



Specialty Fibre  
Fusion Splicer FSM-100M+



Polarization Maintaining  
Fibre Fusion Splicer FSM-100P+

## Fujikura FSM-100+ Series

Fujikura's new specialty splicers, FSM-100M and FSM-100P, offer a host of innovative technology to address the rapidly expanding splicing needs for factory, manufacturing, laboratory and R&D applications. These models are introduced as 'ARCMaster' splicers due to their unique capabilities to control the plasma zone of the fusion arc. These capabilities will revolutionise the way users will splice various types of specialty fibres: LDF, low contrast PM, holey structured, etc.

### Features

- End view fibre observation system
- X-LDF (extra large diameter fibre) splicing
- Patented 'Split V-groove' clamping system
- 'Plasma Zone' fibre positioning
- Short cleave length capability
- Special arc calibration
- Dual splice loss estimation
- Enhanced sweep arc
- Internet firmware update and interface
- Production environment friendly design
- Zero-degree fibre holder position
- Fibre profile learning function
- Dual PM alignment method (FSM-100P only)

### End-view fibre observation system

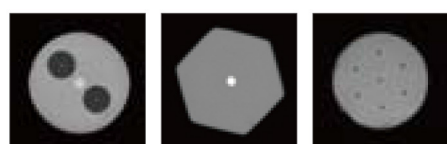
The cleaved ends of the optical fibre are observed in the axial direction by a means of a mirror that directs the fibre-end image into the camera system.

This allows precise alignment of uniquely structured fibres, such as PM fibre, multicore non-circular fibres.



Mirror unit between the fibre ends observes fibre in the axial direction.

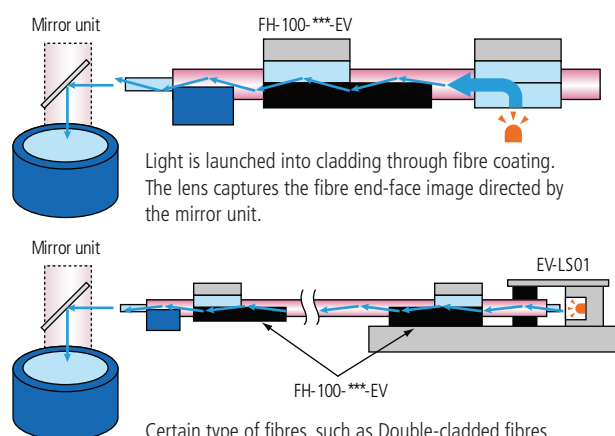
### End view fibre image example



PANDA fibre

Non-circular fibre

Multi-core fibre



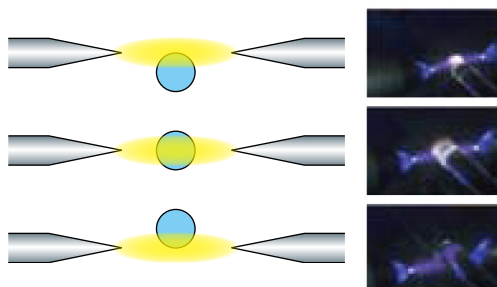
Certain type of fibres, such as Double-cladded fibres, which light cannot be launched into cladding through coating. Use external light source (EV-LS01) to launch light directly into cladding.

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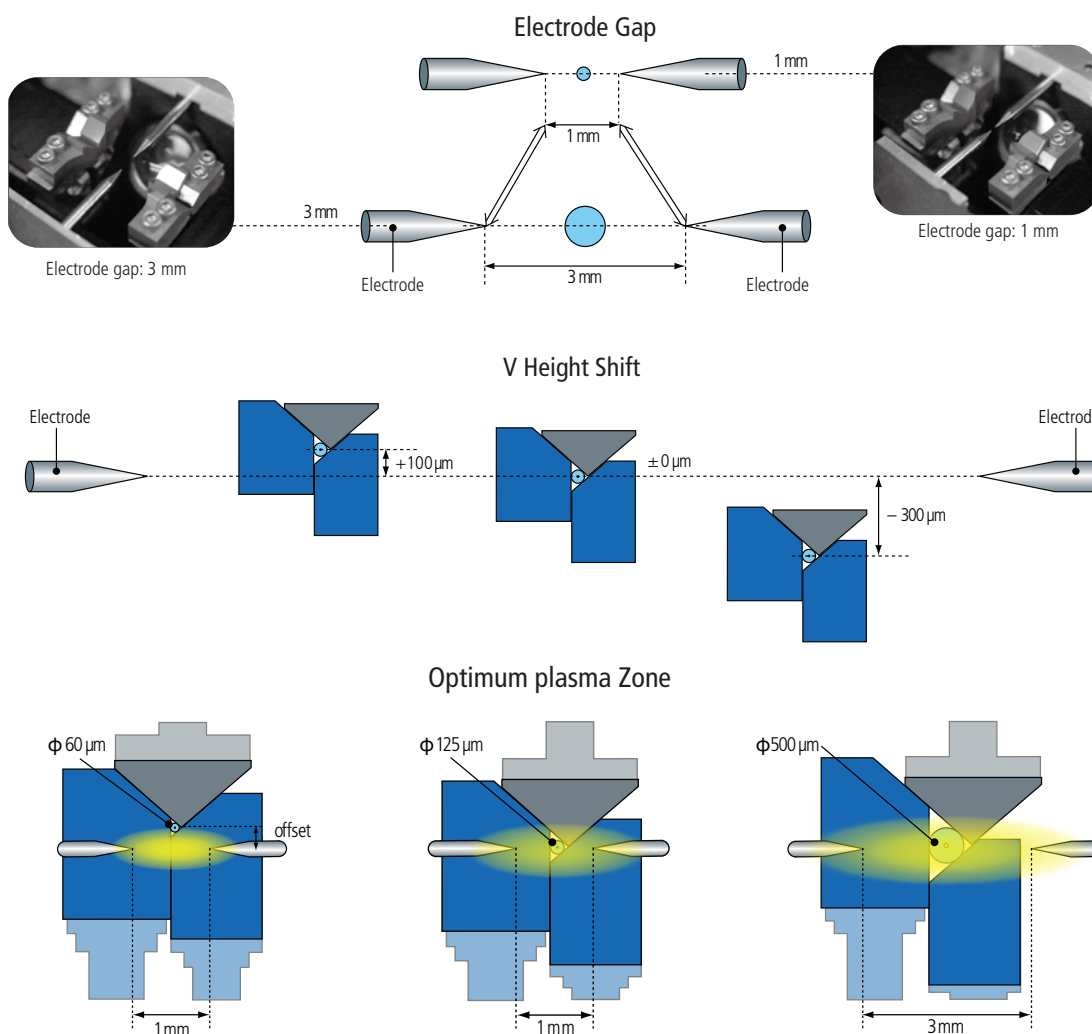
### X-LDF (Extra Large Diameter Fibre) splicing

Large diameter fibres up to 1200  $\mu\text{m}$  cladding dia can be spliced with air-cooled electrodes that oscillate up/down during splicing.



### 'Plasma Zone' fibre positioning

The FSM-100M+ and FSM-100P+ have two electrode positioning techniques in order to provide unprecedented versatility for each specialty fibre.

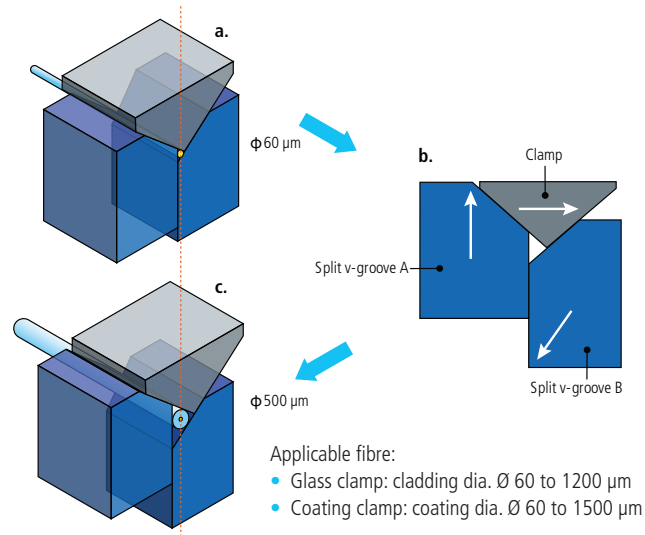
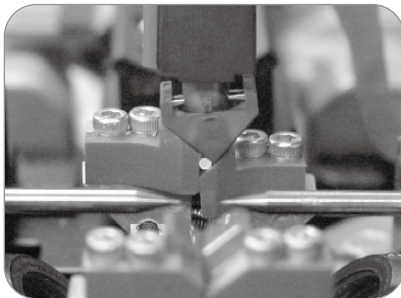


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### Patented 'Split V-groove' clamping system

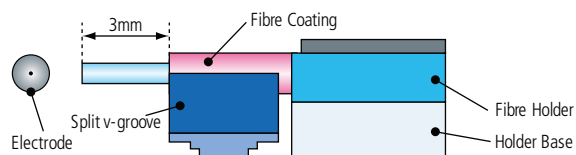
The FSM-100M+ and FSM-100P+ have the revolutionary design clamp system.

- No need to change V-groove or clamp part
- Programmable for any fibre or coating size
- Reliably 'captures' fibre for good alignment



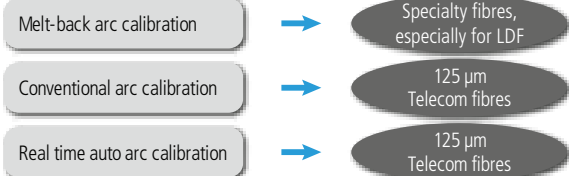
### Short cleave length

For minimising the length of stripped fibre at splice point, FSM-100M+ and FSM-100P+ can splice a short cleave length fibre.



### Special arc calibration

This calibration technology facilitates an easy transfer of high end splicing applications from R&D to production by ensuring consistent performance and takes full advantage of 'Plasma Zone' capabilities.

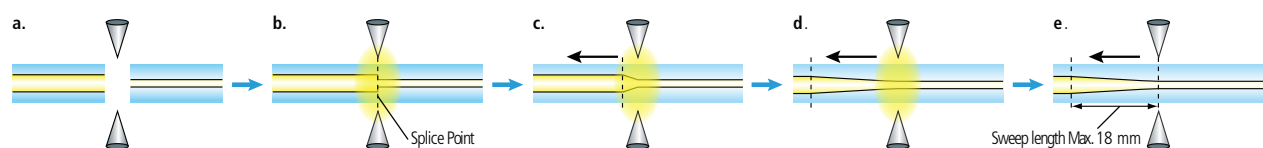


### Dual splice loss estimation

Combining the best features of both cold and warm splice imaging, FSM-100M+ and FSM-100P+ offer unprecedented accuracy for splice loss estimation.

### Enhanced sweep arc

Increased travel range for 'sweep arc' provides improved MFD matching capability for reshaping non-circular fibres in preparation for splicing.



## Fujikura FSM-100+ Series

### Internet firmware update & interface

An industry first! Customers can now upgrade firmware as new capabilities become available from Fujikura. Upgrading is as simple as connecting a USB cable to your splicer.

### Production environment friendly design

A low profile design that eliminates fibre catch points, the dimensions of both splicers are consistent with the most popular production splicing work-benches in use today.

### Fibre profile learning function

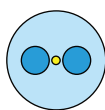
The splicer learns the fibre profile with the best focusing position in order to observe the core position accurately. After learning, the focusing time during a splice will be short.

### Comparison table

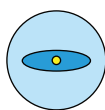
ITEM	FSM-100M	FSM-100M+	FSM-100P	FSM-100P+
Ø alignment system	—	—	◆	◆
Sweep arc stroke	±5 mm	±18 mm	±5 mm	±18 mm
End view fibre observation system	—	◆	—	◆
Electrode swing system	—	◆	—	◆
LDF splicing capability	60 to 500 µm	60 to 1200 µm	60 to 500 µm	60 to 1200 µm
Holder base position adjustment system	—	◆	—	◆

### Dual PM alignment (FSM-100P+ Only)

To properly align and splice the ever increasing and technically challenging variety of PM fibres, Fujikura developed IPA which is a new alignment technology. The FSM-100P+ includes both traditional PAS alignment as well as the new IPA technology, and it provides users with the most comprehensive capabilities on the market for splicing PM fibre. IPA also enables accurate PER estimation for all PM fibre types.



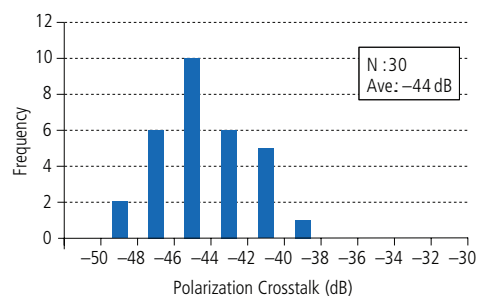
PANDA



Elliptic-core



BOWTIE



## Fujikura FSM-100+ Series

### Specifications

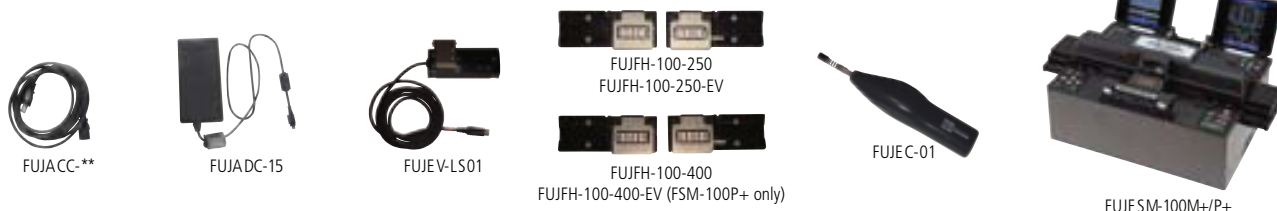
DESCRIPTION		FSM-100M+	FSM-100P+
Applicable type of fibres	For Telecommunication	SMF(ITU-T G652), NZDSF(ITU-T G655), MMF(ITU-T G651), EDF, DCF and other specialty fibres.	
	Large diameter fibre	Conventional silica LDF	
	PM fibre	—	PMF
	Clad diameter	Ø 60 to 1200 µm	
	Coating diameter	Ø 60 to 2000 µm	
Cleave length		Glass clamp : 8 to 30 mm (standard 9 mm) Coating clamp : 3 to 5 mm (standard 4 mm)	
Typically splice loss	SMF	0.03 dB	
	NZDSF/LDF	0.05 dB	
	MMF	0.02 dB	
	PMF	0.06 dB	
Splice time	SMF/MMF	15 sec	
	NZDSF/LDF	25 sec	
	PMF (PANDA)	—	35 to 50 sec
	PM AUTO	—	70 to 300 sec
Typically splice loss	PMF (PANDA)	—	-40 dB / 0.6 degree
	PM AUTO	—	-40 dB / 0.6 degree
Return loss		>> 60 dB	
Tube heat time	FP-03 40 mm	30 sec	
	FP-03 60 mm	35 sec	
	FPS01 series (micro sleeve)	55 sec *Heat time change with depended on type of micro sleeve	
Fibre clamp		If changes according to cladding diameter and coating diameter automatically	
Sweep range		± 18 mm (the arc center is 0 mm)	
Z-axis holder base position adjustment system		Available	
End view fibre observation system		Available	
Electrode life		2500 arc discharges (at the SMF (ITU-T G.652) splicing with 1 mm electrode gap)	
Electrode gap		1.0 to 3.0 mm (adjustable)	
Electrode oscillating function		Available	
Electrode offset		-0.3 to +0.1 mm (adjustable)	
Proof test		1.96 to 2.45 N	
Magnification		3.5 to 300 (changeable)	
Auto start function		Available	
Splicing mode	Number of splice mode	Total 300 modes	
	Standard mode	Available	
	Manual mode	Available	
	Endview mode	Available	
	Power meter mode	Available	
	Attenuation mode	Available	
Number of tube heating mode		100 heating mode installed	
Storage of splicing result		The last 2000 result to be stored in the internal memory.	
Language		English / Japanese / Chinese	
Arc power calibration		3 methods installed	
Arc position calibration		2 methods installed	
Fibre learning function		Available	
PC communication	Software upgrade	Cable via internet	
	Display image data	Capable	
	Splice conditions	Capable	
	Splice results	Capable	
	PC control	Capable Splice software and command list is available.	
Display		Dual 4.1" inches colour LCD monitor.	

## Fujikura FSM-100+ Series

### Specifications (Continued)

DESCRIPTION	FSM-100M+	FSM-100P+
Dimensions	470 (W) × 232 (D) × 160 (H) mm excluding rubber foot	
Weight	8.0 kg	9.5 kg
Power supply	External AC adapter : ADC-15 Input : AC100 to 240V (50 to 60 Hz) (max. 100 W AC)	
Operating condition	0 to 95%RH and 0 to 40 deg C respectively	
Storage condition	0 to 95%RH and -40 to 80 deg C respectively	
Terminals	Power supply : DC19 V 4.5 A	
	USB2.0(Mini-B type) for PC communication	
	IEEE-488 24 pin for power monitor feedback alignment	
	Two 6-pin Mini-DIN connector for external equipment (HJS-02)	

### Standard Package - FUJFSM100x+



Standard inclusions: FSM100x splicer, carry case, 250 µm fibre holders, 250 µm EV fibre holders, AC adapter and power cord, spare electrode, USB cable, dust cleaning kit, user manual and factory QA report. FSM100P+ includes additional 400 µm fibre holders and 400 µm EV fibre holders.

### Accessories

ITEM	MODEL	NOTE
Fibre Holder	FUJFH-100-***	*** Coating diameter
	FUJFH-100-***-EV	060, 100, 125, 150, 180, 210, 250, 300, 350, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800, 1900, 2000 µm
	FUJFH-40-LT900	※ -EV is fibre holder for End-view observation system. Coating Dia. : 900 µm for loose tube
End-view mirror	FUJEVM-01	Spare End-view mirror
Cleaver	FUJCT100	Cladding Dia. : 80 to 400 µm, Cleave length : 0 to 40 mm
	FUJCT32	Cladding Dia. : 125 µm, Cleave length : 4 mm / 9 mm
	FUJCT38	Cladding Dia. : 80 µm, Cleave length : 4 mm / 9 mm
	FUJCT10	Cladding Dia. : 125 µm, Cleave length : 5 mm / 10 mm
	FUJCT30	Cladding Dia. : 125 µm, Cleave length : 5 mm / 10 mm
Angle Cleaver	FUJCT-11	Cladding Dia. : 125 µm, Cleave length : 5 mm / 10 mm
Jacket Stripper	FUJJS-02-900	Coating Dia. : 900 µm (applicable for fibre holder 900 µm)
	FUJJS-01	Coating Dia. : 900 µm
Hot Jacket Stripper	FUJHJS02	Coating Dia. : 250 to 400 µm
Ultrasonic Cleaner	FUJUSC02	—
Recoater & Proof tester	FUJFSR02	—
Sleeve	FUJFP-03	60 mm
	FUJFP-04S	40 mm
Micro Sleeve	FUJFPS01-400-**	12, 15, 20, 25, 34, 45 mm / Coating Dia. 400 µm