Engineering and producing control cabinets using WSCAD.

BAADER

Control cabinets cannot be designed and manufactured by the book. Most of the highly specialized medium-sized companies need to be equally proficient in both the technology and the skills of the trade. And they need the right CAD tools to meet tight deadlines and deliver high quality. The following user report illustrates how a switchgear manufacturer from the vicinity of Augsburg, Germany has mastered these challenges.

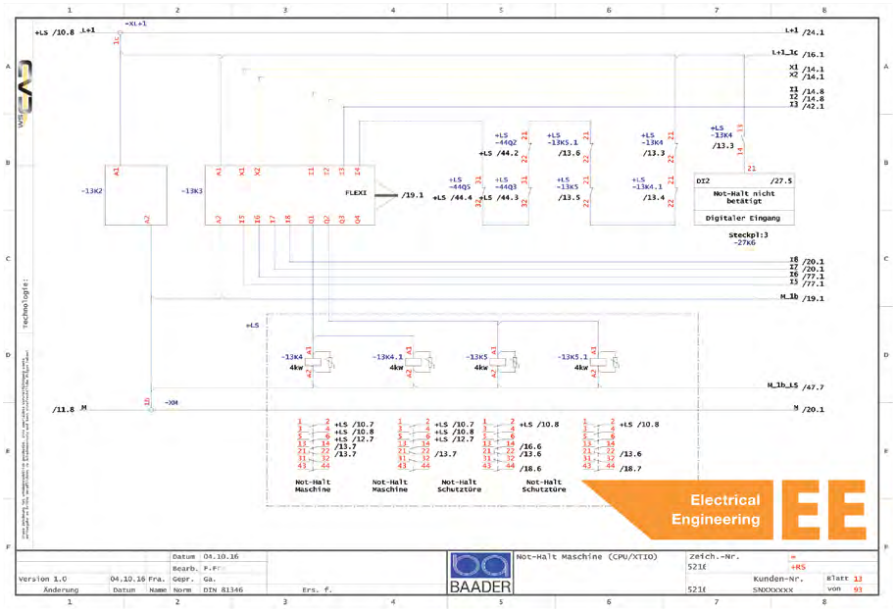
The company Baader from Königsbrunn near Augsburg was founded in 1973 and has evolved from a building automation specialist to a manufacturer of professional switchgear. Developing and manufacturing electrical and electro-pneumatic switching systems is the main focus of the company. It includes installation, commissioning and service as well as automation technology. The loyal customers of Baader come from different areas in mechanical and plant engineering. They include well-known companies such as Osram, MAN, Siemens and Linde. 40 employees execute between 500 and 600 job orders per year. The scope of the orders ranges from two to twenty control cabinets.

One of the strengths of WSCAD is the ability to import the schematics of different external formats for cabinet construction with WSCAD completely and without errors.

Success Story

WSCAD ELECTRICAL ENGINEERING

About half of the cabinets are in-house design standards; the rest are planned and built to customer specifications. In such cases, Baader receives the electrical plans in electronic form, either as a PDF file or in a widespread electrical CAD format such as WSCAD, for example. “Having initially worked in parallel with different CAD systems, we ultimately made the decision to create cabinet layouts exclusively in WSCAD”, says Jörg Baader, CEO of Baader GmbH & Co. KG. “One of the decisive reasons for choosing WSCAD is the ability to import data from different file formats fully and without errors. This is how we can create cabinet layouts very quickly.” Another important aspect was the in-house presence over many years the machining equipment from Steinhauer for the production of cabinet panels and doors. “With Wscad we were able to link directly to our Steinhauer NC machine without any added cost for extra software or licences. Other electrical CAD solutions would have required extra licenses for the interface - but this was not the case with WSCAD. Functionality and costs for procurement and maintenance were a benchmark for us”, says Baader.



The schematics for cabinet layouts are either created using the WSCAD software itself or supplied by the client in a variety of formats.

When a cabinet layout is based on third party data, we can import the terminal charts, material and connection lists previously exported from other electrical CAD systems for the cabinet layout without schematics in a convenient dialog via the menu item “New Material”. An Import Wizard reads the input lists and merges them into the format required by WSCAD. No specialized programming knowledge is required. Information such as manufacturer and function texts, reference names, part data, values from motor lists or additional texts are transferred without loss. A comparison with the WSCAD database avoids redundancies within the WSCAD application. This is followed by the classic cabinet assembly: all data and components are dragged and dropped from the material list into the cabinet using the Material Explorer. If there are no explicit specifications from the client, standard components tested by Baader are used. The “snapping” of the components is achieved with right or left-aligned placement accurate to one-tenth of a millimeter. Valuable support is offered through the collision check of objects and the always visible filling degree of the cable ducts. The cabinet 3D view for better spatial awareness, introduced with the current 2017 version, has proved to be convincing in practice.

Baader particularly appreciates the wire routing, where wiring paths are optimally set according to specifications or automatically by the system and the connections are calculated. Using the menu item “CadCabel” and the underlying interface, the determined cable harnesses are bundled together and sent for production to the service provider CadCable. “This function provides huge benefits because it allows us to produce faster and at a lower cost, especially in situations where we face severe shortages of the required skills,” says Jörg Baader. Interfaces for cable manufacturing and labeling are also part of the functionality of the WSCAD software, including the transmission of the data generated to the in-house Steinhauer machine. The mounting plates and

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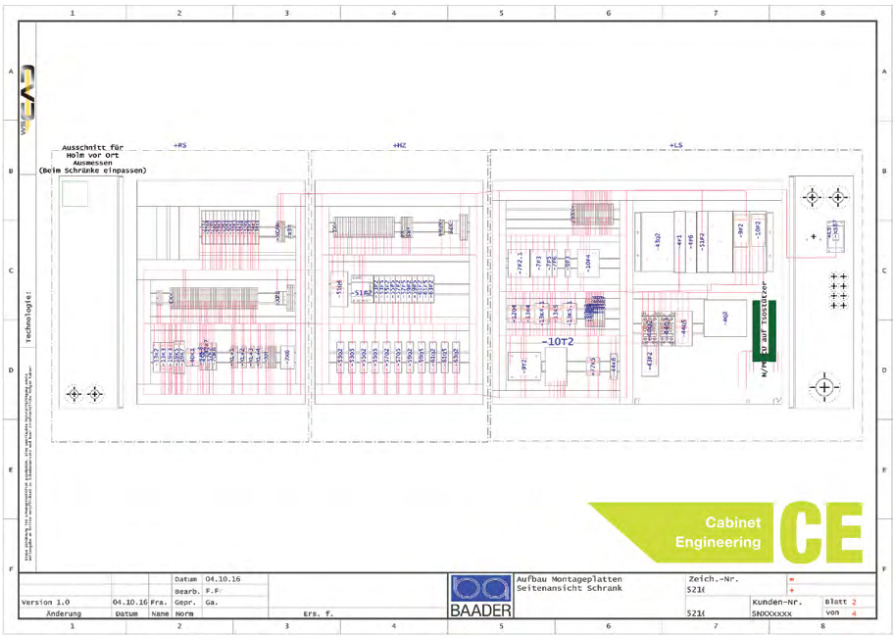
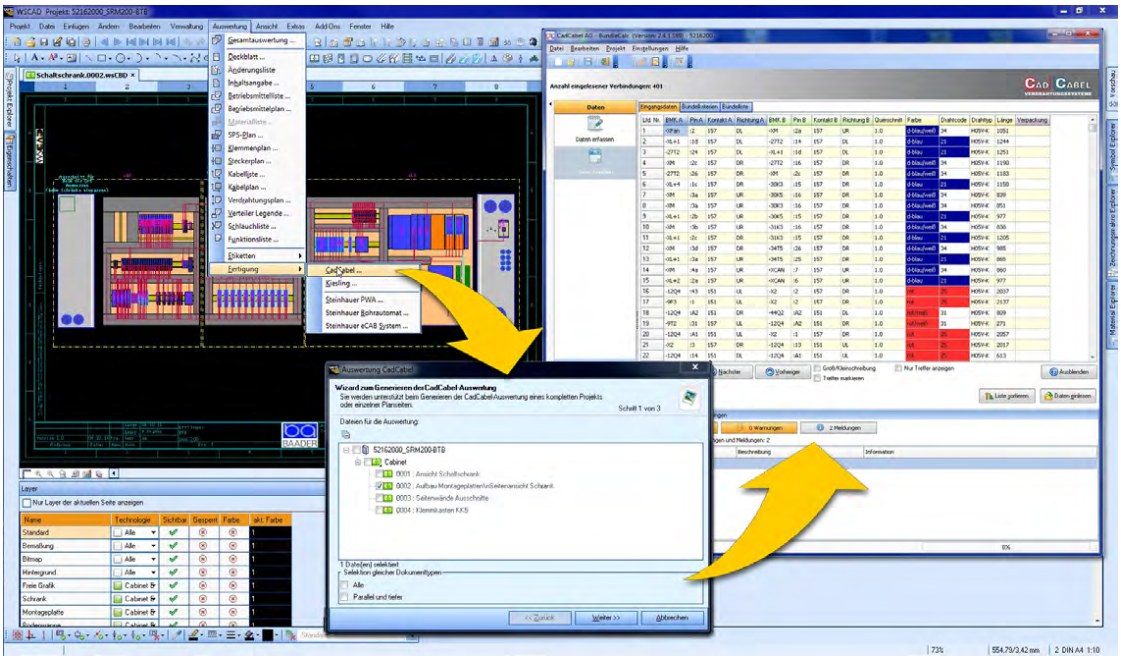
Construction drawings for the cabinets are created exclusively in WSCAD.





The calculated wiring paths and connections are transmitted via the CadCabel production interface to the service provider CadCabel in order to produce the wire sets.

cabinet doors are then manufactured under NC control. “In the past, we have used other CAD software for this step and had to redraw and recreate all the information for manufacturing accordingly. Today we can do this directly in one step from within WSCAD without redrawing any data. This is extremely fast and ensures that nothing is lost and as an added bonus, we also save the additional licensing costs” says the Managing Director.

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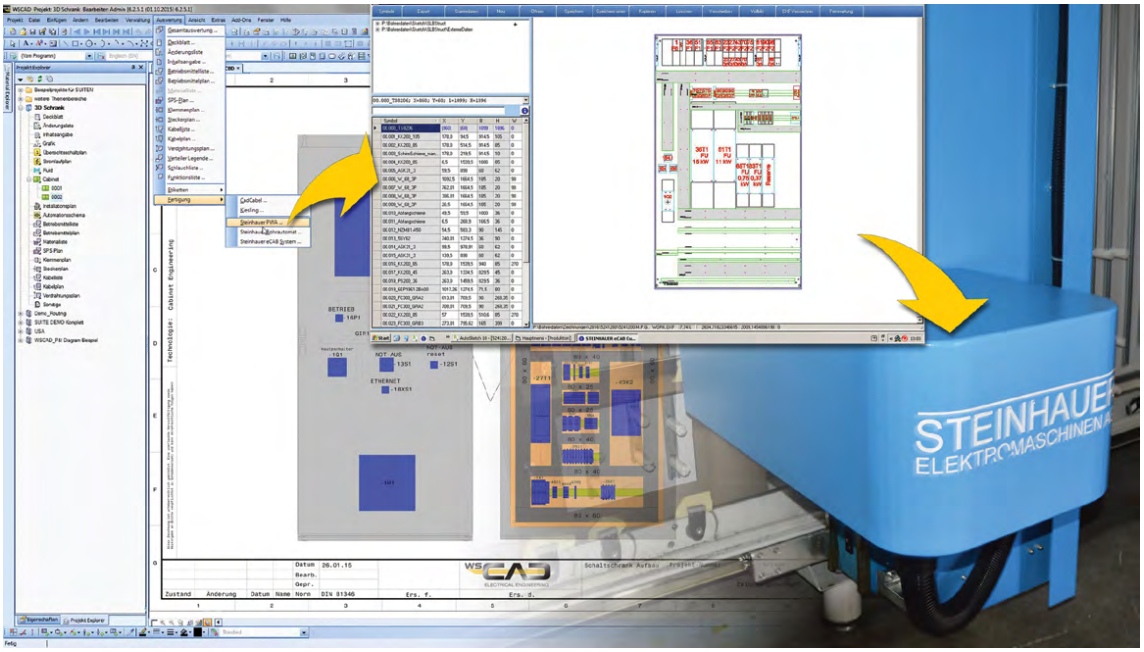
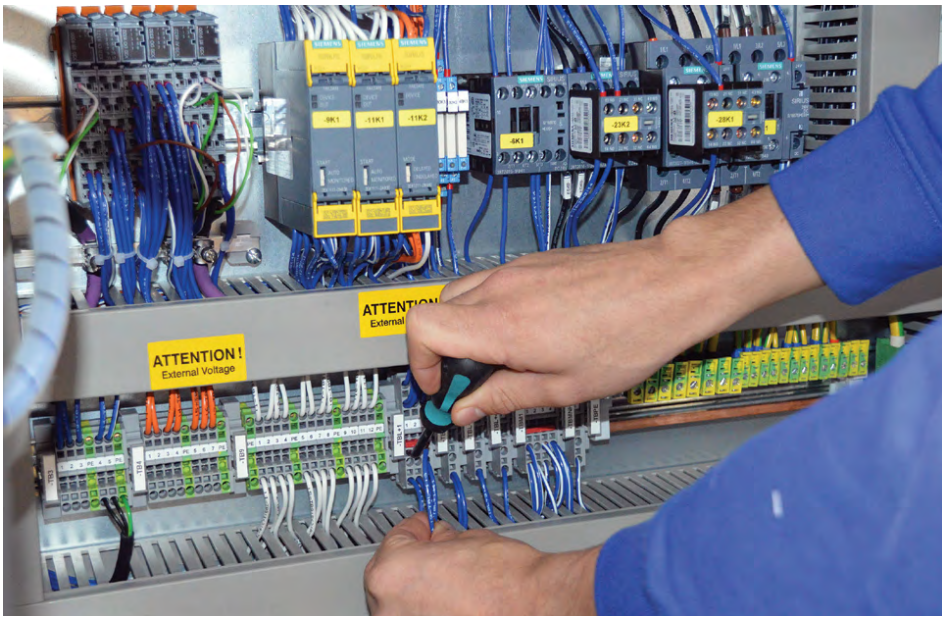
Once all the components are present, they are snapped onto the rails and installed. Delivering finished wire harnesses facilitates an easy assembly for installers. We then just need to install, connect, set the controls and frequency converters and test the individual modules. The final step is an acceptance test in accordance with customer specifications and current regulations. All documentation is created according to customer requirements, usually in the form of intelligent PDF files. In other words, installers and service technicians on site do not need any special viewers and can instantly switch by clicking on a symbol from the electrical schematics to the cabinet or other plans in the associated disciplines of the WSCAD SUITE: process and fluid engineering, building automation, or electrical installation. Customers who are using WSCAD themselves naturally receive the plan sets in the WSCAD format or alternatively as DWG/DXF.



The direct output of manufacturing data to Steinhauer NC machines avoids having to use additional CAD software.



The installation and acceptance of the control cabinets occurs in accordance with customer specifications and the in-house regulations of the Baader company.

Jörg Baader is impressed with the functionality of the WSCAD solution and their use in his company operations: “While we constantly receive calls from the sales staff of other system providers who are trying to sell us new licenses, the direct line to WSCAD is invaluable to us. The support we receive is quick, easy and competent. In fact, even some of our special requests have come back to us as new functionality, and we were able to immediately work with the new features. This is customer orientation par excellence.”

WSCAD electronic GmbH, headquartered in Bergkirchen near Munich, offers enterprises and professionals fast and reliable E-CAD solutions with an outstanding price-performance ratio for the entire electrical engineering design and documentation. The modular and scalable WSCAD SUITE provides users from the fields of electrical engineering, cabinet engineering, P&ID, fluid technology, building automation and electrical installation with an integrated set of all the tools that are needed for the planning, design and development of electrical plants and equipment.

Standardization, reuse, and automation significantly accelerate engineering and design time, while also ensuring higher quality. With over 1.2 million parts from more than 125 manufacturers, wscaduniverse.com is by far the largest E-CAD data library of symbols and manufactured parts on the market and the only one that supports both WSCAD and EPLAN* users alike. The use and provision of data is free for users and the manufacturers of parts and equipment. Additional services from the WSCAD Global Business Services such as engineering and migration checkup, workflow integration, consulting, training on the digitizing and importing of paper documentation and third-party E-CAD formats round off the product range.

WSCAD is part of the Buhl group, an owner-managed software manufacturer in Germany, with more than 700 employees. The staff at the Bergkirchen and Würselen sites (in North Rhine-Westphalia) as well as an international dealer network serve 35,000 customers from all over the world.

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