SPI Lasers: Joining dissimilar materials; BeAM Machines: New release – the MODULO; BOFA Dental fume extractors; What’s On: NMW/AUSTECH; What’s In My Inbox: New dishcloths?

SPI is one of the world’s leading manufacturers of Fiber Lasers, and one of the few to operate on a truly global basis, with a mission to provide SPI customers with the very best quality products and after sales service. With over 300 employees serving customers in more than 150 countries, SPI aspire to become the best global manufacturer of Fiber Lasers, offering a wide range of pulsed and CW Lasers.

Welding, cutting, marking and micro-machining operations can be carried out faster and more accurately with an SPI Laser for better reliability, less waste and improved productivity. All Lasers are designed and manufactured in one of two UK based manufacturing sites in Southampton and Rugby, employing the very best engineers and technicians while using advanced lean manufacturing techniques and processes to develop and build the range of products. SPI is committed to harnessing the very best British engineering and innovation excellence; ensuring the highest levels of product quality is achieved.

Recently SPI announced new welding applications in a study entitled Joining dissimilar materials with pulsed nanosecond Fiber Lasers. Joining dissimilar metals has long been a challenge for welding and design engineers who have often been told that it’s difficult or that it can’t be done. As any metallurgist will tell you, it is the combination of physical properties and metallurgical incompatibility that governs weldability.

Industrial use of nanosecond lasers for applications such as welding and joining is relatively new. These lasers can be used, for example, with high-peak-power nanosecond pulsed output with tunable pulse duration and high frequency-modulated quasi-continuous-wave (QCW) modes, as well as operated as a more conventional continuous-wave (CW) laser. The versatility afforded by master oscillator power amplifier (MOPA)-based nanosecond fiber sources gives unparalleled flexibility in terms of control of output characteristics.

SPI Lasers’ nanosecond welding process has provided a differentiated mechanism that has proven itself to be extremely capable in joining a wide variety of dissimilar metals. A wide range of material combinations have been made, but material combinations that appear to be of general interest include copper to aluminium, aluminium to copper, and stainless steel to aluminium. The joining of copper to aluminium (with the copper on top) is a joint of significant commercial interest. SPI have identified a major area of current interest is the joining of battery cells. Hence a wide range of materials are being studied, including aluminium, copper, and nickel-plated copper with a view to produce a reliable and tolerant process that generates strong welds with no burn-through or witness mark on the battery contact.

For a copy of the research contact info@raymax.com.au
BeAM, the European pioneer in Direct Energy Deposition (DED) in additive manufacturing systems offers a machine that uses a guided layer-by-layer metal deposition process to manufacture and repair parts. The smart axis and direct laser beam technology makes it possible to add functions and shapes on already existing parts directly from a CAD file, enhancing part usage and, part lifetime.

BeAM has developed partnerships to test and practice part repair procedures. One partner is Chromalloy, a leading supplier of technologically advanced repairs, coatings and services for critical turbine engine components supplying to commercial airlines, the military and for industrial turbine applications. Chromalloy chose to partner with BeAM three years ago to develop solutions to repair components that were considered irreparable with traditional industrial processes.

At FormNext, November 2016, several components made from Ti6-4, Inconel 718, Waspaloy and a Stator Vane in Inconel 713 were presented. Inconel is used in extreme environments such as for gas turbine blades, well pump motor shafts, high temperature fasteners, steam generators, seals and combustors, turbocharged rotors even Norton motorcycles where exhaust temperatures reach more than 1,000 degrees C. These are just a few products exposed to high heat and extreme conditions and suffer degradation, possible to repair with a BeAM machine.

The new MODULO machine presented at Formnext 2016, shows BeAM’s strategy to consistently stay a step ahead of the game by cultivating its technical edge. BeAM’s open innovation policy, involving customers and partner research centers, enables it to continuously enhance its range of solutions. This approach ensures the company remains a technological leader in the competitive DED market.

The MODULO

BOFA exhibited in March 2017 at DentalPro in Cologne, Germany, showing a selection of products from their revolutionary DentalPRO range – dust and fume extraction solutions designed especially for dental applications. Dental laboratory technicians are subject to numerous occupational hazards, many of which cannot be seen by the naked eye. Potential health and safety risks are associated with the toxic fumes and particulates that are generated by:

- CAD/CAM processes
- Milling
- Hand finishing
- Monomer mixing
- Manufacturing or repairing dental implants
- Developing crowns, bridges and dentures.

BOFA’s flagship Xtract 300 fume cabinet, is designed to remove dust and fume in multiple hand finishing dental laboratory applications.

BOFA fume extractors are recommended with laser systems. If you are unsure of your requirements contact Raymax on 02 9979 7646 for free advice.

WHAT’S IN MY INBOX?

QUESTION: Is America manufacturing dishcloths?

Not really - for several years, the team at The University of Texas at Dallas had been searching for a material whose electrical properties might make it suitable for small, energy-efficient transistors to power next-generation electronic devices. This microscopic nano-flag pattern emerged as sheets of the 'stripes' material — molybdenum ditelluride — were heated to about 450°C, at which point its atoms began to rearrange and form new structures — the 'stars' in this false-colour image.

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