

## LCP05/M - June 12, 2024

Item # LCP05/M was discontinued on June 12, 2024. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

### CAGE MOUNT FOR 2" (50.8 mm) SQUARE FILTERS

- ▶ Holds Any 2" x 2" (50.8 mm x 50.8 mm) Optic up to 4 mm Thick
- ▶ Quick Installation and Removal via Spring Clips
- ▶ 60 mm Cage-Compatible Plate with Ø2" Through Hole

Application Idea



LCP05A

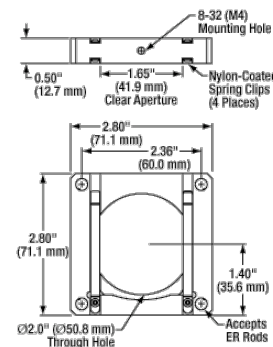
Diffused LED Condenser with  
Custom Ground Glass Diffuser
[Hide Overview](#)

#### OVERVIEW

##### Features

- Holds 2" (50.8 mm) Square Filters Up to 0.16" (4 mm) Thick
- Mounts Up to 2 Filters Simultaneously
- Four Ø6 mm Through Holes for 60 mm Cage System Compatibility
- Spring-Loaded Clips Hold Optic in Place and Enable Quick Removal
- Post-Mountable via 8-32 (M4) Tap

This 60 mm Cage Plate, which has a Ø2" (50.8 mm) through hole (Ø1.65" (Ø41.9 mm) clear aperture), is designed to hold either 2" (50.8 mm) square filters up to 0.16" (4 mm) thick. Since the mount is equipped with two spring clips on each side, a filter can be pressed up against either side of the clear aperture. Additional features include four through holes for cage rods as well as side-located locking setscrews to hold the rods in position. For added convenience, the mount is post-mountable via the 8-32 (M4) tapped hole on the bottom surface.



This filter holder is ideal for use with our 2" x 2" Unmounted Absorptive Neutral Density Filters or our Square Colored Glass Filters.

## APPLICATION IDEA

### Build Your Own Collimated LED Source

The setup shown to the lower right uses a custom 2" x 2", square, 600 grit ground glass diffuser as part of a homemade Diffused LED Condenser, which collimates the light exiting the LED source. Although Thorlabs also manufactures out-of-the-box collimated LED light sources, which essentially provide the same result, the one shown here is perfect for those inclined to build their own, perhaps as part of an educational setup. In this particular case, the setup was built using a 60 mm cage system. If you are not familiar with Thorlabs' 60 mm cage assemblies, they consist of cage-compatible components that are interconnected with cage rods. Each cage component features four tapped holes with center-to-center spacings of 60 mm, and they are joined together into a cage system using Ø6 mm rigid steel cage rods; in this case, 4" long cage assembly rods were chosen. The reason for building a cage system is to ensure that the optical components housed inside the cage system have a common optical axis.

To integrate the MWWHL4 Warm White Mounted LED, which has internal SM1 (1.035"-40) threading, into the 60 mm cage system, the mounted LED was threaded into an LCP02 30 mm-to-60 mm cage plate adapter using an SM1T2 Lens Tube Coupler. Next, the light source is directed through a custom ground glass diffuser, which is held in place using an LCP05A Cage-Compatible Mount for 2" Square Filters. After exiting the diffuser, the divergent light is collimated using an LA1401 Ø2" Uncoated Plano-Convex Lens with a focal length of 60.0 mm. The lens is also housed in an LCP34 60 mm Cage Plate.

The entire 60 mm cage assembly is mounted onto a TR3 post using the 8-32 thread on the bottom of the LCP05A, placed in a PH3 post holder, and attached to the breadboard using a BA2 Mounting base.

The tables below correspond to either the imperial or metric list of components needed to build a Diffused LED Condenser.

[APPLIST]

[APPLIST]

- If you do not currently own an LEDD1B T-Cube™ LED Driver (or any other industry standard driver with a circular 4-pin M8 connector), you will need to also purchase one of these, as well as a power supply.
- To complete this application idea, we used a custom ground glass diffuser, 2" x 2", 600 Grit.



## 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.

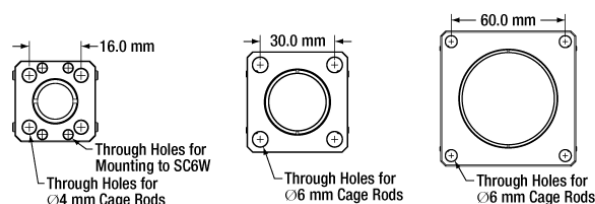
### 16 mm, 30 mm, and 60 mm Cage System Standards

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	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.	
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.	

Part Number	Description	Price	Availability
LCP05/M	60 mm Cage-Compatible Mount for 50 mm Square Filters Up to 4 mm Thick, M4 Tap	\$103.05	7-10 Days
LCP05A	NEW! 60 mm Cage-Compatible Mount for 2" Square Filters Up to 4 mm Thick, 8-32 Tap	\$103.05	Today