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KC2-T/M - February 20, 2024

Item # KC2-T/M was discontinued on February 20, 2024. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

KINEMATIC MOUNTS FOR 60 mm CAGE SYSTEMS

- Compatible with 60 mm Cage Systems Mount
- 2" (50.8 mm) Circular or Elliptical Optics Post
- Mountable

Hide Overview

OVERVIEW

Features

- Kinematic Mounts for 2" (50.8 mm) Circular and Elliptical Optics
- Compatible with 60 mm Cage System

Alternative Size Options
16 mm Kinematic Cage Mounts
30 mm Kinematic Cage Mounts
30 mm Right-Angle Kinematic Cage Mounts
60 mm Kinematic Cage Mounts

Thorlabs' Kinematic Mounts for 60 mm Cage Systems are designed to allow the functions of a kinematic optic mount to be easily integrated into our 60 mm Cage System. These mounts are designed for use with 2" (50.8 mm) optics, including both round and elliptical mirrors. The KC2 and KC2-T are designed to mount round optics on the optical axis of a cage system, while the KCB2(/M), KCB2C(/M), and KCB2EC(/M) are designed to mount optics at a 45° angle. The KCB2(/M) is equipped with tapped holes to accommodate ER Cage Rods. By contrast, the KCB2C(/M) and KCB2EC(/M) are equipped with smooth bore holes for cage rods, which are secured by setscrews using a 5/64" (2 mm) hex key or balldriver.

Cage System Compatibility: Thorlabs' cage system provides a convenient way to construct large optomechanical systems with an established line of precision-machined building blocks designed for high flexibility and accurate alignment. Thorlabs offers 16 mm, 30 mm, and 60 mm cage systems designed for Ø1/2", Ø1", and Ø2" optical components, respectively. See the “Cage Overview” tab for a full definition of this widely adapted construction standard. The parts on this page are compatible with our 60 mm cage system and utilize Ø6 mm ER cage rods.

Hide Cage Overview

CAGE OVERVIEW

Cage System Overview

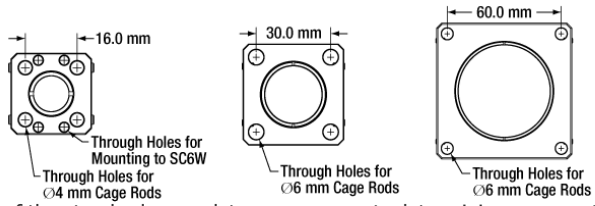
The Cage Assembly System provides a convenient way to construct large optomechanical systems with an established line of precision-machined building blocks designed for high flexibility and accurate alignment.

16 mm, 30 mm, and 60 mm Cage System Standards

Thorlabs offers three standards defined by the center-to-center spacing of the cage assembly rods (see image below). The 16 mm cage, 30 mm cage, and 60 mm cage standards are designed to accommodate Ø1/2", Ø1", and Ø2" optics, respectively. Specialized cage plates that allow smaller optics to be directly inserted into our larger cage systems are also available.

Standard Threads

The flexibility of our Cage Assembly System stems from well-defined mounting and thread standards designed to directly interface with a wide range of specialized products. The three most prevalent thread standards are our SM05 Series (0.535"-40 thread), SM1 Series (1.035"-40 thread), and SM2 Series (2.035"-40 thread), all of which were defined to house the industry's most common optic sizes. Essential building blocks, such as our popular lens tubes, directly interface to these standards.



An example of the standard cage plate measurements determining cage system compatibility.

Standard Cage System Measurements			
Cage System	**16 mm**	**30 mm**	**60 mm**
Thread Series	SM05	SM1	SM2
Rod to Rod Spacing	16 mm (0.63")	30 mm (1.18")	60 mm (2.36")
Total Length	25 mm (0.98")	41 mm (1.60")	71.1 mm (2.80")

Cage Components		
Cage Rods	16 mm 30 mm 60 mm	These rods are used to connect cage plates, optic mounts, and other components in the cage system. The SR Series Cage Rods are compatible with our 16 mm cage systems, while the 30 mm and 60 mm cage systems use ER Series Cage Rods.
Cage Plates	16 mm 30 mm 60 mm	These serve as the basic building blocks for a cage system. They may have SM-threaded central bores, smooth bores sized for industry standard optics or to accommodate the outer profile of our SM Series Lens Tubes, or specialized bores for other components such as our FiberPorts.
Optic Mounts	16 mm 30 mm 60 mm	Thorlabs offers fixed, kinematic, rotation, and translation mounts specifically designed for our Cage Systems.
Cage Cubes	16 mm 30 mm 60 mm	These cubes are useful for housing larger optical components, such as prisms or mirrors, or optics that need to sit at an angle to the beam path, such as beamsplitters. Our cage cubes are available empty or with pre-mounted optics.
Replacement Setscrews		Replacement setscrews are offered for our 16 mm (SS4B013, SS4B025, and SS4B038) and 30 mm (SS4MS5 and SS4MS4) cage systems products.
Post and Breadboard Mounts and Adapters		Mounting options for cage systems can be found on our Cage System Construction pages. Cage Systems can be mounted either parallel or perpendicular to the table surface.
Size Adapters		Cage System Size Adapters can be used to integrate components from different cage system and threading standards.
Specialized Components		Thorlabs also produces specialized cage components, such as Filter Wheels, a HeNe Laser Mount, and a FiberPort Cage Plate Adapter, allowing a wide range of our products to be integrated into cage-mounted optical systems. Explore our Cage Systems Visual Navigation Guide to see the full range of Thorlabs' cage components.

Hide 60 mm Cage Kinematic Mirror Mounts

60 mm Cage Kinematic Mirror Mounts

- Mounts Ø2" (Ø50.8 mm) Optics on the Optical Axis
- Through Holes for ER Cage Rods
- Provides ±3° Kinematic Tip and Tilt Adjustment
- KC2 Secures Optics with a Nylon-Tipped Setscrew
- KC2-T is SM2-Threaded (2.035"-40) and Includes 2 SM2RR Retaining Rings
- Post Mountable: Three 8-32 (M4) Tapped Holes

Our KC2(/M) and KC2-T(/M) Mounts provide kinematic tip and tilt adjustment of a Ø2" (Ø50.8 mm) optic. The KC2(/M) includes a nylon-tipped setscrew to secure optics using a 5/64" (2 mm) hex key or balldriver. In contrast, the KC2-T(/M) is SM2-threaded and includes two SM2RR retaining rings to secure optics. Each mount has four through holes compatible with our ER Cage Rods and includes four setscrews to lock them into place using a 0.050" hex key or balldriver. The ±3° kinematic tip and tilt adjustment is actuated with three 100 TPI (Threads Per Inch) adjustment screws for smooth, high-resolution movement. These adjusters feature a locking collar design and removable knobs.

The KC2(/M) is designed for thicker optics (0.12" minimum thickness), while the KC2-T(/M) is capable of mounting thin optics (not exceeding 0.2" thick).

Part Number	Description	Price	Availability
KC2/M	Customer Inspired! Locking Kinematic Mirror Mount for Ø2" Optics, M4 Taps	$229.27	Today
KC2-T/M	Customer Inspired! Locking SM2-Threaded Kinematic Mirror Mount for Ø2" Optics, M4 Taps	$236.40	Today
KC2	Customer Inspired! Locking Kinematic Mirror Mount For Ø2" Optics, 8-32 Taps	$229.27	Today
KC2-T	Customer Inspired! Locking SM2-Threaded Kinematic Mirror Mount for Ø2" Optics, 8-32 Taps	$236.40	Today

Hide 60 mm Cage Right-Angle Kinematic Mirror Mount with Tapped Cage Rod Holes

60 mm Cage Right-Angle Kinematic Mirror Mount with Tapped Cage Rod Holes

- Mounts Ø2" (Ø50.8 mm) Optics at a 45° Angle to the Optical Axis
- Eight 4-40 Tapped Holes for ER Cage Rods
- Provides ±4° Kinematic Tip and Tilt Adjustment
- 60 mm Cage System and SM2 (2.035"-40) Compatible
- Post Mountable:
  - KCB2: One 8-32 Tap and One 1/4"-20 Tap (for Ø1/2" and Ø1" Posts)
  - KCB2/M: One M4 Tap and One M6 Tap (for Ø1/2" and Ø1" Posts)

The KCB2(/M) Right-Angle Kinematic Cage Mount provides kinematic tip and tilt adjustment of a Ø2" (Ø50.8 mm) optic held in a mounting plate with a mean horizontal position at a 45° angle. The ports are equipped with SM2-threaded (2.035"-40) bores. The KCB2(/M) has eight 4-40 tapped holes spaced to mate with our 60 mm cage systems. ERSCB ER Rod Adapters are necessary to effectively connect, adjust, and lock two of these right angle cage mounts together within the cage system. The ±4° kinematic tip and tilt adjustment plate is actuated with three 100 TPI (Threads per Inch) adjustment screws for smooth, high-resolution movement. Two of these adjusters include removable knobs, while the third must be tuned with a 5/64" (2 mm) hex key or balldriver.

A nylon-tipped setscrew is used to secure Ø2" (Ø50.8 mm) optics using a 5/64" (2 mm) hex key or balldriver via the mounts' rear-loading, double-bored hole. The rear loading design does not limit the maximum thickness of the mounted optic and the mounted optic remains accessible even after the mount is fitted with cage rods or lens tubes. The minimum thickness for optics that can be secured by these mounts is 0.24" (6 mm).

Part Number	Description	Price	Availability
KCB2/M	Right-Angle Kinematic Mirror Mount with Tapped Cage Rod Holes, 60 mm Cage System and SM2 Compatible, M4 and M6 Mounting Holes	$191.01	Today
KCB2	Right-Angle Kinematic Mirror Mount with Tapped Cage Rod Holes, 60 mm Cage System and SM2 Compatible, 8-32 and 1/4"-20 Mounting Holes	$191.01	Today

Hide 60 mm Cage Right-Angle Kinematic Mirror Mount with Smooth Cage Rod Bores

60 mm Cage Right-Angle Kinematic Mirror Mount with Smooth Cage Rod Bores

- Mounts Ø2" (Ø50.8 mm) Optics at a 45° Angle to the Optical Axis
- Eight 0.20" (4.95 mm) Deep Smooth Bore Holes for ER Cage Rods
- Provides ±4° Kinematic Tip and Tilt Adjustment
- 60 mm Cage System and SM2 (2.035"-40) Compatible
- Post Mountable:
  - KCB2C: One 8-32 Tap and One 1/4"-20 Tap (for Ø1/2" and Ø1" Posts)
  - KCB2C/M: One M4 Tap and One M6 Tap (for Ø1/2" and Ø1" Posts)

Click to Enlarge
KCB2C Mount with an Attached SM2L20 Lens Tube. The Mount Holds a BB2-E02 Broadband Dielectric Mirror.

The KCB2C(/M) Right-Angle Kinematic Cage Mount provides kinematic tip and tilt adjustment of a Ø2" (Ø50.8 mm) optic held in a mounting plate with a mean horizontal position at a 45° angle. The ports are equipped with SM2-threaded (2.035"-40) bores and smooth bore holes spaced to mate with our 60 mm cage system standard. The cage rods are secured by setscrews using a 5/64" (2 mm) hex key or balldriver. This design allows multiple 60 mm cage components to be directly interfaced without the need for ERSCB ER Rod Adapters. The ±4° kinematic tip and tilt adjustment plate is actuated with three 100 TPI (Threads per Inch) adjustment screws for smooth, high-resolution movement. Two of these adjusters include removable knobs, while the third must be tuned with a 5/64" (2 mm) hex key or balldriver.

A nylon-tipped setscrew is used to secure Ø2" (Ø50.8 mm) optics using a 5/64" (2 mm) hex key or balldriver via the mounts' rear-loading, double-bored hole. When used with transmissive optics, two clearance cuts around this hole provide a Ø1.26" (Ø32.0 mm) nominal clear aperture for any transmitted light. The rear loading design does not limit the maximum thickness of the mounted optic and the mounted optic remains accessible even after the mount is fitted with cage rods or lens tubes. The minimum thickness for optics that can be secured by these mounts is 0.24" (6 mm).

Part Number	Description	Price	Availability
KCB2C/M	**Customer Inspired! Right-Angle Kinematic Mirror Mount with Smooth Cage Rod Bores, 60 mm Cage System and SM2 Compatible, M4 and M6 Mounting Holes**	$191.01	Today
KCB2C	**Customer Inspired! Right-Angle Kinematic Mirror Mount with Smooth Cage Rod Bores, 60 mm Cage System and SM2 Compatible, 8-32 and 1/4"-20 Mounting Holes**	$191.01	Today

Hide 60 mm Cage Right-Angle Kinematic Elliptical Mirror Mount with Smooth Cage Rod Bores

60 mm Cage Right-Angle Kinematic Elliptical Mirror Mount with Smooth Cage Rod Bores

- Mounts 2" (50.8 mm) Elliptical Optics at a 45° Angle to the Optical Axis
- Eight 0.195" (5.0 mm) Deep Smooth Bore Holes for ER Cage Rods
- Provides ±3° Kinematic Pitch and Yaw Adjustment
- Z-Axis Translation Using All Three Adjusters: ±0.12" (±3.0 mm)
- 60 mm Cage System and SM2 (2.035"-40) Compatible
- Post Mountable:
  - KCB2EC: One 8-32 Tap and One 1/4"-20 Tap (for Ø1/2" and Ø1" Posts)
  - KCB2EC/M: One M4 Tap and One M6 Tap (for Ø1/2" and Ø25.0 mm Posts)

Click to Enlarge
The mirror is locked in place by a swing arm and nylon-tipped setscrew. The adjuster knobs feature side holes for fine adjustments.

The KCB2EC(/M) Right-Angle Kinematic Cage Mount provides kinematic pitch and yaw adjustment of a 2" (50.8 mm) elliptical optic held in a mounting plate with a nominal horizontal position at a 45° angle. The ports are equipped with SM2-threaded (2.035"-40) bores and four 0.195" (5.0 mm) deep smooth bore holes spaced to mate with our 60 mm cage system standard.

The ±3° kinematic pitch and yaw adjustment plate is actuated with three 100 TPI (threads per inch) adjustment screws that provide angular resolution of 4.5 mrad/rev. The pitch and yaw adjusters include removable knobs with Ø5/64" (Ø2 mm) side holes for fine adjustments, while the third adjuster must be tuned with a 5/64" (2 mm) hex key or balldriver. While the optic face is nominally centered within the mount, the third adjuster can be used for fine tuning the position along the optical axis.

A nylon-tipped setscrew mounted on a swing arm is used to secure 2" (50.8 mm) elliptical optics using a 5/64" (2 mm) hex key or balldriver via the mount's rear-loading, double-bored hole. Note that the setscrew should only be finger tight to avoid distorting the optic. Please note that this mount is compatible only with 2" elliptical optics that are 0.47" (12 mm) thick. Our selection of dielectric and metallic elliptical mirrors are compatible with this mount.

Part Number	Description	Price	Availability
KCB2EC/M	**Right-Angle Kinematic Elliptical Mirror Mount with Smooth Cage Rod Bores, 60 mm Cage System and SM2 Compatible, M4 and M6 Mounting Holes**	$267.87	Today
KCB2EC	**Right-Angle Kinematic Elliptical Mirror Mount with Smooth Cage Rod Bores, 60 mm Cage System and SM2 Compatible,**	$267.87	Today

	8-32 and 1/4"-20 Mounting Holes		