MORE LIGHT

Trade press release

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Stable laser manufacturing processes with fine-adjusted optics from a single source

As core elements of any laser manufacturing system, optics and micro-optics shape laser light in wavelengths from UV to IR. Jenoptik not only provides optical components, but also F-theta lenses matched with diffractive optical elements.

At the LASER World of PHOTONICS in Munich, the world trade fair for components, systems, and applications of optical technology, Jenoptik will be presenting its range of services for material processing, laser production, image processing, and software solutions.

Visit us at the LASER World of PHOTONICS in Munich from June 24 to 27, 2019, booth A3.320

High-resolution images are available to download from the Light & Optics | Press gallery in the Jenoptik image database.

Effective Laser Production for Multi-Spot Applications

Jenoptik provides machine integrators with pre-aligned optics, such as F-theta lenses and the compatible diffractive micro-optics. This enables them to respond more quickly to their customers' needs while also increasing the efficiency of their systems. For example, for multi-spot applications, the same laser spots can be aligned with the workpiece with homogeneous energy input and consistent quality.

The advantages of compatible optics include almost lossless beam processing, improved performance of the laser production system, and precise manufacturing results.

As an OEM supplier with experience from a variety of projects in industrial laser production and the semi-conductor equipment industry, Jenoptik is able to offer customized optical subsystems and components for specific applications: For example, for applications such as fine-metal masking, solar panel structuring, LED cutting, drilling and cutting of circuit boards, display production and laser material processing of plastics, metals, and glass. As diverse as the applications are, so too are the possibilities of combining different optical components and aligning them to the customer's needs.

Customized Diffractive Optical Elements

Laser material processing applications rely on the use of diffractive micro-optical components to shape and split laser light. Depending on the application and requirement, beam shapers, and beam splitters can be combined with one another to create different spot geometries.

Beam splitters are commonly used in the industry in a lateral arrangement for the parallelization of laser beam. This facilitates multi-spot applications for the simultaneous processing of multiple workpieces. Other applications require spots to be aligned in the axial direction, in order to intensify the processing compared to applications with just one spot and to increase the cutting speed, for example.

Jenoptik offers its customers application-specific diffractive optical elements, such as focus shapers. These allow fast and efficient laser cutting in different layers of the substrate simultaneously, while also maintaining a homogeneous and precise laser spot. The optical design of the focus shapers allows for a wide range of applications through to 3D material processing.

In addition, Jenoptik also offers efficiency-enhanced e²® transmission gratings, which are not only used for pulse compression as in the laser source – thus increasing the efficiency of the laser – but also as beam combiners for laser diodes from UV to IR.

Thanks to its high-end manufacturing technologies, Jenoptik meets the exacting demands when it comes to accuracy and durability – even for high-power applications.

New F-theta Lens for UV Micro Material Processing

Jenoptik has added yet another UV lens to its JENar™ F-theta range for laser material processing: the new fused silica F-theta lens for 355-nanometer applications, with a focal length of 56 millimeters and a scan field of 22 millimeters. Depending on the application, the optics allow very small spot diameters up to 4.5 microns. The lens is specifically designed for use in micro material processing and for ultra-short pulse applications.

The F-theta lens range from Jenoptik fulfills the requirements of almost all standard methods for micro and macro material laser processing. Jenoptik's F-theta Silverline series lenses are extremely robust and have a high damage threshold.

The adhesive-free mounting technology and assembly of the lenses in a certified clean room help to ensure that all lenses are highly durable and free from contamination. Jenoptik ensures its high quality standards by testing and measuring each lens individually. For applications which require a lens change due to product or process requirements, it is possible to replace the F-theta lenses without major adjustments to the laser system.

Jena, June 21, 2019

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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