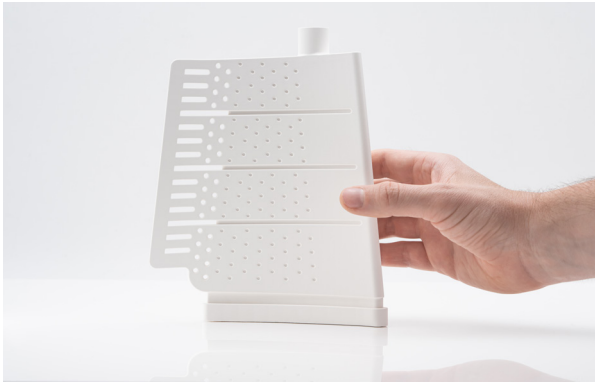


3D-Printed Ceramic Casting Cores for Single Crystal Turbine Blades





Casting core printed from silica-based ceramic, h = 193 mm

Key Breakthroughs

The LCM technology has evolved as the **key technology** enabling the industrial production of **highly complex casting cores** meeting cooling requirements of future aircraft engines. In combination with the precisely tailored silica-based ceramic, it allowed industry heavyweight **Safran Aircraft Engines** to implement ceramic 3D printing into critical industrial areas of engine manufacturing:

- **Ultra-precise resolution** achieves more complex cooling channels to significantly increase high pressure turbine inlet temperatures.
- The **higher operating temperatures** achieved are key requirement to lower CO₂ emissions of future aircraft engines as they allow for more efficient combustion.
- **Superior material properties** minimise dilation during casting process at temperatures of up to 1500°C.
- **Faster time-to-market** due to the operational and resource-based efficiency of Lithoz's LCM technology.

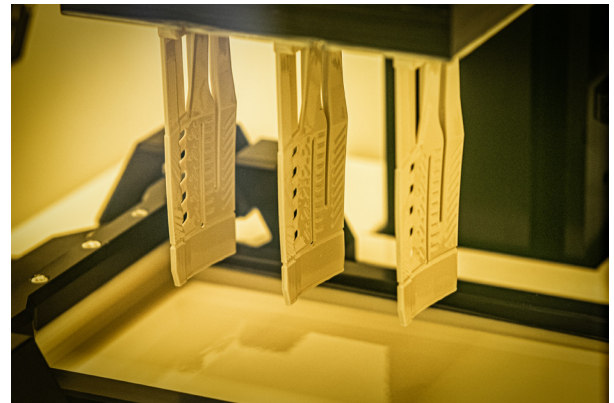


Casting core printed from silica-based ceramic, h = 500 mm

LCM Precision for Casting Cores to Create Next-Generation Aircraft Engine Turbine Blades

Increasing the **high pressure turbine inlet temperatures** is key for **future engine generations**, meaning that the components must withstand those increased temperatures. This can be achieved by implementing more **complex cooling channels** during the casting process used to manufacture the turbine blades.

Lithoz's ultra-precise LCM technology has reached a level of complexity for casting cores previously unattainable with traditional ceramic manufacturing processes.



Silica-based casting cores in green state on a CeraFab System S320 platform

Safran Aircraft Engines Acquired Three CeraFab System S65 Printers. Read the Story:



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“Safran Aircraft Engines chose this equipment in particular for its performance and short production time. The ergonomics and software functions are adapted to production and meet aeronautical traceability requirements.”

LITHOZ PRESS RELEASE
APPROVED BY SAFRAN AIRCRAFT ENGINES



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Read more about casting cores and other aerospace applications

