



**CALMERIC**

COMPOSITE & ADDITIVE LAYER MATERIALS  
ENGINEERING RESEARCH & INNOVATION CENTRE

# **AIE CASE STUDY**

## MAKING ENGINES LIGHTER, MAINTAINING STRENGTH AND DURABILITY



## THE CLIENT

AIE is a well-established design and development and manufacturing entity, producing highly technical engines for a range of industries.

## THE CHALLENGE

AIE's current production methods have many processes and limit their design potential. The company is looking to take advantage of the University's experience in additive layer manufacturing (ALM) to produce a rotor and gear from one of their engines. The design and manufacturing methods of ALM allows for the creation of prototypes and final products without the need for tooling and sophisticated equipment.

## THE SOLUTION

By using a new material, the parts can be made lighter without effecting strength and durability.

The CALMERIC team have proposed the following schedule for production of the parts to help identify appropriate materials and prototypes:

- Select a suitable powder for the rotor and gear
- Make subtle design changes to an existing rotor, suitable for ALM
- Produce rotor with current material
- Make any significant changes to the design of the rotor



## WHAT IS CALMERIC?

The CALMERIC project supports SMEs to carry out research & innovation projects in the field of advanced engineering materials, in collaboration with specialist staff and resources in the Centre.

- Composite materials
- Additive manufacturing (3D printing)
- Engineering, Research and Innovation
- Industrial Research Collaborations
- Product optimisation (using less or lighter weight materials)