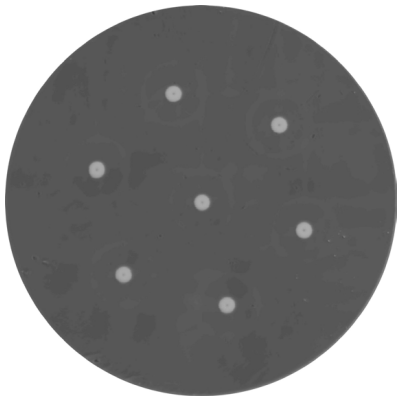
# MULTICORE FIBER



Multicore fibers provide a platform for the next generation telecommunication devices and sensor systems.

In the telecoms sector, multicore fibers can be used to dramatically reduce the amount of space required for cables and connectors in data centers and exchanges. By combining multiple signal lines into a single connector space, space division multiplexing schemes can be utilized to save space and give high bandwidth cables. For the biomedical sector, the fiber has photosensitive cores, allowing Fiber Bragg Grating (FBG) inscription into each core, giving the ability to use the fiber as a 3D shape sensor, as deployed in catheters and other medical tools for minimally invasive procedures.

Fibercore use a highly customizable technique for manufacturing multicore fibers, so unique designs can be considered, for example combining SM and MM cores, different core numbers, different core positions. If you have a custom design, please contact our design team.

## FEATURES

**Advantages**

- Simultaneous transmission of different signals down different cores
- Photosensitive core designs for FBG inscription
- Suitable for biomedical catheter shape sensing applications
- Can be used as the transmission line for high data rate cables in data centers
- Custom designs possible: more cores, mismatched cores, different core positions

**Typical Applications:**

- Shape sensing
- Data center transmission cables
- Temperature and strain sensors
- Structural Health Monitoring (SHM)

**Product Variants**

- SM-4C1500(8.0/125)/001
  Four SM cores within a standard 125µm cladding diameter, designed for use at 1550nm in data cables and shape sensing probes
- SM-7C1250(5.2/125)
  7 core SM fiber with a 125µm cladding diameter, designed for 1250nm
- SM-7C1500(6.1/125)
  7 core SM fiber with a 125µm cladding diameter, designed for 1550nm
- SSM-7C1500(6.1/125)
  Spun 7 core SM fiber with a 125µm cladding diameter, designed for use at 1550nm in 3D shape sensing applications

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## SPECIFICATIONS

| | SM-4C1500 (8.0/125)/001 | SM-7C1250 (5.2/125) | SM-7C1500 (6.1/125) | SSM-7C1500 (6.1/125) |
|---|---|---|---|---|
| Operating Wavelength (nm) | 1520 - 1650 | 1310 | 1520 - 1650 | |
| Cut-Off Wavelength (nm) | 1300 - 1500 | 1190 - 1310 | 1300 - 1500 | |
| Numerical Aperture | 0.14 - 0.17 | 0.20 - 0.22 | | |
| Mode Field Diameter (µm) | 7.4 - 8.5 @1550nm | 4.8 - 5.6 @1310nm | 5.7 - 6.5 @1550nm | |
| Proof Test (%) | 1 (100 kpsi) | | | |
| Cladding Diameter (µm) | 124 ± 2 | 125 ± 1 | | |
| Core Spacing (µm) | 50 (nominal) | 35 (nominal) | | |
| Core Position Shape | Square | Hexagon plus central core | | Hexagon plus central core<br>Spun |
| Coating Diameter (µm) | 245 ± 12 | 245 ± 7 | 245 ± 10 | 200 ± 7 |
| Coating Type | Dual Acrylate | | | |
| Operating Temperature (°C) | -55 to +85 | | | |

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