TOPIC AREA "HYBRID CASTING"

Creating Connections and Increasing Strengths

The topic area “Hybrid Casting” within the Casting Technology and Lightweight Construction department at Fraunhofer IFAM focuses on the combination of casting with integrated structures for joining dissimilar materials, such as fiber composites or sheet metal and profile structures, or with the local strengthening of cast components.

The possibility to create a hybrid structure is hereby offered directly during the casting process. This enables innovative components to be realized with a reduction in manufacturing steps. Furthermore, through this technological approach, a high potential for lightweight construction and the possibility for the implementation of multi-material systems designed to meet the specific requirements are facilitated through this innovative approach during the initial casting process.

Through the combination with the simulation for these innovative multi-material systems, simulation models and interface modelling can be set up parallel to their development. This will provide a comprehensive consideration of these innovative and future-oriented material systems.

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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.