



# Precision Ceramic Cores

For investments casting



**SALENTEC**  
ceramics

## Excellence in Ceramic Cores

Salentec develops and produces a wide range of complex ceramic cores for investment casting applications.

Thanks to the profound knowledge of material properties and microstructures and to advanced diagnostic techniques, Salentec produces very high quality ceramic cores, with the following excellence:

- ✔ Wide range of available compositions suitable for different casting processes EQX (Equiaxial), DS (directional solidification), (SX) Single Crystal
- ✔ High thermal stability in working conditions
- ✔ Short leadtime
- ✔ Improved casting yields
- ✔ High quality and customized solutions for different applications

## Ceramic cores by injection moulding

Salentec offers a wide variety of silica compositions and stable zircon silica at high temperatures suitable for DS, SX and EQX melting processes for industrial gas turbine (IGT) and aerospace.

The range of compositions and core process capability provide short lead-time and the capability of high volume production. The 3D scanning inspection for dimensional data analysis ensures the best accuracy.

Main materials and applications:

- ✔ 80% fused silica with alumina: ceramic mixture mainly used in EQX processes.
- ✔ 74% fused silica with zircon and alumina: ceramic composition with a high concentration of Zircon and alumina, suitable for EQX, DS and SX.

Severe quality controls of manufactured cores include modulus of rupture, tensile strength, thermal expansion, cristobalite content, leachability and other properties at high temperature, as well as casting simulation to study the behavior of ceramic in contact with molten metal.

# Ceramic processing chart flow

## MIXING

Salentec offers different composition blends based on silica, alumina, zirconium, and other special additives.

## FORMING

Standard process: HPIM - High pressure injection moulding. Non standard processes: Low pressure moulding, 3D printing, gel casting, CNC manufacturing

## FIRING

Wide range of heat treatments for debinding and sintering.

## FINISHING AND INSPECTION

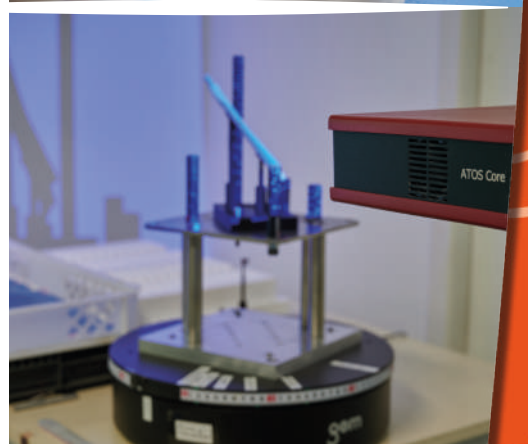
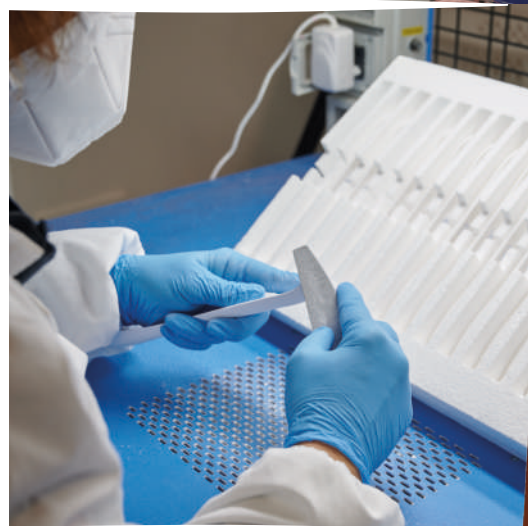
Visual inspection, manual finishing and non destructive inspection (e.g. penetrant liquids) before delivery. 3D scanning for full envelope dimensional inspection, according to customer requirements (up to 100% of cores).

## STRENGTHENING

Ceramic cores are vacuum impregnated to strengthen and avoid any damage during transport and handling. Other types of infiltration are available (inorganic colloidal suspensions).

## PACKAGING

Ceramic cores are packed and shipped to customers. Special and customized packaging is developed to ensure product integrity.



Salentec is an innovative SME founded in 2005 by a team of researchers of University of Salento.

The company deals with development and transfer of findings and innovation of technical and industrial services in the field of materials engineering.

Salentec has been dealing with technical ceramics for aerospace since 2006.

The company headquarter is located in Lecce, on a 10.000 m<sup>2</sup> site, with 1800 m<sup>2</sup> equipped with high technology production plants and R&D laboratories and facilities. Here, everyday, highly skilled people work proficiently to guarantee the top quality of products.



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