

Fiber Collimators Diffraction Limited



Features

- Adjustable focus
- No epoxy in the optical path
- No fluorescence
- 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 any endcap installed and lock it down. Besides collimation, these fiber collimators can also focus to a very tight spot at a very large distance or expand to illuminate a large 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.

Pigtails 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.



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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/e² 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 your particular application.

Specifications subject to change without notice.



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Large Fiber Collimators



Features

- Usable from 350nm to 2300nm
- 49 and 96 mm apertures
- Adjustable focus
- No epoxy in the optical path
- No fluorescence
- Low wavefront error
- Singlemode or PM fibers
- FC or FC/APC

Applications

- Free space communications
- Lidar, ranging
- Interferometry
- Remote sensing

For those needing BIG BEAMS, we have our High Performance Large Fiber Collimators, FC40, FC45 and FC100. They are all of a multi-element design that gives a highly collimated, clean Gaussian beam with low wavefront error.

All optics are AR coated to give high transmission. To accommodate all the different wavelengths that are now available for lasers, the spectrum is divided into 4 different regions. Focus is adjustable and linear with no rotation to allow you to adjust for your laser. Once you have adjusted for your wavelength you can lock it down. There is a second lock down mechanism for use against vibrations.

Body is made of stainless steel to minimize any thermal ef-

fects. Back end has an FC or FC/APC receptacle.

A sturdy stainless steel mount has threaded holes to mount the collimators to stages, tables and tripods.



FC100 mounted on tripod

Large Fiber Collimators

Specifications

	FC40	FC45	FC100
Aperture:	49 mm	49 mm	96.5 mm
Beam size*:	23 mm	33 mm	50 mm
Beam divergence:	<0.067 mrad	< 0.05 mrad	<0.03 mrad
Wavefront error, over 1/e ² points rms:	<1/10 wave	< 1/10 wave	1/4 wave
Receptacle:	FC or FC/APC	FC or FC/APC	FC or FC/APC
Collimation:	Adjustable with no rotation	Adjustable with no rotation	Adjustable with no rotation
Locking:	yes	yes	yes
Housing material:	Stainless Steel	Stainless Steel	Stainless Steel
Weight:	0.83 kg (1.83 lb)	1.12 kg (2.46 lb.)	5.5 kg (12.23 lb)

*measured at 1/e² points using fiber with NA = 0.13 at 635 nm

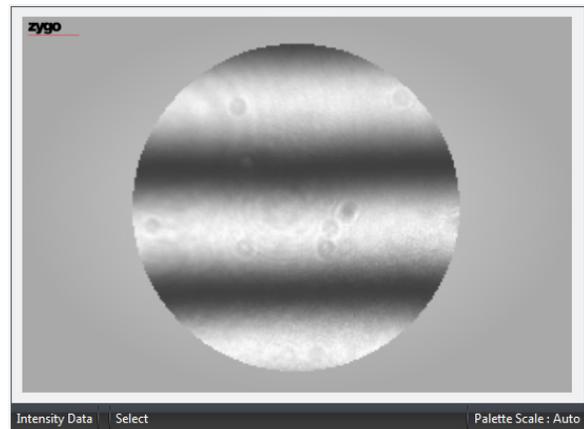
Ordering Information

Model #	Description
FC40-λ-FC	49 mm aperture, FC receptacle
FC40-λ-APC	49 mm aperture, FC/APC receptacle
FC45-λ-FC	49 mm aperture, FC receptacle
FC45-λ-APC	49 mm aperture, FC/APC receptacle
FC100-NIR2-FC	96.5 mm aperture, FC receptacle
FC100-NIR2-APC	96.5 mm aperture, FC/APC receptacle
Accessories	
MT1.75SS	FC40 and FC45 mount for use on tables, stages or tripods
MT4.5SS	FC100 mount for use on tables, stages or tripods.
Tripod	Tripod

Use -VIS1 for any $\lambda = 350\text{nm}$ to 600nm
 Use -NIR1 for any $\lambda = 600\text{nm}$ to 1000nm
 Use -NIR2 for any $\lambda = 1000\text{nm}$ to 1700nm
 Use -SWIR for any $\lambda = 1500\text{nm}$ to 2300nm

Specifications subject to change without notice.

FC45 interferogram at 50% of aperture.



FC100 interferogram of whole aperture at 1550nm. Has 1/10 wave at 50% of aperture.

