

## CHAPTERS

Fiber Patch  
Cables

Bare Fiber

Fiber  
OptomechanicsFiber  
ComponentsTest and  
Measurement

## SECTIONS

SM Fiber

PM Fiber

Doped Fiber

PCF

MM Fiber

Plastic Optical Fiber

## Large-Mode-Area (LMA) Matching Passive Fibers

Thorlabs offers a range of passive large-mode-area (LMA) fibers matched with available active LMA fibers such as Liekki's YB1200 and YB2000 product families. These passive fibers are matched to the core diameters and numerical apertures of their active counterparts to maintain excellent beam quality throughout fiber laser or amplifier systems. The outer cladding diameter is designed to "round" the shaped active fibers in order to achieve a low coupling loss when matching passive to active fibers. The passive fibers are coated with low-index fluoroacrylate, enabling active fibers to be pumped through them. High-index, acrylate-coated fibers are available by special request; please contact us for details.

## Features

- Matching with Industry Standard Active Fiber Cladding Geometries of Ø125, Ø250, and Ø400 µm
- Low Signal and Pump Coupling Losses from Passive to Active Fiber
- Excellent Beam Quality

ITEM #	CORE DIAMETER	CLADDING DIAMETER	COATING DIAMETER	CORE NA	CLADDING NA	PROOF TEST	MATCHING ACTIVE FIBER	PAGE NUMBER
P-10/125DC	10 ± 1 µm	125 ± 2 µm	245 ± 15 µm	0.08 ± 0.01	>0.46	>100 kpsi	YB1200-10/125DC	1032
P-20/390DC	20 ± 2 µm	390 ± 8 µm	500 ± 15 µm	0.07 ± 0.01		>50 kpsi	YB1200-20/400DC	1032
P-25/240DC	25 ± 2.5 µm	240 ± 5 µm	350 ± 15 µm	0.07 ± 0.01		>100 kpsi	YB1200-25/250DC	1032

ITEM #	PRICE/m*	\$	£	€	RMB
P-10/125DC	1 to 9 m	\$ 10.70	£ 7.71	€ 9.31	¥ 85.28
	10 to 49 m	\$ 9.10	£ 6.55	€ 7.92	¥ 72.49
P-20/390DC	1 to 9 m	\$ 54.50	£ 39.24	€ 47.42	¥ 434.37
	10 to 49 m	\$ 46.33	£ 33.36	€ 40.31	¥ 369.22
P-25/240DC	1 to 9 m	\$ 46.50	£ 33.48	€ 40.46	¥ 370.61
	10 to 49 m	\$ 39.53	£ 28.46	€ 34.39	¥ 315.02

\* Call for quantities over 50 m.

## Applications

- Pigtailed for Fiber Lasers and Amplifiers
- All-Fiber Subassemblies
- High-Brightness Power Delivery
- Fiber-Based Components for Fiber Lasers (e.g., Pump Combiners)

Erbium-Doped C- and L-Band Fibers Specialty Fiber Manufactured by 

## MetroGain™ – A Fiber Optimized for use in The L-Band

To shift the gain curve into the L-band, long-gain sections have conventionally been required. These sections could be over 100 meters in length, leading to both fiber management and cost issues. MetroGain™ has a core composition with increased erbium concentration. At the pump wavelength of 980 nm, the absorption is about 12 dB/m. The co-dopants incorporated into the fiber core ensure that even with the relatively high levels of rare earth, negligible clustering occurs. The result is a high absorption, high efficiency, erbium-doped fiber with an intrinsically flat gain profile.

The NA for this fiber is in the range of 0.21 to 0.23. This has been found to give good modal overlap of the pump with the doped region of the fiber while still maintaining excellent splice characteristics.

## High-Power Short C-Band Amplifiers

The fiber has been evaluated in an amplifier incorporating a very high power, nominally 1480 nm pump source. The pump input into the gain section was in excess of 1.5 W. An output of 28.5 dB/m was achieved using an input comprised from four signals with wavelengths between 1545 nm and 1560 nm, thus loading the amplifier with a total of 11.5 dB/m. The length of the gain fiber required to achieve this result was less than 5 meters.

ITEM #	OPERATING WAVELENGTH	MFD @980/1550 nm	CLADDING DIAMETER	COATING DIAMETER	CUTOFF WAVELENGTH	PEAK ABSORPTION	NA	STRIPPER TOOL
M5-980-125	C-Band	3.5 µm / 5.9 µm	125 ± 1 µm	245 µm	900 - 970 nm	4.5 - 5.5 dB/m @ 980 nm	0.22 - 0.24	T06S13
M12-980-125	L-Band	3.7 µm / 6.2 µm				11 - 13 dB/m @ 980 nm	0.21 - 0.23	

ITEM #	PRICE/m*	\$	£	€	RMB
M5-980-125	1 to 9 m	\$ 13.10	£ 9.44	€ 11.40	¥ 104.41
	10 to 49 m	\$ 11.14	£ 8.02	€ 9.69	¥ 88.75
M12-980-125	1 to 9 m	\$ 13.10	£ 9.44	€ 11.40	¥ 104.41
	10 to 49 m	\$ 11.14	£ 8.02	€ 9.69	¥ 88.75

\* Call for quantities over 50 m.

## Features and Benefits

- Excellent Geometric Properties Provide Very Low Birefringence and Excellent Splice Characteristics
- Splice Loss to SM Fiber of Pump Lasers of ≤0.1 dB
- Splice Loss to SMF-28e+ Fiber of ≤0.15 dB
- Core/Cladding Concentricity of ≤0.5 µm
- Dual Acrylate Coating