

PRESS RELEASE

Hamburg, September 2001- at the EMO in Hanover, 12th-19th September 2001, the ROFIN group exhibits in Hall 9 on Stand A 10 under the organisational umbrella of Macro, Micro and Marking. The entire product spectrum spans lamp- and diode- pumped solid state lasers, diode lasers and CO₂ lasers.

The Rofin-Group incorporates established laser manufacturers such as Rofin-Sinar, Baasel Lasertech, Wegmann-Baasel and Dilas Diodenlaser.

The Laser Macro Group- The Power of Light

At the EMO 2001 the ROFIN Laser Macro Group is presenting new products from the CO₂ laser, diode-pumped solid-state laser and diode laser fields.

For the first time the company is presenting the new, maximum-performance model from the successful CO₂ Slab Laser Series: the **Rofin DC 040 W**, a high-performance welding laser with 4 kW output power. Since the introduction of the CO₂ Slab Laser technology by Rofin-Sinar Laser GmbH, its industrial application field has expanded steadily. Up to 3 kW practically 90% of Slab Lasers are used by cutting system manufacturers. The Rofin DC 035 with an output power of 3.5 kW has conquered a large segment of the laser welding market. At the same time, the demand for more power has intensified. Rofin has responded and its first step has been to increase the power to 4 kW. The **ROFIN DC 040 W** will be shown for the first time at EMO 2001. Its wide-ranging applications span the remote welding of subassemblies in bodywork production (which Rofin is demonstrating at Schweißen & Schneiden [Welding and Cutting] in Essen), the welding of aluminum components, gearbox and engine parts and the welding of pipes and extrusions.

As with all Slab Lasers, the DC 040 W model is distinguished by superb beam quality – $K \geq 0.9$. The diffusion-cooled laser requires no gas circulation and its single transmitting lens is a diamond window. Gas changes are only required every 72 hours, resulting in extremely low gas consumption. Rofin-Sinar guarantees a general availability of $\geq 97\%$ and up to 99% with a service contract.

For flexible laser beam guidance, whether for cutting or welding, diode-pumped solid-state lasers are the first choice. The latest addition to ROFIN's DY product family is the **ROFIN DY 030 HP** with 3,000 Watt guaranteed output power. With a beam quality of 25 mm x mrad, comparable to a lamp-pumped laser, the lasers are particularly distinguished by a total efficiency of more than 10% with a diode service life of more than 10,000 hours. The ROFIN DY 030 HP exhibited at the trade fair generates its high output power from only three cavities and sets new standards, particularly with the minimal base area required for this output power - 2.3 m² (LxWxH 1767 x 1289 x 1787 mm). The practically zero-loss guidance of the laser beam via optical fibre facilitates combination with automated systems and robots.

The DY Series, presented for the first time in 1999, with a beam quality of 12 mm x mrad now encompasses new models with output power of 550 to 4,400 Watt, while the higher-

performance models of the DY-HP Series with a beam quality of 25 mm x mrad are available with outputs of 1,000 to 6,000 Watt.

A first time exhibit from the field of diode laser technology is the **ROFIN DF x50**, a diode laser with an output power of 500 W. This range of high-performance diode lasers enables the use of flexible optical fibres and thereby permits the all-direction processing of even complex moulded components with the maximum of flexibility. Thanks to the good beam quality the laser beam can be effectively integrated into a 400 µm optical fibre with a numerical aperture of just 0.22. Processing times are reduced by the resultant higher intensity of the focal point. These lasers are predominantly used in the welding of plastics and metals, in surface treatment and for hard soldering.

The direct processing models in the ROFIN diode laser series are available in 25 to 6,000 Watt versions and are suitable for integration into optical fibres. Diode lasers are characterised by an efficiency of more than 30%, a typical diode lifetime of more than 15,000 hours, practically maintenance-free operation and extremely compact dimensions. Because you can adapt the beam geometry to suit different applications, the diode lasers in the DL Series are ideal for thermal conduction welding, a wide range of surface treatment tasks or for soldering.

ROFIN offers a glimpse of future product generations with the presentation of a high-performance disc laser integrated into a 100 µm fibre. The Yb:YAG solid state disc-shaped laser is characterised by around 20% more efficiency than the probe-form solid-state laser models and even better beam quality. Once again, the industrially proven high-performance laser diodes from the subsidiary company Dilas Diodenlaser are used as the excitation sources for these lasers. Today, a single disc can achieve 750 W output power with an excellent beam quality of just 5 mm x mrad.

The Laser Micro Group - Focus on Fine Solutions

The **Laser Micro Group** encompasses the application areas of fine welding, fine cutting, micro-boring and micro-structuring and is presenting for the first time at the EMO its Dynamic Beam Welder StarWeld 250 - a turnkey electric welding system with integrated PC for rapid two-dimensional welding operations.

Essentially in laser welding, two dimensional beam movement over the component is carried out by moving either the workpiece or the optics or by moving both in combination. Short cycle times, which feature predominantly in the electronics industry, require flexible, extremely quick manipulation.

Beam movement via galvanometer scanner (dynamic beam welding) offers considerable advantages due to the acceleration of smaller masses (deflection mirror) compared to the acceleration of the workpiece or the optics. The achievable speed of the beam over the component, the precision of positioning and the investment costs offer an attractive alternative to mechanically driven axes. The standard lens has a focal distance of 100 mm and can achieve a positioning reproducibility of +/- 15 µm. In conjunction with laser beam guidance via a 300 µm diameter optical fibre, typical focal spot sizes are between 0.3 and 1 mm.

Laser beam welding with galvanometer scanners offers another particular benefit in that, before starting the welding process, the operator can check the weld position and correct it if necessary with the aid of a through-the-lens camera system.

The Laser Marking Group - The Mark of Excellence

The **Laser Marking Group** unites the two leaders in the marking sector market Rofin-Sinar and Baasel Lasertech. At EMO 2001 it is exhibiting amongst other things the PowerLine E with infrared light and a SL-Manuell housing with integrated StarMark radiation source and, for the first time, rotational axis.

The SL-Manuell contributes to an extremely compact and ergonomic workstation for off-line marking processes which can integrate both the StarMark and the PowerLine radiation sources. The rotational axis enables marking of cylindrical parts.

With of an overall depth of 800 mm the marking system has a small base area and the whole system is only 1400 mm high. An inbuilt LCD monitor completes the compact design.

The SL-Manuell has been ergonomically optimised: the space at knee level incorporated into the seated workstation and the generously proportioned and easy-to-open swing door minimise tiredness for longer working periods.

Along with the PowerLine E Rofin is presenting a marking laser which is distinguished by superb marking quality and compact design.

The PowerLine E is the latest laser marker from Rofin. It is an end-pumped base model laser with a high quality beam and short pulse lengths. With a wavelength of 1064 nm this laser is ideally suited to a broad spectrum of applications. This diode-pumped laser system is also available with a frequency-converted wavelength of 532 nm for particularly fine structures.

Thanks to its compact dimensions the lasers, which are simple to integrate into existing systems, can be located side by side, taking up a minimum of space. The resulting overlap of the marking fields makes it easy to mark larger components.

The high pulse peak power of the laser enables marking times for applications to be reduced. The laser incorporates for the first time the innovative grey scale software which allows for single pulses of varying intensities. The grey scale visualisation option allows the reduction of the number of points in an image and consequently the marking time. The result - high quality images.

With operational headquarters in Plymouth, Michigan and Hamburg, Germany, Rofin-Sinar Technologies, Inc. designs, develops, engineers and manufactures laser sources and laser-based system solutions for a wide range of applications. With production facilities in the US, Germany, UK, Singapore and Japan, Rofin-Sinar is one of the world's leading developers and manufacturers of industrial lasers and currently has more than 14,000 laser units installed worldwide and serves more than 2,500 customers. Rofin-Sinar's shares trade on the NASDAQ National Market System under the symbol RSTI. Since July 2, 2001, Rofin-Sinar's common stock is also traded under the German Securities Identification Number 902 757 on the German Neuer Markt at the Frankfurt Stock Exchange. Additional information is available on Rofin-Sinar's home page: <http://www.rofin.com>.

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