

## LCPMA1 - February 1, 2023

Item # LCPMA1 was discontinued on February 1st, 2023. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

### POST MOUNTS FOR CAGE SYSTEMS

- ▶ Supports for 16 mm, 30 mm, and 60 mm Cage Systems
- ▶ Ø1/2", Ø1", and Ø1.5" Post Mounting Options
- ▶ Quick-Release Versions Available for 30 mm and 60 mm Cage Systems



**CH1060**  
60 mm Cage  
Horizontal Clamp  
for Ø1" Posts

**CP33B**  
30 mm Cage System  
Mounting Bracket

**CPMA4**  
30 mm Cage System  
Snap-On Adapter

**Application Idea**  
60 mm Cage System  
Mounted on Ø1.5" Post  
Using CH1560 Clamp Mount

[Hide Overview](#)

#### OVERVIEW

##### Features

- Clamps and Brackets Provide a Means to Support Cage Segments with Posts
- Solutions Available for 16 mm, 30 mm, and 60 mm Cage Systems
- Snap-On Options for 30 mm and 60 mm Cage Systems
- Mounting Options for Mini Series, Ø1/2", Ø1", and Ø1.5" Posts

Thorlabs' cage supports allow our cage systems to be post-mounted. We offer supports to mount 16 mm cage systems on our Mini-Series Posts, as well as adapters to mount our 30 mm or 60 mm cage systems to our Ø1/2", Ø1" (25 mm), or Ø1.5" posts. For additional information on our cage systems, please refer to the [Cage Overview](#) tab.

We also offer the CRA30(/M) 30 mm cage rotation adapter that is compatible with our Precision Rotation Stage.

##### Mounting Brackets

Thorlabs offers fixed cage post mounting brackets for 16, 30, and 60 mm cage systems. These are secured to two cage rods and allow the cage to be mounted to a post via a counterbored hole. We also offer snap-on cage mounting brackets for 30 and 60 mm cage systems. These may be used to post mount cage rods and are easy to install on assembled cage systems.

##### Post-Clamp Mounts

These mounts allow for horizontal mounting of 30 or 60 mm cage systems to the side of our Ø1" (25 mm) or Ø1.5" posts. The CV1530(/M) allows for vertical mounting of a 30 mm cage system and clamps to a Ø1.5" post. We also offer the RA90TR(/M), which allows for horizontal mounting of cage rods to a Ø1/2"

##### Quick Links

[Fixed Mounting Brackets](#)

[Snap-On Mounting Brackets](#)

[Post-Mounting Clamps](#)

post.

[Hide Cage Overview](#)

## CAGE OVERVIEW

## Cage System Overview

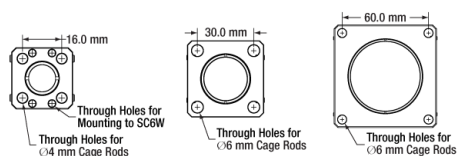
The Cage Assembly System provides a convenient way to construct large optomechanical systems with an established line of precision-machined building blocks designed for high flexibility and accurate alignment.

### 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  $\text{Ø}1/2"$ ,  $\text{Ø}1"$ , and  $\text{Ø}2"$  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 (2.8")

#### Cage Components

Cage Rods	16 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.
	30 mm	
	60 mm	
Cage Plates	16 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.
	30 mm	
	60 mm	
Optic Mounts	16 mm	Thorlabs offers fixed, kinematic, rotation, and translation mounts specifically designed for our Cage Systems.
	30 mm	
	60 mm	
Cage Cubes	16 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.
	30 mm	
	60 mm	
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.

<b>Size Adapters</b>	Cage System Size Adapters can be used to integrate components from different cage system and threading standards.
<b>Specialized Components</b>	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 16 mm Cage Mounting Bracket](#)

### 16 mm Cage Mounting Bracket

- ▶ Compatible with 16 mm Cage Systems
- ▶ Two Through Holes for use with Ø4 mm Cage Rods
- ▶ Mounting Hole Compatible with 4-40 (M3 x 0.5) Screws and Mini-Series Posts

The SMB1 provides a compact mounting option when working with our compact cage system. The slim, low-profile design is ideal for incorporating 16 mm Cage Systems into an optomechanical assembly. If replacement setscrews are needed, we offer SS4B013 brass setscrews, which use a 0.05" (1.3 mm) hex.

Please note that this bracket cannot be used directly below an SM05 lens tube.



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16 mm Cage System Mounted on a Mini Series Post Using an SMB1 Bracket

Part Number	Description	Price	Availability
SMB1	16 mm Cage Mounting Bracket	\$18.64	Today

[Hide 30 mm Cage Mounting Bracket](#)

### 30 mm Cage Mounting Bracket

- ▶ Compatible with 30 mm Cage Systems
- ▶ Three #8 (M4) Counterbores for Post Mounting and OEM Applications
- ▶ Cage Rods (Not Included) are Locked into Place with Top-Located Setscrews [5/64" (2.0 mm Hex)]
- ▶ Bracket Offers Clearance for SM1 Lens Tubes

The CP33B provides a compact mounting option for incorporating 30 mm Cage Systems into optomechanical assemblies. Three #8 (M4) counterbored mounting holes allow this adapter to be used with our standard post and post holders in addition to OEM applications, which require secure mounting into a larger system (post and post holder not included).



Click to Enlarge  
30 mm Cage System Rods Mounted on a Ø1/2" Post Using a CP33B Bracket

Part Number	Description	Price	Availability
CP33B	30 mm Cage Mounting Bracket	\$16.08	Today

[Hide 60 mm Cage Mounting Bracket](#)

### 60 mm Cage Mounting Bracket

- ▶ 60 mm Cage System Compatible
- ▶ Firmly Lock onto Ø6.0 mm ER Rods with Flexure Locking Design

The LCP01B allows 60 mm Cage Systems to be incorporated into other optomechanical assemblies. This cage plate adapter has a flexure cut design for increased stability. It has two Ø0.24" (Ø6.0 mm) through holes with cap screws that clamp the flexure locks onto the Ø6.0 mm ER Rods (not included). It has three #8 (M4) counterbored holes for post mounting and has been specially designed to provide clearance for SM2 Lens Tubes as shown in the photo on the right.



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60 mm Cage System with SM02 Lens Tube Mounted on a Ø1/2" Post Post Using an LCP01B Adapter

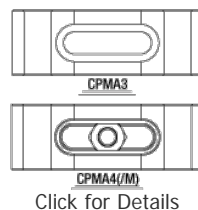
Part Number	Description	Price	Availability
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LCP01B	Customer Inspired!&nbsp;60 mm Cage Mounting Bracket	\$34.66	Today
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[Hide Snap-On 30 mm Cage Mounting Brackets](#)

### Snap-On 30 mm Cage Mounting Brackets

- ▶ 30 mm Cage System Compatible
- ▶ Snap-On Functionality for Easy Installation or Removal
- ▶ Firmly Lock onto Ø6.0 mm ER Rods with Flexure Slot Locking Design
- ▶ Off-Axis Mounting Adjustment Range
  - CPMA4(/M): ±0.20" (±5.1 mm)
  - CPMA3: ±0.28" (±7.0 mm)



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30 mm Cage System Mounted on a Ø1/2" Post Using a CPMA4(/M) Clamp

These cage mounting brackets provide users with a snap-on solution for adding support posts to assembled 30 mm Cage Systems. The flexure-based design can be quickly snapped onto an open section of two Ø6.0 mm Cage Rods (not included), allowing for easy installation or removal without requiring the disassembly of a cage system. Slide the brackets into the appropriate position and lock into place using the included 2.0 mm hex key. The slotted post-mounting feature of the brackets allows the cage rods to be installed off the axis of the post (see above for adjustment ranges).

Two options are available for post mounting. The CPMA4(/M) offers a captive 8-32 (M4 x 0.7) nut in a slot for mounting to Ø1/2" posts in Ø1/2" post holders. Alternatively, the CPMA3 features a slotted #8 (M4) counterbore that allows for mounting of the adapter using an 8-32 or M4 capscrew (one of each included). This is useful for supporting 30 mm cage systems using fixed posts, such as our Ø1" (25.0 mm) posts with 8-32 (M4) taps, as the cage system can be rotated and then fixed to the post at any arbitrary angle.

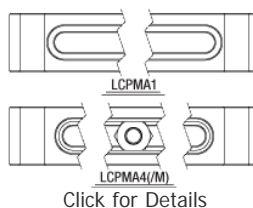
Part Number	Description	Price	Availability
CPMA4/M	Snap-On 30 mm Cage Mounting Bracket, M4 Tap	\$35.82	Today
CPMA3	Snap-On 30 mm Cage Mounting Bracket, #8 (M4) Slot	\$35.82	Today
CPMA4	Snap-On 30 mm Cage Mounting Bracket, 8-32 Tap	\$35.82	Today

[Hide Snap-On 60 mm Cage Mounting Brackets](#)

### Snap-On 60 mm Cage Mounting Brackets



- ▶ 60 mm Cage System Compatible
- ▶ Snap-On Functionality for Easy Installation or Removal
- ▶ Firmly Lock onto Ø6.0 mm ER Rods with Flexure Slot Locking Design
- ▶ Off-Axis Mounting Adjustment Range
  - LCPMA1: ±0.88" (±22.3 mm)
  - LCPMA4(/M): ±0.75" (±19.1 mm)
- ▶ Brackets Offer Clearance for SM2 Lens Tubes



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60 mm Cage System Mounted Off-Axis on a Ø1" Post Using an LCPMA1 Clamp

These cage mounting brackets provide users with a snap-on solution for adding support posts to assembled 60 mm Cage Systems. The flexure-based design can be quickly snapped onto an open section of two Ø6.0 mm Cage Rods (not included), allowing for easy installation or removal without requiring the disassembly of a cage system. Slide the brackets into the appropriate position and lock into place using the included 0.050" hex key for Item # LCPMA1 or a 5/64" hex key (not included) for Item # LCPMA4(/M). The slotted post-mounting feature of the brackets allows the cage rods to be installed off the axis of the post (see above for adjustment ranges).

Two options are available for post mounting. The LCPMA1 features a slotted #8 (M4) counterbore that allows for mounting of the adapter using an 8-32 (M4) capscrew (included). This is useful for supporting 60 mm cage systems using fixed posts, such as our Ø1" (25.0 mm) posts with 8-32 (M4) taps, as the cage system can be rotated and then fixed to the post at any arbitrary angle. Alternatively, the LCPMA4(/M) offers a captive 8-32 (M4 x 0.7) nut in a slot for mounting to Ø1/2" posts in Ø1/2" post holders.

Part Number	Description	Price	Availability
LCPMA4/M	NEW! Snap-On 60 mm Cage Mounting Bracket, M4 Tap	\$45.00	Today
LCPMA1	Snap-On 60 mm Cage Mounting Bracket, #8 (M4) Slot	\$41.64	Lead Time
LCPMA4	NEW! Snap-On 60 mm Cage Mounting Bracket, 8-32 Tap	\$45.00	Today

[Hide Cage System Clamps for Ø1" \(Ø25.0 mm\) Posts](#)

### Cage System Clamps for Ø1" (Ø25.0 mm) Posts

- ▶ Quick-Connect Cage Clamps for 30 mm and 60 mm Cage Systems
- ▶ Easy Drop-In and Drop-Out of Cage Systems
- ▶ Single Cage Rod Locking Screw Allows for One-Handed Operation
- ▶ Compatible with Ø1" (Ø25 mm) Posts

The CH1030(/M) and CH1060(/M) Cage System Clamps for Ø1" (Ø25 mm) Posts are designed to support 30 mm and 60 mm cage systems, respectively. Two parallel cage rods can be placed in the clamp and locked in place with a single screw. In this way, complete cage system sections can be supported by a single post.



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A C10QR(/M) Quick-Release Handle (included) secures the clamp to the post.



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60 mm Cage System Mounted on a Ø1" Post Using a CH1060 Clamp

The clamp itself can be secured to a Ø1" (Ø25 mm) post by tightening the C10QR(/M) quick-release handle (included), as shown in the image to the right. Replacement quick-release handles can be purchased separately below. For space constrained applications, the handle can be removed and replaced with a 1/4"-20 (M6) cap screw at least 1/2" (12 mm) long.

Part Number	Description	Price	Availability
CH1030/M	30 mm Cage Clamp for Ø25.0 mm Posts	\$94.26	Today
CH1060/M	60 mm Cage Clamp for Ø25.0 mm Posts	\$99.42	Today
CH1030	30 mm Cage Clamp for Ø1" Posts	\$94.26	Today
CH1060	60 mm Cage Clamp for Ø1" Posts	\$99.42	Today

[Hide Ø1.5" Horizontal Post-Mounting Cage System Clamps](#)

### Ø1.5" Horizontal Post-Mounting Cage System Clamps

- ▶ Securely Mount 30 mm or 60 mm Cage Systems to our Ø1.5" Posts
- ▶ Quick-Connect Mechanism for Fast Drop-In/Drop-Out of Cage Assemblies using Ø6 mm Cage Rods
- ▶ Cage Clamping Mechanism Activated by 3/16" (5 mm) Hex Cap Screw
- ▶ Includes Quick-Release Handle for Easy Mounting to Ø1.5" Posts

The CH1530(/M) and CH1560(/M) Cage Clamps allow 30 mm or 60 mm cage systems, respectively, to be mounted horizontally to our Ø1.5" Posts. The quick-connect mechanism allows for drop-in/drop-out mounting of a cage segment; to secure the cage segment, tighten the hex cap screw on the cage clamping mechanism using a 9/64" (3 mm) hex key or balldriver. Each cage clamp includes a C15QR(/M) Quick-Release Handle for mounting to a Ø1.5" post; additional quick-release handles can be purchased separately below. For low-profile applications, the handle can be removed and replaced with a 1/4"-20 (M6) cap screw at least 1/2" (12 mm) long.



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[APPLIST]  
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30 mm Cage System Mounted on a Ø1.5" Post Using a CH1530 Clamp

The application to the right shows the CH1530 supporting a cage system composed of 4 ER6 cage rods, an SM1ZA Z-Axis Translation Mount, and a CP33T cage plate. This system can be used as a telescope to expand or contract the beam diameter using lenses of appropriate focal length placed in the Z-axis mount and cage plate.

Part Number	Description	Price	Availability
CH1530/M	30 mm Cage Clamp for Ø1.5" Posts, Included Quick-Release Handle, Metric	\$88.53	7-10 Days
CH1560/M	60 mm Cage Clamp for Ø1.5" Posts, Included Quick-Release Handle, Metric	\$98.70	Lead Time

<b>CH1530</b>	<b>30 mm Cage Clamp for Ø1.5" Posts, Included Quick-Release Handle, Imperial</b>	<b>\$88.53</b>	<b>Today</b>
<b>CH1560</b>	<b>60 mm Cage Clamp for Ø1.5" Posts, Included Quick-Release Handle, Imperial</b>	<b>\$98.70</b>	<b>Lead Time</b>

[Hide Ø1.5" Vertical Post-Mounting Cage System Clamps](#)

### Ø1.5" Vertical Post-Mounting Cage System Clamps

- ▶ Mount 30 mm Cage Systems to Our Ø1.5" Posts
- ▶ Can Be Oriented to Mount Cage Systems Vertically or Horizontally
- ▶ Quick-Connect Mechanism for Fast Drop-In/Drop-Out of Cage Assemblies
- ▶ 15 lb (6.8 kg) Load Capacity

The CV1530(/M) Cage Clamp allows a 30 mm cage system to be mounted vertically to our Ø1.5" Posts. The quick-connect mechanism allows for drop-in/drop-out mounting of a cage segment; to secure the cage segment, tighten the cap screw on the cage clamping mechanism using a 9/64" (3 mm) hex key or balldriver. Each cage clamp includes a C15QR(/M) Quick-Release Handle for mounting to a Ø1.5" post; additional quick-release handles can be purchased separately below. For low-profile applications, the handle can be removed and replaced with a 1/4"-20 (M6) cap screw at least 1/2" (12 mm) long.

The vertical cage clamp can be converted to a horizontal cage clamp. To do so, unscrew the four cap screws on either side of the cage clamps using a 9/64" (3 mm) balldriver or hex key, turn the front plate 90°, and replace the cap screws.

Custom CV1530(/M) Clamp Mounts can be ordered for 16 and 60 mm cage system compatibility. Please contact Tech Support for more information.

<b>Part Number</b>	<b>Description</b>	<b>Price</b>	<b>Availability</b>
<b>CV1530/M</b>	<b>Vertical 30 mm Cage Clamp for Ø1.5" Posts, Metric</b>	<b>\$213.13</b>	<b>Today</b>
<b>CV1530</b>	<b>Vertical 30 mm Cage Clamp for Ø1.5" Posts, Imperial</b>	<b>\$213.13</b>	<b>Today</b>