



DEVELOPMENT OF NEW THREAD-ROLLING PROCESSES FOR THE AEROSPACE INDUSTRY

The MTC helps Arrowsmith Engineering develop new manufacturing processes, while keeping quality high, manufacturing costs down and making the company a technology leader in its field.

“The MTC engineers worked closely alongside our team. We’ve all been impressed by their modest attitudes and exceptional knowledge. As a result, we’ll be manufacturing components that couldn’t previously be made.”

Jason Aldridge, Managing Director, Arrowsmith Engineering

Arrowsmith Engineering, based in Coventry, manufactures bespoke components for aerospace clients - handling metals including titanium and magnesium. The business currently employs 50 staff and has a turnover of £4m, and is expanding rapidly.

The Challenge

Arrowsmith needed to develop new thread-rolling processes for the aerospace industry. Thread-rolling is a difficult cold forming process which can be performed on any ductile metal to produce smooth and precise threads.

Arrowsmith was experiencing frequent tool failures. In addition, a wider challenge for Arrowsmith was to reposition itself in the market, align its culture with that of its end customer and develop a centre of innovative excellence.

MTC’s Solution

With support from the National Aerospace Technology Exploitation Programme (NATEP), which is funded by the Advanced Manufacturing Supply Chain Initiative, MTC engineers began working alongside Arrowsmith’s own engineering team, further supported by the Coventry and Warwickshire Aerospace Forum.

Much of this joint work was carried out at Arrowsmith’s premises. The team worked through the whole process from start to finish, developing precision-controlled production techniques. These techniques were tested in small batch trials before being successfully carried over to volume manufacture.

The Outcome

The techniques developed by the joint engineering team resulted in manufacturing processes that kept quality high and manufacturing costs down.

The process steps and details have been captured in a set of standard operating procedures for engineers and machinists. These can be used for reference or training. The innovative technologies employed have allowed Arrowsmith to produce components that could previously not be made to the standard of accuracy and quality achieved.

Benefits to the Client

- Arrowsmith has increased its standing with its customers as a competitive and innovative supplier.
- Arrowsmith has a workforce with a higher skill level and a better understanding of the process and the effects of variables.
- Arrowsmith is better placed to win new work as a technology leader in its field.
- In addition, it has made significant improvements in quality, and by reducing manufacturing waste has reduced its costs.



"While the aerospace primes are seen to be investing heavily in new technologies, it's really important that the supply chain keeps up. Advanced engines need advanced engineering solutions at every stage, so this research is crucial for the industry. By working collaboratively, we're improving the quality and scope of that research, while upskilling our own engineers and sharing our expertise."

Jason Aldridge, Managing Director, Arrowsmith Engineering

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