

Consumer products and retail

Thermoplan

Swiss coffee machine manufacturer optimizes development and production with Solid Edge

Product:

Solid Edge

Business challenges

Systems engineering and mechatronics

Integration of software systems

Time-to-market pressures

Keys to success

Design in context with large assemblies

Modularization and standardization using built-in data management

Results

Management of large assemblies with up to 3,000 parts

Easy modularization due to integrated data management

Photorealistic visualization for customer presentations

Easy collaboration in the supply chain

Sustained growth and competitive advantage

Continuous digitalization at Thermoplan helps engineer the perfect cup of coffee

Innovation and international breakthrough

The success story of Thermoplan AG begins in Weggis, Switzerland, by Lake Lucerne, in 1974, starting with whipped cream machines and milk foamers, continuing through the development of fully automated coffee machines for gastronomes starting in 1995. The international breakthrough of the innovative, modular-designed production series Black&White finally opened the door to a new business model: in 1999, the American company Starbucks® exclusively commissioned the 38-employee family business with the

development and production of a fully automated coffee machine for all of its shops. This ushered in a phase of internationalization and growth: today the company also develops production lines with Costa Coffee and Nespresso®, as well as McDonald's.

Around 20 percent of the company's 270 employees are currently employed in research and development. With an export share of 98 percent, Thermoplan is represented in 70 countries.

Development partnership leads to 3D CAD

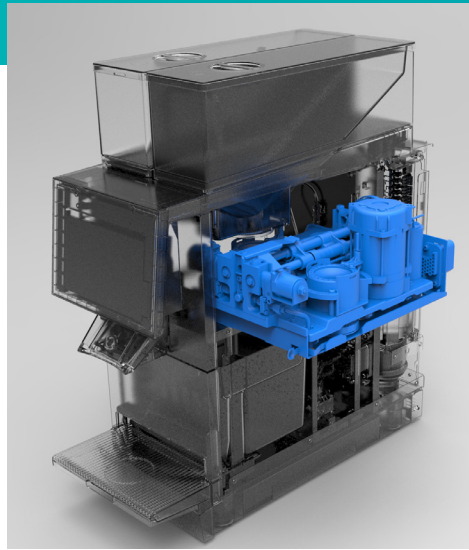
Since the year 2000, all products have been designed with Solid Edge® software for computer-aided design (CAD). The new dimensions and growing complexity of the machines should optimally be managed by



Communication and visualization in product development is part of Thermoplan's success.

"Solid Edge helps us with its outstanding assembly functions, which on the one hand facilitate the overview and design in context, and on the other hand optimize performance."

Reto Zibung
Development Engineer, R&D
Thermoplan AG



Solid Edge supports advanced visualization with many integrated features and functions.

professional 3D engineering tools. After a market analysis, Thermoplan decided to introduce Solid Edge.

Solid Edge is very user-friendly, has a good price/performance ratio and is equipped with special functions for injection molding tools and sheet metal design. In addition, the solution is used by many of the Thermoplan's suppliers. "Part of our strategy involves close cooperation with suppliers," recalls Adrian Steiner, CEO and co-owner of Thermoplan. "That's why we wanted to work with a system that has proven success there."

Over 16 years the company's requirements for the software and the CAD solution have grown simultaneously. "Neither we nor our engineering partners have ever lacked functions – we have never had to look for a different solution," says Steiner. For the tinkerers and inventors at Thermoplan, Solid Edge remains an essential tool for realizing ideas and representing them in design drawings.

Digitalization supports perfect coffee enjoyment

The age of digitalization does not stop at the development and production of fully automated coffee machines. For example, Thermoplan equips its machines with specially developed software systems. "Software has become so important strategically that we develop it in-house," explains Steiner. A user-friendly touch panel enables the user to control and configure nearly all functions of a machine.

Thermoplan's digitalization efforts included establishing a connection between Solid Edge and the company's enterprise resource planning (ERP) system to improve ordering processes.

Digitalization has also made it possible to better track and manage the materials used in production and Thermoplan's quality assurance processes. The company

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Adrian Steiner
CEO
Thermoplan AG



Extensive testing under real conditions supports quality improvement.

can now also offer customer service remotely over the internet; for example, by providing instructions for replacing the water filter.

Currently, the company evaluates and develops customer requirements using comprehensive data analyses. "The head office of Starbucks is located in Seattle near Microsoft – quite a cerebral neighborhood," reports Steiner. Topics of discussion go far beyond mechatronics and precision mechanics, and include supply chain management, mobile payment and traceability.

"The harmonious interaction of all system components is crucial – like in an orchestra," explains Thomas Mueller, CTO of Thermoplan. "For us, Solid Edge is the best business tool for visualization and cooperation with our customers, designers and suppliers." Wherever technical details are important, they are presented in a 3D model.

Digital platform for product development

The design of each coffee machine requires Thermoplan engineers to model 2,500 to 3,000 parts, about 50 percent of the parts required for a finished machine. With five main product lines (for Starbucks, Costa Coffee and Nespresso as well as separate lines for large and small machines for gastronomes), Solid Edge and its integrated product data management (PDM)

system at Thermoplan includes up to 20,000 parts. "Solid Edge helps us with its excellent assembly functions, which on the one hand facilitate the overview and the design in context, and on the other hand optimize performance," says Reto Zibung, development engineer, R&D at Thermoplan. His colleague Renato Schaible, also a development engineer, adds: "Thanks to the view configuration and the local caching we are able to manage large assemblies quite well." Solid Edge subassemblies streamline design of modularized products. Automatic collision detection eliminates errors, and

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Development Engineer R&D
Thermoplan AG

navigating through the assemblies gives insight into details. “For kinematic analysis we can simply disassociate individual parts from their references and move them in context,” explains Zibung.

Thermoplan designers have not yet used the integrated direct modeling functions of synchronous technology, but this will change with the new product versions. “We see a huge advantage in working with external data and so we will incorporate the use of synchronous technology,” says Zibung. “This will allow us to change third-party components, making the changes faster and more flexible.”

The integrated rendering in Solid Edge using Keyshot® 3D rendering technology puts the machines in the proper light for realistic client presentations. The Solid Edge digital development platform provides support in all areas, from sheet metal processing to the definition of freeform surfaces for injection molded parts and design tools for cabling components.



Photorealistic visualization, also in exploded assembly views, is a key feature of Solid Edge.

Solutions/Services

Solid Edge
solidedge.siemens.com

Customer's primary business

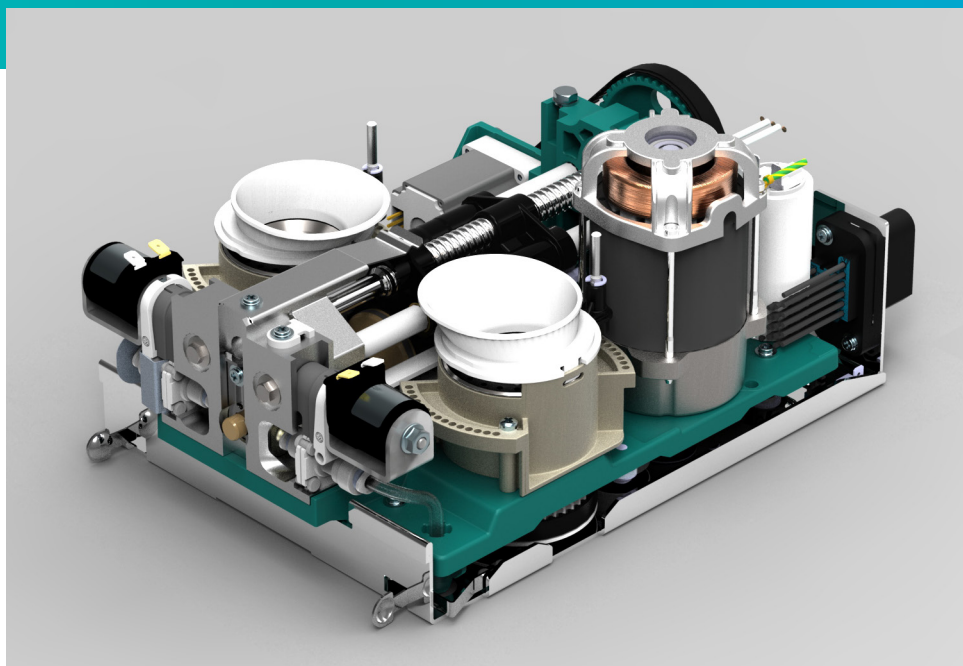
Thermoplan develops and produces professional coffee machines that enjoy a great reputation all over the world for their reliability, functionality and unique features and benefits. Today, 270 employees at the Weggis plant deliver to 70 countries of the world.
www.thermoplan.ch

Customer location

Weggis
Switzerland

Solution Partner Provider

Cytrus AG
<http://cytrus.ch/home>



Fully automated coffee machines contain up to 3,000 mechatronics parts. All are modeled with Solid Edge.

Solid foundation for growth

In order to make better use of Solid Edge in the future, Thermoplan will exchange more knowledge. "With Solid Edge I can record and add sound to tutorial videos," explains Zibung. "This facilitates communication with colleagues as well as with suppliers or the Cytrus hotline."

Cytrus is the local partner of Siemens Digital Industries Software and has been supporting Thermoplan for years. In addition, Zibung says, "The cooperation is great; we receive very competent advice." The annual releases of Solid Edge have many innovations and meet a wide range of customer requests, including 2,500 in

the current version. "We are very satisfied and thank Siemens Digital Industries Software for how its development department responds to suggestions," says Zibung.

From the beginning, Solid Edge has been a user-friendly, easy-to-learn tool. Users who work with the included tutorials and sample parts get quick results without third-party support. "This characteristic benefits Thermoplan's growth strategy, as new employees quickly become productive," says Zibung. "Using Solid Edge means staying ahead of the competition."

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