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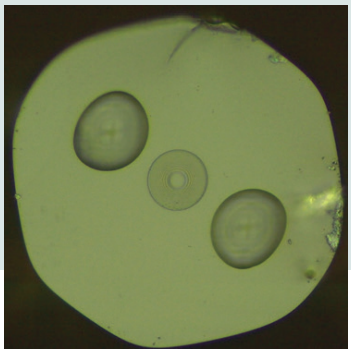
PHOTONICS BRETAGNE
Product line PERFOS

ACTIVE FIBRES
VERY LARGE MODE AREA FIBRE / TAPER
30 µm core diameter

01/2021



Main characteristics

- Low nonlinearity
- Low core NA provides good beam quality
- All-solid design, photodarkening-free

Applications

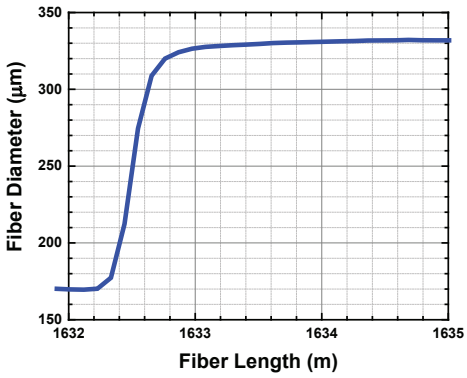
Medium to high average pulsed fibre amplifiers for material processing, life science and spectroscopy, defense.

These Ytterbium-doped VLMA fibres/fibre tapers have a very large mode area that makes them particularly suited for integrating in high power amplifiers/lasers emitting at 1064nm. True singlemode behavior enabling diffraction limited beam quality output can be implemented by coiling the fibre and filter the higher-order modes. Precision preform and fibre draw manufacturing processes enable excellent fibre consistency and uniformity using total dopants vapor phase delivery process. Matching GRIN fiber is also available for monolithic integration with LMA 10-125 PM pump combiners.

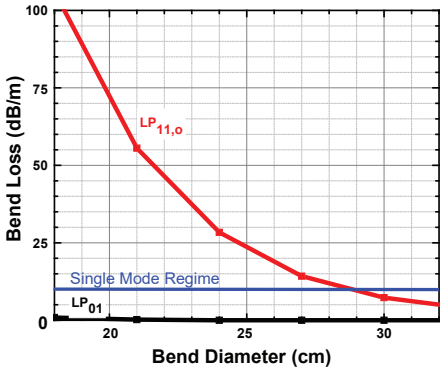
Fibre specifications

Fibre type	Fibre VLMA-30-170-PM-YB	Taper TLMA-30-170-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)	1.90 +/- 0.25	
Predicted Cladding Absorption @ 976 nm (dB/m)	7.0 +/- 1	
Core Numerical Aperture (NA)	0.0450 +/- 0.0055	
LP01 MFD @ 1060 nm (µm)	24.0 +/- 0.5	24.0 → 33.2 +/- 0.5
Effective Area Aeff @ 1060 nm (µm2)	455 +/- 10	455 → 1060 +/- 50
Birefringence @ 1060 nm	~ 1.4×10^{-4}	
Physical/Material parameters		
Core diameter (µm)	30.0 +/- 1.0	30.0 → 60.0 +/- 2
Core Concentricity Error (µm)	< 0.3	
Fibre Outside Diameter (µm)	170 +/- 5	170 → 340 +/- 10
Coating Outside Diameter (µm)	390 +/- 5	450 → 500 +/- 10
Coating Type	Low Index	
Fibre Geometry	Hexagon Shaped	
Max Bend Diameter for 10 dB/m LP11 loss (cm)	27	
Minimum Bend Diameter Recommended (cm)	18	18 → 40

Fibre diameter along taper length



VLMA-30-170-PM-YB bend induced propagation losses



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