

## Connectivity Solution

Fujikura has greatly simplified the process of joining two fibers, therefore providing significant support for our customers in the construction of FTTH network. Key innovations include Mechanical Splice (aligns and joins two fibers), FAST-SC /FA connector (do not require any assembly tools) and SpliceMate™ fusion splicer (incorporate all of Fujikura's Fusion Splicer technologies developed so far).

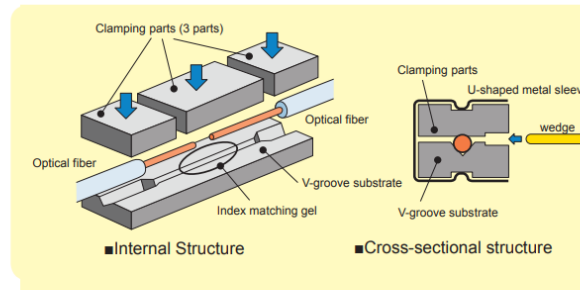
### Mechanical Splice Unit

## Mechanical Splice Unit / EZ Splice



Single fiber Mechanical Splice

Mechanical splice connection makes use of mechanical splice unit where 2 fibers are first inserted into the unit. The fibers are next aligned and then held in position by clamping parts. Besides requiring no electricity, it is also much faster compared to fusion splicing method.



### 「Mechanical Splice unit」

Type	Mechanical Splice Unit	
	Φ0.25mm single fiber	Φ0.9mm single fiber
Item	FMS-025	FMSEZ-025/09
Product Code	FMS-025	FMSEZ-025/09
Size	40 X 4 X 4 (mm)	
Connection Loss	Average < 0.1 dB	
Return Loss	≥ 40dB	
Fiber Adhesion Force	< 3N (< 0.2 dB)	
Required Tools	Single fiber MS/EZ connection tools	

### Mechanical Splice

## Single Fiber MS/EZ Assembly Tool

- MS/EZ assembly tool for Φ0.25mm single optical fiber.
- Easier MS/EZ assembly than one with existing tool.
- MS/EZ assembly tool for FMSEZ-025.
- No electric power is required and assembly can be done quickly.
- Suitable for FTTH drop cable solution.
- MS/EZ assembly kit is also available.



Assembly Tool

※ The color of the Mechanical Splice may be changed without prior notification.

### Single Fiber MS/EZ Assembly Tool and Accessories

Item	Model No.	Quantity	Remarks
Single fiber MS/EZ Assembly Tool	FMSECO-TL2-EZ	1 ea	
Mechanical Stripper 「F」	FMSECO-MSTR025	1 ea	
Single Fiber Holder 「F」	FMSECO-FH05/025	10 ea	
Spacer for Mechanical Splice Spacer 「F」	FMSECO-SP-C2	2 ea	
Alcohol Bottle	FMSEZ-ALC	1 ea	
Wiper	-	1set	
Instruction Manual	-	1set	
Carrying Case	-	1set	
Fiber Cleaver	CT-30	-	Option
Micro Stripper (Φ0.9)	MS1-08S-40-FS	-	Option
Single Fiber Holder 「F」 (Φ0.9) (Instruction Manual Included)	FMSECO-FH09	-	Option

Single fiber MS/EZ assembly tool (for Φ250 um fiber) is also available

- FMSEC0EZ-KIT025C-10 (without Fiber Cleaver)

# Mechanical Splice

Mechanical splice is used for fiber connection in FTTH installation work. In view of the importance of mechanical splice in FTTH installation work, the working principle and points to take note are being explained here.

## O Mechanical Splice Connection Theory

Mechanical splice connection is done by using the mechanical splice shown in Figure 1. Fibers are set to the V-groove of the mechanical splice. The fibers are hold in place by clamping with the clamping parts. Index matching gel is added to the center of the mechanical splice ( at the supposed connection point of the two fibers) to ensure good insertion and return loss.

Figure 1 Mechanical splice

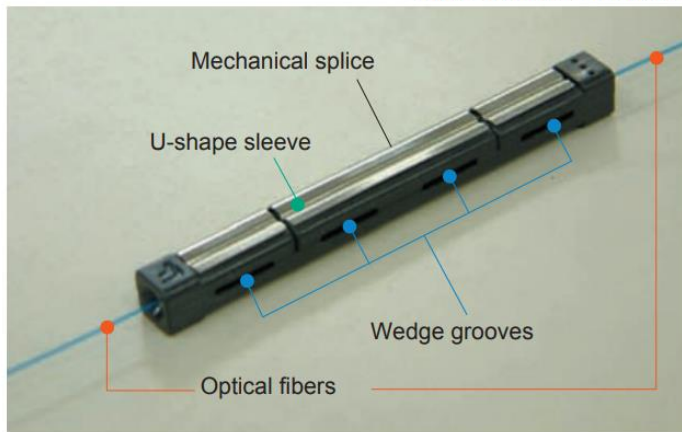
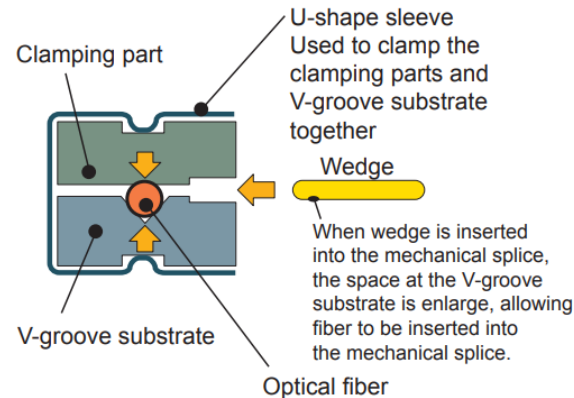
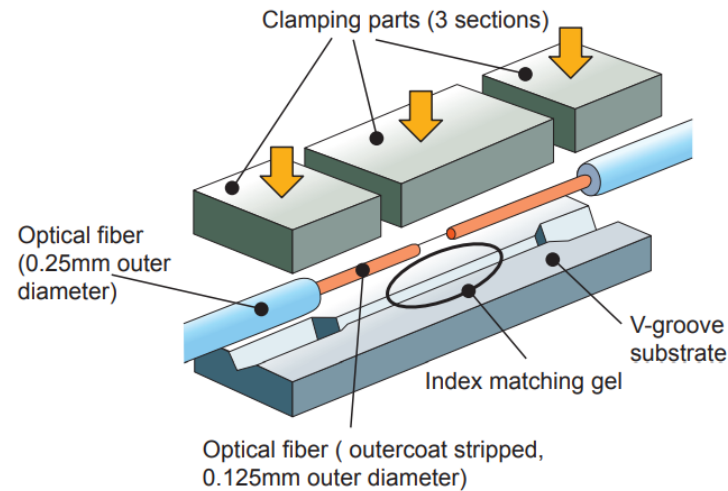


Figure 2 Mechanical splice structure



## Assembly Tools for FMSEZ-025/09

	Model Number	Remark
(1)	FMSECO-TL2-EZ	Assembly tools for FMSEZ-025/09
(2)	FMSECO-FH09	Fiber holder for 0.9mm fiber
(3)	FMSECO-FH05/025	Fiber holder for 0.25mm fiber
(4)	FMSECO-SP-C2	Spacer for using Fujikura's cleaver

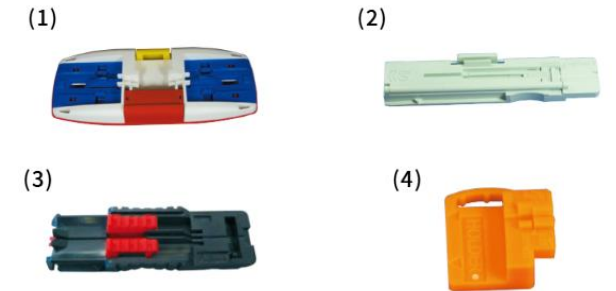
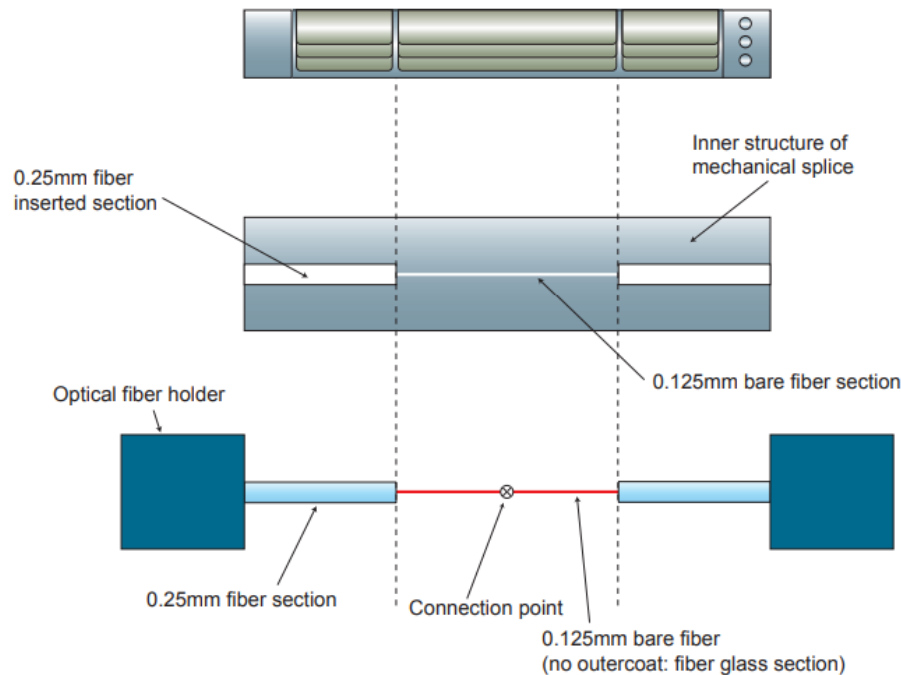


Figure 2 and Figure 3 show the inner structure of the mechanical splice. Both the 0.25mm section and 0.125mm (bare fiber) section of the fiber are being clamped and held in position. Therefore, to ensure good connection, both the fiber stripping length and the fiber cleaved length must be controlled within specifications.

Figure 3 Inner structure of mechanical splice

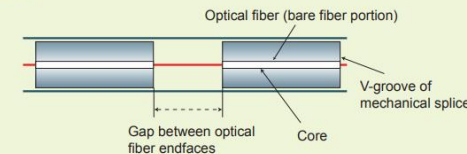


### Points to Take Note for Mechanical Splice Connection

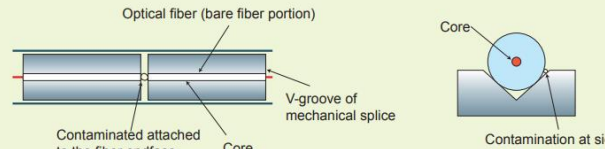
Mechanical splice is used mainly in closures for connection of drop cables. Another application is for connection between the internally connecterized ONU fiber and drop cable fiber. The three main reasons for bad insertion loss reading after installation work are: (1) Fiber endfaces are not touching each other (2) Internal region of the mechanical splice is being contaminated (3) Bad endface condition of fiber. It is important to understand the assembly procedures and methods before commencement of work.

#### (1) Fiber endfaces are not touching each other

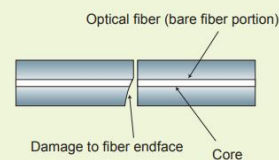
A large gap between fiber endfaces will result in high insertion loss.



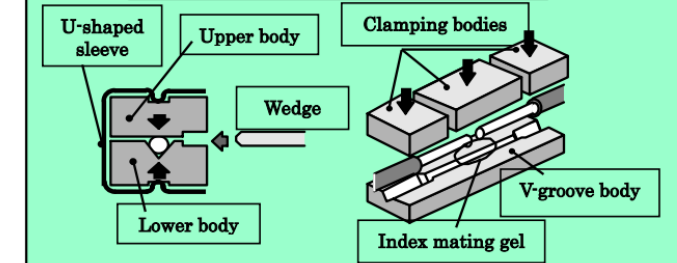
#### (2) Internal region of the mechanical splice is being contaminated



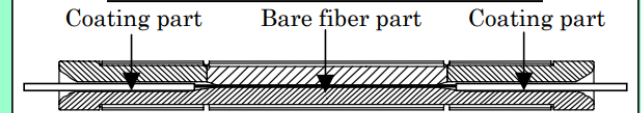
#### (3) Bad endface condition of fiber



### Basic structure of FMSEZ-025/09



### Cross sectional view of FMSEZ-025/09



### Cross sectional view of assembling

