



## CASE STUDY.

### PROJECT PROFILE:

# Opening Drill<sup>®</sup> 4340 Aerospace

The end-user is manufacturing aerospace gears made out of 28 Rc, 4340, using a Mazak Lathe, with oil-based water soluble coolant.

#### + CHALLENGE:

Previously the customer was using a Sandvik Boring Bar running at the following parameters: 400 RPM, 0.012 IPR (0.30 mm/rev), which resulted in 4.8 IPM (122 mm/min). The boring bar opened a pre-existing 2.125" (53.9 mm) diameter hole to a 3.75" (95.3 mm) diameter hole to a depth of 7" (177.8 mm). The tool required 13 boring passes and had a cycle time of 19 minutes, and a tool life of one insert per 30 parts. Looking for a better way, the customer wanted to see how the Allied Opening Drill would perform versus the Sandvik tool.

#### + OUR SOLUTION:

Allied recommended the OP3-1L-SS1.5 drill. The tool ran at a speed of 509 RPM, 0.004 IPR (0.10 mm/rev), which resulted in 2.037 IPM (51.7 mm/min). The Opening Drill produced 30 parts, using four inserts, but the time saved was significant.

The boring bar required 13 passes over 19 minutes to complete the application, but the Opening Drill was able to reach the same outcome in less than 3.5 minutes per part. The customer was highly impressed as the Allied solution greatly reduced the time it took to complete the job. The cost per hole dropped from \$29.62 to \$7.75. The total cost for 90 holes decreased from \$2665.38 to \$697.52, resulting in a customer savings of \$1967.85, or 73.83%.

#### + PROJECT DATA:

The Allied Opening Drill paid for itself after only 60 parts. Allied was able to eliminate 13 boring passes and substitute them with only one pass with the Opening Drill. The pleased customer already has plans to use the Opening Drill in other applications since they do a number of aerospace gears made of 15-5 stainless and 4340 ranging from 1" ID to 4.5" ID.



## INCREASED PRODUCTION EFFICIENCY