

Sandvik Coromant increases production

Sandvik Coromant finds highly efficient way to manage tool data

Faced with the growth of tooling data, Sandvik Coromant's Mebane, NC production facility turned to TDM Systems' Tool Lifecycle Management software to streamline its tool production operation.

Improving process and data management is key to managing efficient production plants.

When you are part of one of the world's largest and most prestigious tool companies, merely employing good technology is not enough. Sandvik Coromant needed a better way to track and manage tools and streamline production. "Managing costs, important information, optimize processes are important to a company like Sandvik Coromant," says Julio Vasconcelos, Engineering Manager at Sandvik Coromant's Mebane, NC plant. "We value digital solutions, lean manufacturing and efficiency." The Mebane facility employs 130 people in design, management, programming, engineering and production.

It has approximately 20—5-axis machines 10 lathes and a couple of multi-axis grinders and nearly 87,000 sq. ft., of manufacturing floor space. Sandvik Coromant Mebane produces mostly standard rotary tools (mills and drills) but some special tools as well. The company maintains data on tools it has already made and shipped. To produce all these tools, it uses over 2,000 primary tool assemblies (tools, collets, holders), which are managed digitally within TDM. As Vasconcelos was aware, this translates to a tremendous amount of data. Keeping track of that data was a growing headache.





“We needed a solution that aligned with our lean manufacturing practices.”
 Julio Vasconcelos, Engineering Manager



“Tool Lifecycle Management ensures that tool data is available where it is needed, when it is needed.”
 Robert Auer, TDM Systems



“It became clear we needed a better way of managing that growing mountain of data and controlling the tools at the machine,” observes Vasconcelos. “We needed a solution that aligned with our lean manufacturing practices. Historically, each engineer had their own way of controlling the tools and evaluating and presenting the info to the operators. We needed a better way.”

Lost information caused tremendous costs

He notes that engineers frequently had to stop work in order to check the tool, generally in the CAM system and, physically, at the machine tool as well. Very often the tool assembly was different – someone had failed to document a change or inform a manager that a change had occurred. „Along with downtime, which of course translates into extra cost, at a certain point, we realized just how much money we were spending on lost information. There was some information stored in process documents for particular product lines, and there was also

some information that resided only in EXCEL spreadsheets. Keeping track of that information was difficult. It just wasn't efficient. It was challenging for our people to remember where to put everything, and everybody seemed to have a little bit different take on how particular tools were used. This, too, was a situation that was costing us time and money.” Leandro Pereira, Automation Engineer at Sandvik Coromant



[1.] Denny Page, machine operator at Sandvik Coromant, Mebane, finds the right tool immediately with TDM Global Line.



Mebane, remembers it well. „Everybody had their own process of dealing with information, and where they kept the information varied. Perhaps most detrimental was the fact that the information wasn't necessarily being shared amongst different users,” Pereira adds. „For instance, information wasn't always adequately communicated between NC programming and the shop floor. We didn't have a database

where the native information resided, so, it would get changed or cloned or mutated. People were running off second-hand information instead of the native information.” This injected an unwelcome measure of uncertainty into vital operations like simulating a part program and knowing that you were using the correct information, he notes. Change was obviously needed and, fortunately, identifying a solution was not difficult. Sandvik Coromant is part of the global industrial engineering group, Sandvik, Inc., that has long been moving towards automation technology and future manufacturing. Six years ago, Sandvik, Inc. began an extensive study on tool management and determined that TDM Tool Data Management software was the best choice for controlling and optimizing tooling data, and thus should be part of this scenario. “Knowing that TDM's Tool Lifecycle Management software was already extensively tested and evaluated by Sandvik, Inc., left no doubt that it was the right solution for Sandvik Coromant.” says Vasconcelos, “We saw that TDM would be able to manage the multiple systems that we have here.”

[2.] Mainly rotating standard tools are produced in Mebane, North Carolina.



”For me Productivity is everything. That’s why we choose TDM Global Line.“

Julio Vasconcelos, Engineering Manager

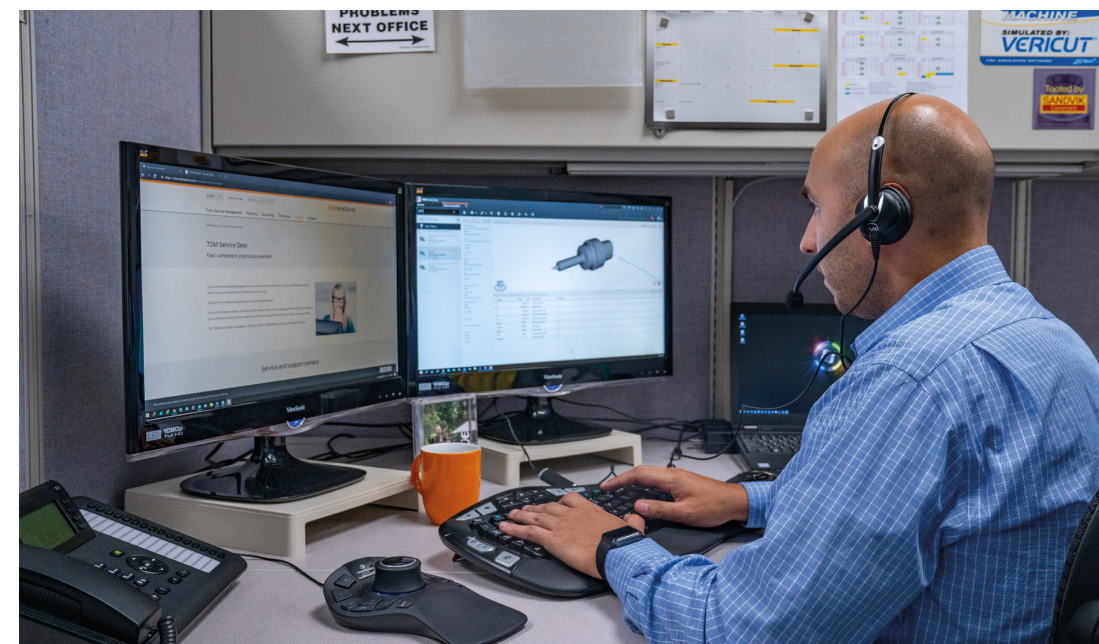
Ensuring tool data management for production success

„Tool Lifecycle Management ensures that tool data is available where it is needed, when it is needed,“ explains Robert Auer, Director of Business Development N.A. for TDM Systems. „It links CAM systems, presetting and crib systems, as well as CNC machine controls, but it can also extend upstream to the planning and execution level, such as PPS, ERP and MES systems.“ Auer adds that the TDM system collects data from production and makes this data available to other systems. Tool Lifecycle Management impacts the entire process from the selection of tools, to their use in production planning, to seamless transfer and use on the shop floor. „So many companies have stand-alone areas of information,“ says Auer. „This is because the old process has always been to get a job and turn it over to engineering to design and plan the process, then turn it over to NC

programming. Once the NC program was defined, they would take the program to the shop and look for the tooling for the job. The machine operator would then see if he had what he needed to make the part, based on his preference for tooling.“ „In a typical company they have tooling data everywhere,“ Auer continues, „in EXCEL spreadsheets, WORD tool lists, tool crib index cards, on people’s computers, in shop travelers, in tooling books at the machines, or simply in their head. The key point is that there is no central tooling system and this information isn’t digitally traceable or searchable.“ „Sandvik Coromant Mebane is a very well-run facility but they still had room for improvement. The difference is that Mebane was determined to do something about it. The key driver for them was that they realized they needed to become more organized in terms of their tooling information.“

The power of information with tool data management

Getting organized began with the actual definition of the tools, the first step in Tool Lifecycle Management. This was no easy task for the Mebane production facility with its thousands of tools and tool assemblies. How many times have programmers left their desk and go down to the shop looking for the right tool, or going to the tool crib to ask, do we have something like this? If the NC programmers can’t search the access database for information about the contents of the tool crib, then they’ve got to get up and look for the tool or tools in question. The result: lost time, increased cost. With its implementation of



Leandro Pereira, automation engineer at Sandvik Coromant, reviews the TDM Data Management database at the Mebane, NC facility.

TDM Tool Lifecycle Management, Mebane finds that those days are passed.



Julio Vasconcelos, engineering manager (right) and Leandro Pereira, automation engineer at Sandvik Coromant, Mebane, NC review ways to better track, manage and streamline production with TDM.

TDM has become a vital part of our successful operation and an element in our vision of the future.

Julio Vasconcelos, Engineering Manager

The power of information with tool data software

“Using TDM tool graphics and equipment production modules takes the guesswork and uncertainty out of tool creation,” says Vasconcelos. “TDM allows managing the tool data from the CAM software, to simulation, through to the machine and operator.

“We needed a simulation system that sent info into CAM and ultimately to the machine tool operator. From TDM we export files to our simulation program. Now the programmer can trust the tools he’s using and be confident that what is passed onto the operator from simulation is correct. In addition, TDM enables the operator to confirm that the tool assembly he plans to use is the correct one.” Other questions arise during tool selection, such as which tools are best suited for which process steps? Which combinations are most efficient? TDM Tool Lifecycle Management helps Sandvik Coromant Mebane’s engineers and designers quickly answer questions like these by supporting them with basic information on their tools and their potential applications. Along with helping with tool selection for each NC operation, the system stores geometry and cutting data for each tool assembly, makes 3D-tool graphics available for NC and simulation analyses, and saves tool lists from the NC programs for future use.

Today there is less room for operator error. He now has a graphic of what the tool will look like, and the latest info resides with both the engineer and the operator. “We can use that complete information anywhere. We don’t have to unnecessarily change a tool when a new product comes in, saving time and money,” continues Vasconcelos. “And the system can classify the desirability of options, so we don’t have to have

less than desirable assemblies in the machine (holder, collet, tool), saving space.”

In addition, TDM works with leading presetter manufacturers to facilitate two-way communication. During the measuring procedure, these systems can access the nominal data for each tool assembly which is stored in the TDM system and transfer the actual measured data back to TDM to continually fine tune the system. Even if a company doesn’t have a presetter it needs to know nominal dimensions so they can know if the tool is in tolerance. The precision and heightened repeatability that result can reduce programming time, typically by 25%, and manpower requirements. „Keeping track of our thousands of tools and tool components used to be a headache, and consume needless people hours,” continues Vasconcelos. „Now we know what we need to stock in terms of cutting tools, tool assemblies, you name it, so that’s streamlined the purchasing function.” he adds, and reduced inventory expenses, since a full knowledge of their tools and the capabilities of those tools has allowed them to reduce their purchases in some areas. Today Sandvik Coromant Mebane has 14 seats of TDM Tool Management. In the future, the plant looks to integrate TDM software with MES functions like procurement and inventory control and, eventually, devise a plan for migrating its Mebane-developed TDM system to multiple Sandvik Coromant plants in locations such as Germany, Sweden and India.

Summing up, Vasconcelos judges that “TDM has become a vital part of our successful operation and an element in our vision of the future.” And what is that vision? “We don’t see ourselves as merely being a better tool factory, we’re interested in being the best.”

For more than 25 years, TDM Systems has been the leading provider of tool data management in the machining industry. With the Tool Lifecycle Management strategy, TDM Systems is focusing on process optimization through optimal tool planning and provisioning. Creating and editing tool data and graphics, integrating tool know-how and 3D graphics into the

CAM planning and organizing the complete tool cycle on the shop floor level are the three core competencies of TDM Systems. As a competence center within the Sandvik Group, TDM Systems draws on the expertise of various tool manufacturers in developing its software products.



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