TOPIC AREA
“COMPLEX CASTINGS”

Innovative and demand-appropriate solutions

The area of “Complex Castings” within the Casting Technology and Lightweight Construction department at Fraunhofer IFAM conducts research and development on innovative and demand-appropriate solutions for casting technology with its highly qualified and experienced experts as well as process and plant engineering facilities for high and low-pressure casting, lost foam casting, investment casting, and sand casting.

A focus lies on issues in the manufacture of castings with a complex geometry which cannot be produced conventionally with casting due to a lack of demoldability, complicated undercuts or integrated hollow spaces. Depending on the process, lost core technologies, the development of specific tool concepts, and the optimization and further development of the casting process itself can also come into play.

A particular strength of the workgroup is the interdepartmental linking of the competencies with the technological and scientific know-how of neighboring fields. This occurs in close cooperation with the experts of the seven core competencies of Fraunhofer IFAM or with external partners from industry and research. Research is conducted, among other things, on non-stick coatings for casting tools, new material concepts for lost cores, and the use of virtual and augmented reality in casting technology.

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From the concept to the product...

With our competencies in Casting Technology, Fraunhofer IFAM accompanies our industrial customers throughout the casting technology implementation of an idea from the concept to the first prototype to the final series-ready product. We have various casting processes and materials ready to address any query.

... in our one-stop shop!

The Casting Technology and Lightweight Construction department can illustrate the entire process chain from the concept phase via the casting design to the tool construction and the casting technological manufacture to the final metallographical and nondestructive testing.

Novel technology combinations

In addition to the conventional casting technological queries we also support our customers when it comes to reaching across technologies into manufacturing and materials technology. For this, project teams from various departments at Fraunhofer IFAM as well as other institutes of the Fraunhofer-Gesellschaft will come together to combine their expertise. Such topics as corrosion, surface treatment, paint and lacquer technology or adhesive bonding technology can be scientifically and practically addressed through our comprehensive network of research and development staff.