CORNING

PANDA PM

High Performance Polarization Maintaining Fibers

Specialty Optical Fibers

PANDA PM Specialty Fibers are designed with the best polarization maintaining properties, and are the industry standard in the world today. The fibers offer low attenuation and excellent birefringence for high performance applications. Available in a wide range of standard operating wavelengths up to 1550 nm, and with a variety of coating designs, PANDA PM Specialty Fibers are optimal for high performance polarization retaining fiber applications. This field-proven fiber supports high growth applications, and performs well over a wide temperature range.

Applications

- High performance transmission laser pigtails
- Polarization-based modulators
- High data rate communications systems
- Polarization-sensitive components
- Raman amplifiers
- Fiber optic sensors, gyroscopes and instrumentation

PANDA PM Specialty Optical Fiber design uses two stress applying parts to create an extremely high birefringence, resulting in fiber with excellent polarization maintaining properties. This design was invented and patented by Corning Incorporated. Corning continues to have a manufacturing partnership with Fujikura Ltd.

Key Optical Specifications for All Coatings

	PM 1550	PM14XX	PM 1310	PM 980	PM 850	PM 630	PM 480	PM 400
Operating Wavelength (nm)	1550	1400-1490	1310	980	850	630	480	410
Cutoff Wavelength (nm)	1300-1440	1260-1380	1130-1270	870-950	650-800	520-620	400-470	330-400
Maximum Attenuation (dB/km)	0.5	1.0	1.0	2.5	3.0	12	30	≤ 50
Mode-field Diameter (µm)	10.5 ± 0.5	9.8 ± 0.5	9.0 ± 0.5	6.6 ± 0.5	5.5 ± 0.5	4.5 ± 0.5	4.5 ± 0.5	3.5 ± 0.5
Beat Length Range (mm)	3.0-5.0	2.8-4.7	2.5-4.0	1.5-2.7	1.0-2.0	≤ 2.0	≤ 2.0	≤ 1.7
Maximum Cross Talk @ 100 m (dB)	-30	-30	-30	-30	-30	-30	-30	-30*
Typical Cross Talk @ 4 m (dB)	-40							

*PM 400 Cross Talk is -30dB/100 m at 410 nm and 480 nm measurement wavelengths

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Key Geometric, Mechanical, and Environmental Specifications

245 µm UV/UV Acrylate Coating

	PM 1550	PM14XX	PM 1310	PM 980	PM 850	PM 630	PM 480	PM 400
Part Number	PM15-U25D	PM14-U25D	PM13-U25D	PM98-U25D	PM85-U25D	PM63-U25D	PM48-U25D	PM40-U25D
Cladding Outside Diameter (µm)	125 ± 1							
Coating Outside Diameter (µm)	245 ± 15							
Core-to-Cladding Concentricity (µm)	≤ 0.5							
Operating Temperature (°C)	-40 to +85							
Standard Lengths*	100 m, 200 m, 300 m, 400 m, 500 m, 1 km							
Proof Test (kpsi)	100 (200 optional)							

400 µm UV/UV Acrylate Coating

	PM 1550	PM14XX	PM 1310	PM 980	PM 850	PM 630	PM 480	PM 400
Part Number	PM15-U40D	PM14-U40D	PM13-U40D	PM98-U40D	PM85-U40D	PM63-U40D	PM48-U40D	PM40-U40D
Cladding Outside Diameter (µm)	125 ± 1							
Coating Outside Diameter (µm)	400 ± 15							
Core-to-Cladding Concentricity (µm)	≤ 0.5							
Operating Temperature (°C)	-40 to +85							
Standard Lengths*	100 m, 200 m, 300 m, 400 m, 500 m, 1 km							
Proof Test (kpsi)	100 (200 optional)							

Flame Retardant Coating

900 µm Polyester-Elastomer Coating

Polyester-Elastomer Coating is a UL® recognized component plastic with a flammability classification of V-O in accordance with UL94. Fibers with this coating have a VW-1 end product flammability classification in accordance with UL1581.

	PM 1550	PM14XX	PM 1310	PM 980	PM 850	PM 630	PM 480	PM 400
Part Number	PM15-H90D	PM14-H90D	PM13-H90D	PM98-H90D	PM85-H90D	PM63-H90D	PM48-H90D	PM40-H90D
Cladding Outside Diameter (µm)	125 ± 1							
Coating Outside Diameter (µm)	900 ± 100							
Core-to-Cladding Concentricity (µm)	≤ 0.5							
Operating Temperature (°C)	-40 to +85							
Standard Lengths*	100 m, 200 m, 300 m, 400 m, 500 m, 1 km							
Proof Test (kpsi)	100 (200 optional)							

*For longer lengths contact Corning

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CORNING

PANDA PM Bend Insensitive

Polarization Maintaining Fibers for Bend Sensitive Applications

Specialty Optical Fibers

PANDA PM Specialty Fibers are designed with the best polarization maintaining properties, and are the industry standard in the world today. PANDA PM Bend Insensitive Specialty Optical Fiber is designed with signifiantly improved bending capacity, suited to meet the needs of package size reductions and 100 Gbps systems.

PANDA PM fibers are optimized for high reliability, and our Boron-doped stress rod profile is field proven to support high growth applications over a wide temperatrue range.

PANDA PM Specialty Optical Fiber design uses two stress applying parts to create an extremely high birefringence, resulting in fiber with excellent polarization maintaining properties. This design was invented and patented by Corning Incorporated. Corning continues to have a manufacturing partnership with Fujikura Ltd.

Fiber Type	Part Number	Bending Radius
PM Bend Insensitive	PMBI 15	7.5 mm
PM Small Radius	PMSR 15	15 mm

Key Optical Specifications

Part Number	PMBI 1550	PMSR 1550
Operating Wavelength (nm)	1550	
Cutoff Wavelength (nm)	≤ 1440	
Maximum Attenuation (dB/km)	≤ 3.0	≤ 0.50
Mode-field Diameter (µm)	9.0 ± 0.4	9.5 ± 0.4
Maximum Beat Length (mm)	3.0	2.0 - 5.0
Maximum Cross Talk at 100 m (dB)	≤ - 30	
Maximum Bending Cross Talk (dB) (λ = 1550 nm, bending diameter = 15 mm, 10 turns)	≤ - 30	

Applications

- Small package size transponders, transceivers, modulators, and laser fiber assemblies
- Sensors
- Bend sensitive applications
- Miniaturized components
- Polarization sensitive components

Features

- Significantly improved bending capacity
- Extremely high birefringence
- Single-mode design
- Fibers available with dual-layer UV acrylate and flame retardant polyester coatings

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Key Geometric, Mechanical, and Environmental Specifications

245 µm + 400 µm UV/ UV Acrylate Coating

Part Number	PMBI15-U25D-H	PMSR15-U25D-H	PMSR15-U40D-H
Bending Radius (mm)	R7.5	R15.0	R15.0
Cladding Outside Diameter (µm)	125 ± 1		
Coating Outside Diameter (µm)	245 ± 15	245 ± 15	400 ± 15
Core-to-Cladding Concentricity (µm)	≤ 0.5		
Operating Temperature (°C)	- 40 to +85*		
Standard Lengths	100 m, 200 m, 300 m, 400 m, 500 m		
Proof Test (kpsi)	200		

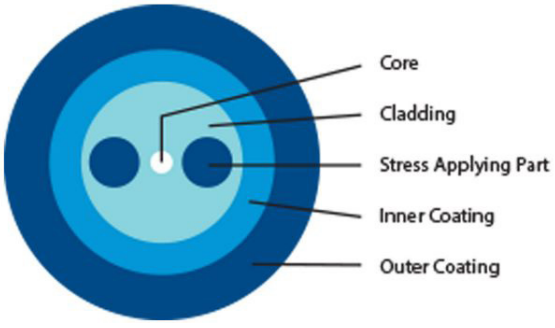
Flame Retardant Coating

500 µm + 900 µm Polyester-Elastomer Coating

Polyester-Elastomer Coating is a UL® recognized component plastic with a flammability classification of V-O in accordance with UL94. Fibers with this coating have a VW-1 end product flammability classification in accordance with UL1581.

Part Number	PMBI15-H50D-H	PMSR15-H50D-H	PMSR15-H90D-H
Bending Radius (mm)	R7.5	R15.0	R15.0
Cladding Outside Diameter (µm)	125 ± 1		
Coating Outside Diameter (µm)	500 ± 50	500 ± 50	900 ± 100
Core-to-Cladding Concentricity (µm)	≤ 0.5		
Operating Temperature (°C)	- 40 to +85*		
Standard Lengths	100 m, 200 m, 300 m, 400 m, 500 m		
Proof Test (kpsi)	200		

*Without coiling on a shipping reel



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CORNING

PANDA PM High NA

High Numerical Aperature Polarization Maintaining Fibers

Specialty Optical Fibers

PANDA PM Specialty Fibers are designed with the best polarization maintaining properties, and are the industry standard in the world today. Designed for demanding applications including fiber optic gyroscopes, probes, sensors, and miniaturized components, PANDA PM high numerical aperture (NA) fibers deliver extremely high birefringence, low insertion loss, and excellent
dimensional uniformity.

PANDA PM Specialty Optical Fiber design uses two stress applying parts to create an extremely high birefringence, resulting in fiber with excellent polarization maintaining properties. This design was invented and patented by Corning Incorporated. Corning continues to have a manufacturing partnership with Fujikura Ltd.

Applications

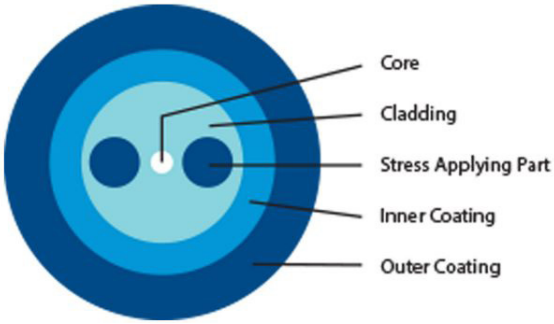
- Fiber optic gyroscopes
- Sensors
- Probes / Instrumentation
- Miniaturized components
- Polarization sensitive components

Key Optical Specifications

Part Number	PM13-HNA	RC PM85-HNA
Operating Wavelength (nm)	1310	850
Cutoff Wavelength (nm)	1000 - 1290	650 - 800
Maximum Attenuation (dB/km)	2.0	3.5
Mode-field Diameter (µm)	5.5 ± 1	3.5 ± 0.5
Maximum Beat Length (mm)	≤ 2.5	≤ 2.0
Maximum Crosstalk @ 100 m (dB)	-30	-30
Typical Crosstalk @ 4 m (dB)	-40	-40

Features

- High numerical aperture
- Extremely high birefringence
- 80 µm cladding for 850 nm fiber
- Single-mode design
- Dual-layer UV acrylate coating
- Proof test available in 100 kpsi or 200 kpsi



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Key Geometric, Mechanical, and Environmental Specifications

Part Number	PM13-HNA	RC PM85-HNA
Cladding Outside Diameter (µm)	125 ± 1	80 ± 1
Coating Outside Diameter (µm)	245 ± 15	165 ± 15
Core-to-Cladding Concentricity (µm)	≤ 0.5	
Operating Temperature (°C)	- 40 to +85	
Standard Lengths	100 m, 200 m, 300 m, 400 m, 500 m	
Proof Test (kpsi)	100 (200 optional)	

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PANDA PM Thermally-diffused Expanded Core (TEC)

Specialty Optical Fibers

PANDA PM Specialty Fibers are designed with the best polarization maintaining properties, and are the industry standard in the world today. Thermally-diffused Expanded Core (TEC) is a polarization maintaining optical fiber (PANDA fiber) optimized for operation in the wavelength range around 1.55 µm.

PANDA PM Specialty Optical Fiber design uses two stress applying parts to create an extremely high birefringence, resulting in fiber with excellent polarization maintaining properties. This design was invented and patented by Corning Incorporated. Corning continues to have a manufacturing partnership with Fujikura Ltd.

Key Optical Specifications

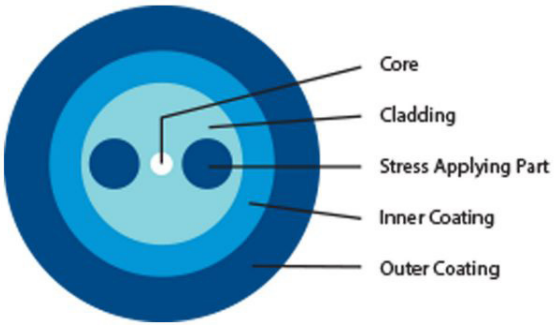
Part Number	HA15-PS-U25D(TEC)
Operating Wavelength (nm)	1550
Cutoff Wavelength (nm)	≤ 1480
Maximum Attenuation (dB/km)	≤ 30
Mode-field Diameter (µm)	4.0 ± 0.3
Maximum Beat Length (mm)	≤ 4.0
Polarization Crosstalk (dB/2 m)	≤ -35

Applications

- Spot size converters
- Low-loss coupling with silicon photonic waveguides
- Photonic packaging
- Polarization sensitive components

Features

- High Numerical Aperture
- Increased expansion speed of the fiber core
- Extremely high birefringence
- Low insertion loss
- Excellence dimensional uniformity



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Key Geometric, Mechanical, and Environmental Specifications

Part Number	HA15-PS-U25D(TEC)
Cladding Outside Diameter (µm)	125 ± 1.0
Coating Outside Diameter (µm)	245 ± 15
Core-to-Cladding Concentricity (µm)	≤ 0.5
Operating Temperature (°C)	- 40 to +85
Proof Test level (kpsi)	100
Coating	UV Curable Acrylate
Minimum Bending Radius (mm)	≥ 30

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CORNING

PANDA RGB PM

Polarized fiber optimized for RGB wavelength band

Specialty Optical Fibers

PANDA PM Specialty Fibers are designed with the best polarization maintaining properties, and are the industry standard in the world today. The newly designed PANDA RGB PM Specialty Optical Fiber is a polarization maintaining fiber optimized for operation over the entire visible spectrum. This increased wavelength range enables greater flexibility by allowing for the use of a single fiber in applications across this region.

PANDA PM Specialty Optical Fiber design uses two stress applying parts to create an extremely high birefringence, resulting in fiber with excellent polarization maintaining properties. This design was invented and patented by Corning Incorporated. Corning continues to have a manufacturing partnership with Fujikura Ltd.

Applications

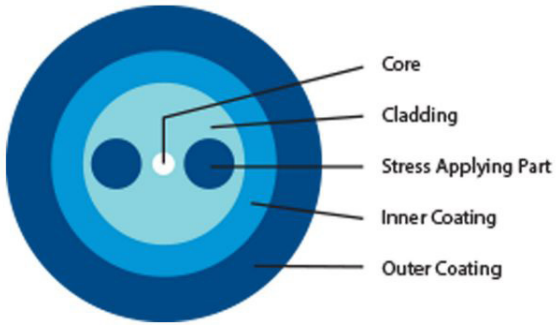
- Pigtails
- Medical
- Spectroscopy
- Display
- Sensing

Features

- Designed for use at wavelengths between 405 nm and 630 nm
- Extremely high birefringence
- Excellent polarization maintaining properties
- Pure silica core for high energy applications

Key Optical Specifications

Part Number	PM-RGB-U25D
Operating Wavelength (nm)	405-640
Cutoff Wavelength (nm)	≤ 400
Maximum Attenuation (dB/km)	≤ 50 @ 405 nm
Mode-field Diameter (μm)	2.3 ± 0.6 @ 405 nm 3.8 ± 1.0 @ 630 nm
Maximum Beat Length (mm)	< 2.0 @ 630 nm
Polarization Crosstalk @ 60mm bend diameter dB (dB/10 turn)	-30 @ 630 nm



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Key Geometric, Mechanical, and Environmental Specifications

Part Number	PM-RGB-U25D
Cladding Outside Diameter (µm)	125 ± 1.0
Coating Outside Diameter (µm)	245 ± 15
Core-to-Cladding Concentricity (µm)	≤ 0.5
Operating Temperature (°C)	- 40 to +85*
Proof Test (kpsi)	200
Coating	UV Curable Acrylate
Recommended Minimum Bending Radius (mm)	20**

* without coiling on a shipping reel
** set due to crosstalk performance

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RC PANDA PM

High Performance Polarization Maintaining Fibers

Specialty Optical Fibers

PANDA PM Specialty Fibers are designed with the best polarization maintaining properties, and are the industry standard in the world today. The fibers offer low attenuation and excellent birefringence for high performance applications. Available in a wide range of standard operating wavelengths up to 1550 nm, and with a variety of coating designs, PANDA PM Specialty Fibers are optimal for high performance polarization retaining fiber applications. This field-proven fiber supports high growth applications, and performs well over a wide temperature range.

Applications

- High performance transmission laser pigtails
- Polarization-based modulators
- High data rate communications systems
- Polarization-sensitive components
- Raman amplifiers
- Fiber optic sensors, gyroscopes and instrumentation

PANDA PM Specialty Optical Fiber design uses two stress applying parts to create an extremely high birefringence, resulting in fiber with excellent polarization maintaining properties. This design was invented and patented by Corning Incorporated. Corning continues to have a manufacturing partnership with Fujikura Ltd.

Key Optical Specifications

	RC PM 1550	RC PM 14XX	RC PM 1310	RC PM 980
Operating Wavelength (nm)	1550	1400-1490	1310	980
Cutoff Wavelength (nm)	1290-1450	1200-1380	1100-1290	870-950
Maximum Attenuation (dB/km)	≤ 2.0	≤ 2.0	≤ 2.0	≤ 2.5
Mode-field Diameter (µm)	9.5 ± 0.5	9.0 ± 0.5	8.2 ± 0.5	6.0 ± 0.5
Beat Length Range (mm)	2.5-4.5	2.3-4.2	2.0-3.5	1.4-2.6
Maximum Cross Talk @ 100 m (dB)	-25			
Typical Cross Talk @ 4 m (dB)	-40			

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Key Geometric, Mechanical, and Environmental Specifications

	RC PM 1550	RC PM 14XX	RC PM 1310	RC PM 980
Part Number	RC PM 15D	RC PM 14D	RC PM 13D	RC PM 98D
Cladding Outside Diameter (µm)	80 ± 1			
Coating Outside Diameter (µm)	165 ± 10			
Core-to-Cladding Concentricity (µm)	≤ 0.5			
Operating Temperature (°C)	-40 to +85			
Standard Lengths	100 m, 200 m, 300 m, 400 m, 500 m, 1 km			
Proof Test (kpsi)	100 (200 optional)			
Coating	UV curable acrylate			

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Reduced-clad PANDA PM, Dual-window, Blue Coating

Specialty Opitcal Fibers

PANDA PM Specialty Fibers are designed with the best polarization maintaining properties, and are the industry standard in the world today. PANDA PM Reduced-clad, Dual-window specialty fiber covers 80 µm cladding polarization maintaining fiber optimized for operation in the wavelength range around 1.31 & 1.55 µm.

PANDA PM Specialty Optical Fiber design uses two stress applying parts to create an extremely high birefringence, resulting in fiber with excellent polarization maintaining properties. This design was invented and patented by Corning Incorporated. Corning continues to have a manufacturing partnership with Fujikura Ltd.

Key Optical Specifications

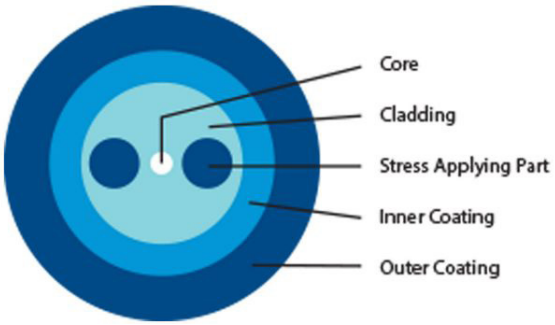
Part Number	RC13-15-PX-U17EBL-M4
Operating Wavelength (nm)	1310, 1550
Cutoff Wavelength (nm)	≤ 1280
Maximum Attenuation (dB/km)	≤ 30 @ 1550 nm ≤ 30 @ 1310 nm
Mode-field Diameter (µm)	4.0 ± 0.3 @ 1550 nm 3.4 ± 0.4 @ 1310 nm
Maximum Beat Length (mm)	2.5 to 4.5 @ 1550 nm
Polarization Crosstalk (dB/100 m)	≤ -25 @ 1550 nm

Applications

- Miniaturized components
- Bend sensitive applications
- Polarization sensitive components
- Designed for use at 1310nm and 1550nm

Features

- Significantly improved bending capacity
- Blue colored coating
- 80um cladding
- Low loss and low polarization crosstalk



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Key Geometric, Mechanical, and Environmental Specifications

Part Number	RC13-15-PX-U17EBL-M4
Cladding Outside Diameter (µm)	80 ± 1
Coating Outside Diameter (µm)	165 ± 15
Core-to-Cladding Concentricity (µm)	≤ 0.5
Operating Temperature (°C)	- 40 to +85
Storage Temperature (°C)	- 40 to +85*
Proof Test level (kpsi)	200
Coating	UV Curable Acrylate
Coating Color	Blue
Minimum Bending Radius** (mm)	≥ R5

* without coiling on a shipping reel
**Under the condition of temperature: 23 +/- 5 °C, relative humidity: < 85 %RH, the failure probability is less than 10^{-9} after 10 years at 1 turn bending.

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