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## **3SAE Technologies Develops First-Ever Three-Phase Plasma Arc Technology for Fusion Splicing**

**Opens new range of performance for  
specialty and large diameter fiber splicing**

**FRANKLIN, Tenn., Feb. 22, 2008** – 3SAE Technologies Inc. has developed the first-ever three-phase arc technology for fusion splicing, which achieves far superior thermal stability and dynamic range -- opening up a whole new range of performance in specialty and large diameter fiber splicing.

Unlike a standard fusion splicer which uses two electrodes to produce heat to splice fiber up to about 500 microns in diameter, 3SAE's third-electrode design can uniformly surround and heat fiber up to 1mm in diameter and lower optical losses of fibers with mismatched mode field diameters. Gains in splice strength are also possible when the three-phase plasma's highly stable heat source is used to perform post-splice annealing, called a "flame polish."

This leap in splicing performance is achieved through the unparalleled thermal properties of the three-phase arc. The third electrode, along with a three-phase driving circuit, produces a wide area plasma field up to 100 times larger than that of a two-electrode system. The three-phase arc generates a triangular two dimensional heating zone while a conventional two-electrode system produces a relatively narrow and single dimensional line of plasma for heat.

In addition, the power density in the three-phase arc system can be adjusted to achieve fiber temperatures ranging from less than 100°C to more than 3000°C. This dynamic range brings much needed splicing versatility to specialty, large diameter, high strength and high yield fiber applications and processes.

“The thermal profile of the three-phase arc is far superior to any existing splicing technology,” said Robert Wiley, vice president of engineering for 3SAE Technologies. “The elimination of the nonlinear heat transfer variables allows for a significantly more stable thermal profile than has ever been achieved before in plasma arc fusion splicing.”

3SAE will present the details of its ground-breaking three-phase plasma arc technology in a poster session at OFC/NFOEC 2008, the fiber optic industry’s premier conference to be held Feb. 24-28 in San Diego. The company currently has three patents pending on the new technology.

3SAE Technologies has teamed with The Furukawa Electric Company Ltd. ([www.furukawa.co.jp/english/](http://www.furukawa.co.jp/english/)) to incorporate the three-phase technology into a new FITEL® S184 wide area plasma splicer. 3SAE Technologies will demonstrate the operation and performance of the S184 splicer at OFC/NFOEC 2008 in Expo Hall booth #335.

**3SAE Technologies Inc. (www.3SAE.com)**, headquartered in Franklin, Tenn., provides advanced fiber splicing solutions to companies around the world and continues to develop and market new fiber optic tools and technologies for optical fiber applications. Founded in 2002, 3SAE holds multiple patents and awards related to optical fiber preparation and fiber optic stripping and its products are used at many of the world’s leading photonics, aerospace, military research facilities, oil and gas companies, universities, municipalities and large fiber optic network providers.

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