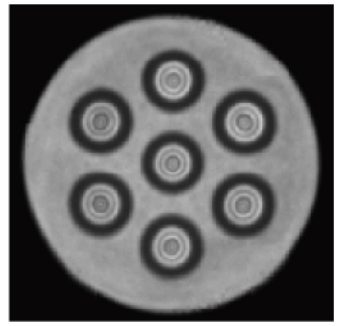
Customized Single/Multi-mode Fibre

Multi Core Fibre and Module

The multi-core fibre (MCF) is a new kind of optical fibre with several independent fibre cores in the same cladding. The YOFC MCF features a fluorine-doped cladding refractive index profile structure, enabling long-distance space division multiplexing (SDM) optical signal transmission with low crosstalk. This product features a seven-core structure, boasting typical application prospects in the field of optical fibre communication. Based on the SDM concept, the MCF enables the simultaneous transmission of multiple optical signals over a single optical fibre, significantly enhancing communication capacity, and overcoming the transmission capacity limitations of a single-mode fibre.



With the development of SDM technology and multi-core fibre sensing technology, the MCF will be a vital branch of fibre development. The MCF can be customized in terms of the level of crosstalk and fibre coating to meet extensive applications in communication, sensing, industry, and medical treatment.

Features

- Single optical fibre with multiple physical channels
- Ultra-low crosstalk between fibre cores
- Excellent geometric consistency of optical fibre
- Low and consistent attenuation

Applications

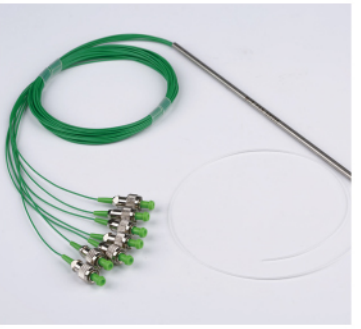
- Optical fibre communication system with ultra-large capacity
- New high-capacity multi-service access network
- Distributed fibre sensors
- Medical equipment

Specifications

	MCF 7-42/150/250(SM)	
	MC1010-A	
Type description	Homogeneous low-crosstalk seven-core optical fibre	
Optical properties	Range	Typical value
Crosstalk (between adjacent fibre cores, dB/km)	<-45	-50
Attenuation @1,310 nm (dB/km)	≤0.45	0.4
Attenuation @1,550 nm (dB/km)	≤0.30	0.25
Zero dispersion wavelength (nm)	1290 ~ 1330	1296
Dispersion @1,550 nm (ps/nm·km)	≤22.0	20.0
PMD (ps/km½)	≤2	1.5
Cable cutoff wavelength (nm)	≤1300	1250
Mode field diameter @1,310 nm (μm)	8.5±0.5	8.4
Mode field diameter @1,550 nm (μm)	9.5±0.5	9.5
Geometrical properties		
Core diameter (μm)	8.0±0.5	7.9
Core spacing (μm)	41.5±1.5	-
Cladding diameter (μm)	150.0±2.0	-
Coating diameter (μm)	245.0±10.0	-
Coating description		
Coating material	Acrylate	Customizable high-temperature coating
Operating temperature (°C)	-40 ~ 70	-
Mechanical performance		
Short-term bending radius (mm)	≥7.5	-
Long-term bending radius (mm)	≥15	-
Proof test level (kpsi)	≥50	-

Multi-core Fibre Fan-in and Fan-out Module

The multi-core fibre fan-in and fan-out module is used for the high-efficiency coupling of various multi-core fibre cores and several single-mode fibres. It enables channel space division multiplexing and demultiplexing functions in various multi-core fibre applications. This product is manufactured using the tapering process, enabling optical power coupling between multi-core fibres and single-mode fibres with low insertion loss, low crosstalk between fibre cores, and high return loss. The YOFC multi-core fibre fan-in and fan-out module features a seven-channel structure, and can be used to build a complete communication and sensing system alongside YOFC's seven-core fibres with corresponding parameters, demonstrating broad application prospects.



Features

- Encapsulation in a metal tube
- Low and consistent attenuation
- Ultra-low crosstalk between fibre cores
- Jumper made of FC/PC or FC/APC or bare fibre

Specifications

Module type	FAN-7-42	
Type description	Seven-core fibre fan-in and fan-out module	
Optical properties	Range	Typical value
Average insertion loss @ 1,550 nm (dB)	<1.5	1.0
Maximum insertion loss @ 1,550 nm (dB)	<2.0	1.5
Return loss (dB)	>45	50
Crosstalk (between adjacent fibre cores, dB)	<-45	-50
Geometrical properties		
Multi-core pigtail length (m)	>1.0	1.5
Single-mode pigtail length (bare fibre) (m)	>1.0	2.0
Single-mode pigtail length (jumper) (m)	>0.5	1.0
Encapsulation box description		
Encapsulation box size (mm)	Φ4×180	
Operating temperature (°C)	-40 ~ 70	

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