esaPRO Process Design

Process Solutions

The ESAPRO modules dedicated to process designers

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MAKE YOUR PLANT DESIGN EASY

ESAPRO Process Design

Process Design is a family of applications dedicated to the design of process diagrams. With these applications, you can **draw P&IDs**, create **datasheets**, manage **hook-ups**, and get **piping material estimations**.

ESAPRO P&ID

ESAPRO P&ID is the ideal choice for **intelligent process diagrams** guided by piping specs. With an intuitive and customizable graphic environment, compliant with **ISA** and **KKS**, it reduces errors by generating **automatic lists** and ensures **consistency** between the **scheme** and the **3D model**.

ESAPRO INSTRUMENTATION

The ESAPRO Instrumentation module is an add-on for ESAPRO P&ID that automatically generates **datasheets** and **hook-ups** from process diagrams. The bidirectional synchronization ensures alignment of datasheets for **instruments**, **control valves**, and **equipment**.

ESAPRO MTO

The ESAPRO MTO module is an add-on for ESAPRO P&ID that automatically generates **piping material estimates** by reading a **P&ID scheme**. Using **piping specs**, it efficiently and accurately counts **flanges**, **fittings**, **bolts**, and **reducers**.

The main features

Product Description:

ESAPRO P&ID is advanced software designed for creating intelligent and reliable process diagrams. Perfectly integrated with AutoCAD and BricsCAD, this application significantly increases productivity, facilitating the graphic drafting of diagrams and the automatic generation of line, valve, and instrument lists. ESAPRO P&ID is ideal for plant design in many sectors, including Oil & Gas, chemical, pharmaceutical, and food, and for plants of any size, making the design process more efficient and precise.

Main Features:

1. Constant Control and Assistance: ESAPRO P&ID guides the user through every phase of drafting the diagram using piping classes generated directly in ESAPRO or imported from PUMA®. This continuous assistance system ensures precision and consistency, minimizing the chances of error and allowing the designer to focus on the conceptual aspects of the work.

2. Customizable Environment: The software offers a graphic environment and symbol libraries compliant with international standards (ISO/UNI/DIN, ISA, KKS), which can be fully customized. Users can easily adapt the labeling rules and graphic interface to their needs, making the work more intuitive and faster. This allows for a tailored work environment that increases efficiency and productivity.

3. Advanced Graphic Tools: ESAPRO P&ID's powerful graphic functions drastically reduce drawing times and minimize errors. Functions such as automatic component placement and orientation, assisted stretching, and automatic line breaking make the design process extremely efficient. Additionally, the software allows quick valve replacement and equipment modification with simple grips, further simplifying editing operations.

4. Automatic Tagging: ESAPRO P&ID includes automatic tagging functions compliant with ISA and KKS standards. The composition of component and line labels is set once, and the software automatically assigns unique progressive numbers, ensuring consistency and precision. This automatic labeling system reduces the risk of errors and ensures that all the items of the project are correctly numbered.

5. Simple and Versatile Editing: The software is particularly efficient in the editing phase. Any changes made to piping classes or nominal diameters are automatically reflected on all associated components and lists, simplifying the handling of modifications. This functionality is particularly useful for maintaining project consistency and quickly making necessary changes without manually reviewing each part of the drawing.

6. Verification Tools: ESAPRO P&ID has automatic tools that allow checking line continuity, avoiding duplications, and easily locating lines, components, or instrumentation loops in the drawing. These verification tools ensure that the diagram remains accurate and error-free, facilitating project management and maintenance over time.

7. Customizable List Generation: The software automatically generates line, valve, instrument, and equipment lists in Excel or TXT formats. Using user-configurable templates, the lists can be customized to meet specific project needs. This functionality allows easy management and sharing of project information with the entire team or other partners.

8. Integration with ESAPRO 3D Piping: ESAPRO P&ID checks the consistency between the P&ID and the 3D model. This integration ensures that all information are consistent across modules, making it easier to coordinate between process design and 3D modeling. Consistency verification functions between the diagram and the 3D model help prevent errors and inconsistencies that could cause problems during the plant's implementation phase.

9. Revision Comparison: The software can generate reports that highlight the differences between different revisions of the same scheme, highlighting added, deleted, or changed objects. This functionality is critical to maintain accurate control of changes throughout the project and to transparently document all modifications made.

10. Electrical Schematics Integration: The ESAPRO SPAC Link® function allows sharing design data with the "SPAC Automazione software", facilitating the creation of electrical connection diagrams and ensuring complete integration between process and electrical design. This integration ensures that all electrical information are correctly aligned with the rest of the project, improving overall consistency and efficiency.

11. Maximum Compatibility: Files produced with ESAPRO P&ID are standard DWG files containing only AutoCAD standard entities. This ensures total compatibility with other software without the need for additional plug-ins or conversion tools, simplifying file exchange. Compatibility with the DWG/DXF format makes ESAPRO P&ID a versatile solution easily integrable with other tools used in the industry.

ESAPRO P&ID is the ideal solution for those seeking comprehensive, efficient, and easy-to-use plant design software, capable of ensuring precision, speed, and versatility in every project phase. With its advanced features, customization, and integration with other modules and software, ESAPRO P&ID offers an optimal work environment for designers and engineers, improving the quality and efficiency of industrial plant projects.

ESAPRO INSTRUMENTATION

The main features

Product Description:

ESAPRO Instrumentation, integrated with ESAPRO P&ID, allows automatic generation of datasheets and hook-ups from process diagrams. This advanced module ensures constant alignment of information in project documents, optimizing the management of instrumental data and improving overall design efficiency.

Main Features:

1. Automatic Datasheet Generation: ESAPRO Instrumentation is dedicated to creating and managing datasheets for instruments, components, and equipment. Using the project database powered by ESAPRO P&ID, it allows associating each instrument or component with its datasheet in Excel format, with fields automatically populated by the software.

2. Customizable Datasheet Library: The software includes an extensive library of standard, ISA-compliant datasheets for instruments and equipment. The library, in Excel format, can be easily customized or expanded by the user to meet specific design requirements.

3. Excel-like Data Editing Interface: The input of instrumental data is done through an Excel-like interface, facilitating bulk data entry with convenient copy/paste functions and Excel file import/export. This intuitive interface makes data entry fast and efficient.

4. Bidirectional Data Synchronization: ESAPRO Instrumentation ensures information consistency between the CAD drawing and the project database. Changes can be made either in the CAD drawing through ESAPRO P&ID or directly in the database, with the software managing the information flow and notifying the project team of any changes.

5. Customizable Hook-Up Libraries: 5. This module also allows the computation of materials for connecting instruments to piping lines or equipment. It includes a customizable catalog of components and a graphical tool in a CAD environment for creating new hook-up detail drawings.

6. Automatic Hook-Up Material Lists Generation: ESAPRO Instrumentation allows associating each instrument in the database with its hook-up and automatically produces lists of all the materials needed for installation, generating a summary table for each hook-up.

7. Assisted Hook-Up Drafting: With a CAD environment graphic tool, ESAPRO Instrumentation assists the user in creating hook-up construction drawings. It is possible to associate a CAD drawing with a typical hook-up, insert position tags to identify components, and feed the hook-up database, including material tables in the drawing.

ESAPRO Instrumentation is the ideal solution to optimize the management of instrumental data, improve design efficiency, and ensure constant alignment of information in project document

The main features

Product Description:

ESAPRO MTO, integrated with ESAPRO P&ID, allows automatic generation of detailed piping material lists from a P&ID. This advanced module facilitates preliminary material estimates, improving project efficiency and accuracy, and enabling optimal resource management from the early stages of design.

Main Features:

1. Preliminary Piping Material Estimates: ESAPRO MTO allows an initial calculation of materials, such as pipes, bends, tees, valves and flanges, which is essential at the quotation stage. Operating in a fully integrated environment with the other ESAPRO modules, it shares the project database, component archive and pipe classes, offering two modes of operation:

Automatic Mode: In this mode, ESAPRO MTO automatically calculates piping materials from P&ID diagrams created with ESAPRO P&ID. Using the piping classes defined in the common Specification Management environment of ESAPRO 3D Piping, ESAPRO Isometrics, and ESAPRO MTO, the software automatically counts valves, line components, branches, and reducers. The estimation of pipe lengths, number of bends, and possible joints, not directly extractable from the diagram, can be defined manually or based on customizable rules. This functionality drastically reduces the time needed for drafting estimates and increases the accuracy of calculations.

Manual Mode: In manual mode, the software functions as a guided data-entry program controlled by piping classes. Once a line with its class and nominal diameter is defined in the project, the user manually enters the quantities of various components, with automatic suggestions only for those compatible with the line's diameter and class. Materials entered without quantities are highlighted for quick review. This mode offers great flexibility and control, allowing adaptation to specific project requirements.

2. Operations Controlled by Piping Classes: ESAPRO MTO shares the "Specification Management" module with ESAPRO 3D Piping and ESAPRO Isometrics, allowing users to create piping classes by selecting components from a dimensional catalog that meets project criteria. The piping classes guide and control users throughout the workflow, ensuring that all operations conform to project standards.

3. Customizable Material Lists: The module produces detailed lists of piping materials and lines. Using configurable templates, lists can include only desired fields and be exported in TXT or Excel format for further processing or integration with external software. This flexibility ensures the production of documents that meet any company standard, facilitating the sharing and archiving of project information.

4. Perfect Integration: Thanks to its perfect integration with other ESAPRO modules, MTO ensures that all data is consistent and up-to-date in real time, improving coordination between various project teams. This integration optimizes workflow, reduces the risk of errors, and ensures greater operational efficiency.

ESAPRO MTO is the ideal solution for optimizing the preparation of piping material estimates, improving design efficiency, and ensuring precision and consistency in project information. This advanced module is a powerful tool for designers, enabling effective and accurate management of all project phases.