SIEMENS
Ingenuity for life

Aequator

Manufacturer uses Teamcenter to digitalize design and manufacturing while enhancing product development

Products

Teamcenter, Solid Edge

Business challenges

Design and manufacture customized espresso machines in six weeks

Maintain top quality

Enable company to grow 10 to 20 percent annually

Keys to success

Create a fully digitalized environment covering the entire company

Use Teamcenter to manage all product-related information and workflows

Integrate the ERP software using a bi-directional interface

Results

Achieved faster turnaround of new products with the same or better quality

Streamlined product data management and workflows throughout the company

Delivered valid, version-controlled product information

Eliminated man-years of manual BOM adjustments following design modifications

Siemens Digital Industries Software solution helps Aequator fulfill growing demand for customized coffee makers

Delivering hot beverage machines to the world

There is more than one way to brew coffee, the invigorating beverage brought to the world from Africa in the early 17th century. Currently, most of the coffee is brewed using three categories of machines: inexpensive household appliances, commercial equipment for bars and restaurants and fully automatic machines used in retail shops and offices. With the capacity to serve several hundred cups a day to untrained users, these machines need to combine self-explanatory ergonomics with top-level reliability and robustness.

Aequator is a Swiss manufacturer of fully automatic high-end coffee, hot chocolate and soup dispensers, mainly for use in shops and offices.

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"We use Teamcenter as the leading system for all BOM management, exporting BOMs to, and importing availability information from the ERP software. This provides us with a single source of truth all departments can rely on."

Marcel Lendenmann
Co-Owner and Chief
Executive Officer
Aequator

"In the first year with Teamcenter, we built more than 15,000 machines in several custom designs. I am positive that we would not have managed that without the digital transformation."

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Visualizing the parts on the panels of the sheet metal processing machinery ensures that workers always use the most up-to-date, approved designs.

Aequator specializes in fully automatic hot beverage machines for this business segment. Based in Arbon on Lake Constance in Switzerland, the company has been designing and manufacturing coffee-making equipment since it was established in 1933, later adding machines for hot chocolate and soup. The espresso specialists manufacture some 15,000 coffee machines per year, a substantial portion of which are custom designs they offer in quantities as small as 200 units.

Innovative design and manufacturing under one roof

Developing and selling the first fully automatic machines in the 1970s, the innovative machine makers were early adopters of new technologies. They were first to introduce large touch-screen panels as early as 2009, and some of their equipment reads radio frequency identification (RFID) tags to provide personalized coffee and send emails or text messages for maintenance purposes, such as replenishing coffee beans or emptying coin containers.

Dedicated to providing high-quality, durable and high-performance coffee machines, Aequator now takes care of the entire product creation process in-house. This ranges from product ideation through all phases of design and manufacturing, including sheet

metal cutting and forming to after-sales support. This has proven to be a successful formula because the owner-managed family business continues to face high demand. Over the past 10 years, Aequator has more than doubled its output and headcount.

Digitalization supports growth

Aequator's owners had always reinvested profits to keep the company competitive. Such investments often go into the latest in production machinery. Also, Aequator's design engineers have been using Solid Edge® software from product lifecycle management (PLM) specialist Siemens Digital Industries Software for computer-aided design (CAD) since early in the 2000s. When third-generation owner, Marcel Lendenmann, took over as chief executive officer (CEO) of Aequator, he found the existing information technology (IT) infrastructure and software were unable to support the company's ambitious growth targets.

"Previously, the product data management software that Solid Edge was linked to contained information only about parts and assemblies manufactured in-house; complete bill-of-materials were not in the system," says Lendenmann. "Even more alarming was the state the enterprise resource planning system was in." The software was DOS-based and had no connection to other systems used for creating products.

"Using Teamcenter as a strategic software platform for all product-related information, we achieved the same or better quality faster."

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"In this heterogeneous software landscape, modifications had to be made in two or three systems and it was not always clear who was in charge of which data," explains Michael Allenspach, head of customer service at Aequator. "Along with locally stored purchasing and production data, this lack of data consistency hampered communication between departments that frequently ended up with different versions of the information."

This in turn caused a lot of administrative work, resulting in prolonged design-to-manufacturing transition periods. The questionable data quality often made additional engineering necessary before production could begin.

**An integrated solution for the digital twin**

"All this was adverse to our ambition to provide customers with customized machines in a short time," says Lendenmann. "We decided to create a fully digitalized environment for all work and product-related data throughout the company."

Pursuing a digitalization strategy, Aequator not only replaced the legacy enterprise resource planning (ERP) software, but also introduced a new electronic Kanban system and replaced its product data management (PDM) software with the more far-reaching Teamcenter® software for PLM from Siemens.

Aided by Siemens Digital Industries Software partner Cytrus, Aequator implemented Teamcenter with little customization. Aequator also decided not to migrate existing data. They opened and inspected each part or assembly prior to checking it into the new PLM system. "The additional effort is manageable and helps ensure a high level of data quality," says Allenspach.
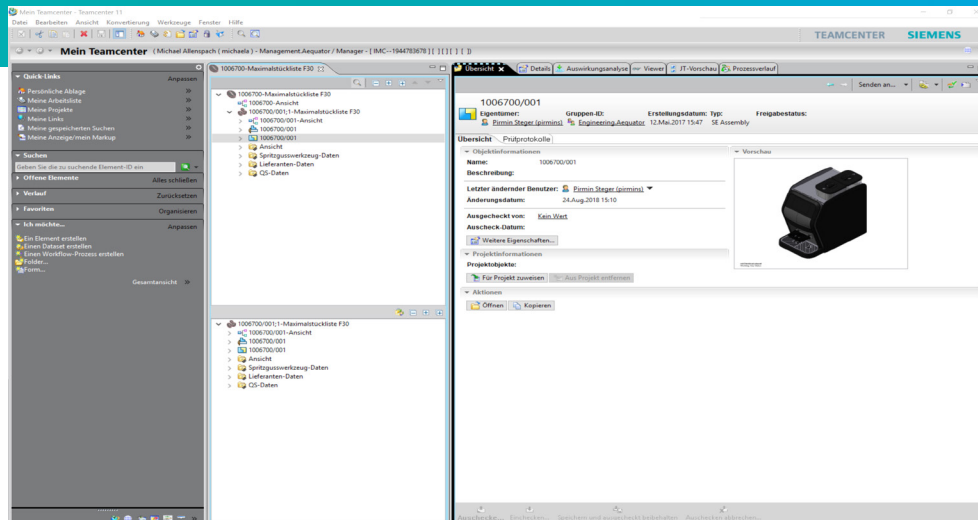
Using Teamcenter software, Aequator created a fully digitalized environment for all work- and product-related data throughout the company.
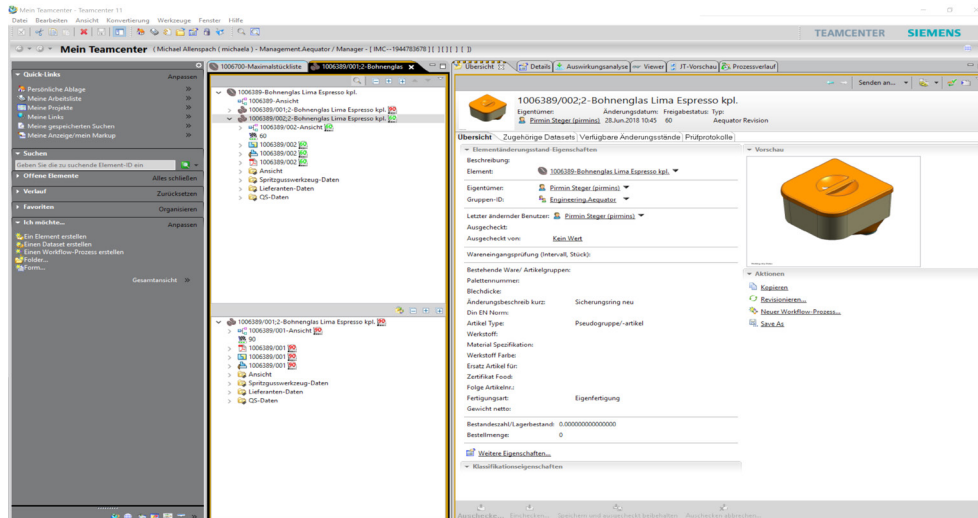
With Teamcenter as a single source of truth, Aequator engineers can create new assemblies or entire machines with the same or better quality faster.

Along with the workflows defined in Teamcenter, all product information and documentation, including bill-of-materials (BOM), are verified. Many previously manual activities, such as exporting the drawings of the sheet metal parts showing the unfolded blanks, are now automated. Visualizing the parts on the panels of the sheet metal processing machinery ensures that workers always use the most up-to-date, approved designs.

Solutions/Services

Teamcenter
siemens.com/teamcenter

Solid Edge
siemens.com/solidedge

Customer's primary business

Established in 1933, Aequator AG is a manufacturer of commercial coffee makers. With 90 employees, the third-generation family business manufactures more than 15,000 fully automatic high-end coffee, hot chocolate and soup dispensers annually, mainly for shops and offices. Aequator is active in the export market, and generates annual revenues of around 25 million Swiss francs (CHF). www.aequator.ch/en/home.html

Customer location

Arbon
Switzerland

Solution Provider Partner

Cytrus AG
https://cytrus.com

"Teamcenter provides us with a single source of truth all departments can rely on."

Michael Allenspach
Head of Mechanical
Development
Aequator

Fully automatic espresso machines consist of many parts. Even comparatively simple assemblies, such as this coffee bean hopper, add a lot of complexity.

Teamcenter is connected to Aequator's new ERP software through a bi-directional interface. "We use Teamcenter as the leading system for all BOM management, exporting BOMs to, and importing availability information from the ERP software," says Allenspach. "Teamcenter provides us with a single source of truth all departments can rely on."

Growing without pain

Aequator abolished separate information silos and uses Teamcenter to manage all product-related information starting with requirements. Using PLM software, engineers access all data on parts and assemblies as well as electronic schematics and software. The data pool also includes external supplier information and cross-references to reduce duplicates. Solid Edge is fully integrated with Teamcenter, including standard and nongeometric parts as well as cable harnesses.

"Using Teamcenter, we eliminated manual BOM adjustments in purchasing and production engineering following design modifications that previously amounted to one or

two man-years annually," says Allenspach. "With the digital twins of our machines in Teamcenter, we can now also generate a comprehensive BOM for an entire machine." Top management drove the digital transformation project, and as a result they are enjoying the benefits of paperless work throughout the company, with staff bringing tablet computers to meetings instead of books. Teamcenter was implemented in cooperation with Cytrus, and it went even more smoothly than the Aequator experts had hoped.

Aequator benefits from gains in efficiency that support the sustained and rapid growth of the company. "Using Teamcenter as a strategic software platform for all product-related information, we achieved the same or better quality faster," confirms Lendenmann. "In the first year with Teamcenter, we built more than 15,000 machines in several custom designs. I am positive that we would not have managed that without the digital transformation."