



Pure Silica Core Polarization Maintaining Fibers for UV-VIS Wavelengths

Nuferm's industry leading short wavelength pure silica core polarization maintaining fibers have superior waveguide, radiation, and mechanical properties, enabling a large variety of applications in diverse markets. High consistency and extreme end-to-end control of optical properties provide particular advantage in spectrographic and frequency sensitive applications. The pure silica core fiber is optimum for demanding applications in the UV and visible spectrum requiring ultra-low attenuation over longer lengths and where resistance to radiation-induced damage and color center formation are critical. Extended range XP and XP+ versions of PM-S405 offer the broadest operational wavelength range with minimal lot to lot beam divergence variation on the XP+ version.

Typical Applications

- Laser pigtailed
- Spectroscopy
- Sensors
- Bio-medical
- Metrology

Features & Benefits

- Panda-style configuration — Superior optical performance, intrinsically good radiation performance
- Tight specifications — Highly deterministic results, highest product yield
- High proof test — Low risk of mechanical damage and failure
- High fatigue failure resistance — Longest service life
- Pure silica core — Resistance to radiation-induced damage and color center formation

Optical Specifications

	PM-S350-HP	PM-S405-XP	PM-S405-XP+
Operating Wavelength	350 – 460 nm	400 – 680 nm	400 – 680 nm
Core NA	0.120	0.120	0.110
Mode Field Diameter (Gaussian)	2.3 μm @ 350 nm (nominal)	3.3 \pm 0.5 μm @ 405 nm 4.6 \pm 0.5 μm @ 630 nm	3.5 \pm 0.5 μm @ 405 nm 7.5 \pm 1.0 μm @ 630 nm
Cutoff	315 \pm 25 nm	380 \pm 20 nm	380 \pm 20 nm
Core Attenuation	N/A	\leq 30.0 dB/km @ 630 nm \leq 30.0 dB/km @ 488 nm	\leq 50.0 dB/km @ 405 nm \leq 30.0 dB/km @ 630 nm \leq 30.0 dB/km @ 488 nm
Beat Length (nominal)	1.5 mm @ 350 nm	N/A	N/A
Normalized Cross Talk	N/A	\leq -30.0 dB at 10 m @ 630 nm	\leq -30.0 dB at 10 m @ 630 nm
Birefringence	nominal 2.5×10^{-4}	nominal 2×10^{-4}	nominal 2×10^{-4}
Geometrical & Mechanical Specifications			
Cladding Diameter	125.0 \pm 1.0 μm	125.0 \pm 1.0 μm	125.0 \pm 1.0 μm
Core Diameter	2.5 μm	3 μm	3 μm
Coating Diameter	245.0 \pm 15.0 μm	245.0 \pm 15.0 μm	245.0 \pm 15.0 μm
Coating Concentricity	< 5.0 μm	< 5.0 μm	< 5.0 μm
Core/Clad Offset	\leq 0.50 μm	\leq 0.60 μm	\leq 0.60 μm
Coating Material	UV Cured, Dual Acrylate	UV Cured, Dual Acrylate	UV Cured, Dual Acrylate
Operating Temperature Range	-40 to 85 $^{\circ}\text{C}$	-60 to 85 $^{\circ}\text{C}$	-60 to 85 $^{\circ}\text{C}$
Proof Test Level	\geq 200 kpsi (1.4 GN/m ²)	\geq 200 kpsi (1.4 GN/m ²)	\geq 200 kpsi (1.4 GN/m ²)

Beam Divergence for PM-S405-XP+:
150 +10/-15 mRads @ 405 nm; 140 +10/-20 mRads @ 488 nm; and 115 \pm 10 mRads @ 635 nm



Custom developed fiber (FUD) specifications are subject to change without notice. Other configurations such as alternative form factors, optimized cut-off and UV cured color coating may be available. Let us know how Nuferm can assist with your requirements.



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Short Wavelength Pure Silica Core Polarization Maintaining Fibers



Nufern's industry leading short wavelength pure silica core polarization maintaining fibers have superior waveguide, radiation, and mechanical properties, enabling a large variety of applications in diverse markets. High consistency and extreme end-to-end control of optical properties provide particular advantage in spectrographic and frequency sensitive applications. The pure silica core fiber is optimum for demanding applications in the UV and visible spectrum requiring ultra-low attenuation over longer lengths and where resistance to radiation-induced damage and color center formation are critical.

Typical Applications

- Laser pigtailed
- Spectroscopy
- Sensors
- Bio-medical
- Metrology

Features & Benefits

- Panda-style configuration — Superior optical performance, intrinsically good radiation performance
- Tight specifications — Highly deterministic results, highest product yield
- High proof test — Low risk of mechanical damage and failure
- High fatigue failure resistance — Longest service life
- Pure silica core — Resistance to radiation-induced damage and color center formation

Optical Specifications

	PM-S460-HP	PM-S630-HP
Operating Wavelength	460 – 550 nm	630 – 780 nm
Core NA	0.120	0.120
Mode Field Diameter (Gaussian)	3.5 ± 0.3 μm @ 460 nm	4.2 ± 0.5 μm @ 630 nm
Cutoff	420 ± 30 nm	580 ± 40 nm
Core Attenuation	≤ 30.0 dB/km @ 460 nm	≤ 12.0 dB/km @ 630 nm
Beat Length (nominal)	2.3 mm @ 460 nm	4.7 mm @ 630 nm
Birefringence	nominal 2×10^{-4}	nominal 1.3×10^{-4}

Geometrical & Mechanical Specifications

	PM-S460-HP	PM-S630-HP
Cladding Diameter	125.0 ± 1.0 μm	125.0 ± 1.0 μm
Core Diameter	3.0 μm	3.5 μm
Coating Diameter	245.0 ± 15.0 μm	245.0 ± 15.0 μm
Coating Concentricity	< 5.0 μm	< 5.0 μm
Core/Clad Offset	≤ 0.50 μm	≤ 0.50 μm
Coating Material	UV Cured, Dual Acrylate	UV Cured, Dual Acrylate
Operating Temperature Range	-40 to 85 °C	-40 to 85 °C
Proof test Level	≥ 200 kpsi (1.4 GN/m ²)	≥ 200 kpsi (1.4 GN/m ²)



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Standard specifications and design parameters are listed above. Specifications are subject to change without notice. Other configurations such as alternative form factors, optimized cut-off and UV cured color coating may be available. Let us know how Nufern can assist with your requirements.

Polarization Maintaining Short Wavelength Fibers



Nufern's industry leading visible and short wavelength Polarization Maintaining fibers have superior waveguide, radiation, and mechanical properties enabling a large variety of new critical applications in diverse markets. High consistency and extreme end-to-end control of optical properties provide particular advantage in spectrographic and frequency sensitive applications. The intrinsically high level of radiation resistance allows this family to operate for extended periods of time on low earth orbits, near and deep space, and in applications where risk of exposure to man-made radiation is great.

Typical Applications

- Laser pigtailing
- Spectroscopy
- Sensors
- Bio-medical
- Metrology

Features & Benefits

- Panda-style configuration — Superior performance, intrinsically good radiation performance
- Tight specifications — Highly deterministic results, highest product yield
- High Proof Test — Low risk of mechanical handling failure
- High fatigue failure resistance — Longest service life

Optical Specifications

	PM460-HP	PM630-HP	PM780-HP
Operating Wavelength	460 – 700 nm	620 – 850 nm	770 – 1100 nm
Core NA	0.120	0.120	0.120
Mode Field Diameter (Gaussian)	3.3 ± 0.5 μm @ 515 nm	4.5 ± 0.5 μm @ 630 nm	5.3 ± 1.0 μm @ 850 nm
Cutoff	410 ± 40 nm	570 ± 50 nm	710 ± 60 nm
Core Attenuation	≤ 100.0 dB/km @ 488 nm	≤ 15.0 dB/km @ 630 nm	≤ 4.0 dB/km @ 850 nm
Beat Length (nominal)	1.3 mm @ 460 nm	1.8 mm @ 630 nm	2.4 mm @ 850 nm
Normalized Cross Talk	N/A	N/A	≤ -40 dB at 4 m @ 850 nm
Birefringence	nominal 3.5 × 10 ⁻⁴	nominal 3.5 × 10 ⁻⁴	nominal 3.5 × 10 ⁻⁴

Geometrical & Mechanical Specifications

	PM460-HP	PM630-HP	PM780-HP
Cladding Diameter	125.0 ± 1.0 μm	125.0 ± 1.0 μm	125.0 ± 1.0 μm
Core Diameter	3.0 μm	3.5 μm	4.5 μm
Coating Diameter	245.0 ± 15.0 μm	245.0 ± 15.0 μm	245.0 ± 15.0 μm
Coating Concentricity	< 5.0 μm	< 5.0 μm	< 5.0 μm
Core/Clad Offset	≤ 0.50 μm	≤ 0.50 μm	≤ 0.50 μm
Coating Material	UV Cured, Dual Acrylate	UV Cured, Dual Acrylate	UV Cured, Dual Acrylate
Operating Temperature Range	-40 to 85 °C	-40 to 85 °C	-40 to 85 °C
Proof Test Level	≥ 200 kpsi (1.4 GN/m ²)	≥ 200 kpsi (1.4 GN/m ²)	≥ 200 kpsi (1.4 GN/m ²)

PM460-HP is designed for lower power applications. For powers >5-10 mW, Nufern PM-S405-XP fiber is recommended.



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