

FT900SM - Jan. 06, 2017

Item # FT900SM was discontinued on Jan. 06, 2017. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

FURCATION TUBING, SLEEVES, AND CONNECTOR CAPS

- ▶ **Tubing Protects Fiber and Provides Easy Identification**
- ▶ **Sleeves Join Stainless Steel Tubing to Connectors**
- ▶ **Fiber Connector Caps Protect Polished Faces of Fiber**



[Hide Overview](#)

OVERVIEW

Features

- Protect Fiber Optic Cables
- Colored Tubing for Quick Fiber Type Identification (See Color Choices in Table at Right)
- Black Furcation Tubing for Light-Sensitive Applications
- Stainless Steel Tubing Offers High Degree of Protection
- Sleeves Securely Join Stainless Steel Tubing to Fiber Connectors
- Connector Caps Keep Polished Fiber Tips Clean

Furcation Tubing

Furcation tubing, also commonly referred to as jacketing, is used to protect delicate optical fiber from damage. The color of tubing is typically chosen to represent the type of fiber patch cable. Yellow tubing is the industry standard for single mode fiber, orange designates multimode fiber, and blue is typically reserved for polarization-maintaining fiber. Black tubing prevents visible light from entering through the length of the fiber. For additional light blocking, FT030-BK black tubing can be placed inside FT05SS or FT061PS stainless steel tubing.

Furcation Tubing Selection Guide			
Item #	Inner Diameter	Outer Diameter	Color
FT900SM	Ø500 µm	Ø900 µm	Yellow ^a
FT020	Ø900 µm	Ø2.0 mm	Orange
FT023SS	Ø1.2 mm	Ø2.3 mm	Silver (Stainless Steel)
FT030	Ø1.0 mm	Ø3.0 mm	Orange, Yellow, Blue, or Black
FT038	Ø1.8 mm	Ø3.8 mm	Red or Black
FT05SS	Ø3.5 mm	Ø5.0 mm	Silver (Stainless Steel)
FT061PS	Ø3.5 mm	Ø6.1 mm	Black (Coated Stainless Steel)
FT080SS	Ø6.0 mm	Ø8.0 mm	Silver (Stainless Steel)

When selecting furcation tubing, please note its inside diameter, as this dimension must be larger than the outside diameter of the fiber you are

- Other colors are available upon request. Contact Technical Support for more information.

using. As an alternative to jacketing your own fiber, Thorlabs offers custom pre-made patch cables. Please contact Tech Support for further information about Thorlabs' jacketing capabilities.

Stainless Steel Furcation Tubing and Sleeves

Thorlabs offers several stainless steel options for furcation tubing that provide high rigidity at the expense of a larger bend radius. Generally, the smallest tubing that the fiber fits in will be ideal, but it is sometimes beneficial to use a larger tubing to protect fibers with larger bend radii. Our stainless steel sleeves effectively replace the strain relief boot used with our standard furcation tubing and shield the connection from dust, dirt, and other external contaminants.

Fiber Connector Caps

Dirt on the fiber tip can result in permanent damage to the fiber connector. This can result in increased coupling losses or undesirable mode structure in the output light. To prevent damaging the connectorized fiber, clean the tip before each use and use a fiber connector cap to protect the end face of the connectorized fiber when it is not in use. Thorlabs offers caps for Ø1.25 mm, Ø2.5 mm, and Ø3.2 mm fiber connector ferrules; metal caps for FC and SMA connectors; and caps for FC, SMA, or ST bulkheads and mating sleeves. See below for more information.

[Hide Ø900 µm Furcation Tubing](#)

Ø900 µm Furcation Tubing

Item #	Inner Diameter	Outer Diameter	Color	Material	Operating Temperature
FT900SM	500 µm	900 µm	Yellow	Hytrel	-40 to 85 °C

Thorlabs' FT900SM Furcation Tubing is Hytrel tubing with a 900 µm outer diameter. Since this furcation tubing has an inner diameter of only 500 µm, it is most commonly used with single mode fiber and may be too small for many multimode fibers. The FT900SM does not have an inner tube or a pull string for feeding fibers through it. Kevlar threads are inside the FT900SM, but these come out when threading a fiber through it. This tubing can be removed after installation by using the AFS900 Adjustable Fiber Buffer and Jacket Stripping Tool. Please contact Tech Support for information about blue Ø900 µm furcation tubing.

Part Number	Description	Price	Availability
FT900SM	Yellow Ø900 µm Hytrel Tubing	\$2.04 Per Meter Volume Pricing Available	3-5 Days
190044P	Yellow Strain Relief Boot for Ø900 µm Tubing, 25 per pack	\$10.50	Today

[Hide Ø2.0 mm Furcation Tubing](#)

Ø2.0 mm Furcation Tubing

- ▶ Fits up to 900 µm Outer Diameter Fiber
- ▶ Lightweight Alternative to Ø3.0 mm or Ø3.8 mm Tubing
- ▶ Kevlar Protective Threads

Item #	Inner Diameter	Outer Diameter	Color	Operating Temperature
FT020	900 µm	2.0 mm	Orange	-40 to 70 °C

Our Ø2.0 mm protective tubing provides more protection than Ø900 µm tubing and fits optical fiber up to 900 µm in diameter. It has an internal structure similar to our Ø3.0 mm tubing pictured below, including a PVC outer jacket, Kevlar threads, a polypropylene inner protective tube, and a pull string for fiber insertion. It is ideal for constructing patch cables for optogenetics or any other application where a lightweight, flexible, and durable patch cable is needed. The AFS900 Adjustable Stripping Tool can be used to remove this tubing after installation.

We also offer connector boots and crimp sleeves to use Ø2.0 mm tubing with FC connectors (Item # 190066CP) or ST or SMA connectors (Item # 190088CP). Our stock connectors do not include a boot compatible with Ø2.0 mm tubing. Please note that, due to the small size of this tubing, epoxy must be used after crimping a sleeve from the 190066CP or 190088CP packs to the tubing to ensure that it is properly secured to the tubing. For information on using this tubing with other connector styles, please contact Technical Support.

Part Number	Description	Price	Availability
		\$1.28	

FT020	Orange Reinforced Ø2 mm Furcation Tubing	Per Meter Volume Pricing Available	Today
190066CP	Black Strain Relief Boots and Crimp Sleeves for Ø2 mm Tubing and FC/PC Connectors, 25 Pack	\$22.80	Today
190088CP	Black Strain Relief Boots and Crimp Sleeves for Ø2 mm Tubing and SMA or ST Connectors, 25 Pack	\$22.80	Today

[Hide Ø2.3 mm Stainless Steel Tubing and Sleeves](#)

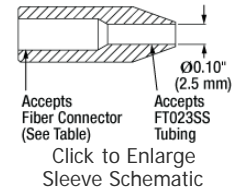
Ø2.3 mm Stainless Steel Tubing and Sleeves

Item #	Inner Diameter	Outer Diameter	Min. Bend Radius ^a	Material	Color
FT023SS	1.2 ± 0.1 mm	2.3 ± 0.1 mm	23 mm	SUS304	Silver

Operating Temperature: -60 to 527 °C (-76 to 981 °F). Note: The temperature range is specified for straight, unflexed, static tubing.

- Minimum Bend Radius of the empty tubing. Be sure to check the bend radius of any fiber inside the tubing prior to use.

Thorlabs' FT23SS Stainless Steel Tubing and FTS23x Sleeves provide a high degree of fiber protection. This thin, lightweight stainless steel tubing provides added protection for more rigorous optogenetics experiments. Its all-metal jacket also prevents visible and IR light from entering through the length of the patch cable. The FTS23x sleeves effectively replace the strain relief boot used with our standard furcation tubing and shield the connection from dust, dirt, and other external contaminants. Please refer to the Compatibility Guide table below to ensure the proper match between the fiber connector and sleeve.



To create a fiber connection, our F112 or F123 Epoxy is used to secure the sleeve along the same central axis as the fiber connector, tubing, and bare fiber. Each sleeve is engraved with a part number ending in an A, B, or D that indicates the inner diameter of the connector side of the sleeve, as shown in the table below. When the fiber connector and tubing are fed into the sleeve, they each encounter a hard stop once they are completely inserted, making it easy to create reliable connections.

The bare fiber can be fed directly into the tubing, which does not contain an inner tube, Kevlar threads, or a pull string. If desired, the fiber can be fed into our FT900SM tubing (which also does not feature a pull string) before being put into the stainless steel tubing for added protection.

Please note that the maximum continuous length we can provide for this tubing is 200 m.

Compatibility Guide							
Item #	Inner Diameter of Fiber Connector Side	FC/PC Connectors	FC/APC Connectors	SMA Connectors	ST Connectors	SC Connectors ^a	LC Connectors ^b
FTS23A	0.138" - 0.150" (3.50 - 3.81 mm)	30126C3, 30128C3, 30126C9	30126A3, 30126A9	1xxxxA	30126B1	-	-
FTS23B	0.153" - 0.165" (3.89 - 4.19 mm)	-	-	-	10140G1 10127C	-	-
FTS23D	0.178" - 0.190" (4.52 - 4.83 mm)	30xxxC1, 30125D2, 30126G2-xxxx, 30140E1	30080K2, 30127A3	-	-	-	-

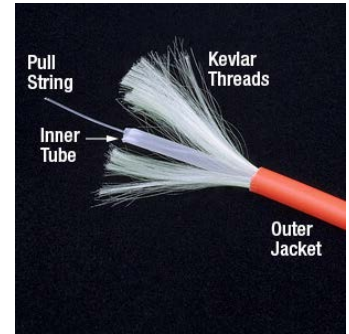
- Our 30126G1 SC/PC connector is not compatible with any of our metal sleeves, but can be terminated directly to FT023SS tubing without using a strain relief sleeve or boot. Contact techsupport@thorlabs.com for details.
- Our Ø2.3 mm stainless steel tubing and sleeves are not compatible with LC connectors.

Part Number	Description	Price	Availability
FT023SS	Ø2.3 mm Stainless Steel Tubing	\$21.70 Per Meter Volume Pricing Available	Today
FTS23A	Stainless Steel Sleeve for Ø2.3 mm Tubing, 0.138" - 0.150" ID	\$12.00	Today
FTS23B	Stainless Steel Sleeve for Ø2.3 mm Tubing, 0.153" - 0.165" ID	\$12.00	Today
FTS23D	Stainless Steel Sleeve for Ø2.3 mm Tubing, 0.178" - 0.190" ID	\$12.00	Today

[Hide Ø3.0 mm & Ø3.8 mm Furcation Tubing](#)

Ø3.0 mm & Ø3.8 mm Furcation Tubing

Item #	Inner Diameter	Outer Diameter	Color
FT030	1.0 mm	3.0 mm	Orange
FT030-Y	1.0 mm	3.0 mm	Yellow
FT030-BLUE	1.0 mm	3.0 mm	Blue
FT030-BK	1.0 mm	3.0 mm	Black
FT038	1.8 mm	3.8 mm	Red
FT038-BK	1.8 mm	3.8 mm	Black



[Click to Enlarge](#)

Operating Temperature: -20 to 70 °C (-4 to 158 °F)

Thorlabs' FT030 and FT038 Furcation Tubings consist of an outer PVC jacket, Kevlar protective threads, a polypropylene inner fiber tube, and a pull string for fiber insertion, as shown in the photo to the right. The Kevlar threads that surround the inner tube protect the fiber from damage by cushioning any impact incurred by the PVC outer jacket. As these threads remain in the jacketing after threading a fiber, these jackets are better suited for protecting fibers than our Ø900 µm tubing.

These furcation tubings can be used with SM (yellow standard), PM (blue standard), and MM (orange standard) fibers. Our FT030-BK and FT038-BK Black Furcation Tubing are especially useful for preventing visible room light from entering the patch cable. For additional light blocking, the FT030-BK tubing can be placed inside FT05SS or FT061PS stainless steel tubing. The tubing can be removed from the fiber by using the FTS3 Stripping Tool and the T186 Kevlar Cutting Shears. Feeding fiber through furcation tubing can be difficult, so the inner tubes of the FT030 and FT038 feature a pull string to help guide the fiber.

Part Number	Description	Price	Availability
FT030	Orange Reinforced Ø3 mm Furcation Tubing	\$1.33 Per Meter Volume Pricing Available	Today
FT030-Y	Yellow Reinforced Ø3 mm Furcation Tubing	\$1.33 Per Meter Volume Pricing Available	Today
FT030-BLUE	Customer Inspired!Blue Reinforced Ø3 mm Furcation Tubing	\$1.33 Per Meter Volume Pricing Available	Today
FT030-BK	Black Reinforced Ø3 mm Furcation Tubing	\$1.33 Per Meter Volume Pricing Available	Today
FT038	Red Reinforced Ø3.8 mm Furcation Tubing	\$1.84 Per Meter Volume Pricing Available	Today
FT038-BK	Black Reinforced Ø3.8 mm Furcation Tubing	\$1.84 Per Meter Volume Pricing Available	Today

[Hide Ø5.0 mm Stainless Steel Tubing and Sleeves](#)

Ø5.0 mm Stainless Steel Tubing and Sleeves

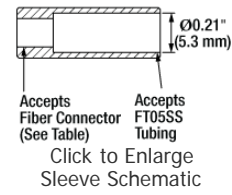
Item #	Inner Diameter	Outer Diameter	Min. Bend Radius ^a	Material	Color
FT05SS	3.5 mm	5.0 ± 0.2 mm	19 mm	SUS304	Silver

Operating Temperature: -60 to 527 °C (-76 to 981 °F). Note: The temperature range is specified for straight, unflexed, static tubing.

- Minimum Bend Radius of the empty tubing. Be sure to check the bend radius of any fiber inside the tubing prior to use.

Thorlabs' FT05SS Stainless Steel Tubing and FTS50x Sleeves provide a high degree of fiber protection. The FT05SS is the same tubing used in our SMA Fiber Bundles. Its all-metal jacket prevents visible and IR light from entering through the length of the patch cable. The FTS50x sleeves effectively replace the strain relief boot used with our standard furcation tubing and shield the connection from dust, dirt, and

other external contaminants. Please refer to the Compatibility Guide table below to ensure the proper match between the fiber connector and sleeve.



Click to Enlarge Sleeve with Fiber Connector and Stainless Steel Tubing

To create a fiber connection, our F112 or F123 Epoxy is used to secure the sleeve along the same central axis as the fiber connector, tubing, and bare fiber. Each sleeve is engraved with an A, B, or D that corresponds to the suffix of the part number and indicates the inner diameter of the connector side of the sleeve, as shown in the table below. When the fiber connector and tubing are fed into the sleeve, they each encounter a hard stop once they are completely inserted, making it easy to create reliable connections.

The bare fiber can be fed directly into the tubing, which does not contain an inner tube, Kevlar threads, or a pull string. If desired, the fiber can be fed into our FT030 tubing (which does feature a pull string) before being put into the stainless steel tubing for added convenience and protection.

Please note that the maximum continuous length we can provide for this tubing is 100 m.

Compatibility Guide							
Item #	Inner Diameter of Fiber Connector Side	FC/PC Connectors	FC/APC Connectors	SMA Connectors	ST Connectors	SC Connectors ^a	LC Connectors ^b
FTS50A	0.138" - 0.150" (3.50 - 3.81 mm)	30126C3, 30128C3, 30126C9	30126A3, 30126A9	1xxxxA	30126B1	-	-
FTS50B	0.153" - 0.165" (3.89 - 4.19 mm)	-	-	-	10140G1 10127C	-	-
FTS50D	0.178" - 0.190" (4.52 - 4.83 mm)	30xxxC1, 30125D2, 30126G2-xxxx, 30140E1	30080K2, 30127A3	-	-	-	-

- Our 30126G1 SC/PC connector is not compatible with any of our metal sleeves, but can be terminated directly to FT05SS tubing without using a strain relief sleeve or boot. Contact techsupport@thorlabs.com for details.
- Our Ø5.0 mm stainless steel tubing and sleeves are not compatible with LC connectors.

Part Number	Description	Price	Availability
FT05SS	Ø5.0 mm Stainless Steel Tubing	\$6.12 Per Meter Volume Pricing Available	Today
FTS50A	Stainless Steel Sleeve for Ø5.0 mm Tubing, 0.138" - 0.150" ID	\$7.14	Today
FTS50B	Stainless Steel Sleeve for Ø5.0 mm Tubing, 0.153" - 0.165" ID	\$7.00	Today
FTS50D	Stainless Steel Sleeve for Ø5.0 mm Tubing, 0.178" - 0.190" ID	\$7.00	Today

[Hide Ø6.1 mm Stainless Steel Tubing and Sleeves](#)

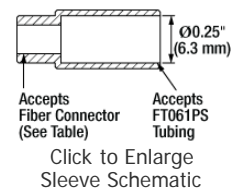
Ø6.1 mm Stainless Steel Tubing and Sleeves

Item #	Inner Diameter	Outer Diameter	Min. Bend Radius ^a	Color
FT061PS	3.5 mm	6.1 mm	19 mm	Black

Operating Temperature: -50 to 60 °C (-58 to 140 °F)

- Minimum Bend Radius of the empty tubing. Be sure to check the bend radius of any fiber inside the tubing prior to use.

Thorlabs' FT061PS Stainless Steel Tubing and FTS61x Sleeves provide a high degree of fiber protection. The FT061PS has a black plastic coating (olefin elastomer) that is lead-free, halogen-free, and provides chemical, water, and heat resistance. The black coating and all-metal jacket prevent visible and IR light from entering through the length of the patch cable. The FTS61x sleeves effectively replace the strain relief boot used with our standard furcation tubing and shield the connection from dust, dirt, and other external contaminants. Please refer to the Compatibility Guide table below to ensure the proper match between the fiber connector and sleeve.



Click to Enlarge Sleeve with Fiber Connector and Stainless Steel Tubing

To create a fiber connection, our F112 or F123 Epoxy is used to secure the sleeve along the same central axis as the fiber connector, tubing, and bare fiber. Each sleeve is engraved with an A, B, or D that corresponds to the suffix of the part number and indicates the inner diameter of the

Item #	Inner Diameter of Fiber Connector Side	FC/PC Connectors	FC/APC Connectors	SMA Connectors	ST Connectors	SC Connectors ^a	LC Connectors ^a
FTS80A	0.138" - 0.150" (3.50 - 3.81 mm)	30126C3, 30128C3, 30126C9	30126A3, 30126A9	1xxxxA	30126B1	-	-
FTS80B	0.153" - 0.165" (3.89 - 4.19 mm)	-	-	-	10140G1 10127C	-	-
FTS80D	0.178" - 0.190" (4.52 - 4.83 mm)	30xxxC1, 30125D2, 30126G2-xxxx, 30140E1	30080K2, 30127A3	-	-	-	-

- Our Ø8.0 mm stainless steel tubing and sleeves are not compatible with SC or LC connectors.

Part Number	Description	Price	Availability
FT080SS	Ø8.0 mm Stainless Steel Tubing	\$58.30 Per Meter Volume Pricing Available	Today
FTS80A	Stainless Steel Sleeve for Ø8.0 mm Tubing, 0.138" - 0.150" ID	\$11.00	Today
FTS80B	Stainless Steel Sleeve for Ø8.0 mm Tubing, 0.153" - 0.165" ID	\$11.00	Today
FTS80D	Stainless Steel Sleeve for Ø8.0 mm Tubing, 0.178" - 0.190" ID	\$11.00	Today

[Hide Fiber Optic Connector Caps](#)

Fiber Optic Connector Caps

- ▶ Cap Protects End Face of Fiber
- ▶ Options Available for LC, FC, ST, SC, and SMA Connectors
- ▶ Plastic, Nickel-Plated Brass, and Rubber Versions Available

Item #	Ferrule Size	Compatible Connector Types	Material	Color	Number of Caps per Pack
CAPL	Ø1.25 mm	LC	Plastic	White	25
CAPF	Ø2.5 mm	FC, ST, SC	Plastic	Clear	25
CAPFM	-	FC (Narrow Key)	Nickel-Plated Brass	-	4
CAPM	Ø3.2 mm	SMA	Rubber	Black	10
CAPMM	-	SMA	Nickel-Plated Brass	-	4

Part Number	Description	Price	Availability
CAPL	White Plastic Dust Caps for Ø1.25 mm Ferrules, 25 Pack	\$6.60	Today
CAPF	Clear Plastic Dust Caps for Ø2.5 mm Ferrules, 25 Pack	\$6.60	Today
CAPFM	Customer Inspired!Metal Threaded Caps for FC Connectors, 4 Pack	\$7.00	Today
CAPM	Customer Inspired!Black Rubber Dust Caps for Ø3.2 mm Ferrules, 10 Pack	\$8.80	Today
CAPMM	Customer Inspired!Metal Threaded Caps for SMA Connectors, 4 Pack	\$7.00	Today

[Hide Bulkhead and Mating Sleeve Caps](#)

Bulkhead and Mating Sleeve Caps

- ▶ Caps Protect Bulkheads and Mating Sleeves
- ▶ CAPF1: Metal Cap and Chain for FC/PC and FC/APC Mating Sleeves
- ▶ CAPN1: Metal Cap and Chain for SMA Mating Sleeves
- ▶ CAPT1: Metal Cap and Chain for ST Mating Sleeves

Part Number	Description	Price	Availability
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CAPF1	Customer Inspired!Metal Cap for FC/PC and FC/APC Mating Sleeves	\$7.25	Lead Time
CAPN1	Customer Inspired!Metal Cap for SMA Mating Sleeves	\$4.93	Today
CAPT1	Customer Inspired!Metal Cap for ST Mating Sleeves	\$4.25	Today

Visit the *Furcation Tubing, Sleeves, and Connector Caps* page for pricing and availability information:
https://www.thorlabs.com/newgrouppage9.cfm?objectgroup_id=312