



PERMANOVA
Lasersystem ab



LIGHTER AIRCRAFT ENGINES WITH LASER WELDING

“Airbus A350 XWB has laser welded components. This gives reduced weight, improved fuel economy and lower environmental impact.”

GKN Aerospace Sweden in Trollhättan supplies advanced components for the aerospace industry. GKN develops and manufactures components for aircraft and rocket engines in collaboration with the world's leading aviation industries.

What were GKN's requirements and what challenges did they face?

GKN wanted to reduce costs by automating production using robot technology and laser processes, and, at the same time, introduce more light weight technology. They wanted to get away from the big, expensive, heavy, single castings and replace them with geometric, slim components, which, with laser technology, could be welded and clad on advanced completed components with desired properties.

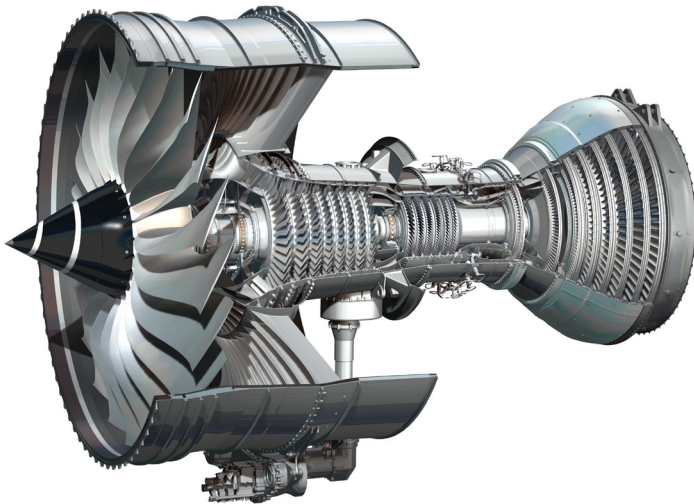
What solution did Permanova suggest?

Permanova's experience of automation with robots and laser welding in the automotive industry could be used. An advanced double cell, with powerful robots with laser welding tools and external locator, using fiber transfer of a high power laser. The laser beam is non-intrusive, focussing on great power density. In contrast to TIG welding, the laser makes a deep narrow weld without heat having time to spread to the sides. Heat exposure and thus deformation is reduced.

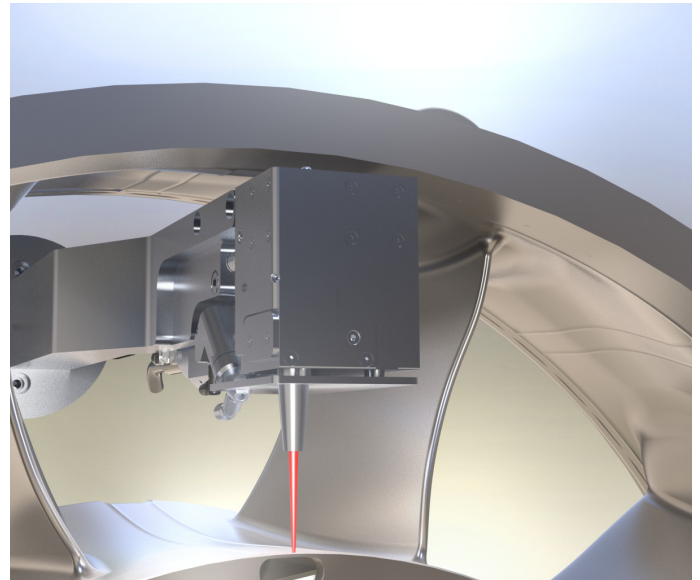
Results and customer benefits

GKN Aerospace Sweden has developed an advanced laser cladding technique that, together with normal laser welding, gives rise to a highly efficient, light weight technology.

- Large, expensive, cast items are replaced by geometrically and materially optimised components, which, with laser technology, can be both welded and clad on advanced completed components with desired properties.
- Permanova's adapted laser welding tools can access tight spaces, which means that GKN can produce geometrically complex components.
- Permanova's experience from the automotive industry could be directly used for innovative shielding gas solutions and robust automation solutions around the laser processes.
- For the aerospace industry this means reduced weight, improved fuel economy and reduced emissions of CO₂ and other environmentally sensitive products; quite simply a greener world.



Aircraft engine



Laser welding tools for tight spaces

No process or production is too great or too small for laser.

Permanova has supplied turn-key laser robot systems for the sheet metal industry for over 25 years. Each system is optimally designed to make the customer's production more efficient and profitable. Our goal is to always find long-term solutions that enable you to develop your business according to new demands. To assist us with this, we have more laser experts than most of our colleagues in the industry. As a customer you get access to accumulated experience and deep knowledge of the technology.

With Permanova as a complete supplier within laser solutions you have everything in one place. From the drawing board to installation and service. It does not get easier than that.

Are you curious to find out how our laser solutions can raise your production to new heights? Contact Permanova! We will happily share our knowledge and experience.

Permanova Lasersystem AB

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