

HyRes

Resource-Saving Process Route for Highly Integrated Hydraulic Systems



Motivation and Relevance

- Powder Bed Fusion of Metals (PBF-LB/M) enables functionally integrated hydraulic manifolds
- Potential of better carbon footprint & functionality
- High machine cost of PBF-LB/M is an obstacle

Approach

- Develop optimized hydraulic block design
- Increase productivity and cost by shell-core strategy
- Shell-core strategy: First, fuse part shell and leave core in powder state. Subsequently densify by Hot Isostatic Pressing (HIP).

Results

- Algorithmic generation of a shrinkage-compensated shell-core geometry
- Definition of a production line including post-process
- Life cycle assessment and cost estimation to compare with conventional design

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Research Area

- Algorithmic design
- Production Logistics
- Sustainability
- Cost reduction

Partners

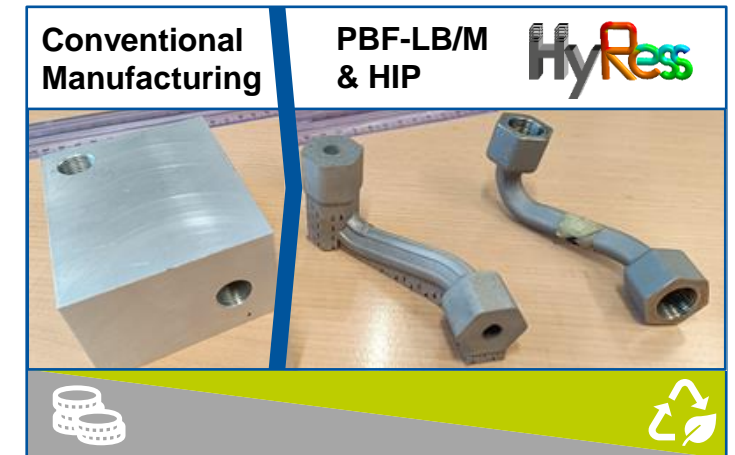


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