

# Few-mode Fibre (FMF)

YOFC FMFs take advantages of PCVD process which is able to manufacture complex index-profile accurately and optical waveguide structure flexibility to get various types of core layer structure, such like Step-Index, Graded-Index etc.

## Characteristics

- Strictly controlled optical and geometrical parameters
- Customized waveguide is available

## Specifications

Geometrical Parameter	Specifications
Cladding Diameter( $\mu\text{m}$ )	124.5 $\pm$ 1.0
Cladding Non-circularity(%)	$\leq$ 0.7
Core/Clad Concentricity Error( $\mu\text{m}$ )	$\leq$ 1.0
Coating Diameter( $\mu\text{m}$ )	242 $\pm$ 10
Coat/Clad Concentricity Error( $\mu\text{m}$ )	$\leq$ 12
Curl(radius)(m)	$\geq$ 4
Delivery Length(km/reel)	2 ~ 25
<b>Mechanical Properties</b>	
Proof Test Level (kpsi)	$\geq$ 100
	$\geq$ 1.0
	$\geq$ 9
$n_d$	$\geq$ 20

• Customized FMFs are available.

## Application

- Mode division multiplexing(MDM)
- Communication
- Sensing
- Test

## Two Mode Fibre (Step-Index)

		Typical value	range	Unit
Core Diameter			14 $\pm$ 0.5	$\mu\text{m}$
Core Refractive Index@1550nm			1.4485	---
Cladding Diameter			125 $\pm$ 0.7	$\mu\text{m}$
Cladding Non-circularity			<0.7	%
Coating Diameter			245 $\pm$ 5	$\mu\text{m}$
Dispersion@1550nm	LP01	21	<22	ps/(nm·km)
	LP11	19.5	<21	ps/(nm·km)
Dispersion Slope@1550nm	LP01	0.08	<0.1	ps/(nm <sup>2</sup> ·km)
	LP11	0.07	<0.1	ps/(nm <sup>2</sup> ·km)
Effective Area@1550nm	LP01	130	>100	$\mu\text{m}^2$
	LP11	220	>200	$\mu\text{m}^2$
Attenuation Coefficient@1550nm	LP01	0.19	<0.21	dB/km
	LP11	0.19	<0.21	dB/km
Differential Group Delay	LP11-LP01	1.9	<2.1	ps/m

## Four Mode Fibre (Step-Index)

		Typical Value	Scope of value	Unit
Diameter			19 $\pm$ 1	$\mu\text{m}$
Core Refractive Index@1550nm			1.4499	---
Cladding Diameter			125 $\pm$ 0.7	$\mu\text{m}$
Cladding Non-circularity			<0.7	%
Coating Diameter			245 $\pm$ 5	$\mu\text{m}$
Dispersion@1550nm	LP01	22	<23	ps/(nm·km)
	LP11	23	<24	ps/(nm·km)
	LP21	21	<22	ps/(nm·km)
	LP02	11	<12	ps/(nm·km)
Dispersion Slope@1550nm	LP01	0.09	<0.10	ps/(nm <sup>2</sup> ·km)
	LP11	0.09	<0.10	ps/(nm <sup>2</sup> ·km)
	LP21	0.07	<0.09	ps/(nm <sup>2</sup> ·km)
	LP02	0.01	<0.02	ps/(nm <sup>2</sup> ·km)
Effective Area@1550nm	LP01	190	>170	$\mu\text{m}^2$
	LP11	270	>240	$\mu\text{m}^2$
	LP21	310	>290	$\mu\text{m}^2$
	LP02	200	>180	$\mu\text{m}^2$
Attenuation Coefficient@1550nm	LP01	0.20	<0.21	dB/km
	LP11	0.20	<0.21	dB/km
	LP21	0.20	<0.21	dB/km
	LP02	0.20	<0.21	dB/km
Differential Group Delay	LP11-LP01	-1.2	<3	ps/m
	LP21-LP01	1.3	<3	ps/m
	LP02-LP01	0.2	<3	ps/m