SIEMENS
Ingenuity for life

Miba

Drive train component manufacturer uses QMS Professional software to minimize tolerances while reducing machining time

Products

MOM, Teamcenter

Business challenges

Integrate existing ERP software with new CAQ environment

Meet customer requirements

Improve transparency

Adhere to international industry standards

Keys to success

Use the QMS Professional solution for optimizing quality processes

Improve products while avoiding waste and defects

Implement a modular solution that can link to existing ERP system

Results

Streamlined complaint handling and improved customer satisfaction

Increased product quality and transparency

Reduced administrative effort and costs

Laid foundations for smarter production

Siemens PLM Software solution helps Miba streamline global quality assurance work in pursuit of zero-defects initiative

Technologies for a cleaner planet

Vehicles on rails or roads, at sea or in the air, as well as agricultural or construction machinery and power plants rely on sophisticated power train components for their longevity, fuel efficiency and environment-friendliness. The Miba group of companies based in Laakirchen, Austria, is a strategic partner of engine manufacturers and the automotive industry. The company ranks among the world's leading manufacturers of engine bearings, friction materials and sintered components as well as electric power products for power train applications.

With the aim of developing technologies for reducing carbon dioxide (CO_2) emissions, Miba focuses its innovations on energy efficiency as well as increased precision and comfort for its customers' products. To achieve these goals, Miba products need to comply with extreme physical requirements and supremely tight tolerances. This is facilitated by a production process that spans all stages of product creation. Bearing products, for instance, are made of non-alloy steel main parts, sputtered with bearing surfaces

Miba is a strategic partner of engine manufacturers and the automotive industry, manufacturing engine bearings, friction materials and sintered components as well as electric power products for power train applications at 23 production sites around the globe.

made of application-specific alloys Miba develops and produces in-house, and finished using various machining processes.

Miba's quality assurance procedures also cover the entire production process. They include incoming and outgoing inspections as well as material tests in the laboratories and measurements following individual production steps. An important part of the overall quality management task is processing complaints by internal as well as external customers and suppliers.

www.siemens.com/plm

Using QMS Professional software to perform computer-aided quality assurance based on unified data models has greatly reduced the time Miba requires for quality management work.

Providing interfaces for popular gauges and coordinate measurement machines, QMS Professional makes it easy to integrate all the inspection equipment required in quality control.

> "QMS Professional supports direct and close collaboration between quality managers in different business fields and/or plants to help tear down the sometimes thick walls between their worlds."
>
> Harald Deutsch
> Quality Manager
> Miba

Software harmonization required

Since the Miba group includes 23 production sites in Europe, the Americas and Asia, it comes as no surprise that the software landscape was somewhat heterogeneous. While the same enterprise resource planning (ERP), business intelligence (BI) and production data acquisition (PDA) systems were in place at most of the locations, there were different quality management systems. A software system meant for global rollout was still not fully implemented even 10 years after it had been selected in the early years of the millennium. Consequently, local solutions based on spreadsheet software were still widely used in addition to this installation.

In an attempt to harmonize processes and unify Miba's information technology (IT) landscape, the company's owner initiated the One.Miba project. With support from external business consultants, three groups investigated potential solution paths for product development, supply chain management and quality management. As the Miba Sinter group's chief executive officer (CEO) is also the corporation's quality manager, he mentored this part of the board-driven IT project.

Initially, the aim was to redeploy the existing software, rolling it out completely with all modules across the entire Miba group. During the initial status analysis, the existing software implementation was at variance with some of the requirements. As numerous functional as well as cost issues arose, the Miba quality and IT experts found that rolling out the software as planned would require carrying out a large number of adaptations. It would also have meant buying numerous additional licenses.

CAQ software revisited

"This prompted us to return to square one and start a new software selection process," says Günter Reittinger, quality management IT consultant in Miba's Enterprise Application Center. "The evaluation phase included compiling a detailed requirement catalog with more than 300 entries." All relevant quality management software suppliers, including the makers of the pre-existing software, were invited to evaluation workshops and the Miba experts visited existing reference installations.

Following a six-month selection process, the decision was made to invest in QMS Professional software from product life-cycle management (PLM) specialist Siemens PLM Software. "A reference visit to a global automotive supplier made all the difference," says Reittinger. "We saw a comprehensive, multilingual software implementation with a complex multitenant data architecture, something the other applicants were not able to show in real-life applications."

Another factor significantly influencing the decision was the licensing scheme. While all other suppliers offer floating licenses for a limited number of users, there is a corporation license for QMS Professional software. "As our implementation comes without any restrictions as to the number of plants, stations or users, we can never run out of licenses," says Reittinger. "With QMS Professional software, we can generously include additional staff in the computer-aided quality process, as well as external suppliers who enter and review supplier complaints directly."

Swift global QMS Professional implementation
Rollout started with the implementation of first modules in one pilot plant. After several weeks of trial operation, this was extended to eight locations. In spite of the need for unforeseen organizational activities across the entire corporation, global rollout covering all production facilities was completed within three years.

"We started implementation with the QMS Concern and Complaint Management module," says Reittinger. "While it has all the required interfaces to the ERP software

As the surface materials are part of Miba's core competences, the company's QMS Professional software implementation also interfaces to laboratory equipment.

and covers a wide range of functionality, it is not as complex as other modules so we were able to collect rich experience quickly." This first module was followed at a fast rate by QMS Quality Process Management (QPM) and QMS Quality Action Management (QAM) modules.

Following this initial phase, the Miba experts implemented the QMS Inspection Plan Management (IPM) module. This was followed by rolling out the QMS Gage Management (GMS) and QMS Audit modules. These required migrating a large repository of pre-existing data.

"We migrated some 100,000 inspection plans," says Reittinger. "Using the QMS Advanced Product Quality Planning and Control Plan module, we link inspection plans to form comprehensive inspection sequences."

> "Following the QMS Professional implementation, our managers can make better decisions faster without the need for manual data collection or spreadsheeting."
>
> Günter Reittinger
> Enterprise IT Solutions Manager
> Miba
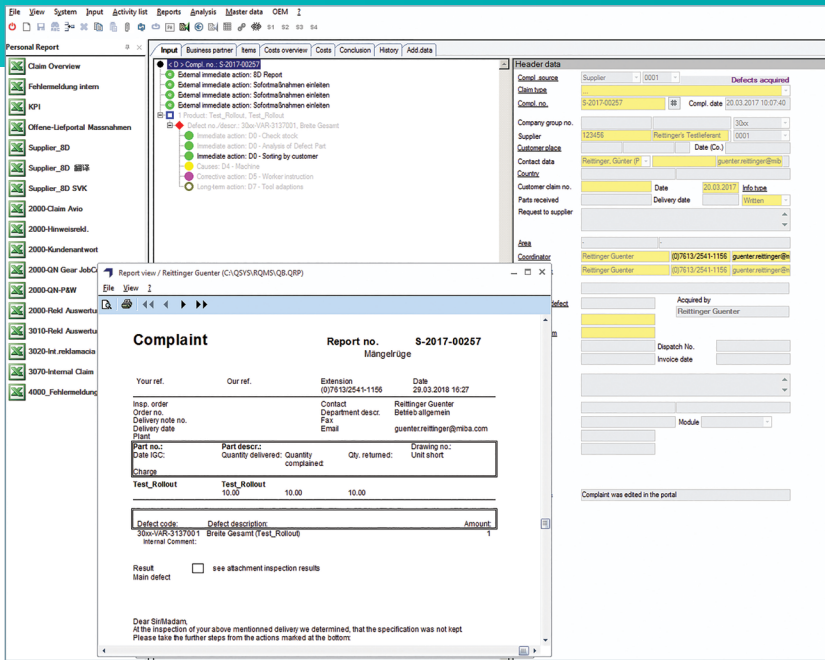
The QMS Concern and Complaint Management (CCM) module was the first to be implemented. It is also used by external suppliers who enter and review supplier complaints directly.

Incoming and outgoing inspections are closely linked with the company's ERP system. There, the material is confined to the so-called quality quarantine stock and released to general stock following approval from the QMS Incoming/Outgoing Goods Control module. To trigger inspections in the computer-aided quality (CAQ) system, Miba is using the pre-existing business intelligence software.

"The QMS Traceability module was not part of the original implementation roadmap but was included following a customer request," says Reittinger. "We now individually mark a growing number of parts with data matrix codes leading to manufacturing information, including noise level records."

Standardization and collaboration

Miba carefully avoided falling for the temptations of heavy customization. They implemented the software with mainly standard functionalities to enhance stability and minimize programming in case of release changes.

"QMS Professional provides a great amount of flexibility," says Reittinger. "As the software's profiler functionality allows separate configurations on the plant or even station level, adaptations were limited to minor changes of workflows and screen designs."

Implementing QMS Professional, the Miba experts standardized processes throughout all plants and business fields. The company is now using an integrated data model and harmonized catalogues of characteristics, failures and causes throughout the entire corporation. The database is subdivided using the same client structure as in the company's ERP system to reflect the plants, plus one global group client. There are different master data sets on the group, division and plant levels.

"QMS Professional helps us make our production smarter to achieve tighter tolerances."

Harald Deutsch
Quality Manager
Miba

Solutions/Services

QMS Professional
ibs-qms.industrysoftware.
automation.siemens.com

Teamcenter
siemens.com/teamcenter

Customer's primary business

Miba is one of the leading strategic partners of the international engine and auto-motive industry. Their product portfolio includes sintered components, engine bearings, friction materials, power elec-tronics components and coatings. Miba products make motor vehicles, trains, ships, aircraft and power plants more efficient, more reliable and more environmentally friendly. www.miba.com

Customer location

Laakirchen
Austria

"Owing to the often substantial difference between product groups, criteria catalogs may vary between locations, but we managed to unify the processes," says Miba quality manager Harald Deutsch. "QMS Professional supports direct and close collaboration between quality managers in different business fields and/ or plants to help tear down the sometimes thick walls between their worlds." This is facilitated by the deep integration of QMS Professional with Teamcenter® software that provides an information platform for all to share as well as a workflow-controlled collaboration environment.

Better decisions for a smarter production

In an environment in which the ability to fulfill skyrocketing customer requests is the key to success, Miba used QMS Professional to lay the foundation for further digitalization steps. Formerly tedious actions such as the setup for single part traceability take a matter of minutes now. Influencing the process parameters for individual process steps will make it easier to minimize tolerances while reduc-ing machining time.

"QMS Professional helps us make our production smarter to achieve tighter tolerances," says Deutsch. "In addition, time required for quality management work is greatly reduced. This includes document handling, as searching is elimi-nated almost entirely."

Providing interfaces for popular gauges and coordinate measurement machines (CMM), the software makes it easy to integrate all the inspection equipment required in quality control. In conjunction with the integrated data model, this results in a higher process efficiency reducing manual entries. Improved moni-toring capabilities in the QMS Quality Main Control and evaluation modules as well as more meaningful analyses provide better input for Miba's zero-defects initiative.

"Harmonized key performance indicators and automated reporting resulted in better visibility," says Reittinger. "Following the QMS Professional implementation, our managers can make better decisions faster without the need for manual data collec-tion or spreadsheeting."

"QMS Professional provides a great amount of flexibility."

Günter Reittinger
Enterprise IT Solutions Manager
Miba

Siemens PLM Software