

FUJIKURA 90S+ KIT

CORE ALIGNMENT SPLICER

PRODUCT OVERVIEW

The 90S+ is a single fibre core alignment fusion splicer setting a new standard in the market for fusion splicing.

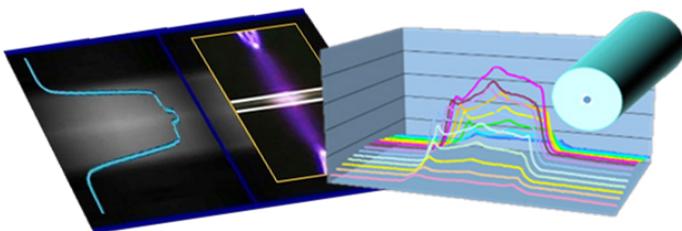
With market-first fully automated features, the new 90S+ makes the splicing process faster and simpler. Its Active Blade Management Technology (ABMT) improves the efficiency of the CT50 cleaver, resulting in increased productivity and reduced costs. Thanks to Active Fusion Control Technology (AFCT), the 90S+ analyses the condition of the cleave end face to perform optimal fusion control and minimise splice loss.



Active Fusion Control Technology

1. Real-Time Fusion Control

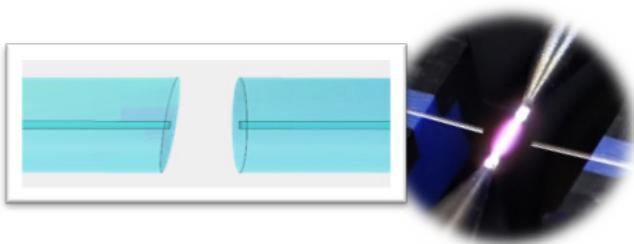
Fusion is easily affected by changes in the environment. The 90S+ core alignment fusion splicer uses real-time fusion parameter control by analysing the fibre's brightness intensity during fusion. It contributes to stable, reduced splice loss.



Controlling fusion parameter by analysing the brightness intensity

2. Cleave End Face Analysis

One of main causes of high splice loss is bad cleave end face. The 90S+ analyses the condition of the cleave end face and performs optimal fusion control to reduce splice loss.



Features

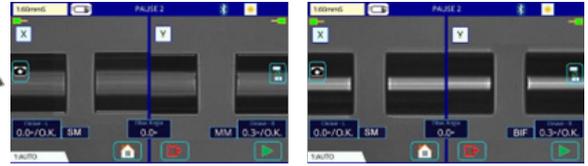
- Active Fusion Control Technology analyses the condition of left and right cleave end faces and applies the optimal fusion control.
- Active Blade Management Technology communicates with the CT50 fibre cleaver allowing the 90S+ to advise user when blade height or position needs changing or blade replacing.
- Utilising AFCT and ABMT the 90S+ enhances splice quality minimising high splice loss.
- Faster operation reduces installation times by more than 50% when compared to the previous 70+ model.
- Multifunction case and workstation ensures that the splicer is ready to work simply by opening the case.
- Tool-less electrodes and illumination for easier replacement.

3.Fibre Discrimination Function

One of main causes of high splice loss is bad cleave end face. The 90S+ analyses the condition of the cleave end face and performs optimal fusion control to reduce splice loss.



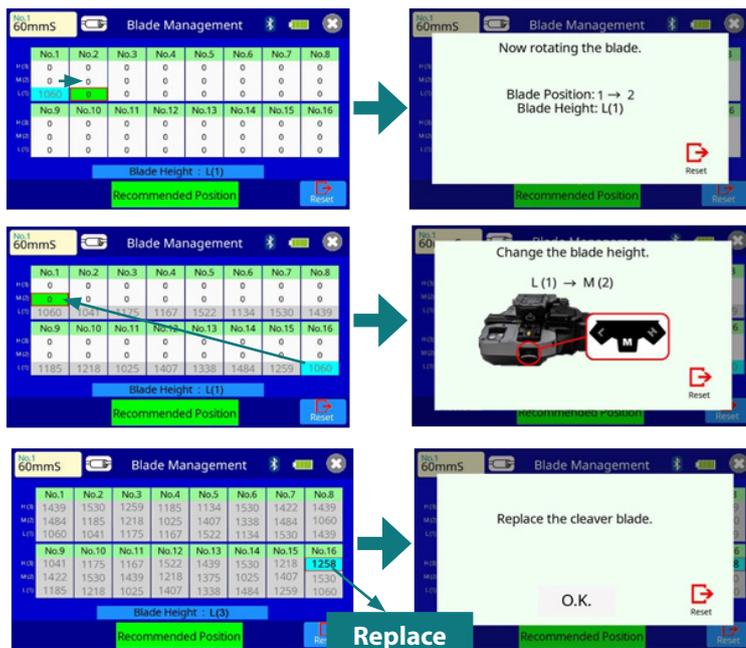
Analysing cleave end face and performing optimal fusion



Active Blade Management Technology

1. Automatic Blade Rotation

The 90S+ 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. The 90S+ fusion splicer can connect to two CT50s simultaneously.



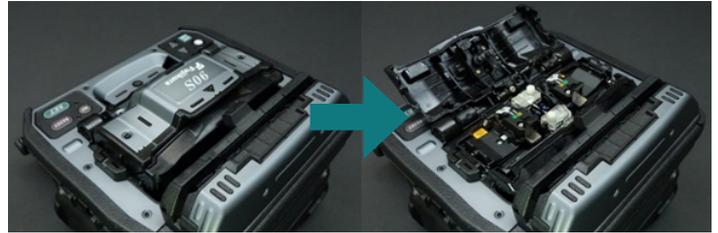
2. Blade Life Management

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

Active Blade Management Technology

Automatic Open-Close Wind protectors

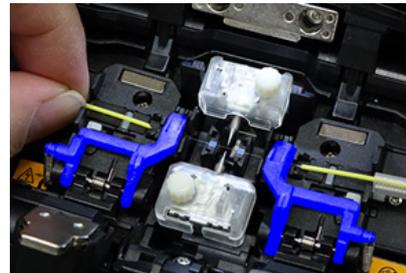
The faster automated features of the 90S+ fusion splicer reduce installation times. With this splicer, an operator can complete the entire splice process from splicing to heating without touching the 90S+ and only moving the fibre.



Automatic Open-Close Wind Protectors

Fibre Retention clamp

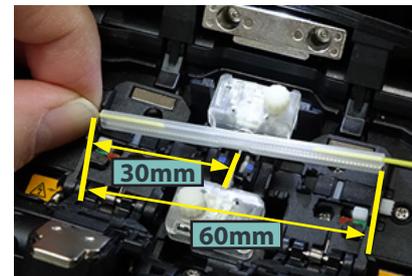
The fibre retention clamps support the automated operations. When the sheath clamps open automatically after splicing, the fibre retention clamps gently hold the spliced fibre to keep it from flying out. The retention clamps release when the fibre is lifted by the operator.



Fibre Retention Clamps

Easier Centring of Protection Sleeve

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



Easy Centring of Protection Sleeve

Operation Time Reduction

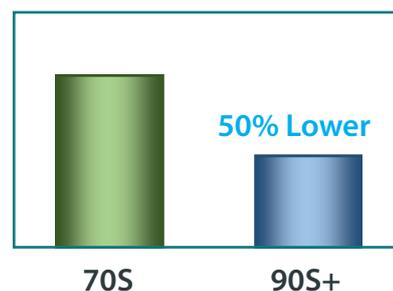
The heater also utilises an automatic clamping system.

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

Automatic Tube Heater Clamp



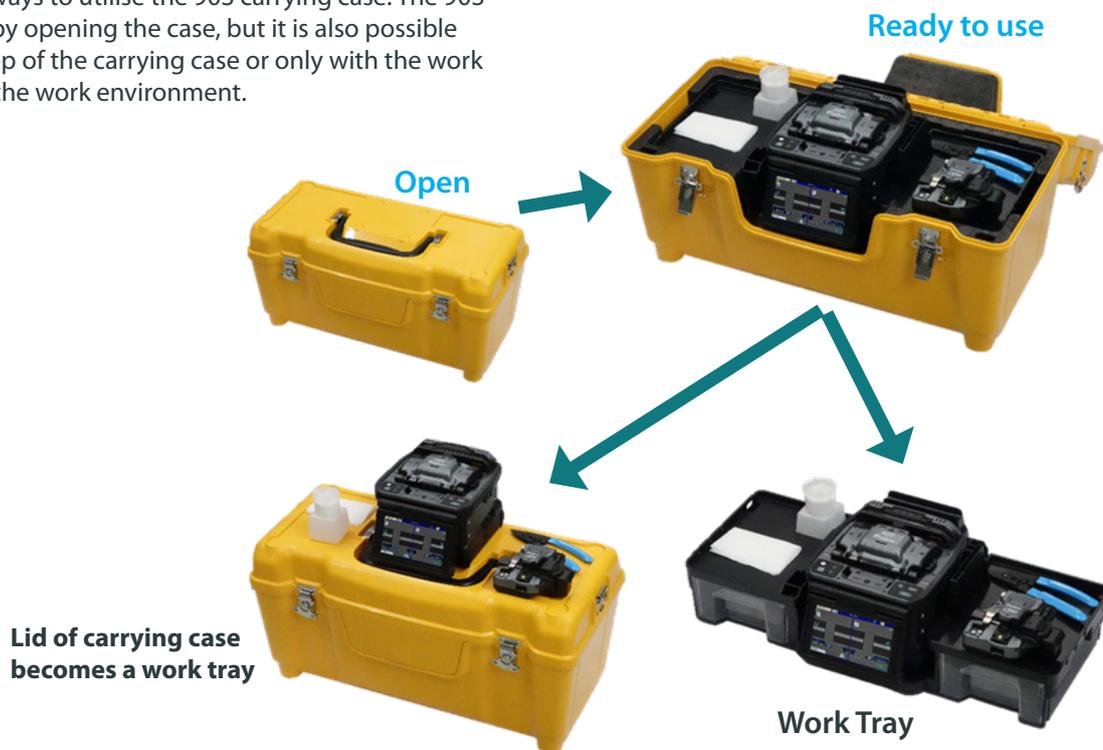
Time For Operation Time



User Friendly

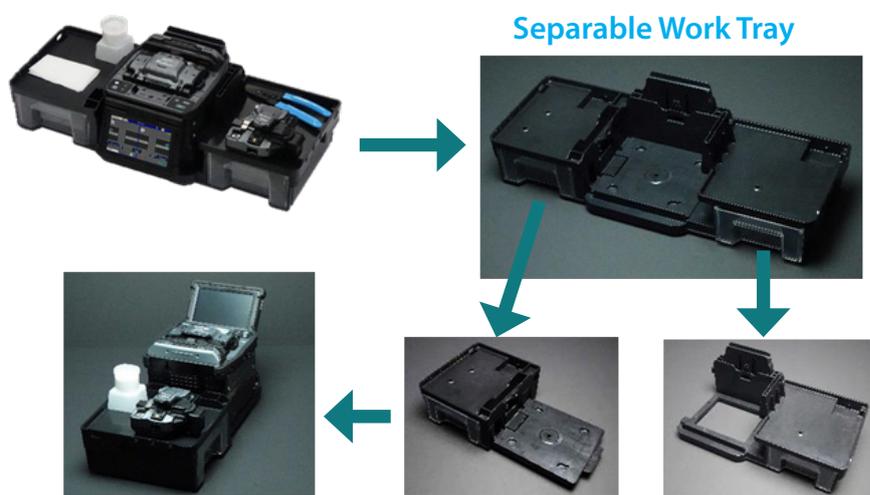
1. Carrying Case

There are multiple ways to utilise 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.



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.



Plenty of Space in Carrying Case



Cleaver & Stripper



Battery Packs

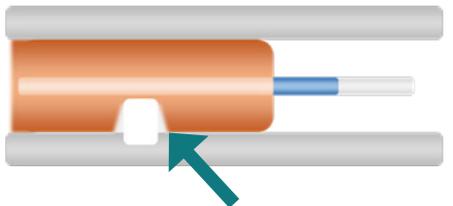
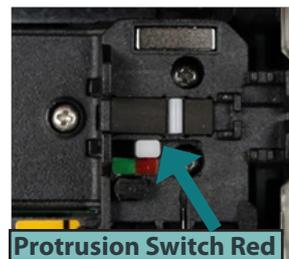
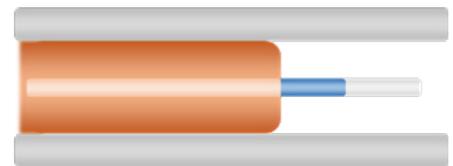
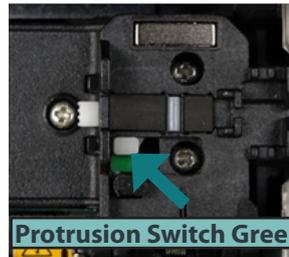
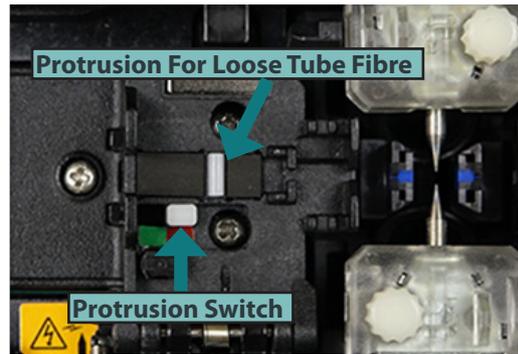


Large Storage Space Under Work Tray

User Friendly

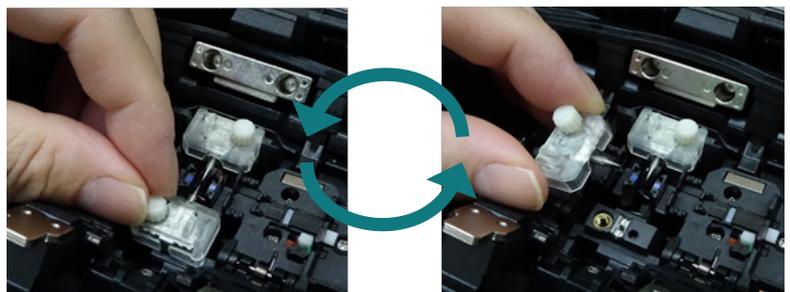
3. Loose Tube Compatibility

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



4. Tool-less Electrodes and illumination

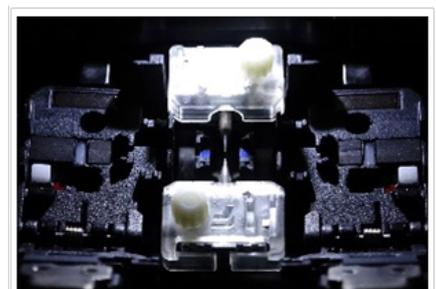
The 90S electrodes come as an "assy" including the fixing screw. You can rotate the screw by hand without tools, enabling easy electrode replacement.



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.



70S



90S+

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 - Fibre 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

Description	Model No.	Qty
13 - Carrying Case Strap	ST-03	1pc
14 - Alcohol Dispenser	AP-02	1pc
15 - Quick Reference Guide	QRG-02-E	1pc
Single Fibre Stripper	SS03 or SS01	1pc
Optical Fibre Cleaver	CT50	1pc
A - Fibre Scrap Collector	FDB-05	1pc
B - Fibre Setting Plate	AD10-M24	1pc
C - Cleaver Case	CC-37	1pc
D - Hexagonal Wrench	HEX-01	1pc

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

90S+ Specifications

Item	Specification	
Fibre alignment method	Active core alignment	
Fibre count can be spliced	Single fibre	
Applicable fibre	Fibre Type	Single mode fibre Multi mode fibre
	Cladding dia.	80 to 150µm
Applicable counting	Sheath clamp	Max. 3000µm Cleave length : 5 to 16mm ^{*1}
		Splice loss ^{*2}
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 loss ^{*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.
Fibre tensile test force	Approx. 2.0N	
Electrode life ^{*5}	Approx. 5000 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. 2.8kg inc. battery
Environmental condition	Temperature	Operate : -10 to 50 °C Storage : -40 to 80 °C
		Humidity
	Altitude	
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 °C Storage : -20 to 30 °C
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

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 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	Remarks
Fibre 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-10FC	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 fibres. The average splice loss changes depending on the environmental condition and fibre characteristics.
- ^{*3} 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.
- ^{*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, fibre 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.

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 setting 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 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
	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. 117mm w/o projection ^{*4}
	Dimensions D	Approx. 94mm w/o projection ^{*4}
	Dimensions H	Approx. 59mm w/o projection ^{*4}
	Weight	Approx. 306g 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 ^{*5}	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
Fibre Setting Plate	AD-50	Optional fibre setting plate
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
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 than 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 ribbon fibres. 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 Measured in a condition when closing the lever.
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