



SEIKI SYSTEMS LTD

Manufacturing Software Solutions

NETWORKED MANUFACTURING SYSTEM

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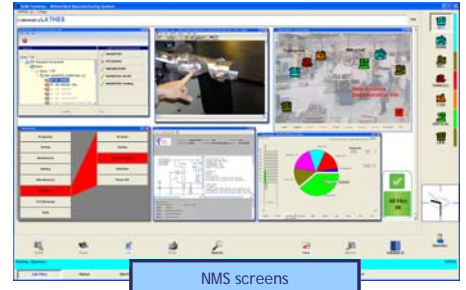
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NMS CASE STUDY

Truflo Marine Seek Huge Gains Using Networked Manufacturing Software

The immediate impression of FCX Truflo Marine is that there cannot be many companies in the world with such an in-depth knowledge and level of expertise to manufacture valves for naval applications which range from those used in complex submarine hulls, air systems, weapons discharge systems to surface ship applications. The company has supplied its valves to virtually every navy in the world, including Royal Navy submarines, aircraft carriers, destroyers, frigates, minesweepers and assault ships.

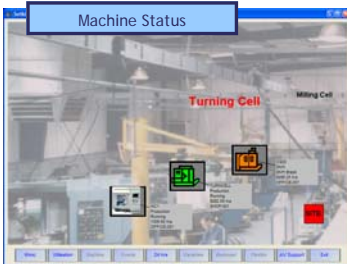
Part of Truflo Marine's expertise is its capability to understand and meet the demands of quality and reliability set by the defence industry but the downside is that this increases the pressure on the business to create and benefit from any significant competitive edge. However, against this background, by installing Networked Manufacturing Software (NMS) from Seiki Systems of Brighton, Truflo Marine has been able to take a leap forward, improve its profit margins and component throughput for its range of flow control products. Through the Seiki Systems NMS, not only is manufacturing data, production monitoring and report generation now performed—it has enabled the company to switch to more economic 'lights-out' production methods, reduce costs to customers, even control work flow with outside suppliers and also identify a major production headache involving tooling that has, as result, slashed production down time.



At its Birmingham headquarters and manufacturing facility, Truflo Marine made the decision to try and gain an advantage through improved management and control of its work-in-progress and planned orders for valve components. Says manufacturing director Steve Chapman: "We needed a software system that would be able to drip feed our CNC machine tools with part programs, set-up and tooling information from a central source and be able to feed our existing EFACS MRP system." As Steve Chapman outlines, the company set about a lengthy initial investigation and eventually invited a select shortlist of candidate suppliers to provide an on-site presentation. "Seiki Systems obviously did the homework, had a good look at our existing systems and gave a very professional presentation. It was clear that NMS had all the features and the capability that we were looking for and, most important, at a competitive package price."

NMS uses Windows Explorer on a host PC to manage and store manufacturing data such as NC programs, tool lists, setting notes and even video clips for each job. The stored information is distributed to shopfloor PCs, which also provide a DNC link to each of the connected machine tools. The shopfloor PC can also be used to log each job start and finish together with the facility to record productive and non-productive machine data, communicate with MRP type systems and display job queues while feeding back completed job information for each machine tool.

With the decision made, Seiki's installation team set about progressively installing the system and Truflo Marine immediately saw the benefit with significant gains. Outlines Steve Chapman: "With the wealth of data that can be captured and manipulated by NMS, including reports, analysis, charts and log books, we have found it to be a very powerful reporting tool that has without doubt helped our management team improve the running and efficiency of the production machine shop."



He explains that as early as receiving raw material into stock they now assign finished component due dates, load work against machine tools and designate shifts. The system records cycle set-up times and can even compare anticipated times against actual times, which enables the capture of vital data for the company's continuous improvement programmes. "In fact," he maintains, "we have now removed job times from our route cards as NMS will collect more accurate data if the operator is unaware of how long the job had taken before!"

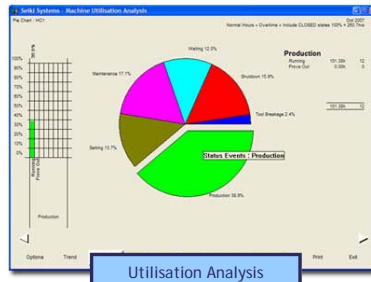
Truflo Marine operates a two-shift system, from 06.00 to 13.30 and 13.30 to 21.00. However, office staff typically work from 07.30 to 16.00 which means there is no office support for a considerable portion of the second shift. This working schedule immediately put pressure on NMS to be a reliable and query free system that could confidently be left to manage production in the evenings because the CNC machine controls are hard wired directly into NMS, giving full machine visibility even in remote locations. Steve Chapman explains: "Such is the flexibility of NMS that should something go wrong, I can simply log-on to its graphical display of jobs for each machine and can quickly reschedule or reprioritise jobs accordingly." Then he adds: "It's even allowed us to run lights-out production, which has meant we have been able to pass on a reduced cost-rate to our customers—something that we could never have dreamed of doing before. This has helped because we have to justify ourselves and prove we are competitive."

Truflo Marine Seek Huge Gains Using Networked Manufacturing Software, cont.

All Truflo Marine's operators are well aware of the new production scenario and this has proven to be critical with them being perfectly happy to have taken the technology on board. "We were completely open with our staff," says Steve Chapman. "Yes, software of this ilk can be seen as 'Big Brother' technology, but once we explained the benefits of productivity and quality improvements that we could achieve and the fact that it would strengthen our market position, everyone was keen to buy into the idea."

Truflo Marine has even found that NMS is proving to help the operators especially through communication and its ability to share information when needed that was previously unavailable. For instance, the screen will display component drawings and photographs of set-ups required on certain components such as manifolds. And as a result of the success of NMS, the company has even extended the system into assembly and cleaning/finishing areas.

Truflo Marine currently has a central, office-located hub station at its Birmingham factory with further restricted access stations and six other satellite stations located adjacent to CNC machine tools on the shopfloor. The company currently has up to 6,000 part programs stored centrally, which are made available by loading them into job queues. However, most important is traceability where any programs or planning information is checked for compliance by NMS upon its return to the system database and assigned to the works order. Any changes made to the cycle or set-up are highlighted and a decision can be made whether or not to retain it.



In operation, the NMS machine status display covers: production, waiting, alarm messaging, setting, maintenance, housekeeping and programming. Each main element has various sub-menus for more detailed information. Data can be viewed in real time with respect to a specific job part number or machine and various bar and pie charts along with numerous tabulated lists can be produced to show performance in any of these areas. A common colour code is used throughout the screen displays whereby green relates to production running, red is machine waiting, yellow depicts a machine is under setting and blue means housekeeping or not cleared for work. Maintains Steve Chapman: "We have found we now have a very powerful tool and, especially from a quality point of view, one that provides a simple tracking system, which is important to an industry that demands full traceability and integrity. Not only do we use NMS to manage our in-house work, we now have the facility to track orders placed with outside contractors, which even enables us to reprioritise work on them as and when required."



As a prime example of the application of NMS to problem solving, using Pareto Analysis, which states that a great majority of problems (80 per cent) are produced by a few key causes (20 per cent), Truflo determined that tooling preparation was at the root of quite a few of its production headaches. So they decided to select one of the CNC machine tools and run a pilot scheme through NMS against 'named tools'.

Here the Seiki Systems software was used to write a batch script to populate the company's thousands of part programs with the inclusion of tooling annotation. As a result, tools are now kit marshalled directly to job lists taken from the software so that a job cannot be queued until the tooling is available and is cleared on the schedule. Says Steve Chapman: "This has dramatically cut our production downtime and we are now expanding this idea to all our other CNC machine tools." Concludes Steve Chapman: "NMS has not only improved our throughput and delivery times but also our cycle times which has led to increased profitability of our in-house component manufacturing. The support we have had from Seiki Systems has been excellent and it's not difficult for us to realise that we are enjoying significant payback from our initial outlay. More important is that as we make use of even more of the functionality of NMS, the more competitive edge it opens up."

What is it?

- Quality Level DNC
- Display work instructions, drawings and other manufacturing data to machine operators
- Real-time view of equipment status
- Real-time shopfloor data collection (SFDC)
- Real-time automatic and manual machine tool monitoring
- Machine tool utilisation analysis
- Overall Equipment Effectiveness (OEE) calculations
- Job report - SFDC analysis tool
- Tooling module - rapid access to tooling information for each NC program
- Probe data capture plug-in



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