



## CASE STUDY.

PROJECT PROFILE:

# Revolution Drill<sup>®</sup>

## 316 Stainless Aerospace

The end-user is manufacturing valve actuator bodies for the Aerospace industry made out of 316 stainless steel using a low thrust Mori Seiki machining center, with 20 Horse Power, using water soluble coolant.

### + CHALLENGE:

Previously the customer was using a series of spade drills, which failed due to Z axis overload. They then tried an Iscar plunge mill which worked, but was very slow and costly. This drill ran at the following parameters: 800 RPM, .001 IPR, down (0.025 mm/rev), and .005 IPR, circular (0.13 mm/rev), which resulted in 0.8 IPM (20.32 mm/min). The tool drilled a 2.5" (63.5 mm) diameter hole to a 12" (304.8 mm) depth. Eight of the holes were blind, four were through. The tool had a cycle time of 15 minutes and a tool life of 8 holes. Looking for improvements, the customer wanted to reduce the high cost of hole-making caused by the plunge mill.

### + OUR SOLUTION:

Allied recommended using the Revolution Drill with insert item OP-05T308-H and holder R42X35-150L. The tooling ran at a speed of 1000 RPM, .005 IPR (0.13 mm/rev), which resulted in 5 IPM (127 mm/min). With the Revolution Drill, the cycle time dropped sharply from 15 minutes to only 2.4 minutes, plus the tool life almost quadrupled from 8 to 30 holes.

The outcome was quite favorable as the Revolution Drill met the customer's goals of speeding up the process and reducing the overall cost of drilling.

### + PROJECT DATA:

The cost per hole was reduced from \$21.21 to \$3.71, which, when extended out over a 500 piece run, saved the customer \$8,747.96, or a very impressive dollar savings of 82.49%.



*REDUCED COST  
OF PRODUCTION*