

SPECIFICATIONS	
Fiber Heating and Splicing Method	CO ₂ Laser
Laser Safety Features	Metal cover with interlock, class 1 enclosure Automatic actuation of safety shutter Automatic laser power cutoff Triple redundancy
Laser Beam Control	Proprietary feedback system assures laser beam power stability Laser beam size and shape may be customized to meet specific user requirements
Typical Splice Loss	0.02 dB for SMF (ITU-T G.652)
Typical Splice Strength	>400 kpsi for SMF (ITU-T G.652) using appropriate fiber preparation equipment
Camera Field of View	2.7 mm
Fiber Observation Methods	<ul style="list-style-type: none"> • PAS (Profile Alignment System) via transverse fiber observation. • WSI (Warm Splice Image) and WTI (Warm Taper Image) • End-view observation (Optional)
Applicable Fiber Diameter	80 μm to 2300 μm for automatic alignment by PAS Larger diameter fibers may be aligned manually or by power meter feedback
V-Groove Clamping System	Infinitely variable from 80 μm up to 2300 μm Clamping bare fiber or fiber coating Patented "split V-groove" system
Fiber Handling	Fujikura FSM-100, FSM-45, & FSM-40 splicer fiber holders Custom fixtures to meet specific customer requirements
Alignment Methods	PAS (Profile Alignment System, automatic alignment by camera observation) Manual Other methods by PC control Power meter feedback via GPIB (Optional) End-view (Optional)
X/Y Alignment Resolution	0.1 μm
Maximum Z Travel Length	150 mm (both left and right Z units)
Z Travel Resolution	0.125 μm theoretical
Maximum Taper Length	130 mm
Maximum Taper Ratio	10:1 standard (For uniform direction, one-pass tapering) Dual direction tapering offers greatly increased taper ratios, as does tapering with more than one tapering pass.
Maximum Taper Speed	1 mm/sec standard
Splicing Control	Internal firmware or operation by PC
Fiber Tapering & Glass Shaping Control	Internal firmware or operation by PC
PC Control	SpliceLab software will be provided Complete command set for PC control
PC Option	An all-in-one computer is required. Use of the SpliceLab software on a PC provides finer control and additional features compared to the LZM-100 internal firmware. Using another software application, the PC interface also allows for advanced maintenance functions such as the ability to confirm laser beam alignment, and align if required.
Interface Ports	USB 2.0 (For PC communications, data and image download, etc.) GPIB (Optional, for power meter feedback)
Electrical Power	100-240 VAC
Operating Conditions	15-40°C
Rotation Motors	Optional: Provides theta rotational motion for PM alignment for both left and right sides
PM Fiber Alignment Methods	<ul style="list-style-type: none"> • PAS (For PANDA and other PM fibers) • IPA (Interrelation Profile Alignment, applicable to almost all PM fibers. Three distinct IPA methods available.) • End-view (Optional) • Power meter feedback (Requires polarizer & analyzer, as well as optional GPIB interface) • Manual • Other methods by PC control
End-View Observation & Alignment	Optional internal end-view system

BRO-03337 Specifications and descriptions are subject to change without prior notice.

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Splicing and Glass Processing System

LZM-100



LAZERMaster™

CO₂ Laser Heat Source for Splicing & Glass Shaping:

- Very clean heat source: Absolutely no deposits on fiber surface as might occur with filaments or electrodes
- Provides extremely stable & repeatable operation with virtually no maintenance
- Eliminates electrode or filament instability and maintenance & calibration requirements
- Proprietary feedback system ensures heating power stability
- No need for process gas (as required with filament systems)
- Redundant automated laser safety features
- Excellent performance for dissimilar diameter fiber splicing

Tremendous Capability for R&D and Production:

- Ultra high-strength splicing
- Splices and processes fibers with up to 2.3 mm diameter
- Long travel / high resolution Z motion for very long adiabatic tapers
- Onboard multi-step "Special Functions" simplifies complicated glass shaping processes
- SpliceLab PC GUI provides additional glass shaping control & measurement capabilities

Adaptable to Meet Specific Customer Needs:

- An advanced configurable system capable of producing tapers, ball lenses, combiners, MFA's, glass shaping and splicing
- Customizable chassis & mechanical architecture
- Laser beam size, shape & power can be tailored to meet customer requirements
- Complete set of PC command codes enables users to develop proprietary processes
- End-View observation & alignment system option

Simple & Easy Operation:

- Simple onboard menus and parameters common to Fujikura FSM-100 splicers
- Intuitive SpliceLab PC GUI: Easy to understand, navigate and operate
- Patented "split v-groove" clamping system automatically adjusts for 80 to 2,300 μm fibers
- Compatible with standard fiber preparation equipment and methods



LAZERMaster™ product line

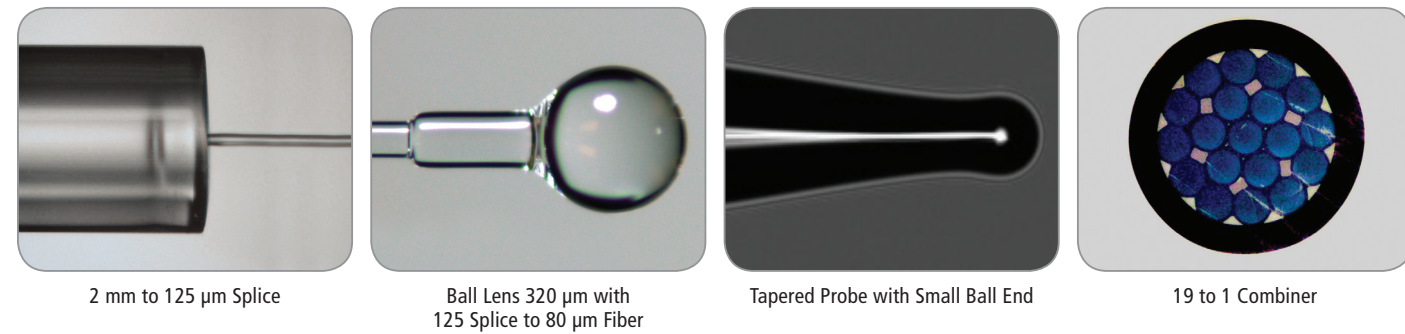
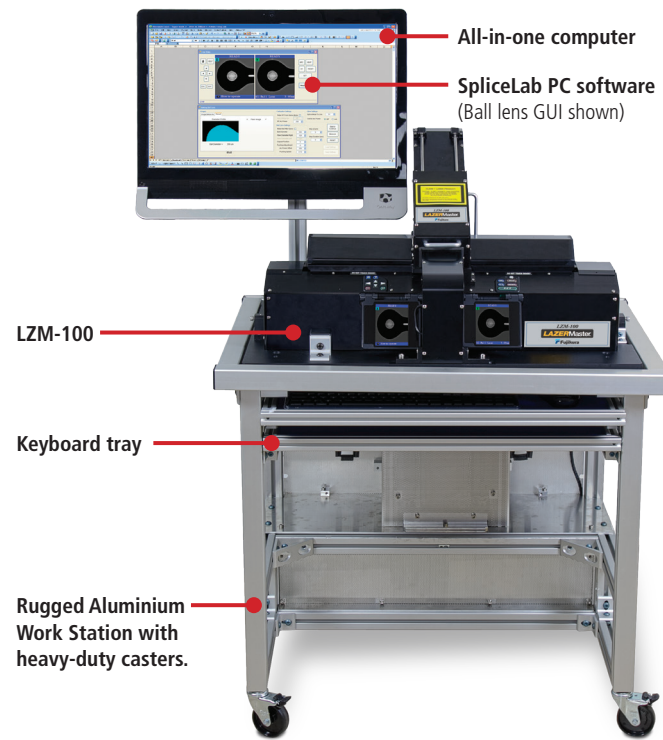
Fujikura's new LZM-100 "LAZERMaster" has been developed to meet the most demanding requirements for photonics applications. While sharing many features and the ease of use of the Fujikura FSM-100 ARCMaster fusion splicers, the LAZERMaster utilizes a CO₂ laser heat source and other advanced functionality to provide unprecedented capabilities, performance, and reliability for splicing, tapering, and other glass shaping operations. Additional information can be found at www.StateoftheARC.com which is the central repository of information for all of Fujikura's state of the art fusion splicer products. Stay tuned to www.StateoftheARC.com for the latest development concerning the LAZERMaster and ARCMaster products.



LZM-100 LAZERMaster™

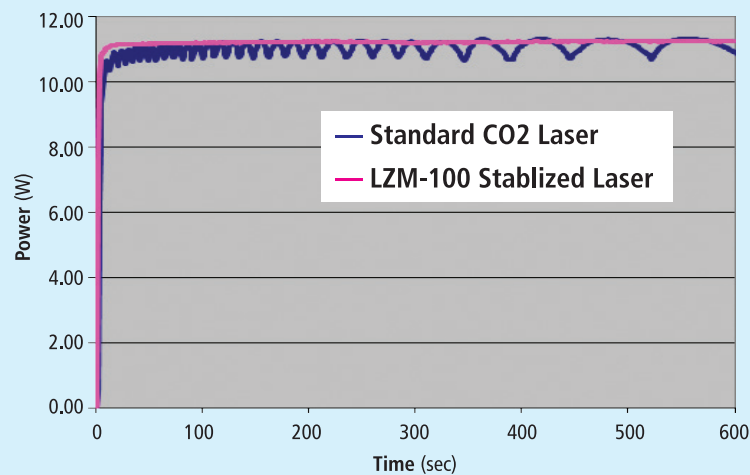
The LZM-100 LAZERMaster is a glass processing and splicing system that uses a CO₂ laser heat source to perform splicing, adiabatic tapering (to create MFAs or pump combiners), lensing, or other glass shaping operations with glass diameters of 2.3 mm or more. The high resolution optical analysis system works in conjunction with on-board firmware for fully automatic splicing, tapering and other glass shaping processes.

High precision glass processing is enabled by the intuitive and user-friendly on-board firmware (virtually identical to that of the Fujikura FSM-100 ARCMaster splicers). Operations may also be performed manually and by PC control. A SpliceLab PC control GUI is supplied with the LZM-100 to provide additional features, greater flexibility and finer control. The SpliceLab GUI is pre-installed on the All-in-one computer. Customers can also create proprietary PC control algorithms using a complete set of PC control commands.



Clean & Stable Heating by CO₂ Laser

The LZM-100 LAZERMaster uses a CO₂ laser heat source to heat fibers, ensuring repeatable performance and low maintenance, and eliminating electrode or filament maintenance and instability. CO₂ laser heating also eliminates any deposits on the fiber surface that might occur from use of a filament or electrodes. The very clean and deposit-free fiber surface ensures reliable operation of very high power fiber lasers or power delivery systems.



Laser Power Stability

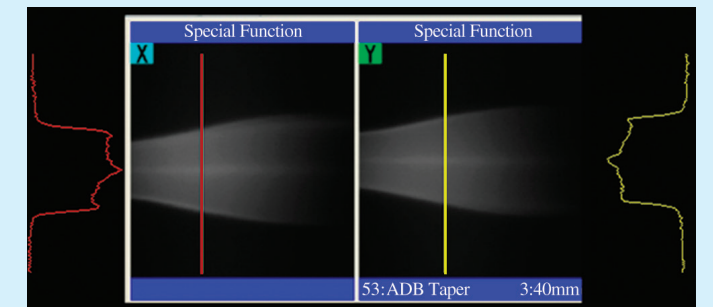
Typical CO₂ lasers have an output power fluctuation of +/- 5%. This produces inconsistent splicing results and may cause irregularity and ripple in a taper profile.

The LZM-100 utilizes proprietary (patent pending) closed-loop power stabilization techniques, resulting in power stability within 0.5%, as shown to left. This enables highly repeatable processes and very smooth taper profiles.

Advanced Adiabatic Tapering Capability User-Friendly Tapering Graphical User Interface

Warm Tapering Image Monitoring for Precise Control of Heating Power

The Warm Tapering Image (WTI) brightness level is captured in real time during the tapering process. The WTI value can be used to adjust the CO₂ laser output power in real time to a level appropriate for the decreasing mass of a fiber as it is tapered to a smaller diameter. This can be critical to ensure achievement of the desired taper shape.



ORDERING INFORMATION

MODEL	DESCRIPTION
LZM-100	LAZERMaster standard baseline system. Includes AC adapters & cords and SpliceLab PC software. Standard baseline LZM-100 system. Includes AC adapters & cords and SpliceLab PC software).
LZM-100P	LZM-100 with dual theta motors.
EVS-01	End view observation & alignment option.
OPPC-02	Optional Touch-Screen PC. Includes wireless keyboard & mouse, monitor stand for mounting all-in-one computer. SpliceLab software pre-installed.
STWS-01	Side table work station. Work surface to provide additional area for accessories such as fiber preparation equipment. May be attached to the left or right side of the LZM-100, or both sides. Folds down against the side of the LZM-100 chassis when not in use, or to enable LZM-100 movement through narrow doorways, corridors etc.
CLLH-01	Cylindrical Lens & Lens Holder. Necessary item for End-cap splicing, hollow core/PCF splicing, dissimilar fiber splicing, small diameter tapers and ball lens using small diameter fiber.