

HEULE CASE STUDY

Aerospace Application BSF



Reducing Production Time for Back Spotfacing in Inconel

Challenge

An aerospace manufacturer was machining 30 back spot facings in a component made of Inconel 718 for some years. To do this, the part needed to be set up several times because of the poor accessibility of the bores. Countersinks were carried out by a box column drill. For the other counterbores, he used a counterbore tool with a plug-in head for the back bore machining. The process time amounted to approx. 6 hours for one component. His goal was to simply speed up this process. Due to the very demanding material and the difficulty of accessing the machining spots, the customer was very skeptical with regard to new solutions.

Application details:

- Material: Inconel 718
- Counterbore diameter: $\varnothing 13.0$ mm
- Counterbore depth: 0.7 mm
- Bore diameter: $\varnothing 6.6$ mm
- Material thickness: 10.7 mm
- Angle to surface: 180 Degrees (Cast skin)
- Number of bores: 30
- Machine: 5-axis machining center

Solution

HEULE proposed its BSF tool with a working length of 15 mm equipped with a blade type BSF-M-1175 with X special coating.

Machining parameters:

Speed: $N = 300$ U/min.
Feed: $F = 0.015$ mm/U
Coolant: Inner and outer coolant

Results:

The customer expectation was to produce 10 to 15 back spot facings with one blade, so that he would not need more than two blades per part. With an uptime of 25 back spot facings per blade and a cycle time of 55 sec., the BSF tool exceeded his expectations considerably. Being able to produce the part now in 35 minutes instead of 6 hours, the customer is not only satisfied but enthusiastic about the new solution.

