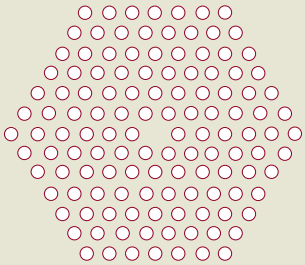
NKT Photonics

LMA fibers

Low loss single-mode fibers



LOW LOSS SINGLE-MODE FIBERS

Ideal for transmitting all wavelengths

Out single-mode photonic crystal fibers are optimized for low loss across a wide range of wavelengths while maintaining an almost fixed mode field diameter.

The fibers are endlessly single-mode (i.e. no higher order mode cut-off) and deliver excellent mode quality at all wavelengths. Core diameters from 5 to 25 µm.

The LMA-5, LMA-10, and LMA-15 are available in polarization-maintaining versions.

Applications

- Broadband white light transmission
- Single-mode high power delivery
- Mode filtering
- Short pulse delivery

SPECIFICATIONS

Optical

Model	LMA-5	LMA-8	LMA-10	LMA-12	LMA-15	LMA-20	LMA-25
Single-mode cut-off wavelength [1]	None	None	None	None	None	None	None
Low loss range [nm]	400 - 1700	400 - 1700	500 - 1700	700 - 1700	500 - 1700	600 - 1700	800 - 1700
Attenuation [dB/km]							
@ 532 nm	< 20 [2]	< 20 [2]	< 40 [2]	-	< 30	-	-
@ 632 nm	< 10	< 10	< 20 [2]	-	< 20	< 30	-
@ 780 nm	-	-	-	< 20	-	< 10	-
@ 1064 nm	< 5	< 5	< 5 [2]	< 8	< 8	< 8	< 8
@ 1550 nm	-	-	-	< 3	-	-	< 5
Mode-field diameter, $1/e^2$ [µm]							
@ 532 nm	4.5 ± 0.5	7.2 ± 1.0	8.4 ± 1.0	-	12.5 ± 1.5	-	-
@ 780 nm	-	-	-	-	-	16.4 ± 1.5	20.6 ± 2.0
@ 1064 nm	4.7 ± 0.5	7.5 ± 1.0	8.8 ± 1.0	10.3 ± 1.0	12.8 ± 1.5	16.5 ± 1.5	20.9 ± 2.0
@ 1550 nm	-	-	-	10.5 ± 1.0	-	-	-
NA (5%) @ 1064 nm	0.20 ± 0.02	0.14 ± 0.02	0.11 ± 0.02	0.09 ± 0.02	0.07 ± 0.02	0.06 ± 0.02	0.05 ± 0.02

[1] TIA-445-80-C standard.
[2] 16 cm bend diameter

Mechanical

Model	LMA-5	LMA-8	LMA-10	LMA-12	LMA-15	LMA-20	LMA-25
Core diameter [µm]	5.0 ± 0.5	8.6 ± 0.5	10.1 ± 0.5	12.2 ± 0.5	15.1 ± 0.8	19.9 ± 1	25 ± 1
Outer cladding diameter, OD [µm]	125 ± 2	125 ± 2	125 ± 2	125 ± 5	230 ± 5	230 ± 5	258 ± 5
Coating diameter [µm]	245 ± 10	245 ± 10	245 ± 10	245 ± 10	350 ± 10	350 ± 10	342 ± 10
Core and cladding material	Pure silica	Pure silica	Pure silica	Pure silica	Pure silica	Pure silica	Pure silica
Coating material. single-layer	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate	Acrylate
Coating concentricity [µm]	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Proof test level [%]	0.5	0.5	0.5	0.5	0.33	0.33	0.33

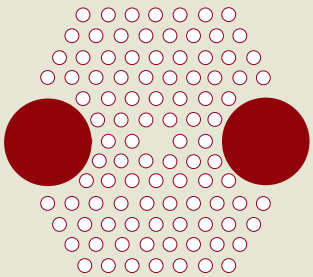
All NKT Photonics fiber products are produced under our quality management system certified in accordance with the ISO 9001:2015 standard.

Features

- Low transmission loss
- Low non-linearities
- Single-mode at all wavelengths
- Radiation hard pure silica fiber
- Wavelength independent mode-field diameter

LMA-PM fibers

Single-mode, polarization-maintaining fibers



LOW LOSS POLARIZATION-MAINTAINING FIBERS

Ideal for multi-wavelength transmission

Our polarization-maintaining single-mode fibers, the LMA-PM-5, the LMA-PM-10, and the LMA-PM-15 are optimized to exhibit low loss while keeping an almost constant mode field diameter.

The fiber is endlessly single-mode (i.e. it has no higher order mode cut-off) and delivers excellent mode quality at all wavelengths.

Applications

- Mode filtering
- Short pulse delivery
- Multi-wavelength transmission
- Single-mode polarization-maintaining pigtailing
- Single-mode polarization-maintaining short wavelength delivery

LMA-PM FIBERS

Low loss and constant mode field diameter

Our polarization-maintaining single-mode fibers - the LMA-PM-5, the LMA-PM-10, and the LMA-PM-15 - are all optimized to exhibit low loss.

The fibers present a low-loss in a wide wavelength window:

- LMA-PM-5: Low-loss fiber from 400 - 1200 nm
- LMA-PM-10: Low-loss fiber from 500 - 1700 nm
- LMA-PM-15: Low-loss fiber from 600 - 1700 nm

The LMA-PM-5 has a standard outer diameter

The LMA-PM-5 fiber has a standard 125 µm outer diameter and is compatible with all common fiber tools.

Also available in a non-polarization-maintaining version

All three fibers are also available in a non polarization-maintaining version.

Features

- Low-loss
- Polarization-maintaining
- Single-mode at all wavelengths
- Radiation hard pure silica fiber
- Wavelength independent mode-field diameter

SPECIFICATIONS

Optical

Model	LMA-PM-5	LMA-PM-10	LMA-PM-15
Single-mode cut-off wavelength [1]	None	None	None
Attenuation [dB/km]			
@ 532 nm	< 40 [2]	< 25 [2]	-
@ 632 nm	< 20	< 15	-
@ 1064 nm	< 7	< 5	< 10
Mode-field diameter, $1/e^2$ [µm]			
@ 532 nm	4.2 ± 0.5	8.4 ± 1.0	12.2 ± 1.5
@ 1064 nm	4.4 ± 0.5	8.6 ± 1.0	12.6 ± 1.5
NA (5%)			
@ 532 nm	-	-	0.04 ± 0.02
@ 1064 nm	0.20 typical	0.12 ± 0.02	0.07 ± 0.02
Birefringence Δn @ 1064 nm	≥ 1.5×10^{-4}	≥ 1.4×10^{-4}	≥ 1.3×10^{-4}
Polarization Extinction Ratio [3] [dB]	≥ 18	≥ 18	≥ 18

1) TIA-445-80-C standard.
2) 16 cm bend diameter.
3) AKA PXtalk on a 2 m sample.

Mechanical

Model	LMA-PM-5	LMA-PM-10	LMA-PM-15
Core diameter [µm]	5.0 ± 0.5	10.0 ± 0.5	14.8 ± 0.8
Outer cladding diameter [µm]	125 ± 2	230 ± 5	230 ± 5
Coating diameter [µm]	245 ± 10	350 ± 10	350 ± 10
Core and cladding material	Pure silica	Pure silica	Pure silica
Coating material, single-layer	Acrylate	Acrylate	Acrylate
Coating concentricity [µm]	< 10	< 10	< 10
Proof test level [%]	0.5	0.33	0.33

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