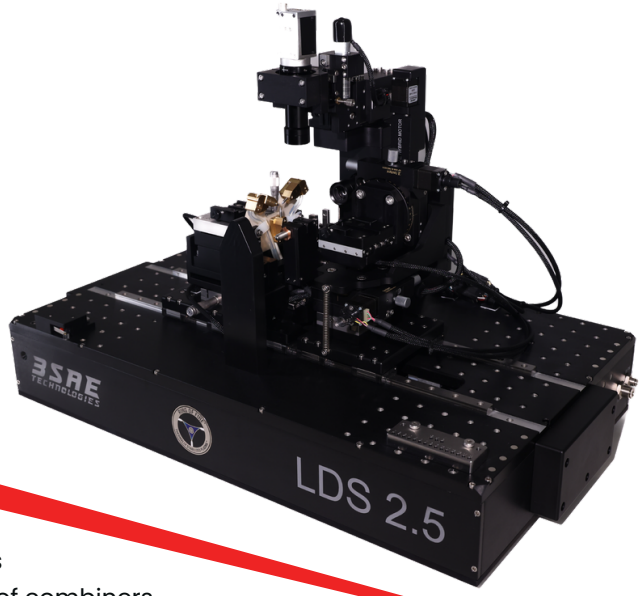
3SAE LARGE DIAMETER SPLICING SYSTEM 2.5 (LDS 2.5)



The Large Diameter Splicing System 2.5 (LDS 2.5) is an optical glass processing system designed for splicing, tapering, manufacturing of combiners, mode field adaptors, optical oscillators as well as other fused optical components. The LDS 2.5 is capable of performing splicing, tapering, scanning, cleaving, bundling diameters ranging from 125um up to 2.5mm.

The LDS 2.5 utilizes 3SAE's patented Ring of Fire® heat source that provides circumferential heating around the optical fiber or optical component being processed in the LDS 2.5. This allows for even heating around the fiber as well as very narrow heat source along the axis of the fiber. The Ring of Fire® heat source is capable of producing heat widths as small as 300um which is ideal for splicing Photonic Crystal Fibers (PCF) with little to no collapse of the inner air clad structures. The Ring of Fire® arc can also be pulsed to increase mechanical strength of Photonic Crystal Fibers (PCF) while not allowing the heat to deeply penetrate the inner structure based on arc pulsing times. The LDS 2.5 utilizes 3SAE's patented Ring of Fire® to create even heating which produces uniformly shaped tapers as well as capable of performing world class end cap splices utilizing the Ring of Fire® to provide circumferential heat uniformity while minimizing mechanical stresses induced by other non-thermally symmetric heat sources.

Key Features: Large Diameter Splicing System 2.5 (LDS 2.5)

- Extremely repeatable glass processing heat source ideal for high volume optical component manufacturing with a range of operation from ~700°C to >3000°C.
- Unsurpassed heat source provides circumferential thermal uniformity for symmetrical ultra-low loss fiber optic tapering and reduces thermally induced component stress.
- Contamination free heat source capable of producing ultra-high strength multi kilowatt class optical components.
- Fastest cycle times based on standard fusion splice, fiber optic taper, and cleave cycle times averaged together.
- Automatic alignment of Pitch and Yaw included with <0.01 degree resolution pre-taper alignment, optical fiber to optical fiber alignments, endcap splicing, tapered glass splicing, and fiber optic combiner splicing.
- Orthogonal views utilizing 5mp vision system with telecentric lenses providing 4.2mm wide x 3.5mm tall field of view and up to 20 frames per second.
- Live process monitoring via full resolution video imaging of the molten fiber optic glass without under or overexposure.
- Optional in situ cleaver supports fiber optic diameters from 20um to 500um.
- Capable of fusion splicing and tapering of optical fibers ranging in diameters from 125um to 2.5mm. Taper capability requires taper package.
- Capable of fusion splicing optical fibers as dissimilar as 125um to 2.5mm in diameter.
- Piezo-driven flexure stage and software package providing 130µm of vibration-free z-axis motion with 0.25 µm theoretical resolution.
- Scanning software is capable of scanning optical fiber's diameter before or after a fusion splice or fiber optic taper.
- Automatically captures fusion splice images before, during, and after fusion splice along with splice data and program file for each splice.
- "Hot Imaging" provides live viewing during fusion processing of optical fibers in real time.

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- Photonic Crystal Fibers (PCF) can be spliced with little to no air hole collapse.
- Capable of uniformly collapsing Photonic Crystal Fiber (PCF) allowing for positional cleaving, ultrasonic cleaning (no liquid wicking into air holes), and achieving excellent splice losses. (Cleaving requires cleaving package).
- <50nm X and Y fiber positional resolution of over the full stroke of 12mm.
- Taper lengths of up to 150mm supported in bidirectional mode.*
- Taper lengths of up to 90mm supported in single directional mode.*
- Exclusive "Table Based Tapering™" software included for single direction, bidirectional taper, or custom algorithm program creation and nearly infinite engineer level process control.**

*Requires taper package. Taper ratio dependent.
**Requires taper package. User can adjust both fiber platform locations, the heat zone location, and the arc power setting 20 times per second for the entire process.

Standard Package

Part Number	Product	Includes
LDS-01-0550	3SAE Large Diameter Splicing System (LDS 2.5)	PC with all necessary software, 23" monitor and accessories Accessory kit including qty (2) spare electrode sets, all necessary PC and LDS interconnect cables, power supply, electronic user's manual 3SAE Automatic Electrode Cleaner (AEC) Manufacturer's 1-year parts and labor warranty **Fiber Holders sold separately

Technical Specifications

Feature	Specification
Dimensions	63cm (W) x 36cm (D) x 48cm (H)
Weight	~75 kg
Power Source	24VDC 200W, qty 2
Compressed Air	6.2b (90psi) and 126 L/per min (~4.5cfm)

LDS 2.5 Upgrade Packages

Part Number	Product	Includes
LDS-01-0103	LDS PM Splicing Package	• Automated +/- 15 degrees rotation of the left fiber holder. • Manual 360 degrees Theta rotation of right fiber holder. • Provides rotational accuracy to +/- 0.125° for Panda type PM fiber. • Alignment using Image Analysis Software allows independent alignment of PM fibers regardless of fiber shape, fiber diameter, or fiber material; thus eliminating need for factory intervention when optimizing splices for new PM fibers. • Compatible for use with Large Mode Area (LMA) and Photonic Crystal (PC) fibers. • PM Mirror assembly provides simultaneous end viewing of both the left and right stages. • 250 µm light injecting fiber holders (pr) supports up to 600um coating.
LDS-01-0104	LDS Tapering Software Option	• Automatic taper creation via intuitive software interface or manual table editing. • Tapering methods include Bi-Directional Tapering, Single Direction Tapering, and Table based tapering. • Integrated load cell feedback system for process development and monitoring. • Scanning Function for scanning O.D. of optical taper or fusion splice.
LDS-01-0108	LDS Integrated Cleaving Option	• Provides in-the-box cleaving solution for production of end caps, tapers, mode-field adapters (MFAs) and optical fiber combiners up to 500µm diameter. (Tapering package required for manufacturing tapers and optical combiners). • High quality diamond-tipped ultrasonic blade with piezo-based frequency/amplitude control as well as a fiber-deflection control mechanism. • Real time scanning and image feedback capabilities provide reproducible reference and cleave location control. • Cleave location precise to +/- 12.5µm • Improves yields of delicate assemblies by eliminating excess handling needed to transfer to an external cleaver.

Accessories and Consumables

Part Number	Product
LDS-01-0120	LDS Fiber Holders - 250um (pr)
LDS-01-0121	LDS Fiber Holders - 400um (pr)
LDS-01-0122	LDS Fiber Holders - 700um (pr)
LDS-01-0123	LDS Fiber Holders - 1000um (pr)
LDS-01-0124	LDS Fiber Holders - 2000um (pr)
LDS-01-0094	Magnetic Brass Electrode Holders (Set of 3) for ROF
ACC-01-0147	Power Supply 200W 24V 8.33A 8-pin
LDS-01-0178	LDS Light Injecting PM Fiber Holders - 250um (pr) supports up to 600um coating diameter

Part Number	Product
ACC-01-0099	LDS End Cap Holder (1.1mm - 7mm)
ACC-01-0207	LDS End Cap Holder (6mm - 12mm)
ACC-01-0350	Capillary Speed Loader (CSL)
ACC-01-0143	3SAE Automatic Electrode Cleaner (AEC)
CON-10-0022	Electrode Cleaning Discs - Black (Pack of 25)
CON-10-0023	Diamond Tip Replacement Blade (LCC, LDS, CMS)
CON-10-0025	Electrode (PWS/FPU II/LDS/LFS) (Requires qty 3)