MKS Instruments Showcases Customer-Focused Photonics Innovations at SPIE's Photonics West 2025

January 21, 2025

MKS' signature brands – Newport™, Ophir®, and Spectra-Physics® – continue commitment to innovation with leading-edge products

ANDOVER, Mass., Jan. 21, 2025 (GLOBE NEWSWIRE) -- MKS Instruments, Inc. (NASDAQ: MKSI) ("MKS"), a global provider of enabling technologies that transform our world, is committed to developing, delivering, and scaling innovative, customer-focused products and services for the Photonics Industry. The MKS brands of the Photonics Solutions Division – Newport™, Ophir®, and Spectra-Physics® – have been a force in the industry for decades and have had a constant presence at the SPIE Photonics West conference since its inception in 1995.

"Our unwavering commitment to innovation and excellence drives us to develop and deliver holistic solutions that empower advancements across all industries we serve," stated John Williams, Executive Vice President & General Manager, Photonics Solutions Division, MKS Instruments. "The suite of new innovations that will be presented at Photonics West 2025 reflects our dedication to meeting the evolving needs of our customers and pushing the boundaries of technology."

At Photonics West 2025, San Francisco, CA, January 28 - 30, 2025, MKS will highlight some of its key products at Booth 927:

Lasers:

- **Spectra-Physics Talon® Ace™ UV100 Laser** powerful pulsed nanosecond laser that delivers an industry-leading >100 W UV and >500 µJ power with TimeShift™ programmable pulse capability for refined process control and high-speed micromachining of advanced materials.
- **Spectra-Physics IceFyre® Laser** delivers ultrafast picosecond pulses in the IR, Green, and UV wavelengths with up to 200 µJ energy, 10 MHz repetition rates, and excellent beam quality; enables precise, high-throughput processing for photovoltaics, advanced electronic packaging, and high-precision semiconductor applications.
- **Spectra-Physics IceFyre® FS Laser** part of a family of ultrafast femtosecond lasers in the IR and UV wavelengths with up to 200 µJ energy, 50 MHz repetition rates, and excellent beam quality; enables precise, high-throughput processing for batteries, high-resolution displays, and demanding semiconductor applications.
- **Spectra-Physics Millennia® EV™ pumping a Matisse® C and WaveTrain® 3D** laser system with tunable wavelengths ranging from DUV to near IR, offering high power and narrow external line widths; ideal for quantum research and quantum computing.



Fig 1: The Spectra-Physics Talon Ace UV100 laser delivers compelling cost-performance in a small form factor ideal for high-speed and high-quality manufacturing in micromachining of

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The Spectra-Physics Talon Ace UV100 laser delivers compelling cost-performance in a small form factor ideal for high-speed and high-quality manufacturing in micromachining of advanced electronics packaging, PC boards, photovoltaics, ceramics, semiconductors, and other materials and components.

Fig 2



The Newport ODiate fluorescence filter sets are manufactured using advanced thin-film deposition systems ensures optical filters achieve excellent transmission and reflection accuracy.

Fig 3



The TLS260B light sources offer increased power and dual output options. All models are pre-assembled and fully characterized, with a wide tuning range for a variety of applications.

Fig 4

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Optics:

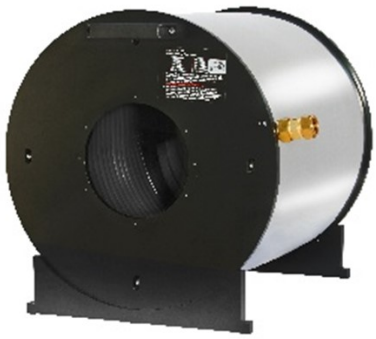
- **Newport ODiate® Fluoresence Filter Sets** precision single-band optical filter sets for fluorescent imaging, optimized to enhance signal quality, improve system sensitivity, and enable imaging throughput tailored to key fluorescence chemistries.
- **Newport Replicated Freeform Mirrors** industry-leading repeatability for volume mirror manufacturing, ensuring each mirror is an indistinguishable replica of its master; ideal for analytical instruments, imaging systems, laser tracking, and communications across diverse industries.



Fig 2: The Newport ODiate fluorescence filter sets are manufactured using advanced thin-film deposition systems ensures optical filters achieve excellent transmission and reflection accuracy.

Light Sources:

- **Newport TLS260B Tunable Light Sources** offer increased power and dual output options, pre-assembled and fully characterized with a wide tuning range for a variety of applications.



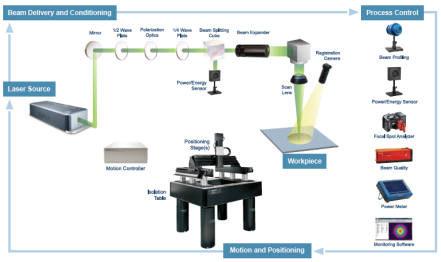
The Ophir 150K-W High Power Meter can measure powers ranging from 10 to 150 kW and is designed for a 100 mm diameter beam to hit incident on the center of its deflecting cone and is calibrated at 1070 nm.

Fig 5



The Newport HybrYX stages blend the cost-effectiveness of mechanical bearings with the precision of a single plane air bearing carriage to deliver a powerful combination of throughput, precision and value.

Figure 6



MKS' Surround the Workpiece strategy delivers end-to-end photonics solutions, from innovative product design and integration to expert maintenance and calibration, ensuring excellence in laser-based manufacturing.



Fig 3: The TLS260B light sources offer increased power and dual output options. All models are pre-assembled and fully characterized, with a wide tuning range for a variety of applications.

Instruments:

- **Ophir Helios Pro Industrial Laser Power Sensors** measure high power industrial lasers up to 12kW by measuring the energy of a short time exposure to this power.
- **Ophir BeamSquared® 1203 Beam Propagation Analyzer** compact, fully automated M^2 analyzer tool for 900-1700nm lasers; measures CW and pulsed laser propagation easily, for spot sizes down to 150um.
- **Ophir BeamSquared SP204S-Pro Beam Propagation Analyzer** delivers unparalleled precision with our fully automatic M^2 Propagation Analyzer; designed for lasers ranging from 266 to 1100 nm, CW or pulsed; ensures accurate caustic measurements and detailed astigmatism analysis.
- **Ophir SP204 CMOS Beam Profiler Camera** high-resolution laser beam profiler camera for accurate measurement of focal spots down to 27 µm; high frame rate, wide dynamic range, and advanced BeamGage® software for accurate laser parameter characterization.
- **Ophir SP402S Large Format Beam Profiler Camera** high-resolution laser beam profiler camera with large 1.1” sensor format, offers exceptional measurement accuracy and wide dynamic range; accurately characterizes laser beams, from small, focused spots of 27 µm to large beam widths up to 12 mm.
- **Ophir 70K-W High Power Meter** water-cooled thermal power/energy laser sensor designed for very high powers with a 130 mm aperture for demanding industrial and defense applications.
- **Ophir 150K-W High Power Meter** water-cooled thermal power/energy laser sensor designed for very high powers with a 200 mm aperture for demanding industrial and defense applications.
- **Ophir 20K-W-BB-55 High Power Sensor** water-cooled thermal power/energy laser sensor designed for very high powers with a 55 mm aperture for demanding industrial and defense applications.
- **Newport 819-SL-06-WL Optical Power and Wavelength Measurement Sensor** integrating sphere-based silicon sensor that provides simultaneous power and wavelength measurements, 400 to 1100 nm, up to 1 W, for free space and fiber-coupled applications.

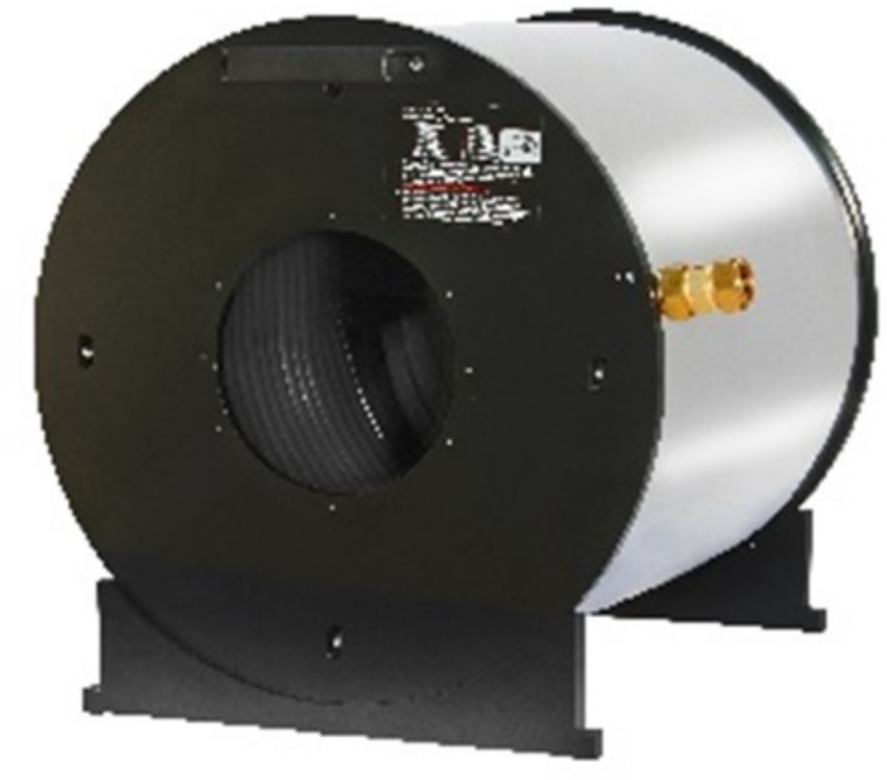


Fig 4: The Ophir 150K-W High Power Meter can measure powers ranging from 10 to 150 kW and is designed for a 100 mm diameter beam to hit incident on the center of its deflecting cone and is calibrated at 1070 nm.

Motion:

- **Newport HybrYX™ single plane air bearing XY hybrid stages** offer the advantages of a single plane air bearing stage at a much lower cost than previously possible; the system is well suited for semiconductor wafer inspection systems as well as being an excellent choice for use in large substrate inspection and processing tools.
- **Newport Parallel Robot for W2W (wafer to wafer) Hybrid Bonding** for sub-micron bond pads optimized for Through-Silicon-Alignment using IR cameras for alignment and limited XY travel with a repeatability of ± 100 nm and stability XY (30 sec.) ±10 nm during bonding; another version with similar specifications is available on an extended travel Y platform that enables off-axis surface reference/alignment and precision bonding location alignment for 300 mm wafers.



Fig 5: The Newport HybrYX stages blend the cost-effectiveness of mechanical bearings with the precision of a single plane air bearing carriage to deliver a powerful combination of throughput, precision and value.

Surround the Workpiece® – integrated, collaborative solutions for advanced, laser-based applications

The Newport, Ophir, and Spectra-Physics portfolios are part of the MKS Instruments' strategy to Surround the Workpiece, an integrated system that incorporates product design and development; system-level integration; research and development; system, subsystem, and component selection; and maintenance, repair, and calibration services for laser-based guidance and control of manufacturing processes.

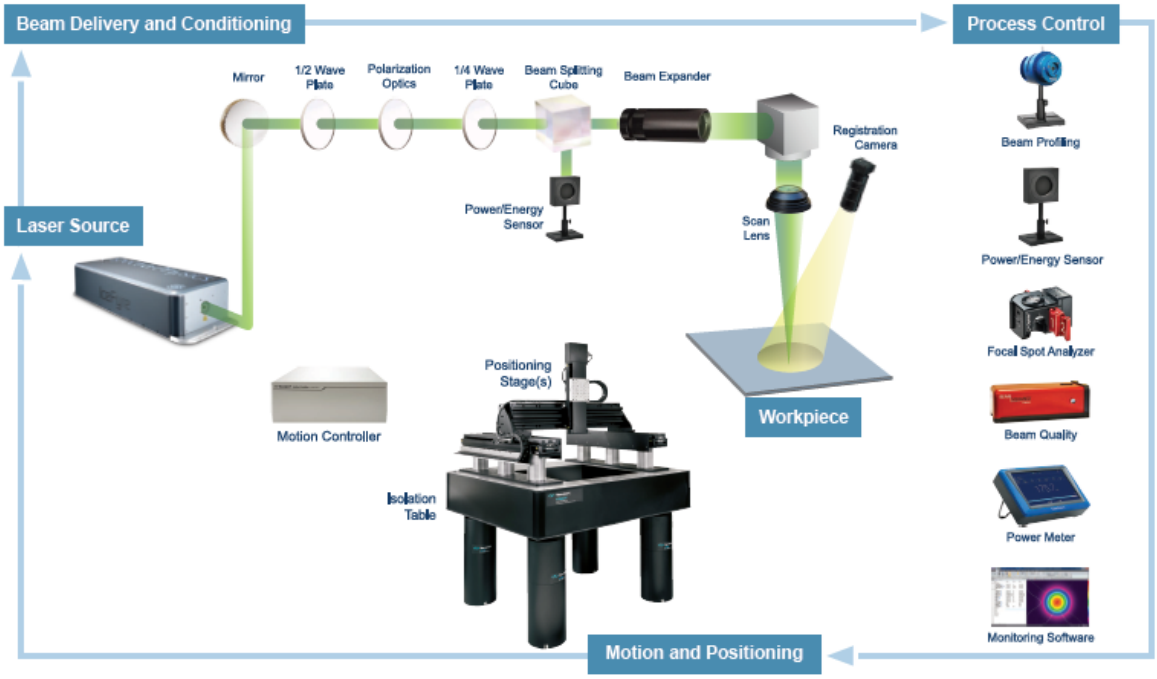


Figure 6. MKS' Surround the Workpiece strategy delivers end-to-end photonics solutions, from innovative product design and integration to expert maintenance and calibration, ensuring excellence in laser-based manufacturing.

About MKS Instruments

MKS Instruments enables technologies that transform our world. We deliver foundational technology solutions to leading edge semiconductor manufacturing, electronics and packaging, and specialty industrial applications. We apply our broad science and engineering capabilities to create instruments, subsystems, systems, process control solutions and specialty chemicals technology that improve process performance, optimize productivity and enable unique innovations for many of the world's leading technology and industrial companies. Our solutions are critical to addressing the challenges of miniaturization and complexity in advanced device manufacturing by enabling increased power, speed, feature enhancement, and optimized connectivity. Our solutions are also critical to addressing ever-increasing performance requirements across a wide array of specialty industrial applications. Additional information can be found at www.mks.com.

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