

Hi-Tech Turbine / Piping picture

Issues

A Gas Turbine Manifold set is manufactured at a rate of Seven Units per week. Current losses for the process stand at \$417,000 USD per annum, Average Defects per Unit at 14.7 with a 15-week cycle time. In addition, low process yields currently delay final assembly, but volume increases are predicted in the future. Management wants the problem fixed.

Breakthrough Strategy

Measure Two Important processes; *Hot Forming* and *Bonding* formed the largest source of defects of all the manufacturing process. Calculation of Sigma Values showed that while the short-term value was high (4.47), the long-term value, which included process shift and drift was only -18. This indicated that while processing technology was capable, process control presented a large opportunity for improvement.

Analyze Process Maps and Cause and Effect Matrices related to *Hot Forming* and *Bonding* were completed. Twenty one major sources of variation were identified. Some Immediate improvements were identified; further data collected and Hypothesis Tests conducted.

Improve A Designed Experiment was conducted on the Bonding Process on three variables identified as a source of major variation in bonding performance. The Bonding process was changed as a result. Changes were also made to the Hot Forming process and validated

Control Controls were introduced on the key variables controlling the process performance.

Results Process yields went from 54% to 99.9952. Cycle time going from 15 to 8 Weeks

Savings \$423,600 USD per Annum of which \$173,500 USD is direct material scrap.

