

## Ultra Low -OH

### CHARACTERISTICS

Step index High laser damage threshold

Numerical aperture:  $0.22 \pm 0.02$  Sterilizable and bio-compatible – USP class VI\*

Full acceptance cone: 25.4 degrees Low-OH silica core, doped silica clad

Vis-NIR transmission, 380nm to 2,200nm Polyimide buffer standard; silicone, acrylate, high-temperature acrylate also available.

Radiation resistant

## Polymicro Technologies™ Silica/Silica Optical Fiber FI

Polyimide concentricity < 3µm

Sizes for bundling

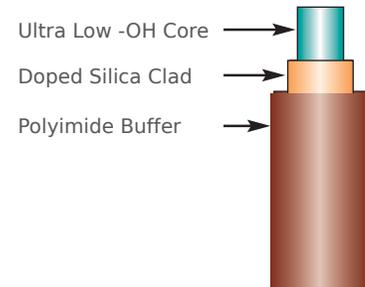
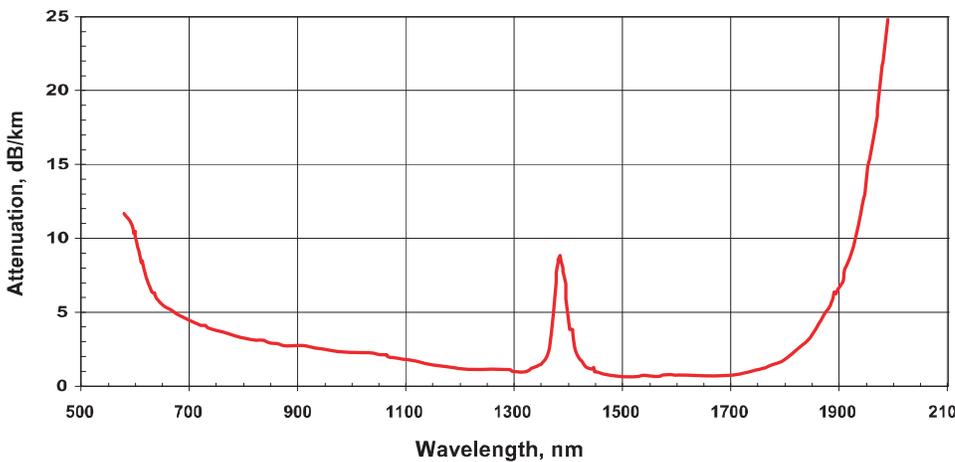
Tighter tolerances available

Operating temperature:  
-65° to +300°C

Intermittent, up to 400°C

Proof tested to 100kpsi

Typical Attenuation



\* The end manufacturer is responsible for bio-compatibility and sterilization testing and validation studies.

## Specifications

Product Descriptor	Core (µm)	Clad (µm)	Buffer (µm)
FIP100110125*	100 ± 3	110 ± 3	124 ± 3
FIP150165195	150 ± 3	165 ± 3	195 ± 5
FIP200220240	200 ± 4	220 ± 4	239 ± 5
FIP300330370	300 ± 6	330 ± 7	370 ± 7
FIP400440480	400 ± 8	440 ± 9	480 ± 7
FIP500550590	500 ± 10	550 ± 10	590 ± 10
FIP600660710	600 ± 10	660 ± 10	710 ± 10
FIA8008801100**	800 ± 20	880 ± 15	1100 ± 30
FIP100120140	100 ± 3	120 ± 3	140 ± 4
FIP200240280	200 ± 4	240 ± 4	275 ± 5
FIP320385415	320 ± 8	385 ± 8	415 ± 10
FIP050070085	50 ± 2	70 ± 2	85 ± 3
FIP100140170	100 ± 3	140 ± 3	170 ± 5
FIA100010501250**	1000 ± 20	1050 ± 15	1250 ± 40

**Note:** The items listed in this table are standard configurations and sizes. Other configurations may be available on request.

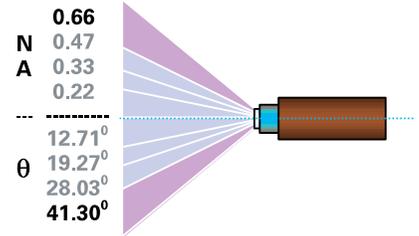
\* Not recommended for wavelengths greater than 1000nm.

\*\* Acrylate buffer

**FSU: High -OH**  
**FLU: Low -OH**  
**Ultra High NA**

**Polymicro**  
**SILICA/TEFLON®**  
**AF CLAD Optical**  
**Fiber FSU | FLU**

This fiber configuration was designed for users who need a pure synthetic fused silica core fiber combined with an ultra high numerical aperture (NA). This Polymicro manufactured fiber can be supplied with various buffers and/or jackets. Core sizes range from 125µm to over 760µm. This fiber has the best combination of ultra high NA, high strength and wide band spectral transmission. The high spectral fidelity in the visible (no yellowing of source color) makes it the perfect replacement for borosilicate fibers where “white” light is needed.



## CHARACTERISTICS

Step index

FLU: Low -OH silica core, Teflon® AF clad to 100kpsi

Sterilizable\*

Numerical aperture: 0.66  
 full acceptance cone: 82.6 degrees

Silicone or acrylate buffer recommended

Proof tested at 100kpsi

UV-Vis-NIR transmission

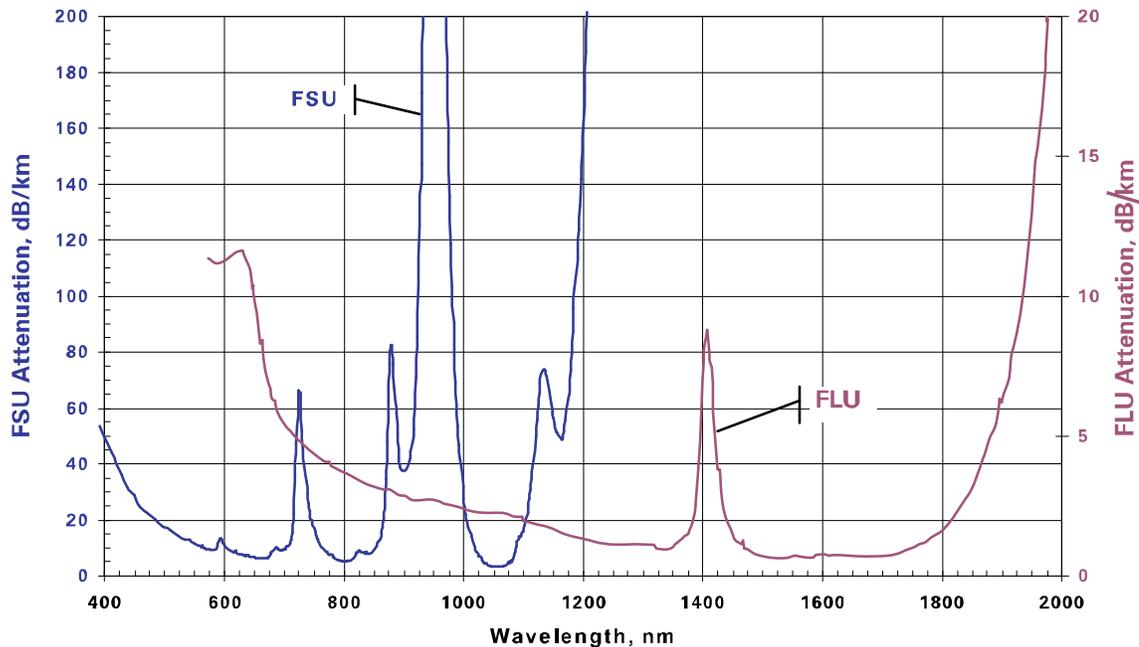
Optional FEP/ETFE jacketing available

Custom sizes and assemblies

FSU: High -OH silica core, Teflon® AF clad

Operating temperature: -10° to +160°C

## Typical Attenuation



\* The end manufacturer is responsible for bio-compatibility and sterilization testing and validation studies.

SEE FSU/FLU Licensing TERMS

Teflon® is a registered trademark of DuPont Corporation.



## IMPORTANT

### FSU/FLU LICENSE TERMS

Molex has a non-exclusive license for U.S. Patents 4,530,569 and 5,076,659 of the DuPont Company. Product is sold for use in the following applications:

1. Delivery of light for inducing chemical changes in materials
2. Illumination for entertainment and architectural lighting
3. Delivery of light for use in projection television
4. Sensors for industrial and medical detection and monitoring equipment

A license must be obtained from the DuPont Company for product use in any medical detection and monitoring equipment intended to be inserted, either temporarily or permanently, into human or animal body. Small quantities can be sold for product development. Specifically excluded from the non-exclusive license is the manufacture, sale, and distribution of this fiber optic for use in the areas listed below. Use of the fiber optic for use in these applications is an infringement of an exclusive license with the DuPont Company.

1. Medical illumination
2. Industrial illumination of boroscopes and fiberscopes
3. Cutting, coagulation, and welding of biological tissue with non-laser light
4. Activation of drugs and other medical substances with non-laser light
5. Medical diagnostics involving excitation and detection of drugs and chemical substances with non-laser light.

The product is excluded from export to the following countries: Albania, Bulgaria, Cambodia, Cuba, the Czech Republic, Slovakia, Estonia, Hungary, Iran, Iraq, Laos, Latvia, Libya, Lithuania, Mongolian Peoples Republic, North Korea, The People's Republic of China, Poland, Romania, the former Republics of the Union of Soviet Socialist Republics, and Vietnam, unless and until the Export Administration Regulation of the U.S. Department of Commerce explicitly permit the reexport of the Office of Export Licensing of the U.S. Department of Commerce first grants authorization in writing to permit the re-exports.

Molex makes no warranties, expressed or implied, concerning its product, including any implied warranty that its products are merchantable or suitable for their intended purposes, except as set forth in Molex's standard warranty. Persons intending to evaluate or use this product for medical purposes must rely on their own medical and legal judgement without any representation on Molex's part.

**Polymicro  
SILICA/TEFLON®  
AF CLAD Optical  
Fiber FSU | FLU**

[www.molex.com/polymicro](http://www.molex.com/polymicro)

## High -OH

### CHARACTERISTICS

Step index Sterilizable and bio-compatible – USP class VI\*

Numerical aperture:  $0.22 \pm 0.02$   
Full acceptance cone: 25.4 degrees High -OH silica core, doped silica clad

UV-Vis-NIR transmission, 180nm to 1,150nm Polyimide buffer standard; silicone, acrylate, high-temperature acrylate also available.

Superior radiation resistance Polyimide concentricity  $< 3\mu\text{m}$

High laser damage threshold

## Polymicro Technologies™ Silica/Silica Optical Fiber FV

Sizes for bundling

Tighter tolerances available

Temperature:  
operating  $-65^{\circ}\text{C}$  to  $+300^{\circ}\text{C}$   
intermittent, up to  $400^{\circ}\text{C}$

Proof tested to 100kpsi

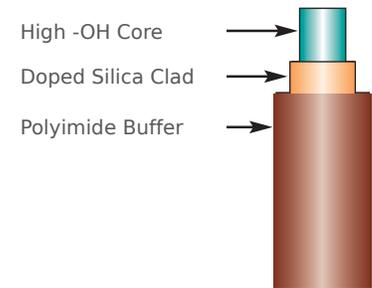
### Specifications

Product Descriptor	Core ( $\mu\text{m}$ )	Clad ( $\mu\text{m}$ )	Buffer ( $\mu\text{m}$ )
FVP050055065*	$50 \pm 2$	$55 \pm 2$	$65 \pm 2$
FVP100110125**	$100 \pm 3$	$110 \pm 3$	$124 \pm 3$
FVP150165195	$150 \pm 3$	$165 \pm 3$	$195 \pm 5$
FVP200220240	$200 \pm 4$	$220 \pm 4$	$239 \pm 5$
FVP300330370	$300 \pm 6$	$330 \pm 7$	$370 \pm 7$
FVP400440480	$400 \pm 8$	$440 \pm 9$	$480 \pm 7$
FVP600660710	$600 \pm 10$	$660 \pm 10$	$710 \pm 10$
FVA8008801100***	$800 \pm 20$	$880 \pm 15$	$1100 \pm 30$
FVP100120140	$100 \pm 3$	$120 \pm 3$	$140 \pm 4$
FVP200240280	$200 \pm 4$	$240 \pm 4$	$275 \pm 5$
FVP320385415	$320 \pm 8$	$385 \pm 8$	$415 \pm 10$
FVA100010501250***	$1000 \pm 20$	$1050 \pm 15$	$1250 \pm 40$

\* Recommended for UV wavelengths only. Availability varies.

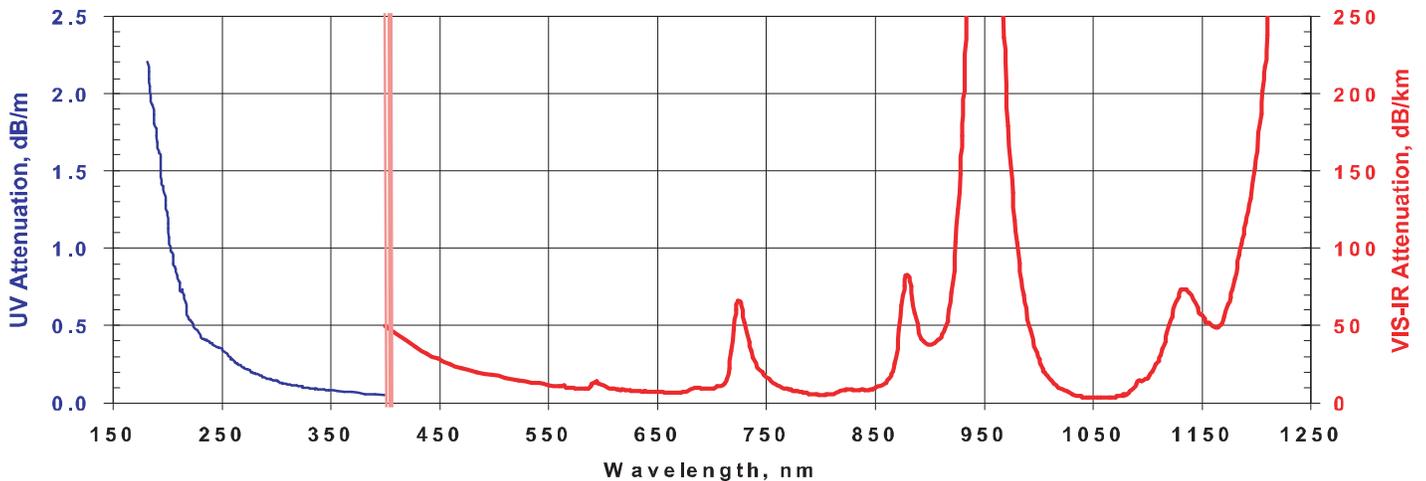
\*\* Not recommended for wavelengths greater than 1000nm.

\*\*\* Acrylate buffer



**Note:** The items listed in this table are standard configurations and sizes. Other configurations may be available on request.

### Typical Attenuation



\* The end manufacturer is responsible for bio-compatibility and sterilization testing and validation studies.

## IR Applications

### CHARACTERISTICS

Wavelength range 2.9µm past 10.6µm

High laser damage threshold: > 1000W @ 10.6µm

Strong and flexible

Non-toxic: sterilizable\*

Low insertion loss

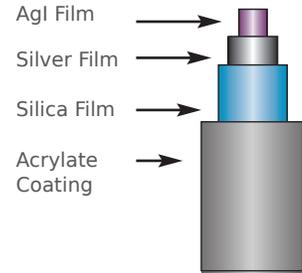
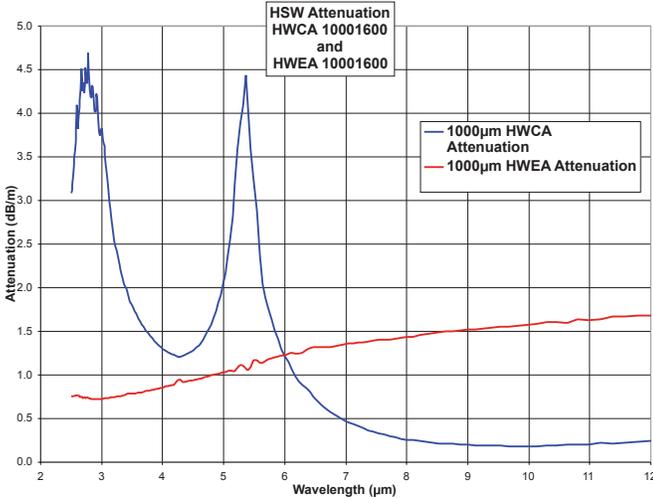
## Polymicro HOLLOW SILICA Waveguide HSW

No end reflection

Transmission optimized for CO<sub>2</sub> or Er:YAG laser wavelengths

Custom buffers available

### HSW Typical Spectral Attenuation



## Specifications

### HWCA – CO<sub>2</sub> HOLLOW WAVEGUIDE WITH ACRYLATE BUFFER

Description	ID (µm)	Glass OD (µm)	Buffer OD (µm)	Straight Loss (dB/m Max)	Bend Loss** (dB Max)
HWCA300750	300 ± 20	400 ± 15	750 ± 25	2.0	1.5
HWCA500850	500 ± 25	650 ± 20	850 ± 30	0.8	1.5
HWCA7501200	750 ± 30	950 ± 25	1200 ± 50	0.5	1.0
HWCA10001600	1000 ± 50	1300 ± 25	1600 ± 50	0.5	1.0

### HWEA – ER:YAG HOLLOW WAVEGUIDE WITH ACRYLATE BUFFER

Description	ID (µm)	Glass OD (µm)	Buffer OD (µm)	Straight Loss (dB/m Max)	Bend Loss** (dB Max)
HWEA300750	300 ± 20	400 ± 15	750 ± 25	2.0	2.0
HWEA500850	500 ± 25	650 ± 20	850 ± 30	1.5	2.0
HWEA7501200	750 ± 30	950 ± 25	1200 ± 50	1.0	1.5
HWEA10001600	1000 ± 50	1300 ± 25	1600 ± 50	1.0	1.5

### TERMINATIONS AVAILABLE

#### Poly-Lok™:

Removable, reusable connectors, ideal for prototyping

SMA (905), SMA (906), STII, and FC (STII and FC not available for 1000µm bore)

Not for permanent installations

#### Permanent SMA (905), SMA (906), STII, and FC:

Waveguide protrudes 1 to 2 mm from connector endface

\* The end manufacturer is responsible for bio-compatibility and sterilization testing and validation studies.

\*\* Bend loss in 360° 40cm diameter loop

## Ultra Low -OH Dual Cladding

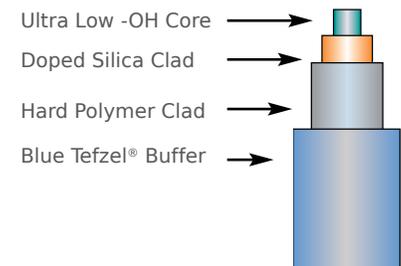
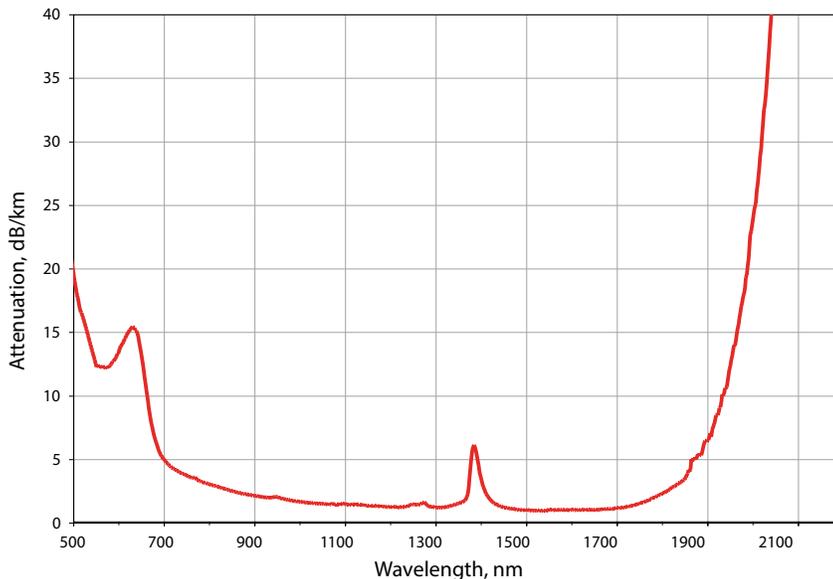
### CHARACTERISTICS

Step index	Sterilizable and bio-compatible – USP Class VI*
Numerical aperture: 0.22 ± 0.02	Low-OH silica core, doped silica clad
Full acceptance cone: 25.4 degrees	Proof tested to 100kpsi
Vis-NIR transmission, 380nm to 2,200nm	Hard polymer secondary cladding
Radiation resistant	Standard buffer: blue Tefzel®, and other color available
High laser damage threshold	

## Polymicro SILICA/SILICA Optical Fiber JTFIH

Custom buffer: acrylate, nylon, or Hytel®
Operating temperature: -65°C to +125°C
High-OH and custom sizes available
Proof tested to 100kpsi

Typical Attenuation



\*The end manufacturer is responsible for bio-compatibility and sterilization testing and validation studies.

## Specifications

### JTFIH – BLUE TEZFEL® BUFFER

Product Descriptor	Core (µm)	Primary Clad (µm)	Secondary Clad (µm)	Buffer (µm)
JTFIH272326356460	272 ± 10	326 ± 10	356 ± 8	460 ± 30
JTFIH365400430730	365 ± 10	400 ± 8	425 ± 8	730 ± 30
JTFIH550600630750	550 ± 12	600 ± 10	630 ± 10	750 ± 30
JTFIH940100010351400	940+20/-5	1000 ± 15	1035 ± 15	1400 ± 50

**Note:** The items listed in this table are standard configurations and sizes. Other configurations may be available on request.

**Low -OH Core  
Hard Cladding  
High NA**

## CHARACTERISTICS

Step index Low-OH core for Vis-NIR transmission

Numerical aperture:  $0.37 \pm 0.02$  Sterilizable and bio-compatible – USP class VI\*

Full acceptance cone: 43.4 degrees Standard buffer: Tefzel®

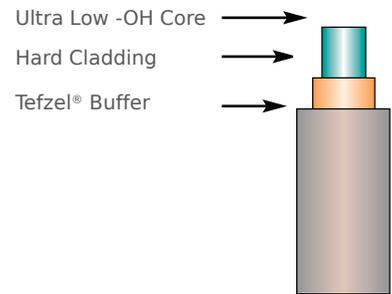
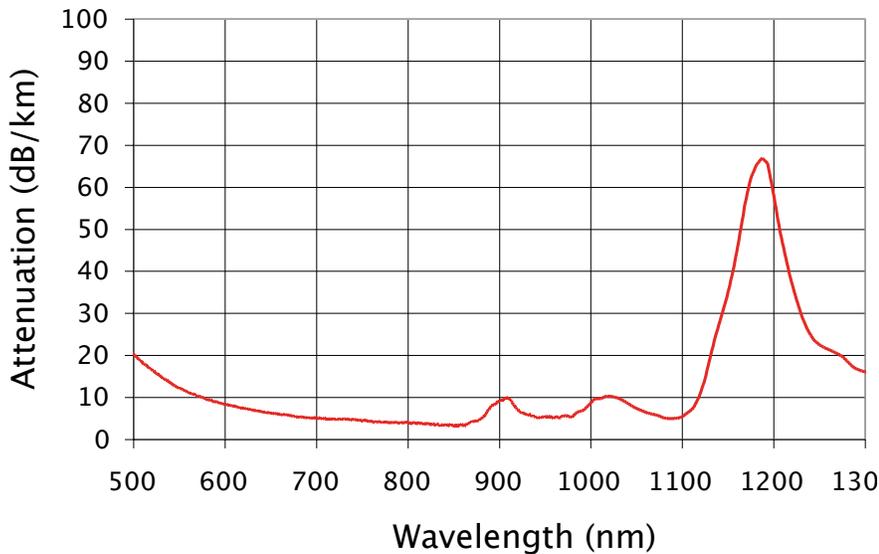
Low-OH core, PolyClad® hard polymer clad Custom buffer: acrylate, nylon, Hytrel®

**Polymicro  
SILICA/HARD  
POLYMER CLAD  
Optical Fiber JTFLH**

Operating temperature:  
-65°C to +125°C  
0.48NA available with green efzel

High-OH silica core available

**Typical Attenuation**



\* The end manufacturer is responsible for bio-compatibility and sterilization testing and validation studies. Tefzel® and Hytrel® are registered trademarks of DuPont Corporation.

## Specifications

### JTFIH – BLUE TEZFEL® BUFFER

Product Descriptor	Core (µm)	Clad (µm)	Buffer (µm)	Proof Test (kpsi)
JTFLH200230500	200 ± 4	230 +0/-10	500 ± 30	150
JTFLH300330650	300 ± 6	330 +5/-10	650 ± 30	150
JTFLH400430730	400 ± 8	430 +5/-10	730 ± 30	100
JTFLH6006301040	600 ± 10	630 +5/-10	1040 ± 30	100
JTFLH8008301040	800 ± 10	830 ± 10	1040 ± 30	100
JTFLH100010351400	1000 ± 15	1035 ± 15	1400 ± 50	100

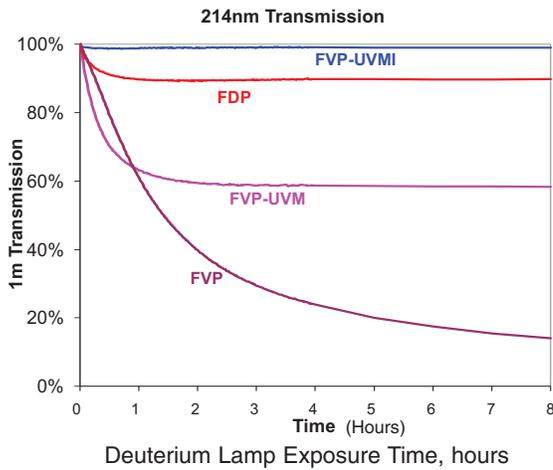
**Note:** The items listed in this table are standard configurations and sizes. Other configurations may be available on request.

### Solarization Resistant

Typical characteristics of standard High -OH core (FV), hydrogen loaded core (UVMI), modified core (UVM) and deep UV enhanced (FD) are shown in the following table. Let Polymicro assist you in selecting the bestsuited fiber for your application. Standard core sizes of 100µm, 200µm, 300µm, 400µm, and 600µm. Custom sizes available.

### CHARACTERISTICS

Step index	Optional jacketing available	Polyimide concentricity: < 3µm
Numerical aperture: 0.22 ± 0.02	Core sizes: 50µm to > 1000µm	Polyimide buffer standard; silicone, acrylate, fluoropolymer or dual buffer also available
Uv-vis-nir transmission, 180nm to 850nm	Excellent concentricity	Temperature: operating -65° to +300°C
Sterilizable and bio-compatible – usp class vi*	Tight tolerances	Proof tested to 100kpsi
	Silica core, doped silica clad	



### Specifications

Fiber Type	Wavelength Range	Characteristics	Cost
FVP	240-850nm	<ul style="list-style-type: none"> <li>Economical</li> <li>High solarization</li> <li>Damage below 240nm</li> <li>Minimal solarization recovery</li> <li>All sizes available</li> <li>Alternate coatings available</li> </ul>	Very Low
FVP-UVM	230 +/- 10µm	<ul style="list-style-type: none"> <li>Moderate solarization damage</li> <li>Minimal solarization recovery</li> <li>All sizes available</li> <li>Alternate coatings available</li> </ul>	Low
FVP-UVMI	500 +/- 30µm	<ul style="list-style-type: none"> <li>Very small solarization damage diameter and temperature dependent</li> <li>Degradation with time</li> <li>Only larger diameters recommended (&gt;400µm)</li> <li>Refrigeration recommended when not in use</li> <li>Reverts to fvp-uvvm over time</li> <li>Available with polyimide coating only</li> </ul>	Moderate
FDP	≤5µm	<ul style="list-style-type: none"> <li>Small solarization damage</li> <li>Minimal solarization recovery</li> <li>No shelf life issues</li> <li>Diameters 100µm to 600µm available</li> <li>Available with polyimide coating only</li> </ul>	Moderate

\*The end manufacturer is responsible for bio-compatibility and sterilization testing and validation studies.

## FBP: Broad Spectrum Optical Fiber

This fiber is designed to operate over a very broad range of wavelengths. It is produced with a patented process that allows more flexibility to meet smaller quantity requests for a variety of core:clad ratios.

### CHARACTERISTICS

Low loss broad spectrum fiber,  
275-2100nm

Excellent focal ratio degradation  
characteristics

Step index

Numerical aperture:  $0.22 \pm 0.02$

Silica core, doped silica clad

Cost effective

Polyimide concentricity  $< 3\mu\text{m}$

**Polymicro  
Technologies™  
Silica/Silica  
Optical Fiber FBP**

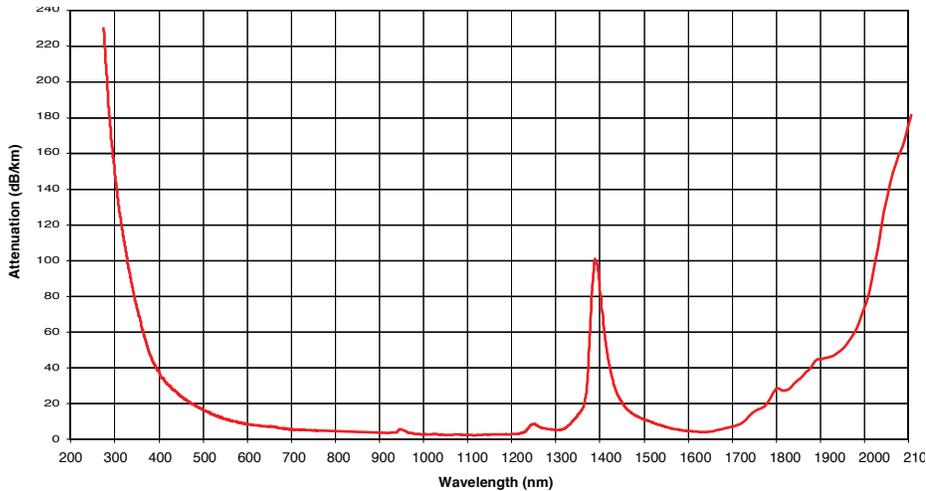
Tight tolerance

Operating temperature:  
-65° to +300°C

Proof tested to 100kpsi

Custom sizes, buffers, jackets,  
assemblies available

### Typical Attenuation



### Specifications

Product Descriptor	Core (μm)	Clad (μm)	Buffer (μm)
FBP200220240	200 ± 4	220 ± 4	239 ± 5
FBP300330370	300 ± 6	330 ± 7	370 ± 7
FBP400440480	400 ± 8	440 ± 9	480 ± 7
FBP500550590	500 ± 10	550 ± 10	590 ± 10
FBP600660710	600 ± 10	660 ± 10	710 ± 10
FBP100120140	100 ± 3	120 ± 3	140 ± 4
FBP200240280	200 ± 4	240 ± 4	275 ± 5
FBP320385415	320 ± 8	385 ± 8	415 ± 10
FBP050070085	50 ± 2	70 ± 2	85 ± 3
FBP100140170	100 ± 3	140 ± 3	170 ± 5

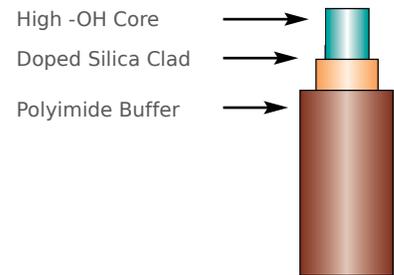
For applications in the deep UV region (190nm - 325nm), effects of high levels of UV radiation on the transmission of a silica core optical fiber must be considered. Solarization changes depend on the type of fiber used as well as the intensity and spectral output of the UV source. These changes are wavelength dependent.

## CHARACTERISTICS

- Step index
- Numerical aperture:  $0.22 \pm 0.02$   
full acceptance cone: 25.4 degrees
- Operating wavelength down to 190nm
- Ultra high UV transmission
- Ultra low UV solarization
- Superior radiation resistance
- Sterilizable and bio-compatible – USP class VI\*
- High laser damage threshold
- High -OH silica core, doped silica clad
- Polyimide buffer standard
- Polyimide concentricity  $< 3\mu\text{m}$
- Custom core sizes, buffers and assemblies available

Proof tested to 100kpsi

Operating temperature:  
-65°C to +300°C



## Specifications

Product Descriptor	Core (μm)	Clad (μm)	Buffer (μm)
FDP100110125	100 ± 3	110 ± 3	124 ± 3
FDP200220240	200 ± 4	220 ± 4	240 ± 5
FDP400440480	400 ± 8	440 ± 9	480 ± 7
FDP600660710	600 ± 10	660 ± 10	710 ± 10

**Note:** The items listed in this table are standard configurations and sizes. Other configurations may be available on request.

\* The end manufacturer is responsible for bio-compatibility and sterilization testing and validation studies.

