

From preliminary planning to support

LAE awarded extensive turnkey project for customers in the UAE

The planning and construction of systems and buildings for manufacturing industries is the pinnacle in engineering. When the distance between planning location and final production site is some 6,000 kilometres, the client needs a partner who, in addition to general plant-specific questions about sufficient space for machines and their positioning in relation to optimum production flow, can also manage all aspects relating to the requirements for hall statics, media supply and ATEX and

CE conformity. This is where partners with many years' experience in planning and modernising plants and systems are required.

Wiesloch-based LAE Engineering GmbH was recently awarded such a contract in the United Arab Emirates (UAE) and produced a comprehensive turnkey solution. It provides that LAE is responsible for preliminary planning, detailed planning and execution through to downstream support. It also includes commissioning of the finished systems

at a temporary installation site. "This is not a standard procedure, but it has many benefits," explained Dominik Sommer, Project Manager at LAE. "It enables us to ensure that the system is basically functional, that we don't require any special companies on site in the UAE and we can use pre-prepared and already tested modules and/or skids to dispense with the need for extensive I/O checks and/or hardware commissioning. That's also how we can stick to the tight schedule." In this case the time and task schedule are as follows:

INFORMATION

Preliminary planning

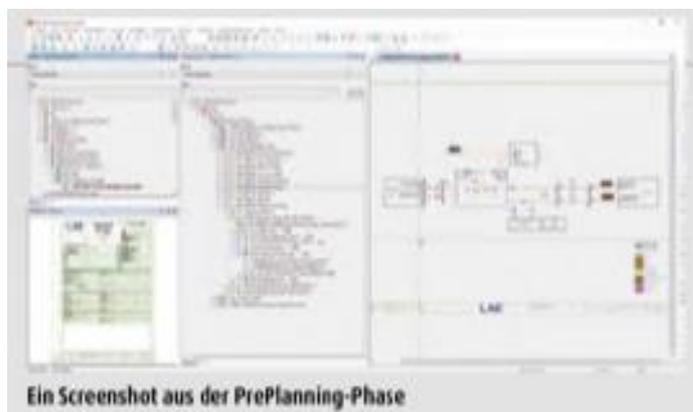
May 2018 – September 2018

Initial plans for the hall layout, process automation and automation technology were created in the EPlan PrePlanning module and resulted in greatly reduced effort. Pipeline and instrumentation (P&I) flow charts were also produced. After structuring the entire production plant in PrePlanning, the definition of hardware and software objects was undertaken, as was the project documentation. This consistent structure throughout the circuit diagrams and software in the long term leads to significant advantages in planning, installation, commissioning and maintenance.

Detailed planning

October 2018 – January 2019

After completion and agreement of the final hall layout, the plant was precisely planned up to the as for construction stage, including pipework design, interface design, 3D installation plan, creation of parts lists and further substantiation of the cost estimate. The entire plant covers a production area of around 600 m² and comprises a total of two reactors, one press, four heating and cooling



stations, a vacuum station, three floor scales, different handling equipment, heat chambers, powder handling and conveying systems as well as solvent feeding systems.

Execution

February 2019 – September 2020

The clients and LAE are currently in the execution phase, which includes the procurement, installation and commissioning of all system parts at their provisional site. This involves the complete construction of the tailored production systems including control technology, the production network and data integration. Starting with the 3D hall planning and the laying of pipework, then comes complete monitoring of the delivery of system parts, control cabinet construction and programming of the software.

power cabinets, four operating panels, six remote ET200SP stations and eight remote ET200ISP stations are deployed.

Following the provisional installation comes the dismantling, shipping and lastly – from April 2020 – the installation and commissioning at the final installation site in the United Arab Emirates. The pre-commissioning in Germany functions as a test for the complete system. Only small adaptations and modifications should then be required. LAE's work continues after successful commissioning because a secure remote control concept means the experts can assume their support responsibilities from the start of production in September 2020.

A server system in combination with four Siemens S7 1500

fail-safe CPUs is used for plant automation. In all a server rack, a low-voltage main distribution board, four control cabinets, four