



CASE STUDY. Revolution Drill® - Opening Drill®

PROJECT PROFILE: 4130 Contract Machine Shop

The end-user, a Contract Machine Shop, was actively seeking new business, and was forced to quote on projects that were normally beyond their capacity.

+ CHALLENGE:

A substantial order would be secured if the end-user could generate a 3.130" diameter hole on a 15 HP Haas VF-6 machining center. The material was 4130 (225Bhn) and the coolant was set up as flood style. The end-user considered the idea of drilling the initial hole to its prescribed depth of 2.125" using a 1" or 1.25" diameter spade drill, followed by numerous passes of a boring bar to enlarge the hole to the required 3.130" diameter. Knowing that this method would probably cost them the job they were trying to win, the end-user contacted Allied Machine & Engineering Corp., requesting a better way, if one existed.

+ OUR SOLUTION:

Allied recommended initializing this application, drilling a 2-inch diameter hole using the Revolution Drill® with insert item OP-05T308H and holder R36X22-150L. The tooling ran at a speed of 1100 RPM, 0.004 IPR (0.102 mm/rev) which resulted in 4.4 IPM (111.76 mm/min). The cycle time was 31 seconds, with the load meter at 95%. Next, the Opening Drill® with OP-05T308-H inserts and a OP3-IS-CV40 holder was put to work, enlarging the 2" hole to the required diameter of 3.130", in just one pass, operating at the following parameters: 900 RPM, 0.0025" IPR (0.063 mm/min), which resulted in 2.25 IPM (57.15 mm/min). The cycle time for this operation was 57 seconds, and the load meter equaled 95%.

+ PROJECT DATA:

The outcome was very favorable. The 3.130" diameter hole was machined to the required tolerance and finish in only two passes. The End-user received an order from his customer for 1000 Parts. Potentially, this is the first order of many. The combined performance of Revolution Drill® and the Opening Drill® created new opportunities for this account who previously thought the application was beyond their capability.



*REDUCED
CYCLE TIMES*



*REDUCED COST
OF PRODUCTION*