

What is the relevance of the INN-PAEK project?

Demonstrate the technical, environmental and economic feasibility of manufacturing a thermoplastic Flange Wheel

Substitute in an innovative way the classical Flange Wheel manufacturing processes for a new net-shape cost efficient and easy to implement mold-supported processes such as advanced injection molding

Stating a more sustainable (eco-friendly) production system for the aviation industry



Highly Speed Production



One-Shot Manufacturing

Removable inserts were developed in order to manufacture complex geometries through injection moulding

Tin inserts (only tested with PEAK materials)

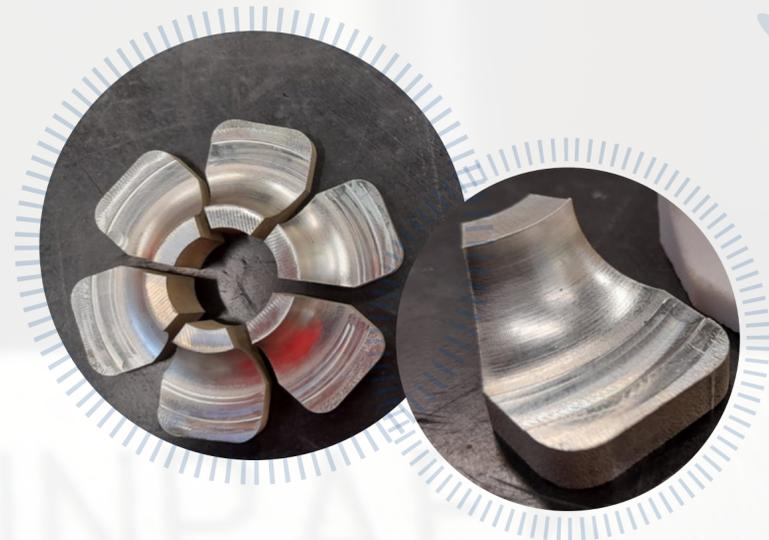
$T_m \approx 231,9^\circ\text{C}$

Easy and fast production. Melting the tin to take it out is energy consuming

Removing the insert affects the geometry of the thermoplastic

Traces can be found on the surface of the thermoplastic part (difficult to remove)

Injection of PEAK material deform the final shape as the material in the screw is above the T_m of tin



Salt inserts

$T_m \approx 800^\circ\text{C}$

Brittle

High production costs

Special manufacturing process

Removable through an immersion in water

Can be used as a removable insert with any thermoplastic material

PVA, 3D printed inserts

$T_m \approx 160^\circ\text{C}$

Easy to adapt to any technology

Fast production of small inserts

Removable through an immersion in water with NaOH

The injection of the PEAK material deforms the final shape as the material in the screw is above the T_m of the PVA. It has demonstrated high performance in the case of thermoplastics.

