

DC-135/15-PM-Yb-01

Single mode polarization-maintaining double clad ytterbium-doped fiber

- Single mode with large mode area
- Polarization-maintaining
- Circular high NA pump core
- Solid step-index core

The DC-135/15-PM-Yb is an all-solid step-index fiber. The 15 μm large polarization-maintaining core is strictly single-mode and does not rely on coiling to obtain its excellent beam quality.

The multimode pump light is guided by our proven airclad technology, ensuring low loss, high damage threshold and a large numerical aperture (NA). The large NA relaxes tolerances on coupling optics and facilitates the use of lower brightness diodes.

The fiber can be used in stand-alone power amplifiers or as a pre-amplifier fiber for our larger fibers like the DC-200/40-PZ-Yb or the DC-150/30-PM-Yb.

The fiber is available with sealed ends, end-caps and high power connectors as an option.

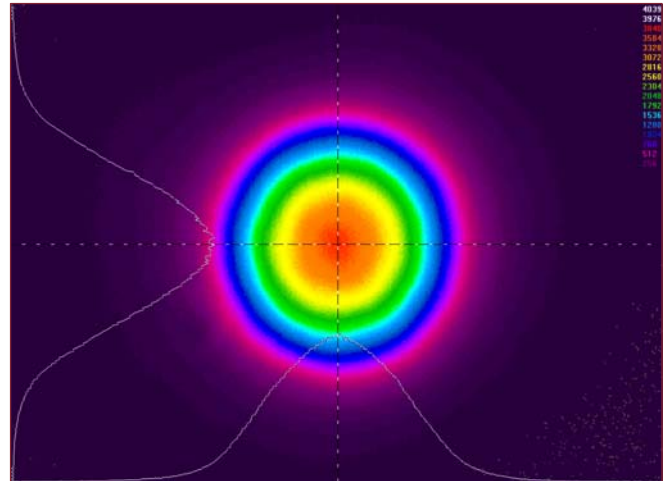
Applications

- High pulse energy fiber amplifiers
- Fiber lasers

Optical properties	
Signal core	
Higher order mode cut-off	$< 1060 \text{ nm}$
M^2 @ 1060 nm	< 1.2
Mode field diameter	$16 \pm 1 \mu\text{m}$
Mode field area	$200 \pm 20 \mu\text{m}^2$
NA @ 1060 nm	0.055 ± 0.01

Multimode pump core	
Numerical aperture @ 950 nm	0.6 ± 0.05
Pump absorption @ 920 nm	2.8 dB/m
Pump absorption @ 976 nm	8.0 dB/m

Polarization Parameters	
Birefringence Δn	$1.3 \cdot 10^{-4}$
Polarization Extinction Ratio	$> 18 \text{ dB}$



Near field measured at 1060 nm

Physical properties	
Signal core diameter	$15 \pm 1 \mu\text{m}$
Inner cladding diameter, ID	$135 \pm 5 \mu\text{m}$
Outer cladding diameter, OD	$280 \pm 10 \mu\text{m}$
Coating diameter	$345 \pm 20 \mu\text{m}$
Outer and inner cladding material	Pure silica
Coating material, single layer	HT acrylate

The single-mode advantage

All our double-clad fibers in the Crystal Fibre range are strictly single-mode leading to several advantages compared to standard multimode LMA fibers:

- Better output stability
- Highest possible beam quality
- No requirements on tight coiling
- No coiling-induced mode area compression