



CASE STUDY.

Revolution Drill[®]

PROJECT PROFILE: 410 Stainless Steel Gas Turbine

The end-user is manufacturing blade rings for the power generation industry. These components are made out of 410 Stainless Steel and are being machined on a horizontal machining center, with flood coolant.

+ CHALLENGE:

Previously the customer was using a Walter IC drill running at the following parameters: 550 RPM, 0.0035 IPR (0.089 mm/rev), which resulted in 1.9 IPM (48.3 mm/min). The competitive tool drilled a 2" (50.8 mm) diameter thru-hole to a 7" (177.8 mm) depth. The tool had a total cycle time of 3 minutes, 40 seconds and a tool life of 15 holes. In addition to that, this application required the use of boring bars (two passes) to bring this operation to completion, bringing the total cycle time to 5 minutes and 30 seconds. Looking for improvements, the customer called Allied Machine to reduce cycle time and decrease the overall production cost.

+ OUR SOLUTION:

Allied recommended its newest offering, the Revolution Drill[®], using insert item OP-05T308-H and holder R36X35-150L. The tooling ran at a speed of 1200 RPM, 0.003 IPR (0.76 mm/rev), which resulted in 4.3 IPM (109.22 mm/min). The Revolution tool drilled a 2" (50.8 mm) diameter thru-hole to a 7" (177.8 mm) depth. Allied was able to use a CAT 50 tool holder with a rotary coolant adaptor to improve the coolant delivery. The Revolution Drill[®] had a cycle time of 2 minutes, and doubled the tool life from 15 to 30 holes. The cost per hole, after completing 3000 holes, dropped significantly from \$11.88 to \$3.91, resulting in a total dollar savings of \$23,873.76

+ PROJECT DATA:

The Revolution Drill[®] beat the Walter system, which lost time on drilling as it had to perform two additional boring passes. Revolution Drill[®] met the customer's requirements by eliminating the boring heads and decreasing the cost of production dramatically. Cycle time was reduced by 1 minute and 14 seconds per hole. This resulted in a significant cost savings of over 67%.



REDUCED CYCLE TIMES