Optical Fiber End Cap

SM, PM, MM

DATASHEET

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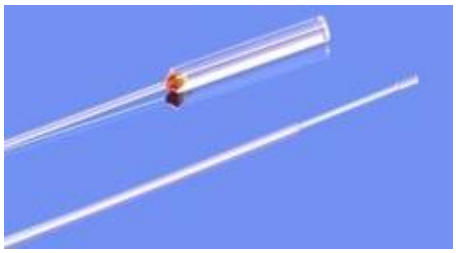

The fiber end cap increases the beam size as the laser exits the fiber end. It reduces the power density at the interface between fiber and air offering much higher transmitted power from fiber cores in a miniature format. Based on Agiltron's beam shaping technology, a high-quality end cap is uniquely formed directly at the fiber tip that transmits uniformly beam spot. We use both fusion splicing and thermal expansion to produce end cap optimized for various applications. Polarization maintains fiber end cap is our specialty.

The end cap diameter coreless rod selection is to maximize the out beam diameter. The length selection of the end cap is sufficiently shorter to avoid beam distortion from the edge. Various packaging formats are available: bare fiber with end cap; polyimide coating for autoclave, inside a protective tube, or inside a standard fiber connector for ease of attaching to a telescope.

The end-cap material is pure quartz

Features

- High Power
- High Efficiency
- Low Reflection
- Low Distortion
- Low Cost

Applications

- Fiber Lasers
- Fiber Collimator
- Optical System
- Sensor

Specifications

Parameter	Min	Typical	Max	Unit
Insertion Loss[1]		< 0.2		dB
Operation Wavelength	400		2500	nm
End Cap Diameter		125, 250, 400, 1000		µm
End Cap Length	300		5000	µm
Face Angle		0, 8, 12		Deg
End Surface Back Reflection		> 50 (with AR coating)		dB
Polarization Extinct Ratio (PER)		> 19 (only for PM fiber)		dB
Beam Ellipticity		> 95 (only for single mode fiber)		%
Beam		1.5		M^2
Power Handling (W)		5, 10, 30, 50, 100, and 500		W
End Cap Diameter ()		0.125, 0.25		mm
Operating Temperature	0		75	°C
Store Temperature	-40		85	°C

Note:
[1]. Excluding connectors

Rev 02/07/24

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Mechanical Dimensions (mm)

*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

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Ordering Information

	☐	☐	☐	☐	☐	☐☐	☐	☐	☐
Prefix	**Wavelength**	**Cap Rod Diameter**	**Cap Rod Length**	**Face Angle Coating**	**Package**	**Fiber Type**	**Cable Type**	**Fiber Length**	**Connector**
FECA-	1060 =1 2000 =2 1310 =3 1480 =4 1550 =5 1625 =6 780 =7 850 =8 980 =9 460 =E 530 =F 630 =G 360 =H Special =0	0.125mm=1 0.250mm=2 0.400mm=3 1.0 mm=4 1.5 mm=5 2 mm=6	0.3mm =1 0.4mm =2 0.5mm =3 0.6mm =4 0.7mm =5 0.8mm =6 0.9mm =7 1 mm =8 1.5 mm =9 Special =0	0 ° no coating =1 0 ° with coating =2 8 ° no coating =3 8 ° with coating =4 12 ° no coating =5 12 ° with coating =6 Special =0	Bare fiber =1 Inside a tube =2 Polyimide coating =3 Inside FC/PC connector =4 Inside 1mm OD tube =2 Inside 1.8mm OD tube =4 Special =0	Select from below table	Bare fiber =1 0.9 mm loos tube =9 2 mm PVC cable =2 3 mm PVC cable =3 3 mm amor cable =4 5 mm amor cable =5 Special =0	0.25m =1 0.5m =2 1.0m =3 2.0 =4 5 m =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

Fiber Type Selection Table:

01	**SMF-28**	34	**PM1550**	71	**GIF 50/125um**
02	**SMF-28e**	35	**PM1950**	72	**GIF 62.5**
03	**Corning XB**	36	**PM1310**	73	**105/125um**
04	**SM450**	37	**PM405**	74	**FG105LCA**
05	**SM1950**	38	**PM480**	75	**FG50LGA**
06	**SM600**	39	**PM630**	76	**STP 50/125**
07	**Hi780**	40	**PM850**	77	
08	**SM800**	41	**PM980**	78	
09	**Hi980**	42	**PM780**	79	
10	**Hi1060**	43	**PM350**	80	
11	**SM300**	44	**PM2000**	81	
12	**SM400**	45	**PM460**	82	
13	**1060-25/250, DCF**	46	**1060-30/250, DCF**	83	**1060-20/400, 0.46NA DCF**
14	**1060-6/125, 0.46NA**	47	**1060-7/125, 0.46NA**	84	**1060-10/125, 0.46NA**
15	**1060-15/125, 0.46NA**	48	**1060-20/125, 0.46NA**	85	**1060-25/125, 0.46NA**
16	**1060-20/200, 0.46NA**	49	**1060-25/250, 0.46NA**	86	**1060-9/125, 0.46NA**
17	**PM1060-6/125, DCF**	50	**PM1060-10/125, DCF**	87	**PM1060-12/125, DCF**
18	**PM1060-25/250, DCF**	51	**PM1060-20/250, SCF**	88	

Warning: An Optical Collimator need to have a working distance stated by the customer at the time of order

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Application Notes

Fiber Core Alignment
Note that the minimum attenuation for these devices depends on excellent core-to-core alignment when the connectors are mated. This is crucial for shorter wavelengths with smaller fiber core diameters that can increase the loss of many decibels above the specification if they are not perfectly aligned. Different vendors' connectors may not mate well with each other, especially for angled APC.

Fiber Cleanliness
Fibers with smaller core diameters (<5 μm) must be kept extremely clean, contamination at fiber-fiber interfaces, combined with the high optical power density, can lead to significant optical damage. This type of damage usually requires re-polishing or replacement of the connector.

Maximum Optical Input Power
Due to their small fiber core diameters for short wavelength and high photon energies, the damage thresholds for device is substantially reduced than the common 1550nm fiber. To avoid damage to the exposed fiber end faces and internal components, the optical input power should never exceed 20 mW for wavelengths shorter 650nm. We produce a special version to increase the how handling by expanding the core side at the fiber ends.