

Medical devices and pharmaceuticals

MEDMIX

Achieving the right mix for medical solutions

Products

NX, Teamcenter

Business challenges

Developing innovative product ideas

Efficiently turning ideas into marketable offerings

Reducing development time for products and injection molding tools

Leveraging value chain

Complying with standards, regulations and quality specifications

Keys to success

Integrated platform for product development – NX software

Single collaborative base for comprehensive PLM – Teamcenter software

Effective allocation of resources – R&D for innovation library and custom customer solutions

Use of NX and Teamcenter enables MEDMIX to efficiently turn innovative ideas into successful new products

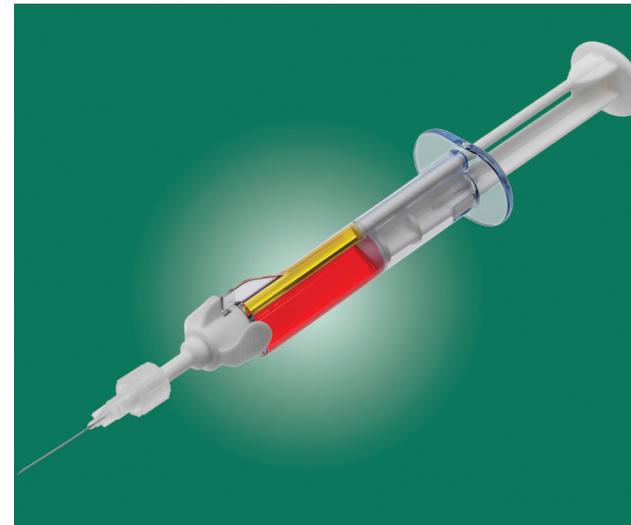
Turning creativity into profit

The global market for medical equipment is very competitive. To perform successfully, creative ideas have to be turned into safe, high-quality products in a controlled and compliant manner. For three years, MEDMIX SYSTEMS AG (MEDMIX), located in Rotkreuz, Switzerland, has been successfully launching multi-component mixing and application systems, including products such as double syringes, double cartridges, static mixers, spray and mixing systems and other utilities for the handling of fluids, pastes and powders of all condition types.

MEDMIX's products are used for a wide range of medical applications, including for storage, preparation, mixing and the use of bone cement, for spinal disk reparation and for multi-component substances for wound and tissue treatment. Forty-eight registered patents have been filed representing the creativity and knowledge of MEDMIX medical research, representing decades of experience in the company's leaders.

Product lifecycle management from the start

A key element to the young company's success was the use of advanced, inte-



grated development tools right from the start. The product lifecycle management (PLM) tools – NX™ software for integrated design, engineering and manufacturing and Teamcenter® software for end-to-end PLM – are from Siemens PLM Software. Even the first licenses of NX, including several modules for finite element analysis (FEM), motion simulation and stereolithography (STL) output, were accompanied by Teamcenter, preconfigured for rapid deployment and fast return on investment. "With the CAD (computer-aided design) system, we create the complete product definition inside our company and with Teamcenter, we control it as well as our processes," says Roger Dubach, product manager and CAD administrator at MEDMIX.

Results

Developed 48 patents, 300 products and 5,000 product design elements within 3 years

Innovation library amortized via customer projects

Company knowledge successfully transformed into marketable products

“We are thrilled by the transparency we achieved using NX and Teamcenter. We can access all information at any time.”

Roger Dubach
Product Manager and
Administrator
MEDMIX

Dubach explains, “Due to the deep integration of the two systems, there are no limits for creativity. This provides a big advantage for research and development operations whereby we turn ideas into generally applicable, verified solutions – for example a set of bottles, designed to transfer different contents via specific filling adaptors into a double syringe for immediate application in the correct mixing ratios. Using the PLM solution, the innovation cycle – from the idea and evaluation to prototyping and patent application – typically takes only two months.” Among examples, MEDMIX saves a great deal of time through the reduction of model information required for the patent drawings. Andy Greter, co-partner and chief technology officer at MEDMIX, notes, “We stay very closely aligned with the pulse of the market and potential customer needs, developing products and components for new applications that fill our innovation library until a prospective customer requires a specific procedure that matches one of the solutions.”

From ideas to marketable products

For example, a customer asks MEDMIX for a multi-component mixing system made up of a certain amount of bone cement powder with a monomer to be subsequently combined with a third substance in a completely closed system for ultimate injection into bones. A controlled development process then begins, detailed in four phases. Even the multi-step preliminary



study is based on proven procedures and processes, which are available in the company's management system. Quickly it becomes apparent what type of product is required, whether a pure MEDMIX standard product, a modified standard product or a customer-specific product.

The geometry library of NX can be easily leveraged using Teamcenter due to a highly organized numbering system and intelligent folder structure. “Thus, we rapidly get from scratch to the first graphical visualizations or to a STL prototype,” explains Dubach. “Everything is stored and

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Andy Greter
Chief Technology Officer
MEDMIX



traceable, even former concepts and feasibility studies can be re-used. With the combination of NX and Teamcenter, we can quickly react to and meet customers' requirements, address regulatory compliance and determine manufacturing feasibility. With the Siemens PLM solution, we efficiently gain our return on investment from basic development. Our investment risk is minimized not only for the cost of development, but also for overall cost of manufacturing and marketing."

In the second stage of the project, the specifications (describing the identified solution) as well as the material and the clean room production process are defined. The use of Teamcenter enables MEDMIX to contain and manage the documentation, which is compliant with Food and Drug Administration (FDA) regulations as well as with the quality standard ISO 13485 for medical technology.

In stage three, the tool concept emerges. This happens in direct dialogue with MEDMIX's primary suppliers – Sulzer Mixpac AG and RIWISA AG, both dedicated NX users. In collaborative NX meetings, a production-ready tool design is generated. As full-service suppliers, both companies produce injection molds for the products on site. The use of Teamcenter facilitates data communication between MEDMIX and the suppliers through the error-free exchange of part data and complete



management of tool information, from raw material to revision status to tool drawings.

Stage four is tool manufacture. Even in this stage modifications can be implemented in a controlled and efficient manner, supported by the change management capabilities of Teamcenter. "Due to the close connection of development, design and tool making, we quickly deliver the products our customers need," says Andreas Kees, co-partner and chief operating officer at MEDMIX. He notes that time management is critical: "Within eight months, we have to be ready for serial production. If material specifications, design, material or production procedures are changed during serial manufacturing or following batches, then all affected parts can be readily identified in Teamcenter. Customers are quickly informed and new approval documents are automatically sent."

Greter summarizes, "With the combination of NX and Teamcenter, we gain the optimal mix between creativity and productivity."

Solutions/Services

NX

www.siemens.com/nx

Teamcenter

www.siemens.com/teamcenter

Customer's primary business

MEDMIX is a knowledge leader in multi-component mixing and application systems for medical applications, developing and producing double syringes, double cartridges, mixers and dispensers as well as application tools used in orthopedics, vascular surgery, ophthalmology and wound treatment.
www.medmix.ch

Customer location

Rotkreuz

Switzerland

“Due to our controlled development environment, we effectively reduce the time-to-market for new products.”

Andreas Kees

Chief Operating Officer

MEDMIX

Outstanding technology, support

“We are thrilled by the transparency we achieved using NX and Teamcenter,” says Dubach. “We can access all information at any time.” In fact, since the company's start-up three years ago, the early use of the homogeneous system architecture with NX and Teamcenter has stood the test on many challenging occasions. This includes the company's rapid growth and workstation expansion, which means adding skilled workers. Greter notes, “If you are looking for bright new personnel, you quickly find graduates of nearby universities with excellent knowledge in NX. Dubach calls attention to Siemens PLM Software's local support for installation and system administration of the Teamcenter environment: “If you need the hotline, cooperation is always perfect.”

Three years = 300 products, 48 patents

Within three years, MEDMIX has produced 300 parts and applied for 48 patents. This includes 5,000 product design elements developed. “Due to our controlled development environment, we effectively reduce the time-to-market for new products,” says Kees. MEDMIX's product innovation library is funded via customer projects. The result is that the library often serves as a powerful tool for answering customer requests with a base platform already developed. With company knowledge being successfully transformed into marketable products on a continuous basis, MEDMIX is realizing strong profits and achieving its growth goals.

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