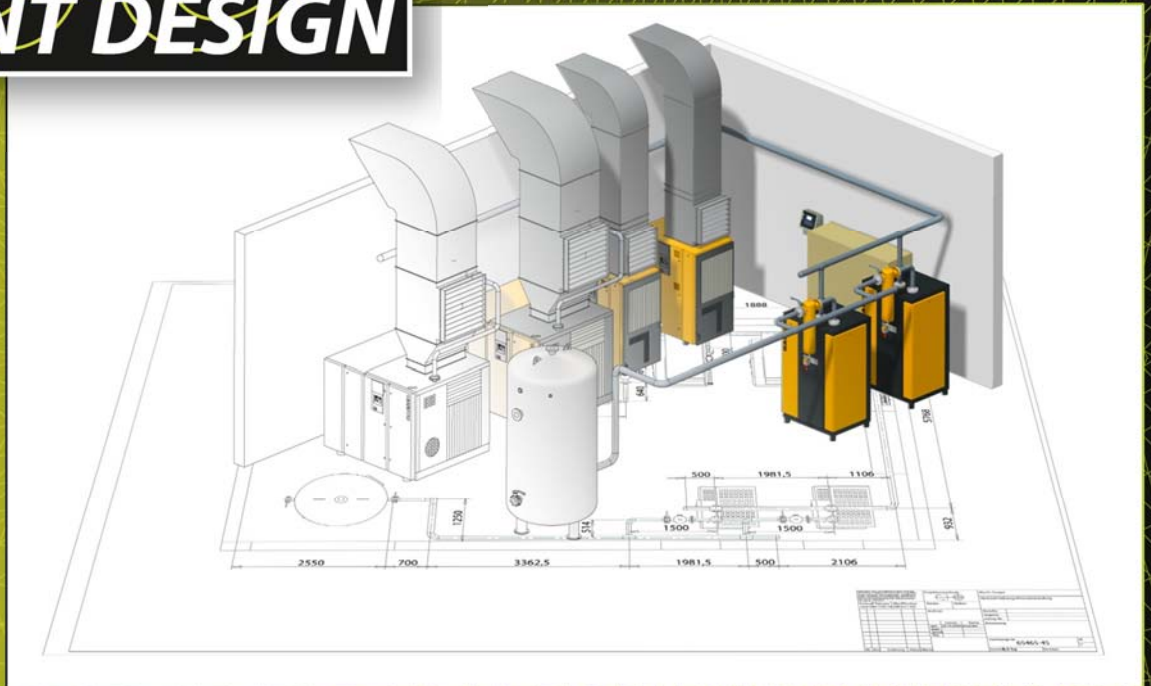
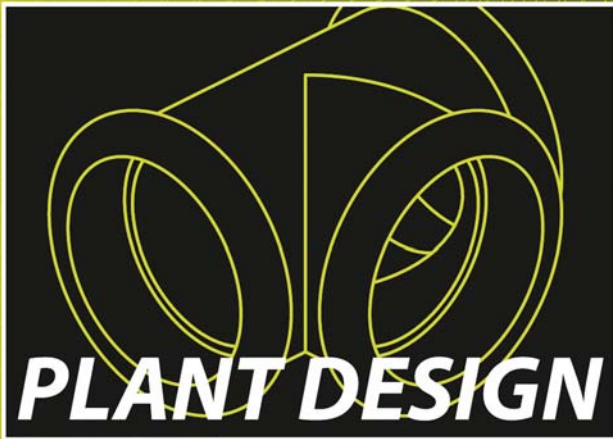
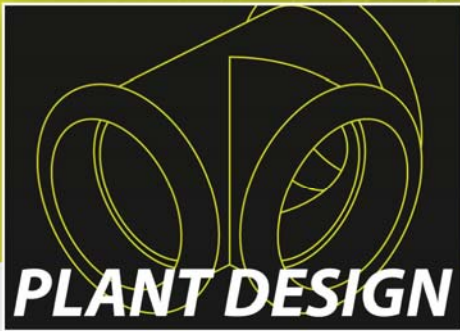


# *Smap3D*

DESIGNED FOR PRODUCTIVITY



[www.Smap3D-Plant-Design.com](http://www.Smap3D-Plant-Design.com)

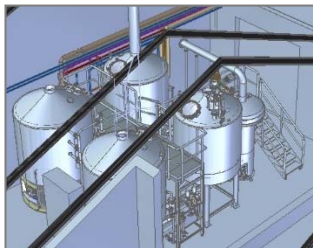


## Successful projects with Smap3D Plant Design



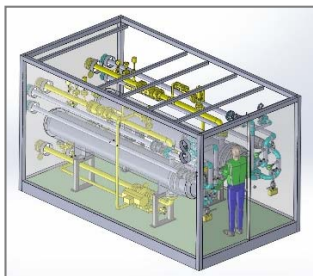
*"Our partner has solved all questions of detail with a homogenous complete solution. We are already impressed by the usability and efficiency."*

Grundfos Holding A/S, Denmark  
Lars Peder Hansen, Project Manager



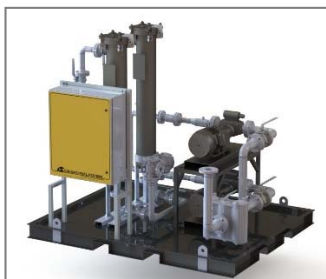
*"With the integrated solution for pipeline planning, we are working up to three times faster than the previous process."*

KASPAR SCHULZ, Germany  
Christian Montag, Group Leader of Mechanical Design



*"Pipe class specifications ensure that our corporate knowledgebase is available to every user, including new employees, with speed and process-reliability."*

IAF Process Engineering, Austria  
Christian Mehlsack, Technical Director



*"Smap3D's Pipe Class Specification and Partfinder modules have allowed me to easily add correct piping and vendor supplied parts to my database for a truly complete 3D production drawing."*

Cougar Sales, Inc., USA/TX  
Daniel Leos, Product Development/Marketing

## Smap3D Plant Design

### Intelligent 2D/3D Plant and Piping Design

Smap3D Plant Design is 3D CAD software for the fast, easy design of 3D piping systems used in mechanical engineering, equipment production and plant design. Smap3D Plant Design provides an integrated software solution for an optimal plant design process chain.

#### Smap3D P&ID

2D flowcharts, the first link in the process chain, are among the most important documents in plant design. Our integrated P&ID To-Do List function provides a simple easy connection between flowcharts and the 3D model.

#### Smap3D Piping

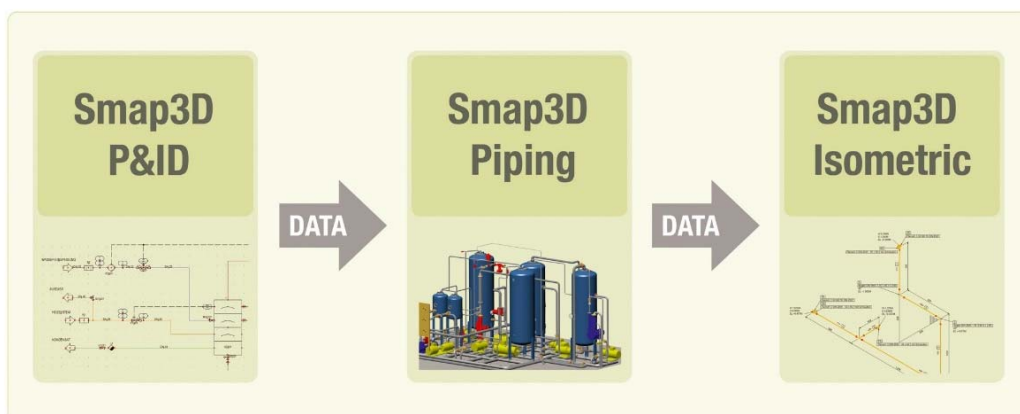
3D piping design, the second link in the process chain is highly automated with the Smap3D Piping add-in. The automation is based on pipe specifications (classes) which make it possible to create a highly powerful 3D plant design solution from the 3D CAD system.

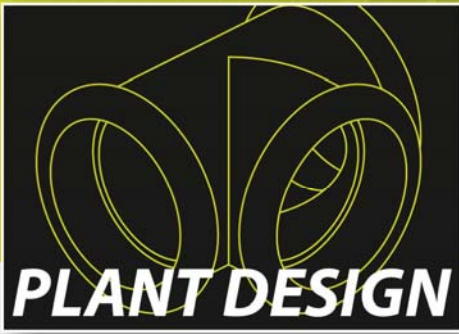
#### Smap3D Isometric

The isometric drawing is the third link in the process chain. The piping isometric is a single line technical drawing in the form of an isometric representation for the production of piping systems. We use ISOGEN® from the market leader Alias.

**From P&ID diagram  
to 3D design  
to isometrics**

## Integrated process reliability for plant engineers through a single software





## Smapp3D P&ID Intelligent application for process engineering

### Create, modify and manage with database support

With this software, independent of the CAD system, all relevant drawings, data, evaluations and inspections are generated in a single database - from a single initial drawing all the way through the entire project. Smapp3D P&ID **automates and simplifies** repetitive tasks. All drawings, project sheets and reports are template-based and thus 100% configurable.

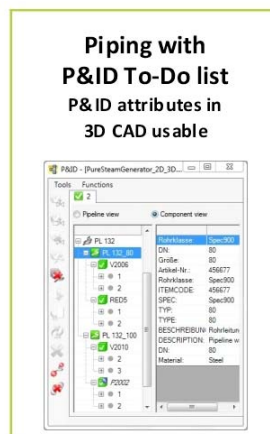
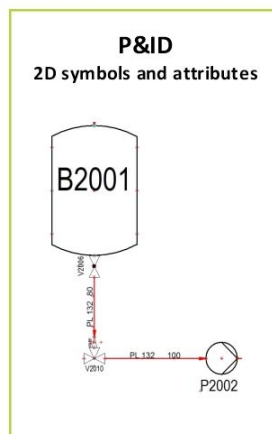
- **Process continuity** through the integration of P&ID in Smapp3D Piping.

- Dynamic lines (systems) automatically respond to separation and closing (for example, in the installation of symbols).
- **"Design Checks"** for evaluating individual P&ID drawings or the entire project for completeness, validity and accuracy.
- **Automatic search of TAG numbers** through the system.
- Expansion of the symbol libraries (ISO / DIN, ISA) and component database with company-specific symbols and components (as "intelligent" PDFs and as 2D geometry in DXF and DWG formats).

### P&ID To-Do List The intelligent 3D connection

The **P&ID To-Do List** is a function integrated in Smapp3D Plant Design which creates an intelligent connection between Smapp3D P&ID Schematic and 3D piping design with Smapp3D Piping.

The existing attributes of the symbols and lines defined in the P&ID by a process engineer can be evaluated automatically with the P&ID To-Do List. For the designer in 3D CAD, they serve as a basis for creating 3D piping systems and as support for the entire 3D plant design.



## Smap3D Piping Integrated Piping Design in the CAD Environment

The integrated Smap3D Piping software turns the CAD system into a high-performance 3D plant engineering solution. Thus 3D Piping can be used within the individual CAD system. A standalone solution is in development.

- Smap3D Piping automatically generates complete, three-dimensional pipelines with the proper fittings from the sketched pipeline paths.
- Smap3D Piping supports the installation of additional components (e.g. valves, instruments). The existing pipelines are separated and the required connections (e.g. flanges) are set up.

- Changes to the pipeline path are automatically updated.

Smap3D Piping uses pipe **specifications** which determine the conformity of components (fittings, valves, etc.) to the pipe characteristics (diameter, pressure, medium, etc.). These pipe specifications control the numerous automatic functions of the software.

This technology enables **convenient** 3D pipeline design and **process reliability**. Errors by individual users are prevented.

**3D mechanical engineering and piping design directly in a 3D CAD environment**

**Conveniently create 3D piping systems with pipe classes**

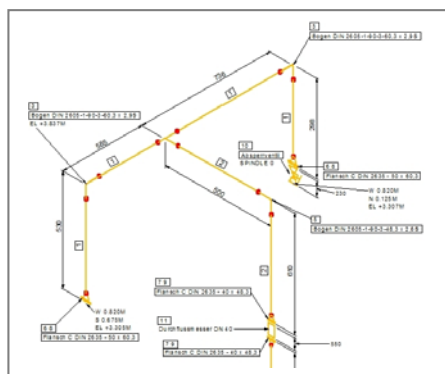
## Smap3D Isometric Automatic Creation of Isometrics

The software exports all 3D pipeline information and **automatically** creates the isometric drawing. The basic software is ISOGEN® from the market leader Alias.

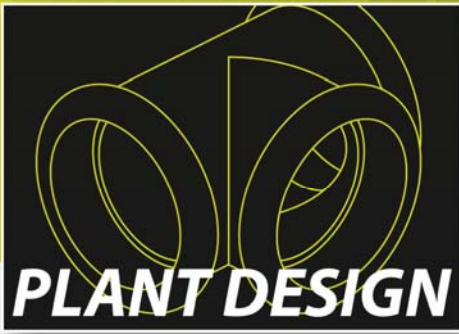
- Create piping isometrics from the 3D assembly at the touch of a button.
- Export of information for pipeline simulation (SIGMA ROHR2 / CEASAR II®).

The creation of the pipeline figures as well as all corresponding information - such as dimensions, cross-hatches, annotations - is done automatically via pre-adjustable parameters (styles) that can be configured individually. Various BOMs (e.g. material or welding

parts lists) can be automatically displayed on the drawing and/or generated as an ASCII file for transfer to an inventory control system.



**User-friendly generation of isometrics and reports**



## Primary Functions of Smap3D Piping



**A comprehensive library** for plant engineering allows immediate implementation of the Smap3D Piping software. Various international standards are available: DIN/ISO, ANSI, UNI, GB, JIS, GOST.



**Automatic generation and modification of complete piping systems**  
After selecting the pipe classes, pipelines are generated at the touch of a button. The user must only define the path; the software takes care of the rest automatically.



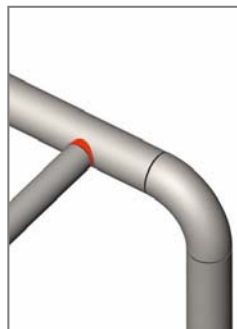
**All cross-sections**  
Smap3D Piping can process freely defined system cross-sections. Even non-circular cross-sections for cable ducts, air ducts, etc. can be efficiently designed.



**Line reductions and extensions** can be implemented with just a few clicks of the mouse. All necessary work - such as separating lines, shortening pipes, changing the diameter, etc. - is done automatically by Smap3D Piping.



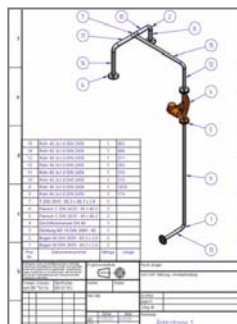
**Insulation** is defined in the pipe classes. For each diameter, an individual value for the dimension is stored. Insulation and fittings required for breaks are generated automatically.



**Extrusions and OLETs** may be used at branches as an alternative to T-components. Normally inserted by time-consuming mechanical processing, Smap3D Piping creates the extrusions automatically.



**CADENAS purchased parts catalogs**  
Full integration of the purchased parts catalogs from the market leader CADENAS. Purchased parts for plants such as pumps and valves can be integrated in Smap3D Plant Design.



**Bill of materials**  
For pipelines created with Smap3D Piping, all information relevant to the plant design is available for BOMs. The BOMs can be created using the CAD system and/or via the isometrics.

## Smap3D ScanToCAD Faster realization of existing projects

With Smap3D ScanToCAD, designers can more quickly transfer existing physical surfaces and geometries from 3D scans/point clouds into the CAD, instead of drawing these themselves!

**How it works in practice: The physical object is transferred directly into the 3D drawing in the PC via the point clouds.**

### Step 1: 3D scanning

The designer scans the actual object or authorizes a local surveyor's office. Advantages to contracting a surveyor's office: travel expenses as well as in-house staff costs and the purchase of a 3D laser scanner are eliminated.

### Step 2: Read-in scanned data

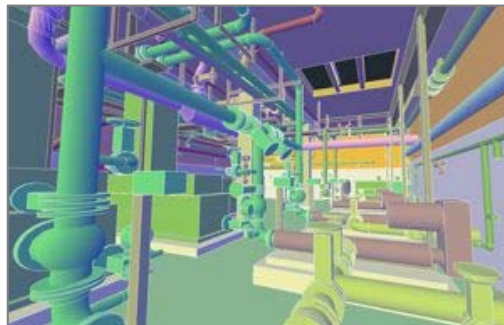
The designer obtains various scans that are now referenced in relation to each other with the help of Smap3D ScanToCAD. This means the designer can combine the individual scans and incorporate them into an overall project. Advantage: Smap3D ScanToCAD can read-in and manage common scan formats.

### Step 3: Selection and data export

The designer selects which areas and geometries are currently required. These are exported to the CAD system. Advantage: Instead of point clouds with high data volume, selected areas and geometries are transferred into the 3D-CAD. This eliminates a hugely time-consuming process - the volume of data is significantly reduced!



Point clouds



3D CAD view

**Efficient transfer  
from 3D scan  
into your  
3D CAD system**

### Functional overview

- Evaluation of 3D scatter plots through effective reconstruction tools
- Export of standard geometries from the scatter plot into the 3D-CAD target system
- Support of all major scanner formats/types such as ASCII, Faro, Leica, Optech, Riegl, Topcon, Trimble, Zoller and Fröhlich or E57
- Computation of photographic representations from the laser scanner's reflectance values or from the color photographs
- Fast and effective reconstruction of technological equipment, designed for straight pipe flows, bends, valves or branches
- Free viewer



CAD Partner is a global provider of software and services for mechanical engineering and plant design. The proprietary product Smap3D Plant Design meets the needs of the entire plant design process chain. For more information about the products and services of CAD Partner, visit

**[www.Smap3D.com](http://www.Smap3D.com)**

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Smap3D Plant Design needs no further system requirements.  
The recommended system requirements of the supporting  
CAD systems are sufficient.