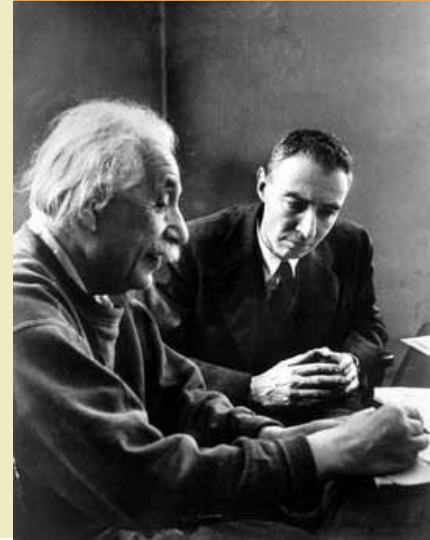


Defect Free Deep Hole Drilling

Light House Case study



Industry Type >>>

Engineering – Heavy Engineering

The Client >>>

C_HE_LT

Improvement Tool >>>

Lean Six Sigma



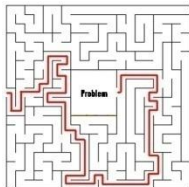
Scenario >>>

C_HE_LT is the heavy engineering department of C_HE_LT offering wide range of advanced solutions, services and products worldwide. It has established a reputation in global markets for quality products. One of the primary products of HED is Heat Exchanger. The holes in the tubesheet, which forms the critical component of heat exchanger has to be produced with utmost care. Deviation in the holes produced results in rework of drilling process or rejection of the tubesheet.

Business Challenge >>>

Analysis of data sample indicated the process capability of 2.73 sigma for the drilling process. Rejection of a tube sheet led to a loss as high as Rs.10 million. Delay in the delivery of the equipment resulted in a loss of about 5-10% of the equipment cost. Repair and rework arising due to inaccurate drilling of holes required additional 20% of production time and cost. The goal was to raise the quality level of the drilling process to meet global challenges and reduce the percentage of defective tube holes.





The Solution >>>

Regression and Pareto analysis has determined effect of various parameters like cutting speed, feed, tool make on the drilling process. Optimum settings of input parameters have been defined by design of experiment (DOE). Calibration of all the tools and equipments has reduced variations due to measurement systems. Conducting trials with various input combinations enabled meeting quality standards.

Benefits >>>

Variation in the measurements due to measurement systems has been reduced from 88% to 11% by calibration of measurement tools. The drift in the drilling process has improved 15 times. The new process has eliminated spiral marks and scratches due to drilling showing breakthrough improvement in the surface finish and hole locations. Simplified process controls to achieve nuclear standards with lower emphasize on 100% inspection are established.

For further information, please contact >>>

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