



The development of the new Perfos® Polarisation Maintening (PM) Ytterbium doped Very Large Mode Area (VLMA) fibre was driven by customer's demand for an easy to integrate double-clad fibre in the continuously growing ultrafast fibre laser market. The combination of robust single mode behavior in an all-solid glass form factor with 750 µm² fundamental mode area makes this fibre an ideal tool for high-end industrial fibre laser manufacturers. Photonics Bretagne proprietary manufacturing⁽¹⁾ process enables preferential fibre coiling and automatic amplifier output polarization orientation. Complementary matching GRIN fibre is available for all-fibre monolithic integration with standard LMA 10-125 PM pump combiners.

⁽¹⁾ Patent pending.

Main characteristics

- Truly single mode polarization maintaining behavior
- All-solid step index based fibre design based on our all-vapor phase delivery process
- Industry standard low index polymer coating providing long term reliability & performance
- Excellent fibre lot uniformity and consistency
- Photodarkening free silica matrix

Applications

High power ultrafast pulsed fiber lasers/amplifiers for material processing, life science, spectroscopy or defense applications.

Fibre specifications

Fibre type	Fibre VLMA-40-220-PM-YB
Optical parameters	
Background loss @ 1150 nm (dB/km)	< 10
Cladding loss @ 1300 nm (dB/km)	< 35
Cladding Numerical Aperture	≥ 0.46
Cladding Absorption @ 915nm (dB/m)	2.2 +/- 0.15
Predicted Cladding Absorption @ 976 nm (dB/m)	7.7 +/- 0.5
Core Numerical Aperture (NA)	0.045 +/- 0.00055
LP01 MFD @ 1060 nm (µm)	31 +/- 1
Effective Area Aeff @ 1060 nm (µm ²)	750 +/- 40
Birefringence @ 1060 nm	≥ 1.10 x 10 ⁻⁴
Typical Fiber Efficiency ⁽¹⁾	≥ 75 %
Recommended coiling diameters (cm)	16 - 20
Physical/Material parameters	
Core diameter (µm)	40 +/- 3
Core Concentricity Error (µm)	< 0.5
Fibre Outside Diameter (µm)	220 +/- 5
Coating Outside Diameter (µm)	332 +/- 5
Coating Type	Low Index
Fibre Geometry	Circular with opposite flats

⁽¹⁾ Evaluated with 2 W 1064nm signal in 976 nm forward pumping configuration.

