



L A S E R T E C H N O L O G I E

Press Release

OR Lasertechnologie present at EUROMOLD 2004

The measure of Quality

Dieburg, Germany, September 06, 2004: OR Lasertechnologie GmbH, D-64807 Dieburg, Germany, is present at IMTS Chicago for the very first time this year. For more than seven years, the company has been active as a provider of innovative products and services in the area of laser welding technology. OR Lasertechnologie not only sets standards in laser welding processes, but moreover develops and markets relevant laser welding machines and materials.

Service provision – round the clock, 24 hours, 7*24

Besides the technology of laser welding, particularly suitable for micro-material processing of injection molding or blow molding tools for the manufacture of plastics components, Mannesmann, Robert Bosch, VDO, and Volkswagen are among the customers who have already enjoyed the broad spectrum of service provision for some time. This includes the just-in-time (JIT) service in particular, incorporating the immediate recovery or repair of even the most sophisticated or complicated geometries.

Mold makers repeatedly require the use of the mobile laser welding system HTS MOBILE SHORT. OR Lasertechnologie has developed this system to enable the user to work on extremely heavy molds in situ. Tools weighing up to 40 tons, for instance, can thus be worked on – either uninstalled or mounted in the injection molding machine. Factors, such as logistical effort or – more specifically – time spent are therefore eliminated.

Performance-Plus = 30 percent

Laser-Sensor “Autofocus“ boosts productivity through 3D ability

Laser is the powerful processing light responsible for performance at both the X- and Y-axis. At the Z-axis however, the laser is ‘blind’. The use of applied laser technology in mold making, sheet metal or plastics processing can thus,

or better, be described in principle. Better in any case, as the blind spot of the laser Z-axis is now a thing of the past – thanks to OR Lasertechnologie. Laser processing stations can now operate in vertical direction with optimal precision in focal length definition – notwithstanding the “roller coaster ride” – without interruption or manual adjustment.

OR Lasertechnologie GmbH, headquartered at D-64807 Dieburg in Germany, initially developed the focusing system 'Laser Autofocus' for the purpose of manual deposition welding in mold making. Background: tools – i.e. molds and precision parts – for example for the automotive and plastics processing industries or for medical technology, are shaped by complicated 3D geometries. Conventional 2D processing of materials suitable for laser application at the X/Y-axes is problem-free and economical. However the Z-axis has to be re-adjusted by the operator – this takes time. After all, the laser – at a focal length of 100 mm - reaches its constant Rayleigh length of 0.4 mm, within which the process remains at optimum effectiveness. With 'Laser Autofocus' in contrast, the pre-determined laser focus – and thus the effective focal length – is continuously maintained. Non-contact gauging takes place within the beam of the processing laser, i.e. coaxial to the operating axis. The subsequent direct measurement within the focal point of the laser not only assists in controlling the distance between the part to be processed and the focusing system, but also to adjust or possibly correct these values. All process-specific parameters are adjustable via the user-friendly operator panel of the self-contained control system, and they are fully reproducible after storage. Maximum adjustment speed is <15 mm per second, with a stage position accuracy of 2 µ/10 mm. The result: precision levels between 25 and 500 µ/1m relative to focal lengths of between 50 and 200 mm, about 30 percent productivity increase due to automatic laser focusing at the dynamic Z-axis, more targeted energy introduction combined with minimal heat-affected zones – resulting in significant quality improvements, particularly when processing complicated 3D components.

Continual research and enhancements has enabled OR Lasertechnologie GmbH to universally optimize the system. Automation tasks now only require 2D programming. Today the 'Laser Autofocus' can be employed for almost all laser applications and technologies (impulse or continual line lasers and CO₂ lasers etc.) in areas such as manual deposition welding, even with differing tolerances of the parts to be processed, automated welding seam tracing, high precision drilling of turbine

blades, drilling-depth indication, not forgetting 3D inscription. 'Laser Autofocus' can be applied or adapted to suit all laser sources of all manufacturers.

Even the most powerful laser sources afflicted with the phenomenon of plasma cloud build-up have not challenged the limitations of the 'Laser Autofocus': continual measurement and focal length control at the dynamic Z-axis take place during the process 'in front of the cloud' simultaneously with downstream gauging for quality control and surveillance.

With a dedicated Europe-wide distribution and service network, together with qualified alliance partners overseas, OR Lasertechnologie is able to offer its focus system 'Laser Autofocus' across the globe without any limitations.

LaserCab

OR Lasertechnologie has developed a laser unit representing one of the most compact closed systems available on the market today. Classified as laser class 1, it comprises the most varied technical innovations, such as "Laser Autofocus", TFT touch screen, and much more. The system is equipped with integrated cooling and, due to its mobility, can be employed in practically any situation.

HTS-Mobile-Short, the mobile laser welding system

The mobile laser welding system, *HTS-Mobile-Short*, combines mobility and flexibility in the repair of small as well as very large molds. Using a swivel arm and a movable resonator, welding of components is now possible almost totally regardless of geometry and position.

The mobile construction enables effortless transport, and the brakes guarantee firm position of the unit. Minimal effort in set-up and dismantling, together with extensive travel lengths of the axes reduce total involvement during processing.

LRS modular welding system

The latest generation – the *LRS* modular welding system – enters the market. This system has been adapted to suit user requirements with regard to complete equipment and top ergonomics. It can deal with components up to 250 kg weight.

Operators gain even more benefits from the improved technical specification of the open architecture.

In addition, the “Laser Autofocus” enables productivity improvements of more than 30 percent compared with similar equipment available on the market.

RoLap – robot-supported laser deposition welding using powder

With over 10,000 repaired tools and molds and a large number of laser systems sold by OR Lasertechnologie, the company has achieved the firm establishment of the pulsed Nd:YAG laser as the appropriate instrument for the purpose of laser deposition welding.

Experience gained in the past has been utilized to satisfy ever rising customer expectations, particularly regarding time and cost economies. The result is the new industrial standard **RoLap**, combining speed of an industrial robot with the precision of a laser system. *RoLap* achieves considerably improved volume ratios in laser deposition welding, compared to other known procedures. This laser welding technology facilitates the processing of existing CAD data. With these advantages the user is able to carry out mold alterations, such as repairs, at a quality and speed hitherto unavailable.

The company – OR Lasertechnologie

The success of OR Lasertechnologie GmbH is apparent in the speedy and continuous growth of the company. Apart from its headquarters in Germany, there are presently branches in Hong Kong, Israel, and Portugal. In December 2004, OR Lasertechnologie will enlarge its network with the opening of a new branch in the USA. This growth is a result of the growing demand for innovative products and services offered by the company specializing in laser technology.

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Photos: OR Lasertechnologie GmbH

Image 1: LRS 100

Image 2: principle drawing of Autofocus

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