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## Interview

- 20 Rofin-Sinar: Ready for the 5th Decade**  
Interview with Günther Braun and Thomas Merk, the previous and new CEO

## Plastic Welding

- 22 More Complexity and Higher Quality**  
Laser plastic welding for new product layouts

## Laser Cutting

- 27 Cool Laser for Cutting Diamonds**  
Laser MicroJet combines the advantage of both laser cutting and water cooling in one operation
- 30 Deposit-free Cutting of Polycarbonate**  
Generate clean cutting edges with the correct process management

## Process Monitoring

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3D-scanner with integrated pyrometer enables online temperature monitoring at quasi-simultaneous laser transmission welding

## Communications

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## Interview

- 20 Rofin-Sinar: Ready for the 5th Decade**  
Interview with the previous and new CEO, Günther Braun and Thomas Merk.



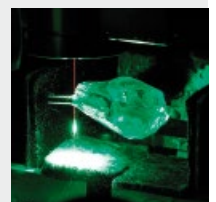
## Plastic Welding

- 22 More Complexity and Higher Quality**  
*Malte Borges*  
There are major differences between laser plastic welding and other technologies – this is why it is conquering more and more areas of applications with new laser systems and methods.



## Laser Cutting

- 27 Cool Laser for Cutting Diamonds**  
*Nitin Shankar*  
Diamond cutters have been looking for a laser cutting tool that can slice through a diamond without causing any thermal damage. Unlike conventional laser cutting where thermal heating poses risks, the LaserMicroJet cools the surface of the stone with a water jet.

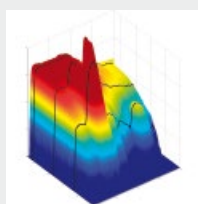


**30 Deposit-free Cutting of Polycarbonate***Kai Holl, Eva Seidel and Thomas Seul*

So far, it has not been possible to cut polycarbonate free from visible deposits using laser radiation. A smart process control enables producing cut edges which show no visible deposits or degraded material.

**Process Monitoring****34 Process Monitoring at Laser Welding of Thermoplastics***Anton Schmailzl, Sebastian Steger and Stefan Hierl*

A pyrometer, integrated into a 3D-scanner, offers the possibility to measure the weld seam temperature at quasi-simultaneous laser transmission welding. Experimental studies have shown that gaps that are located in the joining zone can be identified by a temperature rise even at a high scanning velocity.

**Beam Delivery Systems****38 Industrial Fiber Beam Delivery System for Ultrafast Lasers***Max Funck and Björn Wedel*

Free space beam delivery has long been the only option to transport high energy laser pulses. Micro-structured hollow core fibers now make it possible to confine the laser light inside a small hollow core and transmit pico- and femtosecond pulses of high energy with excellent beam quality.

**Laser Beam Welding****43 Mobile Vacuum in Pocket Format***André Schneider, Andrey Gumenyuk and Michael Rethmeier*

The presented apparatus enables laser beam welding of thick materials under local reduced pressure conditions thus improving the quality of welds and reducing the laser beam power necessary for complete penetration welding.

**Beam Delivery Systems****38 Industrial Fiber Beam Delivery System for Ultrafast Lasers**

New tools for laser machining applications

**Laser Beam Welding****43 Mobile Vacuum in Pocket Format**

Mobile local low-pressure cap for high power laser beam welding of thick materials

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The vapour plume is a process disturbing factor during high power laser beam welding. The presented vacuum cap used local reduced pressure to suppress it. This results in increase of the penetration depth or reduction of the necessary laser power. (Source: BAM)

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