

CASE STUDY •**Application:** Inconel Bearing Housings **Material:** Inco718 (Cast)**Benefits:** 5 Blades To 1 Blade Per Part
62 minutes to 7 minutes 45 seconds
\$130,000 Annually**Industry:** Aerospace**Tool:** BSF

CHALLENGE: Confronted with a gear housing project, a precision aerospace manufacturer encountered severe complications using a competitor's back spotfacing tool. The issues, including tool breakage and poor insert longevity, were exacerbated during the machining of a gear housing with specific application details: main bore of $\varnothing.278$ ", spotface diameter of $\varnothing.535$ " with a tolerance of Plus/Minus .008, and the material being Inco718 (cast). The machining process was further complicated by utilizing a Cat 40 VMC machine with Okuma 1000Psi through-spindle capabilities, incorporating speeds of 55 SFM / 345 RPM, a feed rate of $F=.0006$ " per revolution / .25 IPM, and internal coolant.

SOLUTION: Heule recommended the BSF-A-0700/040-7.5 with a carbide TiAlN-coated blade (BSF-M-A-1A-6.0) to efficiently achieve a .531 back spotface.

OUTCOME: The implementation of the HEULE BSF marked a transformative shift in efficiency. With the new solution, the aerospace manufacturer achieved the remarkable feat of completing one part per blade (10 holes), in stark contrast to the competitor's tool, which required five blades per part. The in-cut cycle time, excluding the time to index inserts on the competitor's tool, significantly decreased from 62 minutes to just 7 minutes and 45 seconds. This dramatic improvement translated into estimated savings of \$130,000 annually, amortized over 300 parts. The HEULE BSF not only showcased superior performance but also demonstrated its cost-effectiveness, providing a successful resolution to the aerospace manufacturer's machining challenges.

