



CASE STUDY.

PROJECT PROFILE:

GEN3SYS[®] 4140 Alloy Steel Construction

The end-user is manufacturing power transmission components, a 48" diameter flange made from 4140, using an Arboga Gantry Machining Center, utilizing a semi-synthetic coolant with only 80 PSI of coolant pressure.

+ CHALLENGE:

Previously the customer was using a mix of different tooling in search of the best solution for the application. In their most recent effort, they were using TiN coated YG-1 HSS spade drills, operating at the following parameters: 377 RPM, 0.010 IPR (0.25 mm/rev), which resulted in 3.77 IPM (95.8 mm/min). The tool drilled a 1.031" diameter hole to a depth of 4 inches, (101.6 mm).

Drilling 24 holes per part, the tool had a cycle time of 60 minutes. Due to a necessary peck cycle to break the chips, it was taking approximately 2 minutes to drill the hole. Tool life for the YG-1 drill was 3 parts, or a total of 72 holes. Looking for performance improvements, the customer asked if Allied could investigate this time-draining process and provide a solution.

+ OUR SOLUTION:

Allied recommended GEN3SYS[®] using insert item 5C126H-0101 and holder 60526S-125F. The tooling ran at a speed of 760 RPM, .015 IPR (0.38 mm/rev) which resulted in 11.4 IPM (289.5 mm/rev). Allied met the customer's goals of reduced cycle time and longer tool life. The GEN3SYS[®] drill was able to complete 4 parts (24 holes per part x 4 = 96 holes) in under an hour. The actual drilling cycle per part was 8 minutes and 24 seconds, or 21 seconds per hole.

+ PROJECT DATA:

GEN3SYS[®] provided the customer with over 3 times the penetration rate versus the competitive tool, while extending the tool life by 33%. Allied eliminated the peck cycle which helped to reduce the costly machine run time, resulting in the cost per hole dropping from \$3.45 to \$1.38, for a considerable cost savings of over 60%.



IMPROVED PENETRATION RATES