

Mass Fusion Splicer

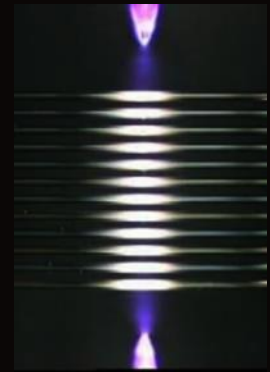
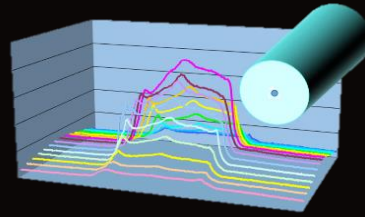
90R12

Designed to keep you going



Mass Fusion Technology

The 90R12 mass fusion splicer has a wide heating area for up to 12 fibers. The wide electrode gap melts the fibers uniformly and has real-time arc discharge control by analyzing the arc's brightness intensity. The 90R12 does not have active core alignment mechanisms, however, during the discharge, fiber surface tension effects minimize preexisting offsets.



Analyzing arc power by observing the brightness intensity

Advanced Innovation

Replaceable V groove

The 90R12 mass fusion splicer includes a spare set of 12 fiber V-grooves with electrodes installed and ready to splice as part of the standard package. These spare V-grooves are field replaceable, so your downtime is minimized.

Glass deposition on Electrode

Glass deposition on V-groove

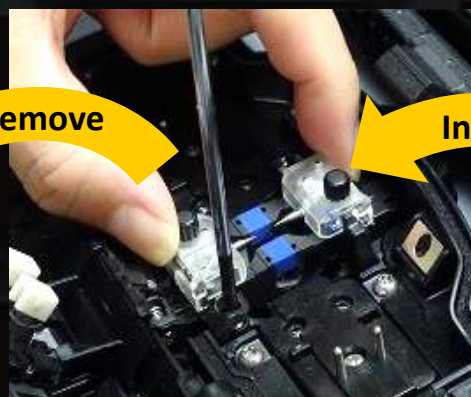
Cause of Large Fiber Offset

No.	Gap [μm]	Offset [μm]	Cleave	
			L	R
1	68	0.9	1.4°	1.9°
2	63	0.3	0.5°	1.1°
3	55	1.3	0.7°	0.9°
4	54	5.2	1.7°	1.2°
5	54	0.4	1.3°	0.4°
6	62	1.1	0.4°	0.7°
7	48	1.2	1.9°	0.3°
8	48	2.7	1.0°	1.5°
9	48	0.8	1.9°	0.1°
10	43	6.7	0.9°	0.3°
11	42	0.7	0.4°	1.8°
12	40	2.8	2.0°	0.5°

Glass deposited V-groove and electrodes

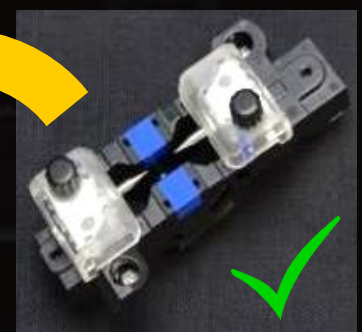


Remove



Install

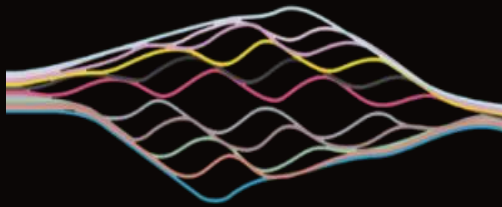
Spare V-groove with stabilized electrodes



Universal Features

1. Universal Fiber Holder

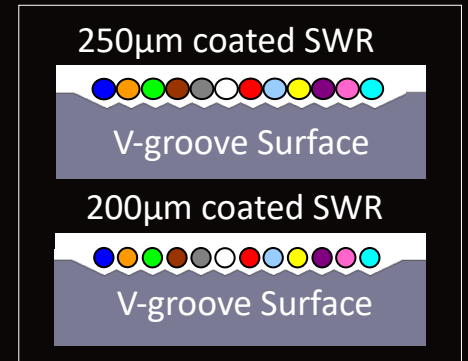
The FH-70-12 fiber holder is compatible with many types of 12 fiber ribbon, such as 0.3mm or 0.4mm thick encapsulated ribbons and 200 μ m or 250 μ m coated Spider Web Ribbon (SWR). The 250 μ m pitch V-grooves in the FH-70-12 fiber holder simplify SWR loading and ribbon preparation.



SWR



FH-70-12

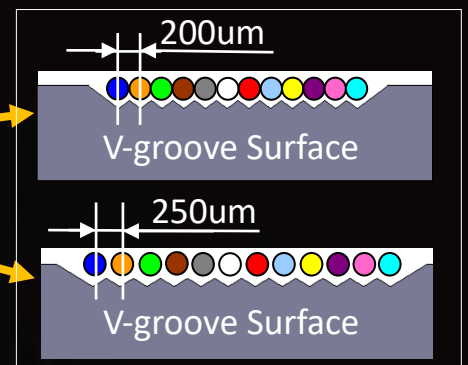
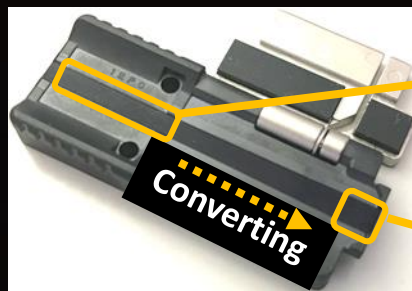


2. Pitch Conversion Fiber Holder

The pitch conversion fiber holder, FH-70-12PC, enables pitch conversion of individual 200 μ m coated fibers from a 200 μ m to 250 μ m pitch. The pitch converted 200 μ m fibers can now be loaded in the 90R12 mass fusion splicer.

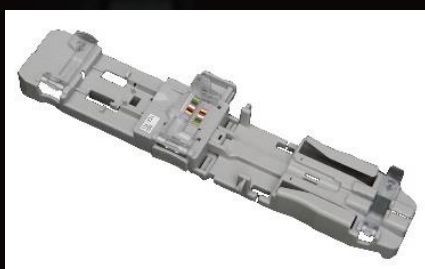


FH-70-12PC

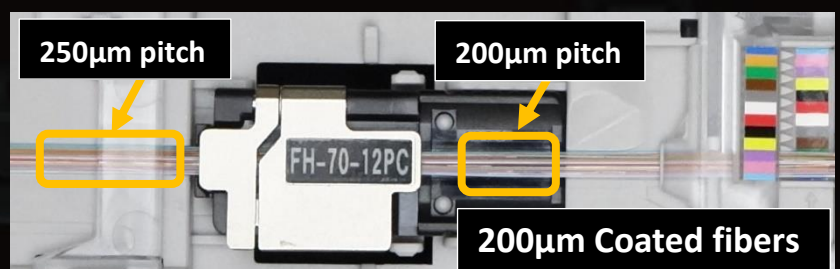


3. Ribbonizing Tool

The RT-02 is a tool which enables quick and easy ribbonization of 12 individual fibers into a temporary ribbon which can be spliced using an 90R12. No glue or adhesive is required when using this ribbonizing tool since the arranged fibers are immediately loaded into the fiber holder. The RT-02 doesn't require the user to insert the fibers in the color code sequence, which is necessary with other ribbon arrangement tools. The user can choose any fiber at random, and place in the correct slot by referring to the color code label on the tool. The RS-02 is applicable to ribbonize both 200 μ m and 250 μ m coated fibers. It's also capable of ribbonizing 200 μ m coated fibers into 250 μ m pitch ribbon using the FH-70-12PC pitch conversion fiber holder.







RT-02



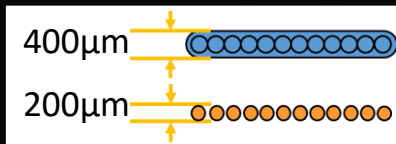
Ribbonizing 200 μ m coating fiber

4. Necessary Tools for Mass Fusion Splicing

12 Fiber Ribbon Structure		Fiber Holder	Ribbonizing Tool
SWR and Encapsulated Ribbon	250µm coating diameter with 250µm pitch	FH-70-12 	Not required
	200µm coating diameter with 250µm pitch		
Non-ribbonized Fibers	250µm coating diameter	FH-70-12PC 	RT-02 or FAT-04 
	200µm coating diameter		RT-02 

5. Universal Ribbon Stripper

The RS series ribbon strippers are compatible with 200 µm to 400µm coated fibers without replacing the stripper blades.



Available thickness range



RS03

6. Universal Tube Heater

The 90R12 mass fusion splicer can accommodate a max 6.0mm diameter heat sleeve before shrinking. As a result, it supports a wide range of protection sleeve sizes.



User Friendly

1. Automated Functionality

The automated wind protector and heater clamps support the operator in completing the entire splicing process with minimal manual steps.



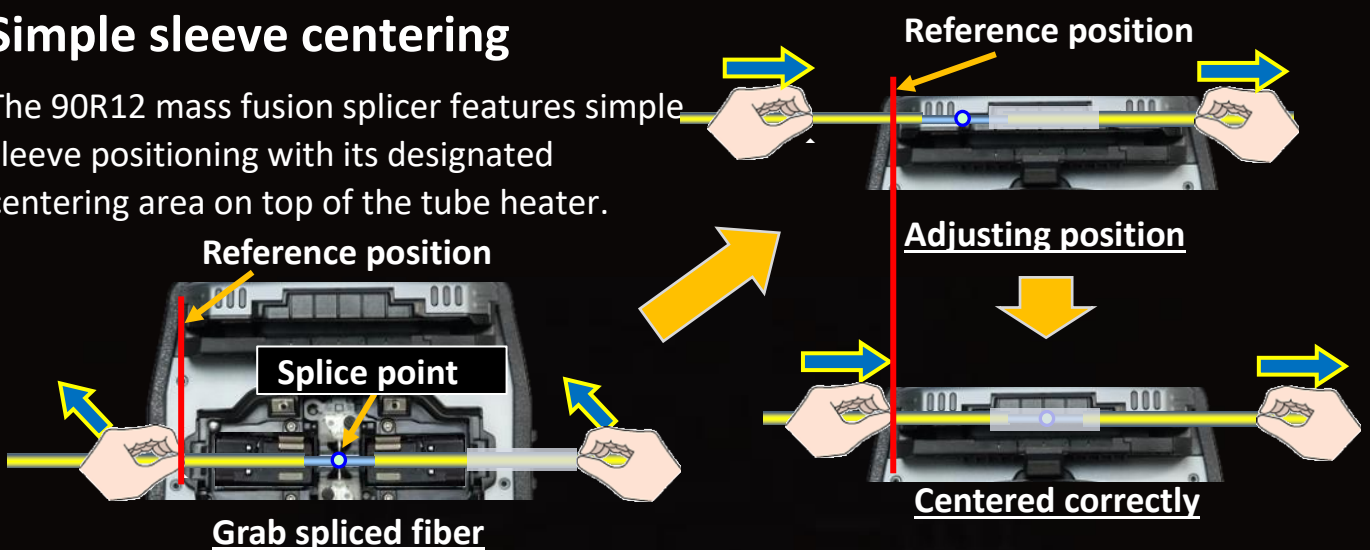
Automated open-close Wind protector



Automated Tube heater clamp

2. Simple sleeve centering

The 90R12 mass fusion splicer features simple sleeve positioning with its designated centering area on top of the tube heater.



3. Carrying Case

There are multiple ways to utilize the 90R12 carrying case. The 90R12 is ready to use just by opening the case, but it is also possible to use the 90R12 on top of the carrying case or only with the work tray depending on the work environment.

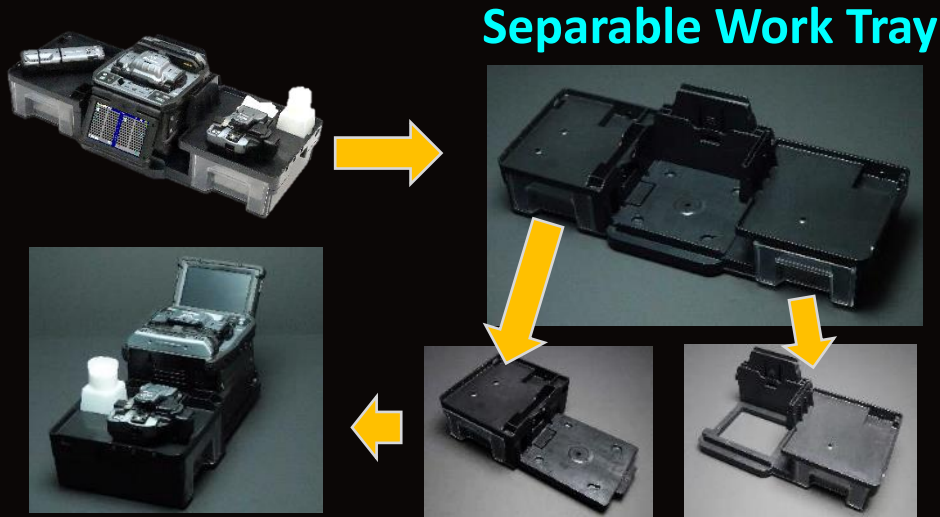


Lid of carrying case becomes a work tray

Work tray

4. Work Tray

The newly designed work tray has many functions. There are two drawers for storage, and the drawers are large enough to store tools or battery packs. Also, the work tray can be divided in two, so it is configurable to fit your work space.



Separable Work Tray

Plenty of space in carrying case



Cleaver & Stripper



Battery packs



Large storage space under work tray

Active Blade Management Technology

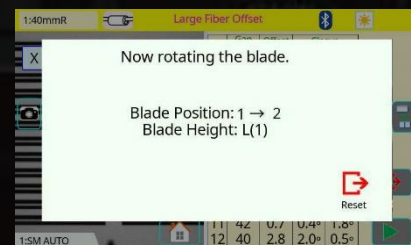
1. Automatic Blade Rotation

The 90R12 fusion splicer and CT50 fiber cleaver are enabled with wireless data connectivity. This capability allows automatic cleaver **blade** rotation when the splicer judges the blade is worn. Also, the 90R12 fusion splicer can connect to two CT50s and RS03 simultaneously.



Motorized blade

No.	Gap (μm)	Offset (μm)	Cleave (μm)	Angle (°)
1	62	0.9	0.8°	6.7°
2	65	1.6	0.8°	0.1°
3	57	1.2	0.7°	0.1°
4	65	0.7	0.6°	5.2°
5	60	1.6	0.4°	0.5°
6	46	0.3	0.2°	0.0°
7	46	0.2	0.5°	0.3°
8	55	1.7	0.8°	0.5°
9	50	1.7	0.1°	0.9°
10	56	1.7	0.8°	0.6°
11	49	1.9	0.6°	0.9°
12	41	1.2	0.2°	0.8°

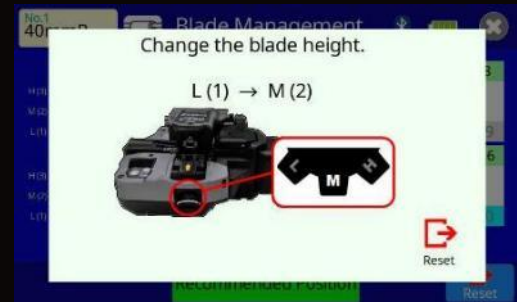


2. Blade Life Management

The 90R12 fusion splicer displays the remaining blade life and informs the user when a blade height change, position change, or new blade is required.

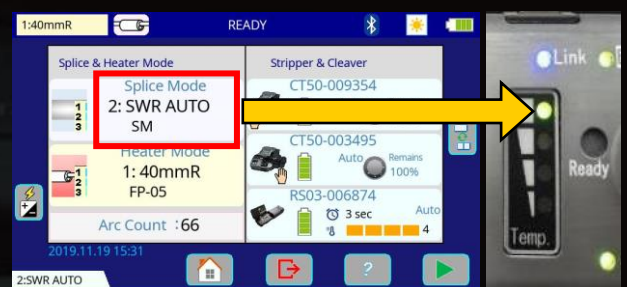
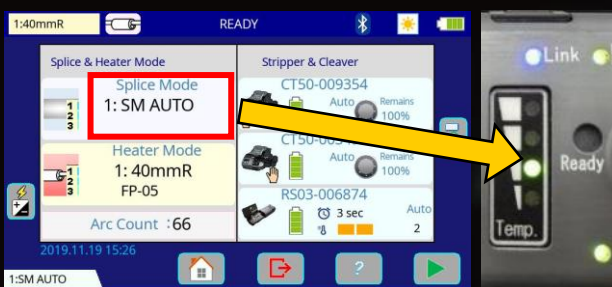
No.1 40mmR		Blade Management							
	No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	
H(3)	0	0	0	0	0	0	0	0	
M(2)	0	0	0	0	0	0	0	0	
L(1)	1014	1041	1175	1167	1522	1134	1530	1439	
	No.9	No.10	No.11	No.12	No.13	No.14	No.15	No.16	
H(3)	0	0	0	0	0	0	0	0	
M(2)	0	0	0	0	0	0	0	0	
L(1)	1185	1218	1025	1407	1338	1484	1259	1060	

Blade Height : L(1)
Recommended Position
Reset



3. Stripping Condition Control

When the user changes the splice mode, e.g. from 12 fiber ribbon splice mode to SWR fiber splice mode, the ribbon stripper RS03 automatically changes its heating temperature and time with a wireless command from the splicer.



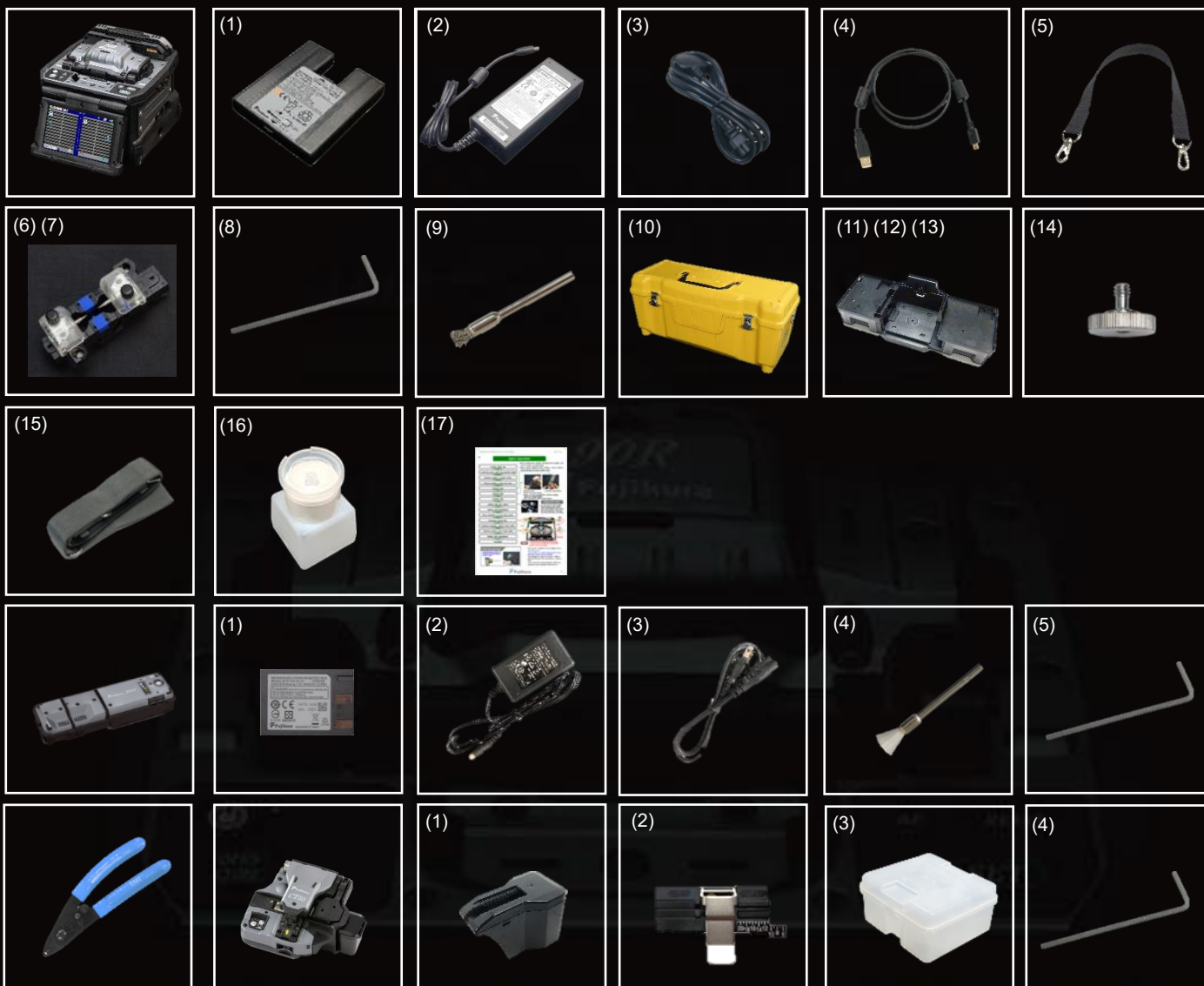
Heat temperature changes in accordance with Splice mode

Standard Package

90R12 Standard package

Item	Model	Qty
Mass Fusion Splicer	90R12	1 pc
(1) Battery Pack *	BTR-15	1 pc
(2) AC Adapter	ADC-20	1 pc
(3) AC Power Cord	ACC-14, 15, 16 or 17	1 pc
(4) USB Cable	ACC-01	1 pc
(5) Fusion Splicer Strap	ST-02	1 pc
(6) Electrodes (on spare V-groove)	ELCT2-16B	1 pair
(7) 12 fiber V-groove (spare)	VG12-01	1 pc
(8) Hexagonal Wrench	HEX-01	1 pc
(9) V-groove Cleaning Brush	VCB-01	1 pc
(10) Carrying Case	CC-39	1 pc
(11) Work Tray Left	WT-09L	1 pc
(12) Work Tray Right	WT-09R	1 pc
(13) Work Tray J-Plate	JP-09	1 pc
(14) Tripod Screw	TS-03	2 pcs
(15) Carrying Case Strap	ST-03	1 pc
(16) Alcohol Dispenser	AP-02	1 pc
(17) Quick Reference Guide	QRC-03-E, C or J	1 pc
Ribbon Fiber Stripper	RS03 or RS02	1 pc
(1) Battery Pack * (RS03 only)	BTR-12A	1 pc
(2) AC Adapter	ADC-09A	1 pc
(3) AC Power Cord	ACC-08, 09, 10, 11 or 12	1 pc
(4) Blade Cleaning Brush	BRS-02	1 pc
(5) Hexagonal Wrench	HEX-01	1 pc
Single Fiber Stripper	SS03 or SS01	1 pc
Optical Fiber Cleaver	CT50	1 pc
(1) Fiber Scrap Collector	FDB-05	1 pc
(2) Fiber Setting Plate	AD-10-M24	1 pc
(3) Case	CC-37	1 pc
(4) Hexagonal Wrench	HEX-01	1 pc

* Please follow IATA regulation when shipping the battery by air.



Specifications



90R12 Specifications

Item		Specification
Fiber alignment method		Self cladding alignment with melting surface tension
Fiber count can be spliced		Up to 12 fiber ribbon
Applicable fiber	Fiber type	Single mode optical fiber Multi mode optical fiber
	Cladding dia.	Approx. 125µm
Applicable coating	Fiber holder	Coating shape : Refer to options Cleave length : 10mm
	Splice loss *1	ITU-T G.652 : Avg. 0.05dB ITU-T G.651 : Avg. 0.02dB ITU-T G.653 : Avg. 0.08dB ITU-T G.655 : Avg. 0.08dB ITU-T G.657 : Avg. 0.05dB
Fiber splice performance	Splice time *2	SM FAST mode : Avg. 11 to 12sec. SM AUTO mode : Avg. 16 to 17sec.
	Sleeve type	Heat shrinkable sleeve
Applicable protection sleeve	Sleeve length	Max. 66mm
	Sleeve dia.	Max. 6.0mm before shrinking 40mm FP-05 mode : Avg. 38 to 40sec. 40mm FP-04T mode : Avg. 17 to 19sec. Single 40mm mode: Avg. 14 to 16sec. Single 60mm mode: Avg. 13 to 15sec.
Sleeve heat performance	Heat time *3	40mm FP-05 mode : Avg. 38 to 40sec. 40mm FP-04T mode : Avg. 17 to 19sec. Single 40mm mode: Avg. 14 to 16sec. Single 60mm mode: Avg. 13 to 15sec.
Fiber tensile test force		Approx. 2.0N
Electrode life *4		Approx. 1,500 splices
Physical description	Dimensions W	Approx. 170mm without projection
	Dimensions D	Approx. 173mm without projection
	Dimensions H	Approx. 150mm without projection
	Weight	Approx. 2.6kg including battery
Environmental condition	Temperature	Operate : -10 to 50 degreeC Storage : -40 to 80 degreeC
	Humidity	Operate : 0 to 95%RH non-condensing Storage : 0 to 95%RH non-condensing
	Altitude	Max. 3,700m
AC adaptor	Input	AC100 to 240V, 50/60Hz, Max. 1.5A
Battery pack	Type	Rechargeable Lithium Ion
	Output	Approx. DC14.4V / 6.380mAh
	Capacity *5	Approx. 165 splice and heat cycles
	Temperature	Recharge : 0 to 30 degreeC Storage : -20 to 30 degreeC
Display	Battery life *6	Approx. 500 recharge cycles
	LCD monitor	TFT 5 inches with touch screen
Magnification	Magnification	Approx. 20X : 12 ribbon to 60X : single
	V-grooves	LED lamp
Interface	PC	USB2.0 Mini B type
	External LED lamp	USB2.0 A type Approx. DCSV, 500mA
	Ribbon Stripper	Mini DIN 6pin DC12V, Max. 1A
	Wireless *7	Bluetooth 4.1 LE
Data storage	Splice mode	100 splice modes
	Heat mode	30 heat modes
	Splice result	20,000 splices
	Splice image	100 images
Screw hole for tripod		1/4-20UNC
Other features	Automatic functions	Splice mode select by fiber count analysis
		Discharge power calibration
		Wind protector : open/close
		Heater lid : open/close
		Heater clamp : open/close
	Reference guide	Video and PDF file stored in splicer
Electrode	Replaceable without tool	

90R12 Options

Item	Model	Remark
Fiber holder	FH-70-250	250µm coating diameter
	FH-70-900	900µm coating diameter
	FH-70-2	2 fiber ribbon
	FH-70-4	4 fiber ribbon
	FH-70-8	8 fiber ribbon
	FH-70-12	12 fiber ribbon
	FH-70-12PC	Pitch conversion for 12 fiber ribbon
	FH-FC-20	900µm in 2mm diameter jacket
Ribbonizing Tool	FH-FC-30	900µm in 3mm diameter jacket
	FH-60-LT900	900µm loose buffer fiber
	RT-02	200 to 250µm coating diameter
DC Adapter	FAT-04	250µm coating diameter with Glue
	DCA-03	Connect AC adapter not through battery
DC power cord	DCC-20	Car cigar socket to BTR15/DCA-03
	DCC-21	Car battery to BTR-15/DCA-03
	DCC-11	Splicer to ribbon stripper
Transfer Clamp	CLAMP-DC-12	Transferring drop cable on work tray
J-Plate	JP-10	Attaching to splicer, not to work tray
	JP-10-FC	JP-10 with fiber clamps
Protection sleeve	FP-04(T)	40mm up to 8 fiber ribbon
	FP-05	40mm up to 12

Notes

- *1: Measured with a cut-back method relevant to ITU-T and IEC standard after splicing Fujikura identical fibers. The average splice loss changes depending on the environmental condition and fiber characteristics.
- *2: Measured at room temperature. The definition of splice time is from the fiber image appeared in LCD monitor to the estimated loss displayed. The average splice time changes depending on the environmental conditions, fiber type, and fiber characteristics.
- *3: Measured at room temperature with the AC adaptor. The heat time is defined from the start beep sound to the finish beep sound. The average heat time changes depending on the environmental conditions, sleeve type and battery pack condition
- *4: The electrode life changes depending on the environmental conditions, fiber type and splice modes.
- *5: Test condition
 (1) Splice and heat time: 2 minutes cycle
 With 12 fiber ribbon and FP-05 sleeve
 (2) Using the splicer power save settings
 (3) Using a not degraded battery
 (4) At room temperature
 The battery capacity changes when testing with different conditions from the above.
- *6: The battery capacity halves after approx. 500 discharge and recharge cycles. The battery life is shortened further when using outside of the storage temperature range, operating temperature range, or if completely discharged by storing for a long time without recharging.
- *7: Bluetooth® mark and logos are the registered trademarks of Bluetooth SIG, Inc.

SS01/03 Specifications



Item	SS01	SS03
1) Stripping coating dia.	250µm	250µm
Fiber dia. after stripping	125µm cladding	125µm cladding
2) Stripping coating dia.	None	900µm
Fiber dia. after stripping	None	250µm coating
3) Stripping coating dia.	None	2000 to 3000µm
Fiber dia. after stripping	None	900µm coating
Dimension	Approx. 164 x 45 x 5mm	
Weight	Approx. 100g	

Fiber Protection Sleeve Specifications



Item	FP-03/FPS series	FP-04/05 series
Outer tube material	Polyethylene	
Inner tube material	Ethylene-Vinyl Acetate	
Strength member	Stainless	Quartz glass
Heat shrink operation	Temperature: -10 to 50 degreeC	
	Humidity: 0 to 95% non-condensing	
Storage	Temperature: -40 to 60 degreeC	
	Humidity: 0 to 95% non-condensing	

Specifications



CT50 Specifications

Item		Specifications
Applicable fiber	Fiber type	Single mode optical fiber Multi mode optical fiber
	Fiber count	Up to 16 fiber ribbon
	Cladding dia.	Approx. 125um
Applicable coating	Fiber plate	AD-10-M24 : Max. 900um coating diameter AD-50 : Max. 3mm coating diameter
	Fiber holder	Coating shape. : Refer to splicer options AD-10-M24 : 5 to 20mm *1
Cleave length	Fiber plate	AD-50 [CD : coating diameter] CD= 250um or less : 5 to 20mm *1 250um < CD < 1000um : 10 to 20mm 1000um < CD < 3mm : 14 to 20mm
	Fiber holder	Approx. 10mm
Cleave angle *2	Single fiber	Avg. 0.3 to 0.9 degrees
	Fiber ribbon	Avg. 0.3 to 1.2 degrees
Blade life *3		Approx. 60,000 fiber cleaves
Physical description	Dimensions W	Approx. 120mm when closing the lever
	Dimensions D	Approx. 95mm when closing the lever
	Dimensions H	Approx. 58mm when closing the lever
	Weight	Approx. 305g including battery and AD-10-M24
Environmental condition	Temperature	Operate : -10 to 50 degreeC Storage : -40 to 80 degreeC
	Humidity	Operate : 0 to 95% non-condensing Storage : 0 to 95% non-condensing
Battery		2 pieces of LR03/AAA dry battery
Wireless interface *4		Bluetooth 4.1 LE
Screw hole for tripod		1/4-20UNC
Other features	Blade rotation	Motorized rotation Manual rotation dial
	Replaceable parts	Blade
		Clamp arm

CT50 Options

Item	Model Name	Remark
Blade	CB-08	Blade for replacement
Clamp Arm	ARM-CT50-01	Clamp arm with anvil for replacement
Fiber Scrap Collector	FDB-05	Spare scrap collector
Side cover	SC-CT50-01	Side cover instead of scrap collector

Notes

- *1: When the cleave length is from 5 to 10mm, the coating diameter should be 250um or less. Also, a blade height adjustment is required before cleaving. The average cleave angle is worse than the specification when the cleave length is 5 to 10mm.
- *2: Measured with an interferometer at room temperature, not with a splicer. A new blade was used to cleave both the single fibers and 12 fiber ribbons. The cleave length is set from 10 to 16mm. The average cleave angle changes depending on the environmental conditions, blade condition, operating method, and cleanliness.
- *3: The blade life changes depending on the environmental conditions, operating method, and the fiber type cleaved.
- *4: Bluetooth® mark and logos are the registered trademarks of Bluetooth SIG, Inc.



RS03 Specifications

Item		Specifications
Applicable fiber	Fiber type	Single mode optical fiber Multi mode optical fiber
	Fiber count	Up to 16 fiber ribbon
	Cladding dia.	Approx. 125um
	Coating dia.	200 to 400um
Strip length		Max. 35mm
Heat time *1		Approx. 3sec Approx. 5sec with Eco-mode
	Heat temperature	85 to 140 degree C
Physical description	Dimensions W	Approx. 156mm without projection
	Dimensions D	Approx. 49mm without projection
	Dimensions H	Approx. 37mm without projection
	Weight	Approx. 265g including battery
Environmental condition	Temperature	Operate : -10 to 50 degreeC Storage : -40 to 80 degreeC
	Humidity	Operate : 0 to 95%RH non-condensing Storage : 0 to 95%RH non-condensing
AC adaptor	Input	AC100 to 240V, 50/60Hz, Max. 0.58A
DC adaptor	Input	DC10 to 17V, Approx. 1A
Battery	Type	Rechargeable Lithium Ion
	Output	Approx. DC7.2V / 1,840mAh
	Capacity *2	Approx. 600 times with Eco-mode
	Temperature	Recharge : 0 to 40 degreeC Storage : -20 to 30 degreeC
	Battery life *3	Approx. 500 recharge cycles
Wireless interface *4		Bluetooth 4.1 LE
Other features	Strip operation	Lower stripping force than previous model
	Setting change	Controlled from splicer or smartphone

RS03 Options

Item	Model Name	Remark
Spacer	SPA-RS02-08	Coating length 8mm
DC power cord	DCC-11	Splicer to ribbon stripper

Notes

- *1: Measured at room temperature. The heat time changes depending on the environmental conditions and fiber coating type.
- *2: Tested at room temperature with a not degraded battery and Eco-mode. The number of cycles changes depending on the environmental conditions, stripper settings and battery condition.
- *3: The battery capacity halves after approx. 500 discharge and recharge cycles. The battery life is shortened further when using outside of the storage temperature range, operating temperature range, or if completely discharged by storing for a long time without recharging.
- *4: Bluetooth® mark and logos are the registered trademarks of Bluetooth SIG, Inc.

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<https://www.fusionsplicer.fujikura.com>

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