

Company Name Williams Aerospace Engineering

Location Northam, Southampton, UK

Product Venture XT CNC with Fusion 3D software

Industry Precision Machining

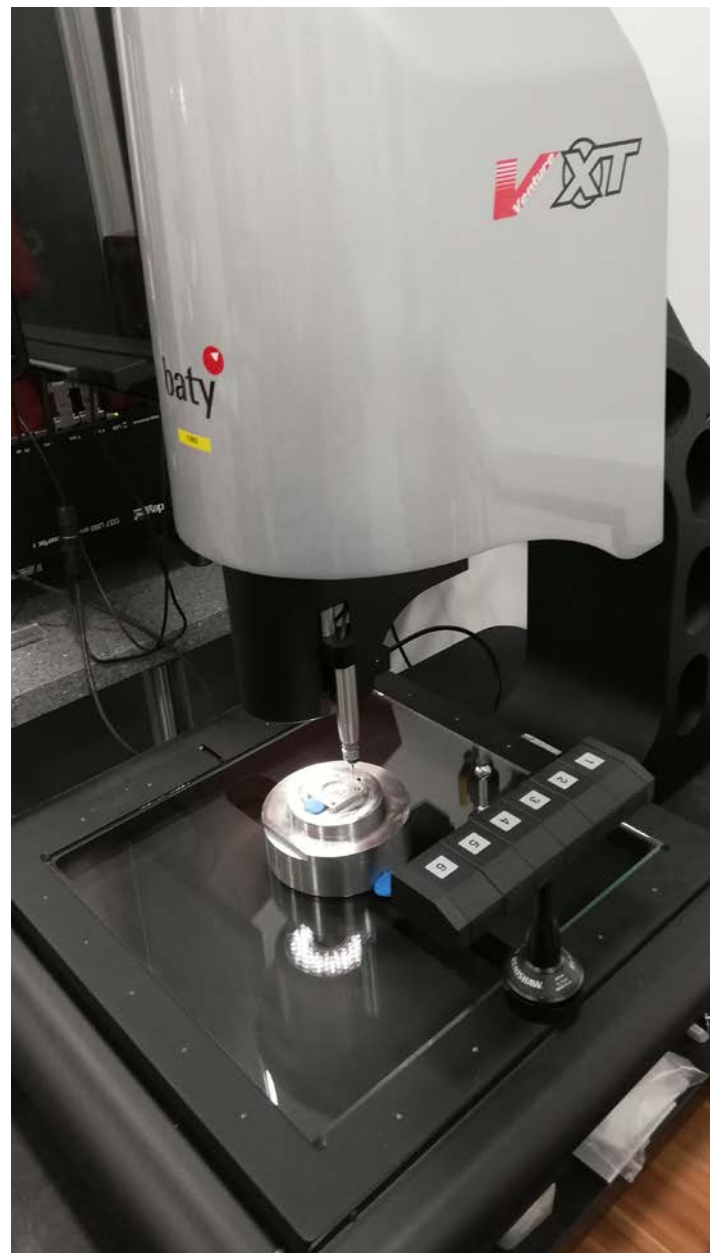
APPLICATION BACKGROUND

Williams Aerospace Engineering manufactures critical, precision machined components for use in some of the most extreme environments, including aerospace, defence, nuclear, medical, Formula 1/performance sports car, and commercial markets.

Incorporated as City Tool & Gauge in 1935, which became N. Williams & Co (Southampton) Ltd in the early 1960's, and finally renamed as Williams & Co (Southampton) Ltd, Williams has been at the cutting edge of engineering ever since.

Based in Northam, Southampton, Williams Aerospace Engineering specialises in 5 axis CNC Turn/Mill Centres, 4 axis Milling, Internal and External Gear and Spline cutting, Internal and External Grinding, Match Grinding and Honing with sizes from 0.062" - 6" Diameter.

Tolerances generally worked to are .002mm (0.00007") with 1 microinch surface finish. The business also offers full inspection capabilities to check surface profile, such as Roundness, Cylindricity, and Concentricity, which are fully calibrated to ACAS Standards. In order to meet the demands of specific customers, Williams Aerospace Engineering manufactures anything from one off components to large batches.





THE CHALLENGE

One of the biggest challenges that Williams Aerospace Engineering faced was the sheer amount of time it took to measure components and collate all the data for its customers.

For example, for a customer with particularly high measurement requirements, it would take the quality department 1-2 days to measure the positions of 2 holes on a batch of 100 cover plates, in addition to having to input data to an Excel spreadsheet to customer requirements.

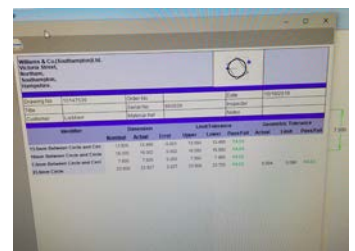
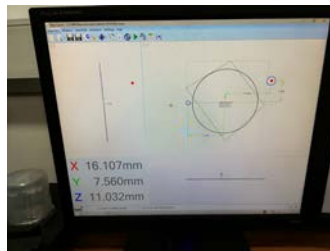
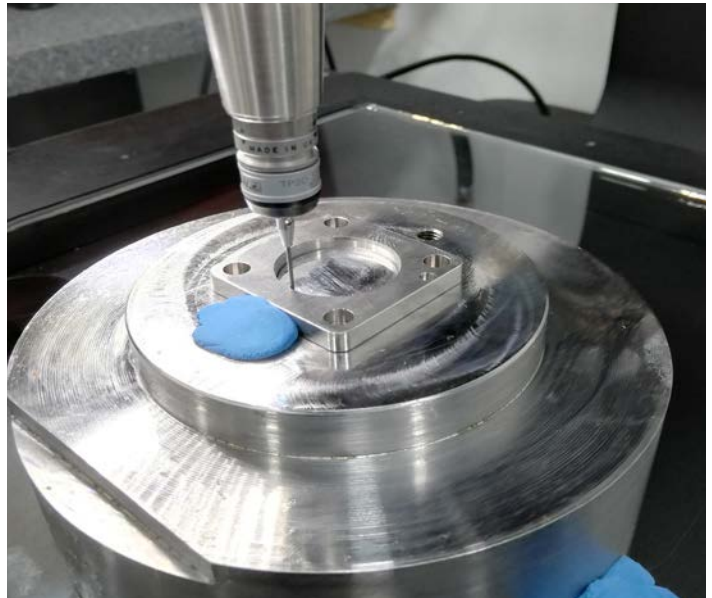
THE SOLUTION

Williams Aerospace Engineering uses the vision system for measuring lengths, radii, rads and angles. The measurements are either taken directly from the part loaded on the machine, or if it is an internal feature, it is reproduced using a rubber compound. The mould is then sectioned and measured on the projector as with an external profile.

The Baty Venture XT is used most days either to perform first off, in process, or final inspections on parts which are being manufactured at the facility.

2 members of the inspection team at Williams Aerospace Engineering currently use the Baty Venture, but as programs and fixtures become available to use in the future, other personnel will be able to recall programs and perform their own in-process inspections. This will then allow the inspectors to concentrate on other areas.

Since investing in the Baty Venture, the measurement process described above that previously took 2 days, can now be completed in 2 hours. The inspection team at Williams Aerospace Engineering are able to load the fixture onto the machine, insert a part, recall the programme and teach the datum position, completing the batch of the same 100 parts within just 2 hours.



COMMENTS

David Fripp, Managing Director at Williams Aerospace Engineering said: "The Baty Venture XT helps to ensure our product quality by giving us a more consistent and repeatable measurement method. Once a program is written, the Venture is far more accurate than our old manual CMM, which is reliant on the points taken by the operator moving the probe by hand, rather than the CNC control on the Baty system. It is very easy to use and the camera resolution is far more accurate than a standard projector using surface illumination.

The Venture gives us the flexibility to measure countersink diameters whilst measuring hole positions on the same part. Due to the camera's focal length, it is also possible to focus on counterbores or countersinks that are located within a bore and take measurements, rather than take a mould and use a standard projector. We're very much looking forward to seeing how much more we can achieve with this piece of equipment in the future."