FURUKAWA ELECTRIC

FURUKAWA ELECTRIC GROUP

S185 Fusion splicers Introduction

FURUKAWA ELECTRIC CO., LTD
FITEL Production Division

S185: Concept

- Better splices: low loss and higher ER for PM fibers
- More compact
- Cost-effective
- Efficient splicers for use in production
- Each model tailored to fit specific application

Current line-up

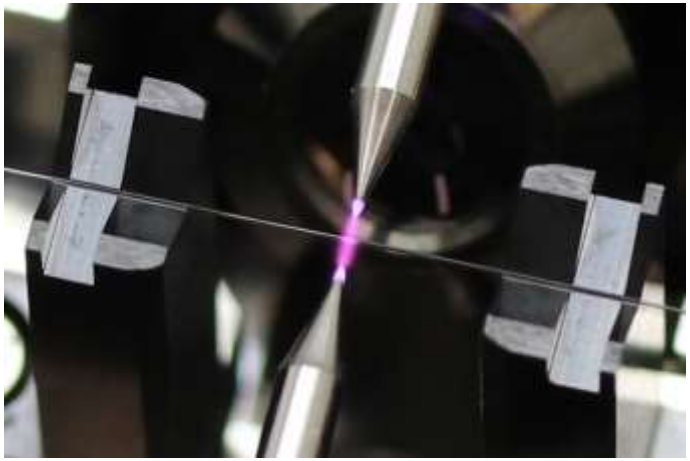
	S185HS	S185PM	S185LDF	S185PMLDF
Appearance				
Clad diameter	80～150μm		80～500μm	
High Strength	✓	✓	✓	✓
PMF splice	X	✓	X	✓
LDF splice	X	X	✓	✓
Main Applications	Optical component Optical sensor, Gyro		Fiber laser Medical	

Growing S185 Series Portfolio

Type						
	HS	PM	LDF	PMLDF	ROF	End View
Fiber size	80-150	80-150	80-500	80-500	125-800	80-500
FOV	568um	568um	568um	568um	1022um	568um
Rotator	-	L/R	-	L/R	-	L/R
Electrode	2	2	2	2	3/ROF	2
End view	-	-	-	-	-	Built-in
Released	Yes	Yes	Yes	Yes	Q2 2020	Q4 2020

Available to order

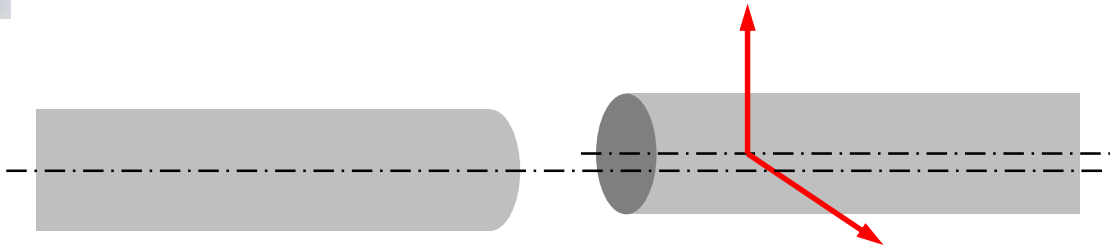
Features: Splice quality – achieving low loss



	Resolution of fiber axis	Fiber tilt
S185 series	0.03μm	0.1° or less
S183PMII	0.11μm	0.2° or less
S178LDF	0.08μm	0.2° or less

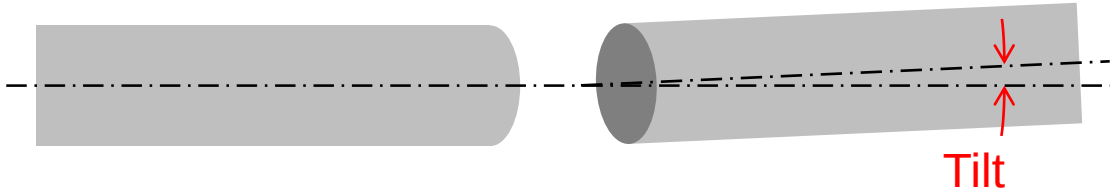
Fiber axis

Offset of fiber axis causes splice loss.



Fiber tilt

Fiber tilt causes core bent at splice point.

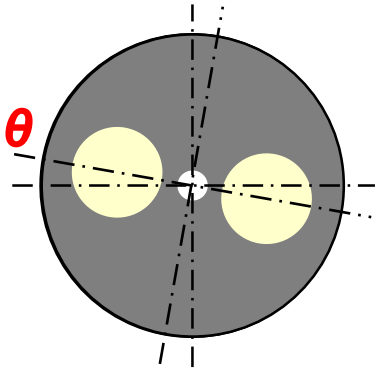


Fiber axis and Fiber tilt are very important especially in case of the fiber with small MFD

Features: Splice quality (PM fibre only)

Highly accurate rotational mechanism

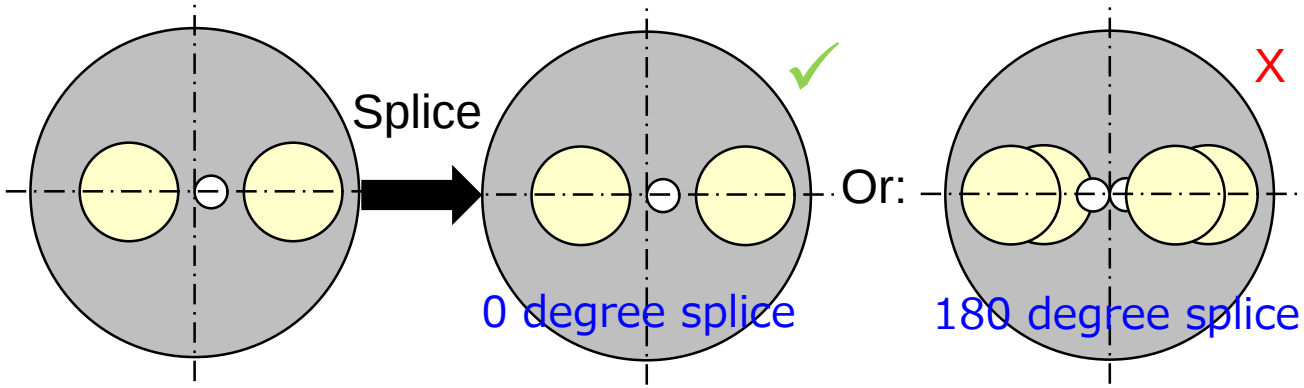
The precision of rotational alignment is crucial, as any offset in the rotational angle between the fibres affects the extinction ratio. A high extinction ratio is important in PM fibre splicing.

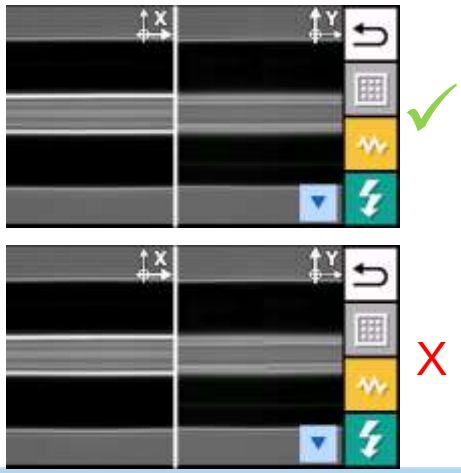


	Resolution of fiber rotation
S185 series	0.1°
S183PMII	0.2°

360 degree fiber rotation

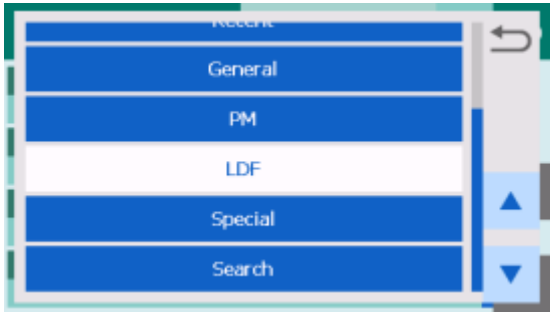
360 degree fiber rotation can solve the problem of high loss and low extinction ratio due to asymmetrical PM fiber.

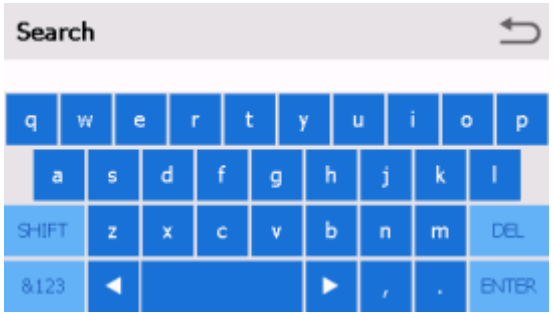




Features: Easy operation

- Easy and intuitive touch screen operation (Keypad still available)
- Zoom or change from X to Y screen with one touch only





- Search function available for easy program selection
- LDF and PM programs clearly marked

Features: Electrodes & Electrodes holders

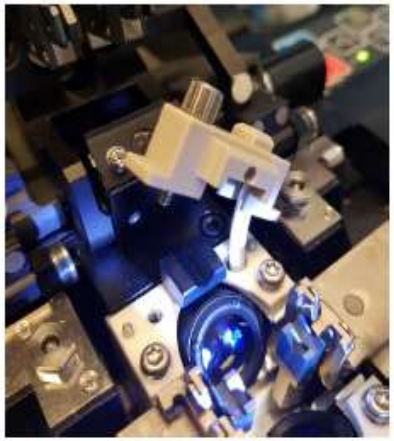
Only one pair of electrodes

- Same electrodes for all fibre sizes (80-500um). No need to change electrodes for LDF

Easy removal of Electrodes

- Easy removal for cleaning and replacement
- Electrode holders not connected to arc cables

S183



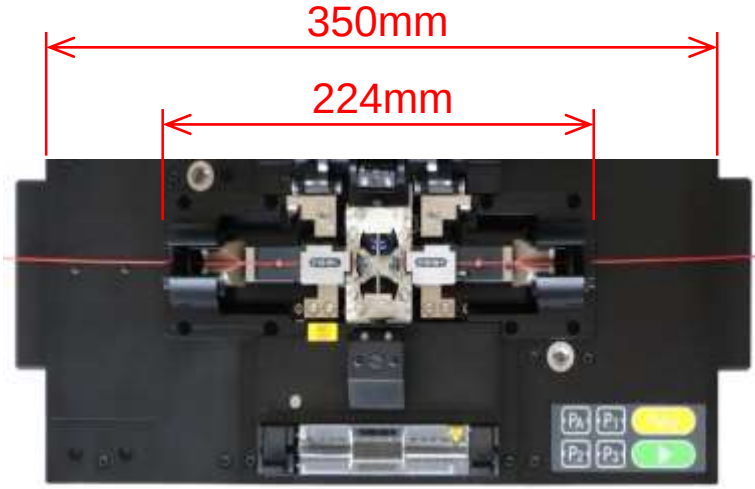
S185

Electrode simply clips into Electrode holder

Features: Compact size & portability

Compact size

- Footprint is 46% smaller than S183PMII.
  ⇒ More space on the work table
- Narrower width of main body
  ⇒ Shorter lengths of fibre required to splice

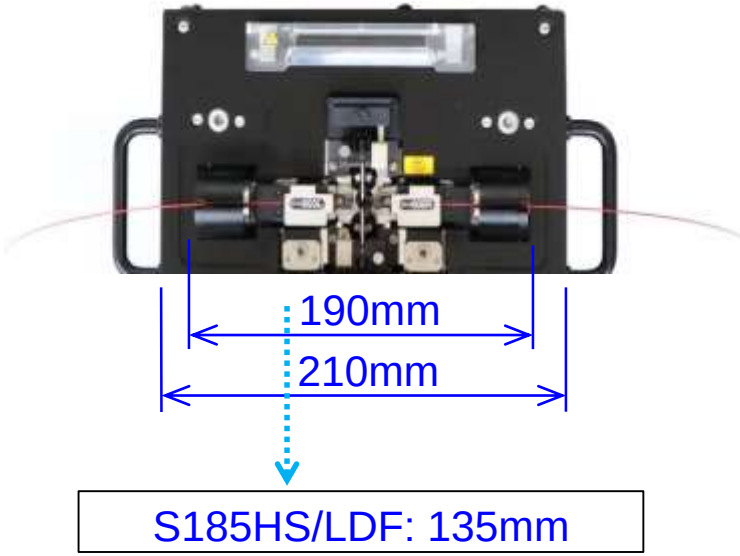


Battery operation

- Battery operation

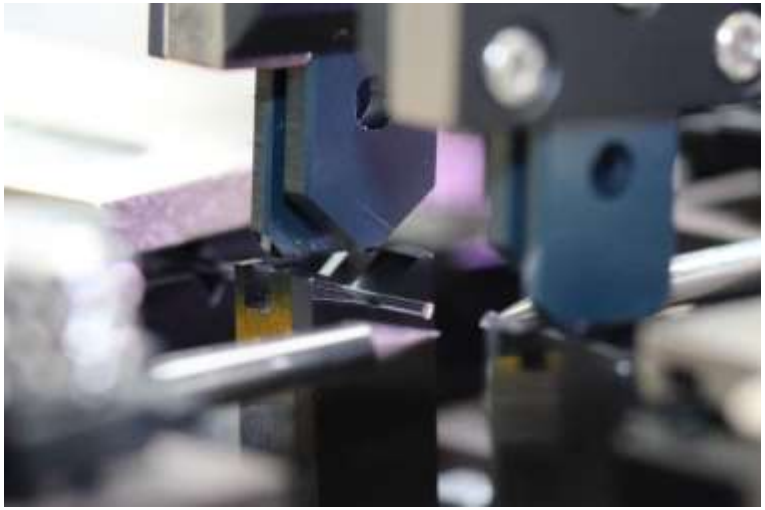
⇒ Easy transportation / splicer can be removed from the table when not in use

⇒ Ideal for repair work on fiber lasers



Features: Soft-landing for large fibers

Less damage on fibre

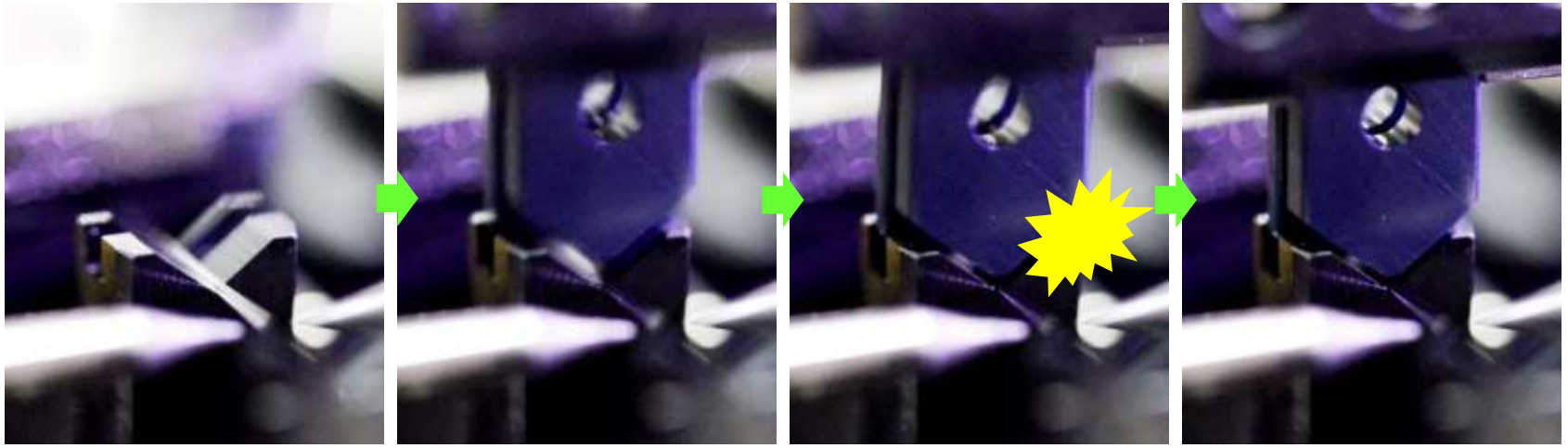


- When the soft landing function is activated, the fiber clamps land gently to prevent damage to the fibre

The fiber clamps are linked to the canopy. Normally if the canopy is closed roughly, the fiber clamps fall harshly on the fibres.
When the "Clamp Soft-landing" function is active, the fiber clamps stay lifted during the closure of the canopy. Then they are released and land gently onto the fibres.

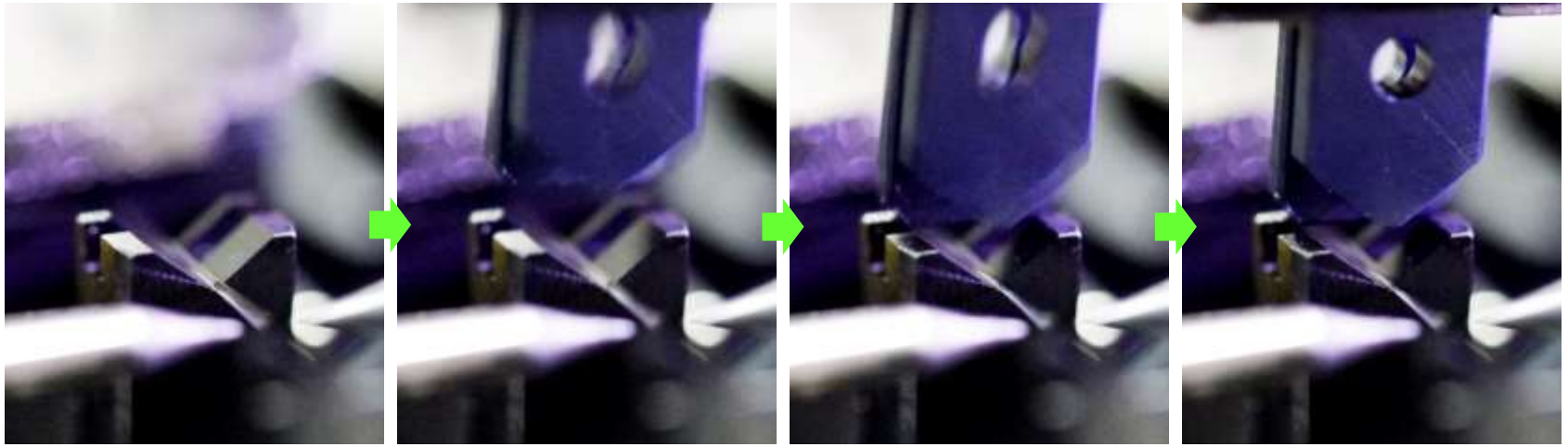
Features: Soft landing in action

Function Off



Fiber clamp hits fiber

Function On



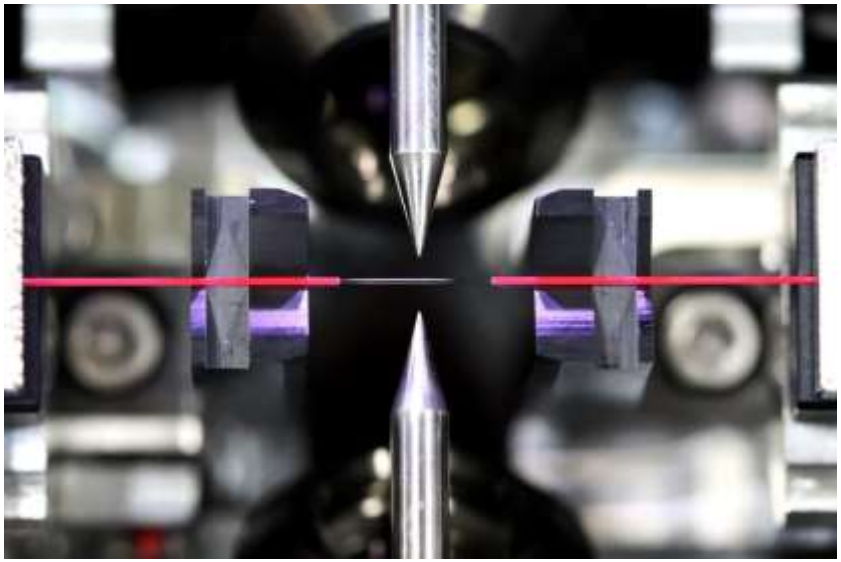
Fiber clamp stops

Fiber clamp is landing gently

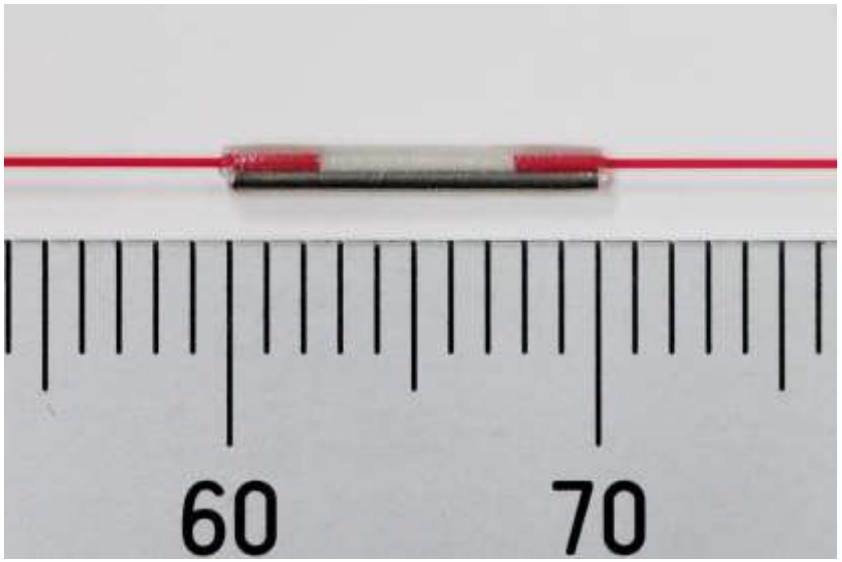
Features: Coating clamping

Short cleave length & “high strength” splicing

- S185 can do “coating clamp splice”
- Shortest cleave length possible with coating clamping: 3mm. It means 10mm protection sleeves can be used.
- Clamping the coating instead of the bare fibre removes the risk of damage to the glass



Coating clamp splice

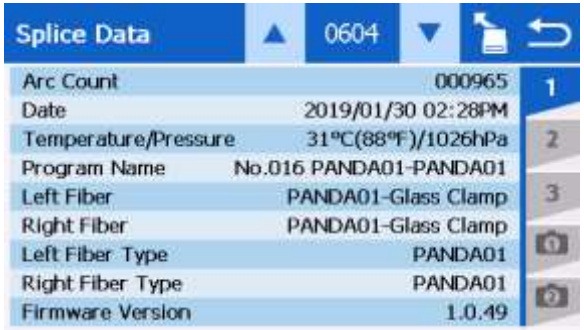


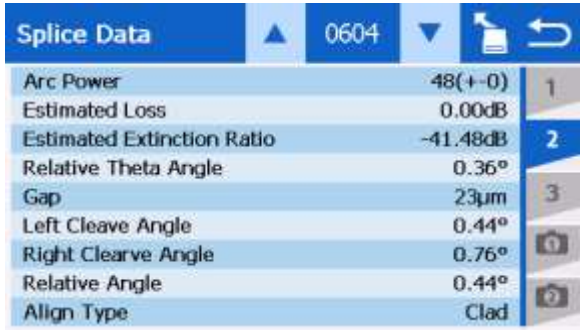
10mm Protection sleeve

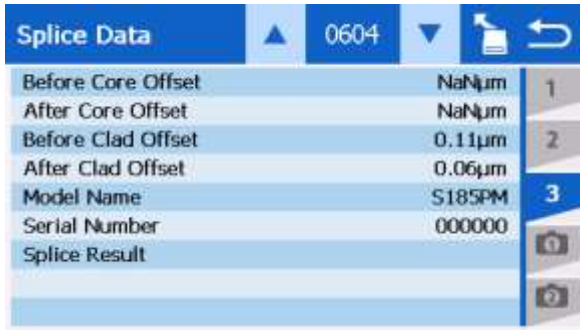
Features: Improved splice history

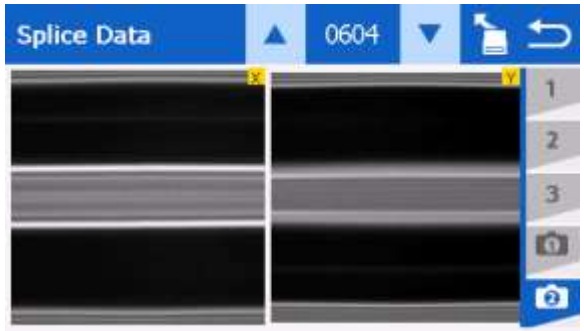
Recording and managing splice reports

- In splice history, each splice data includes the screen photos of the fibres before and after splice.
- 1000 splice data available
- Splice data and photos can be downloaded using SDE2, the FITEL App, or a USB memory key (directly connected to the splicer)





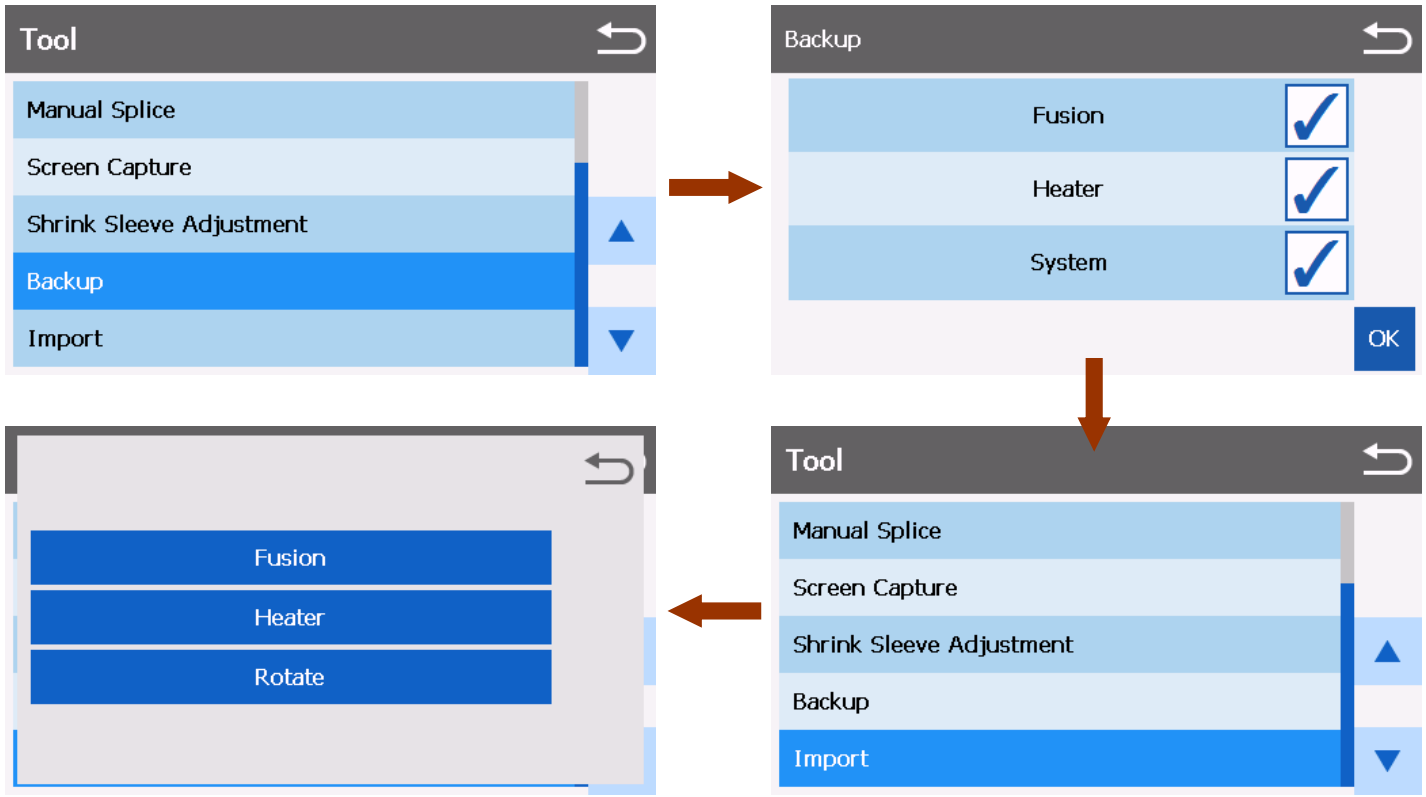




Features: Transfer of programs

Imitation of multiple S185s

- It is easy to copy any program from one S185 to another S185. (Model should be the same).
- Programs can be copied and transferred to another splicer using SDE2, or a USB memory key.



Features: SDE2 (free software)

- SDE2 allows to connect splicer to computer, using USB cable or WIFI

- SDE2 has many functions.
  - Remote control
  - Management of Fusion programs
  - Management of Heater programs
  - Downloading Splice data
  - Downloading the captured screen photos
  - Downloading Failure splice data
  - Updating the firmware (latest version always available from SDE)
  - Live splice (splice by power monitor) Under development
  - Taking pictures of screen

Fiber holders

New design of Fiber holder

- S713 holders have two holes for the pins
- S178LDF holders and S183/S184 holders are not compatible with S185 series
- S185 series compatible with other brands of holders

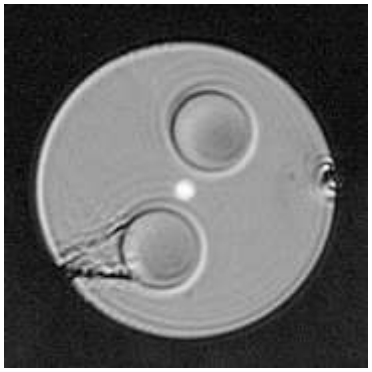
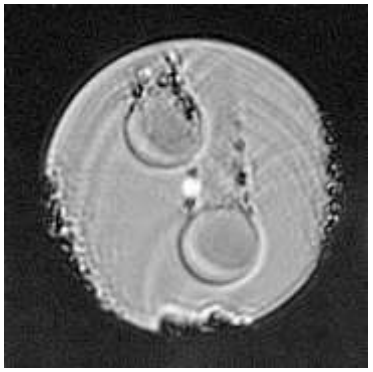
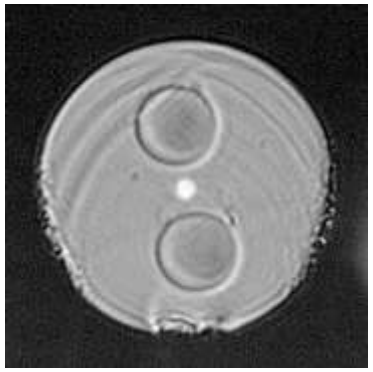
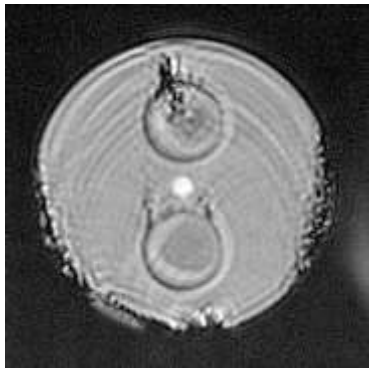
(=> allows transfer of fibre from cleaver to splicer in same holders)

- Standard holder sizes:
  - 160um coating
  - 250um coating
  - 400um coating
  - 650um coating
  - 900um coating
- Any custom sizes available on request

Cleaving options

End face examples of cleaves

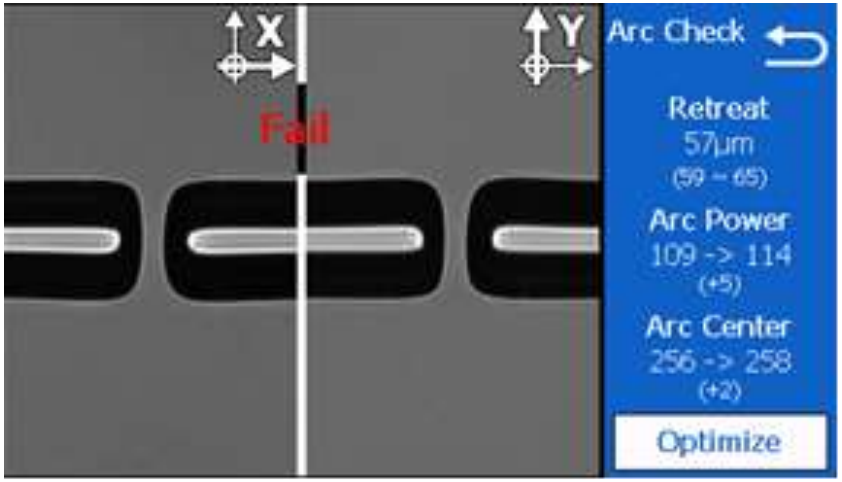
- Hand-held cleavers deliver reasonable cleaves on normal PANDA fiber.
- In order to achieve consistent cleaves, the use of more advanced cleaver for example the ProCleave is recommended.

	ProCleave LD	S326A	CT-30	CF-8R
End view				
Fiber image on splicer				

Arc check on 80/125um fibers

The arc check for 80/125um cladding fiber must be done on 125um single mode fiber.

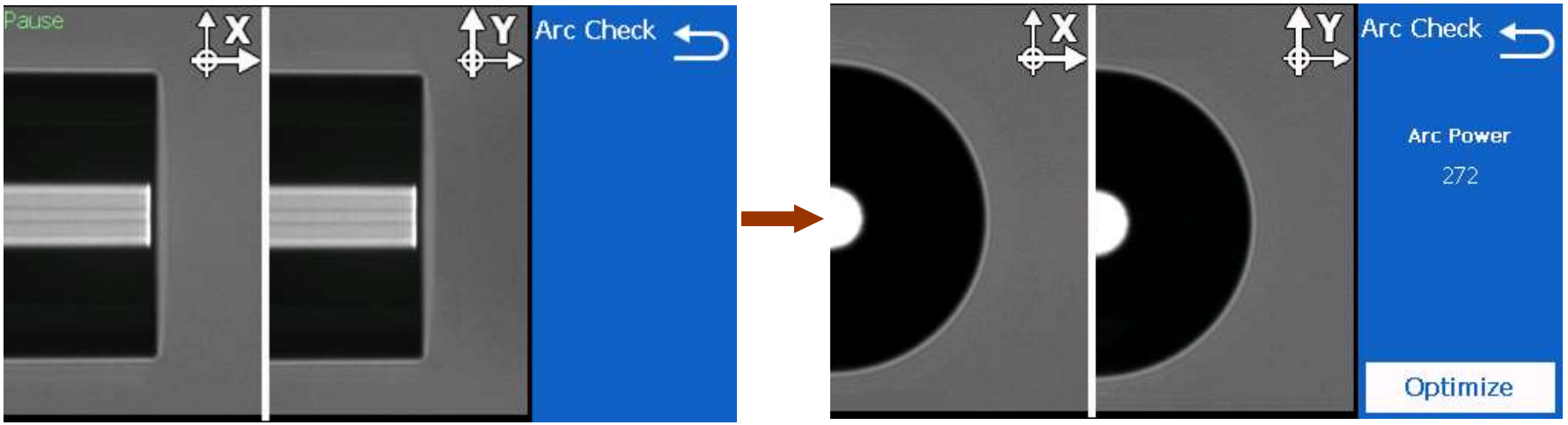
Please load the SM fiber in the splicer on both sides. Select the relevant program for 125um fiber and carry on the arc check until you get PASS on the screen



Arc check (LDF)

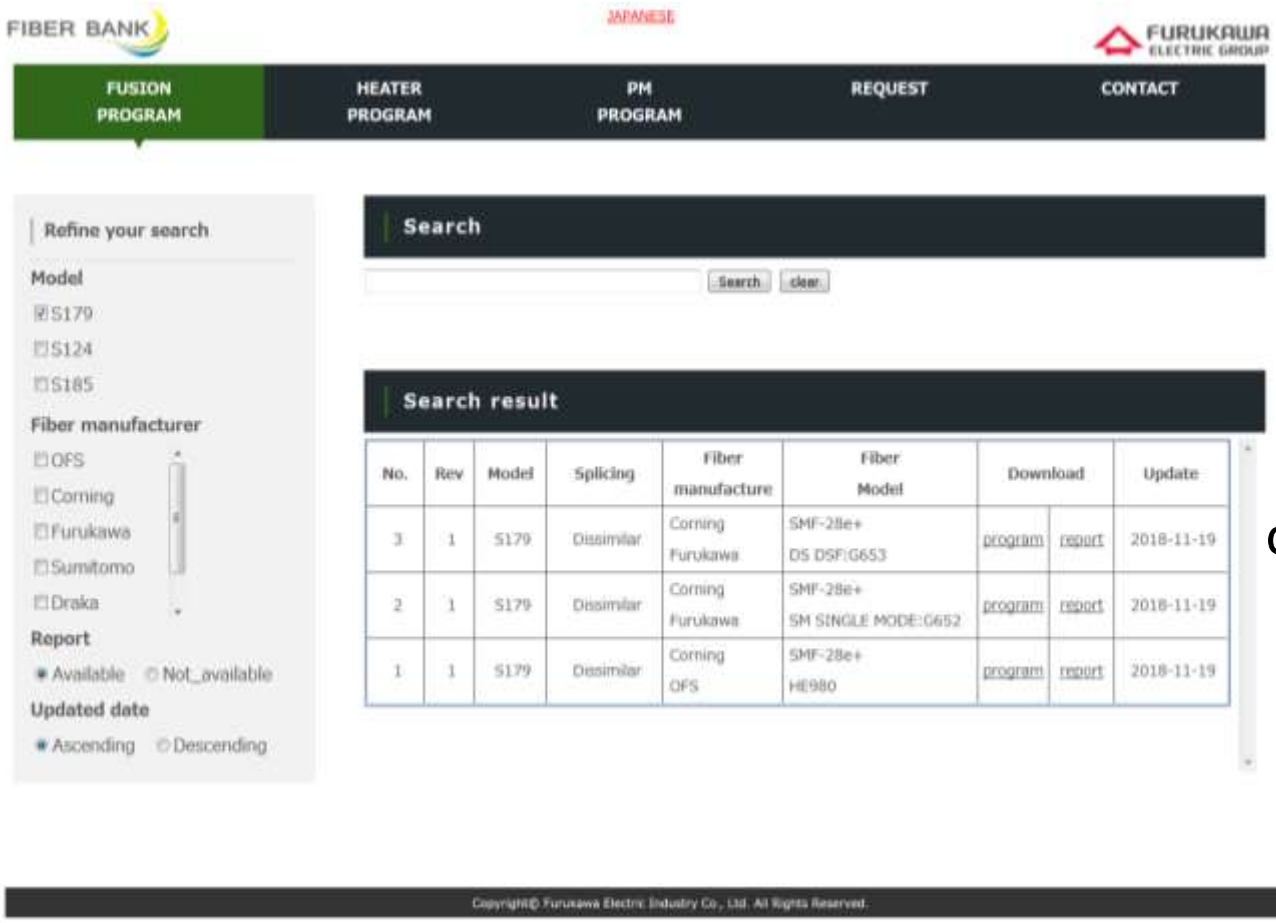
Arc check for splicing LDF

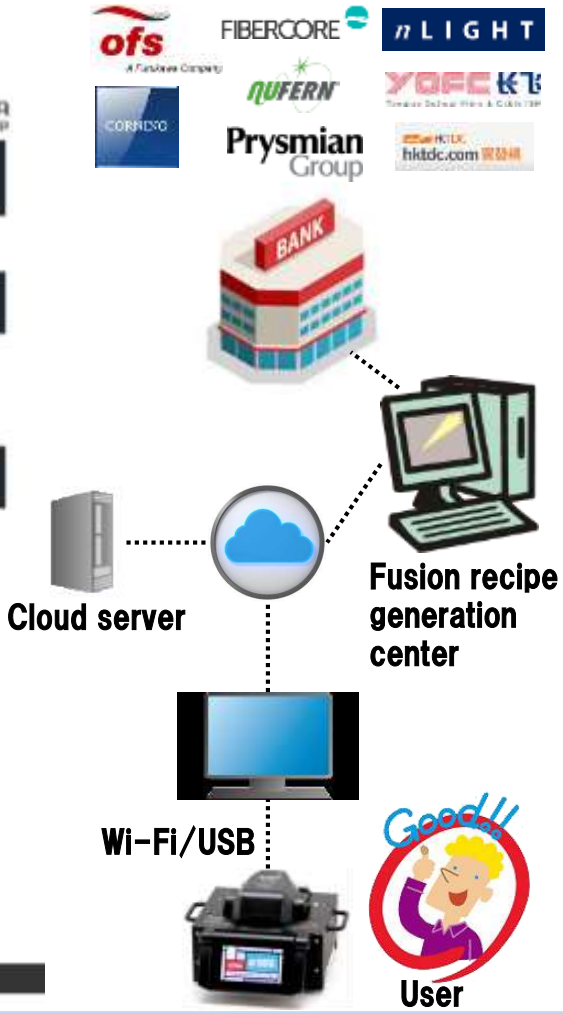
- On S185LDF and S185PMLDF, Arc check is recommended by using the same fiber as the one to be spliced.
- LDF Arc check requires only one cleaved fiber. It is not necessary to cleave 2 fibres, nor to prepare the fibre again.
- Splicer finds out the adequate arc power by repeating arc-discharging and monitoring the change of retreat of fibre



Fiberbank™ (under development)

In the future, a database of Fusion programs will become accessible to our customers. Customers will be able to send a request for program optimisation via this system.





Remote support system (under development)

The new generation Fusion splicers can be remotely accessed by FITEL engineers for real time troubleshooting.