



## CASE STUDY.

### PROJECT PROFILE:

## Revolution Drill<sup>®</sup> 4130 Bar Stock Oilfield Job Shop

The end-user produces oil field reamers that are designed go down into an oil well to ream out the casing and / or material the shaft is passing through. They are machining 4130 solid bar stock using a Weiler Manual lathe using a semi-synthetic coolant at 300 PSI. The material comes in with an existing 1" diameter hole, which they drilled with a 2.25" diameter twist drill.

### + CHALLENGE:

Previously the customer was using a twist drill running at the following parameters: 120 RPM, hand feeding the drill with the tailstock, which resulted in an inconsistent feed rate and poor chip control. The tool drilled a 2.25" (57,15 mm) diameter thru hole to a depth of 10.0 inches (254 mm). The tool had an approximate cycle time of 25 minutes and a tool life of just 2 holes.

Looking for performance improvements, the customer, who actually found Allied at a trade show, wanted to know more about the Revolution Drill<sup>®</sup>.

### + OUR SOLUTION:

Allied recommended the Revolution Drill<sup>®</sup> using inserts item OP-5T308-H and holder R38X45 -150L. The tool was inserted into a boring bar holder on a quick-change tool post. A dial indicator was used to make sure the drill was parallel to the work piece, followed by the use of the carriage to steadily feed the drill into the work piece. The tooling ran at a speed of 300 RPM, 0.0032 IPR (0,08 mm/rev) which resulted in 0.96 IPM (24,38 mm/min). The Allied tool had a cycle time of less than 10 minutes and a tool life of 5 holes.

The outcome met the customer's goals of tool performance improvements. Revolution Drill<sup>®</sup> decreased cycle time from approximately 30 minutes to exactly 9.6 minutes.

### + PROJECT DATA:

Machinist was very happy as there was no longer the need to hand feed the 2.25" diameter twist drill and lose time having to re-sharpen it after every part. Allied helped to reduce the costly machine run time resulting in the cost per hole dropping from \$66.88 to \$25.63 for a considerable cost savings of 61%.



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