

Media Release

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Laser Mirrors for ultra short pulses in the femto-second range successfully qualified

Optics Balzers AG excels in the production of laser mirrors for high-precision material processing.

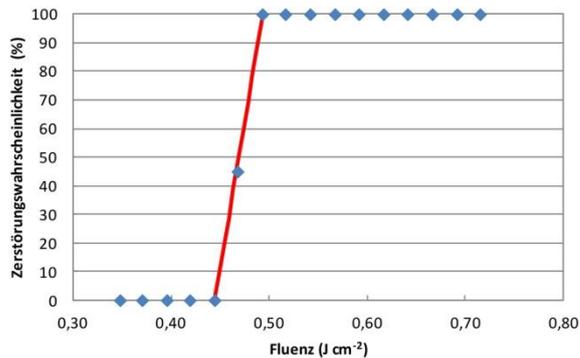
Processing materials by laser pulses in the nanosecond range has become standard in industry. Ever smaller and more precise structures can be made by latest laser technology, which uses pulses of durations in the pico-second and femto-second ranges. With these technologies, the energy impacting on the target sport is extremely compressed. The photonic energy of the pulse is so short that the surrounding material is not heated. An advantage of this principle is that extremely precise and delicate structures can be made.

The optical systems employed must satisfy extremely high performance requirements. Adaptation of the optical system to the physical principles of ultra-short laser pulses is an absolute 'must'.

Optics Balzers has developed and successfully tested a special dielectric layer system. The PARMS coating technology made it possible to manufacture 45°-HR mirrors for 1030nm for which a destruction threshold of 0.44J/cm² at 210fs was established. Typically, these are used in ultra-short pulsed systems of Yb:YAG solid-state lasers. These mirrors, deposited on 1" substrates, are available for demonstration.

In the next step, the process will be optimised to improve the results obtained so far. Besides, designs for other typical ultra-short pulse wavelengths will be tested, among them mirrors for titanium-sapphire lasers at 800nm and erbium lasers at 1550nm.

The new data sheets «Nd : YAG Laser Line Mirrors» and «Ti : Sapphire Laser Line Mirrors» are available at www.opticsbalzers.com.



Picture-Caption: Measured laser damage threshold of a 45° mirror for 1030nm with 210fs pulses



Picture-Caption: Laser mirrors

Optics Balzers (located in the Principality of Liechtenstein) has been the preferred partner for providing innovative optical coatings and solutions for 70 years. Together with its subsidiaries in Jena (Germany) and Penang (Malaysia), Optics Balzers is a global leader in the supply of optical coatings and components. The Liechtenstein-based high-tech company focuses on selected markets such as Automotive, Sensors & Imaging, Biophotonics, Laser, Space & Defence, Lighting & Projection, and Industrial Applications. The products and services offered range from optical coatings and glass processing, patterning and bonding technologies to the manufacture of complete optical subassemblies and are acknowledged as being unique worldwide. Optics Balzers employs around 220 members of staff worldwide.

Additional information: www.opticsbalzers.com