Source: Fotolia

Figure 1: There is now a realization that modern process plants can only be operated effectively if the data from the planning phase are also available for operation, maintenance and modernization.

AS MUCH (OR AS LITTLE) AS YOU REALLY NEED

I&C-CAE Systems can do more – There is a demand for modern I&C-CAE systems with standardized interfaces to remove the communication barriers in the heterogeneous system landscape. Meanwhile, however, they can do even more—thanks to their modular design they now go beyond their original function and also provide support for users, for instance in drawing up P&ID diagrams or in electrotechnical planning—without any technical overheads.

The common practice of using different engineering software solutions for the various different trades involved in building a process plant (Figure 1) has both advantages and drawbacks. It is certainly an advantage that the best solution can be used in each field. One disadvantage is the number of systems that then have to be mastered and maintained. And continuous data exchange between the systems is no trivial matter either. On the other hand, powerful tools that cover the requirements of all areas and make data available everywhere once generated, are extremely complex and difficult to handle. For this reason, in the operating phase artificially 'slimmed down' versions

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are often used for practical purposes. Thus, the originally detailed piping and instrumentation diagrams are often used simply in the form of 'basic' CAD, in order to make things simpler for employees. However, this is no longer anything like 'consistent As Built documentation'. If detailed data are needed again years later for extension or modernization, things get difficult. The original plans are not current anymore, and the changes made during the operative phase cannot be traced completely, if at all. Thus, integrated engineering is often only good in theory. So what is the best course for plant engineers and operators to adopt?

Source: Rösberg

Figure 2: Revision-proof interfaces: Adapters convert data delivered by the other software tools involved in plant engineering, and pass them on to ProDOK NG.

'Both ... and' instead of 'Either – or'

An interesting approach to integration is offered by Rösberg Engineering GmbH with its I&C-CAE System ProDOK NG (see Technology Box 1). The system supports the user in planning and constructing a plant and, together with the documentation tool LiveDOK (see Technology Box 2), continues to provide support beyond the planning stage and throughout the whole life cycle of the plant—in operation and maintenance. High priority is accorded to the exchange of revision-proof data with the wide range of software tools used in the planning, construction and operation of a plant. Meanwhile, Rösberg's system also offers tailored software solutions for specific trades, which are available to users if they wish—but only if they wish.

At present these include a module for generating P&IDs (piping and instrumentation diagrams) and another for electrical engineering in process plants. If he wishes, the user can make use of these 'all from one source' solutions, but he doesn't have to —because in any case all documentation-relevant data generated during the whole planning process are passed on seamlessly to the I&C-CAE system. Reliable adapters convert the incoming data from the other software tools used in plant engineering, and pass them on to ProDOK NG (Figure 2).

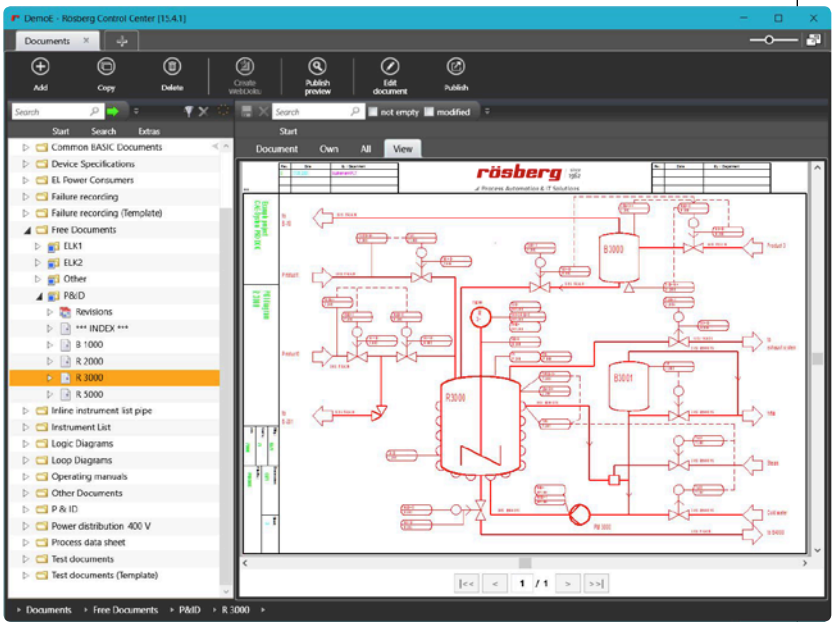
Fast, easy generating P&IDs

The P&ID module simplifies the planning, documentation and administration of process elements in piping and instrumentation diagrams (Figure 3).

The engineering data are available online, thus ensuring consistency and integration throughout the whole life cycle of the plant. Data are always up-to-date, there is no need for additional drawings to be made, and nothing needs to be converted. This saves time and money. Planning has more quality and reliability, since one single system is used for process technology and instrumentation and control.

The Diagram Editor is automatically updated whenever data are changed.

Many other features help to make work easier; for instance,



Source: Rösberg

Figure 3: The P&ID Module simplifies the planning, documentation and administration of process-related elements in piping and instrumentation diagrams.

Source: Rösberg

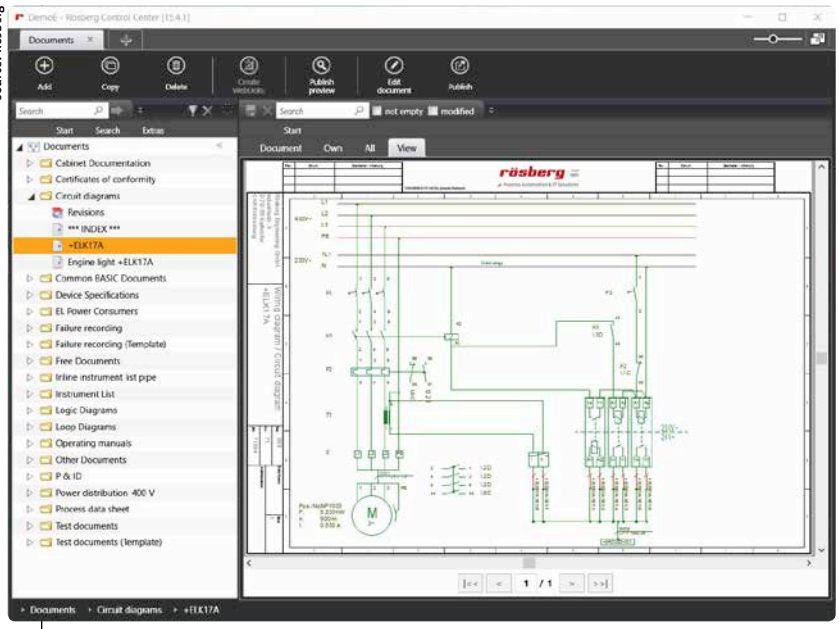


Figure 4: The Electrical Engineering Module increases quality, reliability and efficiency when planning electrotechnical elements in process automation projects.

Highlights

- The P&ID module simplifies the planning, documentation and administration of process elements in piping and instrumentation diagrams.
- With P&ID, the user interfaces and symbols are the same as in the I&C-CAE system, practically no additional training is needed for employees.

functions for processing mass data, comfortable query options, exports into various data formats, a symbol library which is expandable as required, and fast possibilities for altering and adding to the master data.

Since the import of planning data from other systems into the P&ID module is revision-proof (in accordance with IEC 62424), it may even be worthwhile for plant engineers to use the P&ID module in addition to the P&ID planning software they are already using. In this way, no-one runs the risk of having to work with 'slimmed down' I&C plans using plant documentation that may not be up to date. As user interfaces and symbols are the same as in the I&C-CAE system, practically no additional training is needed for employees.

Less time and expense, more efficiency in electrotechnical planning

The market offers powerful tools for electrotechnical planning. However, they are not tailored to the planning of process-related projects. Users have to maintain the whole system, even if they are only making use of a small percentage of its possibilities.

Here, the ProDOK Electrical Engineering module is a practical alternative, because when it is used, electrical engineering and I&C speak the same language, unified plans can be drawn up, there are no breaks between systems—and the number of systems the user has to deal with overall is reduced. And this saves a great deal of time and money.

The Electrical Engineering module (Figure 4) provides everything that is needed for efficient planning, documentation and administration of electro-technical elements in process engineering, starting with the planning of the infrastructure and the creation of circuit diagrams, through data processing and filtering, to analysis, data export and documentation, including color coding of changes.

Here, too, revision-proof data import ensures that planning data from other systems are taken over smoothly. Discrepancies can also be visualized in color.

And thanks to the complete integration of both systems, the generation and maintenance of documentation requires less time and effort.

Technology Description Box 1

THE I&C-CAE SYSTEM

For more than 25 years now, Rösberg Engineering has been offering Prodok, a powerful I&C-CAE system that ensures an integrated planning process with unified rules. Now Prodok NG, the next generation of this proven system, combines decades of experience with the most modern software technology, making the I&C-CAE system an 'out of the box' solution, which is simple to operate, flexible and inexpensive, and offers new possibilities in terms of visualization, modularization, integration into different system landscapes, databases and cloud applications.

Technology Description Box 2

DOCUMENTATION MADE EASY

The more up-to-date the plant documentation, the more effective is the work of the plant personnel. Livedok NG has been specially developed and tailored to the processes and requirements of plant operation and support. Using this system, plants can be documented electronically, meaning that making tedious multiple changes to paper documentation, and time-consuming hunts for documents, becomes a thing of the past. Livedok NG supports the complete life cycle of documentation, from document generation to comfortable use and the revision of the changed documents, and is also suitable for use on mobile devices. The Livedok NG Browser makes navigation and searches in an electronic filing system a child's play, and makes it easy to change documents using intuitive, high-performance tools. The redlining options range from handwritten entries, through text marking and strikethrough, to dynamic stamping and much more.