



## Press Release Photonics West 2012

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# Jenoptik presents product innovations at Photonics West 2012.

Jenoptik's Lasers & Material Processing and Optical Systems divisions will present the new kilowatt fiber laser product line for metal processing, the compact green thin-disk laser, the new products in the F-Theta fused-silica lens portfolio, compact configurable imaging modules, polarization-optimized UV modules and liquid crystal modulators with extended interface connections at Photonics West 2012.

Visit us at stand #1214 in the south hall of the Moscone Center and before the trade fair at: [www.jenoptik.com/photonics-west](http://www.jenoptik.com/photonics-west)

## Novelties of Jenoptik's Lasers & Material Processing division

### Metal Processing with the Jenoptik Fiber Laser JenLas® *fiber cw 1000*

In order to extend its product range in the field of macro material processing, Jenoptik has developed the first product within the range of kilowatt fiber lasers – the laser source [JenLas® \*fiber cw 1000\*](#). This highly brilliant single-mode high-power fiber laser system features high performance stability and a long life time of the laser source. Because of that constantly high productivity is achieved in the respective applications at a high processing speed. Compared to other laser sources such as the CO<sub>2</sub> lasers, fiber lasers are more energy-efficient and thus more cost-effective.

The new system of Jenoptik is a cw laser with an output power of 1,000 Watts. "By offering the Jenoptik fiber lasers in conjunction with the added value depth of the Lasers & Material Processing division we are confident to provide our customers with optimal support for successful applications", says Dr. Thomas Fehn, Executive Vice President of the Jenoptik Lasers & Material Processing division. "Jenoptik's know-how in the fields of diode lasers, the fiber laser pump



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sources, the laser sources and processing optics creates a unique environment for the generation of customer value. Our in-depth knowledge on all of those technological stages and the additional experience with the application enables our customers to flexibly integrate the Jenoptik fiber lasers into their respective systems. We provide our customers with additional support through our worldwide service network", adds Thomas Fehn.

The fiber laser has been optimized for use in the laser processing systems for example for the industrial applications such as metal cutting and metal welding. The OEM laser source is offered in a compact 19 inch housing, including the corresponding operating software. Operational safety is ensured by a safety lock made of certified components. The laser comes with several user interfaces such as RS232, EtherCAT and USB port. In addition, a parallel customer-specific interface can be used.

The pump diodes needed for the production of the JenLas® *fiber cw 1000* fiber laser system are procured internally from the manufacturing plant in Berlin, followed by further processing in Jena. In order to satisfy the increased customers' demand and to respond to the market developments the plant in Berlin is currently being enlarged.

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## Launch of the Compact Green Thin-Disk Laser with Improved Output Power on the US Market

Jenoptik introduces to the US market the new diode-pumped, green thin-disk laser [JenLas® D2.mini 5/8 W](#). This further development of the JenLas® D2.x technology provides better beam quality by significantly reduced laser size. The miniaturized version of the product is already in mass production in Jena, Germany.

The laser is available in the power versions of 5 and 8 Watts. This laser source has a proven track record particularly in the medical field. In addition to use of the 3 Watt laser in ophthalmology the laser treatments are now extended to the areas of laser endoscopy and dermatology. This laser is also absolutely suitable for show applications. Additional benefits for the clients also include efficient mass production as well as an easy integration into the end user systems, including those of smaller dimensions.



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The production of the green thin-disk laser in Jena is certified to meet the stringent requirements in the area of medical technology. More than 14,000 units of the proven JenLas<sup>®</sup> D2.x laser had already been manufactured in Jena and are used worldwide. The green lasers emit laser light at 532 nanometers and suit ideally for integration into laser treatment systems.

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In addition to the fiber laser JenLas<sup>®</sup> *fiber cw 1000* and the green diode-pumped thin-disk laser JenLas<sup>®</sup> D2.mini 5/8 W, proven products and further developments from the fields of semiconductor material, diode and solid-state lasers, as well as Jenoptiks' comprehensive product range in the field of complex optical system solutions will be presented at the Photonics West 2012 as well. More information is available at: [www.jenoptik.com/photonics-west](http://www.jenoptik.com/photonics-west) or [www.jenoptik.com/lm](http://www.jenoptik.com/lm).

## Novelties of Jenoptik's Optical Systems division

### F-Theta Objective lenses extended for high-power laser

The High-Power series of Jenoptik's [F-Theta-JENar<sup>®</sup> Lenses](#) is now extended with new F-Theta full fused-silica lenses for optimized performance in multi-kW laser applications. This new lenses are used for operations at a wavelength range of 1030 up to 1080 nanometer with focal lengths of f=160 and f=255 millimeter. The lenses complete the F-Theta JENar<sup>®</sup> full fused-silica family for high-power fiber and disk lasers.

The F-Theta full fused-silica lenses with diffraction-limited design feature high spot uniformity over the entire scan range and provide a distinctly higher damage threshold in combination with just a minimum focal shift, even without active cooling. Its coatings and lens materials have been specifically optimized for fused-silica optics and enable only low absorption for applications with newest generation of multi-kW fiber lasers and disk laser.

In future an additional choice of F-Theta fused-silica lenses is planned for different applications with high-brilliant laser beam sources. Furthermore Jenoptik offers a wide range of standard JENar<sup>®</sup> F-Theta lenses including models for 1064 nm, 532 nm, 355 nm and 266 nm.

In order to find uncompromising solutions for customer specific applications, Jenoptik also offers custom development of complete optical systems, lenses or individual components, especially for applications in laser material processing – from the formation of an intensity beam profile to the splitting of high-intensity laser beam.

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## Polarization-neutral coatings for UV mirrors and beam splitters

Polarized UV light is the key to increasingly smaller and precise chip structures in both the manufacture and inspection of wafer structures and wafer mask characterization.

Jenoptik offers polarization-neutral, dielectric 90° folding mirrors and beam splitters for wavelength ranges from 350 to 193 nanometers for front-end and back-end inspection systems in semiconductor production. Equipped with newly designed optical coatings they manage the beam guidance of the UV light in the equipment's optical system without changing the polarization state of the light signal.

The technological design of the UV modules ensures that reflectivity is largely independent of the polarization state of the incoming light with oblique incidence of light and that no additional phase shift occurs. They maintain the optimal signal-to-noise ratio of the polarized UV light and contribute towards high-precision products.

Jenoptik's Optical Systems division offers sophisticated development services and manufacturing technologies for the [production of high-precision optics and coatings](#) whose properties remain stable over a long useful lifetime.

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## Individually configurable compact imaging modules

With the new product range of the [compact Imaging Modules](#), Jenoptik is introducing a flexibly configurable module system for customer-specific imaging solutions. The imaging modules vary in configuration and design depending on application and customer requirements and can be flexibly adjusted to customer requirements.

All products in the imaging modules portfolio stand out on account of their compactness, high image quality and attractive prices. Individual application consulting for customers makes the targeted selection of components easier. The vast experience of Jenoptik's workforce in optics, electronics and software development enables the implementation of almost any customer requirements. Areas of application include medical technology and scientific equipment, industrial systems and process and quality control in production.



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The Jenoptik Optical Systems division will present the CMOS USB 5.0 megapixel camera module at Photonics West to highlight the wide range of variants offered by Jenoptik's imaging module portfolio. The camera module is the product portfolio's basic module and can be individually configured in terms of circuit board format and size, sensor type (CCD and CMOS), image resolution (from 1 megapixel), optical and digital interface (USB 2.0 & 3.0, FireWire), lens and optical filters.

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## Matlab and Linux drivers for liquid crystal modulators

The [Liquid crystal modulators](#) of the SLM-range (spatial light modulators) are now also equipped with software drivers for Matlab and Linux applications in addition to the previous control options via LabView and C-interface. Thanks to this upgrade, the devices can be used for the modulation of the laser pulses of a larger user group.

The liquid crystal light modulators in the SLM range change the phase, amplitude and polarization state of light waves in the 430 to 1600 nanometer range. In particular, they are used for pulse formation of high-performance and ultrashort-pulse lasers in science and industry.

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## About Jenoptik Lasers & Material Processing division

The [Lasers & Material Processing division](#) has control of the entire value-added chain of laser material processing and it is one of the leading providers – from component through to complete system. In the area of laser, Jenoptik has specialized in high-quality semiconductor materials and reliable diode lasers as well as innovative solid-state lasers, for example disk and fiber lasers. In the area of high-power diode lasers Jenoptik is acknowledged worldwide as a leader in quality for high-power diode lasers. In the area of laser processing systems we develop systems that are integrated into production facilities for our customers as part of their process optimization and automation. These systems enable our customers to work with plastics, metals, glass, ceramics, semiconductor materials and solar cells, both in thin-film as well as wafer technology, with maximum efficiency, precision and safety.

## About Jenoptik Optical Systems division

Through its [Optical Systems division](#), the Jenoptik Group delivers world class precision optics and systems designed and manufactured to the highest quality standards. Besides offering customized systems, modules and assemblies, the Optical Systems division is a development and production partner for optical, microoptical and coated optical components - made of optical glasses, IR materials as well as polymers. The Optical Systems division has outstanding expertise in the development and manufacture of optics and microoptics for beam shaping used in the semiconductor industry and laser material processing. The product portfolio also includes optical and opto-electronic systems and components for applications in defense & security, health care & life science, digital imaging, machine vision as well as lighting.

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