AVEVA™ P&ID

An intelligent, data-centric P&ID design application

AVEVA P&ID ensures design integrity from the outset. It is quick to set-up, easy to use, and enables process engineers & drafters to create, edit, and manage their 2D process drawings efficiently.

The solution can be used as a stand-alone application or be fully integrated with AVEVA Unified Engineering where all conceptual, FEED and detailed design can be accessed from a single data hub on cloud via AVEVA connect or on premises.

AVEVA P&ID is suitable for basic and detailed engineering, for EPCs and Owner Operators. From small initiatives to mega projects AVEVA P&ID has been proven time and again across all plant and marine sectors, including nuclear, and involving many hundreds and even thousands of P&IDs on a single design. Its data-centric approach enables multi-discipline collaboration in real-time to reduce error and complete projects more efficiently.

Throughout the lifecycle of the design process the system allows users to add real value to their design data within a predefined standard project environment.

The solution close-coupled to a standard database so that changes can be incorporated from the database into the P&ID and vice versa. AVEVA P&ID also stores all the intelligent engineering data onto the graphical entities in CAD-based drawings that can be used, if required, to regenerate the project database.
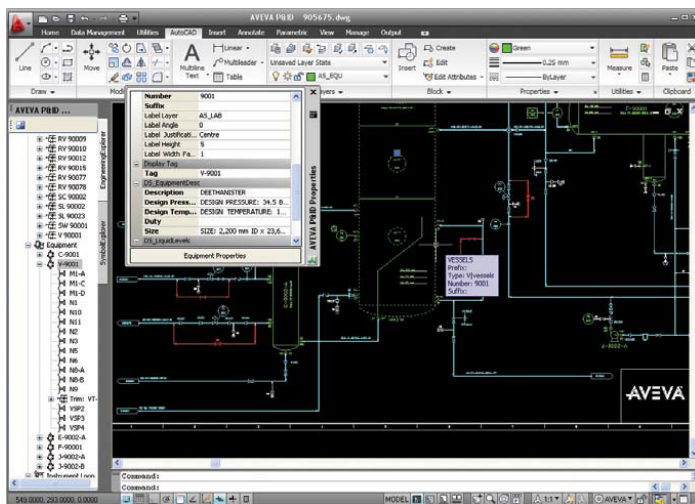
Business benefits

Design efficiency

- Fully data-centric allowing efficient work sharing

- Industry standard CAD environment ensures a minimal learning curve and ready availability of skilled users

- Easy to adopt

- Intelligent data is created automatically as the design is drafted

- Project-wide configuration, customisation, data control and reporting

- DEXPI Format Import / Export capabilities

Save time and cost

- Seamless integration with AVEVA Process, Engineering and Design applications to efficiently access in context to accurate and up-to-date information

- Toolkit to facilitate upgrade of non-intelligent AutoCAD® drawings to intelligent AVEVA P&ID drawings

- Design data can be easily reused and effectively reapplied on subsequent projects

- Significantly reduces man-hours through the ability to bulk-modify existing data

- Easy generation of configurable reports, with an Excel interface

Eliminate errors

- Advanced configurable design & formatting rules

- Intelligent data and configurable automatic error checking

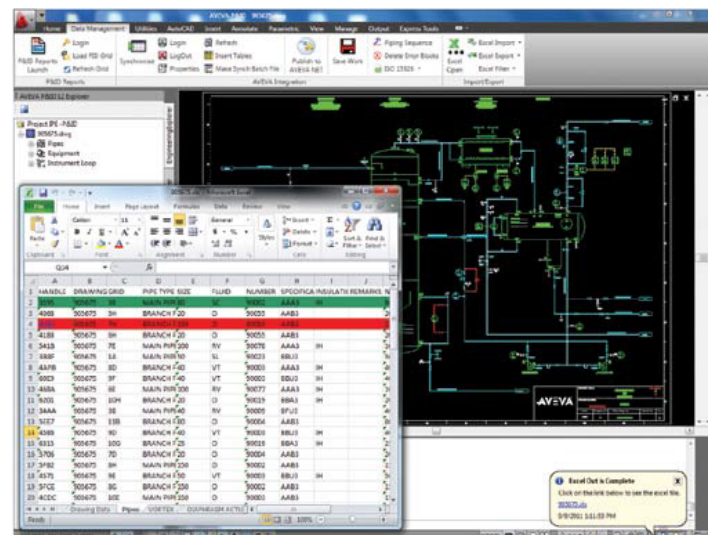- Delivers ISO 15926 output to create a logical model

Key features

Industry-standard CAD user interface

Aligned with industry-standard CAD features, AVEVA P&ID is intuitive to use requiring minimal familiarization. This product also supports the Microsoft® Office Fluent™ user interface menu system, capitalizing on this common standard interface. AVEVA P&ID is compliant with 32-bit and 64-bit versions of AutoCAD.
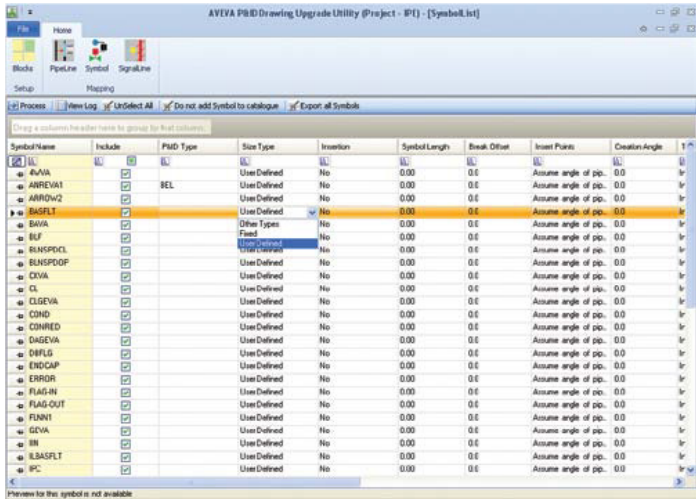
Highly productive

AVEVA P&ID offers an import / export DEXPI ISO 15926 and an upgrade of non-intelligent legacy drawings toolkits. By adding intelligence to dumb legacy drawings, users can import them into the AVEVA P&ID environment without the need to redraft. Features such as 'Typicals' allow repeated parts of the design to be drawn once but referenced many times. Instrument 'Patterns' are a simplified way of displaying instrumentation items,

The AVEVA P&ID user interface, based on industry standard CAD environment

Direct Excel input to P&ID

and copy-and-paste capabilities allow intelligent sections of drawings from previous or referenced projects to be rapidly reused on new projects.
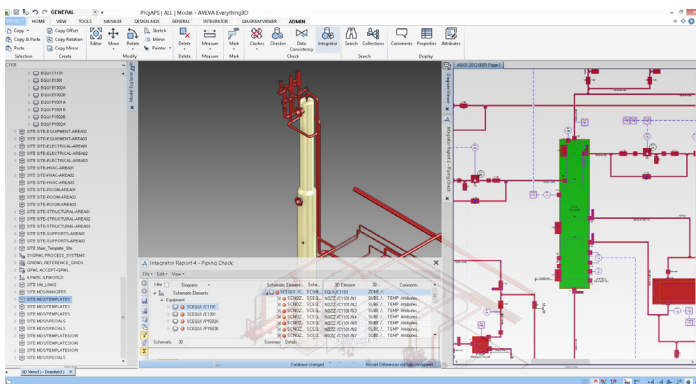

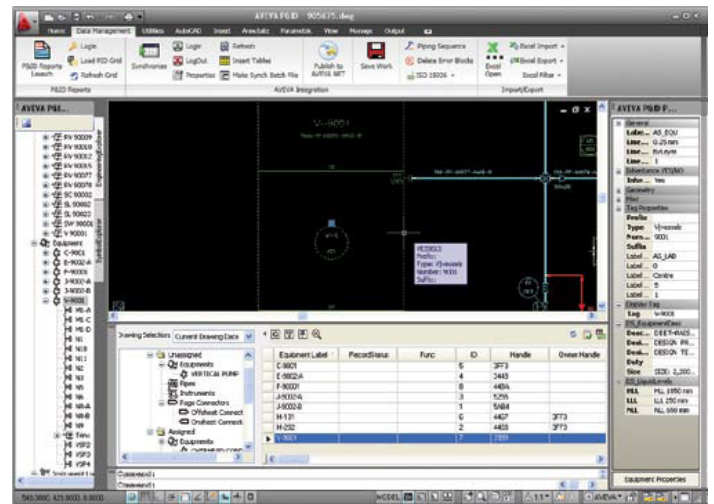Legacy Dumb to Intelligent – upgrade facility

Database integration

AVEVA P&ID integrates seamlessly with AVEVA Unified Engineering to work concurrently with conceptual design, FEED and detailed Design applications. It uses AVEVA's powerful Compare and Update methods, common in all AVEVA products, efficiently publish and access accurate, real-time information from FEED to the Design phase of your project or asset.

AVEVA P&ID design data can be synched directly to AVEVA E3D Design, making it readily available to 3D designers. P&ID data can be compared in AVEVA Schematic 3D Integrator against the Plant or Marine 3D model allowing users to create and modify 3D components from the P&IDs.

AVEVA P&ID includes a database grid that is used to insert unassigned elements such as mechanical, process or instrumentation and electrical equipment from the AVEVA Unified Engineering environment. Unassigned page connectors, or any other unassigned items which are included in the P&ID database but which have not been inserted in the drawing. Attribute values can also be inserted and maintained from the grid.
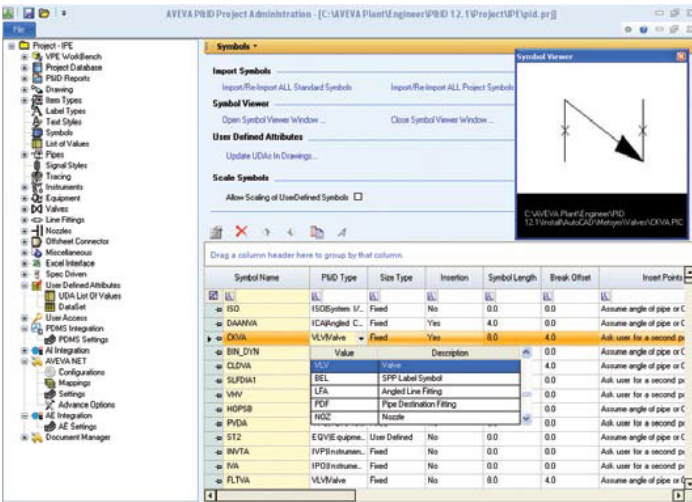
Overall, this integration provides a logically connected model that can be used with downstream engineering applications from FEED to the Design phase of your project or asset.

The AVEVA P&ID grid

Data integrity and consistency

AVEVA P&ID carries out configurable and powerful advanced integrity and consistency checks to ensure that the data created is free of inconsistencies. For example, stand-alone duplicate tag checking can be carried out automatically across the entire set of project drawings. Checking can be configured for different equipment groups to warn of, or prevent, duplicate tag entries. Automatic error checking for unconnected instruments and inconsistencies in bore diameters is also provided.

Project administrator

Demonstration of a assemblies being inserted

Centralized project administration

Project administrators can configure AVEVA P&ID on a project-wide basis to ensure consistent application of project rules. Crucially, the Project Administrator is password controlled to ensure a secure environment.

Flexible project configuration

AVEVA P&ID allows the use of most industry naming standards, such as ISA, KKS or PIP. It also allows for project configuration of attributes such as line styles, layers, colours, fonts and so on, to produce P&IDs which comply with project CAD standards.
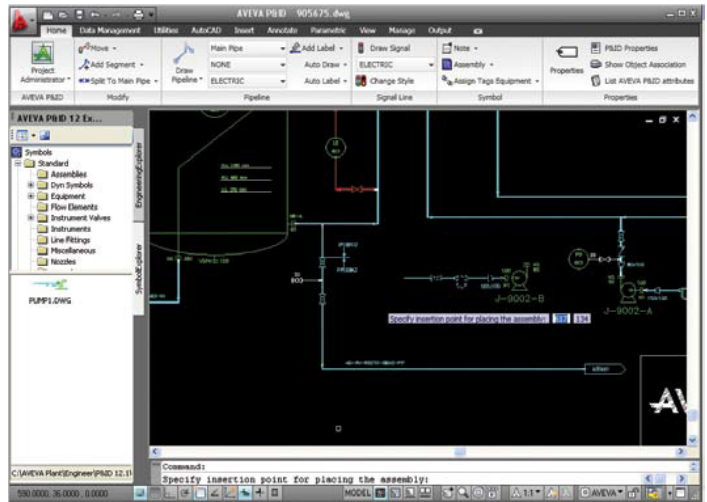
Easy-to-use symbol editor

New, intelligent symbols can be added rapidly, or standard AutoCAD symbols can be reused by adding intelligence to them.

Page connectors

AVEVA P&ID has intelligent page connectors that allow quick setting of the connections (unassign and assign page connectors) and navigation between P&ID diagrams.
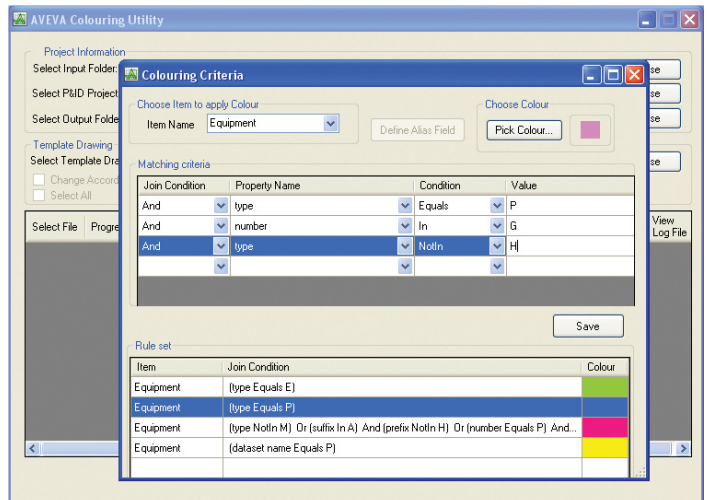
Intelligent assemblies

Groups of data can be saved and reinserted in the P&IDs, including graphical assemblies, piping tags, assemblies, UDAs and datasets assemblies.
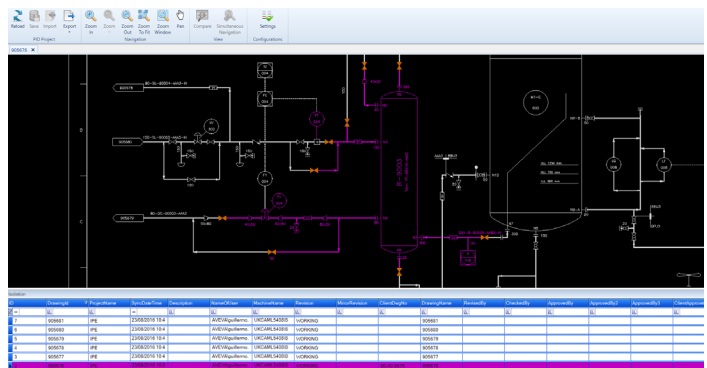
Colouring & isolation reporting utilities

AVEVA P&ID can also be used for different purposes, such as commissioning. This function allows the user to change the colours of multiple items, on multiple drawings within a project, based on P&ID attributes. New reporting functionality has been introduced to automatically report fluid circulation information using valves and pipes data isolation.
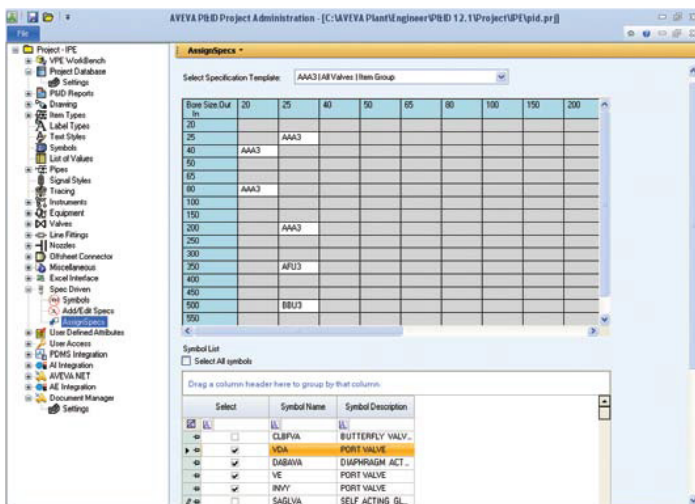

The Colouring utility

Spec-driven P&IDs

The system can also be spec-driven and pipe specifications can be imported. A PML function can be adapted by customers to filter specification data from AVEVA E3D Design; the contents of the report can then be imported into a P&ID project to maintain quality and save the duplication of data.

AVEVA P&ID has functionality within the Project Administration application that allows the user to configure the insertion of symbols depending on the piping specification; users can specify the symbols or group of symbols that can be inserted into each piping specification. Prevent, Warn and Ignore options are available when using this method. The user is also able to see the list of valid bore diameters when inserting reducer symbols.
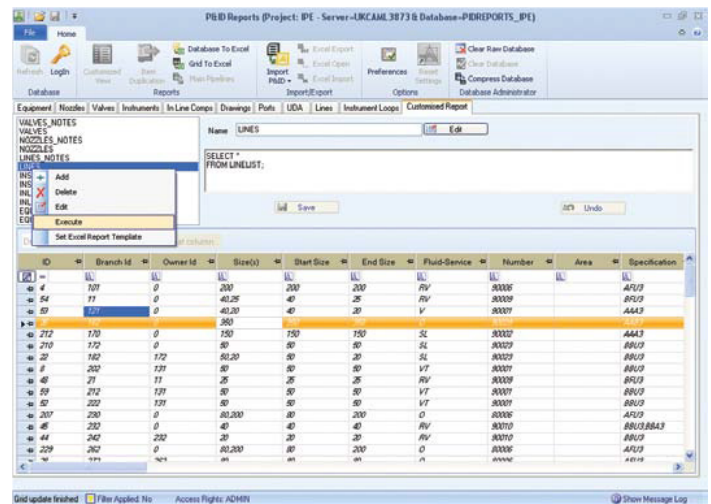

The spec-driven application

Microsoft Excel interface

An Excel interface allows rapid extraction, editing and updating of P&ID data. Data values can be updated in Excel and imported back project-wide or just into an individual P&ID. The P&ID automatically validates imported project lists of values to identify inconsistencies and prevent unauthorised edits to the drawing. Individual Excel worksheets are configurable using the AVEVA P&ID Administrator.

P&ID reports

AVEVA P&ID Reports is a password-controlled function used to manage and report the P&ID data. This function can dynamically merge pipelines across sheets, and it allows the user to define and create line lists, equipment lists, materials and instruments, and so on. AVEVA P&ID Reports can be used to create user-definable fields. The Excel interface will highlight changes when importing and exporting data.

The AVEVA P&ID Reports function
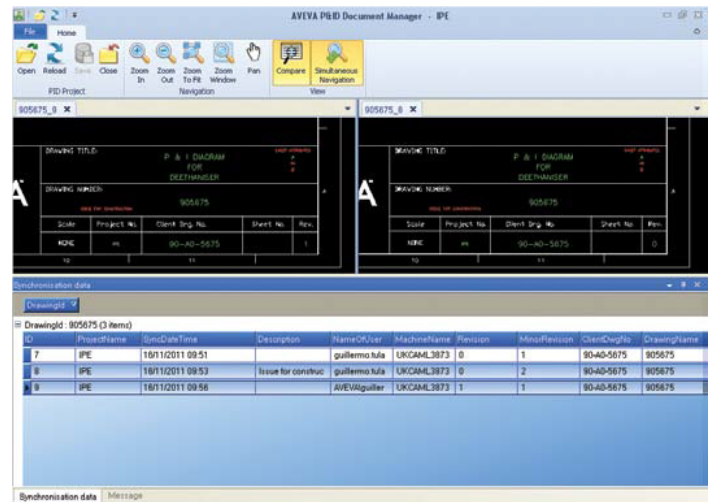
Automation functions

Automation functions make the P&ID drafting process fast and easy. P&IDs can be drawn once and reused within the design or elsewhere. Data from multiple P&IDs can be edited in bulk via the Excel interface.

These intelligent P&IDs, containing tagged items, quantities and connectivity data can be synched with AVEVA™ Engineering for production of project reports and datasheets. This highly productive system allows bulk P&ID editing, reduces errors and allows project-wide control. Properties, units, tag formats and graphics can be set in the Project Administrator and automatically updated in existing P&IDs. The data is then presented in the schematic database as a complete, connected, logical model of the plant.

Document Manager

Multiple revisions of your drawings can be saved to the database at key stages, giving you the opportunity to review and compare revisions or restore drawings and data to a previous version. Select two different revisions of the same drawing and visually compare the differences within the P&ID system. At each save or synchronize of the drawing a minor revision can be saved. When the drawing is issued a major revision is created.

For more information, please visit our website at sw.aveva.com/engineer-procure-construct/engineering-and-design/pid or speak with your AVEVA sales representative.

The Document Manager compare revision facilities

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