CASE STUDY. Revolution Drill® - Opening Drill®

PROJECT PROFILE: A36 Mold Industry

The end-user is machining A36 mold backing plates using a DOOSAN DB 130CX Horizontal Boring Mill with 200 PSI through tool coolant.

+ CHALLENGE:

Previously the customer was using a mix of tooling to drill a total of six holes, three at 3.6" diameter and three at 2" diameter. This was initiated with a center drill, then progressed on to a standard twist drill to bring the hole to proper depth, followed by a circular interpolation tool, completing the hole with a finish bore operation.
The tools drilled/bored six 2" (50,8 mm) diameter holes, three to a depth of 3.5" (88,9 mm), and the other three to a depth of 4"(101,6 mm). Three of the six holes were then opened to a diameter of 3.6". The mixture of tools which ran at various RPMs, required from 4 to 8 hours to complete this operation in a material that was approximately 22-24 Rc.
Competing with off-shore mold makers, the customer was looking for a way to speed up this job. Allied was asked if they had a solution.

+ OUR SOLUTION:

Allied recommended the one-two combination of the Revolution Drill and the Opening Drill. The hole-making was initiated with Revolution Drill R34X22-150L using insert item OP-05T308-H. The Allied tool ran at a speed of 2,200 RPM, 0.0055 IPR (0,14 mm/rev) which resulted in 12.1 IPM (307,3 mm/min). The Opening Drill, item # OP3-1L-CV50, using the same style inserts, OP-05T308-H, was brought in to complete the three 3.6" holes. Opening Drill ran at a speed of 1,200 RPM, 0.0055 IPR (0,14 mm/rev) which resulted in 6.6 IPM (167,6 mm/min).

+ PROJECT DATA:

The difference was amazing as Allied was able to reduce the operation time from hours to just minutes. Completion of 6 holes using Revolution Drill took less than 3 minutes, while the Opening Drill opened 3 holes from Ø 2" to 3.6" in under 2 minutes, outperforming the competitive tooling by over 4 hours!

REDUCED CYCLE TIMES

REDUCED COST OF PRODUCTION