

# Hybrid Manufacturing of a Compressor

**Combining powder bed based and nozzled based additive processes with conventional machining and welding**

Within the SpreeTec neXt project, a demonstrator in the form of a compressor is being developed to showcase and validate the potential of hybrid manufacturing strategies – particularly through the combination of conventional methods with various additive processes.

In hybrid manufacturing, the advantages of the individual manufacturing processes are intelligently exploited and combined to obtain a functional component.

The process chain for manufacturing the compressor comprises a hybrid combination of wire- and powder-bed-based additive processes (DED, PBF-LB/M), conventional joining techniques, and traditional machining steps. This integration necessitates flexible, agile process control with targeted information transfer between process steps, which also

plays a central role in digital manufacturing strategies.

Special attention is given to the production of large components with complex geometries and locally varying material properties. The material primarily used for the demonstrator is stainless steel (316L). The focus is on materials-engineering tailoring – with respect to stresses, microstructure, or local strength. Additionally, heat input during the manufacturing processes and its influence on component behavior are considered as well.

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[exhibit overview](#)