

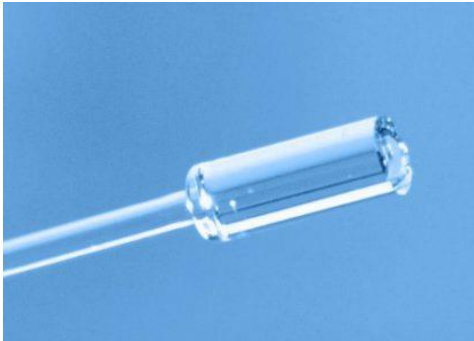
# Fiber End Fused Lens (OCT)

(patent pending)



DATASHEET

[Return to the Webpage](#)



We produce fiber-end fused lenses by fusing a GRIN fiber with a specific length. This technology provides ultra-mini fiber collimators for various special applications. In addition to collimating beams, fiber end fused lens reduces the power density at the interface between fiber and air, offering much higher transmitted power capability from fiber cores in a miniature format. Based on a proprietary beam shaping technology, a high-quality end cap is uniquely formed directly at the fiber tip with little loss. Polarization maintains fiber end lens is our specialty. Side output is an option in which a tiny prism is attached to the collimator end so that the light reflects to exit at the side. We have three GRIN fibers of 100/125 NA 0.14; 230/250 NA 0.17; 230/250 NA 0.20.

This type of collimator is widely used in Optical Coherence Tomography (OCT) applications.

We produce a side-firing version by attaching a 0.3x0.3 mm prism

## Features

- Low Loss
- High Optical Efficiency
- Low Internal Reflection
- Low Distortion
- Low Cost
- Patented Technology

## Applications

- Imaging, OCT
- Fiber Collimator
- Optical System
- Optical Coupling

## Specifications

Parameter	Min	Typical	Max	Unit
Insertion Loss <sup>[1]</sup>		< 0.2		dB
Operation Wavelength	600		1800	nm
Internal Back Reflection		≤ -70		dB
End Surface Back Reflection	-20		-70	dB
Outer Diameter (OD)	1.8 mm, 1.0 mm, 0.25 mm, and 0.125 mm			mm
Beam Size (at waist)	10		100	μm
Working Distance (WD)	0		5	mm

### Notes:

[1]. Excluding connectors

## Beam Size and working Distance

For optical collimators, there are two important parameters to describe optical performance. One is the working distance and the other is beam size. Since the light emitted from the fiber lens is a Gaussian beam, the beam has a minimum spot diameter at its waist which is defined as the beam size. The distance from the beam waist position to the fiber lens surface is defined as the working distance. The working distance and beam size are related. Selecting a longer working distance produces a larger beam size. Two examples appear on page 2.

**PLEASE SPECIFY EITHER DESIRED WORKING DISTANCE OR BEAM SIZE. AGILTRON WILL ESTIMATE THE OTHER PARAMETER.**

**One can not select both since they are related.**

**Note:** The specifications provided are for general applications with a cost-effective approach. If you need to narrow or expand the tolerance, coverage, limit, or qualifications, please [click this link](#):

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Rev 10/07/24

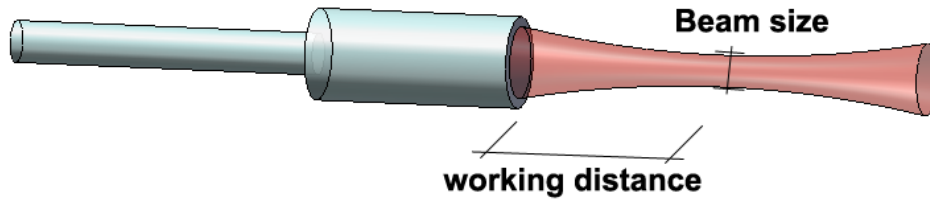
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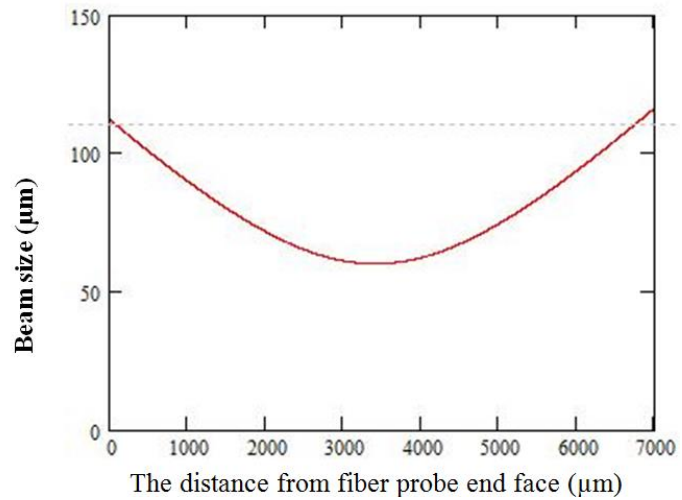
## DATASHEET

### Miniature OCT Fiber Probe



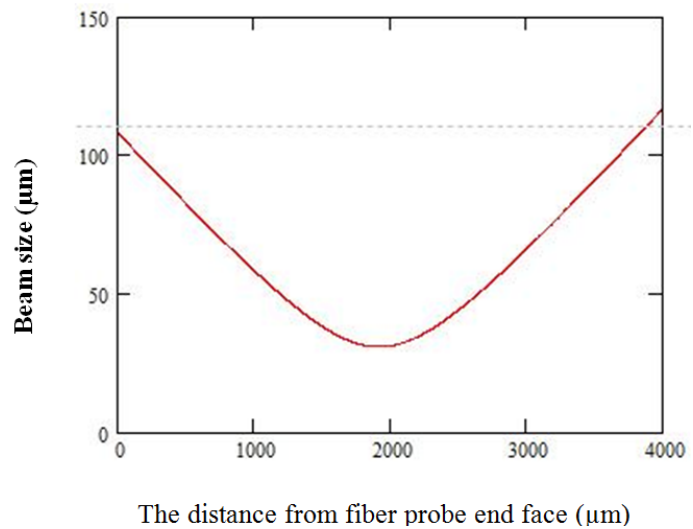
#### Example I:

The working distance of 3.5 mm has a best focus beam size of 60  $\mu\text{m}$ .



#### Example II:

The working distance of 2.0 mm has a best focus beam size of 35  $\mu\text{m}$ .



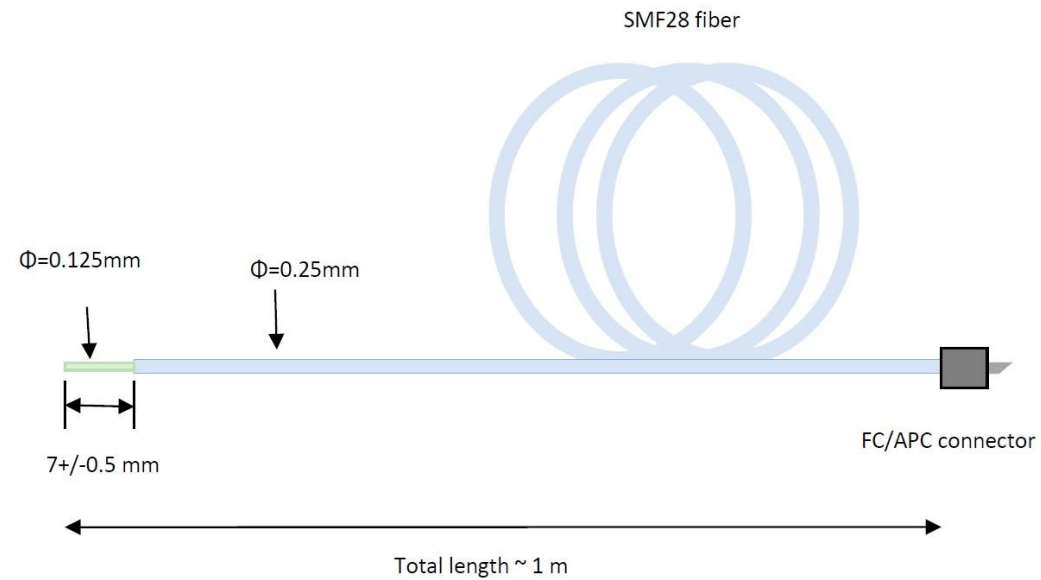
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## DATASHEET

### Lens tip fiber pigtails schematic drawing



Straight



Side Exit

# Fiber End Fused Lens (OCT)



(patent pending)

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### Ordering Information

Prefix	Wavelength	Probe Diameter	Working Distance *	Coating	Type	Face Angle	Fiber Type	Fiber Length	Connector
<b>FLES-</b>	1310nm = 3 1550nm = 5 800nm = 8 980nm = 9 1060nm = 1 Special = 0	1.2mm glass = 1 0.125mm glass = 2 0.250mm glass = 3 0.5mm metal = 5 1.8mm glass = 8	1mm = 1 2mm = 2 3mm = 3 Special = 0	None = 1 Polyimide = 5 Polymer = 3	Straight = 0 Side Exit = 1	0° = 0 8° = 8 Special = 9	Select from below table	0.25m = 1 0.5m = 2 1.0m = 3 3.0m = 4 5.0m = 5 Special = 0	None = 1 FC/PC = 2 FC/APC = 3 SC/PC = 4 SC/APC = 5 ST/PC = 6 LC/PC = 7 LC/APC = A LC/UPC = U Special = 0

\* Beam size is a function of wavelength and working distance. Once you select these two parameters, we will provide you a list of possible spot sizes.

#### Fiber Type Selection

1	<b>SMF-28</b>	B	<b>PM1550</b>	M	<b>GIF 50/125mm</b>
2	<b>SMF-28e</b>	C	<b>PM1950</b>	N	<b>GIF 62.5 mm</b>
3	<b>Corning XB</b>	D	<b>PM1310</b>	O	<b>106/125mm</b>
4	<b>SM450</b>	E	<b>PM400</b>	P	<b>FG105LCA</b>
5	<b>SM1950</b>	F	<b>PM480</b>	Q	<b>FG50LGA</b>
6	<b>SM600</b>	G	<b>PM630</b>	R	<b>STP 50/125</b>
7	<b>Hi780</b>	H	<b>PM850</b>		
8	<b>SM800</b>	I	<b>PM980</b>		
9	<b>Hi980</b>	J	<b>PM780</b>		
A	<b>Hi1060</b>	K	<b>PM350</b>		
		L	<b>PM405</b>		