Pure Silica Core Polarization Maintaining Fibers for UV-VIS Wavelengths

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. 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 pigtailing
- 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 ± 0.5 µm @ 405 nm 4.6 ± 0.5 µm @ 630 nm	3.5 ± 0.5 µm @ 405 nm 7.5 ± 1.0 µm @ 630 nm
Cutoff	315 ± 25 nm	380 ± 20 nm	380 ± 20 nm
Core Attenuation	N/A	≤ 30.0 dB/km @ 630 nm ≤ 30.0 dB/km @ 488 nm	≤ 50.0 dB/km @ 405 nm ≤ 30.0 dB/km @ 630 nm ≤ 30.0 dB/km @ 488 nm
Beat Length (nominal)	1.5 mm @ 350 nm	N/A	N/A
Normalized Cross Talk	N/A	≤ - 30.0 dB at 10 m @ 630 nm	≤ - 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 ± 1.0 µm	125.0 ± 1.0 µm	125.0 ± 1.0 µm
Core Diameter	2.5 µm	3 µm	3 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	≤ 0.60 µm	≤ 0.60 µm
Coating Material	UV Cured, Dual Acrylate	UV Cured, Dual Acrylate	UV Cured, Dual Acrylate
Operating Temperature Range	-40 to 85 °C	-60 to 85 °C	-60 to 85 °C
Prooftest Level	≥ 200 kpsi (1.4 GN/m²)	≥ 200 kpsi (1.4 GN/m²)	≥ 200 kpsi (1.4 GN/m²)

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

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RoHS

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