

# PRESS RELEASE

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## **Metallic 3D printing: Series production of automotive parts on the home stretch**

**“We have succeeded in industrializing and digitalizing additive manufacturing (AM) for automotive series production.” With pride, 12 project partners announce that this has been doubly successful with IDAM (Industrialization and Digitalization of Additive Manufacturing). Three years ago, the consortium of SMEs, large companies and research institutions started with the common goal of revolutionizing metallic 3D printing in the field of automotive series production. Together, they set up a digitally networked, fully automated 3D printing production line at two locations at once and prepared it for automotive series production. From now on, at least 50,000 components per year can be manufactured cost-effectively at the BMW Group sites in Munich and at GKN Powder Metallurgy in Bonn using the laser powder bed fusion (LPBF) process, as well as more than 10,000 individual and spare parts. Due to the modular design of the blueprint of this line, the annual number of units can be further scaled as required.**

### **In just three years – from the conceptual sketch to fully integrated production line**

Launched in 2019, automated guided vehicles (AGVs) can now fully automatically transfer the mobile build chambers of the 3D printers between the modules of the IDAM production lines. The machine ballet is orchestrated by a central control unit in which all data of the individual line modules converge on a digital level. The digital twin generated in this way monitors all relevant production data at all times – for maximum productivity and quality.

The partners have developed novel concepts for the automatic generation of 3D printing build data. Fully automated modules transport the processed metal powder and prepare it. In addition, automatic post-processing of the manufactured components takes place in specially designed stations. Comprehensive quality assurance measures have been implemented along these production lines: For example, sensors are used in the laser melting process to monitor and ensure that the finished parts fulfil quality requirements.

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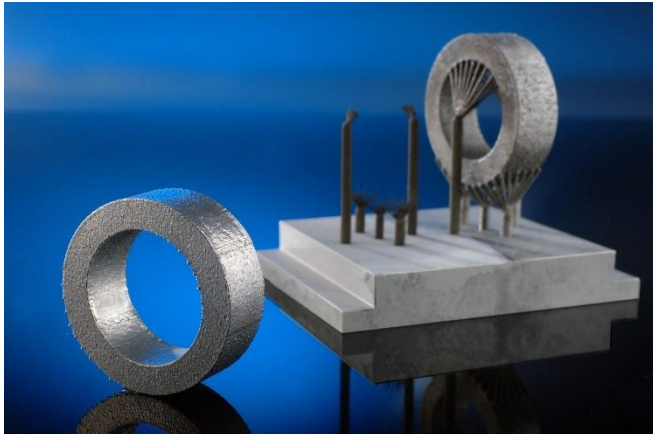
### **Networked production lines require closely networked project partners**

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To implement the lines, the partners required interdisciplinary expertise. Thanks to it, they were able to both digitalize and automate – the mechanical and plant engineering – in component design as well as in the field of metallic 3D printing. The Fraunhofer Institute for Laser Technology ILT in Aachen are supporting the project through their many years of experience in the field of additive manufacturing technologies. The project partners quickly realized that “off-the-shelf” solutions would not meet the ambitious project goals and fulfil the associated productivity and quality requirements of the automotive industry. Thus, a large part of the modules had to be completely redeveloped on a digital and physical level. In addition, successful operation of the IDAM lines is only possible through close networking of the individual modules – the same was demanded of the project partners. From owner-managed SMEs to large corporations, a spirit was established from the first day of the project, as the partners jointly aspired toward success: learning from each other, working together on innovative solutions, and developing the individual strengths of each partner to the best possible extent – for IDAM, these were the keys to success.



**Image 1:**  
**IDAM (Industrialization and Digitization of Additive Manufacturing) has set up the digitally networked, fully automated 3D printing production line and fully integrated it into automotive series production.**  
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**Image 2:**  
**Wet-chemical decoupled component.**  
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