



Amon Ra-TW

Advanced Presetter Case History Produmax Precision Engineering

Produmax, a specialist manufacturing company with an expertise in high precision engineering, identified an opportunity to improve manufacturing processes by increasing the implementation of off-line tool presetting in the Pit Crew area of their brand new manufacturing facility in Shipley. Presetting of tools had already been identified as a way of increasing machine tool utilisation and was carried out to a point, but the solution in place relied on the transfer of data via a printed sticker which was then manually inputted in to the machine, taking up valuable time and with the potential for mistakes being made during the input process.

The Installation of the Amon Ra-TW has taken productivity and efficiency to the next level, with increases in performance and accuracy being apparent from the outset. All tool building and setting is done in the Pit Crew area of the workshop, where the Amon Ra-TW is the primary piece of equipment in use. The Pit Crew are responsible for the building up a dedicated tool set for each job that is manufactured, and do so in the background whilst the machine tools are running to minimise the amount of downtime between batches of components, maximising productivity.



Mick Barker, Produmax Pit Crew Cell Leader using the Tool Inspection facility on the Amon Ra-TW

The Amon Ra-TW has the ability to transfer Data Directly to machine tools or a central file system, Seiki Systems in the case at Produmax, so that tool data can be downloaded with the offline CNC programs from a single source. Having a dedicated resource to prepare all tool sets for 13 machine tools, in Metric and Imperial units, now means that each job in production has a guaranteed tool file accompanying the tool set and CNC program – the whole production team are now confident that jobs can be run without any errors due to manual intervention or data entry mistakes.

Production has seen a huge benefit from having tools more accurately set – some components have features where machining with two different cutting tools meet - where previously there may have been a distinct line where the two operations join there is now a perfect blend between the surfaces. This is possible as the presetter allows for the precise measurement of the position of the longest flute on an endmill, ensuring highpoints are set with absolute consistency. This has dramatically reduced any instances of rework, particularly where there is a demand for components to have a machined finish and cannot be polished to remove any imperfections.

In addition to tool presetting, the tool inspection facility of the Amon Ra-TW has enabled the monitoring of tool wear and establishment of agreed wear figures to define tool end-of-life. Where before the level of wear on a cutting tool was subject to opinion and interpretation, there is now a definitive figure that has been established as a point where a cutting tool is no longer fit for purpose, enabling better management of cutting tool replacement and effectively eliminating scrap due to tool degradation. The additional feature of being able to read in tool .dxf files is also invaluable for making comparisons between physical tools and engineering drawings.

Thanks to their continual pursuit of excellence, Produmax now have a robust process in place to manage the tooling sets of 13 machine tools producing complex precision components. The introduction of the Amon Ra-TW has eliminated on-machine tool setting for 13 milling machines, with roll-out to all turning centres planned in future.