IPG Photonics will be launching three new innovations at FABTECH 2018 in Atlanta, Georgia (November 6-8). These breakthroughs will further empower IPG’s customers, providing increased flexibility and speed in their laser applications, while in many instances reducing costs and improving overall throughput. Visitors to the IPG’s booth #C12868 will be the first to learn about these new advancements.

**QCW Mode in CW Lasers**
The first innovation includes the introduction of the new QCW mode to CW lasers. QCW capability provides peak power up to two times average power, allowing increases in piercing speed, improvements in pierce quality and piercing of thicker materials while maintaining the throughput benefits of CW lasers during cutting. The high peak power allows for reduced heat input in the QCW mode resulting in higher quality cuts of intricate parts with fine features and enhances drilling capabilities by allowing clean, controlled drilling in thicker materials. This unique capability is made possible by IPG’s QCW diode designs, which have the ability to provide very high peak power for short duty cycles, with the real-time capability of switching to CW mode. Available exclusively from IPG in the latest releases of YLR and YLS lasers, the QCW mode will provide improved cutting and drilling quality and increased overall throughput, while saving material, time and operating costs.

**Adjustable Mode Beam (AMB)**
IPG will also introduce an all new adjustable mode beam capability. Adjustable Mode Beam (AMB) is now available on IPG’s YLS family of lasers, allowing customers to change output beam mode on-the-fly and increase flexibility in cutting and welding applications. AMB enables programmable adjustment of the output beam mode to any combination of a small-spot high intensity bright core to a larger ring-shaped beam. “AMB will allow IPG customers to process a wider range of material thicknesses and improve piercing and cutting quality, as well as optimize welding performance in certain material combinations,” states Trevor Ness, SVP WW Sales and Marketing. “Up to 20 kW of total output power with the central core delivering up to 12 kW, AMB enables optimal processing of both thick and thin materials by the same laser and has IPG’s industry leading wall-plug efficiency of over 45%.”

**Weld Depth Monitor**
Also launching at the show is an integrated high power scan head with LDD weld monitoring technology. This completely integrated and revolutionary solution meets the ever increasing quality monitoring requirements for industries such as automotive and medical. Completely integrated with IPG’s recently released high power scanning heads and industry standard High-Power Lasers, LDD’S in-situ Weld Depth Monitor provides the most comprehensive and direct measurement of crucial processing characteristics including weld depth, part fit-up, seam position, undercut, surface porosity and focal distance. Integration of this technology with IPG’S high power scan heads offers improved remote welding consistency and significant cost savings for applications such as e-mobility, seating, powertrain and body-in-white.
IPG Photonics has invested in applications facilities to provide customers worldwide the opportunity to investigate the benefits that fiber laser processing may bring to their product development or manufacturing lines. Each of these facilities is equipped with the latest fiber lasers, motion systems, programmable multi-axis workstations and scanners. Each laser or system may be outfitted with a beam delivery option dependent upon the application. Our highly trained application engineers are proficient in a broad range of applications with each location specialized in local industries and customers. The labs are utilized for company-sponsored projects to optimize product performance, investigate processing techniques and qualify application parameters. Each facility is also equipped with a metallurgy lab for sample analysis and qualification. The following are examples of our applications facilities:

**Northeastern United States**

IPG’s premier applications center is located in Marlborough, Massachusetts. This 20,000 sq. foot state-of-the-art lab is equipped with IPG’s extensive range of fiber lasers with power levels up to 30 kW, single-mode lasers up to 3 kW and QCW lasers up to the 1 kW level. These lasers can be evaluated on several 6-axis robotic systems as well as three Multi-axis systems. The lab is equipped with a variety of pulsed lasers up to the 2 kW average power level. In addition, both UV and Thulium lasers are available for evaluation. Located in Burbach, Germany, the facility has a complete array of beam delivery including high-speed high power scanners, hybrid welding heads, soldering heads as well as cutting and drilling heads. The applications lab is managed by Michael Grupp and can be reached at kzhilin@ntoire-polus.ru.

**Western US**

IPG recently increased support for Western US and worldwide customers with a recently renovated 13,000 square-foot laser processing applications facility. Located in Santa Clara, California, the Silicon Valley Technology Center (SVTC) tripled its lab space to accommodate IPG’s flagship Multi-axis Systems and a new line of ultrashort pulse lasers complementing the broad range of IPG lasers and beam delivery options. Uniquely located in the heart of Silicon Valley, SVTC accommodates a number of industries including semiconductor, consumer electronics, electric vehicle design and medical device manufacturing. Please contact Toby Strite at tsstrite@ipgphotonics.com for further information.

**Germany**

IPG’s Germany Applications Lab has a range of fiber lasers with power levels up to 30 kW, single-mode lasers up to 3 kW and QCW lasers up to the 1 kW level. These lasers can be evaluated on several 6-axis robotic systems as well as three Multi-axis systems. The lab is equipped with a variety of pulsed lasers up to the 2 kW average power level. In addition, both UV and Thulium lasers are available for evaluation. Located in Burbach, Germany, the facility has a complete array of beam delivery including high-speed high power scanners, hybrid welding heads, soldering heads as well as cutting and drilling heads. The applications lab is managed by Michael Grupp and can be reached at kzhilin@ntoire-polus.ru.

**Northern Europe**

IPG has a major applications center in Fryazino, Russia. The facility has ten fiber laser systems for application development. These systems are available with up to 15 kilowatts of CW laser power. The systems include four robotic welding systems, a CNC multi-axis welding system, a Laser Seam Stepper (LSS) system for spot welding applications, one robotic system dedicated to cladding applications, high peak power marking systems and a LaserCube cutting system. The lab has expertise in sintering, cladding, engraving, hybrid welding, multipass welding, pulsed welding, perforation and cleaning applications. The applications lab is managed by Kiril Zhitlin and can be contacted at kzhilin@ntoire-polus.ru.

**Japan**

The applications lab in Japan is located in Yokohama. The lab features fiber laser power up to 6 kW, short pulsed lasers to 100 watts, picosecond lasers, and nanosecond pulsed green lasers. The lab includes welding and cutting beam delivery, spot wobbling optics, several scanners, a micro cutting head an integrated marking system as well as Multi-axis workstations. Application Manager Kazunari Miyata can be contacted at kmiyata@ipgphotonics.com.

**Italy**

The Italian applications center is located in Milan, Italy. Lab equipment includes three robotic cells, Multi-axis welding workcell, LaserCube, high power scanning system, mid-power scanners both for pulsed and continuous laser sources, low power marking systems and an UV integrated marker. IPG Photonics Italy closely works with research institutes, OEM and end users in several markets such as energy, oil, gas and transport (automotive, naval, aerospace and railways). A particular focus in welding is reserved for high thickness components and joints characterized by critical metallurgy. Development of tube and profile welding solution (TPS) has been one of the most important recent activities to date. Available pulsed laser sources provide a variety of application processes such as marking, cleaning and surface treatments. Increasing interest has been observed in these applications, in which lasers may be a valid alternative to conventional machining for ablation, steel pickling, oxide removal, depanning or stainless steel polishing.

The Applications Manager is Marco Franzosi and can be contacted at mfranzosi@ipgphotonics.com.

In addition to these facilities, IPG Photonics has applications labs located in Turkey, France, Brazil and Spain, all equipped to provide customer support. Let IPG assist your company in developing your production laser process. Our engineers will optimize the laser and application parameters on your supplied material and provide you with a detailed report and samples of the results.

Bill Shiner is Sr Marketing Advisor to the CEO. He can be reached at shiner@ipgphotonics.com.
Is your cutting edge product development pushing the envelope of current technology and techniques? Meet with industry experts and learn how manufacturing leaders are utilizing fiber lasers to set new benchmarks for process capabilities on the modern shop floor. You’ll even have the opportunity to discuss your specific applications with our processing specialists. Did we mention that lunch is on us?

• Wednesday, November 14th
• 9:30 AM – Lunch
• 3930 Freedom Circle, Ste 130, Santa Clara, CA 95054

Meet with industry experts to learn how you can advance your cutting and drilling capabilities for higher productivity, tighter tolerances, smaller feature sizes, improved yields and lower per-part costs. An interactive format includes user case studies, hands-on demonstrations, as well as open and closed door Q&A sessions.

• Tuesday, December 4th
• 8:30 AM – 12:30 PM
• 259 Cedar Hill Drive, Marlborough, MA 01752

In addition to these upcoming events, IPG also offers regional seminars and in-house events. Please contact sales.us@ipgphotonics.com to find out more.

Before commencing work on a customized system, IPG provides laser applications testing, an overview of process flow and estimated budget for your project. Our 3D concept drawings allow you to easily visualize your system, material flow and ensure that it will fit in your facility.

The key to our success is the IPG team of professionals which includes engineers, skilled technicians, an applications team—including a metallurgist and a service team. Our dedicated project managers will work with you throughout the entire process. We have designed and constructed laser systems for applications that range from welding and cutting small surgical instruments to welding large copper elements in rocket engines. We can help you whether you need systems for high volume production or a custom lab-scale system for process development.

As your partner for innovative solutions, IPG provides laser process development, system design, fabrication and installation.

Victoria Baxter, Systems Engineer for the Custom Systems Group, can be reached at vbaxter@ipgphotonics.com.

Applications

IPG Photonics offers complimentary sample processing and evaluation as well as laser product recommendations. Whether the processing method is cutting, welding, marking or surface modification, IPG has comprehensive application expertise in materials, process development, system set-ups for clean environment requirements, and metallurgical and surface analyses. Each evaluation includes an applications report and follow-up. Contact IPG to arrange your initial evaluation.

Visit www.ipgphotonics.com for more information on IPG lasers and systems.
IPG Photonics’ Innovative Laser Solutions for Cutting, Welding, Brazing, Drilling and Ablation

- Consistently High Quality Parts
- Enhanced Overall Productivity
- Accelerated ROI
- Increased Profitability
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