

Fiber Mini Collimators Distance 1 to 80mm

Diameter 1.2mm-3.2mm, SM, PM, 5W, 10W



DATASHEET

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We offer a comprehensive range of miniature fiber optic collimators designed for low loss, high return loss, and high optical power handling of up to 10W, with no organic materials in the light path. These collimators are integrated into many of our products, and we specialize in delivering custom solutions to meet specific application requirements. Our miniature collimators are optimized for working distances up to 80 mm. For applications requiring longer working distances, we recommend our High-Power Fiber Optic Collimator. For the 1950 nm band, we uniquely provide lower-loss collimating lenses made with NSF11 glass, reducing coupling loss between a pair of collimators by approximately 0.3 dB compared to standard glass lenses.

Features

- Working Distance up to 80mm
- Diameter 1.2 to 3.2mm
- Low Loss
- High Power
- Long Distance
- Compact

Applications

- Device
- Test
- Special Solution



Specifications

Parameter		Min	Typical	Max	Unit
Insertion Loss ^[1]	630, 632, 650 ±20nm		0.8	1	dB
	780, 850, 980 ±20nm		0.3	0.4	
	1060, 1220 ±30nm		0.3	0.3	
	1310 - 1600 nm		0.2	0.25	
	1900 - 2400nm		0.4	0.5	
Working Distance		1	5	500	mm
Collimator Diameter		1.5		3.2	mm
PMD (SMF Switch only)			0.1	0.3	ps
Extinction Ratio (PMF only)		18	25		dB
Return Loss			55	60	dB
Optic power Handling ^[4]	Normal power version		0.3	0.5	W
	High power version			5, 10	W
Operating Temperature	Standard	-5		75	°C
	Special version	-40		85	°C
Storage Temperature		-45		100	°C

Notes:

[1]. Measured with a pair and without connectors

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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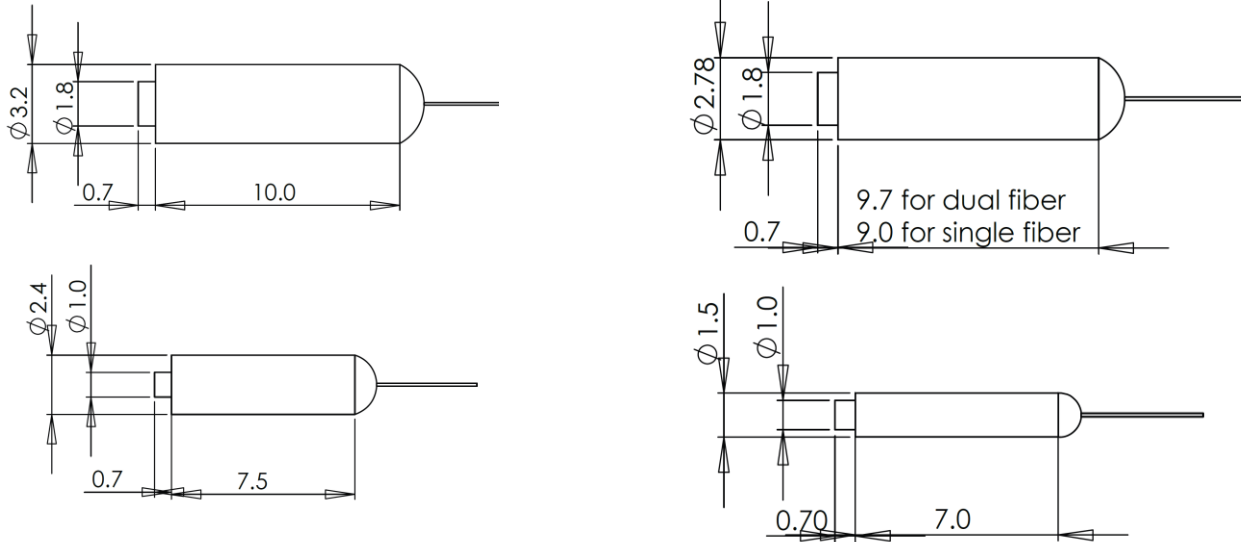
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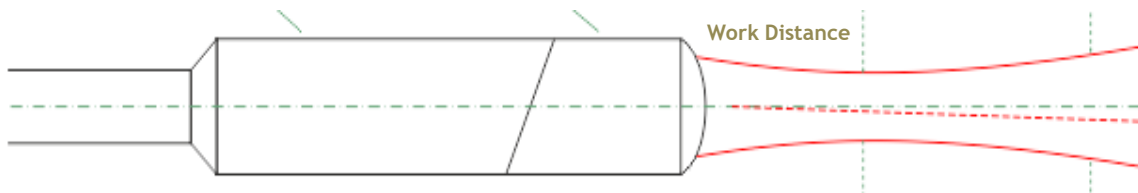
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Mechanical Dimensions Standard for beam size <0.8mm (Unit: mm)



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

Typical Collimator Beam Profile



Fiber collimators produce parallel output beams, but perfect collimation is theoretically impossible because of fundamental diffraction limits, where the divergence angle $\theta \approx \lambda / \pi D$ depends on the wavelength (λ) and the beam diameter (D). Larger beam diameters yield lower divergence, enabling longer working distances. Practical fiber collimators are therefore optimized for a specific working distance and diffraction-limited beam size, with a typical beam profile shown below. For multimode collimators, performance also depends on the launch mode distribution, so a similar-profile source is used during fabrication and testing to ensure consistency with customer conditions. With more than 20 years of experience, we employ proprietary fiber-end lensing, precision V-groove assemblies, and custom-built metrology tools to manufacture high-performance custom fiber collimators with superior optical characteristics..

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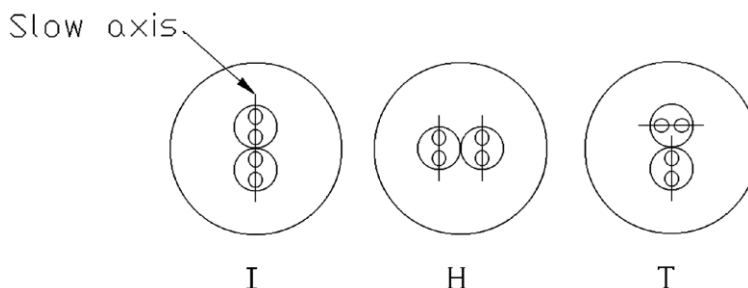
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PM Stress Field Orientation



Ordering Information (Part Number)

Prefix	# Fiber	PM Fiber ^[1] Orientation	Wavelength	Working Distance (mm) ^[2]	Beam Diameter (mm)	Outer Diameter (mm)	Power/ Temperature	Fiber Type	Fiber Cover	Fiber Length	Connector ^[3]
FCOM-	Single= 1 Dual = 2 Special=0	N/A = 4 I = 1 H = 2 T = 3 Special = 0	1550 = 5 1060 = 1 2000 = 2 1310 = 3 1480 = 4 1625 = 6 980 = 9 850 = 8 780 = 7 650 = E 550 = F 400 = G 1265~1620=L Special = 0	2 = 02 5 = 05 10 = 10 18 = 18 30 = 30 80 = 80 Special = 00	1 = 01 2 = 02 3 = 03 6 = 06 10 = 10 15 = 15 20 = 20 Special = 0	1.5mm = 1 2.4mm = 2 2.8mm = 3 3.2mm = 4 Special = 0	0.5W = 1 2W = 2 5W = 5 10W = 6 0.5W/85°C = A 2W/85°C = B 5W/85°C = C 10W/85°C = D	SMF-28 = 01 Special = 0 Select Below	Bare fiber = 1 0.9mm tube= 3 3mm tube = 5 Special = 0	0.25m = 1 0.5m = 2 1.0 m = 3 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

[1]. For single fiber I and H is aligned to slow axis, T to fast axis

[2]. Customer is a critical parameter in which all the performance can be measured and optimized quantitatively.

[3]. The default connector configuration uses fiber with 0.9 mm buffer protection. The connector cannot be installed directly onto bare fiber because the bare fiber is prone to damage during shipping. However, the connector can be assembled on bare fiber if a 3 cm protective loose tube is added for reinforcement. The customer may remove this protective tube after testing. The optical power handling of a standard connector is less than 0.5 W for SMF-28 fiber and decreases further for smaller-core fibers.

Fiber Type Selection Table:

01	SMF-28	34	PM1550	71	MM 50/125μm
02	SMF-28e	35	PM1950	72	MM 62.5μm
03	Corning XB	36	PM1310	73	105/125μm
04	SM450	37	PM400	74	200 μm NA 0.22
05	SM1950	38	PM480	75	400 μm NA 0.22
06	SM600	39	PM630	76	STP 50/125
07	Hi780	40	PM850	77	IRZS23
08	SM800	41	PM980	78	IRFS32
09	SM980	42	PM780	79	
10	Hi1060	43	PM350	80	PCF
11	SM400	44	PM405	81	UV180nm
12		45	PM460	82	LMA-PM-10
13		46			

Warning: An Optical Collimator need to have a working distance stated by the customer at the time of order. The optical parameters only tested at the working distance.

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