

## Laser diode equipped with an interior air or gas cooling system

Roland Berger, who is the owner and founder of the company Light of Future (Developments in the field of laser technology, opto-mechanics and special optics) has received a patent for said laser diode.

The long-term stability of the laser diode is enhanced by an air-supported cooling system which has a cleaning effect on the laser outlet window. In addition to this, the side faces of the individual emitters are cooled to flatten the temperature gradients and thus to minimize any temperature-induced tensions in the laser diode contact system. In this way, slight power enhancements can be measured.

The air-supported cooling system leads to a better result in cooling the central individual emitters if they are lined up to form a bar. This arrangement achieves a better synchronization of the wavelengths, for instance in the process of pumping fiber lasers.

A faceplate provided with slots and prisms offers protection against reflections (e.g. from the work piece) in that it allows the emission of the laser beam but represents an almost perfect radiation blocking means in the opposite direction. This allows to protect the vicinity of the laser diode window against burn-in spots and overheating. What is more, compressed air is blown through said slots. In the area behind the slot

which represents the hottest spot of the laser diode, the air returns to atmospheric pressure and cools down. These measures allow to achieve an economic optimization of the capacity and service life of the laser diode.

A cooperation on the basis of international patent applications is possible until September, 2014.

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