



Trade press release

Number of pages 3
Date January 21st, 2020

Jenoptik Presents New Products for Laser Material Processing at SPIE Photonics West 2020

Systems and machine manufacturers are faced with the challenge of gaining a foothold in the market with the processing of ever smaller structures in large-volume production. Jenoptik products for laser material processing are designed with critical factors for success in mind, such as quality, time, and sustainability.

Jenoptik will be attending one of the North American photonics industry's most important trade fairs with new laser beam shaping optics: Among other things, the photonics group will be presenting F-theta lenses that are suitable for ultra-short pulses, and an innovative alignment concept for beam expanders. Jenoptik will also be demonstrating plug-and-play solutions for laser material processing, semiconductor equipment, biophotonics, and industrial applications that can be adapted to customers' requirements.

The Jenoptik group will also be one of the main sponsors of the SPIE Startup Challenge, a competition for young photonics companies to be held during SPIE Photonics West, providing support in the form of prize money and expertise.

Visit us at booth #1141 on February 4th–6th, 2020 at SPIE Photonics West or at booth #8326 on February 1st–2nd at SPIE BiOS in San Francisco, USA.

High-resolution images are available to download from the [Light & Optics I Press gallery](#) in the Jenoptik image database.

New F-theta Lenses for Laser Material Processing at 355, 515–540, and 1030–1080 Nanometers

Jenoptik is expanding its fused silica lens portfolio for high-power applications with new Silverline lenses for applications with wavelengths of 355 and 515–540 nanometers. Low-absorption fused-silica and optimized coating combined with improved reflex positions enable the lenses to be used with ultrashort laser pulses. Various application tests confirmed the performance of the lenses.

The new **F-theta lens for 355-nanometer applications** can be used for a wide range of applications and materials. The short-focus lens enables a small spot diameter in a scan field of 22 millimeters. Depending on the application, spot sizes of up to 4.5 micrometers can be realized. This lens is particularly well suited to high-volume series production in microtechnology, microsystems technology, and the consumer electronics sector.



Another F-theta lens for applications in the **wavelength range of 515–540 nanometers** has been designed for manufacturing methods using high-energy fiber lasers and disk lasers with a high beam quality. In this wavelength range, the lens can also be used specifically to process copper and brass, for example for processing electronic components and circuit boards, or for additive manufacturing. With a focal length of 115 millimeters, workpieces can be processed in a scan field of up to 71 millimeters. The lens's performance is demonstrated by successful application tests conducted with a Jenoptik JenLas® *femto 16* laser system at a wavelength of 515 nanometers with a maximum pulse energy of 60 microjoules and pulse lengths of 600 femtoseconds.

Jenoptik has also expanded its JENar® lens family with a lens for **applications in the wavelength range of 1030–1080 nanometers**. The new lens is designed for marking, structuring, and engraving plastics and metals and for structuring solar cells. It has a large scan field of 254 x 254 millimeters and a focal length of 347 millimeters, and is optimized for back reflections.

[F-theta lenses](#) from Jenoptik fulfill the requirements of almost all standard methods for micro and macro laser material processing. The lenses are extremely robust and do not require additional cooling, even with high laser powers. The adhesive-free mounting technology also contributes to the long-term stability of high-performance optics, and investment security. Each individual lens is checked for cleanliness, performance, and transmission, thus ensuring high standards of quality. For applications that require a change of lens, it is possible to replace Jenoptik lenses without making major adjustments to the laser system. An individually replaceable protective glass is also provided for each F-theta lens.

New Alignment Set for Beam Expander Integration

Thanks to a new alignment set from Jenoptik, it is now even easier to align optical beam expanders in the laser beam path, both during the initial set-up and during an ongoing operation. The innovative clamping device for beam expanders from Jenoptik is infinitely adjustable and is equipped with a four-millimeter operating displacement and a standardized screw connection. This means that the optical components can be aligned with one another more quickly and, at the same time, very accurately.

Four degrees of freedom are possible for beam expanders in the optical beam path using linear adjustment in the X and Y direction and angle adjustment in the X and Y direction, and these can also be combined with one another if required. The alignment set is the ideal addition to the Jenoptik Beam Expander Steadfast 1x–4x and 1x–8x as well as the Motorized Beam Expander. Machine integrators, contract manufacturers, and laboratories benefit from simple integration of the optical components into their laser systems and faster set-up.

Jena, January 21st, 2020



Jenoptik and its Division Light & Optics

Jenoptik is a globally operating technology group. Optical technologies are the very basis of our business with the majority of our products and services being provided to the photonics market. Our key target markets primarily include the semiconductor equipment industry, the medical technology, automotive and mechanical engineering, traffic, aviation as well as the security and defense technology industries. Jenoptik has about 4,000 employees worldwide.

The Light & Optics division is a global OEM supplier of solutions and products based on photonics technologies. Jenoptik provides a broad portfolio of technologies combined with deep experience of more than 25 years in the fields of optics, laser technology, digital imaging, opto-electronics and software. Our customers are leading machine and equipment suppliers working in areas such as semiconductor equipment, laser material processing, healthcare & life science, industrial automation, automotive & mobility and safety, as well as in scientific institutes.

As a development and production partner, the Light & Optics division focuses on advancing cutting-edge technologies to improve our customers' system performance and ultimately realize product outcomes that reach new heights enabled by our highly-integrated photonic solutions. The systems, modules and components based on photonics technologies help our customers overcome their future challenges.

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