Case study

Wet blasting technology for a major aerospace manufacturer

Improving the processing time of turbine engines and components whilst saving on costs through the prevention of material loss.

One of the most renowned aircraft engine manufacturers (NDA in place*) is one of the world's oldest and most versatile companies with operations in over 130 countries. Offering a multitude of specialised aerospace solutions, they pride themselves on being one of the top suppliers for a significant portion of the commercial and military aerospace markets.

It has been proven that when aerospace manufacturers incorporate wet blasting in their surface finishing operations, it creates a distinct competitive advantage in efficiency over competitors using alternative finishing processes. Given the company's premium position in the market, they looked to us, as one of the global leaders in the surface finishing of turbine engines and engine parts prior to mandatory inspection.

They were using a dry blast machine along with an older Vapormatt machine. With both machines coming to the end of their lives, they wanted to replace their old machines whilst increasing their use of wet blasting for their finishing operations to help improve processing times. The solution to this came in the form of our Leopard wet blasting machine in horizontal configuration.

The Leopard Horizontal offers both manual and automatic processing, specifically for heavier and larger components. A powered trolley is provided so that the 1.85m (6ft) turntable, which can hold up to 5 tonnes in weight, can slide out onto the load end, allowing customisable low-level loading optionsthanks to our patented "donut sump".

After having the machine in operation for some time, they were able to benefit from significant decreases in processing times and improved controllability. This ultimately increased the capacity and throughput of the engine shop, meaning assembly work took less time.. A comparison of the new process versus the the old process is illustrated below.

New vs old processing time

Process	New	Old
Queue time	2 hrs	96 hrs
Chemical clean	60 hrs	240 hrs
Wet blast	6 hrs	N/A
2nd step clean	2 hrs (200 psi water)	8 hrs
FPI queue time	3 hrs	72 hrs
FPI process time	16 hrs	16 hrs
Total time	88 hrs	430 hrs

In summary, the benefits of using wet blasting over dry blasting for the application of component cleaning and surface preparation include:

- A process time saving of 342 hrs which equates to an 80% saving
- Wider range of media available – typically no lower than 240 mesh for this application, but wet blasting can go to 500 mesh if needed
- Wet blasting will not peen over any potential cracks
- The time needed for chemical etching is greatly reduced with wet blasting when compared with dry blasting
- There is no material loss with wet blasting (parts can cost up to $500,000 and be scrapped if only a thou (25.4 microns) is removed)

We've produced a video of this impressive machine in action which can be found on our dedicated Leopard website page:

vapormatt.com/machines/automatic/leopard

*Our wet blasting systems deliver distinct productivity and quality competitive advantages to our customers, because of this we are often asked to honour Non-Disclosure Agreements (NDAs) to keep our customers' details confidential. That is why we cannot include the name of the manufacturer in this case study.

Vapormatt

Vapormatt, Robins Drive, Bridgwater, TA6 4DL, UK
t +44 (0) 1823 257976 e sales@vapormatt.com