siskiyou photonics

www.siskiyou.com

siskiyou's history

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-five 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.

Introduction to Siskiyou Photonics

Siskiyou's photonics components have a solid 40-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, nonmagnetic requirements, and custom beam delivery systems.

Connect to your table

Precision Rods and Holders

Product Features

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

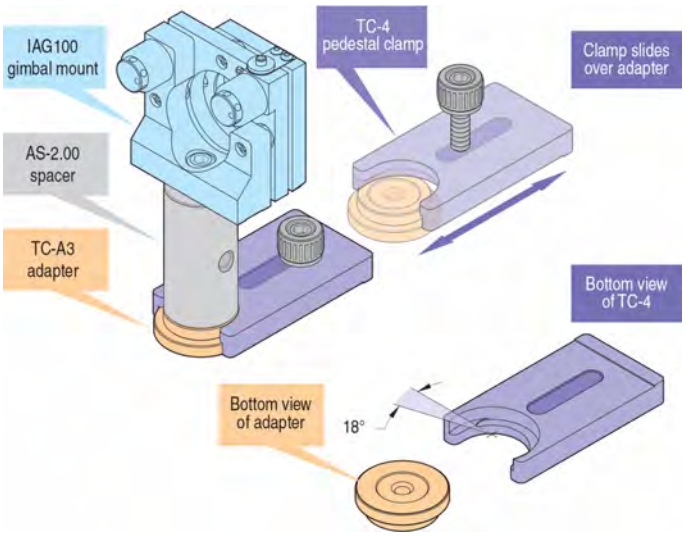
NEW

Our new line of PRHi rod holders, now fitted with a neodymium magnet base, with over 2lbs of pulling force. Providing you with secure positioning before locking down with our TC-4 pedestal clamp.

TC-4 Table Clamp

Product Features

- Holds devices in off-axis applications
- 3 sizes
- Mounting hardware included
- Vacuum compatible versions available

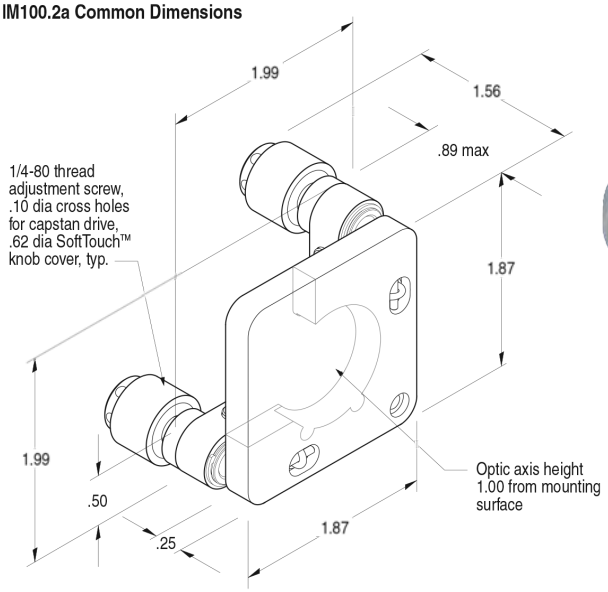


IM100 series economy mounts

Product Features

- Holds 1-inch optics
- 2-axis
- 80TPI adjustment screw
- Color coded axis knobs
- 3/8 backing plate with 8-32 mounting
- Cabide pads provide stable movement

IM100.2a Common Dimensions



IM100.C2a

IM100.A2a

IM100.T2a

IXFc optic clips - stress free mounting

This configuration completely prevents any lateral part motion without applying significant mechanical stress. The figure shows the induced surface distortion for an optical component having a flatness of about λ/30 (@633 nm) mounted using this method as compared to a single set screw. The clip very slightly distorts the shape of the optic, to about λ/8, while set screw mounting produces about three times this much distortion, warping the component to about λ/3.

Deformation of a Mounted Optic

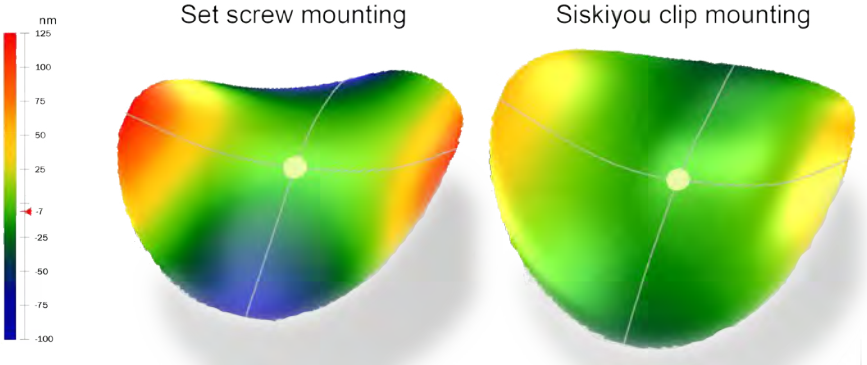


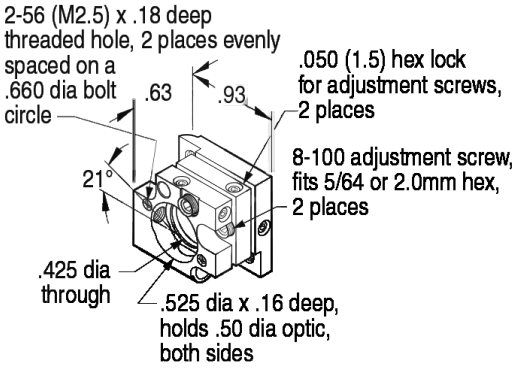
Figure Above. A λ/30 (@633 nm) optic mounted using a traditional radial set screw, compared to the Siskiyou optical clip. The set screw produces about three times as much distortion as the clip.

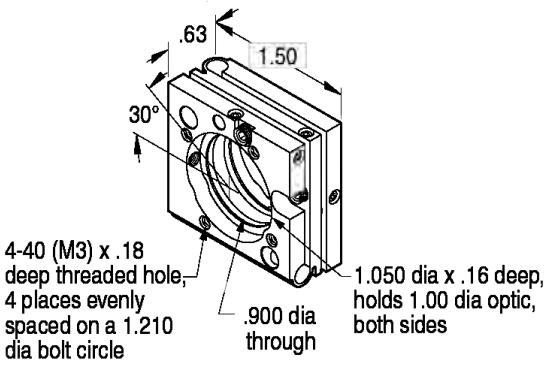
IXF flexure mounts

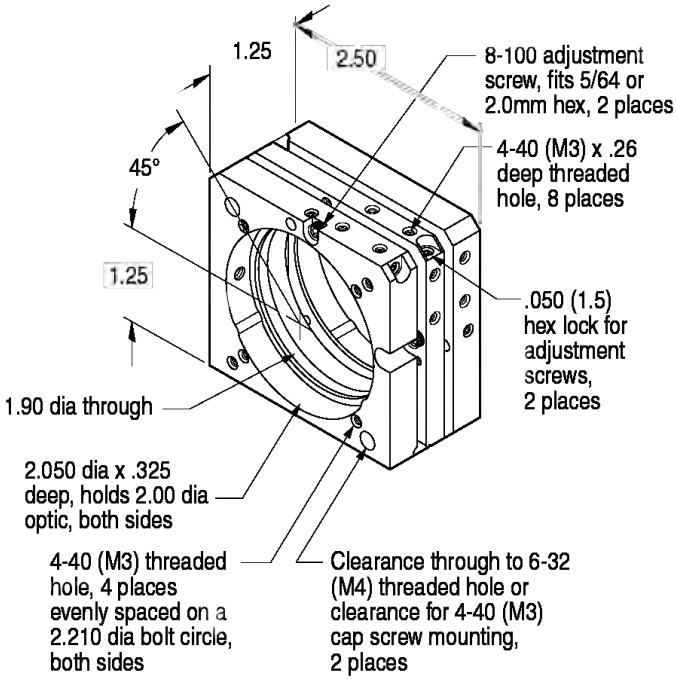
Product Features

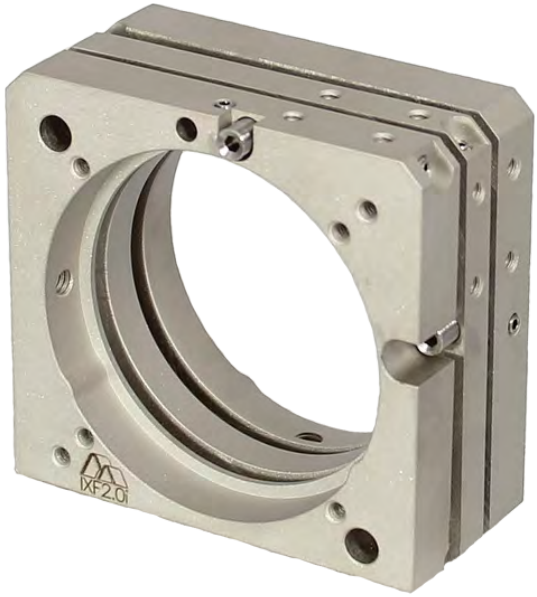
- 100TPI adjustmet screw
- Monolithic construction
- Nickel plated steel
- Top adjust and Beamsplitter versions available
- Aslo available, Vacuum compatible prepared aluminum

Model	Pitch	Yaw	Minimum controllable motion
IXF.50i	6°	6°	8.2 arc sec
IXF1.0i	5°	5°	4.5 arc sec
IXF2.0i	5°	5°	2.4 arc sec





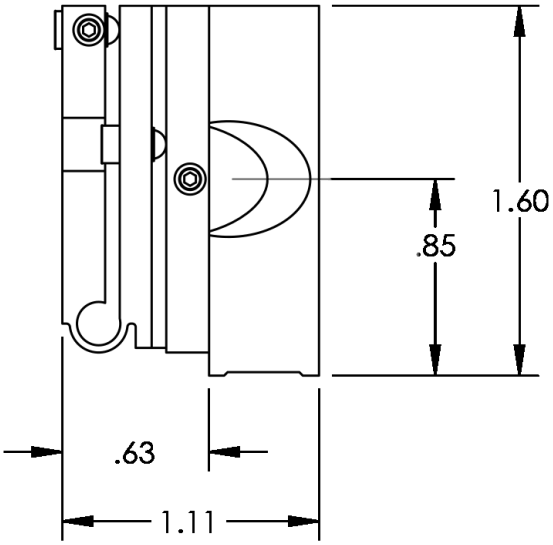


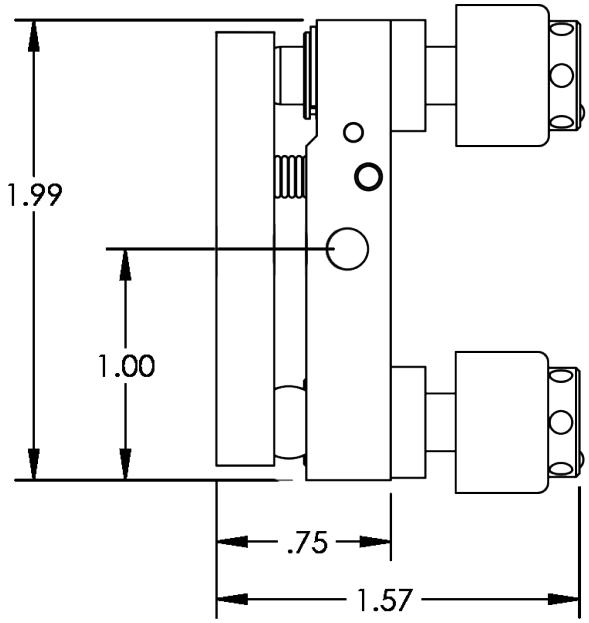


Side by Side | IXF1.0i & IVM100.C2a

IXF1.0i (6888-0000E)

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.





IM100.C2a (6605-0000E)

This 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 hand. The solid 3/8-inch thick aluminum backplate offers two 8-32 [M4] mounting options for right or left-hand compatibility.

Model	Pitch	Yaw	Minimum Contollable Motion
IXF1.0i	6°	6°	8.2 arc sec
IM100.C2a	8°	8°	3.8 arc sec

Next-Generation OEM Mounts

Based on the preceding discussion, it's clear that flexure mounts offer the most favorable combination of performance, size and cost characteristics, making them a common choice for OEM system builders. Ho ever, there are some specific design and construction techniques that can substantially improve their performance advantages even further.

An important recent innovation in flexure mount technology is the development of next generation products having monolithic construction. Traditional two-axis flexure mounts consist of three separate plates attached to two individual leaf springs using screws or spot welding. By contrast, the monolithic mount is machined entirely from a single piece of metal – both plates and springs are integral to flexure mount geometry. This construction confers two important advantages.

The first benefit is improved heat transfer through the entire mount. Since the mounting surfaces and spring members are integrated into a one-piece, monolithic design, the entire assembly expands or contracts uniformly with temperature changes. This is not true of a traditional flexure mount, where different spring and plate materials expand at different rates, resulting in changes in pointing stability.

To illustrate this, the accompanying graph shows the differences in thermal expansion characteristics for three commercially available mounts. Specifically, it graphs the deflection as a function of temperature for a monolithic flexure mount, along with two kinematic mounts specifically marketed as having enhanced thermal stability. The monolithic mount demonstrates performance that is at least three times better.

Another significant advantage of monolithic construction is enhanced vacuum compatibility. In mounts constructed from numerous diverse parts, there are areas of the assembly in which gas can be trapped, so these "blind holes" must be drilled through to allow gasses to escape. In a monolithic design, there are no blind holes. Heat flow is difficult in a vacuum – there's no air to conduct the heat. With monolithic designs, there's a path for heat to follow as it travels, minimizing the effect of "hot spots."

In addition to degrading vacuum compatibility, this elevated possibility for outgassing can be further problematic in systems based on ultraviolet lasers. This is because UV optics are particularly sensitive to any material becoming deposited on their surfaces. Any outgassed material can lower optics transmission or mirror reflectivity, and also acts as a catalyst for laser damage.

The main disadvantage of this advanced design is increased cost, especially as compared to some lower-priced kinematic mounts. However, for the customer, the increased system purchase price for employing monolithic flexures may be offset by reduced need for costly field service.

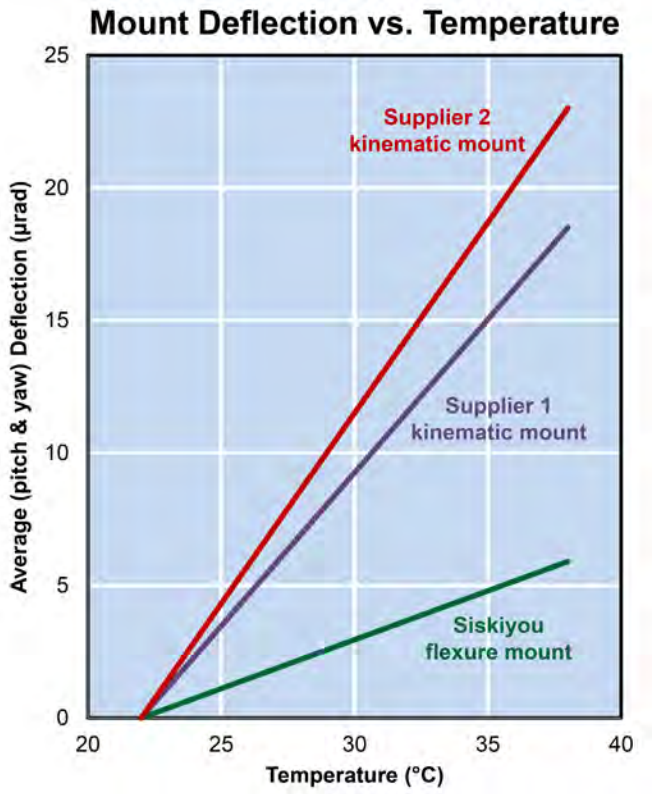


Figure Aove. Thermal stability (averaged over both x and y-axes) comparison for a Siskiyou IXF1.0i Monolithic flexure mount, and "high stability" kinematic mounts from two other manufacturers. Thermal performance data for the latter two are from manufacturers' published literature.

Creating opportunity, prosperity, and success for the customer, employee, and company.

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