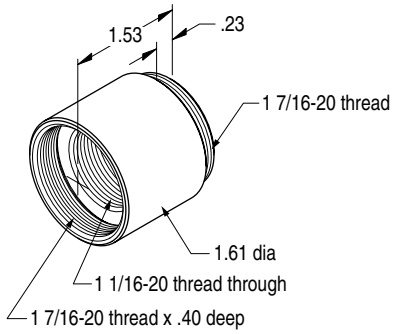
Optics Tubes & Mounts

Lens Tubes and Extensions / OFT-160t

Note that dimensions in parentheses (mm) reflect metric assembly features



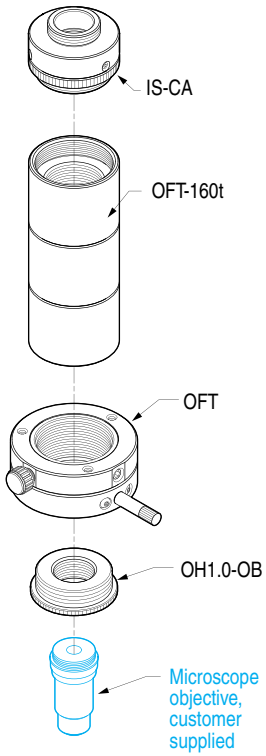
AS SOLD WITH 3 TUBES

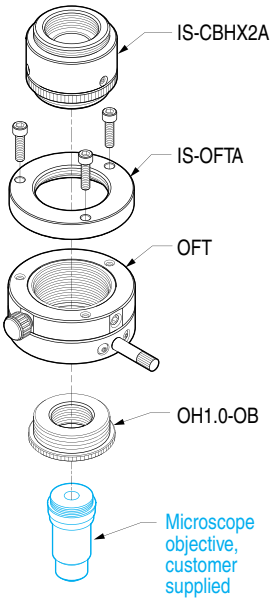


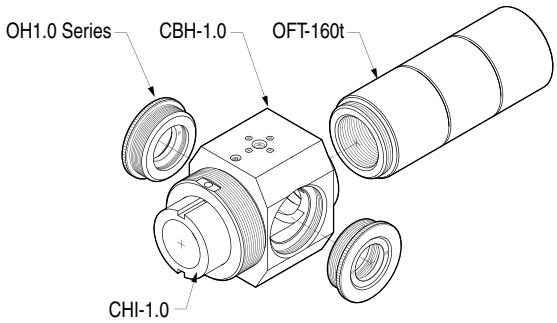
SINGLE TUBE

OFT-160t

Applications





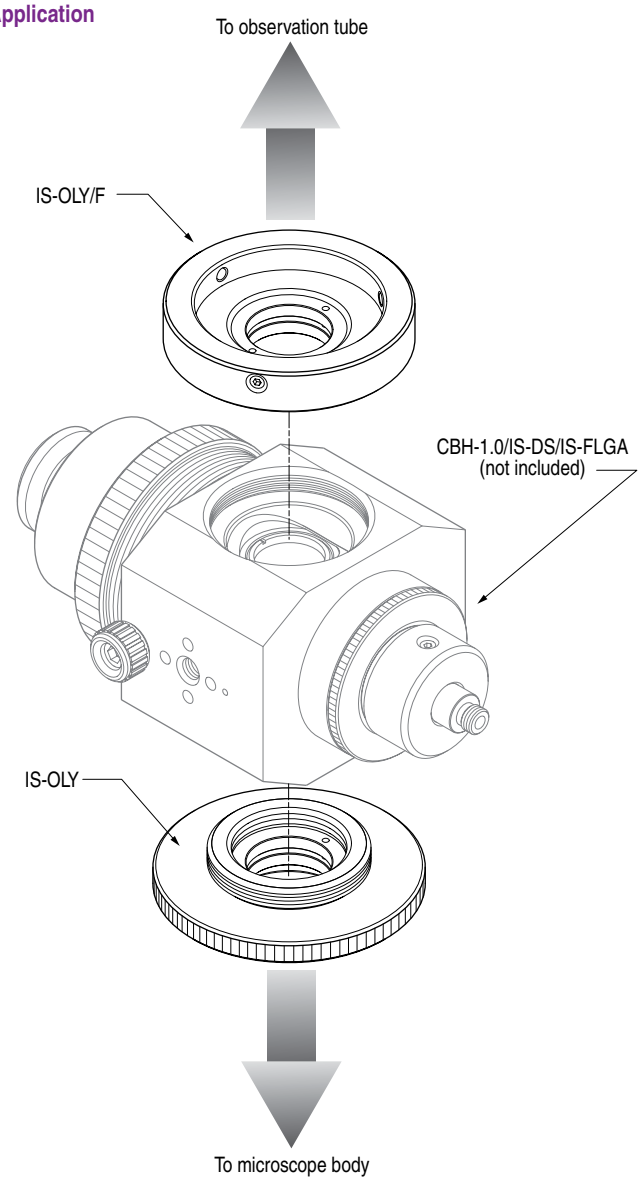


New

Optics Tubes & Mounts

Microscope Port Adapters / IS-OLY, IS-OLY/F, IS-OLY2 and IS-OLY2/F

Application



Product Features

- Allows mounting of optics and light sources into the microscope image path
- Solid aluminum construction

New

Related Products

CBH-1.0 beamsplitter mount	306

Order Information

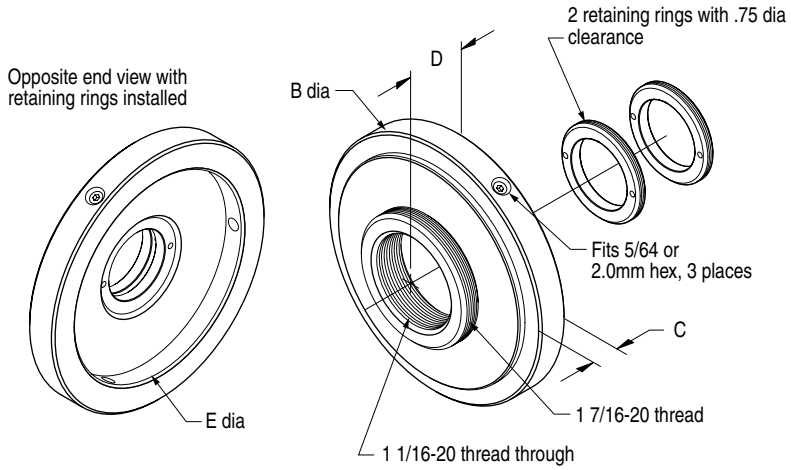
male Olympus dovetail to CBH-1.0 coupler	IS-OLY
male Olympus dovetail to CBH-1.0 coupler, tri-n	IS-OLY2
female Olympus dovetail to CBH-1.0 coupler	IS-OLY/F
female Olympus dovetail to CBH-1.0 coupler, T	IS-OLY2/F
male Nikon dovetail to CBH-1.0 coupler	IS-NIK
female Nikon dovetail to CBH-1.0 coupler	IS-NIK/F
CBH-1.0 to Zeiss dovetail adapter	IS-ZA
Zeiss dovetail adapter	IS-ZFS1
female Zeiss dovetail adapter	IS-ZFS1/F
Zeiss dovetail adapter	IS-ZFS1T

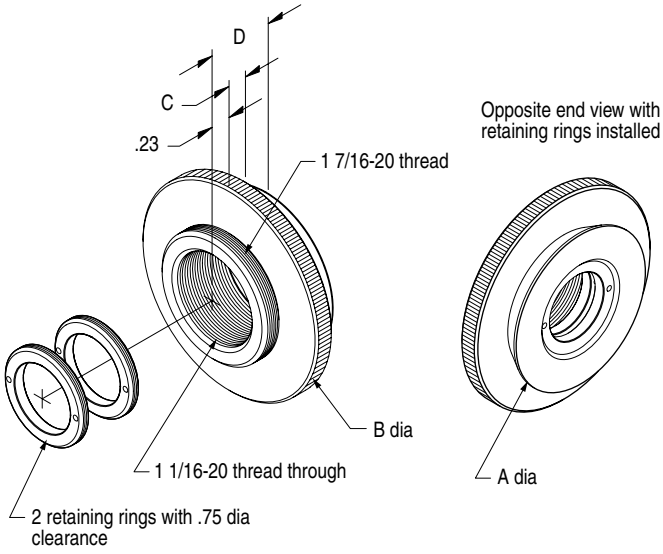
With dovetail adaptors available for most infinity-corrected microscopes, you can add the CBH beamsplitter module to your microscope. This allows you to add a wide variety of components — light sources, lasers, detectors or cameras — to your existing transmitted light scope.

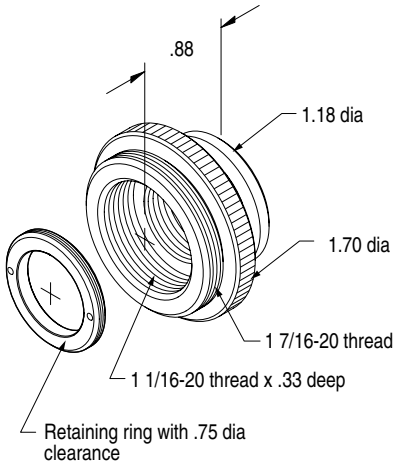
Optics Tubes & Mounts

Microscope Port Adapters / IS-ZA, IS-ZFS1, ZFS1-F and ZFS1T

IS-ZA





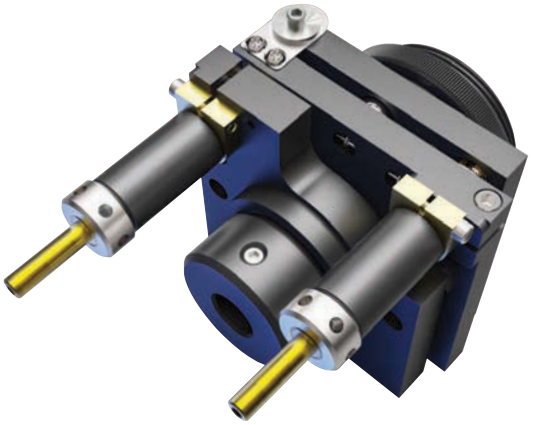


Model	A	B	C	D	E
IS-OLY	1.65	2.38	.22	.69	—
IS-OLY/F	—	2.20	.43	.66	1.66
IS-OLY2	1.81	2.46	.22	.69	—
IS-OLY2/F	—	2.88	.43	.66	1.82
IS-ZFS1	2.25	2.88	.33	.77	—
IS-ZFS1/F	—	2.88	.43	.66	2.26
IS-ZFS1T	1.82	2.38	.22	.73	—
IS-NIK	2.02	2.46	.22	.69	—
IS-NIK/F	—	2.88	.43	.66	2.03

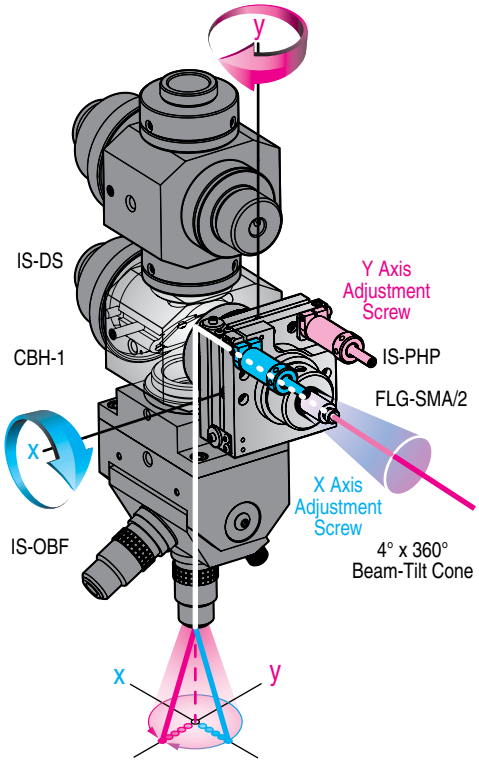
New

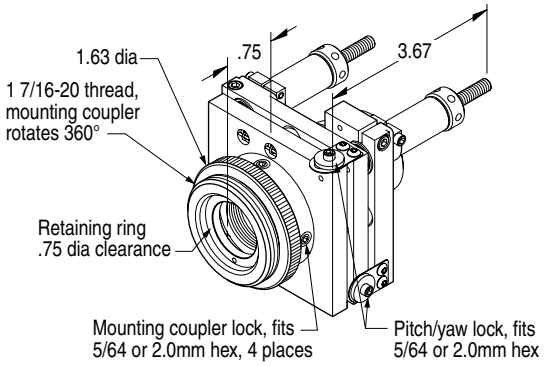
Optics Tubes & Mounts

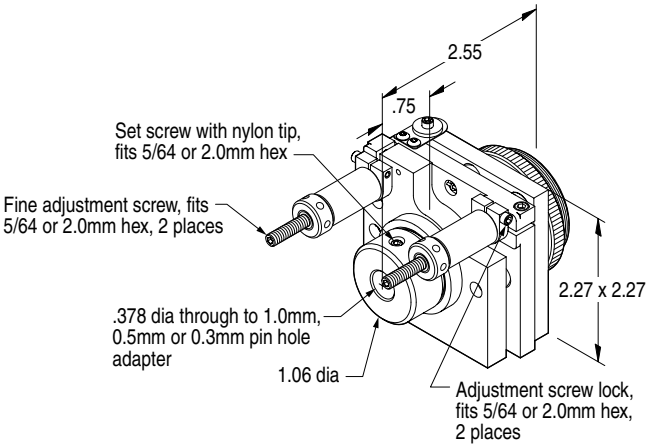
Pinhole/Spot Translator / IS-PHP



IS-PHP







New

Product Features

- Allows positioning of light beam spot onto sample
- Variable spot size through interchangeable pinhole apertures

Related Products

CBH-1.0 beamsplitter mount	306
IS assemblies	305

Order Information

pinhole positioner	IS-PHP

For pinpoint illumination of a laser spot on your sample, the IS-PHP pinhole positioner lets you select spot size and position it on the sample. With spot sizes down to 10 microns on a 40X objective, you can select the exact location you need to illuminate for applications in photoactivation, optogenetics and uncaging. The IS-PHP mounts on the side of the CBH. Attach your connectorized fiber to the FLG-SMA/2 on the side of the PHP, then steer the illuminated spot across the sample by adjusting azimuth and elevation. Pinhole sizes can be easily changed.

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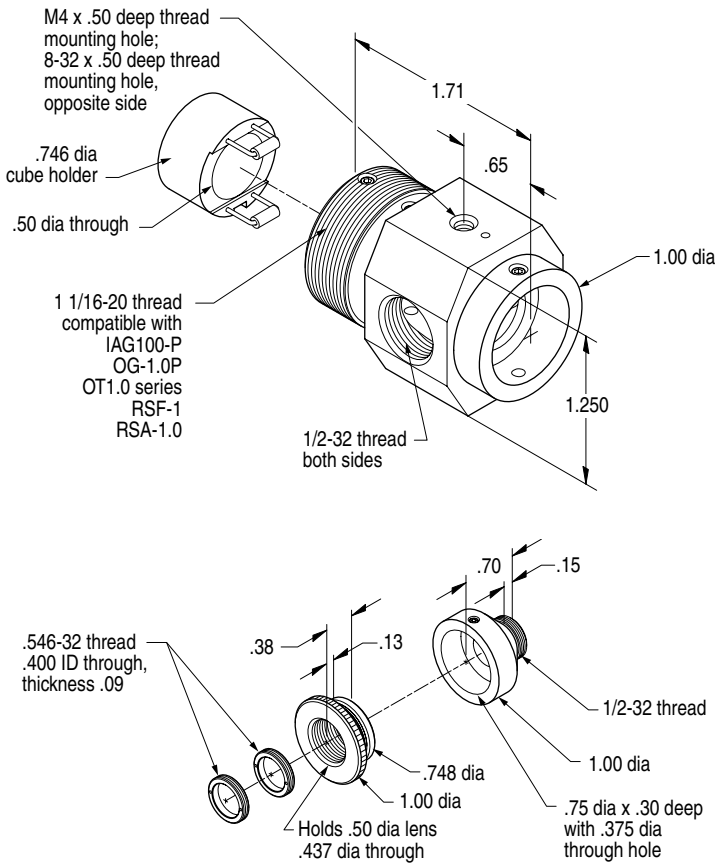
Optics Tubes & Mounts

0.5-inch Cubes / CBH-0.5

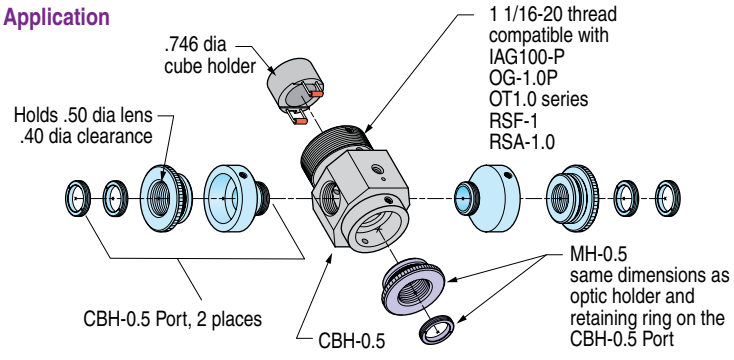


CBH-0.5

CBH-PORT

When you need to mount circular optical elements next to a beam-splitter cube, the CBH-0.5 is an ideal solution. The compact size and ability to attach a wide variety of mounts and rotation stages lets you create small, yet robust systems. Rotate a polarizer. Adjust tip and tilt on a rotatable element. Small enough to fit in production systems, and robust enough to keep components aligned in tough environments, the CBH-0.5 can make your project a reality – faster.

Application



Product Features

- 0.5 inch cube beamsplitter mount
- Compatible with 1.0 inch rotational stages
- Side ports receive 0.5 inch optics

New

Performance Specifications

Post mount	8-32 (M4) thread

Related Products

IAG100-P almost gimbal mount	273
OGX-1.0p gimbal mount	271
OTX-1.0 series optic translator	256
RSA-1.0 rotary stage	72
RSA-1.0i rotary stage	76
RSF-1 rotary stage	74

Order Information

cube beamsplitter holder for 0.5-inch cubes	CBH-0.5
0.5-inch optic adapter for CBH-0.5	CBH-PORT

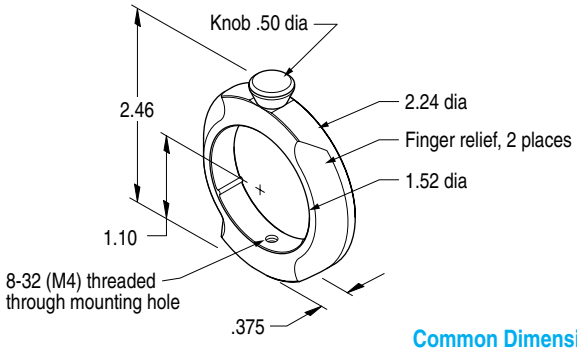
Optics Tubes & Mounts

0.25- to 1.0-inch and Microscope Objective Holder / OR1 Series

Note that dimensions in parentheses (mm) reflect metric assembly features

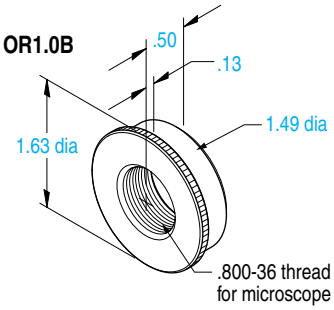
OR1 Series with ORM1.0

ORM1.0

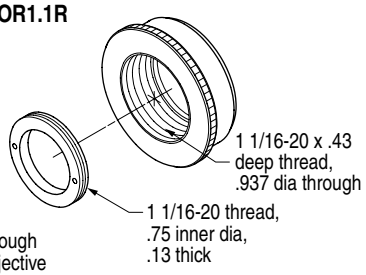


Common Dimensions shown in cyan-blue

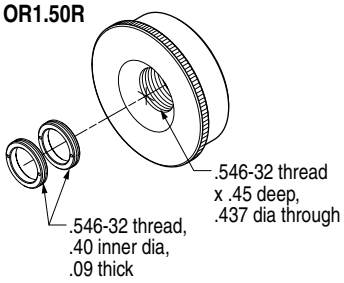
OR1.0B



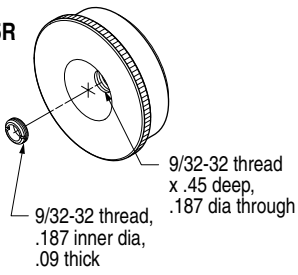
OR1.1R



OR1.50R



OR1.25R



Product Features

- Rod mounting
- Quickly change optics
- 0.25-, 0.5-, and 1.0-inch optic adapters
- Vacuum compatible versions available upon request

Related Products

PR precision rods	132
cross-reference table	302

Order Information

optic rotation mount, 1.0"	ORM1.0
optic rotator, 1.0", microscope objective	OR1.0B
optic rotator, 1.0", 1.0 inch holder	OR1.1R
optic rotator, 1.0", 0.5 inch holder	OR1.50R
optic rotator, 1.0", 0.25 inch holder	OR1.25R

Metric Option — for metric assembly features on this product, add '-M' after model number.

Optic Rotators

The new design of the ORM1.0 has two edges machined away to improve access to the optic mount and improve grip on the knurled ring for rotation of polarizing optics. The ORM1.0 has an 8-32 (M4) tapped hole in the lower edge to allow mounting to a PR series rod. The simple spring-loaded clamp securely holds OR1 series optic adapters. The face of the ORM1 is marked with a 360° graduated dial in 2° increments. The graduated dial facilitates rotational adjustment of polarizers and quarter-wave plates.

OR1 series optic adapters come complete with non-marring Delrin® retaining rings for 0.25-, 0.5-, and 1.0-inch optics. There is also a model for mounting standard microscope objectives.

GMP GENERAL MICROTECHNOLOGY & PHOTONICS

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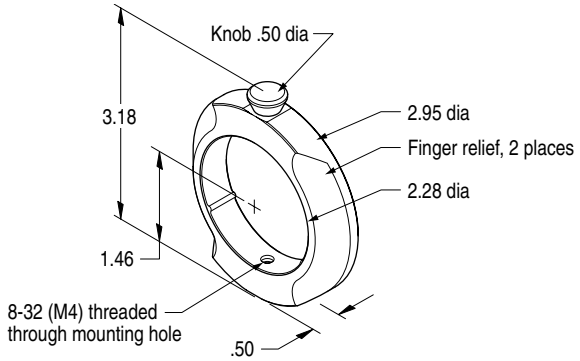
Optics Tubes & Mounts

1.5- and 2.0-inch Holder / OR2 Series

Note that dimensions in parentheses (mm) reflect metric assembly features

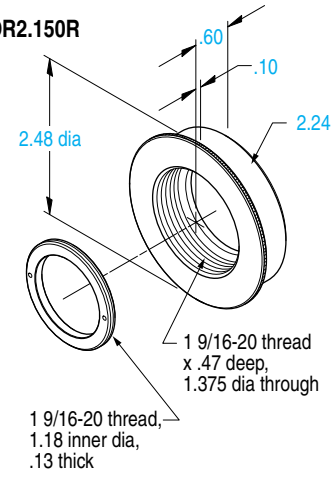
ORM2.0



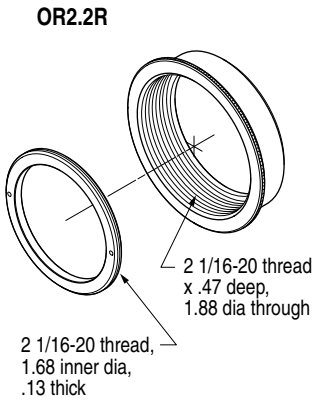
OR2 Series with ORM2.0

Common Dimensions shown in cyan-blue

OR2.150R



OR2.2R



Optic Rotators

The new design of the ORM2.0 has two edges machined away to improve access to the optic mount and improve grip on the knurled ring for rotation of polarizing optics. The ORM2.0 has an 8-32 (M4) tapped hole in the lower edge to allow mounting to a PR series rod. The simple spring-loaded clamp securely holds OR2 series optic adapters. The face of the ORM2 is marked with a 360° graduated dial in 2° increments. The graduated dial facilitates the polarization of polarizers and quarter-wave plates.

OR2 series optic adapters come complete with non-marring Delrin® retaining rings for 1.5- and 2.0-inch optics, as well as RMS thread microscope objectives.

Product Features

- Rod mounting
- Quickly change optics
- 1.5- and 2.0-inch optic adapters
- Vacuum compatible versions available upon request

Related Products

PR precision rods	132
cross-reference table	302

Order Information

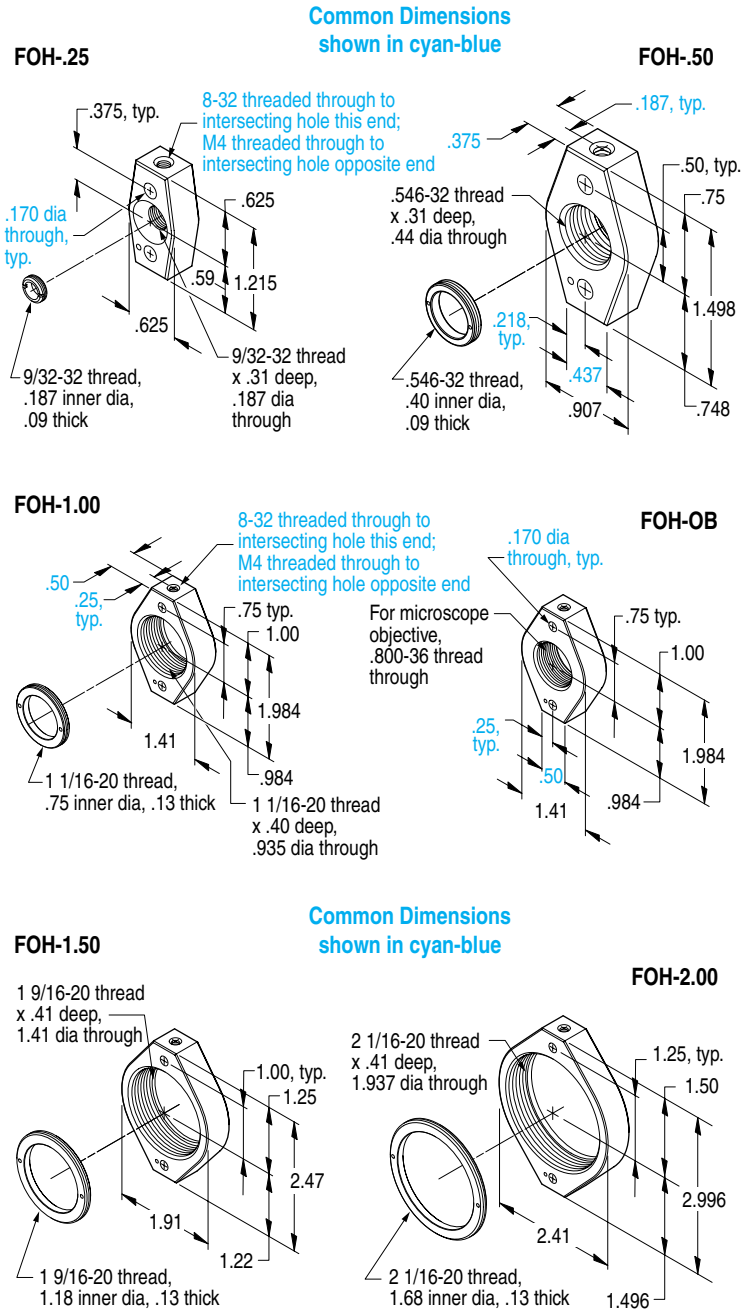
optic rotation mount, 2.0"	ORM2.0
optic rotator, 2.0", 1.5 inch holder	OR2.150R
optic rotator, 2.0", 2.0 inch holder	OR2.2R

Metric Option — for metric assembly features on this product, add '-M' after model number.

Optic Holders

0.25- to 2.0-inch Holder / FOH Series

FOH Series



Product Features

- 8-32 and M4 mounting interface
- Delrin® retaining ring
- 0.25-, 0.5-, 1.0-, 1.5-, and 2.0-inch optic sizes
- Vacuum compatible versions available upon request

Related Products

PR precision rods	132
MPR miniature precision rods	136

Order Information

fixed optical holder, 0.25 inch	FOH-.25
fixed optical holder, 0.5 inch	FOH-.50
fixed optical holder, 1.0 inch	FOH-1.00
fixed optical holder, 1.5 inch	FOH-1.50
fixed optical holder, 2.0 inch	FOH-2.00
fixed optical holder, microscope objective	FOH-OB

Fixed Optic Holders

The FOH fixed optical holders are designed to be mounted to PR and MPR series precision mounting rods. FOH series optic adapters come complete with non-marring Delrin® retaining rings for 0.25-, 0.5-, 1.0-, 1.5-, and 2.0-inch optics. There is also a model for mounting standard microscope objectives.

Mounting of the FOH series can be accomplished on either end via 8-32 or M4 tapped holes. There are also clearance holes on either end for face mounting to bulkheads.

GMP GENERAL MICROTECHNOLOGY & PHOTONICS

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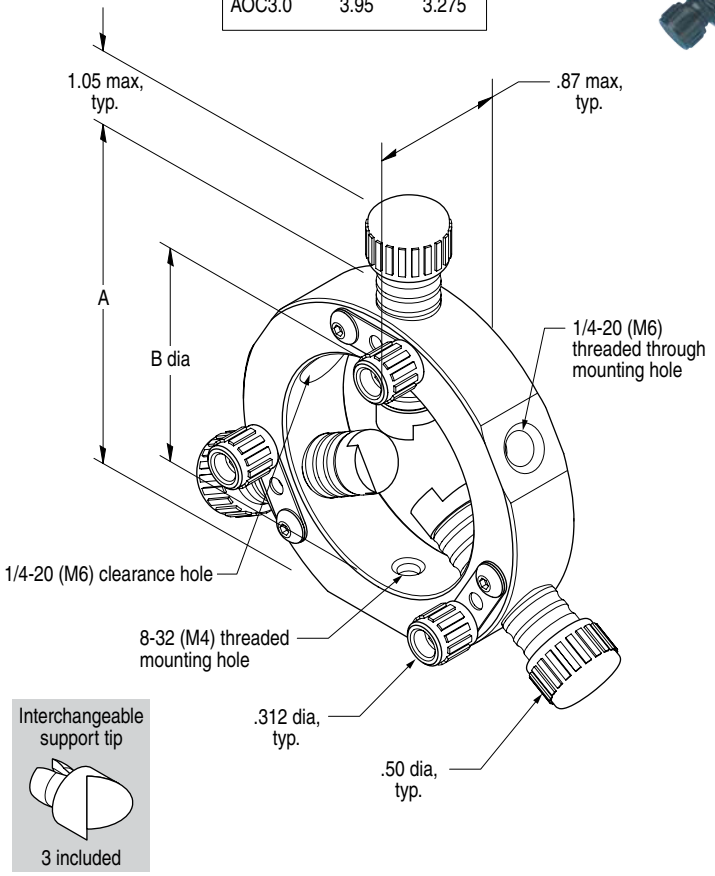
Optic Holders

1.0- to 3.0-inch optic / AOC Series

Note that dimensions in parentheses (mm) reflect metric assembly features

Model	A	B dia
AOC1.0	2.24	1.532
AOC2.0	2.95	2.280
AOC3.0	3.95	3.275



AOC Series

Adjustable Optics Chucks

The AOC series of adjustable optic chucks use secure 3-point clamping to hold a variety of optic sizes. These unique optic chucks use Delrin® screws to adjust to the optic diameter and come with two versions of tips to hold many different optical edge configurations.

AOC series chucks come in three sizes to fit optics from 0.5- to 1.5-inch diameters. All sizes have a secure locking feature. For maximum mounting flexibility, the outside diameter of all models has 8-32 and 1⁄4-20 tapped mounting holes as well as a counterbored hole for 1⁄4-20 cap screw.

Product Features

- 1/4-20 and 8-32 mounting interface
- Stable 3-point contact
- V-groove and flat tips included

Related Products

PR precision rods	132
cross-reference table	302

Order Information

adjustable optic chuck, 1.0 inch	AOC1.0
adjustable optic chuck, 2.0 inch	AOC2.0
adjustable optic chuck, 3.0 inch	AOC3.0

Metric Option — for metric assembly features on this product, add '-M' after model number.

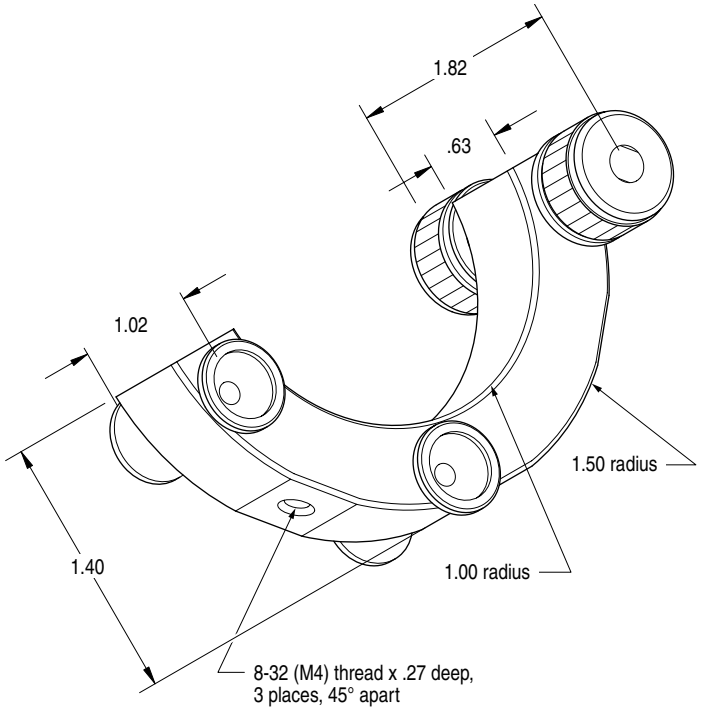
Filter Mounts

2.0-inch square Filters / PFM

Note that dimensions in parentheses (mm) reflect metric assembly features

PFM

PFM, reversed



Product Features

- Parallel filter holder
- 2.0-inch square filters
- Secure Delrin® locks
- Vacuum compatible versions available upon request

Related Products

PR precision rods	132
RTC-0.5 rotation/translation clamp	132
cross-reference table	302

Order Information

parallel filter mount	PFM

Metric Option — for metric assembly features on this product, add '-M' after model number.

Parallel Filter Mount

The PFM parallel filter mount uses Delrin® lock screws and supports to hold filters securely without damage. PFM filter mounts are designed to mount two 50-mm filters parallel to each other. The body has three 8-32 tapped mounting holes for attachment to PR series rods at a 45° orientation.

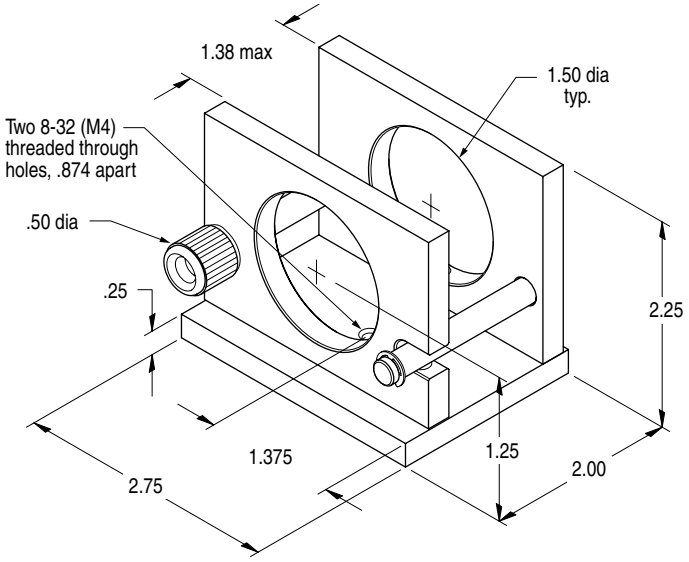
GMP
GENERAL MICROTECHNOLOGY & PHOTONICS

siskiyou

Filter Mounts

50-mm Filters / SFM

Note that dimensions in parentheses (mm) reflect metric assembly features



SFM

Stacked Filter Mount

The SFM stacked filter mount uses a spring-loaded design to hold 50-mm filters securely without damage. The clamping mechanism is activated by simply sliding the moveable side against the fixed side of the mount. The base has two 8-32 tapped mounting holes for attachment to PR series rods. For low profile table mounting it can be mounted to a DMB.3 device mounting base or the RTC-0.5 clamp.

Product Features

- Stacked filter holder
- Rod mounting
- Spring-loaded slide
- Vacuum compatible versions available upon request

Related Products

PR precision rods	132
RTC-0.5 clamp	132
DMB.3 mounting plate	266

Order Information

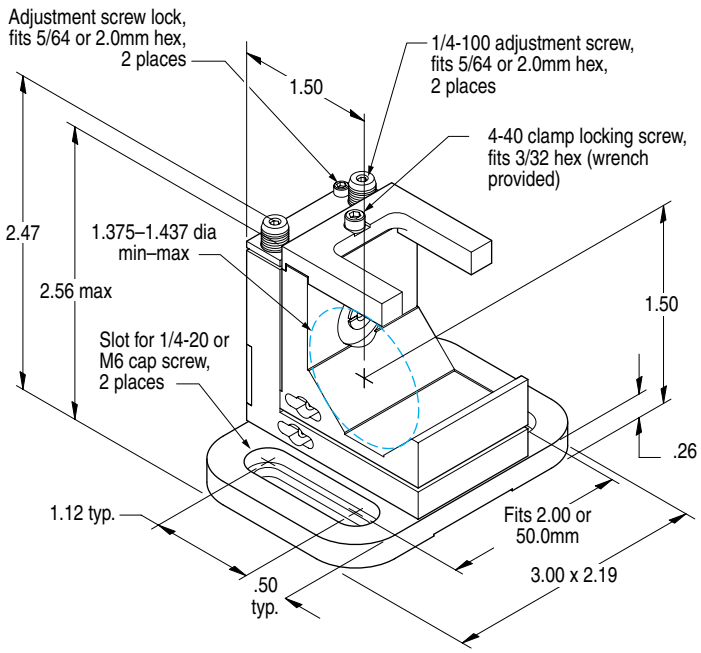
stacked filter mount	SFM

Metric Option — for metric assembly features on this product, add '-M' after model number.

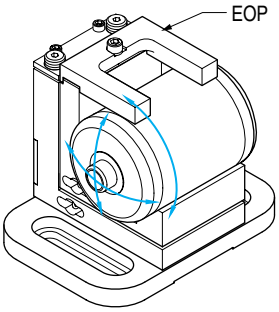
Pockels Cell Mount

2-axis / EOP

EOP



Application



The new design of the EOP mount has increased clearance on the clamping fork to maximize the area around high-voltage power leads. The EOP mount is designed to position various electro-optical devices such as HeNe lasers, laser modulators, and Pockels cells. Its compact design is ideal for applications where space is limited.

With 5° of tip / tilt accomplished using 100TPI adjustment screws, the EOP easily positions electro-optical devices with the highest level of accuracy in the industry. Incorporated into the design are non-influencing locks for both tip and tilt adjustments. The locks and the adjustment screws use the same hex wrench size (5/64) for *one wrench* adjustment and locking.

The mechanical design of our EOP mount is a vast improvement over other designs. We use ball bearings in each rotational axis of tip and tilt to virtually eliminate the backlash found in competing products. Our axis adjustments are independent – you don't need to loosen one side of a given axis to adjust the other side of the same axis.

Product Features

- Lockable
- 100TPI adjustment screws
- 5° tip / tilt adjustment
- UV versions available upon request

Performance Specifications

Compatible with U.S. system or metric hole patterns	
Pitch	5°
Yaw	5°
Minimum controllable motion	
Pitch	5 arc seconds
Yaw	5 arc seconds

Order Information

universal electro-optical positioner	EOP

Glossary

Terms used in this catalog

Acceleration The change in velocity per unit time.

Accuracy The maximum expected difference between the actual and the desired position for a given input.

adj. Adjustment; used in model descriptions.

Anodize To coat a metallic surface electrolytically with a protective oxide.

Backlash The maximum magnitude of an input that produces no measurable output upon reversing direction.

Bondhus® A style of hex driver; a registered trademark of Bondhus Corporation.

Capstan drive Cross drilled holes in the end of a shaft or knob used for a pin insertion to increase accessibility.

CE The logo for European electrical conformity.

Closed loop A system that incorporates a feedback device that compares the output value to the input value and then allows for correction to obtain the desired settings.

Crossed roller stage A linear stage with cylindrical shaped roller bearings loaded into hardened V-rails.

CW and CCW Clockwise and counter-clockwise, respectively.

Dacron® A thermoplastic polymer resin, polyethylene terephthalate, commonly abbreviated PET; a registered trademark of Invista, Inc.

DC Direct current; positive and negative voltage without any frequency; opposite of VAC.

D connector A multipin electrical connector used for signal-strength applications; shaped like the letter D.

Delrin® A machinable, non-marring plastic suitable for use with optical components; a registered trademark of DuPont Dow Elastomers.

DIA or dia Abbreviation for diameter.

Encoder A device that monitors linear or rotary motion through the use of increments on a scale or disk.

Gilmer belt A notched rubber belt for non-slip drives; commonly used for timing belts in automobiles.

Horizontal axis load The load or force applied to a device mounted in the horizontal plane.

Hz Hertz; a measurement of cycles per second.

Interferometer An instrument that uses the interference of light waves to measure small displacements or deformation. Siskiyou utilizes a LASER Interferometer capable of submicron measurements to establish specifications for:

- Accuracy
- Backlash
- Minimum controllable motion
- Repeatability

Kapton® A polyimide film used for UHV compatible wire insulation; a registered trademark of DuPont Dow Elastomers.

LabVIEW™ A standard motion controller software by National Instruments, common in U.S. laboratories.

Lb or lbs Pound(s); a unit of weight along a given axis.

Lexan® A machinable plastic suitable for electrophysical applications; a registered trademark of General Electric Co.

LH or lh Left hand; used in model descriptions.

Max or max. Maximum.

MEMS micro electro mechanical systems.

Min or min. Minimum or minute, depending on context.

Minimum controllable motion The smallest motion a device is capable of delivering reliably, not to be confused with resolution.

Open loop A system that has no feedback device to accurately control speed and position.

Pat. or pat. Patent.

Patch recording An electrophysical process which facilitates the monitoring and recording of the electrical activity within a single cell.

Perfusion chamber A device which bathes a living tissue sample in a sustaining solution.

Pitch To oscillate about a lateral axis so that the nose lifts or descends in relation to the tail, measured in degrees; also the spacing of threads on a screw, measured in threads per inch.

pkg Package; used in model descriptions.

Resolution The smallest position increment that a motion system can detect, not to be confused with minimum controllable motion.

Repeatability The ability of a motion system to reliably achieve a commanded position over many attempts.

RH or rh Right hand; used in model descriptions.

Roll To turn about the horizontal axis, measured in degrees.

RPM Revolutions per minute.

sec or sec. Second; either time or arc measurement, depending on context.

SS or ss Stainless steel

Thk or thk Thick

TPI The total number of threads per one inch of length of a threaded area.

TYP. or typ. Abbreviation for typical, a dimension that applies to other similar features.

VAC Voltage, alternating current whose frequency is measured in Hertz.

Velocity Speed; the change in distance per unit time.

Vertical axis load The load or force applied to a device mounted in the vertical plane.

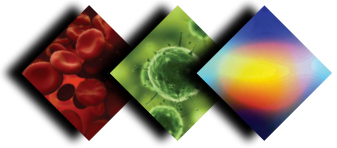
Yaw To turn about the vertical axis, measured in degrees.

& Ampersand; the typographical symbol for “and”.

" or in. The symbol or abbreviation for inch = 2.54 cm

µ The Greek letter mu; the symbol for micro- = 10^{-6}

The symbol for “number” or “pound,” depending on context.



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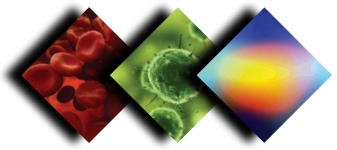

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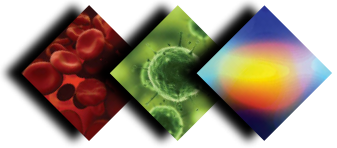

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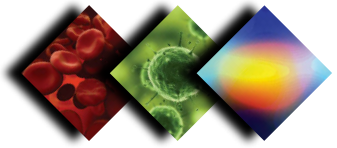

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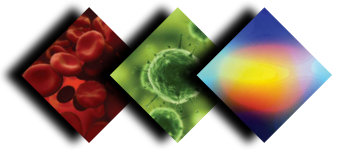

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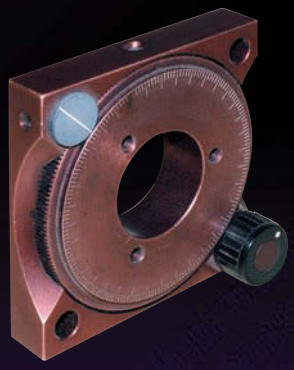

Environmental Statement

Siskiyou Corporation is committed to manufacturing products in an environmentally conscious way. All machining lubricants and cleaning fluids are captured and recycled according to State of Oregon regulations. All machining chips, castoffs and non-usable parts are recycled through a certified metal recycler and used in other aluminum products. Production facilities are monitored for air quality to meet or exceed Oregon requirements.

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