

Excellence in
Tool Lifecycle Management



Tool Lifecycle Management

TDM-TLM: IT-Strategy for Tool Management

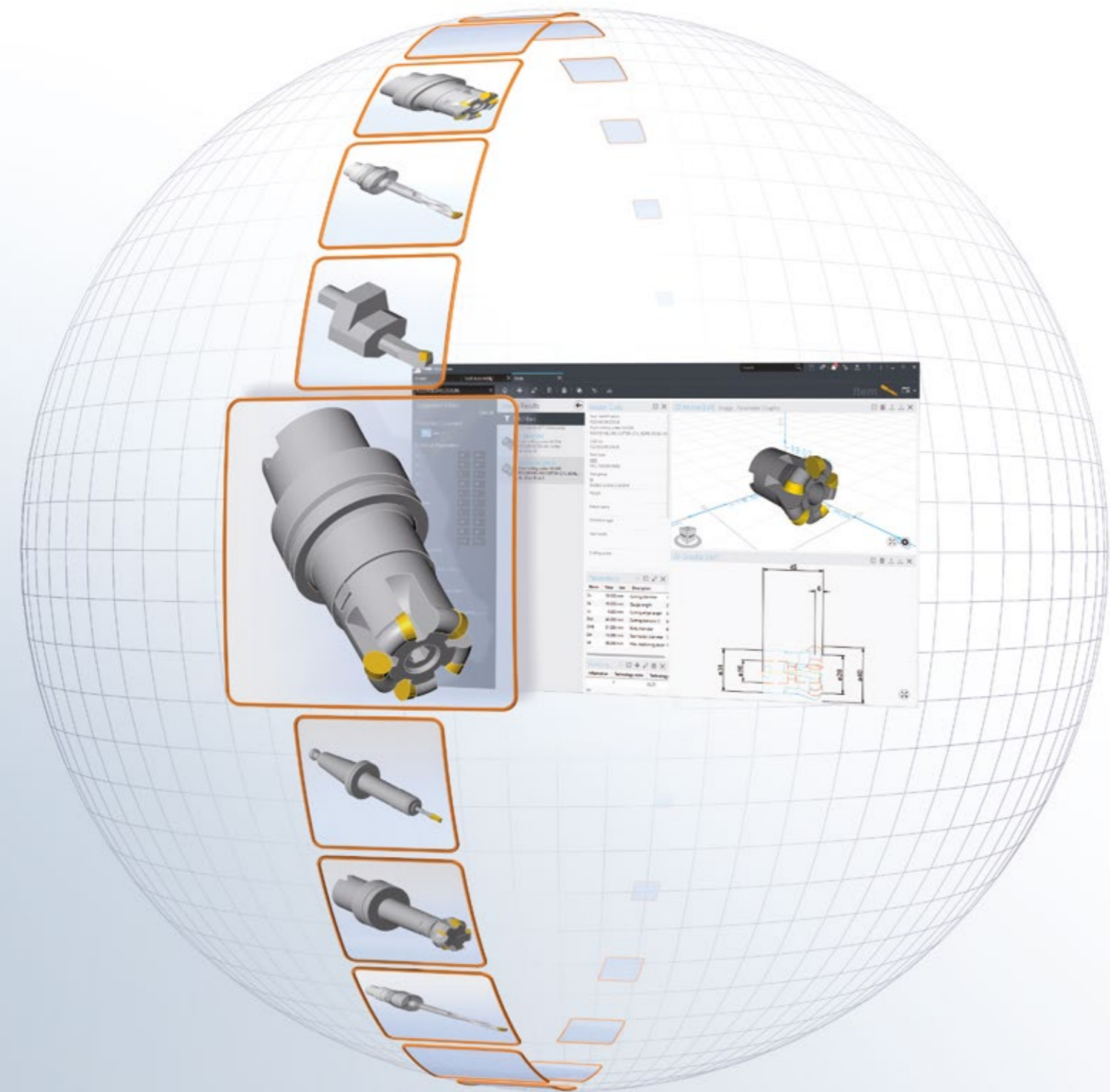
Each tool ensures productivity
 TDM Systems is the pioneer of tool data management. For more than 25 years, we have offered solutions for the questions: Which tool is at which location at a specific time? What are the crib inventories? Which tools have to be prepared for which order? Which tools do we use for this machining operation? Are there alternatives? We support your production with our software and expertise. With TDM, a machining tool becomes a valuable productivity factor, which ensures increased profits and optimized processes.

New generation of tool data management
 Tool Lifecycle Management is the IT strategy for production resources and includes tool organization in all phases of planning, simulation, order preparation and production. In doing so, TLM is a link between ERP, PLM, and MES and ensures communication between planning and production systems. On one hand, TLM is about capturing and providing tool data and tool graphics in CAM and simulation processes; on the other hand, it is about the physical organization of tool circulation on the shopfloor. TLM is not oriented towards individual departments and single processes, rather it consists of continuous communication and data exchange between the involved systems.

Integration and controlling reduce costs
 The focus of TLM is linking and traceability. The major strength of the TDM software is the ability to become highly integrated into the existing system landscapes of a machining company. This makes comprehensive controlling of tool assignment and tool use through crib inventories and inventory turnover as well as through the results of machining operation. With the results, the use of resources in production can be tracked and continuously improved. Productivity increases and cost savings are transparent.

Tool Lifecycle Management supports Industry 4.0
 The goal of Industry 4.0 is the complete virtual planning and simulation of production. This requires that the systems communicate with each other and exchange data, such as graphics. TDM decisively supports the implementation of Industry 4.0 and forms the central „starting point“ for tool data and management. For this to succeed TDM has adapted the data and graphics to the demands of systems over the course of its development; it has been made NC-ready. This expertise is unique in the market and makes TDM your TLM solution for Industry 4.0.





Tools

Tools fully under Control



Established tool know how

TDM Systems is the competence center for tool data management within the SANDVIK Group. In addition, we work with many tool and machine tool manufacturers worldwide and are their contact in relation to NC-readiness of tool data and tool graphics. As a customer, this means you benefit from our comprehensive tool know how, state-of-the-art software technology, and comprehensive expertise in tool management. Experience from daily tool use is integrated into our software solutions and consulting services.



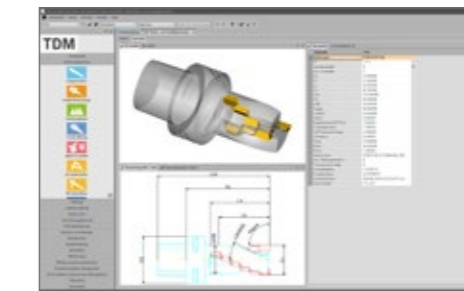
Easy tool selection

Productivity begins with the selection of the correct tool for every single machining step. This is because one third of the output is already being decided during planning. TDM offers various selection methods in order to quickly choose the correct, ready-to-use tool assembly. The display of alternatives and verification of tool availability in the crib belong to a comprehensive tool selection. Thanks to these functions, the available tools can be efficiently and flexibly scheduled and made available on the production level.



Specializing in tool data

TDM makes a database available that, together with the TDM Base Module, manages the tools according to items, tool assemblies, and tool lists. The strength of the TDM software lies in the way it stores tool data by process-relevant features such as tool type, geometry, feeds & speeds, and cutting material, so you can always use the right tool for the job. Our experiences in practice ensure the continuous enhancement of tool data management and classification.



3D tool generators

One of the advantages that TDM offers its customers is the most comprehensive spectrum of generators and designers that generate tool items on the basis of parameter models with few clicks. They can generate tool data sets with extensive geometry data as well as a 2D-DXF-graphic and a simulation-ready 3D-graphic. Currently available are standard tools and DIN tools from the manufacturers Walter and Sandvik Coromant among others. The 3D-graphics specially adapted for CAM and simulation systems render the necessary tool features and can be easily processed by the systems.



Digital tool assemblies

TDM comes with an automatic tool assembly that searches according to the definition of the machine or rather tool holder or cutting tool for possible combinations and makes easy selection possible. In parallel, tool assembly graphics are generated from available 2D- and 3D-graphics of items. The integrated interface logic and a plausibility test guarantee a ready-to-use tool assembly. TDM also gives information about which items are installed in which tool assemblies.

Lifecycle Management

The Solution for the entire Tool Lifecycle in your Company

Complete lifecycle, complete integration

In order to completely introduce TLM, the TDM tool database must be able to integrate or tether to as many systems as possible. And here the vision and perseverance of TDM Systems pays off: the early development of interfaces and integration in systems from ERP, PLM, CAM, MES, and the shopfloor is now our competitive advantage. This is how TDM can be integrated in nearly every system landscape of a company. The interfaces are mature and we are constantly adapting the advancement of the systems.

Implementation of production standards

Efficient production requires the introduction of standards. Among those are tool lists and production orders. TDM supports the NC program-related management of tool lists and the recording of cutting data from production and also makes the permanent optimization of tool use possible. International production companies can introduce centrally defined, cross-plant tool standards. This reduces costs and cycle times.



PLM/CAD

The first step in the tool lifecycle is production-oriented construction. Which tools are best suited for which process steps? Which combinations are efficient? TDM supports designers with elementary information on tools and their possible applications.

CAM/SIM

TDM helps with tool selection for each NC operation, 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 further preparation on production level.

MES

The production resources and tools must be on the machine at the right time. This is no problem thanks to the communication between TDM and MES and the organized tool logistics. TDM provides the tool lists for each NC program for order-specific tool preparation.

LOGISTIC

LOGISTIC

Cutting tools are capital-intensive production resources. With TDM, the work in progress inventory and actual crib inventories are kept low, orders are initiated at the ideal time, and the tool variety is kept as low as possible.

PRESETTING

PRESETTING

Precision begins with the tools: TDM cooperates with leading presetter manufacturers. During the measuring procedure, these systems access the nominal data stored for each tool assembly in TDM and transfer the actual data measured back to TDM.

MACHINE

MACHINE

With TDM, the tools and NC programs simultaneously get to the correct machine, together with the current actual data of the presetted tools. The data transfer is carried out with TDM via DNC or with tool chips.

ERP

ERP

With the ERP connection, TDM takes the relevant tool information directly from commercial order management and supports the tool preassignment and procurement processes along with master data adjustment.

Individual solutions

The software architecture of TDM enables the implementation of local, company-wide, and in the future cloud-based solutions. At the same time, TDM is also available on various output devices. With TDM, you can map single processes as well as install universal, company-wide solutions. Single plants access the central TDM database as clients. As necessary, they see and manage only the production resources related to their own plant. Use of the TDM can be configured individually.

Neutrality creates openness

TDM is a neutral system – it is open to all tool manufacturers, but at the same time it is not linked to specific systems. Thus, it can communicate with many current systems from planning and production. This neutrality enables TDM to integrate into the complete tool lifecycle. The system collects data from production and transfers this data to other systems. Furthermore, TDM is open for connections to many online platforms for tool data.

Know How for CAM Planning

NC-ready Tools for Virtual Planning

Get the right tool quickly

In the CAM process, selecting and including the correct tools for every machining process is decisive. TDM manages the tools according to their process-relevant features, which enables you to search for tool assemblies according to application or tool. TDM can be directly integrated into many current CAM systems. Data for digital tool assemblies is available directly in the CAM system according to the selection.

NC-ready 3D tool solids

The basic version of TDM offers a 3D CAD kernel to display and assemble 3D tool solids without an additional CAD program. Optional 2D- and 3D-graphic editing add-ons let you quickly prepare graphics for use in CAM and simulation and incorporate them in the systems. These add-ons were adapted specifically to the individual requirements of the CAM and simulation systems and are without competition on the market. This allows performing material removal simulations and collision detection with real 3D-tool solids.

Repeatable cutting data

As a knowledge base, TDM is always on point: By actively saving cutting data from production for each tool assembly, you will accrue a valuable collection of repeatable cutting data. The best possible tools can be selected in the NC programming according to tool type, machining method, and material. When necessary, TDM shows the appropriate alternatives.

Scheduling available tools

An additional advantage is the access to crib information from the NC programming. The NC programmers participate significantly in tool scheduling. Only tools that are available either in the crib or in tool circulation are offered. This is an important aspect in relation to tooling costs and ideal tool use.

Advanced Shopfloor Management

Necessary Tools and Data on the Machine at all Times

When processes and data exchange are viewed on the shopfloor, TDM forms the central key position between ERP, PLM/CAM, MES applications, and machining on the machine:

Fixtures, gauges & calibration equipment:

TDM offers a fixture management module and also gauges and calibration equipment organization. Therefore, comprehensive production resource management is possible on the shopfloor, and the continuous inspection and documentation of fixtures and gauge and calibration equipment is ensured.

Order-oriented tool preparation:

Tool lists from NC programming are available on the shopfloor via TDM. With the tool calculation, TDM determines which tools actually need to be prepared, which are already on the machine, and which are being disassembled. In the end, the right tools are on the right machine at the right time.

Optimum transition management:

TDM supports the data exchange between DNC and machines and ensures that the NC program enters the machine at the same time as the actual tool data from the presetting.

Ideal calculation of tool usage:

During the calculation of tool requirements, the condition of the tools that are already on the machine are taken into account. As a result, you receive a net tool list including information on the preparation of sister tools.

Crib- & order-management:

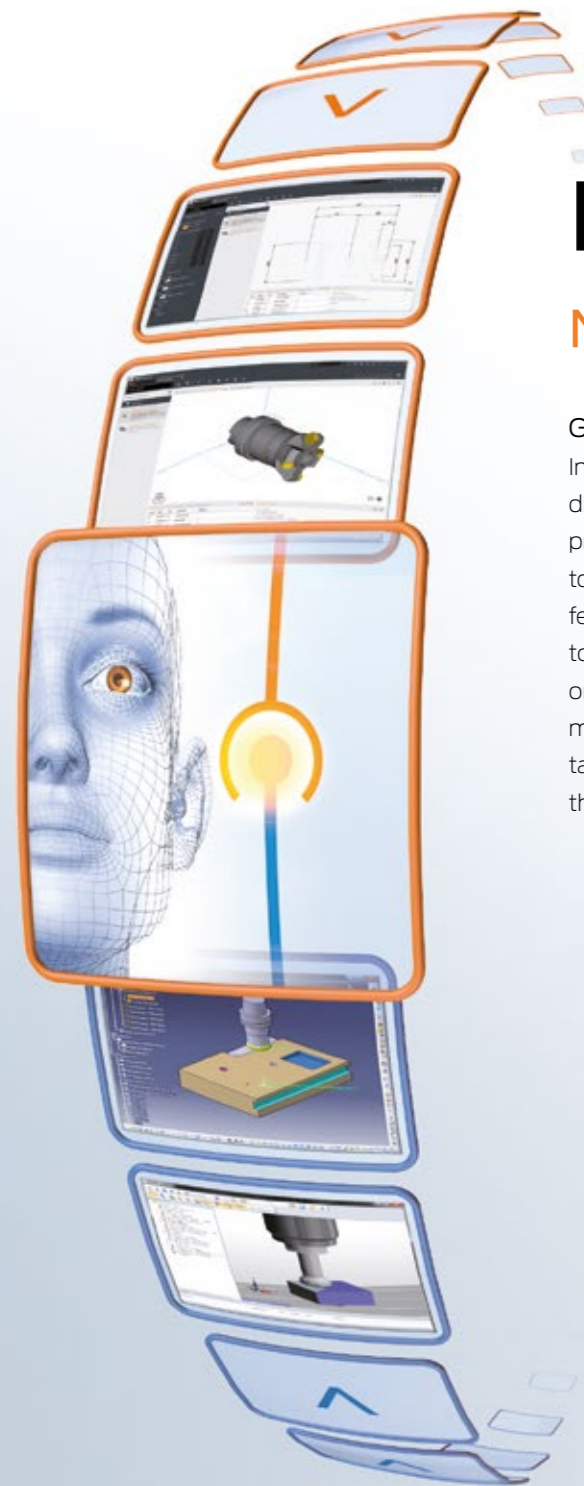
TDM controls manual and automatic crib systems, such as Paternoster or vending machines. The crib tool inventories are secured with minimum inventory display and purchase requisitions to the ERP system.

No tool-related machine downtimes:

Thanks to TDM, the crib inventories are transparent, and the tools are available and at the machine at the right time. This minimizes the setup time and lowers the tool-related machine downtimes to an absolute minimum.

Complete tool circulation:

TDM shows which tools are taken from the machine, records the disassembling and storage, archives the NC program, and supports the data transfer from the machine to the TDM, and it does so not only during preparation but also after order completion.



Services & Benefits

Advanced Expertise and Quality Services for more Productivity

Better consulting from the beginning

Our experts are extremely familiar with the processes and software environments in a machining company. Our consulting team works with you to conduct analyses and workshops and develop goals and possible approaches. Your requests are implemented by our dependable and qualified service team members and project managers. Our unique know how in process optimization, which has grown over many years, will surely convince you.



Our services

Our service team will gladly support you in case of questions about the use of your TDM software installation. In the first step, we offer several learning and training models, which will give you an understanding of standard or customized TDM. This can take place at our headquarters in Tübingen, on-site at your facility, or even via webinar. In the second step, direct product support via the service desk and remote support offer you quick help with your daily work. This allows solving challenges without delay: fast and simple.



Return on investment

The use of TDM frees your saving potentials. Reducing tool type variety lowers tool procurement costs and crib costs. Management costs are lowered by reducing the number of suppliers and by integrating the ordering system. All in all, this leads to productivity increases of up to 20 % per annum. Furthermore, there is the time factor: Because the tool data and graphics are available digitally, an enormous amount of time can be saved in all stages of the tool lifecycle. This unburdens your employees and enables full concentration on your actual business.



An overview of your benefits:

Increased productivity through:

- Time saving in tool preassignment
- Reduction of machine downtimes
- Short cycle times
- Repeatable cutting data

Cost reduction for the crib and ordering system through:

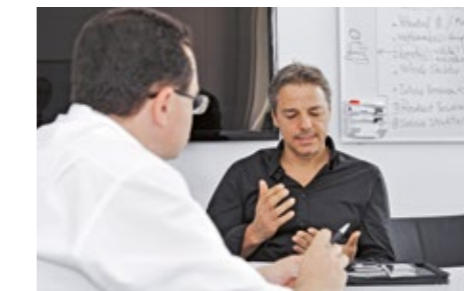
- Reduction and standardization of tool variety
- Transparent crib and distributed inventories
- Reduction of hidden cribs

Time savings in planning through:

- Available, NC-ready data and graphics
- Dependable simulation analyses

TDM Systems

Worldwide, Innovative, Future-Proof



The inventor of tool data management

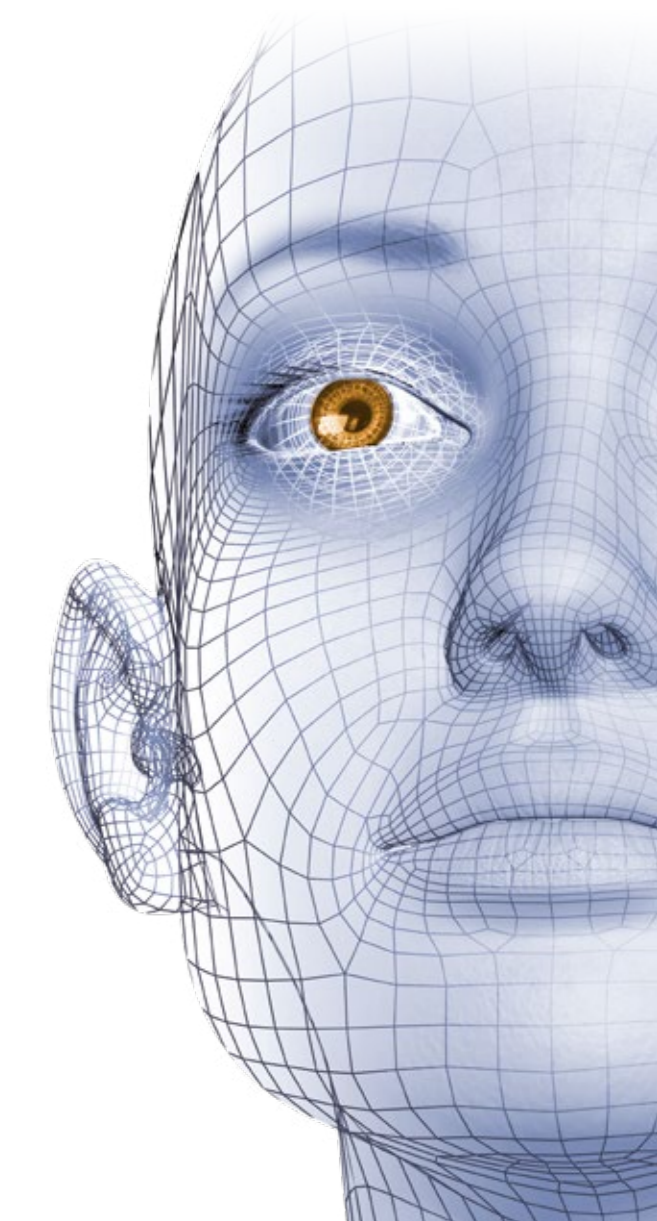
TDM Systems has developed solutions for digital tool management since 1988. With tool lifecycle management, TDM Systems is preparing the next generation of tool data management. This concept includes the complete integration of all information and processes related to cutting tools and enables businesses to transition to intelligent, digitally linked production. TDM represents the complete diversity of the tool landscape – from milling tools, drilling tools, and turning tools all the way to multitools.

Worldwide operations

TDM Systems supports companies all around the world. With our headquarters in Germany as well as our subsidiary in the USA and our partner companies in Europe, Asia, North America, and South America, we are with you on-site providing knowledge, service, and individual solutions. Country-specific differences as well as company-specific requirements are taken into account. TDM software is available in 10 languages, including Chinese. New software technologies enable company-wide and international use of TDM.

Future-proofing as a promise

Tool Lifecycle Management is a long-term IT strategy. Our customers expect a dependable and flexible partner with the use of strategic software. Since 2004 TDM Systems is the competence center for tool data management in the SANDVIK Group and fulfills with this background the demand for continuity, corporate stability and leading industry standard. TDM Systems software solutions are future-oriented, competent and technological leading.





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