



CASE STUDY. **BT-A Carbide-Clad Titanium Heat Exchangers**

The end-user is machining tube sheets made from Titanium, 185-190 Bhn using a horizontal Tarus Heavy Duty Drilling Machine, operating at 2000 PSI, with an oil based coolant.

+ CHALLENGE:

Previously the customer was testing different tooling, including BTA Heller, Ingersoll BTA, and Sandvik, running at the following parameters: 400 RPM, 0.005 IPR, (0.13 mm/rev) which resulted in 2.0 IPM (50.8 mm/min). The tool drilled a thru-hole to a diameter of 0.758" (19.25 mm), 15 inches thick (381 mm). None of the mentioned tools were able to complete this operation to the satisfaction of the customer. All three tools failed as hole straightness was unacceptable and the tolerances were above 0.017", rendering the tube sheets unusable.

Looking for reliability and a tool that could handle the job, specifically maintain the hole straightness throughout the entire application, the end-user allowed Allied to test its BT-A drill.

+ OUR SOLUTION:

Allied recommended #1Series BT-A tool using insert item 4C11H-.7580-HE. The tooling ran at a speed of 700 RPM, 0.0045 IPR (0.11 mm/rev) which resulted in 3.15 IPM (80.01 mm/min). The benefit of this test was clearly the fact that the Allied BT-A was able to maintain the required hole tolerances, which were below 0.012". The tool provided 27 holes per insert, or 86" of tool life, while maintaining a respectable cycle time of 58 seconds.

+ PROJECT DATA:

BT-A and the end-user were the big winners here as the goal of maintaining the hole diameter within the required tolerances was met. Allied delivered the reliability the customer was looking for, as well as the confidence level that ensures the best tooling and service from a supplier that can be trusted.



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