

CASE STUDY

Application: Chamfering & Deburring of Through-Holes

Tool: DEFA

Industry: Aerospace

Material: Inconel 718

Benefits: Productivity, Precision, Automation

Challenge: An aerospace manufacturer machining **Inconel engine components** was looking to eliminate the **inconsistency and labor costs** of manual deburring and chamfering. Operators were required to process each part by hand—an approach that introduced variability, extended cycle times, and increased the risk of **scrap and rework** in an already difficult-to-machine superalloy. The company sought a solution that would **automate the process**, ensure **consistent edge quality**, and improve both **efficiency and operator safety**.

Solution: HEULE introduced the **DEFA Adjustable Chamfering Tool**, designed to perform **front and back chamfering in a single operation**—no spindle reversal, no workpiece indexing. With its **infinitely adjustable chamfer thickness** and **robust blade geometry**, the DEFA handled the challenging Inconel 718 material with ease. The sealed, precision-built head prevented coolant contamination, while the tool's reliability allowed the process to run unattended on the customer's existing CNC machining centers.

Results: By automating the deburring and chamfering process, the customer achieved a **50% reduction in cycle time** while completely eliminating the need for manual deburring. This automation delivered **consistent, repeatable chamfer quality** across all parts, resulting in higher precision and fewer quality deviations. In addition, tool life improved significantly, minimizing unplanned interruptions and maintenance costs. The DEFA tool ultimately transformed a labor-intensive, variable process into a **fully automated, high-performance operation**, increasing productivity, enhancing operator safety, and ensuring superior surface finish quality—key advantages in aerospace manufacturing where precision and repeatability are critical.

