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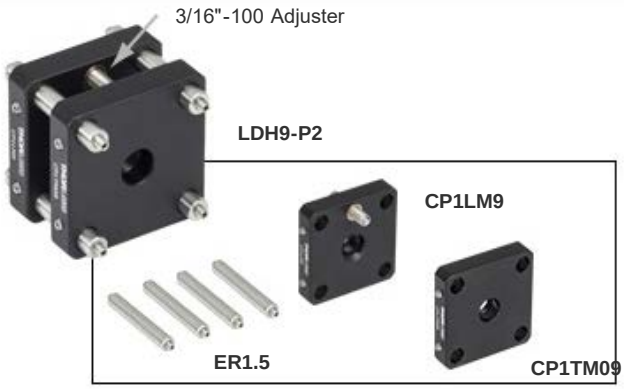
THORLABS

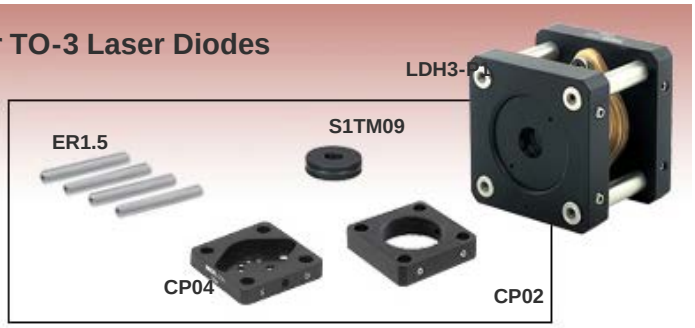
CP1LM56/M - November 10, 2020

Item # CP1LM56/M was discontinued on November 10, 2020. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

CAGE SYSTEM LASER DIODE MOUNT KITS

- Compatible with Ø5.6 mm TO Can, Ø9 mm TO Can, or TO-3 Laser Diodes
- 100 TPI Adjusters for Precise Collimation
- Kits Include All Parts as Shown Below





Application Idea
LDH9-P2 with M9 x 0.5-Threaded Aspheric Lenses and SR9 Strain Relief Cable

Hide Overview

OVERVIEW

Features

- Collimation Mounts for Ø5.6 mm TO Can, Ø9 mm TO Can, or TO-3 Laser Diodes
- Compatible with Mounted Aspheric Lenses
- TO-56 and TO-9 Mounts have 100 TPI Adjusters for Precise Collimation Adjustment
- Kits Ship Preassembled
- Individual Components are Also Available Below

Ø5.6 mm and Ø9 mm TO Can Kits
Each LDH56-P2(/M) or LDH9-P2(/M) Collimation Mount Kit includes cage plates for mounting either a Ø5.6 mm or Ø9 mm laser diode (CP1LM56 or CP1LM9, respectively), an M9-threaded cage plate (CP1TM09) for holding a mounted aspheric lens, and four 1.5" long cage rods. Precision mounting of the lens and laser diode without the use of adapters ensures maximum centration for good beam quality and alignment to the cage system. The distance between the laser diode and lens can be precisely set using a 3/16"-100 adjuster which has a 5/64" (2.0 mm) hex (Item # F19SS075). The mount is compatible with our SR9 strain relief cables.

TO-3 Can Kit
The LDH3-P1 Collimation Mount Kit holds a TO-3 laser diode and an M9 x 0.5-threaded aspheric lens. It uses an S1TM09 adapter and CP02 cage plate to mount the aspheric lens and does not incorporate a hex adjuster. This kit includes four 1.5" long cage rods.

Laser Diode Temperature Warning
Please note that these laser diode cage plate mounts do not have any temperature regulation or temperature measurement capability, so we do not recommend using them with higher power laser diodes. Running a laser diode at a high operating temperature can significantly shorten its lifetime.

Laser Diode Accessory Selection Guide

Temperature Controlled Mounts	Passive Mounts	Other Passive Mounts with Collimation Package	Strain Relief Cables	Diode Sockets	Controllers
					

Hide Cage Overview

CAGE OVERVIEW

Cage System Overview

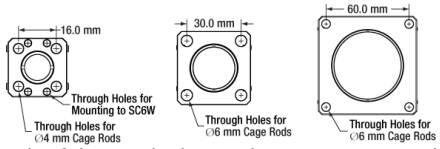
The Cage Assembly System provides a convenient way to construct large optomechanical systems with an established line of precision-machined building blocks designed for high flexibility and accurate alignment.

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 accomodate 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 (2.8")

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.
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 Collimation Mount Kit for Ø5.6 mm or Ø9 mm TO Can Laser Diodes

Collimation Mount Kit for Ø5.6 mm or Ø9 mm TO Can Laser Diodes

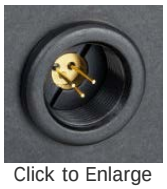
- Complete Mounting Hardware (Laser Diode, Strain Relief Cable, and Aspheric Lens Not Included)
- Kits for Mounting Ø5.6 mm or Ø9 mm Laser Diodes Available
- M9 x 0.5-Threaded Cage Plate for Mounting Aspheric Lenses
- 0.75" (19.1 mm) Long 100 TPI Fine Hex Adjuster for Lens Positioning
- Kits Ship Preassembled

Kit Components		
Item #	**Description**	**Qty.**
CP1TM09(/M)[a]	M9 x 0.5-Threaded Cage Plate	1
ER1.5	1.5" Long Cage Rod	4
LDH56-P2(/M) Only		
CP1LM56(/M)[a]	Ø5.6 mm Laser Diode Cage Plate Mount	1
LDH9-P2(/M) Only		
CP1LM9(/M)[a]	Ø9 mm Laser Diode Cage Plate Mount	1

The LDH56-P2(/M) and LDH9-P2(/M) Collimation Mount Kits are 30 mm cage system assemblies that hold a user-provided Ø5.6 mm or Ø9 mm TO can laser diode and a user-provided M9 x 0.5-threaded aspheric lens. Each kit includes a cage plate for mounting either a Ø5.6 mm or Ø9 mm laser diode (CP1LM56 and CP1LM9 respectively), as well as an M9-threaded cage plate (CP1TM09) for holding the aspheric lens. Precision mounting of the lens and laser diode without the use of adapters ensures maximum centration for good beam quality and alignment to the cage system. The distance between the laser diode and lens can be precisely set using a 3/16"-100 adjuster which has a 5/64" (2.0 mm) hex (Item # F19SS075).

The laser diode is secured with a retaining ring that can be tightened using a spanner wrench. The Ø5.6 mm mount is compatible with our SPW801 spanner wrench only, while the Ø9 mm kit is compatible with the SPW301 and SPW801 spanner wrenches. To align the laser chip axis to the cage system, access ports on the front of the mount allow rotation of the laser diode using tweezers prior to fully threading the retaining ring (see photo to the right). After the laser diode is mounted, a strain relief cable can be screwed into the back of the cage plate for electrical connections.

- Components available separately below (Click here to purchase ER1.5). The CP1M09(/M) cage plate can be used if a replacement for the CP1TM09(/M) cage plate is required.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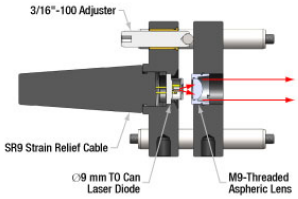
Laser diodes are secured into the CP1LM56 or CP1LM9 cage plate mounts by tightening a retaining ring (left). Access holes (right) allow the laser diode to be rotated using tweezers and the notches in the laser's housing.

This collimation mount can be integrated into a 30 mm cage system by threading the ER1.5 cage rods onto a longer cage section or by mounting the two cage plates directly onto a longer cage section. Individual components are also available below, including cage plates that hold unmounted optics or aspheric lenses with housings based on other thread standards. The laser diode mount cage plates are also available separately below.



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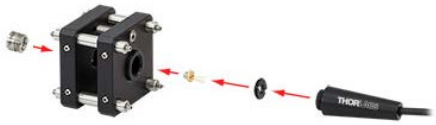
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The LDH9-P2 is compatible with M9-threaded aspheric lenses, Ø5.6 mm or Ø9 mm TO can laser diodes, and SR9 strain relief cables.

Part Number	Description	Price	Availability
LDH56-P2/M	**30 mm Cage Plate Collimation Mount for Ø5.6 mm TO Can Laser Diodes and M9 x 0.5-Threaded Aspheric Lenses, Metric Post Tap**	**$120.12**	**Today**
LDH9-P2/M	**30 mm Cage Plate Collimation Mount for Ø9 mm TO Can Laser Diodes and M9 x 0.5-Threaded Aspheric Lenses, Metric Post Tap**	**$120.12**	**Today**
LDH56-P2	**30 mm Cage Plate Collimation Mount for Ø5.6 mm TO Can Laser Diodes and M9 x 0.5-Threaded Aspheric Lenses**	**$120.12**	**Today**
LDH9-P2	**30 mm Cage Plate Collimation Mount for Ø9 mm TO Can Laser Diodes and M9 x 0.5-Threaded Aspheric Lenses**	**$120.12**	**Today**

Hide Collimation Mount Kit for TO-3 Laser Diodes

Collimation Mount Kit for TO-3 Laser Diodes

- Complete Mounting Hardware (Laser Diode and Aspheric Lens not Included)
- Mount TO-3 Laser Diodes
- M9 x 0.5-Threaded Lens Mount
- Compatible with Standard Heat Sinks for TO-3 Laser Diodes
- Kit Ships Preassembled

The LDH3-P1(/M) Collimation Mount holds a TO-3 laser diode and a M9 x 0.5-threaded aspheric lens. It uses an S1TM09 adapter and CP02 cage plate to mount the aspheric lens. Unlike the LDH56-P2 and LDH9-P2 collimation mounts described above, this mount does not feature a hex adjuster and only offers coarse positional adjustment of the laser diode and lens cage plates. Fine adjustment of an aspheric collimating lens relative to the laser diode package can be accomplished by rotating the S1TM09 lens adapter. The LDH3-P1 can be mounted directly onto any heat sink that is designed to accept TO-3 laser packages.

LDH9-P2(/M) Kit Components		
Item #	**Description**	**Quantity**
CP04[a]	TO-3 Laser Diode Cage Plate Mount	1
CP02(/M)[b]	SM1-Threaded Cage Plate	1
S1TM09	M9 x 0.5 to SM1 Adapter	1
ER1.5	1.5" Long Cage Rod	4

- The metric version of the CP04 is not available separately from Thorlabs, while the imperial version is available below.
- This previous generation item is not available for purchase separately. The CP33(/M) cage plate can be used if a replacement for the CP02(/M) cage plate is required.

This collimation mount can be integrated into a 30 mm cage system by threading the ER1.5 cage rods onto a longer cage section or by mounting the two cage plates directly onto a longer cage section. Individual components are also available below, including cage plates that hold unmounted optics or aspheric lenses with housings based on other thread standards. The laser diode mount cage plates are also available separately below.

Part Number	Description	Price	Availability
LDH3-P1/M	**30 mm Cage Plate Collimation Mount for TO-3 Laser Diodes and M9 x 0.5-Threaded Aspheric Lenses, Metric Post Tap**	**$139.60**	**Today**
LDH3-P1	**30 mm Cage Plate Collimation Mount for TO-3 Laser Diodes and M9 x 0.5-Threaded Aspheric Lenses**	**$139.60**	**Today**

Hide Individual 30 mm Cage Plates for Laser Diodes

Individual 30 mm Cage Plates for Laser Diodes

- Cage Plates to Mount Ø5.6 mm, Ø9 mm, or TO-3 Laser Diodes
- CP1LM56(/M) and CP1LM9(/M) have 3/16"-100 Hex Adjusters for Fine Positioning (Item # F19SS075)
- To Construct the Kits Sold Above, Use:
  - One Cage Plate for Laser Diodes
  - One Cage Plate for Premounted Lenses (Sold Below)
  - Four ER1.5 Cage Rods

Individual cage plates for mounting Ø5.6 mm TO can, Ø9 mm TO can, or TO-3 laser diodes are available here. Cage plates for mounting M6, M8, M9, M10, and M12-threaded aspheric lenses and unmounted optics are available below.

Part Number	Description	Price	Availability
CP1LM56/M	**30 mm Cage Plate Mount for Ø5.6 mm TO Can Laser Diodes, Metric**	**$51.40**	**Lead Time**
CP1LM9/M	**30 mm Cage Plate Mount for Ø9 mm TO Can Laser Diodes, Metric**	**$51.40**	**Today**
CP04	**30 mm Cage Plate Mount for TO-3 Laser Diodes**	**$78.73**	**Today**
CP1LM56	**30 mm Cage Plate Mount for Ø5.6 mm TO Can Laser Diodes**	**$51.40**	**Lead Time**
CP1LM9	**30 mm Cage Plate Mount for Ø9 mm TO Can Laser Diodes**	**$51.40**	**Today**

Hide Individual 30 mm Cage Plates for Premounted Aspheric and Achromatic Lenses

Individual 30 mm Cage Plates for Premounted Aspheric and Achromatic Lenses

- Internal Threads Compatible with our Premounted Aspheric and Achromatic Lenses
- 0.35" (8.9 mm) Thick Cage Plate
- 8-32 (M4) Tap for Post Mounting
- To Construct the Kits Sold Above, Use:
  - One Cage Plate for Laser Diodes (Sold Above)
  - One Cage Plate for Premounted Lenses

- Four ER1.5 Cage Rods

These cage plates are ideal for mounting aspheric or small achromatic lenses in a 30 mm cage system without the use of adapters. They are available with M6, M8, M10, or M12 internal threads. Alternatively, aspheric lenses can be mounted within a cage system using our aspheric lens adapters and a standard SM1-threaded cage plate. Each cage rod through hole is accompanied by a side-located locking setscrew, which can be secured using a 5/64" (2.0 mm) or 0.05" (1.3 mm) hex key (see the table below).

For unmounted optics, please see the cage plates for unmounted optics up to Ø20 mm sold below.

Item #	Internal Threads	Setscrew Hex Size	Base Item # of Compatible Mounted Lenses	Mount Thickness
CP1TM06	M6 x 0.5	0.05" (1.3 mm)	A414TM, C140TME, C151TMD, C392TME, C430TME, C710TME Aspheric Lenses	0.35" (8.9 mm)
CP1M06/M	M6 x 0.5	5/64" (2.0 mm)		
CP1TM08(/M)	M8 x 0.5	0.05" (1.3 mm)	C021TME, C170TME, C350TMD, C390TME, C440TME, C660TME Aspheric Lenses	
CP1M09(/M)	M9 x 0.5	5/64" (2.0 mm)	A110TM, A220TM, A230TM, A375TM, A390TM, A397TM, C036TME, C037TME, C110TME, C220TME, C230TME, C260TMD, C280TME, C330TMD, C340TMD, C560TME, C610TME, C671TME Aspheric Lenses; Ø5 mm, Ø6 mm, and Ø6.35 mm Mounted Achromatic Doublets	
CP1TM10	M10 x 0.5	0.05" (1.3 mm)	C028TME Aspheric Lenses	
CP1M10/M	M10 x 0.5	5/64" (2.0 mm)		
CP1M12	M12 x 0.5	5/64" (2.0 mm)	A240TM, C240TME Aspheric Lenses; Ø8 mm Mounted Achromatic Doublets	
CP1TM12/M	M12 x 0.5	0.05" (1.3 mm)		

Part Number	Description	Price	Availability
CP1M06/M	**30 mm Cage Plate with M6 x 0.5 Internal Threads, M4 Tap**	**$40.04**	**Today**
CP1TM08/M	**30 mm Cage Plate with M8 x 0.5 Internal Threads, M4 Tap**	**$40.04**	**Today**
CP1M09/M	**30 mm Cage Plate with M9 x 0.5 Internal Threads, M4 Tap**	**$40.04**	**Today**
CP1M10/M	**30 mm Cage Plate with M10 x 0.5 Internal Threads, M4 Tap**	**$40.04**	**Today**
CP1TM12/M	**30 mm Cage Plate with M12 x 0.5 Internal Threads, M4 Tap**	**$40.04**	**Today**
CP1TM06	**30 mm Cage Plate with M6 x 0.5 Internal Threads, 8-32 Tap**	**$40.04**	**Today**
CP1TM08	**30 mm Cage Plate with M8 x 0.5 Internal Threads, 8-32 Tap**	**$40.04**	**Today**
CP1M09	**30 mm Cage Plate with M9 x 0.5 Internal Threads, 8-32 Tap**	**$40.04**	**Today**
CP1TM10	**30 mm Cage Plate with M10 x 0.5 Internal Threads, 8-32 Tap**	**$40.04**	**Today**
CP1M12	**30 mm Cage Plate with M12 x 0.5 Internal Threads 8-32 Tap**	**$40.04**	**Lead Time**

Hide Individual 30 mm Cage Plates for Unmounted Optics from Ø5 mm to Ø20 mm

Individual 30 mm Cage Plates for Unmounted Optics from Ø5 mm to Ø20 mm

- Mount Ø5 mm to Ø20 mm Optics
- Ideal for Use with Unmounted Aspheric and Achromatic Lenses
- Two Retaining Rings Included for Mounting Optic
- Compatible with 30 mm Cage Systems
- Not Post Mountable
- These Cage Plates Can be Used in Place of the CP1Mxx and CP1TMxx Cage Plates when Constructing the Kits Sold Above

These cage plates are designed for mounting optics that have a diameter up to 20 mm, such as our unmounted aspheric and achromatic lenses, into a 30 mm cage system. They have M5.5, M6.5, M8.5, M9.5, M15.5, 0.750"-40, or M20.5 internal threads and include two retaining rings of the appropriate size to secure the optic. The SPW801 spanner wrench is recommended when threading the retaining rings into place. Each cage rod through hole is accompanied by a side-located locking setscrew, which can be secured to a cage rod using a 5/64" (2.0 mm) or 0.05" (1.3 mm) hex key (see the table below).

Item #	Optic Diameter	CA[a]	Optic Thickness (Max)[b]	Internal Threads	Retaining Ring	Setscrew Hex Size	Mount Thickness	Spanner Wrench
CPM05	5 mm	Ø0.15" (Ø3.8 mm)	0.09" (2.2 mm)	M5.5 x 0.5	SM5RR	0.05" (1.3 mm)	0.23" (5.7 mm)	SPW801
CPN06	6 mm	Ø0.19" (Ø4.8 mm)	0.11" (2.8 mm)	M6.5 x 0.5	SM6RR	5/64" (2.0 mm)	0.25" (6.4 mm)	
CPM08	8 mm	Ø0.27" (Ø6.9 mm)	0.16" (4.0 mm)	M8.5 x 0.5	SM8RR	0.05" (1.3 mm)	0.30" (7.6 mm)	
CPN09	9 mm	Ø0.31" (Ø7.9 mm)	0.16" (4.0 mm)	M9.5 x 0.5	SM9RR	5/64" (2.0 mm)	0.30" (7.6 mm)	

CPM15	15 mm	Ø0.50" (Ø12.7 mm)	0.21" (5.3 mm)	M15.5 x 0.5	SM15RR	0.05" (1.3 mm)	0.35" (8.9 mm)	
CPN18	18 mm	Ø0.62" (Ø15.7 mm)	0.24" (6.1 mm)	0.750"-40	SM18RR	5/64" (2.0 mm)	0.40" (10.2 mm)	
CPN20	20 mm	Ø0.68" (Ø17.3 mm)	0.24" (6.1 mm)	M20.5 x 0.5	SM20RR	5/64" (2.0 mm)	0.40" (10.2 mm)	

- Clear Aperture of Retaining Ring
- Maximum Optical Thickness: This specification is true for thin lenses. For lenses with small focal lengths, and hence large lens curvatures, please contact Tech Support to ensure a proper fit.

Part Number	Description	Price	Availability
CPM05	**30 mm Cage Plate for Ø5 mm Optic, 2 SM5RR Retaining Rings Included**	**$30.60**	**Today**
CPN06	**30 mm Cage Plate for Ø6 mm Optic, 2 SM6RR Retaining Rings Included**	**$30.60**	**Lead Time**
CPM08	**30 mm Cage Plate for Ø8 mm Optic, 2 SM8RR Retaining Rings Included**	**$30.60**	**Today**
CPN09	**30 mm Cage Plate for Ø9 mm Optic, 2 SM9RR Retaining Rings Included**	**$30.60**	**Today**
CPM15	**30 mm Cage Plate for Ø15 mm Optic, 2 SM15RR Retaining Rings Included**	**$31.83**	**Today**
CPN18	**30 mm Cage Plate for Ø18 mm Optic, 2 SM18RR Retaining Rings Included**	**$31.83**	**Today**
CPN20	**30 mm Cage Plate for Ø20 mm Optic, 2 SM20RR Retaining Rings Included**	**$33.95**	**Today**