CASE STUDY.

GEN3SYS®

4140 Forging Heavy Equipment

PROJECT PROFILE:

The end-user is manufacturing power transmission components, a 48 " diameter flange made out of a 4140 forged ring, using an Arboga Gantry Machining Center, utilizing a semi-synthetic coolant . The machining conditions were less than desirable due to a mere 60 PSI of coolant pressure.

IMPROVED PENETRATION RATES

+ CHALLENGE:

Previously the customer was using a mix of different tooling in search of the best solution. Prior to Allied's arrival on the scene, they were using YG-1 spade drills running at the following parameters: 377 RPM, .010 (0.25 mm/rev) IPR, which resulted in 3.77 IPM (95.8 mm/min). The tool drilled a 1.031" diameter hole to a depth of 4". Drilling 24 holes per part, the tool had a cycle time of 60 minutes, which included the time needed to remove part with an overhead crane, and then bring in a new part. In 5½ hours, they were able to produce 5 parts. Tool life was 3 parts, or 72 holes.

+ OUR SOLUTION:

Allied recommended GEN3SYS® using insert item 5C12GH-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). The outcome made a believer out of the customer, as Allied met their goals of reduced cycle time and longer tool life. The GEN3SYS® drill was able to complete 4 parts (96 holes, 384 linear inches, 9.75 meters) in under 50 minutes. The actual drilling cycle per part was 12 minutes, or 30 seconds per hole, reducing their cost per hole to $1.37.

+ PROJECT DATA:

The customer was able to realize over 3 times the penetration rate versus the competitive tool, while extending the tool life, for an overall cost savings of 60%.