3SAE Technologies, Inc.

A PHOTONICS REVOLUTION

PLASMA WORK STATION

The 3SAE Plasma Work Station, PWS, is a compact, precision-built instrument for performing fiber operations that are beyond the ordinary.

Standard thermo-mechanical stripping, solvent cleaning and arc fusion splicing technologies are now over 20 years old and were developed for basic acrylic coated 125 µm SM fiber splicing. As fiber technology continues to expand, there are production operations that are difficult or impossible to perform on standard production fiber processing tools.

Ring of Fire®: The Plasma Work Station utilizes 3SAE's patented 3-Phase Plasma Technology, which produces a "Ring of Fire®" surrounding the fiber with uniform heat and controlled ionic conditions. Sophisticated software and instrument-grade measurement technology monitor the 3-phase arc to maintain balance and consistency over a broad dynamic range. Temperatures obtainable at the fiber range from less than 100 °C to well over 3000 °C.

The Work Station: Many of the operations possible on the Plasma Work Station can be performed in partial vacuum. The PWS creates vacuum internally from an external air supply. The unique seal and baffle design allows for sufficient sealing around the fibers without causing fiber coating damage. The housing of the PWS is machined from a solid block of aluminum. The electronic and mechanical parts are designed for continuous-duty operation and long-term reliability even with heavy production use.

Plasma Work Station Applications

Polyimide Stripping: These tough coatings are difficult to remove without degrading the fiber's mechanical integrity. Previous polyimide stripping technologies have either used thermal decomposition, which produces relatively low tensile strength, ~100 kpsi, or strong acid/alkali chemistry, which is hazardous and produces toxic waste.

The Plasma Work Station, powered by the 3SAE Ring of Fire®, uses ion etching technology to remove polyimide coatings safely and cleanly. The resulting tensile strength is many times higher than that resulting from ordinary thermal stripping. Many stripped fibers have close to as-drawn strength, > 400 kpsi, with cleanly tapered interfaces and no charring. The standard PWS accommodates a single fiber up to 1000 µm diameter, with appropriate fixtures. Two standard size fibers, 125 µm cladding, can be processed simultaneously, with the available multiple fiber option,

Removal of Metalized Coatings: The PWS is capable of removing metal coatings, such as gold, from coated fibers. The PWS also removes polyimide coatings from polyimide coated wires.

**INFORMATION IS SUBJECT TO CHANGE WITHOUT NOTICE.*

615.778.8812
INFO@3SAE.COM

MADE IN THE USA
WWW.3SAE.COM

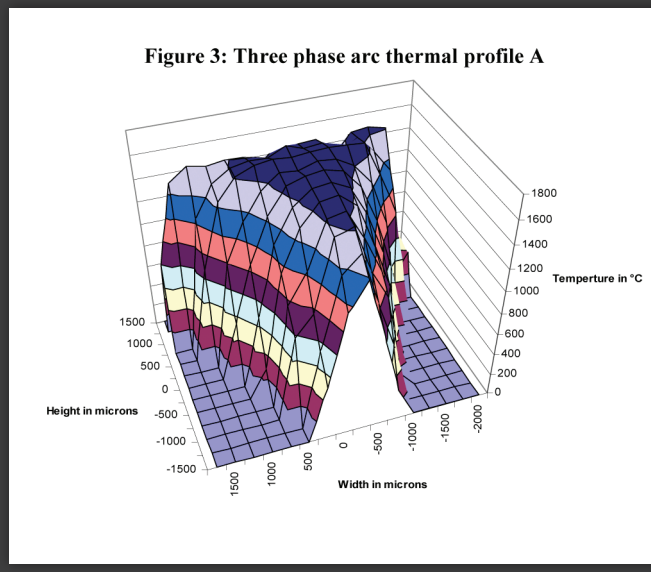
3SAE Technologies, Inc.

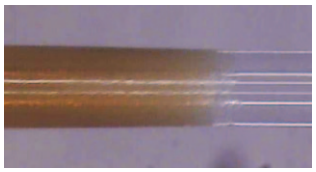
A PHOTONICS REVOLUTION

PLASMA WORK STATION

User Interface: The PWS's control interface is accessed via the mounted LCD and Keypad. This interface provides operational status updates and provides the operator with complete control of plasma characteristics, temperature and positioning. The operator can quickly and easily recall and store parameters in any one of up to 10 available recipe locations. This allows quick translations between fiber processes.

Application support: The 3SAE Technologies team have almost a century of combined experience in the manufacturing and support of custom fiber optic tools. On-site CNC machining and electronic assembly capability enables us to act quickly to create customized programming, interfaces, and fixtures to meet unique customer requirements.





Polyimide stripping: Polymicro
330/300 µm, Polyimide coating shown.

Key Features:

- Compact bench top design
- Chemical free fiber stripping and cleaning
- Variable strip lengths from 2 mm to 55 mm
- Translation speed: 2 µm/sec – 20 mm/sec
- Software adjustable parameters

Techniclal Specifications

- Dimensions: 285 (W) x 170 (D) x 170 (H) mm
- Weight: 6.4 kg
- Power Source: 100-240VAC, 50-60Hz, 120W
- Supported Fiber Diameters: 80 µm - 1000 µm, appropriate fixtures required
- Temperature Range: 1000 °C - 3000 °C+ (at standard pressure)
  < 100 °C - 1100 °C (in partial vacuum)
- Compressed Air: External compressor, 95 psi max

Product	Part Number	Qty
Plasma Work Station	**PWS-01-0101**	
Standard Package		
Power Supply	ACC-01-0141	1
Power Cord	FPU-02-0037	1
User's Manual	N/A	1
Spare Electrode	SPT-10-1638	3
4 mm to 1/4 inch NPT Adaptor	N/A	1
Optional Components		
Electrode	SPT-10-1638	
Electrode Sharpening Wheel (Pack of 25)	SPT-10-0761	
3SAE Automatic Electrode Cleaner	ACC-01-0143	
80 µm Fiber Holder (Left)	ACC-01-0064	
80 µm Fiber Holder (Right)	ACC-01-0065	
80 µm Fiber Holder (Pair)	ACC-01-0119	
Custom holders upon request		

**INFORMATION IS SUBJECT TO CHANGE WITHOUT NOTICE.*

615.778.8812
INFO@3SAE.COM

MADE IN THE USA
WWW.3SAE.COM