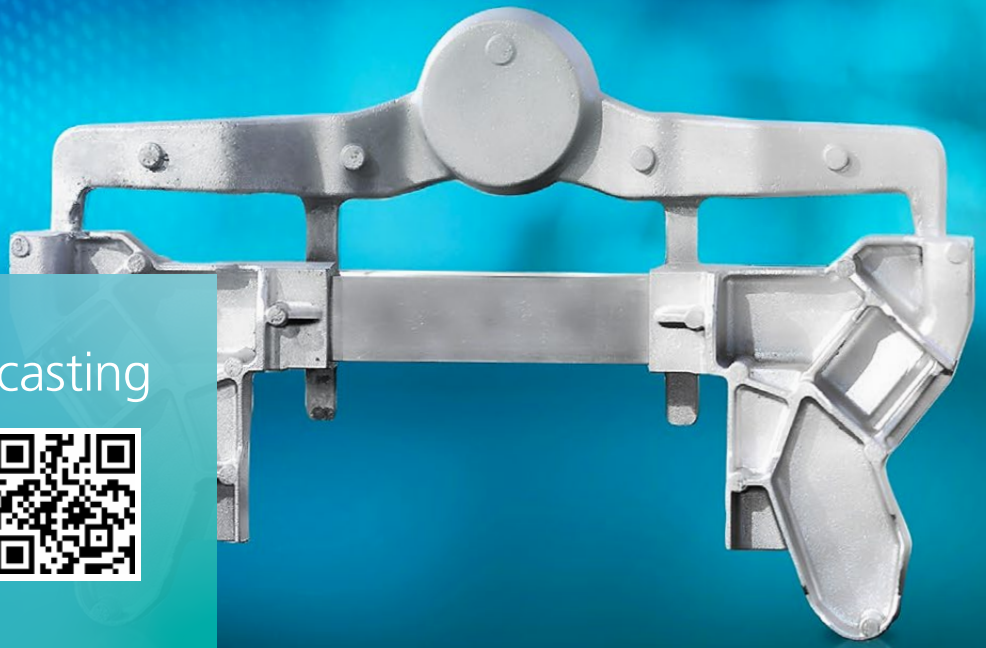
Fraunhofer IFAM

Hybrid & compound casting

Short processing times thanks to hybrid castings – ideal for lightweight construction



Creating connections and increasing strengths

"Hybrid casting" deals with novel joining technologies using cast components. Directly integrated metallic structures or also plastics or fiber structures are used to realize a multi-material design. During the casting process of the metal component, the possibility of material joining is given. This allows to realize innovative components with savings in production steps.

The advantages of hybrid castings are primarily in shortening the process route compared to sequential manufacturing processes. In the latter, a sequence of many process steps is necessary to produce hybrid components. Thus, hybrid cast components do not only meet their requirements perfectly, but are also more cost-effective than differential hybrid assemblies.

Compound casting from aluminum castings in combination with aluminum semifinished products currently occupies a particularly important position. In addition to the above-mentioned advantages, there are benefits due to the use of the same material system: e.g. similar coefficients of thermal expansion or (later) recycling by type.

By combining this with existing expertise, simulation models and interface modeling can be built directly for these novel multi-material systems at the same time as they are being developed. This enables a comprehensive consideration of this future-oriented construction method.

Contact

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