



MONFORTS

Werkzeugmaschinenbau
Accelerating engineering with 4,000 macros

Customized content in every product

A. Monforts Werkzeugmaschinenbau GmbH & Co. KG, located in Mönchengladbach in western Germany, has a global reputation as a leader in manufacturing precision turning lathes and CNC turning and milling centers, the latter capable of turning, milling, drilling and thread-cutting all on one machine. Monforts systems produce an excellent finish even for the most demanding applications, like fittings with very high precision requirements.

The company's preference for innovation has been recognized through many awards and citations. A unique selling point of Monforts machines is the hydraulically supported leading axle that starts up and runs smoothly and has excellent damping properties. This is an important prerequisite for high precision finishing processes.

Machine tool manufacturer Monforts used the migration from EPLAN 21 to EPLAN Electric P8 to modularize its electrical engineering design. It has paid off handsomely. Using the company's new database of macros created in EPLAN Electric P8, designers need only a fraction of the time to assemble customer-specific electrical documentation compared to the old manual method. The result is that designers can apply their time to handling many more projects.

Using API

to create a project

GENERATOR

“We wanted to better structure and speed up the electrical engineering design processes,” says Heinz-Günter Kämmerling, CAD administrator.



The company's product range currently includes 23 machine types that are available with various controls and numerous options. Says design manager Dr. Dominic Deutges: “Our customers do not receive ‘ready-made’ machines. We offer customer-specific solutions tailored to individual requirements.” So while 80-90% of the design work on a machine is standard, the rest is customized.

Moved away from variant design principle

These custom designs used to be done based on the variant design principle: The electrical engineering where the designer calls up the design data of the machine type and starts altering it to incorporate options such as integrating automation concepts or country-specific safety regulations.

EPLAN Electric P8: API interface facilitates customization

When Monforts decided to migrate from EPLAN 21 to the current EPLAN Electric P8, it was decided to change this procedure. EPLAN Electric P8 not only lets users switch between working in a graphic-oriented and database-oriented mode, it also lets them create macros and systematically store them in a library. And crucially for Monforts, the program's optional Application Programming Interface (API) extension is a powerful programming tool for tailoring the CAE system to handle specific tasks.

Monforts makes extensive use of the API. “Before proceeding with the actual migration, we primarily completed two tasks,” says Kämmerling. “First, we divided all machine functions and options into modules and broke down the electrical engineering documentation of these modules into macros in EPLAN Electric P8. Then we used the API to create a project generator that virtually leads the designer through project creation.”

E-CAD library with 4,000 macros

Today, there are around 4,000 macros available to Monforts designers in the EPLAN library. Why so many? “It was very important to us to systematically divide



INTERFACES

are
clearly defined

the machine into modules and to actually enter all possible options,” says Kämmerling. “Only in this way can we achieve uniform design. To remain flexible and to maintain a structured overview, the modules were kept relatively small; by definition, each macro is only one page.” And the module interfaces are so clearly defined that reworking usually is not necessary and the user need only click on the macros and line them up.

Project generator systemizes the procedure

The Monforts CAD team has used the API to program the project generator so that it offers the respective module or option in a specific sequence. When selecting a module, the designer doesn't worry about the engineering because the module has already been configured. The whole design process is greatly accelerated. “We typically get up to a 95% time saving when assembling the documentation,” says designer Christian Maiburg. “The greater the number of standard options incorporated, the greater the time savings.”

This new approach offers other advantages, like simplifying the configuration of enclosures. The same options are always located in the same place in each type of enclosure, which makes life easier for service technicians. Designing enclosures now starts with a virtual base enclosure containing all relevant modules. Parts not required are automatically deleted, creating the enclosure's actual configuration. The connection from EPLAN to the SAP system, which Monforts uses for commercial functions, also makes work easier for purchasing and guarantees everyone is using up-to-date data.

The new design approach is also useful when modifying machines. At Monforts, they have no doubt they are on the right track with EPLAN Electric P8 and their project generator. Consideration is being given to aligning fluid and electrical engineering using EPLAN Fluid, which runs together with EPLAN Electric P8 on the same platform, thereby offering greater inter-disciplinary collaboration.

“Our machines last a long time and are sometimes converted or changed over many times,” says Dr. Dominic Deutges. “The modular design approach also works for these jobs, because options in the system can be added with a single click.”



At the beginning, there were performance problems because the multi-user capability of the EPLAN program created a lot of network traffic when several designers used the new project generator at the same time to put together projects automatically but that was quickly overcome with excellent support from EPLAN, says Heinz-Günter Kämmerling, CAD administrator at Monforts.

Changing the software is key to changing the design approach

SUMMARY

Using the migration to EPLAN Electric P8 to change its design philosophy has delivered major benefits at Monforts. The combination of time savings and structuring of design achieved with the development of a database of 4,000 macros using the new program has improved the company's competitiveness and reputation with customers. The changeover, including the software migration to EPLAN Electric P8, went very smoothly.

Find out more about Monforts on www.monforts-werkzeugmaschinen.de

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