

Want More **Flexibility?** Try Our
TECHSPEC® CAGE SYSTEM



**FLEXIBLE & MODULAR
STRUCTURE**



**DIVERSE COMPONENT
OFFERING**



**IDEAL FOR PROTOYPING
& EXPERIMENTATION**



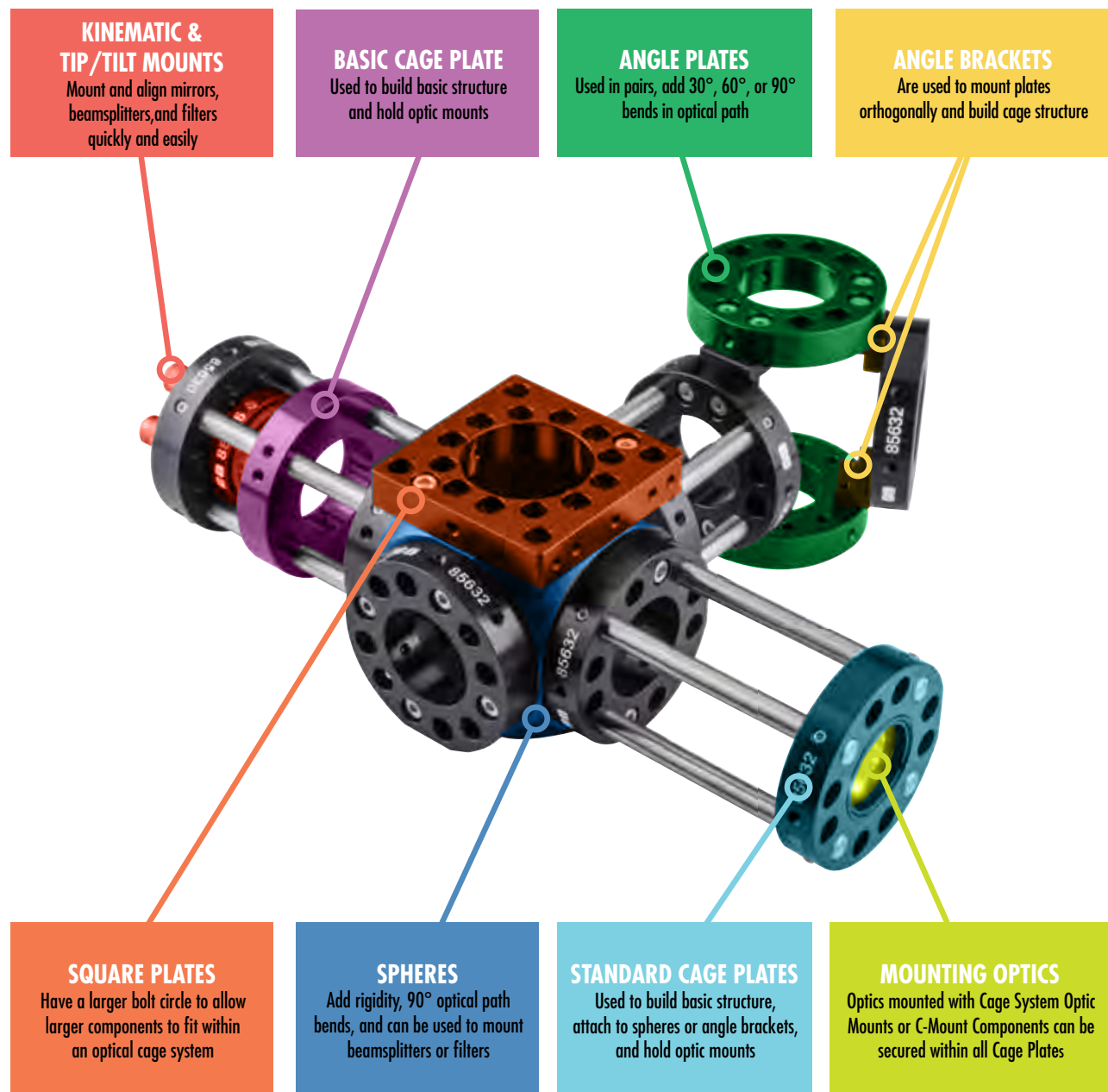
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INTRODUCTION TO THE TECHSPEC® CAGE SYSTEM

- Ideal for Prototyping
- High Durability for Continuous Lab Use
- Limitless Customization and Adaptability

Designed for modularity and flexibility, optical cage systems are high precision alternatives to complex optical alignment systems. Constructed of rods and plates, cage systems allow the user to continuously modify the system's design by adding additional components such as optical mounts and angular brackets. Optical cage system components are purchased individually, enabling limitless customization and adaptability.

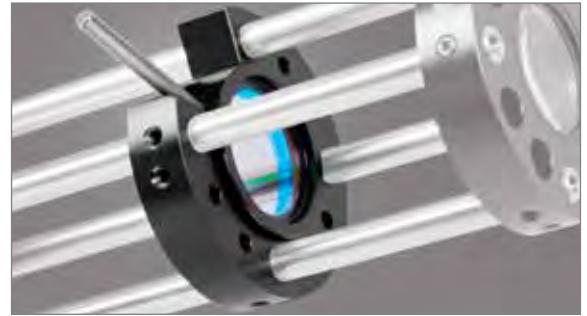
GETTING STARTED



CAGE SYSTEM APPLICATION EXAMPLES

Interchangeable Optic Mount

Pairing the Interchangeable Optic Mount with the Side Access Mounting Plate simplifies adding or removing optical components within a system. The 60° cutout in the Side Access Mounting Plate enables the Interchangeable Optic Mount to easily slide in and out of place, avoiding disassembly and reassembly of the system. Set screws secure the Side Access Mounting Plate in the Interchangeable Optic Mount – flexibility without loss of precision.



Interchangeable optic mount and side access mounting plate

Building a Cube

The cube is a fundamental design that enables the addition or intersection of beam paths, or bends the system by 90°. While a TECHSPEC® Cage Sphere is superior in rigidity, building a cube offers increased flexibility, and can be designed using Standard Mounting Plates and Corner Connectors. By using Standard Mounting Plates of different inner diameters, the cube can be customized to best fit the application.



Cage cube built with standard cage plates and angle brackets

Angle Adjustment with Swivel Plates

Angle Adjustment Plates are used to construct fixed 30°, 60°, and 90° bends in a cage system's optical path. For applications requiring customized angular positions, swivel joints are an ideal alternative to angle adjustment plates. For example, a pair of #85-670 Swivel Adapter Plates can be used with a single #85-692 Post Mount Adapter to enable 180° of continuous angular adjustment. Each swivel adapter plate features three M3 set screws which allow the angle to be locked into place.



Swivel adapters are used to create customized angular positioning

CAGE ADAPTERS AND PLATES		
Parts Used	Stock No.	Quantity
Swivel Adapters	#85-670	4
Standard Mounting Plates	#85-632	4
Post Mount Adapters	#85-692	2
Angle Brackets	#85-664	2

SO MUCH MORE ONLINE AT WWW.EDMUNDOPTICS.EU/CAGE-SYSTEM

3D MODELS



INSTRUCTIONAL VIDEOS



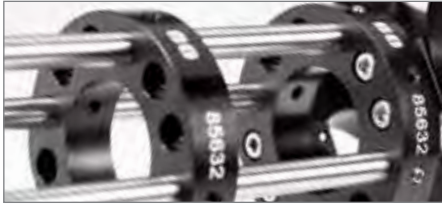
APPLICATION EXAMPLES



INTEGRATION TIPS



TECHSPEC® CAGE SYSTEM MOUNTING PLATES



- Provide Basic Cage Structure
- Anodized Aluminum Plates
- Rods are Mounted at a 38mm Bolt Circle

TECHSPEC® Cage System Plates are critical in the design and construction of a TECHSPEC® Cage System. To secure cage system tubes and optics, the highly durable anodized aluminum plates feature 25 mm or 30 mm inner diameters with three M3 set screws placed at 120°. Rods are mounted within a 38 mm bolt circle.

BASIC MOUNTING PLATE

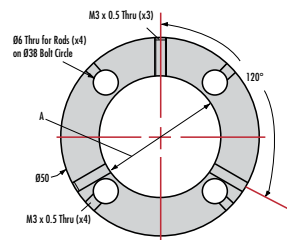
- Simplified Plate Design for Easy Integration of Optics, 10 mm Thick
- Rods Mounted at a 38 mm Bolt Circle
- Three M3 set screws secure Optic or mount inside plate



BASIC MOUNTING PLATE

A	Stock No.
25 mm	#88-196
30 mm	#88-197

Basic Mounting Plate



Units: mm

STANDARD MOUNTING PLATES

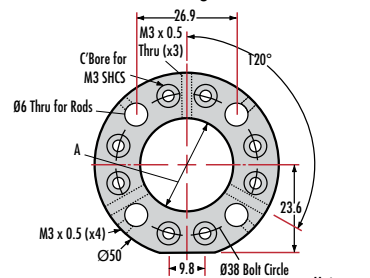
- Anodized Aluminum Plates for Basic Cage Structure, 10 mm Thick
- Rods Mounted at a 38 mm Bolt Circle
- Three M3 set screws secure Optic or mount inside plate



STANDARD MOUNTING PLATES

A	B	Stock No.
25 mm	M6	#85-632
30 mm	M6	#85-630
25 mm	1/4 - 20	#85-633
30 mm	1/4 - 20	#85-631
C-Mount (1" x 32 TPI)	—	#87-419

Standard Cage Plate



Units: mm

2" SQUARE INTERFACE PLATE

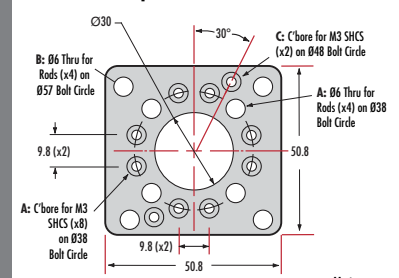
- Anodized Aluminum Plates for Basic Cage Structure, 10 mm Thick
- Steps between a 38 mm and 57 mm Bolt Circle
- Connects to 43 mm port of Cage Sphere



2" SQUARE INTERFACE PLATE

Feature	Purpose
A: 38 mm bolt circle	Matches rod spacing of standard mounting plates
B: 57 mm bolt circle	Allows optics or mounts with larger diameters to be mounted in system. Connects to same rod spacing as 2" square plates
C: 48 mm bolt circle	Used to attach Interface Plate to the 43 mm port of Cage Sphere #85-624
Stock No.	#85-737

Square Interface Plate



Units: mm

4-ROD INSERTION PLATE

- Easily Add Optics to an Existing Cage System Without the Need for Disassembly



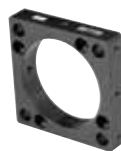
Visit our website for a video of how this plate is used

4-ROD INSERTION PLATE

Outer Dia.	Inner Dia.	Stock No.
50 mm	25 mm	#85-643

2" SQUARE MOUNTING PLATES

- Larger 57mm Bolt Circle to Hold Large Optics



2" SQUARE MOUNTING PLATE

Inner Diameter	Stock No.
35 mm	#85-735
40 mm	#85-738
45 mm	#85-740

6 mm CAGE SUPPORT RODS

- Polished 440 Stainless Steel Rods with M3 Tapped Ends

6MM CAGE SUPPORT RODS

Image	Dia. (mm)	Length (mm)	Stock No.
	6	20	#85-484
	6	30	#85-485
	6	50	#85-486
	6	75	#85-487
	6	100	#85-488
	6	120	#85-489
	6	150	#85-490
	6	200	#85-491
	6	300	#85-492
	6	450	#85-493



INTEGRATION TIP: Use C-Mount Fiber Adapters with the C-mount Standard Cage Plate (#87-419) to easily integrate FC or SMA Fibers.

TECHSPEC® CAGE SYSTEM ANGULAR ADJUSTMENT COMPONENTS

- Multiple Angular Adjustment Components Available
- Enable the Redirection of the Optical Path
- Angular Adjustment Options for 30° - 180°

TECHSPEC® Cage System Angular Adjustment options are available to redirect the optical path of the TECHSPEC® Cage System. Cage spheres allow for the integration of large optical components, enable 90° bends, and are available with cover disks for blocking unused optical paths. Angle plates are used in pairs with standard cage plates, and introduce 30, 60, or 90° bends. Angle plates can also be used with angle brackets to connect plates orthogonally. Swivel joints, which feature a lockable position, and continuous angular adjustment plates are also available for adding 180° of continuous angular adjustment.



CAGE SPHERES

- Introduce 90° Bends in Optical Path
- Sphere with 43 mm Port Integrates Larger Optic
- Cover Disks Block Unused Optical Paths



CAGE SPHERES

Description	Outer Dia.	Stock No.
30 mm ports (x5), 43 mm port (x1)	50,8	#85-624
30 mm ports (x6)	50,8	#85-625
43 mm port cover disk	50,8	#85-626
30 mm port cover disk	50	#85-627



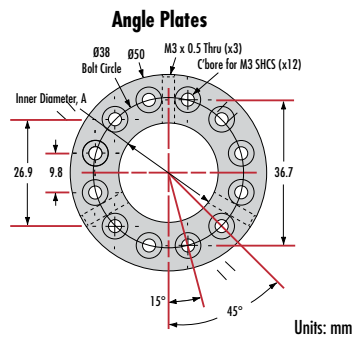
ANGLE PLATES

- Introduce 30°, 60°, or 90° Bends in the Optical Path
- Used in Pairs with Standard Cage Plates
- Use Angle Brackets to Connect Plates Orthogonally



ANGLE PLATES

A	Stock No.
25 mm	#85-617
30 mm	#85-622



SWIVEL JOINTS

- Add 180° of Continuous Angular Adjustment
- Position Can be Locked



BUILDING A SWIVEL JOINT ASSEMBLY

Qty Needed	Description	Stock No.
4	Swivel Adapter	#85-670
2	M6 Post Adapter	#85-692
2	1/4 - 20 Post Adapter	#85-701
2	Angle Bracket	#85-664
2	Standard Cage Plates	



Visit our website for a video on how to assemble a swivel joint

CONTINUOUS ANGULAR ADJ. PLATE

- Add 180° of Continuous Angular Adjustment



CONTINUOUS ANGLE PLATE ASSEMBLY

Qty Needed	Description	Stock No.
1	Continuous Angle Adj. Plate	#85-650
2	Angle Bracket	#85-664
2	Standard Cage Plates	

ANGLE BRACKETS

- Connect Plates Orthogonally

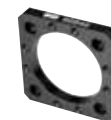


ANGLE BRACKETS

Description	Stock No.
Basic Angle Bracket	#85-664
M6 Angle Bracket	#85-665
1/4 - 20 Angle Bracket	#85-666

CAGE SYSTEM ADAPTER PLATE

- Adapts 30 mm Rod Spacing (Common in Competitive Cage Systems) to TECHSPEC® Cage System's 38 mm Bolt Circle



CAGE SYSTEM ADAPTER PLATE

Description	Stock No.
Cage System Adapter	#86-846







INTEGRATION TIP: Use a Cage Sphere (#85-624) with a 25 mm Standard Cage Plate (#85-632 or #85-633) and Beamsplitter Adapter #85-688 to add in-line illumination.

TECHSPEC® CAGE SYSTEM ADJUSTABLE OPTIC MOUNTS

- X-Y Positioning Stage for Easy Adjustable
- Objective Adapters for Easy Integration in Microscopy Applicators
- Easily Securable Within Inner Diameter of Basic Cage Plates

Available in multiple types, TECHSPEC® Cage System Adjustable Optic Mounts provide a wide range of mounting configurations. The adjustable optical mounts are ideal for beam steering assemblies.



TECHSPEC® CAGE SYSTEM ADJUSTABLE OPTIC MOUNTS				Kinematic, tip/tilt and X-Y Adjustment Mounts and Plates	
Image	Description	Outer Diameter (mm)	Inner Diameter (mm)	Clear Aperture (mm)	Stock No.
	Fine Screw Kinematic Mounting Plate	50	30	30	#85-663
	25 mm Tip/Tilt Solid Table	25	—	—	#86-026
	25,4 mm Kinematic Mount	30	25,4	12,7	#85-695
	45° Tip/Tilt Mount for 25 mm Mirror	25	—	10	#85-696
	Square Tip/Tilt Optic Mount	25	—	—	#85-710
	25,4 mm Dia. Adapter for #85710	29 x 32,5	25,4	25,4	#85-713
	XY Micro Positioning Stage Plate	25	RMS Thread	7	#85-722

TECHSPEC® CAGE SYSTEM LINEAR TRANSLATION ASSEMBLIES

- Compact Design with Built-In Translation Assembly
- Configurable for ½" or 1" Travel
- Accepts Micrometers with ⅜" Shank

TECHSPEC® Cage System Linear Translation Assemblies are used to add linear translation to a TECHSPEC® Cage System setup. The built-in translation assembly enables coarse positioning along the cage rods. Once fixed to the cage rods, fine translation can be done using a micrometer drive. By adding additional springs, the ½" standard travel can be extended to 1". TECHSPEC® Cage System Linear Translation Assemblies are available in two options: simple translation utilizes 6 mm rods and standard plates, while ball bearing translation utilizes ball bearing slides for low-friction translation. Note: Micrometer/drive mechanism sold separately.



Visit www.edmundoptics.eu/cage-translation for more information

SIMPLE TRANSLATION			*One Required if Shaft Collars Are Used
Required	Description	Features	Stock No.
	Micrometer Mount Kit	Micrometer Holder (x 1) Protective Steel Plate (x 1) Compression Springs 2 pk, #86-838 (x 1)	#85-618
Two Required*	25 mm Standard Cage Plate, M6		#85-632
	30 mm Standard Cage Plate, M6		#85-630
Two Required*	25 mm Standard Cage Plate, ¼ - 20		#85-633
	30 mm Standard Cage Plate, ¼ - 20		#85-631
One Required	Micrometer or Actuator with ⅜" Shank	Choose based on type, travel, and graduation	See Table Below
One Optional	Shaft Collar (2 pk)	Can be used instead of a fixed plate	#86-845
One Optional	Compression Springs (2 pk)	Used to extend travel range to 1"	#86-838

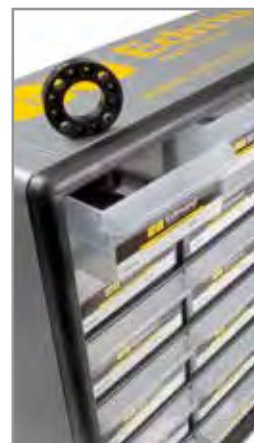
BALL BEARING TRANSLATION			
Required	Description	Features	Stock No.
	Ball Bearing Translation Assembly Kit	Micrometer Mount Kit, #85-618 (x 1) Travel Bearing Plate, #85-620 (x 1) Fixed Bearing Plate, #85-619, (x 1) Linear Bearing Bushings 2pk, #85-686 (x 1) Rods 3mm Dia x 50mm L, #85-470 (x 2)	#86-847
One Required	Micrometer or Actuator with ⅜" Shank	Choose based on type, travel, and graduation	See Table at Right
One Optional	Compression Springs (2 pk)	Used to extend travel range to 1"	#86-838

COMPATIBLE MICROMETERS			
Type	Travel	Graduation	Stock No.
Micrometer Drive	0,5"	0,001"	#58-660
Fine Screw Drive	0,5"	-	#58-667
Micrometer Drive	13 mm	0,01 mm	#58-661
Differential Drive	0,75"	-	#58-670
Digital Drive	1"	0,00005"	#58-668
Micrometer Drive	1"	0,001"	#58-662
Micrometer Drive	25 mm	0,01 mm	#58-663

TECHSPEC® CAGE SYSTEM COMPONENTS KIT

- Contains Necessary Parts to Build Basic Optomechanical Systems
- Ideal for Experimentation or Prototyping
- Includes Mounting Options for 12,5 mm and 25 mm Optical Components

The TECHSPEC® Cage System Components Kit contains an assortment of TECHSPEC® Optical Cage System components, including plates, rods, mounts, and the accessories needed to construct basic optomechanical systems. Designed to simplify the selection and purchase process, the TECHSPEC® Cage System Components Kit is ideal for researchers, engineers, or educators, and for demonstration or prototyping purposes. **Note:** A storage cabinet is included that provides room for expansion.



CONTENTS OF COMPONENTS KIT

22 Plates for Cage Construction
 22 Support Rods with lengths ranging from 50 mm to 300 mm
 12 Optical Components Mounts
 15 Accessories Including Spheres, Corner Connectors, and Adapters
 Assembly Screws and Tools

TECHSPEC® CAGE SYSTEM COMPONENTS KIT

Description	Stock No.
Basic Components Kit	#87-314

CONTENTS OF COMPONENTS KIT

Description	Usage	Stock No.	Quantity
25 mm Standard Cage Mounting Plate	Cage Construction Plate with M6 tapped hole	#85-632	8
30 mm Standard Cage Mounting Plate	Cage Construction Plate with M6 tapped hole	#85-630	8
30 mm Square Interface Plate	Provides larger rod spacing than standard plate	#85-737	2
30 mm Angle Plate	Used to introduce 30°, 60°, or 90° bends in the optical path	#85-622	2
Cage Sphere w/ 30 mm Ports (x 5), 43 mm Port (x 1)	Cube for intersecting optical paths	#85-624	1
30 mm Port Cover	Cover for unused cube ports	#85-627	1
Plate Corner Connector	Used to connect cage plates at 90° angles	#85-664	8
6 mm Dia. x 50 mm Rod	Polished 440 stainless steel rods for basic cage construction	#85-486	2
6 mm Dia. x 100 mm Rod		#85-488	4
6 mm Dia. x 120 mm Rod		#85-489	6
6 mm Dia. x 150 mm Rod		#85-490	6
6 mm Dia. x 300 mm Rod		#85-492	4
M3 x 0,5 x 2,5 mm SHSS	Used to lock 6mm rods in place	—	100
M3 x 0,5 x 6 mm SHSS	Used to secure optic mounts and accessories	—	50
M3 x 0,5 x 10 mm SHCS	Used to assemble cage components	—	50

CONTENTS OF COMPONENTS KIT

Description	Usage	Stock No.	Quantity
Insertion Plate	Allows additions to a cage system without the need for disassembling the rods	#85-643	1
Filter Holder Plate	Easily swap filters within a cage system	#86-018	1
Interchangeable Filter Holder	Easily swap filters within a cage system	#85-649	2
12,5 mm Dia. Lens Mount	Lens mounts designed to fit into cage plates	#85-549	2
12,7 mm Dia. Thick Lens Mount		#85-547	2
25/25,4 mm Dia. Lens Mount		#85-587	2
25/25,4 mm Dia. Thick Lens Mount		#85-588	2
25 mm Simple Optic Mount		#85-510	1
25/25,4 mm Cube Beamsplitter Mount	Cube beamsplitter mount fits within 25 mm cage plates	#85-688	1
Blank Disk	Block beam path or to customize a simple mount	#85-539	1
C-Mount Adapter	Allows for easy interface to C-mount components	#85-719	4
Cage System Adapter Plate	Adapts 30 mm rod spacing of other cage systems to the TECHSPEC® Optical Cage System	#86-846	2
Allen Key for M3 SHSS	Tools for cage assembly	#55-452	1
Allen Key for M3 SHCS	Tools for cage assembly	#57-445	1
Optical Component Cabinet	Storage cabinet for the cage system components kit	#59-815	1

TS ACHROMATIC LENS KITS



ACHROMATIC LENS KITS		
Size	12,5 mm Dia.	25 mm Dia.
# of Lenses:	13	17
Included Focal Lengths (mm):	14, 20, 25, 30, 35, 40, 45, 50, 60, 75, 80, 90, 100	30, 35, 40, 45, 50, 60, 75, 80, 100, 125, 150, 175, 200, 225, 250, 300, 400
MgF ₂ Coating	#54-673	#52-306
VIS 0° Coating	#48-540	#48-615
VIS-NIR Coating	#65-984	#65-985

TS SIMPLE LENS KITS



SIMPLE LENS KITS		
Size	12,5 mm Dia.	25 mm Dia.
# of Lenses:	14	24
Included Focal Lengths (mm):	PCX: 12, 24, 36, 48, 60 DCX: 12, 24, 36, 48, 72 PCV: -12, -24, -48; DCV: -12"	PCX: 25, 50, 75, 100, 125, 150, 175, 200, 400 DCX: 25, 50, 75, 100, 125, 150, 175, 200, 400 PCV: -25, -50, -100; DCV: -25, -50, -100
MgF ₂ Coating	#55-249	#52-305
VIS 0° Coating	#48-163	#48-613
VIS-NIR Coating	#48-539	#48-614

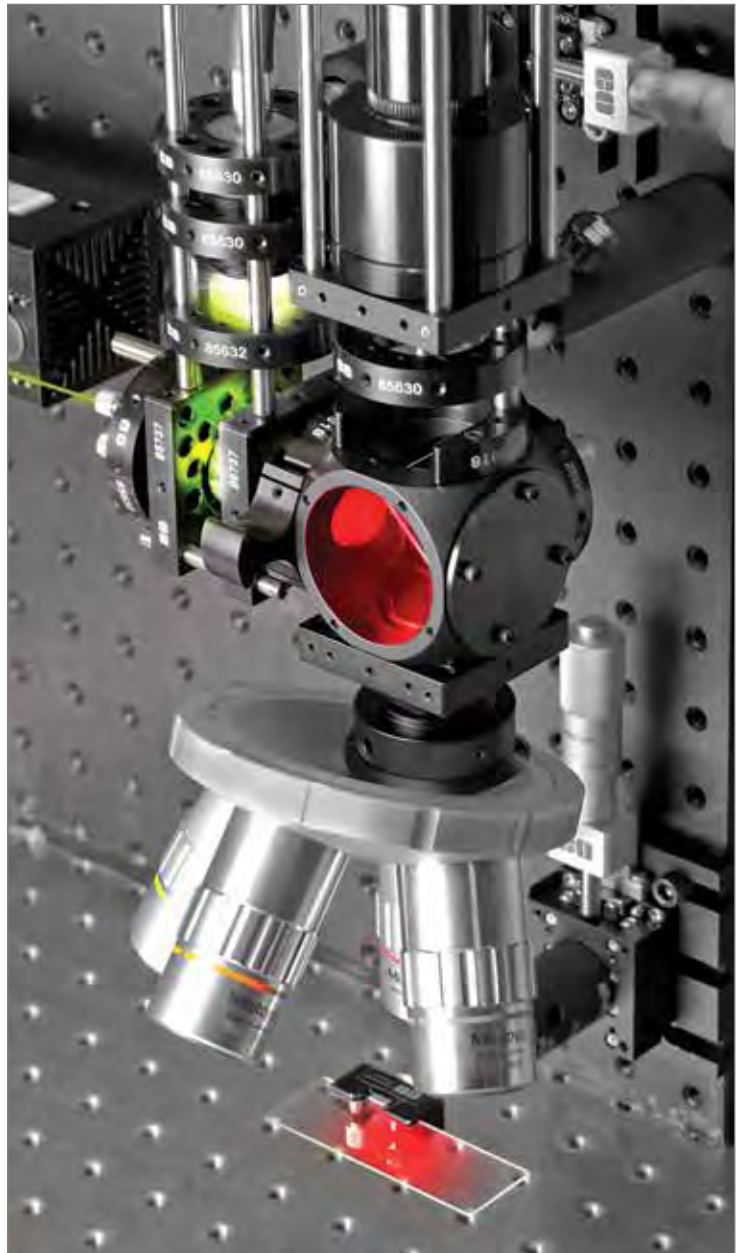
VISIT WWW.EDMUNDOPTICS.EU/CAGE-KITS FOR MORE WAYS TO START BUILDING TODAY!

WHY CHOOSE A TECHSPEC® CAGE SYSTEM?

- **STEP-BY-STEP BUILDING INSTRUCTIONS** for our most popular applications.
- **EO's EXPERT ENGINEERS** will help select the right combination of products for your application, saving you time and money.
- **VIDEOS, 3D MODELS, ASSEMBLIES** and more – we make integration easy!

TECHSPEC® CAGE SYSTEM FEATURES

- FLEXIBLE & MODULAR STRUCTURE
- DIVERSE COMPONENT OFFERING
- IDEAL FOR PROTOTYPING & EXPERIMENTATION
- HIGH PRECISION WITH EXCELLENT MECHANICAL STABILITY
- SUPERIOR PRICE-TO-PERFORMANCE RATIO
- LIMITLESS CUSTOMIZATION & ADAPTABILITY
- DURABLE AND PORTABLE DESIGN
- SUPPORTS MULTIPLE BEAM PATHS



GET STARTED TODAY WITH A COMPONENTS KIT

www.edmundoptics.eu/cage-kits