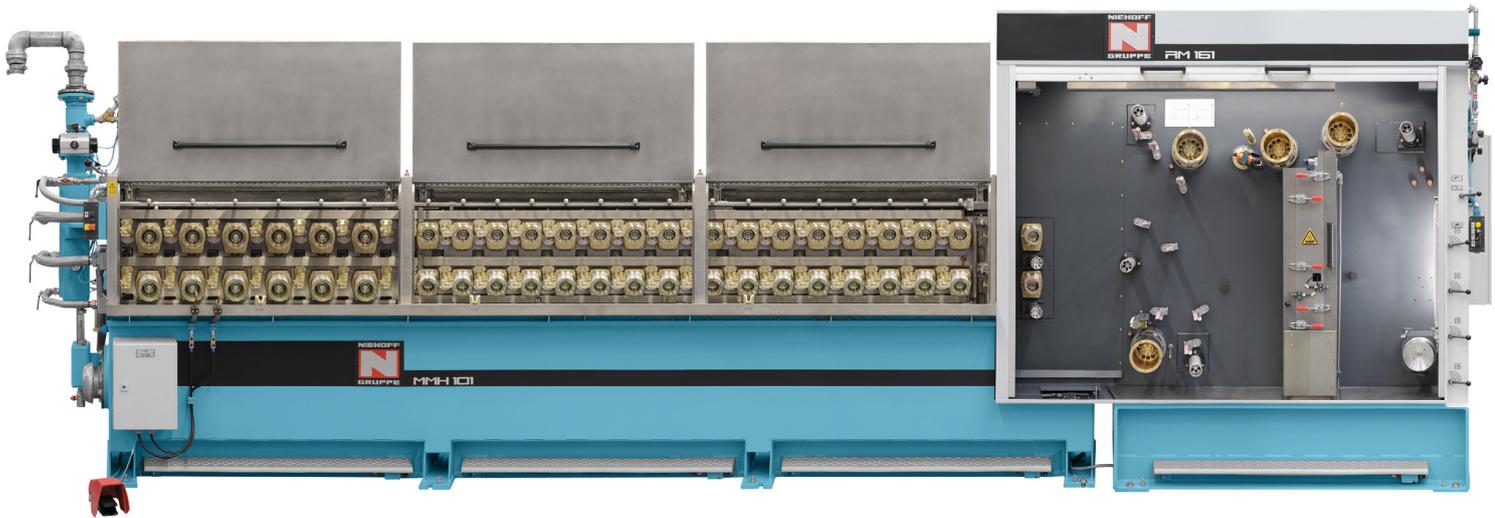


Revolution for engineering



What is actually contemporary or “modern” in engineering? How can planning and design processes be optimized in a sustainable manner? What are the obstacles to faster designing and more reliable data? The global leader in the manufacturing of cable machines, Niehoff, has found answers and has drawn conclusions.

“We have been searching very thoroughly for an engineering system that is able to realize integrated design approaches,” reported Markus Raab, Head of Electrical Design at Niehoff. This is because one of the greatest obstacles to more efficient engineering processes and the highest possible data quality is perceived there in system disruptions and the resulting manual data transmissions. Thus creating circuit diagrams in electrical design while manually processing bills of material (BOMs) in the ERP at the same time has to be a thing of the past. “This was laborious and erroneous,” commented Raab.

Furthermore, the fact that it is integrated means that not only graphic symbols, but the plant objects themselves, for example, devices, connections and cables, and also structuring objects such as locations and functions, are stored in a central data model. “We think this change, which we were able to achieve by opting for Engineering Base (EB) from Aucotec, is comparable to the move from two-dimensional to three-dimensional design planning in mechanical engineering,” said the Head of Design, “this constitutes a revolution.”

The realization that the long-used CAD tool had become outdated led the design department to look for an alternative in 2008. The final decision was then made at the start of 2009. Thus the aforementioned revolution was then just over eight years ago.

Continuously consistent

“We are very happy with our decision, which was also a bit visionary at that time. Now, EB is not only contemporary, but its multi-layer architecture and database-driven structure are still ultra-modern. They create a special continuity and consistency, also in conjunction with our ERP system. This also makes us feel prepared for the challenges ahead,” said Markus Raab.

Founded in 1951, Maschinenfabrik Niehoff has had a decisive influence on the development of the wire and cable industry. The first multi-wire drawing machine, equipment for inline cable production or a reusable packaging system are just some of the milestones the company has set in the industry. Continuous research and development in close partnership with the cable industry have made the machine manufacturer the global market leader with over 700 employees. Investments, for example, in technology and infrastructure, are intended to also secure this position in the future. One of these investments was in the new engineering platform.

Permanent overview of the entire plant

“As the global market leader, we are expected to be technologically up-to-date and have robust, long-lasting plants. We only recently revamped a plant that was built in 1967 and renewed its complete electrical system. Our engineering system must be accordingly flexible and forward-looking,” explained the Department Head.

“Continuous” and “consistent” are important keywords in the context of contemporary engineering and Niehoff’s idea of an integrated concept. This is because the massive increase in plant complexity, which has taken its course in recent years and is inevitably going to continue with the development of Industry 4.0, requires the maximum in terms of these keywords. One of the requirements that plant engineers now face daily is of always keeping track of the entire plant; this also requires the integration of external system data. Equally challenging is the provision of data that is always reliable and consistent in the event of changes, despite simultaneous work of the various disciplines in a project.

Common database avoids errors and saves time

For these reasons, Markus Raab highly values EB for enabling the consistent work of all disciplines on a common database. According to him, the central server saves time spent on consultation, duplicate entries and sources of error. “Data maintenance only takes place once in a system,” he stressed. This is due to the fact that, in each case, the visibility of an object in Explorer, a graphic or a list is only one image of the data in the central model. Regardless of where information is added or changed, it appears immediately and au-

tomatically in each further representation of the edited object throughout the entire documentation.

Whether the complete electrical design, test station, machine installation or service is involved: everyone thus always has the up-to-date plant data in sight in real time and – depending on authorization – may have access to it. This is known as the “single

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source of truth” in Industry 4.0 jargon. Currently, the colleagues of the Spanish subsidiary are also being connected to EB, thus ensuring that they can use the system to work and access Niehoff’s server in Schwabach as well as the Allgäu plant in Leuterschach.

Thus the central data model improves both the quality and the flow of all information. It eliminates not only transmission errors, but in fact the actual need for data transmission. “Our goal was not to reduce the number of employees, but to become better,” stressed the Department Head, “we succeeded!” According to him, EB also contains far more information today than would have even been possible with the old system, for example, information on cabling materials.

Sameness

Significant error minimization and thus saving of time were also achieved by EB’s link to SAP, which the Head of Design emphasized in particular. “In the past, circuit diagrams were created in electrical design while BOMs for cabinets, machine installation and cabling were manually developed in SAP at the same time,” he explained. The system now transfers BOMs directly to SAP on an order-related basis. “This ensures that the data is the same in both systems,” said Raab. New materials created in SAP are automatically exported to EB.

Production also benefits from automated data output, for example, device labels, directly from EB to the printers. In addition, test station employees and sales consultants have the same data quality as all others because EB’s viewer shows the current original data.

Freedom

The flexibility and freedom provided by the system not only allow everyone involved to have simultaneous, cross-disciplinary access to all project information. They are all free to choose their approach when designing, whether graphically or alphanumerically. Furthermore, the openness of the platform ensures simple, automated connections to other external systems such as Niehoff’s content management tool. “Despite the initial scepticism of users, they quickly became familiar with EB after only one week of training,” was how Raab described the change.

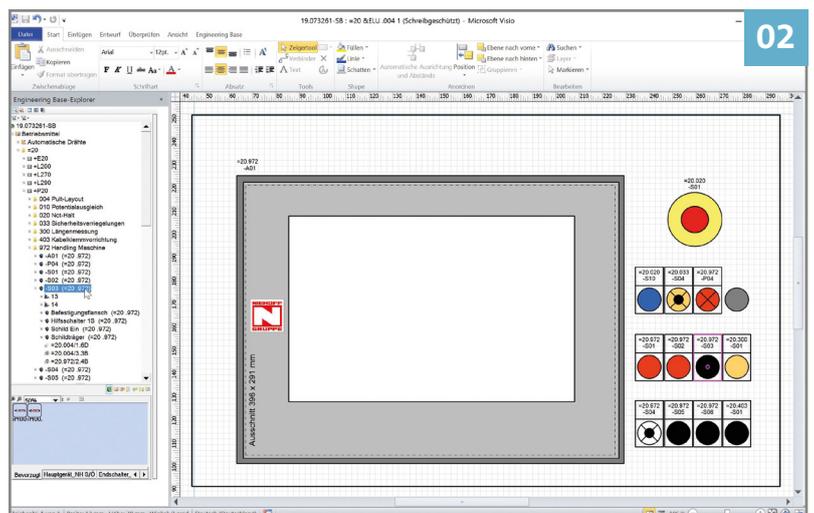
In the next step, the design department is aiming to use a configuration module of EB, with which complete plant models can be created more or less at the press of a button from quality-tested templates and a specific variant and option management system. “With the possibilities offered by the platform, planning processes can really be optimized in a sustainable way,” concluded Markus Raab after the years of practical experience with Engineering Base.

Photographs: Niehoff GmbH & Co. KG

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About Aucotec

Aucotec AG has over 30 years of experience in developing engineering software for the entire life cycle of machines, plants and mobile systems. The solutions range from flow diagrams via control and electrical engineering for large-scale plants to modular harness design in the automotive industry. In addition to its headquarters in Hanover, Aucotec operates six further sites in Germany as well as subsidiaries in China, South Korea, France, the United Kingdom, Italy, Austria, Poland, Sweden and the US.



01 Niehoff has had a decisive influence on the development of the wire and cable industry (photo: wire drawing machine)

02 Whether the complete electrical design, test station or machine installation: everyone has the up-to-date plant data in sight in real time