Fiber Optics

FIBERCORE

LASER COMPONENTS

VERSION: MD60/2
RELEASE DATE: 14 DECEMBER 2016

Other Doped Fibers

Fibercore's use of neodymium, erbium and ytterbium has enabled this range to be used in laser and telecommunications based applications at operating wavelengths between 1030nm and 1550nm.

DF1000 is the ideal introduction to fiber laser technology, with neodymium doped fiber offering a very low lasing threshold, even when pumped with low-cost 'compact disk' type laser diodes.

DF1100 is a ytterbium doped Single-Mode (SM) fiber with a high doping level, designed for core pumping at around 915nm or 980nm. The high absorption rate allows short gain lengths to be used for femtosecond mode-locking ring lasers or for pre-amplifiers. The emission spectrum of the fiber may be tuned by changing the length of the fiber, emission from 1030nm through to 1100nm can be achieved with DF1100.

The mixture of erbium and ytterbium in DF1500Y extends the 915nm pump absorption band to 980nm with a relatively flat absorption rate until the 980nm peak. This allows low cost, non-stabilized 940nm pumps to be used where variations in the pump wavelength with temperature will have a much smaller affect on the output power than pumping at 980nm.

Advantages:

- Core pumped designs
- Emission at 1060, 1085 and 1550nm
- Splice compatible with fused taper couplers
- Low pump threshold designs

Typical applications:

- Telecoms
- Amplified Spontaneous Emission (ASE) light source
- Erbium Doped Fiber Amplifier (EDFA)
- Cable Television (CATV)
- Fiber Laser
- Femtosecond lasers
- Ring lasers
- Educational kits

Product Variant:

- **DF1000** Low power 1085nm laser fiber
- **DF1100** Core pumped low power 1060nm laser fiber
- **DF1500Y** Core pumped ErYb low power 1550nm laser fiber

Related Products:

- SM Fiber For Visible Through To Near IR (SM980(5.8/125))
- Dual Clad Erbium/Ytterbium Doped Fiber (CP1500Y)
- Erbium Doped Fiber IsoGain™
- Boron Doped Photosensitive Fiber (PS980)

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Specifications

	DF1000	DF1100	DF1500Y
Operating Wavelength (nm)	1085	1030 - 1100	1550
Cut-Off Wavelength (nm)	875 - 1025	800 - 900	950 - 1050
Numerical Aperture	0.18 - 0.22	0.14 - 0.17	0.20 - 0.24
Mode Field Diameter (µm)	3.9 - 5.0 @1085nm	5.1 - 6.3 @1085nm	5.3 - 6.8 @1550nm
Absorption (dB/m)	4.5 (nominal) @780nm 8.5 (nominal) @810nm 3.5 (nominal) @830nm	1500 (nominal) @975nm	1000 (nominal) @975nm 10 - 15 @1047nm 20 (nominal) @1532nm
Attenuation (dB/km)	≤20 @1085nm	≤50 @1200nm	≤200 @1200nm
Proof Test (%)	1 (100 kpsi)		
Cladding Diameter (µm)	125 ± 1		
Core Cladding Concentricity (µm)	≤0.5		
Coating Diameter (µm)	245 ± 7		
Coating Type	Dual Layer Acrylate		
Operating Temperature (°C)	-55 to +85		
Dopants	Neodymium (Nd)	Ytterbium (Yb)	Erbium/Ytterbium (Er/Yb)

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