



OPTICAL FIBER SOLUTIONS FOR YOUR MEDICAL DEVICE

ISO 9001 and 13485 Certified

FDA Good Manufacturing Practices

USP Class VI and ISO10993 for Biocompatibility

Low Bioburden Assembly Room

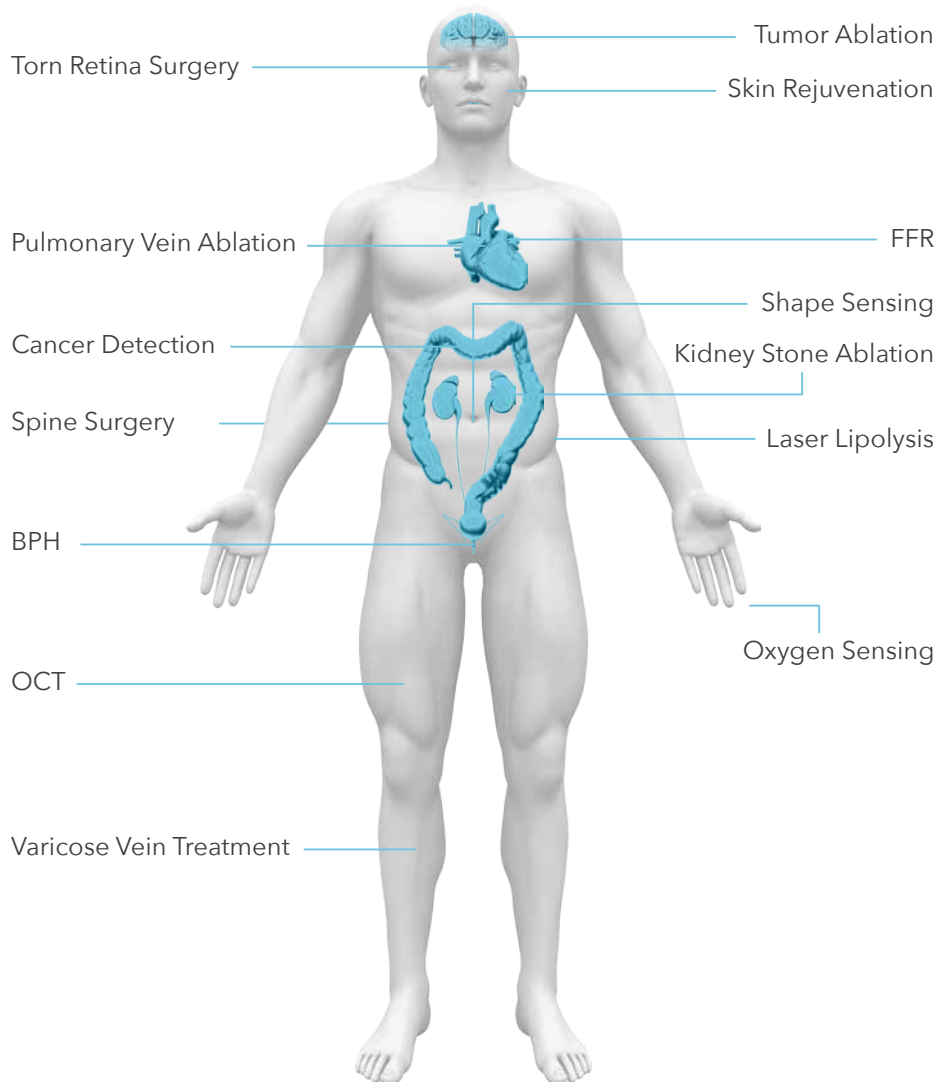
Engineering Support for Fiber, Cable, and Assembly

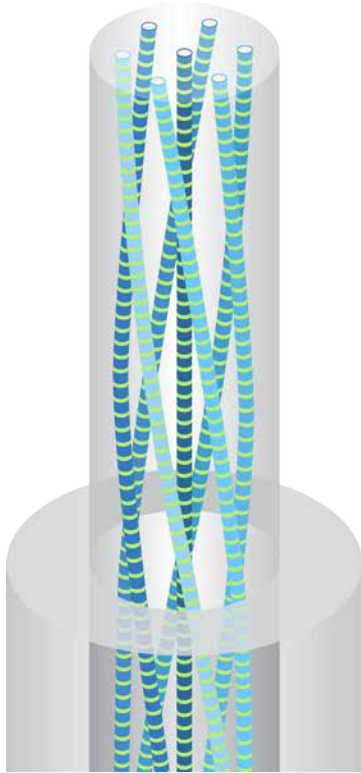
PREFACE

OFS is **ISO13485 certified**, follows **FDA Good Manufacturing Practices**, and tests fibers to **USP Class VI** standards and **ISO10993** for biocompatibility.

OFS is a vertically integrated optical fiber manufacturer from the glass preform to probe assembly with more than 30 years' experience in the design and production of specialty optical fibers.

TYPICAL APPLICATIONS





KEY FEATURES

- Multicore fiber with continuous FBGs
- Designed for shape sensing applications
- Multicore connectorization and fan-outs
- Low back reflection termination

High quality continuous gratings without stripping and recoating preserve the fiber's mechanical integrity. This manufacturing platform enables us to customize and optimize the product to meet various customers' demands more economically.*

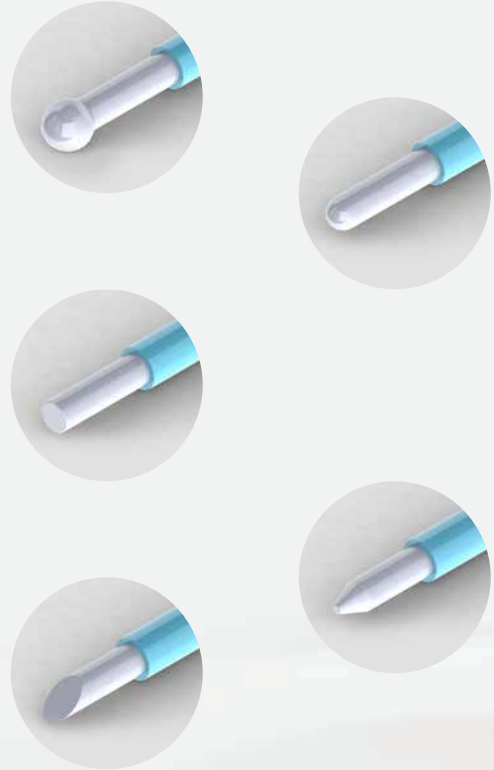
* For further details and applications, request a copy of our white paper, entitled "Multicore Optical Fiber Grating Arrays for Sensing Applications."



Our support for your medical applications goes beyond fiber, cable, and assembly.

From simple flat cleaving to complex-shape, OFS offers highly customizable fiber tip assemblies for your needs. Your products are made and packaged in environmentally controlled room, ready for sterilization.

- Single-use disposable products
- Multiple-use serializable products
- Sub-assemblies
- Final-assemblies
- Various connectors available

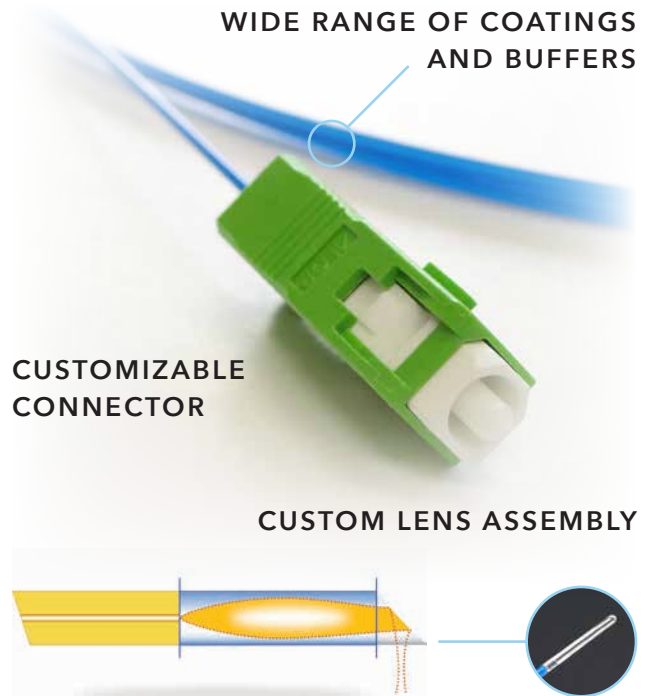


OFS plays an important role in the expanding adoption of optical coherence tomography (OCT) using miniature optical fiber probes in such applications as cardiology, oncology, and gastroenterology.

OFS has created the technology platform necessary to build high quality optical fiber probes with flexible tip lensing designs that allow beam shaping to meet specific focal distances.

TYPICAL PROBE SPECIFICATIONS

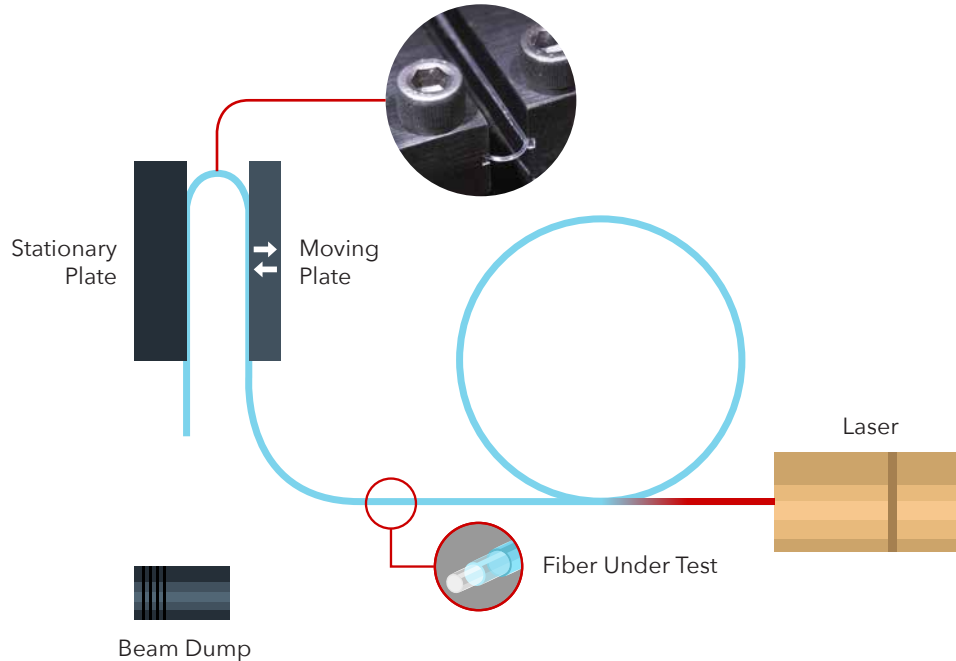
- Operating Wavelength: 850, 1310, 1550 nm and others
- Internal Back Reflection: -60 dB or better
- Return Loss: -20 to -70 dB
- Outer Diameter: 100-400 μm
- Beam Size: 20 - 60 μm
- Working Distance: up to 1.5 mm



	Single-mode	Single-mode	Single-mode	Single-mode	Single-mode Bend Insensitive (Under Development)
Operating Wavelength	850 nm	980 nm	1310 nm	1310 nm	1310 nm
Fiber Cutoff Wavelength	750 \pm 50 nm	\leq 960 nm	\leq 1260 nm	1250 \pm 60 nm	1250 \pm 60 nm
Mode Field Diameter	6.0 \pm 0.5 μm	5.0 \pm 0.3 μm	9.3 \pm 0.5 μm	9.3 \pm 0.5 μm	TBD
Attenuation @ 820 nm	\leq 6.0 dB/km	-	-	-	-
Attenuation @ 980 nm	-	\leq 3.0 dB/km	NA	-	-
Attenuation @ 1310 nm	-	-	\leq 0.7 dB/km	\leq 3.0 dB/km	TBD
NA (nominal)	0.12	0.16	0.12	0.12	0.12
Cladding Diameter	125 \pm 1 μm	125 \pm 1 μm	125 \pm 1 μm	80 \pm 2 μm	80 \pm 2 μm
Coating Diameter	155 \pm 5 μm	155 \pm 5 μm	155 \pm 5 μm	100 \pm 4 μm	100 \pm 4 μm
Clad Non-Circularity	\leq 2%	\leq 2%	\leq 2%	\leq 2%	\leq 2%
Core/Clad Offset	\leq 0.5 μm	\leq 0.5 μm	\leq 0.5 μm	\leq 1 μm	\leq 1 μm
Coating Material	Polyimide				
Operating Temperature	-65 to +300 $^{\circ}\text{C}$				
Proof Test Level	200 kpsi	200 kpsi	200 kpsi	150 kpsi	150 kpsi
Order by Part Number:	BF04701	F9022	BF05717-06	BF04441-06	TBD

Custom graded-index fibers are available to achieve specific GRIN lens focal point requirements.

NOTE: The operating temperature ranges are general guidelines. Consult with our Technical Sales department to determine the optimal coating and jacketing material for your specific application. 1.860.678.6636



EXPERIMENTAL SETUP

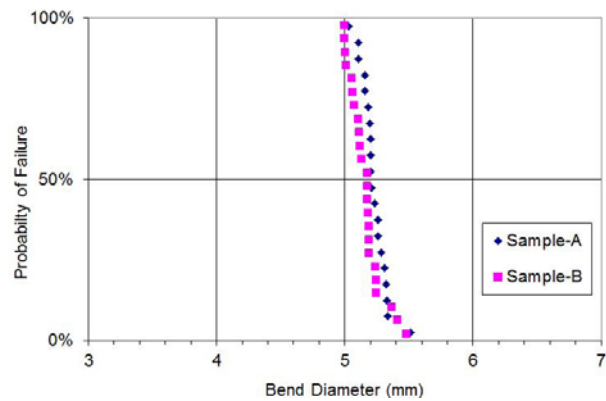
100W of laser power is launched into the fiber when bent, excess fiber looped into a diameter of 20 cm

Reliable laser delivery up to a 5 mm bend*

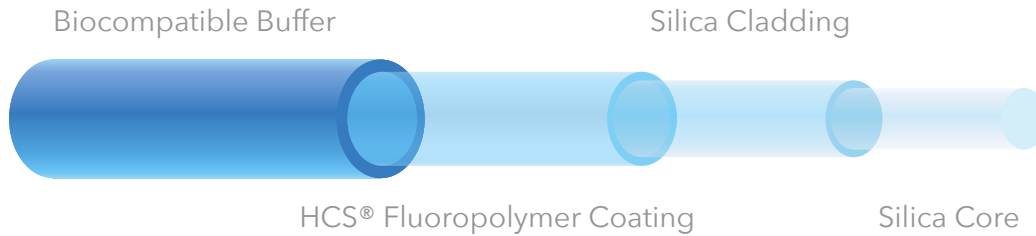
HCXtreme Optical Fiber technology addresses the problem of fiber failure due to tight bending of optical fiber under power. This optimized fiber design reduces bend loss and offers superior performance in high power laser delivery application that requires bending.

* For further details and testing methodology, request a copy of our white paper, entitled "Study of Optical Fiber Damage Under Tight Bend with High Optical Power at 2140 nm."

FIBER FAILURE PROBABILITY VS. BEND DIAMETER UNDER LASER POWER



FIBER TESTED: 365 μm core; 400 μm clad; 0.22 NA



PRODUCT SPECIFICATIONS					
	272-22 HCXtreme	272-29 HCXtreme	365-22 HCXtreme	550-22 HCXtreme	940-22 HCXtreme
OPTICAL CHARACTERISTICS					
Numerical aperture	0.22	0.29	0.22	0.22	0.22
Attenuation @ 850 nm	≤10 dB/km	≤12 dB/km	≤10 dB/km	≤10 dB/km	≤10 dB/km
Water content	Low OH				
DIMENSION/GEOMETRIC PROPERTIES					
Core diameter	272 ± 6 μm	272 ± 10 μm	365 ± 10 μm	550 ± 12 μm	940 ± 15 μm
Cladding diameter	299 ± 6 μm	326 ± 10 μm	400 ± 10 μm	600 ± 10 μm	1000 ± 15 μm
Hard coating diameter	330 ± 7 μm	356 ± 10 μm	430 ± 10 μm	630 ± 10 μm	1035 ± 15 μm
Buffer diameter	400 ± 30 μm	420 ± 30 μm	550 ± 30 μm	750 ± 30 μm	1400 ± 50 μm
Clad/coating offset	≤9 μm	≤10 μm	≤9 μm	≤9 μm	≤11 μm
COATING/BUFFER DESCRIPTIONS					
Coating material	HCS fluoropolymer coating				
Buffer material	Blue ETFE				
Operating temperature	-65 to +125 °C				
MECHANICAL AND TESTING DATA					
Bend radius					
Short-term (1 Hour)	≥22 mm	≥24 mm	≥29 mm	≥58 mm	≥73 mm
Long-term (20 Years)	≥36 mm	≥40 mm	≥47 mm	≥94 mm	≥118 mm
Proof test level	≥100 kpsi (0.689 GPa)				
Product Description Code	272-22 HCXtreme	272-29 HCXtreme	365-22 HCXtreme	550-22 HCXtreme	940-22 HCXtreme
Order by Part Number	F24748	F18939	F18940	F18941	F18942
Options	Core Diameter, Clad Diameter, Numerical Aperture, Proof Test, Cabling, Connectorization, Metalization, Additional Coatings, other Buffer Colors, Low Bioburden Packaging and Manufacturing.				

NOTE: The operating temperature ranges are general guidelines. Consult with our Technical Sales department to determine the optimal coating and jacketing material for your specific application. 1.860.678.6636

OFS and FEC Manufacturing Locations



For additional information please contact your sales representative.

You can also visit our website at www.ofsoptics.com
or call 1-888-FIBER-HELP (1-888-342-3743) from inside the USA
or +1-770-798-5555 from outside the USA.
EMEA Specific: +49 (0) 228 7489 201

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OFS Marketing Communications

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