

Case Study

Reduce the percentage of under utilised feed creel

Project background

A leading global supplier of advanced carbon fibre materials for use in Aerospace applications was experiencing capacity issues.

Polyacrylonitrile fibres (the chemical precursor of high-quality carbon fibre) were chemically modified to make the carbon fibre found in many Aerospace applications.



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Problem

Management were concerned that insufficient carbon fibre was being produced to meet customer demand.

A Six Sigma team was set up to improve throughput. The team discovered that there were too many defective “cheeses” resulting in feed creel being under utilised.

Following further investigation the team identified that the cheeses were not being replaced in line with the schedule or spliced correctly.

They also found that the measurement system for weighing cheeses was inaccurate.

The team were able to trace a large number of the cheese defects directly to the supplier of the Polyacrylonitrile fibre.

They also found a mismatch between the number of tows and slots on the rakes.

Solutions

Training was provided to the feed creel operators to enable them to identify defective cheese types and a system of improved communication of incoming cheese defects was developed jointly with the supplier.

New standard operating procedures were implemented with visual management controls and new methods of recording the data.

The team also implemented an improved measurement system and regularly validate the output as part of a preventative maintenance programme with detailed control plans.

The number of slots on the rakes were altered to match the number of tows.

Meetings were held with the supplier to share the analysis and findings of the project. Supplier management committed to and subsequently worked on their own internal projects to further reduce the defective error rate of the incoming cheeses.

Business benefits

Feed creel utilisation was increased from 58% to 97% improving gross margin by \$101k per year. Furthermore, the company was able to increase sales by a further \$138k per year on this single product line. Replication projects were identified for other product lines.