

HCM2/M - November 7, 2024

Item # HCM2/M was discontinued on November 7, 2024. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

HENE TO 60 mm CAGE SYSTEM ADAPTER PLATE

- ▶ Mount Ø1.74" or Ø1.77" HeNe Lasers in 60 mm Cage Systems
- ▶ SM2 (2.035"-40) Lens Tube and Ø1/2" or Ø1" Post Compatible
- ▶ ±1.0 mm of X and Y Translation for Alignment

Application Idea



HCM2



OVERVIEW

Features

- 60 mm Cage and SM2 (2.035"-40) Lens Tube System Compatible
- Ø1/2" and Ø1" Post Mountable
- Double-Bore Mounting Design
- Compatible with All Lengths of Ø1.74" to Ø1.77" (Ø44.2 mm to Ø45.0 mm) HeNe Laser Sources
- ±1.0 mm (0.04") of Manual X and Y Translation
- 4.5" (114.3 mm) Overall Length

The HCM2 Adapter Plate is designed to enable integration of a cylindrical HeNe laser with a diameter between 1.74" and 1.77" (44.2 mm and 45.0 mm) into a 60 mm cage system or SM2 (2.035"-40) lens tube system. This adapter allows ±1.0 mm (0.04") of coarse X & Y manual translation for positioning of the laser source. The slip-plate design provides smooth, easy adjustments and the position can be locked using four 5/32" (4 mm) hex screws. A pair of double-bored mounting plates ensures a true 3-point contact for stable mounting of the HeNe laser using two nylon-tipped 5/64" (2 mm) hex setscrews. Two 8-32 (M4) taps allow the HCM2 to be mounted on our standard Ø1/2" posts or Ø1" posts with 8-32 (M4) taps.

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

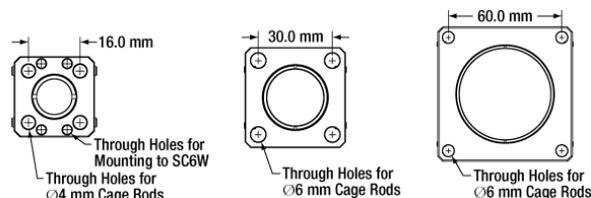
designed for high flexibility and accurate alignment.

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 $\varnothing 1/2"$, $\varnothing 1"$, and $\varnothing 2"$ 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 (2.80")

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.	

Insights into HeNe Lasers

Scroll down to read about:



- HeNe Lasers: Handling and Mounting Guidelines

[Click here for more insights into lab practices and equipment.](#)

HeNe lasers should be handled and mounted with care to protect them from damage.

Never apply a bending force to the laser housing. Stress applied to the laser's external housing can misalign or damage components in the laser cavity. This can:

- Affect the output beam quality.
- Result in reduced output power.
- Affect the beam pointing.
- Cause multimode effects.

Factory packaging protects the HeNe lasers from shocks and vibrations during shipping, but end users directly handle the bare laser housing. Due to this, HeNe lasers are in greater danger of experiencing dangerous stress during handling by the end user.

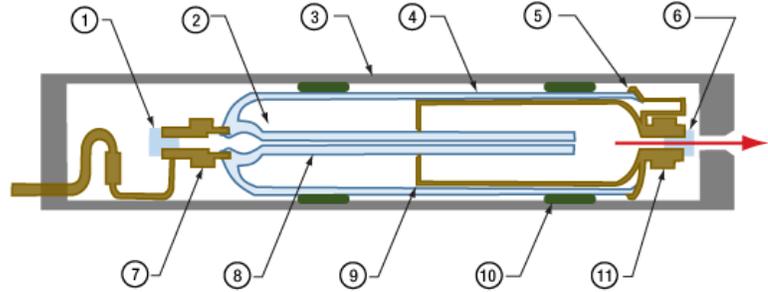
A result is that the primary cause of damage to HeNe lasers is rough handling after receipt of the laser. In extreme cases, shock and vibrations can shatter or fracture glass components internal to the laser.

To maintain the optimum performance of your HeNe laser, do not drop it, never use force when inserting it into fixture, and use care when installing it into mounts, securing it using cage components or ring accessories that grip the housing, transporting it, and storing it.

HeNe lasers will provide optimum performance over a long lifetime when they are handled gently.

Date of Last Edit: Dec. 4, 2019

HeNe Lasers: Handling and Mounting Guidelines



[Click to Enlarge](#)

Figure 1: The external housing of HeNe lasers is mechanically coupled to the components of the lasing cavity. Stress applied to the external housing can misalign and potentially fracture lasing cavity components, which can negatively impact the quality and power of the output laser beam (red arrow) or lead to laser failure

- | | |
|---------------------------|--|
| 1. High Reflector Optics | 7. Anode |
| 2. Gas Reservoir | 8. Glass Laser Bore |
| 3. Outer Housing | 9. Metal Springs that Align and Stabilize Bore |
| 4. Glass | 10. Potting Compound |
| 5. Glass-Metal Seal | 11. Cathode |
| 6. Output Coupling Optics | |

Part Number	Description	Price	Availability
HCM2/M	XY Adjustable HeNe Mount for 60 mm Cage System (Metric)	\$191.93	Today
HCM2	XY Adjustable HeNe Mount for 60 mm Cage System (Imperial)	\$191.93	Lead Time