



Aerospace  
Transmission  
Technologies

A Joint Company of Liebherr-Aerospace and Rolls-Royce

# Services and Capabilities

# State-of-the-art heat treatment



In our production facility in Friedrichshafen, we use cutting edge technology and automation to support a variety of case and through hardening heat treatment processes. Our specialty is the ability to press quench large cylindrical components in oil, whilst performing the heat treatments under vacuum.

We have the following equipment in operation

## **Vacuum furnace**

Option for low-pressure carburisation

Maximum batch size: 0.9 m x 0.9 m x 1.2 m – 1,500 kg

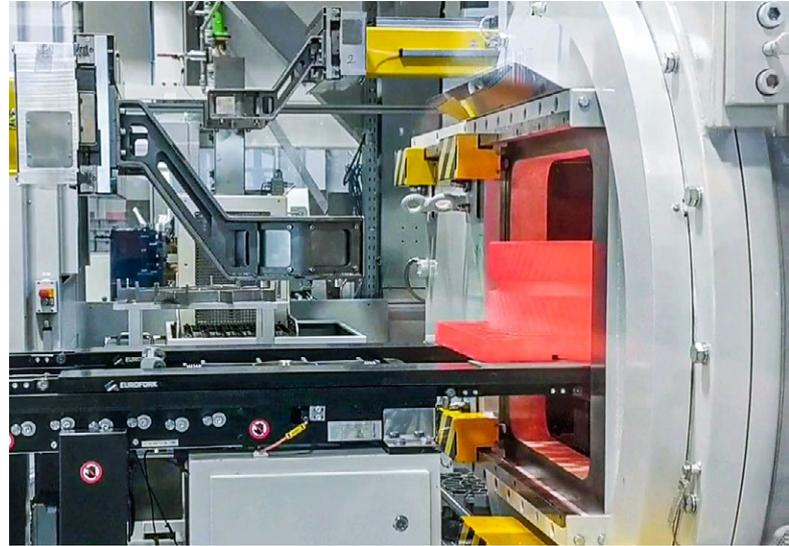
## **Fully automated hardening cell**

Vacuum austenitising, oil press quenching, deep freezing, tempering

Maximum part size:  $\varnothing$  0.45 m x 0.3 m – 60 kg

## **Plasma nitriding furnace**

Maximum batch size:  $\varnothing$  1.5 m x 1.8 m – 4,000 kg



# High-precision measurement



We have the highest standards for our measuring procedures. For this purpose, we use a high-precision coordinate measuring machine in a class 1 measuring room.

This allows us to measure the dimensions of our components to within 1 micrometre. For comparison: A human hair is between 60 and 80 micrometres thick.

**Maximum part size: 1.6 m x 1.2 m x 1.0 m**

# Manufacturing Engineering

Our Manufacturing Engineering team has built up world-class expertise over many years in the following areas:

- Manufacturing method planning, cost reduction, lead time and quality optimisation
- NC programming for complex geometries and reduction of on-machine time
- Classic and novel machining processes, including precision gear milling, power skiving, hard turning, shaping and gear grinding
- Optimisation of special processes to improve component life at high cycle fatigue times
- Process modelling of material properties and residual stress state to improve the heat treatment process
- Barkhausen noise grind burn inspection



## Flexible and fast

Thanks to our strong supply chain, we are not limited to our own manufacturing processes, but can offer complete manufacturing of complex steel components for any technology-driven market.

Our agile team is experienced in dynamic simultaneous development and is able to support development projects as well as the manufacture of complex prototypes or high-value, low-volume products.



We are proud  
of our  
certifications



EN9100



Rolls-Royce SABRE



NADCAP

# Can we support you with our services?

Contact us:  
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