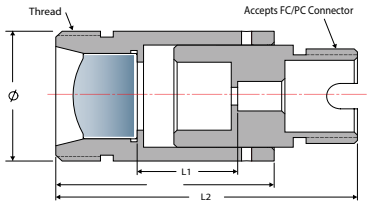
CONNECTORIZED ASPHERIC FIBER OPTIC COLLIMATORS

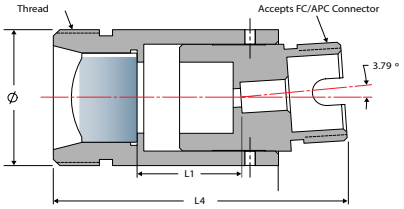
MOLDED ASPHERIC LENSES PRE-ALIGNED FOR USE WITH FIBER PATCH CORDS

LightPath's connectorized collimators are available with FC/PC, FC/APC, or SMA fiber optic connectors. Each collimator is individually aligned and tested for the specified wavelength, and will offer excellent performance throughout the entire range of their AR coatings. Standard design assemblies are available for our most popular lens types, but any asphere in our catalog can be mounted into a custom assembly of your choice. Please contact LightPath sales for more information.

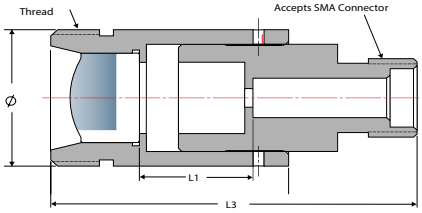
FC/PC Connectors



FC/APC Connectors



SMA Connectors



For all Connectorized Collimators, Pointing Accuracy = 0.5° and Waist Position = Infinity
Connectorized Collimators can also be ordered as an unaligned kit for custom wavelength alignment

Part Number	Wavelength (nm)	Beam ø (mm)*	AR Coating	Thread ø	ø (mm)
355110 - (FCPC/FCAPC/SMA) - 543	543	1.2	A	M11 x 0.5-6g	11
355110 - (FCPC/FCAPC/SMA) - 633	633	1.2	B	M11 x 0.5-6g	11
355110 - (FCPC/FCAPC/SMA) - 780	780	1.2	B	M11 x 0.5-6g	11
355110 - (FCPC/FCAPC/SMA) - 1064	1064	1.4	C	M11 x 0.5-6g	11
355110 - (FCPC/FCAPC/SMA) - 1310	1310	1.1	C	M11 x 0.5-6g	11
355110 - (FCPC/FCAPC/SMA) - 1550	1550	1.2	C	M11 x 0.5-6g	11
355110 - (FCPC/FCAPC/SMA) -Y - KIT			A, B, or C	M11 x 0.5-6g	11
354220 - (FCPC/FCAPC/SMA) - 543	543	2.2	A	M11 x 0.5-6g	11
354220 - (FCPC/FCAPC/SMA) - 633	633	2.1	B	M11 x 0.5-6g	11
354220 - (FCPC/FCAPC/SMA) - 780	780	2.2	B	M11 x 0.5-6g	11
354220 - (FCPC/FCAPC/SMA) - 1064	1064	2.4	C	M11 x 0.5-6g	11
354220 - (FCPC/FCAPC/SMA) - 1310	1310	2.0	C	M11 x 0.5-6g	11
354220 - (FCPC/FCAPC/SMA) - 1550	1550	2.1	C	M11 x 0.5-6g	11
354220 - (FCPC/FCAPC/SMA) -Y - KIT			A, B, or C	M11 x 0.5-6g	11
355230 - (FCPC/FCAPC/SMA) - 543	543	0.9	A	M11 x 0.5-6g	11
355230 - (FCPC/FCAPC/SMA) - 633	633	0.8	B	M11 x 0.5-6g	11
355230 - (FCPC/FCAPC/SMA) - 780	780	0.9	B	M11 x 0.5-6g	11
355230 - (FCPC/FCAPC/SMA) - 1064	1064	1.0	C	M11 x 0.5-6g	11
355230 - (FCPC/FCAPC/SMA) - 1310	1310	0.8	C	M11 x 0.5-6g	11
355230 - (FCPC/FCAPC/SMA) - 1550	1550	0.9	C	M11 x 0.5-6g	11
355230 - (FCPC/FCAPC/SMA) -Y KIT			A, B, or C	M11 x 0.5-6g	11
354240 - (FCPC/FCAPC/SMA) - 543	543	1.6	A	M12 x 0.5-6g	12
354240 - (FCPC/FCAPC/SMA) - 633	633	1.5	B	M12 x 0.5-6g	12
354240 - (FCPC/FCAPC/SMA) - 780	780	1.6	B	M12 x 0.5-6g	12
354240 - (FCPC/FCAPC/SMA) - 1064	1064	1.8	C	M12 x 0.5-6g	12
354240 - (FCPC/FCAPC/SMA) - 1310	1310	1.5	C	M12 x 0.5-6g	12
354240 - (FCPC/FCAPC/SMA) - 1550	1550	1.5	C	M12 x 0.5-6g	12
354240 - (FCPC/FCAPC/SMA) -Y - KIT			A, B, or C	M12 x 0.5-6g	12
354260 - (FCPC/FCAPC/SMA) - 543	543	3.0	A	M11 x 0.5-6g	11
354260 - (FCPC/FCAPC/SMA) - 633	633	2.8	B	M11 x 0.5-6g	11
354260 - (FCPC/FCAPC/SMA) - 780	780	3.1	B	M11 x 0.5-6g	11
354260 - (FCPC/FCAPC/SMA) - 1064	1064	3.3	C	M11 x 0.5-6g	11
354260 - (FCPC/FCAPC/SMA) - 1310	1310	2.8	C	M11 x 0.5-6g	11
354260 - (FCPC/FCAPC/SMA) - 1550	1550	2.9	C	M11 x 0.5-6g	11
354260 - (FCPC/FCAPC/SMA) -Y - KIT			A, B, or C	M11 x 0.5-6g	11
357775 - (FCPC/FCAPC/SMA) - 405	405	0.7	UVA	M11 x 0.5-6g	11
357775 - (FCPC/FCAPC/SMA) -Y - KIT			UVA	M11 x 0.5-6g	11

STANDARD ANTI-REFLECTIVE COATINGS

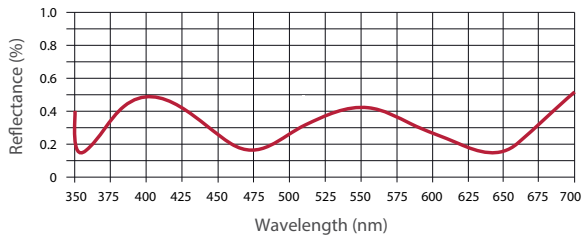
LightPath offers a variety of multilayer broadband coatings to reduce the back reflection from a nominal 6% for uncoated lenses. The choice of which AR coating is appropriate depends on the type of glass the lens is made from and the wavelength at which the lens will be used.

Standard Coatings*			
Lens Series	**Coating**	**λ Range (nm)**	**Reflectivity**
352xxx, 353xxx, 354xxx, 355xxx	MLBB-A	350 - 700	$R_{avg} \leq 0.50\%$
352xxx, 354xxx, 355xxx	MLBB-B	600 - 1050	$R_{max} < 1.00\%$
352xxx, 354xxx, 355xxx	MLBB-C	1050 - 1600	$R_{max} < 1.00\%$
355xxx	MLBB-Q	1300 - 1700	$R_{max} < 0.25\%$
356xxx, 357xxx	UVA	350 - 500	$R_{max} < 1.00\%$

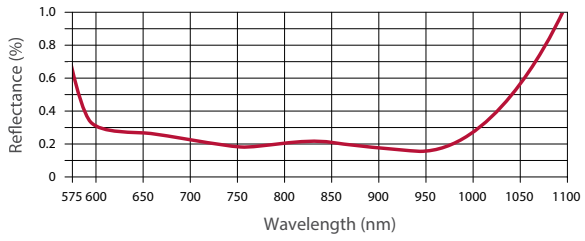
* LightPath's rigorous qualification process ensures all standard coatings will pass the abrasion and adhesion resistance requirements of ISO+9211-4-196.

Typical Coating Curves

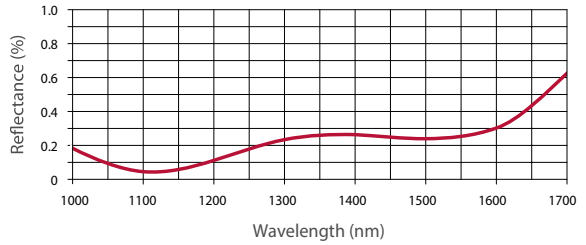
A Coating



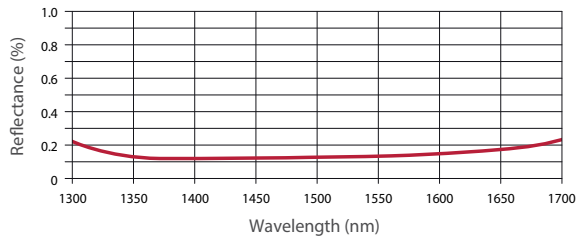
B Coating



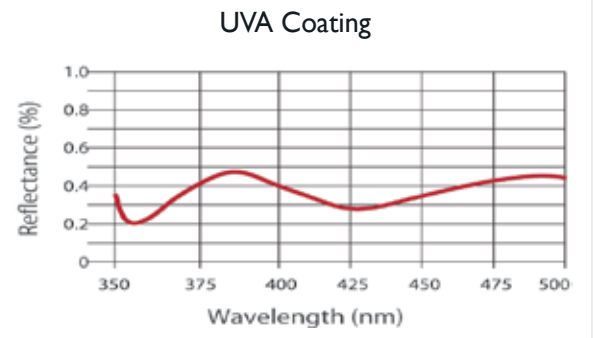
C Coating



Q Coating



UVA Coating



Fiber Collimators
Diffraction Limited

Features

- **Adjustable focus**
- **No epoxy in the optical path**
- **No fluorescence or very little**
- **Clean Gaussian beams at any distance**
- **Low wavefront error**
- **Very high transmission**
- **FC or FC/APC receptacle as standard**
- **350 nm to 2300 nm**

Applications

- **Lidar**
- **Interferometry**
- **Confocal Microscopy**
- **Optical tweezers**
- **Cytometry**
- **Scanning**
- **Direct write**

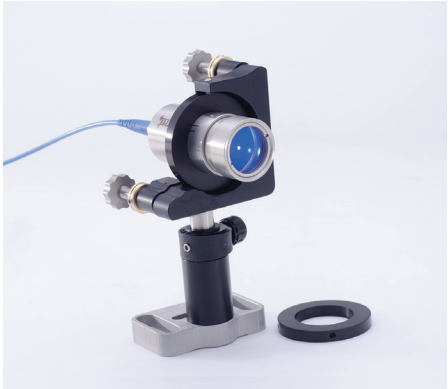
Our High Performance Fiber Collimators are of a multi-element design that gives a highly collimated, clean Gaussian beam with low wavefront error and no diffraction.

Adjustable focus collimators are very versatile. They can replace several fixed focus collimators. You can optimize the collimator to your wavelength or compensate for any endcap installed on your fiber and lock it down. Besides collimation, these fiber collimators can also be used to focus to a very tight spot at a very large distance or expand to illuminate a larger area.

Standard collimators have apertures from 3 mm to 23 mm yielding beams from 1 mm to 11.5 mm in diameter. They are stocked for quick delivery. The smaller collimators have fine 80 pitch threads for fine focus adjustment. Four coating regions cover the 350 nm to 2300 nm spectrum.

Pigtailed versions are available as well as custom housing, coatings, optical designs or environmental requirements.

See our “Large Fiber Collimator” brochure for FC40, FC45, FC100 which produces beams of 23mm, 33mm and 50mm.



FC20 with ring adapter mounted in a common optical mount.

Micro Laser Systems, Inc.
12841 Western Ave. Suite H, Garden Grove, CA 92841
Phone: 714-898-6001 Email: sales@microlaser.com Web: www.microlaser.com

Fiber Collimators

Specifications (for singlemode fiber)

	FC3	FC5	FC7	FC10	FC20
Aperture:	3.5 mm	6.5 mm	7 mm	11.5 mm	23.5 mm
Beam size*:	1 mm	2.1 mm	3 mm	5.5 mm	11.5 mm
Beam divergence:	< 1 mrad	< 0.5 mrad	<0.37 mrad	< 0.25 mrad	< 0.1 mrad
Wavefront error over 1/e^2 points rms:	< 1/10 wave				
Receptacle:	FC or FC/APC standard				
Adjustable Collimation:	80 tpi in adjustment	80 tpi in adjustment	80 tpi in adjustment	80 tpi in adjustment	Adjustable
Locking:	yes				
Housing material:	Stainless Steel				
Weight:	12 g (0.4 oz.)	45 g (1.6 oz.)	28 g (1 oz.)	85 g (3.0 oz.)	286 g (10.1 oz.)

* Beam sizes are approximate due to variations in fiber NA and wavelength. Beam size is stated at $1/e^2$ points using singlemode fiber with NA = 0.13 stated for fiber at 635 nm

Ordering Information

Model #	Description
FC3-λ-FC	Yields ~1 mm beam. FC receptacle
FC3-λ-APC	Yields ~1 mm beam. FC/APC receptacle
FC5-λ-FC	Yields ~2.1 mm beam. FC receptacle
FC5-λ-APC	Yields ~2.1 mm beam. FC/APC receptacle
FC7-λ-FC	Yields ~3 mm beam. FC receptacle
FC7-λ-APC	Yields ~3 mm beam. FC/APC receptacle
FC10-λ-FC	Yields ~5.5 mm beam. FC receptacle
FC10-λ-APC	Yields ~5.5 mm beam. FC/APC receptacle
FC20-λ-FC	Yields ~ 11.5 mm beam. FC receptacle
FC20-λ-APC	Yields ~11.5 mm beam. FC/APC receptacle
Accessories	
FC5R-1.0	FC3 and FC5 ring adapter for 1 in. optical mounts
FC7R-1.0	FC7 ring adapter for 1 in. optical mounts.
FC10R-1.0	FC10 ring adapter for 1 in. optical mounts
FC20R-2.0	FC20 ring adapter for 2 in. optical mounts

Use -VIS1 for any λ = 350 nm to 600 nm
Use -NIR1 for any λ = 600 nm to 1000 nm
Use -NIR2 for any λ = 1000 nm to 1700 nm
Use -SWIR for any λ = 1500 nm to 2300 nm

Standard collimators are stock items.

Large Fiber Collimators

Please see our brochure on **Large Fiber Collimators** for bigger beams from FC40, FC45 and FC100

Specialty Fiber Collimators

Mid IR Fiber Collimators
Vacuum Compatible
Non Magnetic Fiber Collimators
Radiation Resistant
UV versions

Special beam sizes, coatings, housing materials or wavelength ranges have also been manufactured. Pigtailed versions and SMA receptacle are also available.

We manufacture all our collimators and optics in our facility in California, USA.

Please call 714-898-6001 or email sales@microlaser.com for you particular application.

Specifications subject to change without notice.

Micro Laser Systems, Inc.
12841 Western Ave. Suite H, Garden Grove, CA 92841
Phone: 714-898-6001 Email: sales@microlaser.com Web: www.microlaser.com