

PRESS RELEASE

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“Life-Cycle Assessment” in Additive Manufacturing: Laser Powder Bed Fusion Goes Green!

Customers and investors are increasingly placing value on ecologically and sustainably manufactured products. By transparently and ecologically assessing their products, industry and SMEs (small and medium-sized enterprises) can take responsibility for people and the environment and position themselves in the market with a competitive advantage. Researchers at the Fraunhofer Institute for Laser Technology ILT are now addressing the topic of life-cycle assessment in Laser Powder Bed Fusion.

The Laser Powder Bed Fusion (LPBF) process can be used to manufacture complex functional components economically while making efficient use of resources. Furthermore, the production costs of LPBF do not depend on a component's complexity, but to a large extent on its volume. The powder bed-based additive manufacturing process offers a number of advantages compared to conventional techniques. It is suitable for applications in turbomachinery construction, aerospace and automotive engineering. In medical technology, it enables technicians to manufacture a high number of variants, while in the automotive industry, for example, it allows engineers to produce function-optimized components in small batches. As this process increasingly penetrates numerous markets, however, industry and thus application-oriented research and development are confronted with questions about its ecological footprint.

Sustainability to be addressed in the development of process and system technology

The Laser Powder Bed Fusion competence field at Fraunhofer ILT has set itself a goal of increasingly addressing sustainability in the development of process and system technology. To do this, the institute is systematically analyzing the process chain within the its own LPBF process, for example, with regard to energy consumption, the resulting CO₂ emissions and further metrics. In this context, the researchers look at the resource flow from the production of the powder material to the finished component

In addition to examining sustainability, Fraunhofer ILT is striving to increase networking with other research partners and industrial companies, all of whom have committed themselves to “life-cycle assessment.” Worthy of mention here is the institute's membership in the “Additive Manufacturer Green Trade Association (AMGTA)” and

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participation in the EU research program “Clean Sky 2,” which aims to significantly reduce the ecological impact of aviation on our living space.

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Formnext 2021 will take place from November 16 to 19 in Frankfurt am Main, Germany. Are you interested in life-cycle assessment? Then visit our booth and feel free to talk to our experts: Booth D41 in Hall 12. More information: <https://s.fhg.de/K8c>



Image 1:
Fraunhofer ILT is investigating how sustainable the LPBF process is in the development of process and system technology.

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