FUJIKURA 90R12 KIT

MASS FUSION SPLICER

Distribution

PRODUCT OVERVIEW

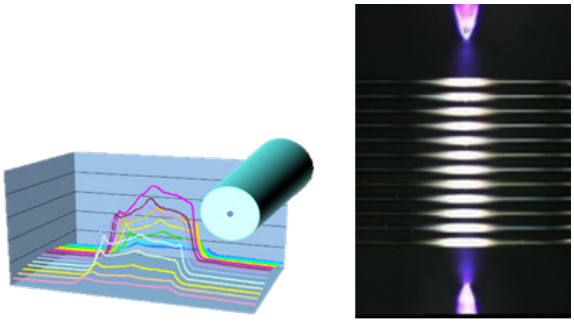
The 90R12 is a mass fusion splicer capable of splicing up to 12-fibre ribbons, while the 90R16 can splice up to 16-fibre ribbons.

The 90R series is the first of its kind with an innovative user replaceable V-groove assembly which can be quickly and easily fitted in the field to minimise downtime and maximise productivity. The replaceable V-grooves improves cleanliness; previously splicing debris could lead to fibre offsets and high losses if the V-grooves weren't regularly cleaned.

Spare replaceable V-grooves are supplied as standard items in the 90R kit. The V-groove design enables splicing of conventional type 12-fibre encapsulated ribbon and SWR (SpiderWeb Ribbon) while also accommodating 250µm and 200µm pitch fibres. The 90R12 can also splice single fibres if required.

Mass Fusion Technology

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



Analysing arc power by observing the brightness intensity

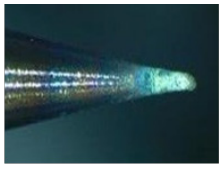
Features

- The 90R series is suitable for 4, 12 and 16-fibre ribbon
- Improved Automatic Wind Protector design reduces overall splice time
- Innovative user replaceable V-grooves with an extensive range of fibre holders giving application versatility and the agility to avoid cleanliness issues
- High-capacity lithium-ion battery which provides up to 165 12-fibre splices and heat shrinks
- Pitch converter system enables splicing of both 200µm and 250µm single fibres
- Multifunction case and workstation ensures that the splicer is ready to work simply by opening the case
- Active Blade Management Technology communicates with the CT50 fibre cleaver allowing the 90R to advise user when blade height or position needs changing or blade replacing.
- For easier workflow stripping condition control enables the RS03 stripper to automatically adjust settings when fibre mode is changed

Advanced Innovation
Replaceable V Groove

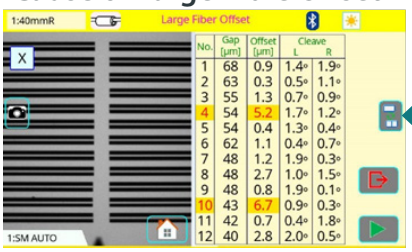
The 90R12 mass fusion splicer includes a spare set of 12 fibre V-grooves with electrodes installed and ready to splice as part of the standard package. These spare V-grooves are field replaceable, so your downtime is minimised.

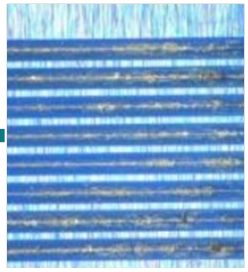
Glass deposition on Electrode



Glass deposition on V-groove

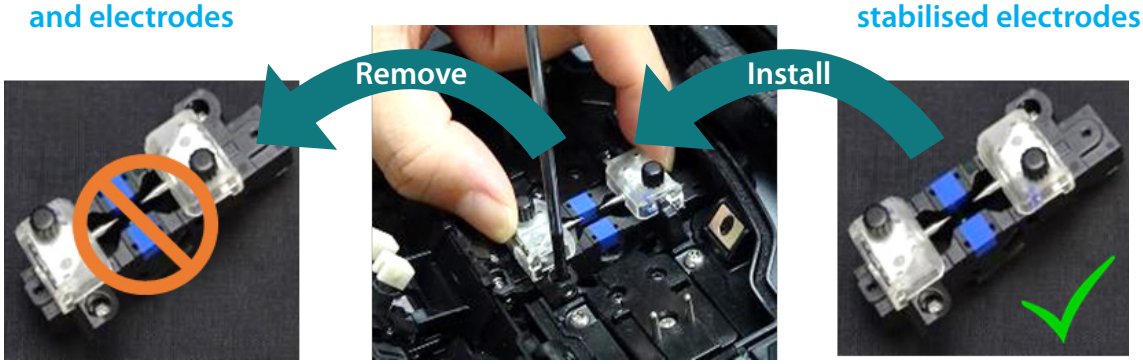
Cause of Large Fibre Offset





Glass deposited V-groove and electrodes

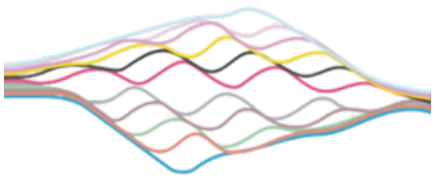
Spare V-groove with stabilised electrodes



Universal Features

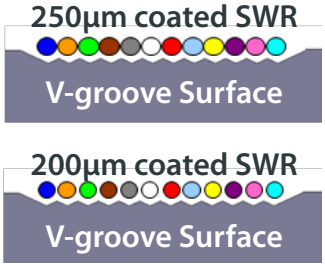
1. Universal Fibre Holder

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



SWR

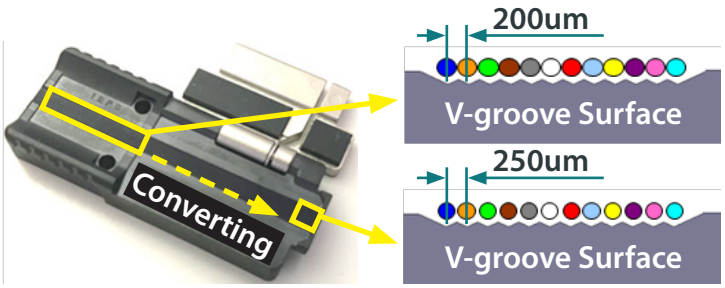
FH-70-12



2. Pitch Conversion Fibre Holder

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

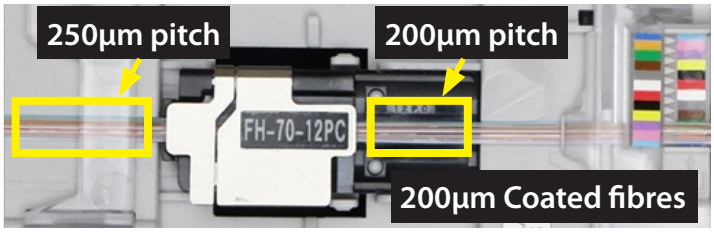
FH-70-12



3. Ribbonising Tool

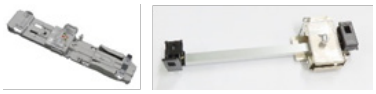
The RT-02 is a tool which enables quick and easy ribbonisation of 12 individual fibres into a temporary ribbon which can be spliced using an 90R12. No glue or adhesive is required when using this ribbonising tool since the arranged fibres are immediately loaded into the fibre holder. The RT-02 doesn't require the user to insert the fibres in the colour 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 colour code label on the tool. The RS-02 is applicable to ribbonise both 200µm and 250µm coated fibres. It's also capable of ribbonising 200µm coated fibres into 250µm pitch ribbon using the FH-70-12PC pitch conversion fibre holder.

RT-02



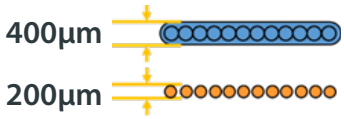
Ribbonising 200µm coating fibre

4. Necessary Tools for Mass Fusion Splicing

12 Fibre Ribbon Structure		Fibre Holder	Ribbonising Tool
SWR and Encapsulated Ribbon	250um coating diameter with 250µm pitch	FH-70-12 	Not required
	200um coating diameter with 250µm pitch		
Non-ribbonised Fibres	250µm coating diameter		RT-02 or FAT-04 
	200µm coating diameter	FH-70-12PC 	RT-02 

5. Universal Ribbon Stripper

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



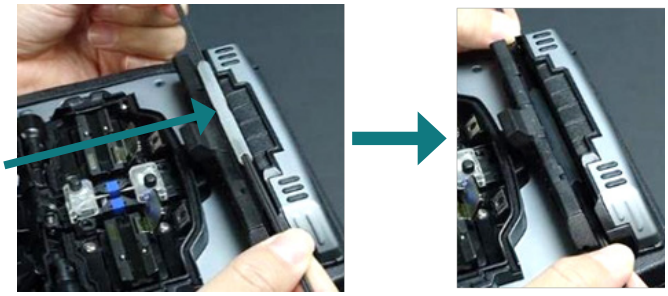
Available thickness range

RS03

6. Universal Tube Heater

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

Maximum 6.0mm diameter before shrinking



User Friendly

1. Automated Functionality

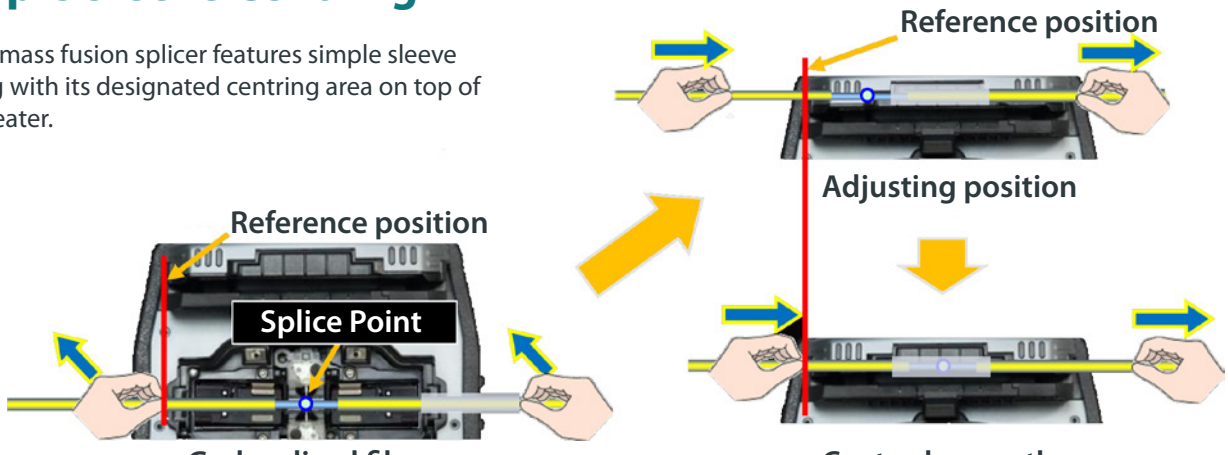
The automated wind protector and heater clamps support the operator in completing the entire splicing process with minimal manual steps.

Automated open-close Wind protector

Automated Tube heater clamp

2. Simple Sleeve Centring

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

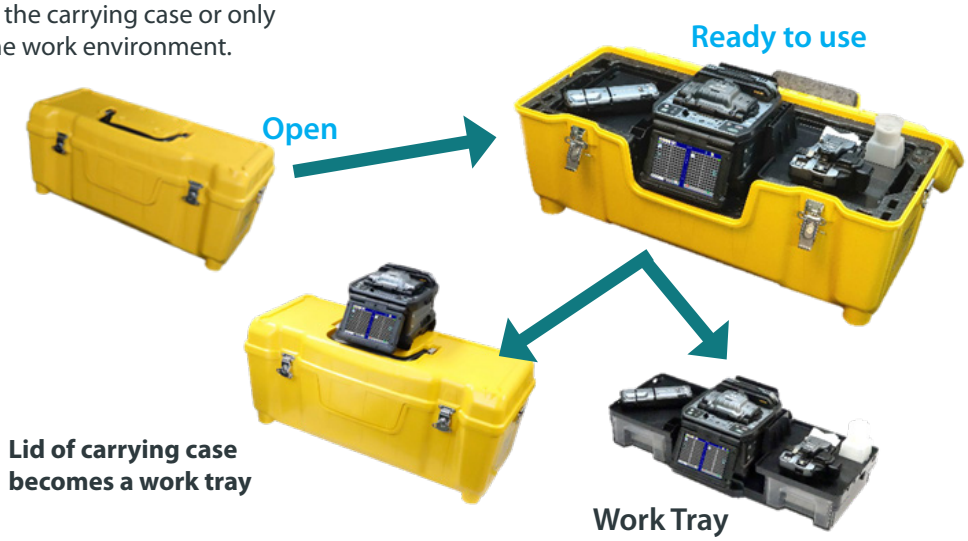


Grab spliced fibre

Centred correctly

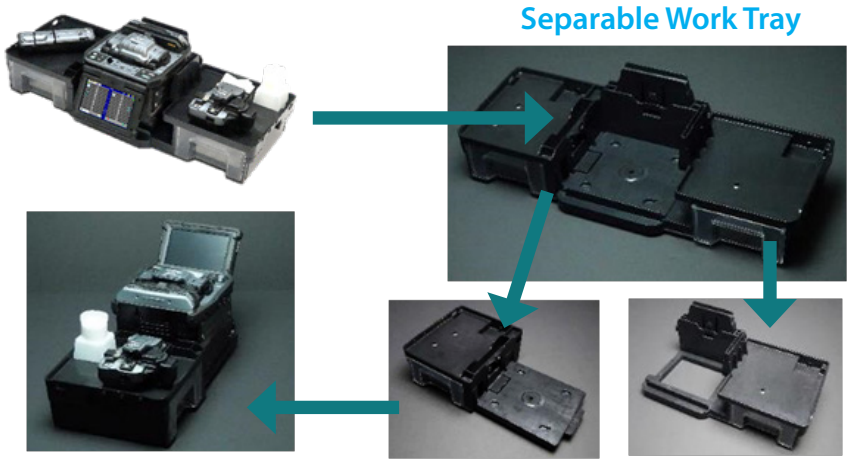
3. Carrying Case

There are multiple ways to utilise 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.



4. Work Tray

The newly designed work tray has many functions. There are two drawers for storage which 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.



Plenty of Space in Carrying Case

Cleaver & Stripper

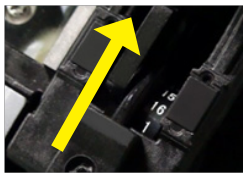
Battery Packs

Large Storage Space Under Work Tray

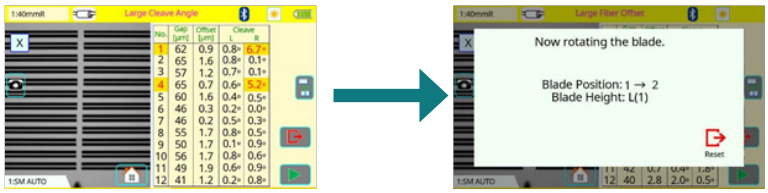
Active Blade Management Technology

1. Automatic Blade Rotation

The 90R12 fusion splicer and CT50 fibre 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.

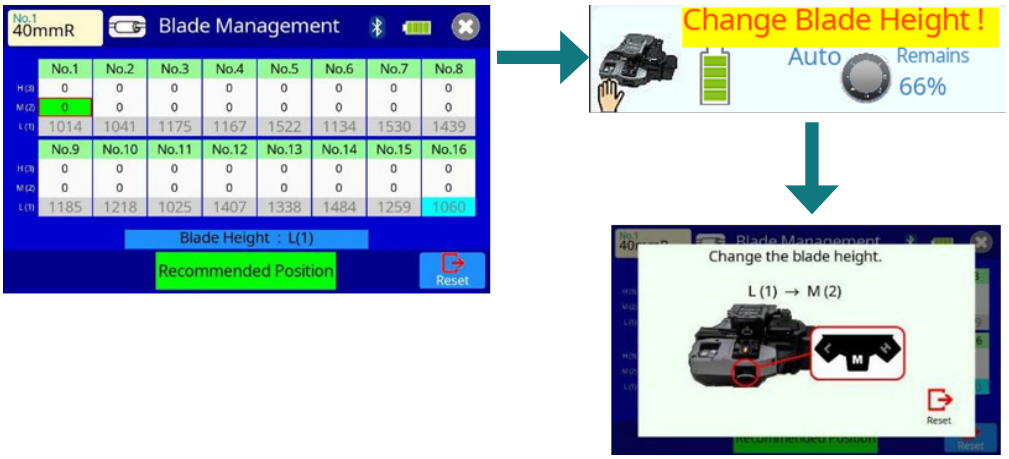


Motorised blade



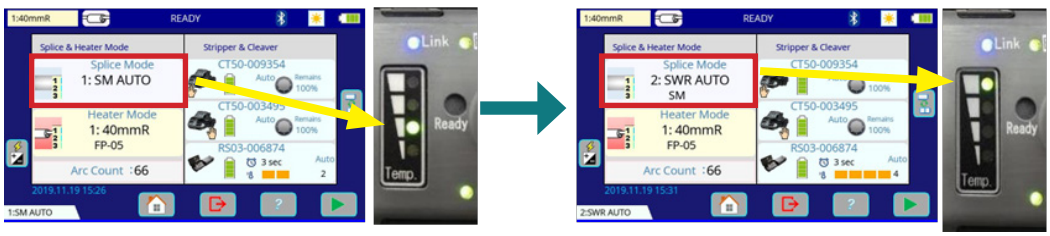
2. Blade Life Management

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.



3. Stripping Condition Control

When the user changes the splice mode, e.g. from 12 fibre ribbon splice mode to SWR fibre 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

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Description	Model No.	Qty
Mass Fusion Splicer	90R12	1pc
1- Battery Pack*	BTR-15	1pc
2 - AC Adapter	ADC-20	1pc
3 - AC Power Cord	ACC-14, 15, 16 or 17	1pc
4 - USB Cable	USB-01	1pc
5 - Fusion Splicer Strap	ST-02	1pc
6 - Electrodes (on spare V-groove)	ELCT2-16B	1pair
7 - 12 Fibre V-groove (spare)	VG12-01	1pc
8 - Hexagonal Wrench	HEX-01	1pc
9 - V-groove Cleaning Brush	VCB-01	1pc
10 - Carrying Case	CC-39	1pc
11 - Work Tray Left	WT-09L	1pc
12 - Work Tray Right	WT-09R	1pc
13 - Work Tray J-Plate	JP-09	1pc
14 - Tripod Screw	TS-03	1pc
15 - Carrying Case Strap	ST-03	1pc

Description	Model No.	Qty
16 - Alcohol Dispenser	AP-02	1pc
17 - Quick Reference Guide	QRG-03-E, C or J	1pc
Ribbon Fibre Stripper	RS03 or RS02	1pc
A - Battery Pack* (RS03 only)	BTR-12A	1pc
B - AC Adapter	ADC-09A	1pc
C - AC Power Cord	ACC-08, 09, 10, 11 or 12	1pc
D - Blade Cleaning Brush	BRS-02	1pc
E - Hexagonal Wrench	HEX-01	1pc
Single Fibre Stripper	SS03 or SS01	1pc
Optical Fibre Cleaver	CT50	1pc
i - Fibre Scrap Collector	FDB-05	1pc
ii - Fibre Setting Plate	AD-10-M24	1pc
iii - Case	CC-37	1pc
iv - Hexagonal Wrench	HEX-01	1pc

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

90R12 Specifications

Item		Specification
Fibre alignment method		Self cladding alignment with melting surface tension
Fibre count can be spliced		Up to 12 fibre ribbon
Applicable fibre	Fibre Type	Single mode fibre
		Multi mode fibre
	Cladding dia.	Approx. 125µm
Applicable coating	Fibre holder	Coating shape: Refer to options
		Cleave length : 10mm
Fibre splice performance	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
	Splice time *2	SM FAST mode : Avg. 11 to 12sec.
		SM AUTO mode : Avg. 16 to 17sec.
Applicable protection sleeve	Sleeve type	Heat shrinkable sleeve
	Sleeve length	Max. 66mm
	Sleeve dia.	Max. 6.0mm before shrinking
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.
Fibre tensile test force		Approx. 2.0N
Electrode life *4		Approx. 1500 splices
Physical description	Dimensions W	Approx.170mm w/o projection
	Dimensions D	Approx.173mm w/o projection
	Dimensions H	Approx.150mm w/o projection
	Weight	Approx. 2.6kg inc. battery
Environmental condition	Temperature	Operate : -10 to 50 °C
		Storage : -40 to 80 °C
	Humidity	Operate : 0 to 95%RH non-condensing
		Storage : 0 to 95%RH non-condensing
	Altitude	Max. 3700m
AC adaptor	Input	AC100 to 240V, 50/60Hz, Max. 1.5A
Battery pack	Type	Rechargeable Lithium Ion
	Output	Approx. DC14.4V, 6380mAh
	Capacity *5	Approx. 165 splice and heat cycles
	Temperature	Recharge : 0 to 30 °C
		Storage : -20 to 30 °C
	Battery life *6	Approx. 500 recharge cycles
Display	LCD monitor	TFT 5 inches with touch screen
	Magnification	Approx. 20X : 12 ribbon to 60X : single
Illumination	V-grooves	LED lamp
Interface	PC	USB2.0 Mini B type
	External LED lamp	USB2.0 A type - Approx. DC5V, 500mA
	Ribbon Stripper	Mini DIN 6pin - DC12V, Max. 1A
	Wireless *7	Bluetooth 4.1 LE

Item		Specification
Data storage	Splice mode	100 splice modes
	Heat mode	30 heat modes
	Splice result	20000 splices
	Splice image	100 images
Screw hole for tripod		1/4-20UNC
Other features	Automatic functions	Splice mode selected using fibre type analysis
		Fusion 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	Remarks
Fibre holder	FH-70-250	250µm coating diameter
	FH-70-900	900µm coating diameter
	FH-70-2	2 fibre ribbon
	FH-70-4	4 fibre ribbon
	FH-70-8	8 fibre ribbon
	FH-70-12	12 fibre ribbon
	FH-70-12PC	Pitch conversion for 12 fibre ribbon
	FH-FC-20	900µm in 2mm diameter cable
	FH-FC-30	900µm in 3mm diameter cable
	FH-60-LT900	900µm loose buffer fibre
Ribbonising Tool	RT-02	200 to 250µm coating diameter
	FAT-04	250µm coating diameter with Glue
DC Adapter	DCA-03	Connect AC adapter not through battery
DC power cord	DCC-20	Car cigar socket to BTR-15/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-10FC	JP-10 with fibre clamps
Protection sleeve	FP-04(T)	40mm up to 8 fibre 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 fibres. The average splice loss changes depending on the environmental condition and fibre characteristics.
*2 Measured at room temperature. The definition of splice time is from the fibre image appearing on LCD monitor to the estimated loss displayed. The average splice time changes depending on the environmental conditions, fibre type, and fibre characteristics.
*3 Measured at room temperature with the AC adapter. 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, fibre type and splice modes.
*5 Test condition
(1) Splice and heat time : 2 minutes cycle with 12 fibre 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.
*7 The battery capacity decreases to a half after approx. 500 discharge and recharge cycles, The battery life is shortened further when using outside of the storage temperature range, operating temperature range, if completely discharged by storing for a long time without recharging.
*8 Bluetooth® mark and logos are the registered trademarks of Bluetooth SIG, Inc.

SS01/03 Specifications

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

Fibre Protection Sleeve Specifications

Item	FP-03/FPS Series	FP04/05 Series
Outer tube material	Polyethylene	
Inner tube material	Ethylene-Vinyl Acetate	
Strength member	Stainless	Quartz glass
Heat shrink operation	Temperature: -10 to 50 °C	
	Humidity: 0 to 95% non-condensing	
Storage	Temperature: -40 to 60 °C	
	Humidity: 0 to 95% non-condensing	

CT50 Specifications

Item		Specification
Applicable fibre	Fibre type	Single mode fibre
		Multi mode fibre
	Fibre count	Up to 16 fibre ribbon
	Cladding dia.	Approx. 125µm
Applicable coating	Fibre plate	AD-10-M24 : Max. 900µm coating diameter
		AD-50 : Max. 3mm coating diameter
	Fibre holder	Coating shape. : Refer to splicer options
Cleave length	Fibre plate	AD-10-M24 : 5 to 20mm *1
		AD-50 *C.D. : coating diameter C.D. = 250µm or less : 5 to 20mm *1 250µm < C.D. < =900µm : 10 to 20mm 900µm < C.D. < =3mm : 14 to 20mm
	Fibre holder	Approx. 10mm
Cleave angle *2	Single fibre	Avg. 0.3 to 0.9 degrees
	Fibre ribbon	Avg. 0.3 to 1.2 degrees
Blade life *3		Approx. 60000 fibre 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 inc. battery & AD-10-M24
Environmental condition	Temperature	Operate : -10 to 50 °C
		Storage : -40 to 80 °C
	Humidity	Operate : 0 to 95%RH non-condensing
		Storage : 0 to 95%RH 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	Motorised rotation
		Manual rotation dial
	Replaceable parts	Blade
		Clamp arm

CT50 Options

Item	Model	Remarks
Blade	CB-08	Blade for replacement
Clamp Arm	ARM-CT50-01	Clamp arm with anvil for replacement
Fibre 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 5mm to 10mm, the coating diameter should be 250µm 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 fibres and 12 fibre 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 fibre type cleaved.

*4 Bluetooth® mark and logos are the registered trademarks of Bluetooth SIG, Inc.

RS03 Specifications

Item		Specification
Applicable fibre	Fibre type	Single mode fibre
		Multi mode fibre
	Fibre count	Up to 16 fibre ribbon
	Cladding dia.	Approx. 125µm
	Coating dia.	200 to 400µm
Strip length		Max. 35mm
Heat time *1		Approx. 3sec
		Approx. 5sec with Eco-mode
Heat temperature		85 to 140 °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 °C
		Storage : -40 to 80 °C
	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 °C
		Storage : -20 to 30 °C
	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	Remarks
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 fibre 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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