

Revolution Drill®

Case Study: 6005
Industry: Oil & Gas/Petrochemical
Part: Oil Field Reamers
Material: 4130 Solid Bar Stock
Diameter: 2.25" (57.15 mm)
Depth: 10.0" (254 mm)
Holder: R38X45-150L
Insert: OP-5T308-H



The Challenge

The customer produces oil field reamers designed to go down into oil wells and ream out the casing and material for the shaft to pass through. They are machining 4130 solid bar stock using a Weiler manual lathe using a semi-synthetic coolant at 300 PSI. The material has an existing 1" diameter hole that is drilled with a 2.25" diameter twist drill. They hand feed the drill with the tailstock, which leads to inconsistent feed rate and poor chip control.

The Advantages

The Revolution Drill eliminated the need to hand feed the 2.25" diameter twist drill, gaining valuable time that was previously spent re-sharpening the tool after every part.

- Reduced costly machine run time
- Decreased the cost per hole from \$66.88 to \$25.63
- Total cost savings = 61%

Previous Tooling

Twist Drill

- 120 RPM
- Cycle time = 25 minutes
- Tool life = 2 holes

Allied Machine Solution

Revolution Drill®

- 300 RPM
- 0.0032 IPR (0.08 mm/rev)
- 0.96 IPM (24.38 mm/min)
- Cycle time = 9.6 minutes
- Tool life = 5 holes

