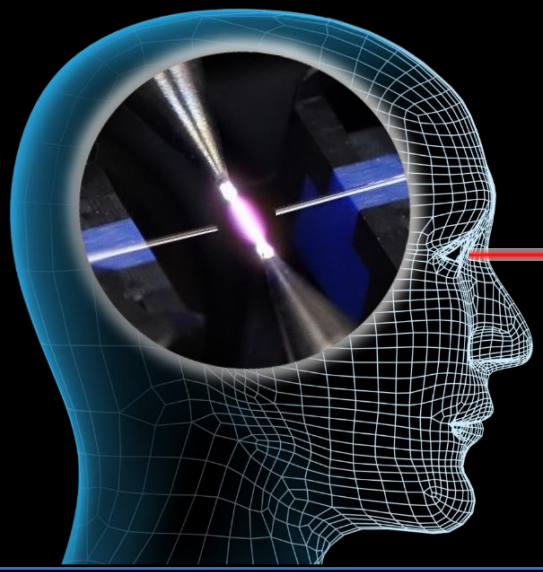
Core Alignment Fusion splicer 90S+ kit

ACTIVE FUSION

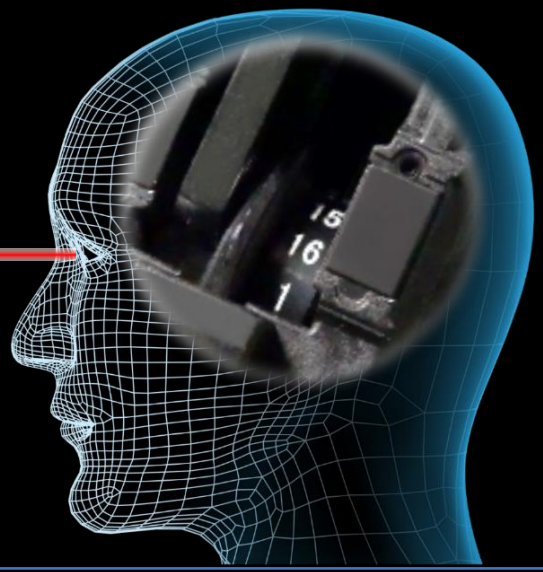
CONTROL TECHNOLOGY

ACTIVE BLADE

MANAGEMENT TECHNOLOGY



Enhanced Splice Quality



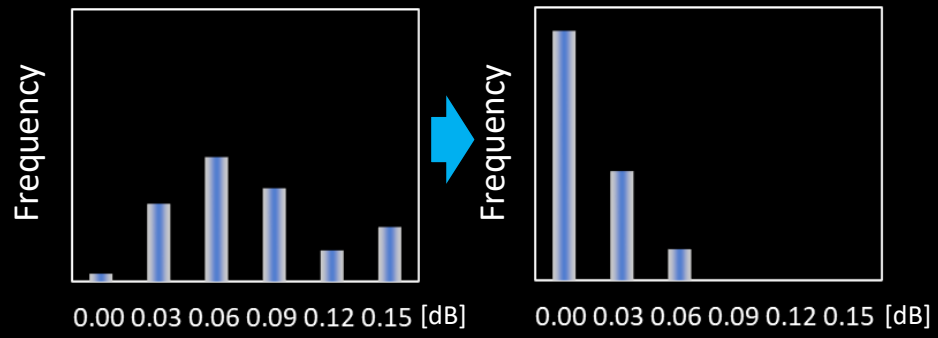
Fujikura

Active Fusion Control Technology

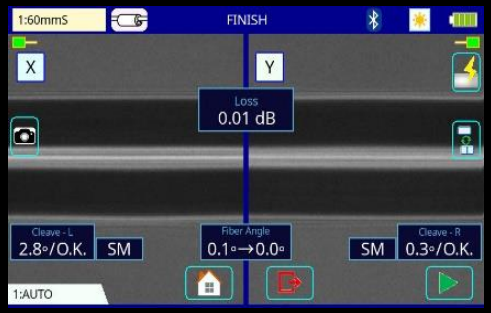
ACTIVE FUSION
CONTROL TECHNOLOGY

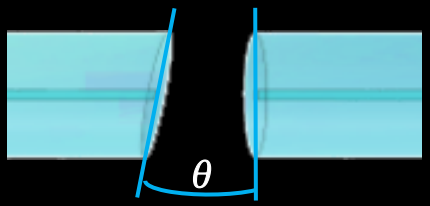
1. Active Fusion control by cleave condition

One of main causes of high splice loss is bad cleave end face. The 90S+ analyzes the condition of both L and R cleave end faces and performs optimal fusion control. This new technology improves splice loss significantly and reduces the risk of re-installation.



Splice loss with large cleave angle : $3 < \theta < 5$ degree

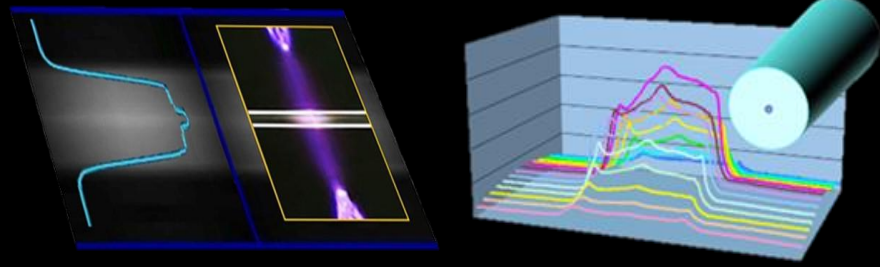




*G.652 splicing result measured with a cut-back method. The splicing result changes depending on the fiber type and fiber characteristics.

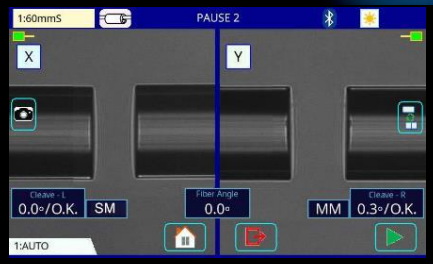
2. Active Fusion control by fiber brightness

Fusion is easily affected by changes in the environment. The 90S+ uses real-time fusion parameter control by analyzing the fiber's brightness intensity during fusion. It contributes to stable, reduced splice loss.

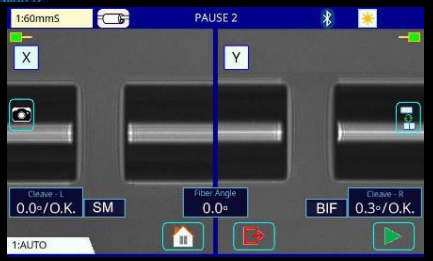


3. Active Fusion control by fiber discrimination

Adequate splice parameters may differ depending on fiber type. The 90S+ automatically applies the optimum splice parameters depending on the fiber type.



Left:G.652-Right:G.651



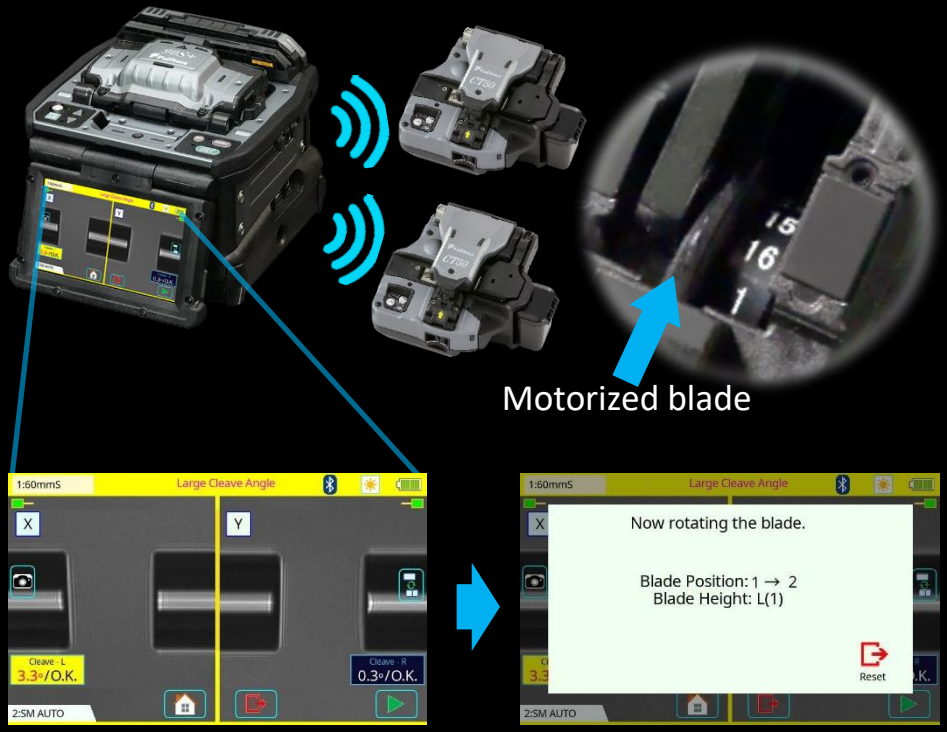
Left:G.652-Right:G.657

Active Blade Management Technology

ACTIVE BLADE
MANAGEMENT TECHNOLOGY

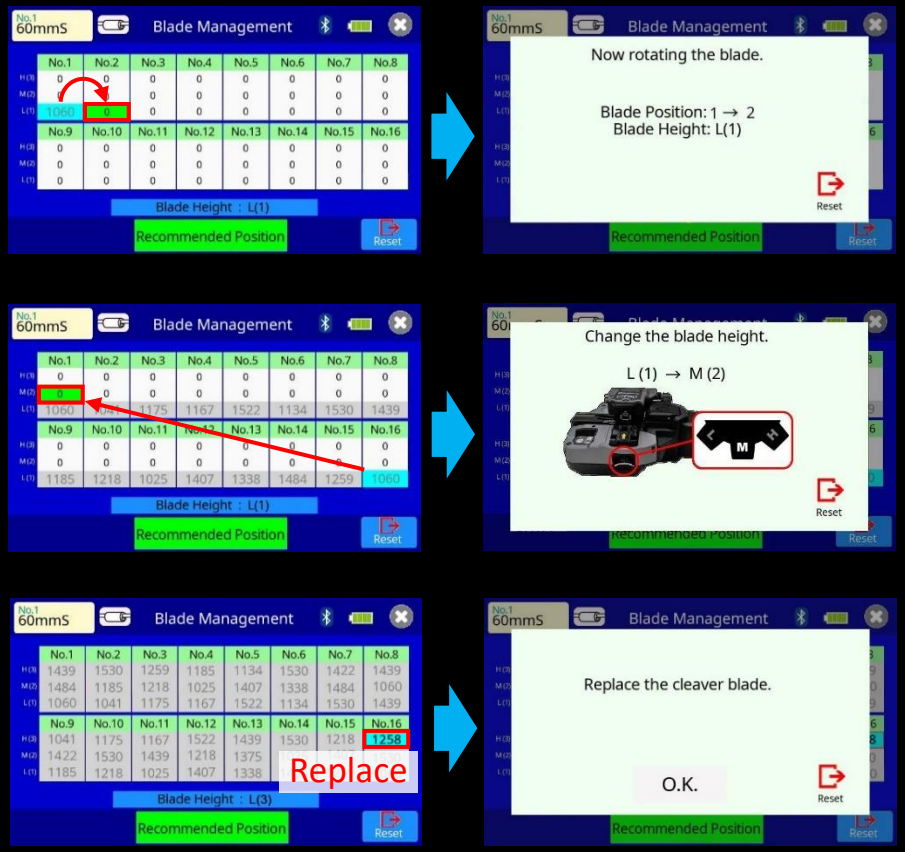
1. Active Blade rotation by motor

The 90S+ and CT50 fiber cleaver are enabled with wireless data connectivity. This capability allows automatic cleaver blade rotation when the 90S+ judges the blade is worn. The 90S+ can connect to two CT50s simultaneously.



2. Active Blade life management

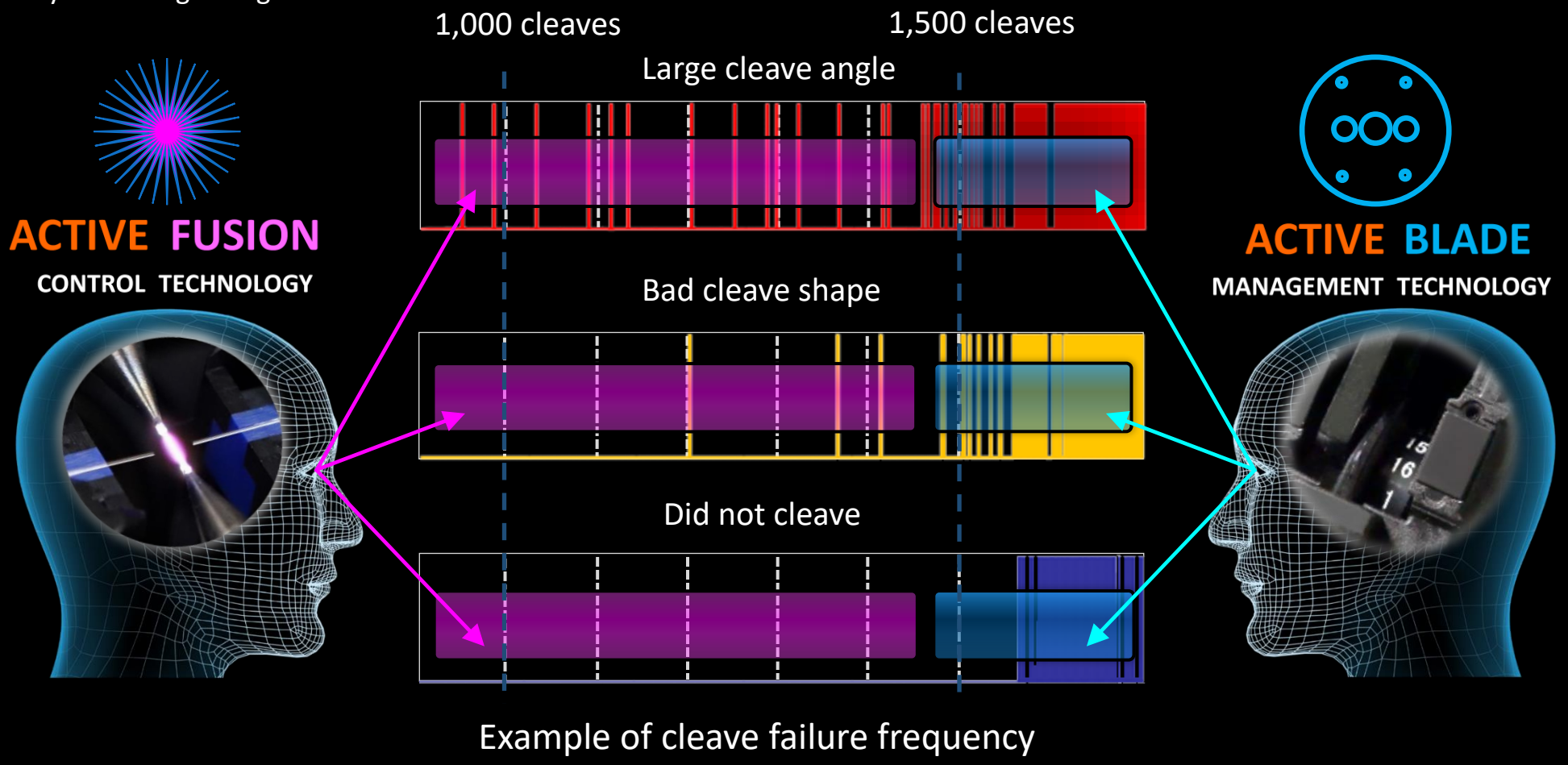
The 90S+ displays the remaining blade life and informs the user when a blade height change, position change, or new blade is required.



Enhanced Splice Quality

The below graphs show the number of cleaves on the horizontal line with frequency of large cleave angle, bad cleave shape and no cleave at all. When the frequency of large cleave angle increases, **Active Blade** Management Technology can detect this increasing ratio point and rotate the blade position automatically. **Active Blade** Management Technology significantly reduces frequency of large cleave angles occurring but even when it does occur **Active Fusion** Control Technology can reduce high splice loss by precise fusion control.

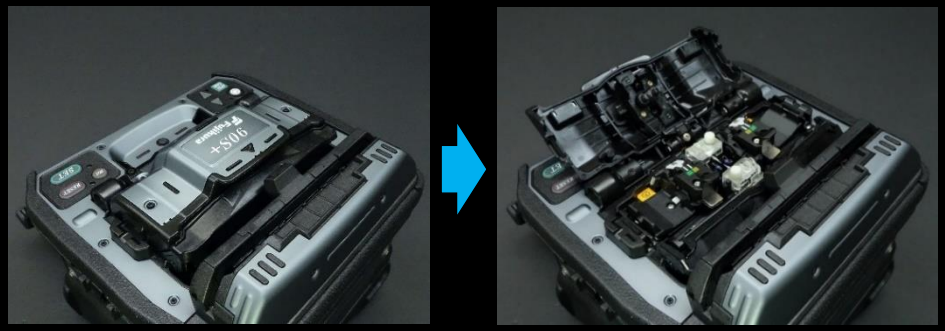
The 90S+ can minimize the occurrence of high splice loss and contribute to reduce the risk of re-Installation by using these 2 key technologies together.



Operation Time Reduction

1. Automatic Open-Close Wind protectors

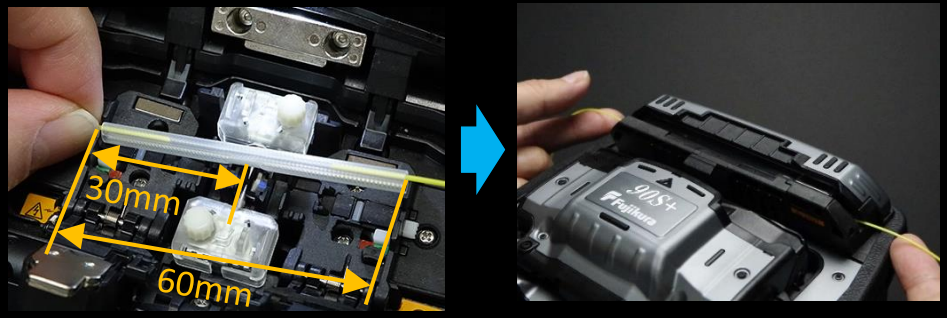
The faster automated features of the 90S+ reduce installation times. With this splicer, an operator can complete the entire splice process from splicing to heating without touching the 90S+ and only moving the fiber.



Automatic Open-Close wind protectors

2. Operation time reduction

The shape of the sheath clamp is optimized for 60mm length protection sleeves. The length from splice point to the edge of the sheath clamp is 30mm. Therefore, it is easy to center the protection sleeve over the splice by using your fingers to reference the splice point.

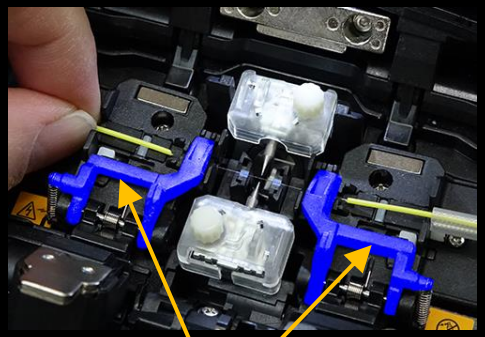


Easy centering

Automatic heater clamp

3. Fiber retention clamp

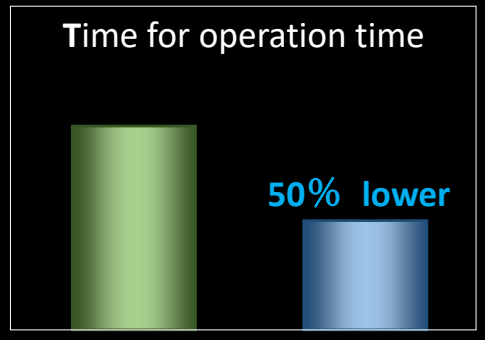
The fiber retention clamps support the automated operations. When the sheath clamps open automatically after splicing, the fiber retention clamps gently hold the spliced fiber to keep it from flying out. The retention clamps release when the fiber is lifted by the operator.



Fiber retention clamps

4. Operation time reduction

These functions enable the 90S+ to reduce operation time by 50% over the previous model.



User Friendly

1. Carrying Case

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

Ready to use

Open

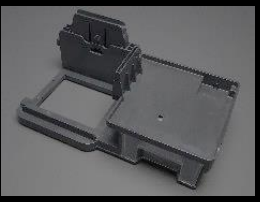
Lid of carrying case becomes a work tray

Large storage space under work tray

2. 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.

Separable Work Tray



Cleaver & Stripper

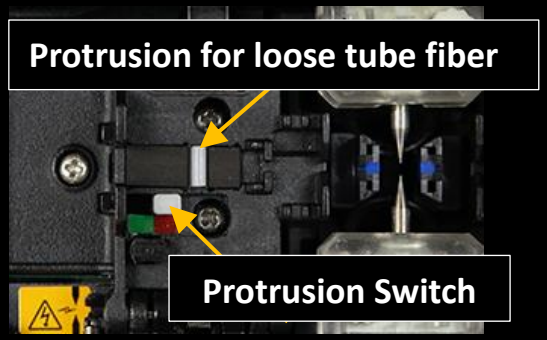
Plenty of space in work tray

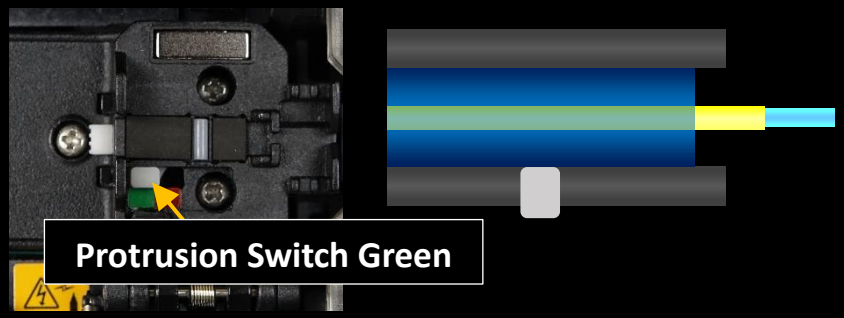
Battery packs

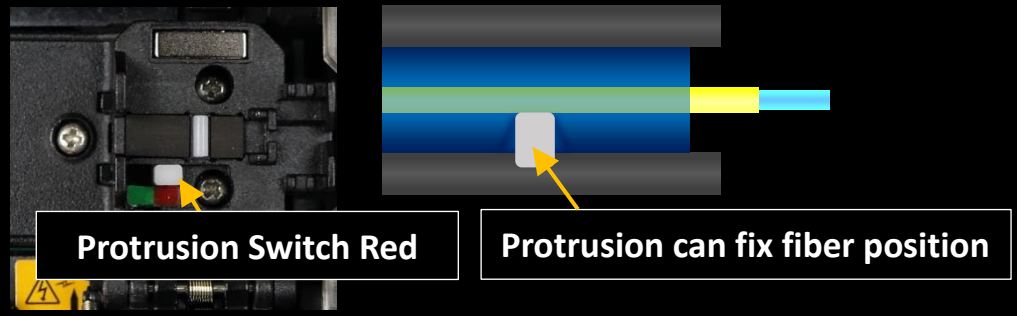
User Friendly

3. Loose tube Compatibility

The sheath clamp of the 90S+ is compatible with loose tube fiber. The Protrusion part on of the sheath clamp for loose tube fiber engages or retracts by simply changing the switch position with your finger.

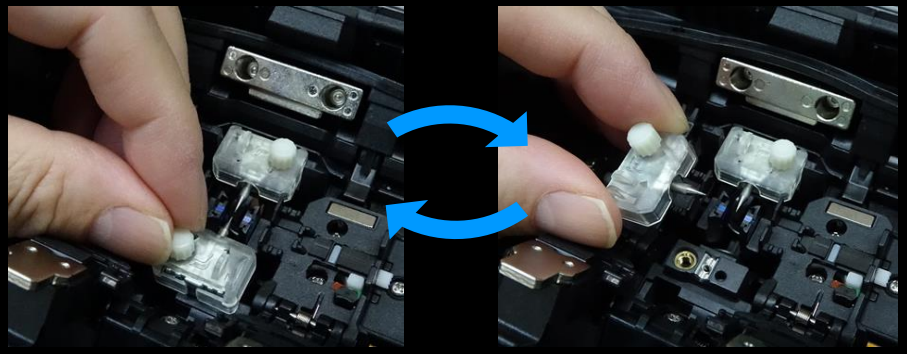




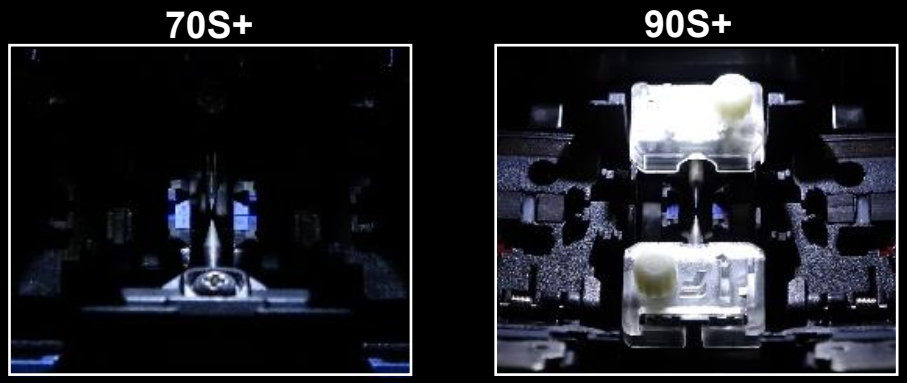


4. Tool-less Electrodes and illumination

The 90S+ electrodes come as an “assy” including the fixing screw. You can rotate the screw by hand without tools, enabling easy electrode replacement.



The transparent electrode covers support wider illumination of the v-groove. As the sheath clamp opens on the opposite side of the illumination lamp, the sheath clamp area is illuminated without shadow.



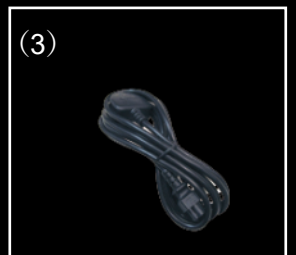
Wider Illumination range

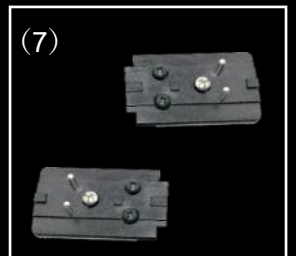
Standard Package

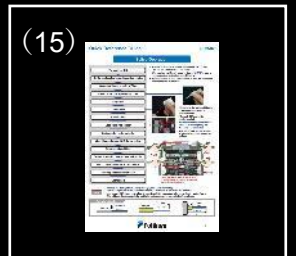
90S+ Standard Package

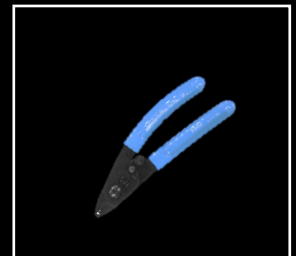
Description	Model No.	Qty
Core Alignment Fusion Splicer	90S+	1pc
(1) Battery Pack*	BTR-15	1pc
(2) AC Adapter	ADC-20	1pc
(3) AC Power Cord	ACC-14, 15, 16 17or 18	1pc
(4) USB Cable	USB-01	1pc
(5) Fusion Splicer Strap	ST-02	1pc
(6) Electrodes (spare)	ELCT2-16B	1pair
(7) Fiber Holder Set Plate	SP-03	1pair
(8) Carrying Case	CC-39	1pc
(9) Work Tray Left	WT-09L	1pc
(10) Work Tray Right	WT-09R	1pc
(11) Work Tray J-Plate	JP-09	1pc
(12) Tripod Screw	TS-03	2pcs
(13) Carrying Case Strap	ST-03	1pc
(14) Alcohol Dispenser	AP-02	1pc
(15) Quick Reference Guide	QRG-02-E	1pc
Single Fiber Stripper	SS03 or SS01	1pc
Optical Fiber Cleaver	CT50	1pc
(1) Fiber Scrap Collector	FDB-05	1pc
(2) Fiber Setting Plate	AD-10-M24	1pc
(3) Case, for cleaver	CC-37	1pc
(4) Hexagonal Wrench	HEX-01	1pc

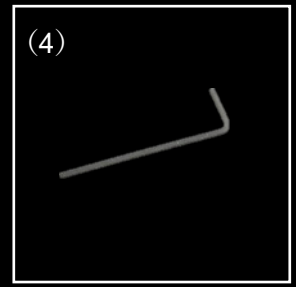
* Please follow IATA regulation when shipping the battery by air.











Specifications

90S+ Specifications

Item		Specification
Fiber alignment method		Active core alignment
Fiber count can be spliced		Single fiber
Applicable fiber	Fiber type	Single mode optical fiber
		Multi mode optical fiber
	Cladding dia.	80 to 150µm
Applicable coating	Sheath clamp	Coating dia. : Max. 3000µm
		Cleave length : 5 to 16mm *1
Fiber splice performance	Splice loss *2	ITU-T G.652 : Avg. 0.02dB
		ITU-T G.651 : Avg. 0.01dB
		ITU-T G.653 : Avg. 0.04dB
		ITU-T G.654 : Avg. 0.04dB
		ITU-T G.655 : Avg. 0.04dB
		ITU-T G.657 : Avg. 0.02dB
	Splice time *3	SM FAST mode : Avg. 7 to 9sec.
		AUTO mode : Avg. 14 to 16sec.
Applicable protection sleeve	Sleeve type	Heat shrinkable sleeve
	Sleeve length	Max. 66mm
	Sleeve dia.	Max. 6.0mm before shrinking
Sleeve heat performance	Heat time *4	60mm slim mode : Avg. 9 to 10sec.
		60mm mode : Avg. 13 to 15sec.
Fiber tensile test force		Approx. 2.0N
Electrode life *5		Approx. 5000 splices
Physical description	Dimensions W	Approx.170mm without projection
	Dimensions D	Approx.173mm without projection
	Dimensions H	Approx.150mm without projection
	Weight	Approx. 2.8kg 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. 5000m
AC adaptor	Input	AC100 to 240V, 50/60Hz, Max. 1.5A
Battery pack	Type	Rechargeable Lithium Ion
	Output	Approx. DC14.4V, 6380mAh
	Capacity *6	Approx. 300 splice and heat cycles
	Temperature	Recharge : 0 to 40 degreeC
		Storage : -20 to 30 degreeC
	Battery life *7	Approx. 500 recharge cycles
Display	LCD monitor	TFT 4.9 inches with touch screen
	Magnification	200 to 320x
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 *8	Bluetooth 4.1 LE
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 fiber type analysis
		Fusion power calibration
		Wind protector : open and close
		Sheath clamp : open
		Heater lid : open and close
		Heater clamp : open and close
	Reference guide	Video and PDF file stored in splicer
	Sheath clamp	Easy sleeve positioning clamp
	Electrode	Replaceable without tool

90S+ Options

Item	Model	Remark
Fiber holder	FH-70-200	200µm coating diameter
	FH-70-250	250µm coating diameter
	FH-70-900	900µm coating diameter
	FH-FC-20	900µm in 2mm diameter cable
	FH-FC-30	900µm in 3mm diameter cable
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
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-03	60mm, Max. 900µm coating diameter
	FP-03(L=40)	40mm, Max. 900µm coating diameter
	FP-03M	FP-03 with non-magnetic material

Notes

*1 Cleave length range depending on fiber type
- 5 to 16mm : 125µm cladding dia. and 250µm coating dia.
- 10 to 16mm : 125µm cladding dia. and 400 or 900µm coating dia.
- 5 to 10mm : 80µm cladding dia. and 160µm coating dia.
- 5 to 16mm : 150µm cladding dia. and 250µm coating dia.

*2 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.

*3 Measured at room temperature. The definition of splice time is from the fiber image appearing on LCD monitor to the estimated loss displayed. The average splice time changes depending on the environmental conditions, fiber type, and fiber characteristics.

*4 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.

*5 The electrode life changes depending on the environmental conditions, fiber type and splice modes.

*6 Test condition
(1) Splice and heat time : 1 minute cycle
(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.

Specifications

CT50 Specifications

Item		Specification
Applicable fiber	Fiber type	Single mode optical fiber
		Multi mode optical fiber
	Fiber count	Up to 16 fiber ribbon
	Cladding dia.	Approx. 125µm
Applicable coating	Fiber setting plate	AD-10-M24 : Max. 900µm coating diameter
		AD-50 : Max. 3mm coating diameter
	Fiber holder	Coating shape. : Refer to splicer options
Cleave length	Fiber setting 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
	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. 60000 fiber cleaves
Physical description	Dimensions W	Approx. 117mm without projection *4
	Dimensions D	Approx. 94mm without projection *4
	Dimensions H	Approx. 59mm without projection *4
	Weight	Approx. 306g including battery and AD-10-M24
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
Battery		2 pieces of LR03, AAA dry battery
Wireless interface *5		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	Remark
Fiber Setting Plate	AD-50	Optional fiber setting plate
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
Spacer	SPA-CT08-10	Cleave length 10mm
	SPA-CT08-09	Cleave length 9mm
	SPA-CT08-08	Cleave length 8mm

Notes
*1 When the cleave length is less than 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 less than10mm.
*2 Measured with an interferometer at room temperature, not with a splicer. A new blade was used to cleave both the single fibers and ribbon fibers. 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 Measured in a condition when closing the lever.
*5 Bluetooth® mark and logos are the registered trademarks of Bluetooth SIG, Inc.

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https://www.fusionsplicer.fujikura.com

BEST QUALITY SERVICE
- SINCE 1978 -

Fujikura Ltd. 1-5-1, Kiba, Koto-ku, Tokyo 135-8512, Japan
General inquiries : +81-3-5606-1164 Service & support : +81-43-484-3962 https://www.fujikura.com

Fujikura Asia Ltd. 438A Alexandra Road, Block A Alexandra Technopark #08-03 Singapore 119967
General inquiries, Service & support : +65-6-278-8955 https://www.fujikura.com.sg

Fujikura Europe Ltd. C51 Barwell Business Park, Leatherhead Road, Chessington, Surrey, KT9 2NY, UK
General inquiries : +44-20-8240-2000 Service & support : +44-20-8240-2020 https://www.fujikura.co.uk

AFL 260, Parkway East, Duncan, SC29334, USA
General inquiries : +1-800-235-3423 Service & support : +1-800-866-3602 https://www.aflglobal.com

Fujikura (China) Co., Ltd. 7th Floor, Shanghai Hang Seng Bank Tower, 1000 Lujiazui Ring Road, Pudong New Area, Shanghai 200120, CHINA
General inquiries, service & support : +86-21-6841-3636 http://www.fujikura.com.cn

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