

# Process Time Reduced by 92% Using DTect-IT Surface Scanning Application

**RESULTS – INSTALL 9909**

## CHALLENGE

This Aerospace customer was manufacturing turbine blades with a very complex profile. The surface profile on each blade needed to be measured precisely in order for a very small chamfer tool to finish the blade. They were using a part probe with standard probing cycles, which required lots of probing points to compensate for any deviations from the process.

This process took an average of 3 hours just to collect all the probing points. Next, the compensation data was printed on paper for visual inspection by the CNC operator, to identify any tolerance issues or errors during probing. If/when an error was found, the entire probing process had to be restarted after the suspect surface had been cleaned or repaired.

## TECHNOLOGY



Blum Digilog Probe

## SOLUTION

Instead of collecting individual probing points, the goal was to scan along each surface of the blade in one continuous motion and store the comprehensive scan data. By implementing DTect-IT from Caron Engineering, combined with a Blum Digilog Scanning probe, the customer can scan the edge of the turbine blade and collect datapoints every 1 msec.

The probe is linearized, and the deflection output is converted to dimensional data. The XYZ coordinate data is interpolated from the deflection of the touch probe, the feed-rate from the scan, and the vector of the surface. The data output is read by DTect-IT software and axis adjustments are written to a new subroutine that accounts for the deviations. This subroutine is then called by the main program to automatically adjust the cutter path to correct the chamfer for any aberrations.

This entire routine took 16 minutes to complete, **saving 164 minutes of process time**. Additionally, a backup file is saved, per blade, so the customer can track the data for future analysis, if needed.

## RESULTS

- *Reduced cycle time for the chamfering preparation by 92% per blade (180 minutes reduced to 16 minutes)*
- *Eliminated operator error review time by 100%*
- *Stored data can be used for future analysis*

## INDUSTRY

Aerospace

## MACHINE TYPE

5 Axis VMC

## TOOLING

Chamfer

## MATERIAL

Steel



DTect-IT History Viewer shows the details of the surface scan. Click on any point of the scan to view the data.

SMART MANUFACTURING SOLUTIONS