

# FiberExpress (FX) Fusion Splice-On Connectors

## Installation Tools Reference Guide

### FX Fusion Splice Holder

Splicer Manufacturer	Splicer Model	Belden FX Fusion Splice Holder Part Number	Splicer Manufacturer	Splicer Model	Belden FX Fusion Splice Holder Part Number	Splicer Manufacturer	Splicer Model	Belden FX Fusion Splice Holder Part Number
AFL/Fujikura	90S+	FXFSSHFM1*	FITEL	124X	FXFSSHFM4	Sumitomo	Z2C	FXFSSHFM1
AFL/Fujikura	90S	FXFSSHFM1	FITEL	124M16	FXFSSHFM4	Sumitomo	Type-82C+	FXFSSHFM1
AFL/Fujikura	41S+	FXFSSHFM1*	FITEL	124M12	FXFSSHFM4	Sumitomo	Type-82C	FXFSSHFM1
AFL/Fujikura	41S	FXFSSHFM1*	FITEL	123M12	FXFSSHFM4	Sumitomo	Type-81C	FXFSSHFM1
AFL/Fujikura	31S+	FXFSSHFM1*	UCL Swift	SWIFT K33A	FXFSSHFM2	Sumitomo	Type-72C+	FXFSSHFM1
AFL/Fujikura	31S	FXFSSHFM1*	UCL Swift	SWIFT K33	FXFSSHFM2	Sumitomo	Type-71C	FXFSSHFM1
AFL/Fujikura	FSM-70S+	FXFSSHFM1	UCL Swift	SWIFT K11	FXFSSHFM2	Sumitomo	Type-57	FXFSSHFM1
AFL/Fujikura	FSM-70S	FXFSSHFM1	UCL Swift	SWIFT KF4A-HDC	FXFSSHFM2	Sumitomo	T56+	FXFSSHFM1
AFL/Fujikura	FSM-60S	FXFSSHFM1	UCL Swift	SWIFT KF4A	FXFSSHFM2	Sumitomo	T56	FXFSSHFM1
AFL/Fujikura	FSM-62S	FXFSSHFM1	UCL Swift	SWIFT KF4AV	FXFSSHFM2	Sumitomo	T-55	FXFSSHFM1
AFL/Fujikura	FSM-22S	FXFSSHFM1	UCL Swift	SWIFT KF4	FXFSSHFM2	Sumitomo	Type-39	FXFSSHFM1
AFL/Fujikura	FSM-21S	FXFSSHFM1	UCL Swift	SWIFT S5	FXFSSHFM2	Sumitomo	Type-25eU/S/M	FXFSSHFM1
AFL/Fujikura	FSM-19S	FXFSSHFM1	UCL Swift	SWIFT KR12A	FXFSSHFM2	Sumitomo	Type-QH201e-M4	FXFSSHFM1
AFL/Fujikura	FSM-18S	FXFSSHFM1	UCL Swift	SWIFT KR12A-P200	FXFSSHFM2	Sumitomo	Type-Q102-M12	FXFSSHFM1
AFL/Fujikura	FSM-12S-C	FXFSSHFM1	UCL Swift	SWIFT KR12	FXFSSHFM2	Sumitomo	Type-Q101-M12	FXFSSHFM1
AFL/Fujikura	FSM-12S	FXFSSHFM1	INNO	VIEW8+	FXFSSHFM1	Sumitomo	Type-82M12	FXFSSHFM1
AFL/Fujikura	90R	FXFSSHFM1*	INNO	VIEW7	FXFSSHFM1	Sumitomo	Type-81M12	FXFSSHFM1
AFL/Fujikura	41R	FXFSSHFM1*	INNO	VIEW6S	FXFSSHFM1	Sumitomo	Type-72M12	FXFSSHFM1
AFL/Fujikura	FSM-70R	FXFSSHFM1	INNO	VIEW5	FXFSSHFM1	Sumitomo	Type-71M12	FXFSSHFM1
AFL/Fujikura	FSM-60R	FXFSSHFM1	INNO	VIEW3	FXFSSHFM1	Sumitomo	Type-66M12	FXFSSHFM1
Belden	FXFSTOSPL	FXFSSHFM2	INNO	VIEW1	FXFSSHFM1	Tempo/Greenlee	915FS	FXFSSHFM3
FiberFox	Mini 6S+	FXFSSHFM1	INNO	M9	FXFSSHFM1	Tempo/Greenlee	910FS	FXFSSHFM3
FiberFox	Mini 6S	FXFSSHFM1	INNO	M7	FXFSSHFM1			
FiberFox	Mini 4S+	FXFSSHFM1	INNO	VIEW12R PRO	FXFSSHFM1			
FiberFox	Mini 4S	FXFSSHFM1	INNO	VIEW12R MAX	FXFSSHFM1			
FiberFox	Mini 5C+	FXFSSHFM1	KomShine	FX39	FXFSSHFM1			
FiberFox	Mini 5C	FXFSSHFM1	Sumitomo	Type-Q102-CA+	FXFSSHFM1			
FiberFox	Mini 3S	FXFSSHFM1	Sumitomo	Type-Q102-CA	FXFSSHFM1			
FiberFox	Mini 22A	FXFSSHFM1	Sumitomo	Type-Q101-CA+	FXFSSHFM1			
FiberFox	Mini 12R+	FXFSSHFM1	Sumitomo	Type-Q101-CA	FXFSSHFM1			
FiberFox	Mini 12R	FXFSSHFM1	Sumitomo	Q502S	FXFSSHFM1			
FITEL	S179A	FXFSSHFM4	Sumitomo	T502S	FXFSSHFM1			
FITEL	S178A	FXFSSHFM4	Sumitomo	T400	FXFSSHFM1			
FITEL	S153A	FXFSSHFM4	Sumitomo	Type-Q101-VS+	FXFSSHFM1			
FITEL	S123C	FXFSSHFM4	Sumitomo	Type-Q101-VS	FXFSSHFM1			
FITEL	Ninja NJ001	FXFSSHFM4	Sumitomo	Type-QH201e-VS	FXFSSHFM1			

\*Requires new FXFSSHFM1 holder



## FiberExpress Fusion Splice-On Connectors Installation Tools Reference Guide (continued)

### Tips and Recommendations

#### Loading the splicer:

- The vacuum-sealed package should only be opened just before installing the connectors. The pre-stripped stub could absorb moisture and become fragile if exposed to humidity.
- Always remove the holder from the splicer before loading the fiber stub into the holder. Always make sure the fiber stub is properly seated in the holder before placing it in the splicer.
- When placing the holder back in the splicer, align the holder with the guide pins prior to the fiber making contact with the splicer V-groove. This will prevent damage to the fiber stub.
- The end faces of both cleaved fibers should sit in the space between the electrodes and the edge of the blue V-grooves on the splicer. Do not move the fiber stub in the holder once it is placed in the splicer. This will prevent damage to the stub end face. Please refer to the installation guide for further details.

#### Connector assembly:

- **For LC connectors:** If the sleeve does not slide in place with gravity, use a surface to assist in supporting the splice while pushing the sleeve toward the ferrule holder. The square mark on the flat portion of the ferrule must be facing up when the latch of the housing is facing downward. Gently slide the cable assembly with the spring in the front housing until it stops and align the rear housing's tabs with the front housing's cutouts to assemble the parts and cut off the excess dust cap rod.
- **For LC 2 mm connectors:** During final assembly, use a table surface to lay the connector on before sliding the boot assembly. This will assist in making sure that the Kevlar is completely straight during the operation. Straightness of the Kevlar is key to successful mechanical performance of the connector. While threading the boot ring to the rear body, exert some pressure toward the boot ring. You can also hold the cable jacket with your pinky finger to make sure it doesn't rotate with the boot. Make sure to keep the Kevlar straight and that the tapered portion of the Teflon tube is on the top of the rear body, securing the Kevlar to prevent it from twisting while threading the boot ring.
- When using the cable splitter for 2 mm cables, the 1.5-1.8 mm groove may need to be used due to differences in cable-diameter tolerances.

#### General comments:

- Multi-fiber splicers are not ideal for single fiber splicing applications due to fixed V-groove technology and the hurdle of sitting the fibers on both sides in the proper groove.

- Regardless of the holder footprint compatibility, the user needs to make sure the cleaver can be cleaved at 10 mm for installation in the FX Fusion connector.
- Make sure that the splicing mode is compatible with the fiber type being installed.
- Each splicer has a different type of oven behavior. Attention is required when working with FX Fusion connectors.
- Protective sleeves need to be inspected to verify that they did not over-shrink nor under-shrink.
- The presence of adhesive coming out of the splicer sleeves is a sign of over-shrunk sleeves caused by excessive time in the splicer oven.
- The presence of visible air bubbles inside the sleeve or flared ends are signs of under-shrunk sleeves.
- Belden recommends limiting the heating temperature to a maximum of 180 degrees C and adjusting the time *according to the splicer's capability*. The minimum time required is around 30 seconds.
- Adjustment to the heating time may be required depending on the splicer, installation environment and battery level on the splicer. Avoid using only the splicer battery when in low-temperature environments.
- Position the sleeves so the splice is in the middle of the sleeve. Make sure both ends of the cable are at least 2.5-3 mm inside the sleeve.
- For optimal results, make sure the protective sleeves are shrunk in the center of the oven.
- Always keep the fibers and splice under slight tension by holding the fiber and FX Fusion dust cap before closing the oven lid so that the sleeve is straight while being shrunk and not touching the oven walls.
- Cables should not touch the walls of the oven; otherwise, they could be damaged. Fibers should not be twisted nor flexed.
- Avoid manipulating the sleeves while they are still hot. This could cause broken splices or deformation of the sleeve shape, leading to incompatibility with the FX Fusion connectors.
- The quality of the FX Fusion connector depends on the maintenance level of the splicer (cleaning, calibration and overall maintenance routine). Make sure this is done periodically to avoid failures in the field.
- For breakout kit application, the splice holder FXFSSHFM1LB or FXFSSFM2LB and precision cleaver FXFSTOPTK must be used.