

Regensburg, June 15, 2009

## **Outstanding lasers for outstanding efficiency**

The latest generation of laser bars from OSRAM is now in series production at Laserline

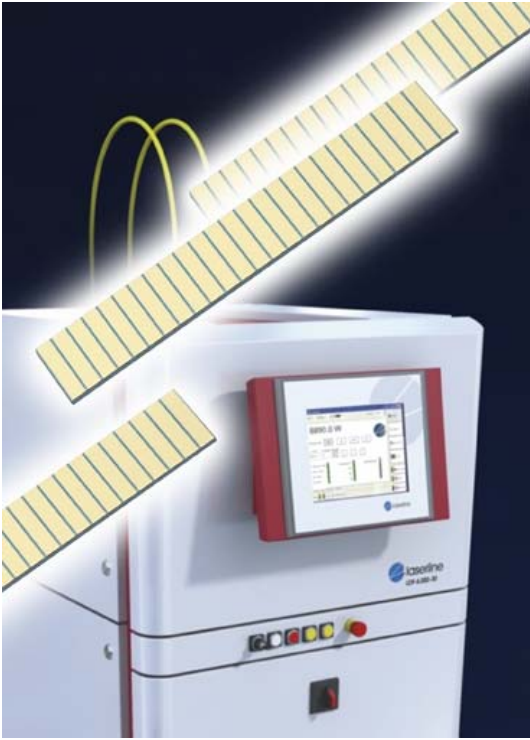
**For its series production of industrial lasers for material processing Laserline has opted for brilliant laser bars from OSRAM Opto Semiconductors. Their benefits include high optical output power, high efficiency (typically 65% at the point of operation), high reliability and long life. The exceptional beam quality of the laser bars has been tailored for fiber injection. Their output is currently 120 W. Bars with wavelengths of 910, 940 and 980 nm are being used.**

Laserline is using the laser bars in its fiber-coupled diode laser systems in the 100 W to 10 kW output class for direct material processing. The typical fiber core diameter here is 1000 µm. The system comprising laser bars, fiber coupling, power supply and water cooling achieves an overall efficiency of 43%, which is higher than that of alternative laser technologies. Such systems can operate reliably at a consistently high efficiency for more than 30,000 hours – round the clock, seven days a week. The key to the impressive performance of these sources is the optimization of the semiconductor lasers, particularly with regard to reducing electrical losses to a minimum. The series resistances have been reduced by adapting the epitaxial structures without increasing the optical absorption losses. Furthermore, the laser resonator has also been optimized. The basic technology was developed by OSRAM Opto Semiconductors as part of the BRILASI research project.

Diode lasers cover a wide range of applications, including metal and plastic welding, surface treatment and cutting. The focus and output can be adjusted in a wide range to suit the particular application. Thanks to constant improvements of the laser bars and in process know-how more and more applications are now opening up in addition to those in the automobile industry in which diode lasers are now firmly established for material processing tasks. Volker Krause, Managing Director of Laserline: “Our long-term reliable partnership with OSRAM Opto Semiconductors, which has resulted in a number of joint projects among other things, means that we are confident that the products not only feature the most advanced technology but are also optimized for volume production.”

Michael Klein, Laserline Project Manager at OSRAM Opto Semiconductors added: “Cooperation with packaging partners and system suppliers such as Laserline is important for the further development of

our laser bars because material processing is an area in which the potential of our products is fully exploited. This encourages us to continue improving their performance. At present we are installing a new mirror coating system which we expect to take our bars through the 200 W barrier.”



Picture: OSRAM / Laserline  
<http://www.osram-os.com/press>

Laser bars from OSRAM Opto Semiconductors have made the leap from the research lab to practical applications in only a short time. At Laserline they are being used for the series production of industrial lasers for material processing.

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