

### **LANXESS: New laser transmission welding machine for plastics development**

- **Support during material optimization**
- **Focus on series-related customer support**
- **Comprehensive HiAnt services for project partners**

**Cologne, June 21, 2022** – Modern cars are increasingly equipped with advanced driver assistance systems, a trend that is strongly accelerating the demand for plastic housings to accommodate electronic parts and components such as sensors, antennas, and control units. Laser transmission welding is becoming increasingly popular as a joining method employed during the production of these housings. Therefore, LANXESS is upgrading its technical center in Dormagen, Germany, to include a laser welding machine featuring an extensive range of equipment and state-of-the-art technology from PolyMerge GmbH, a provider of innovative welding machines for plastics based in Geretsried, Germany. “With this highly versatile equipment, we want to develop new laser welding materials and make them series-ready more quickly. We will also be able to emulate our customers’ production environment and so help them more quickly and with tighter focus,” says Frank Krause, an expert in plastics joining processes in the High Performance Materials (HPM) business unit at LANXESS.

#### **A cost-efficient production process preserving electronic components**

Laser transmission welding involves passing a laser beam through a laser-transparent component. The beam is then absorbed by a second, usually carbon black component underneath, with the beam’s energy causing localized melting on the surface of the second component. The heat generated in the process plasticizes the surface of the first component, too. The melts of the two join partners mix under pressure, forming a material weld. The procedure is normally used for welding covers onto housings. Compared with traditional joining techniques such as vibration and ultrasonic welding, the advantage of laser transmission welding is that the

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Page 1 of 4

electronic components in the housing are subjected to almost zero thermal or mechanical stress. Krause: "It also enables very small components with complex geometries to be mass-produced cost-efficiently and with minimal physical impact, and therefore meets the growing trend toward the miniaturization of electrical and electronic functions." The new machine uses an ytterbium fiber laser with a wavelength range of 1,080 nanometers and 300 watt of power.

### **HiAnt – support for every aspect of plastics welding**

LANXESS has already developed test specimens that can be used to reproduce typical conditions during the laser transmission welding of small and large electronics housings – for example to define the weld line geometry and wall thickness of the translucent component. "These test specimens allow us to help our customers with many sorts of questions and problems. But we're also supporting them with a range of additional, laser-welding-related services such as simulation-based warpage optimization designed to make joining processes safer and more stable," says Krause.

In addition, the plastics technical center in Dormagen is equipped with a range of ultrasonic, infrared and vibration welding equipment. All services are bundled under the HiAnt brand and encompass the entire component development process from design and layout through to finished part testing – e.g., media aging and various mechanical tests – performed in compliance with customer standards.

For more information on the HiAnt services provided by LANXESS, visit [www.hiant.lanxess.com](http://www.hiant.lanxess.com). More information about the polyamide and polybutylene terephthalate compounds developed by LANXESS for laser transmission welding and about the procedure itself can be found in the brochure entitled "Durethan LT and Pocan LT – Engineering plastics for laser transmission welding". It can be downloaded from [www.hiant.lanxess.com](http://www.hiant.lanxess.com) (choose "Library" – "Brochures", registration required).

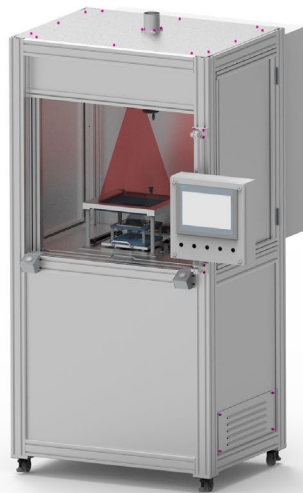
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### Image



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Page 3 of 4

To support material development for laser transmission welding, LANXESS has upgraded the equipment in its plastics technical center to include a state-of-the-art laser welding machine from PolyMerge GmbH.

Photo: PolyMerge

LANXESS is a leading specialty chemicals company with sales of EUR 7.6 billion in 2021. The company currently has about 14,900 employees in 33 countries. The core business of LANXESS is the development, manufacturing and marketing of chemical intermediates, additives, specialty chemicals and plastics. LANXESS is listed in the leading sustainability indices Dow Jones Sustainability Index (DJSI World and Europe) and FTSE4Good.

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Page 4 of 4