



# AEROSPACE

Guhring's special service  
for the aerospace  
industry:

- sales support
- application advice
- development and  
production expertise
- special tooling solutions

**GUHRING**  
The Tool Company

# AEROSPACE SALES SUPPORT

For the purpose of reducing weight and optimising efficiency the aerospace industry is increasingly applying materials such as carbon fibre, titanium and aluminium alloys as well as super alloys such as Inconel or Waspalloy. The machining of these materials places very special demands on tool, machine and process design.

## **A competent partner**

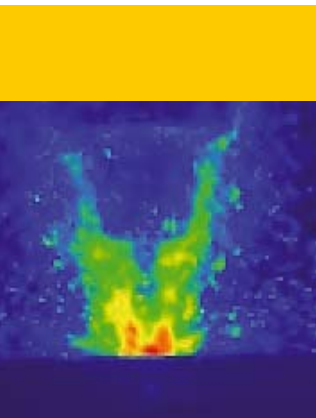
Guhring has reacted to these special demands of the aerospace industry by introducing our 'Aerospace' sales department. All Guhring's aerospace expertise is concentrated in this department: Experienced sales personnel familiar with the special demands of the customer in this field as well application technicians with comprehensive knowledge of tool, machine and process design for the aerospace industry.

## **Concentrated expertise**

In their work, the 'Aerospace' sales department has the extensive expertise of the Guhring Group at its disposal.

This, on the one hand, includes Guhring's carbide development and production as well as its coating development and technology, that provide application optimised tool materials and coatings for the required tools.

On the other, the 'Aerospace' sales department can fall back on Guhring's research and development. Here, comprehensive expertise regarding tool development is available on the one side, on the other, applications can be simulated and analysed in the test department. The department has full state-of-the-art equipment such as FEM, high speed and thermal cameras, load sensing devices etc.. In addition, Guhring's PCD/CBN tool production offers especially complex tooling solutions for combined machining tasks.



## **Analysing heat development:**

*During tool tests in the Guhring test department, the heat development can be analysed using thermal cameras.*



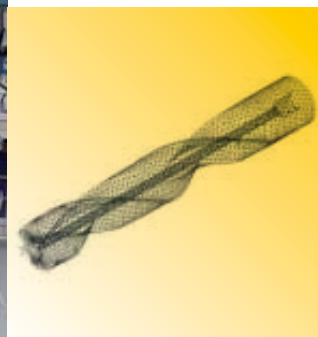
## **Guhring's R&D centre:**

*Here, innovative ideas for new tooling concepts are developed with the assistance of state-of-the-art design methods.*



**Airbus A380 assembly:**  
*Also here Guhring tools are applied.*

**FEM:**  
*Tool characteristics can be analysed in detail already in the development phase.*



**High-tech production:**  
*New PCD/CBN tool production in Albstadt-Ebingen.*



# TOOLING SOLUTIONS FOR THE AEROSPACE INDUSTRY

The 'Aerospace' sales department is already supervising numerous projects for the aerospace industry. Several of the Guhring tooling solutions for various applications are described below, in particular combination tools and special tools for demanding machining tasks.

## Drilling / reaming / countersinking

As well as HSS, carbide and PCD-tipped drilling, reaming and countersinking tools we provide specially designed tooling systems for the pre and finish machining of aluminium, titanium and super alloys as well as sandwich material components for every application task and machine type. A speciality is tools for very small holes with special threaded shank forms as well as tools for the assembly of aircraft components on riveting, robot and drill feed systems.

## Spacematic + Taperlok tools

For the production of the highly accurate cylindrical and conical holes in aluminium and titanium structures required for the wing assembly we provide tooling solutions for the application on drill feed systems.

## Milling

We produce PCD-tipped and coated carbide tools for milling operations in carbon fibre and composite materials. Carbide milling cutters with specially developed geometries, tool materials and coatings are available for the machining of aluminium, titanium and nickel-based alloy components for optimal productivity.

## Interface

Many machines in the aerospace industry continue to have an interface for screwing-in tools. In order to eliminate the need for expensive threaded shank tools, we have developed special shrink fit chucks that are very compact and possess a suitable interface with the thread. This allows conventional tool shanks to be shrink fitted, reducing tool costs and making brazed tools superfluous.





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