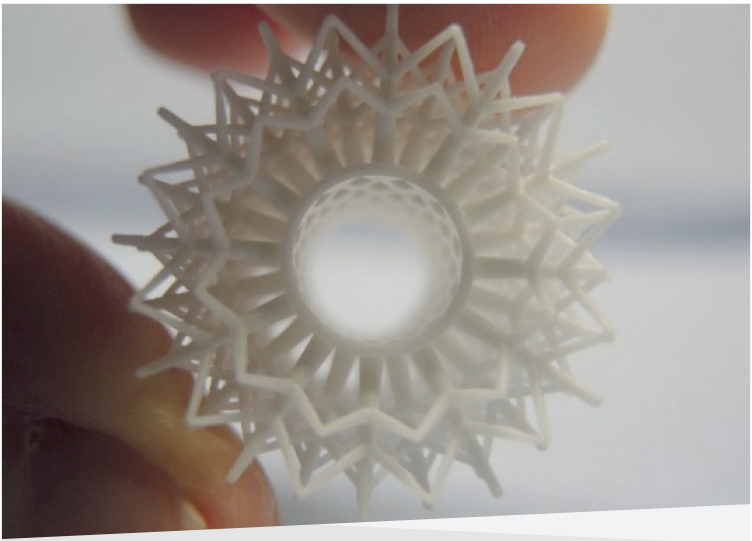


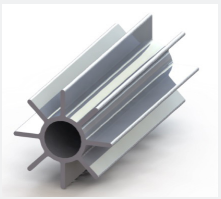
HIGHLY SOPHISTICATED HEAT EXCHANGER

—

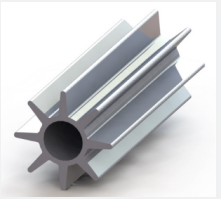
MICRO PROCESS ENGINEERING

Best Practice Example created by

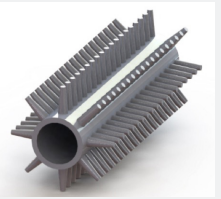
Fraunhofer IKTS



Fins with constant thickness



Fins with thickness gradient



Fins designed to increase the functional surface

Heat exchangers made of ceramics excel in terms of resistance to high temperature gradients and chemical influences. However, the performance of such devices is mostly limited by the design constrictions derived from conventional manufacturing and joining processes. Using additive manufacturing provides a solution for the design of a heat exchanger, which combines increased functionality by also lowering the manufacturing efforts required.

Dipl.-Ing. Uwe Scheithauer:

„Additive manufacturing allows the creation of structures which have not been possible with conventional manufacturing. This example of a heat exchanger allows a fluid to easily flow through the entire internal structure. The device is specially designed to increase the surface, ensure a high mechanical strength, and apply an optimized reducing fin design. Compared to a conventional pipe and to a pipe with simple fins, the functional surface could be increased by a factor of eight and by a factor of four respectively."

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