

## PRESS RELEASE

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### **Ceramic cores from Morgan create hollow turbine blades for China's first jet engine**

The completion of China's first turbofan jetliner engine has been achieved with the manufacturing support of Morgan Advanced Materials' Technical Ceramics Business. The company has developed the ceramic cores, which are essential for the creation of hollow air passages in the engine's turbine blades.

The CJ-1000A engine is being developed for China's first passenger jet – the COMAC C919 – which is due to be rolled out from 2020. The new engine will replace the imported engines which were used during the aeroplane's development.

The engine design uses hollow turbine blades and vanes to reduce overall weight and provide internal cooling passages to prevent the blades overheating when in use. To achieve hollow blades with the required combination of light weight and robustness, ceramic cores are placed in the centre of the mould during casting of the components. Morgan Advanced Materials was commissioned to create these ceramic cores at its ceramic core manufacturing facility in Wuxi, Jiangsu.

Morgan worked with the engine manufacturers and designers to achieve the exact dimensions required for the internal cooling passages. The cores are manufactured in heat-resistant materials that can withstand the casting process without compromising the integrity of each blade's superalloy construction. Once cast, the ceramic core is leached out to leave the blade hollow.

In total, Morgan has supplied four core designs to support the casting of stage 1 &2 blades and vanes. To date, over 1000 individual cores have been manufactured. These numbers will rise significantly when the aircraft enters mass production, as 600 engines per annum will be required to meet the forecasted target of 150 aircraft a year.

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“This is a ground-breaking project for the Chinese aerospace industry and we’re delighted to play such an important part in getting this pioneering engine into production. This is a great example of how Morgan can provide customers with a combination of global expertise and local support, to deliver advanced materials that help manufacturers to push back the boundaries of what they can achieve,” explains Raymond Gao, General Manager of the Morgan’s Ceramic Core Technology facility, which has manufactured the components for the project.

For more information, please visit: <http://www.morgantechnicalceramics.com/AerospaceCores>

**ENDS**

## **About Morgan Advanced Materials**

Morgan Advanced Materials is a global materials engineering company which designs and manufactures a wide range of high specification products with extraordinary properties, across multiple sectors and geographies.

From an extensive range of advanced materials we produce components, assemblies and systems that deliver significantly enhanced performance for our customers’ products and processes. Our engineered solutions are produced to very high tolerances and many are designed for use in extreme environments.

The Company thrives on breakthrough innovation. Our materials scientists and applications engineers work in close collaboration with customers to create outstanding, highly differentiated products that perform more efficiently, more reliably and for longer.

Morgan Advanced Materials has a global presence with over 10,000 employees across 50 countries serving specialist markets in the energy, transport, healthcare, electronics, petrochemical and industrial sectors. It is listed on the London Stock Exchange in the engineering sector.

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