Smap3D P&ID

powered by PC|SCHEMATIC

Quick Start Guide

Rev. 02

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Preface

This manual gives you a quick introduction to working with the **Smap3D P&ID** Software from CAD Partner GmbH.

You get an introduction to:

- The contents of **Smap3D P&ID** -Projects

- Inserting new project pages

- Drawing diagrams

- Creating lists and reports

- Creating custom symbols

- Useful program short-cuts

... and much more. If you need more detailed information, please refer to the main **Smap3D P&ID** manual.

Smap3D P&ID Helpdesk and FAQ

At www.smap3d.com in area Helpdesk you also have access to the Smap3D Plant Design Helpdesk, where you get tips and help to Smap3D P&ID, Piping and Isometric.

Installing the program

See how to install the program in the enclosed **Smap3D Plant Design installation guide**.
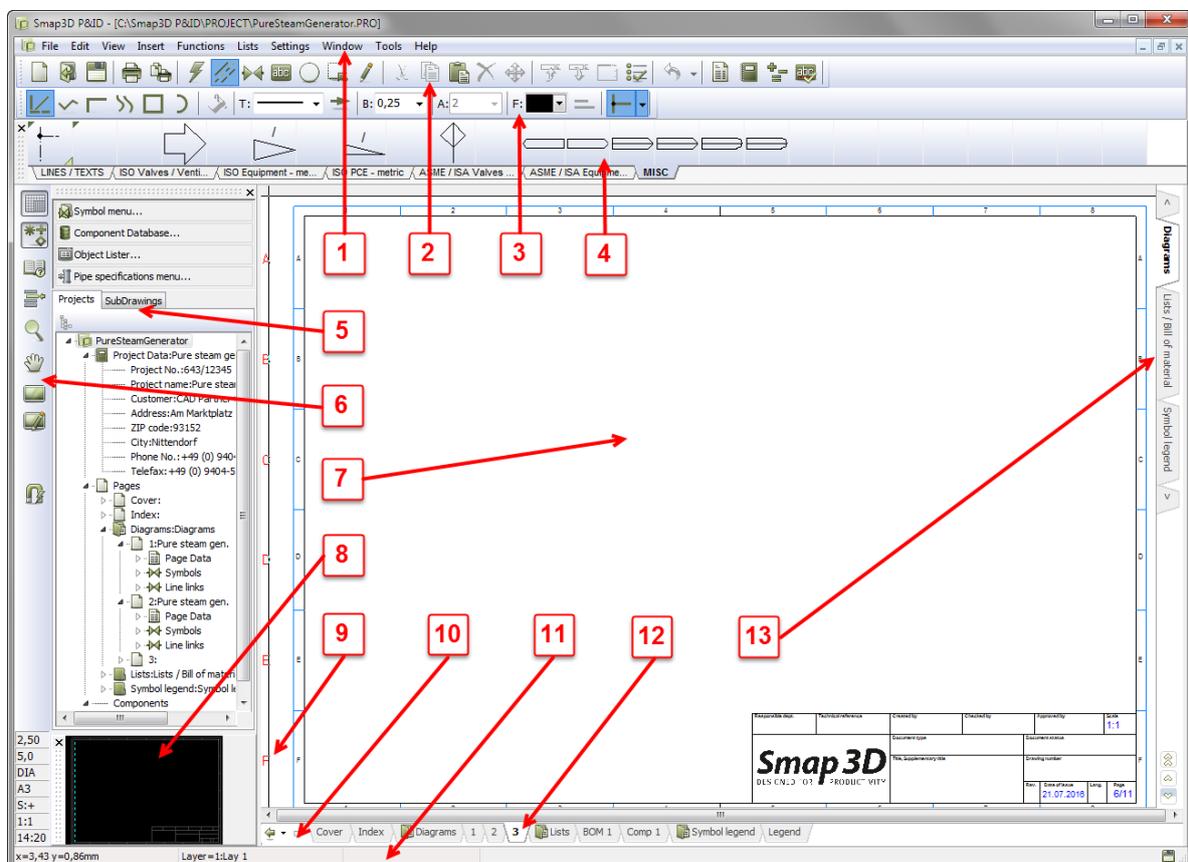
The user interface

The work area

After starting **Smap3D P&ID**, choose **File > Open** and open the project *PureSteamGenerator.PRO*. The project is in the folder *. . .\Smap3D P&ID\PROJECT*.

Go through the project by clicking the page tabs at the bottom of the screen (see page tabs).

- The work area in Smap3D P&ID looks like this:

1. The menu bar

In the menu bar you find the pull-down menus that contains all program functions.

2. The program toolbar

In the program toolbar you can choose the most common files and printing options, as well as general drawing and editing functions with buttons.

3. The command toolbar

The command toolbar has a varying appearance depending on which object type is selected in the program tool bar.
— Learn more about object types in chapter Drawing Diagrams.

4. The pickmenu

Here you place the symbols, line types, and text types you use the most (favorites), so that you can fetch them right away, and place directly in the diagram pages.
By clicking on the tabs at the bottom of the pickmenu, you select which of the created pickmenus to display.
— See Symbols.

5. The Explorer window

The Explorer window contains the two tabs **Projects** and **SubDrawings**.

Projects tab:

On the Projects tab you can get information about all open projects.
You get a survey of the project pages and a survey of all components on these pages.
When you click on an object symbol for a project page, the page is displayed on the screen.

SubDrawings tab:

The SubDrawings tab is applied for handling — e.g. placing, editing, and displaying — sub drawings and templates.
For instance, you can drag templates and sub drawings into the active project page or create new sub drawings based on copied areas from the active project.
— See How to insert new pages.

6. The left toolbar

The left toolbar contains various page and zoom functions and — at the bottom — information about the page settings and status.

7. The work area

The work area on the screen corresponds to the size of paper you have chosen to work on.
The size of the paper is specified in **Settings > Page setup....**

8. The survey window

The survey window gives you a survey of the entire page. The part of the page that you currently see on the screen (the zoom), is represented by the black box.
This black box can be moved by dragging it with left mouse button.

9. Current path numbers

Current path numbers are displayed in two different places: At the location you specify in your project and on the lower part of the screen.
When you zoom in on a part of a diagram, the current path numbers will still be displayed on the lower part of the screen.
Thus, you will always know where you are on the diagram.

10. Page history buttons

By clicking on the **Page history** buttons   , you can jump to the previously active pages in the project.

11. The status line

Among others, you can see here coordinates, layer titles, guiding texts, as well as various messages.
When you rest the mouse pointer over for instance a button on the screen, an explanatory text (tool tip) will be displayed here.

12. Page tabs

When you click on a chapter tab, you jump to the first page in the selected chapter.
— See How to choose pages and chapters.
Page tabs are automatically created in a project when templates with specific page function setting are used/inserted.

13. Chapter tabs

When you click on a chapter tab, you jump to the first page in the selected chapter.
— See How to choose pages and chapters.

Most important zoom functions

Middle mouse wheel

When scroll middle mouse wheel (if available) the zoom factor in work area does change.

- Scroll the mouse wheel forward, will enlarge (zoom in) the area where the cross hairs are located.

- Scroll the mouse wheel backward, will scale down (zoom out) the area where the cross hairs are located.

You can change the behavior of scrolling the middle mouse wheel button between **Zoom**, **Reverse zoom** and **Scroll** by clicking on the pull-down menu **Settings > Pointer/Screen** and select the desired function under **Mouse wheel**.
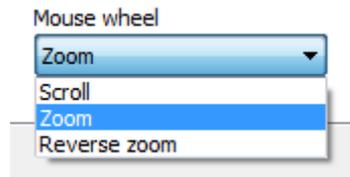
Functions in left toolbar

In the left toolbar there are zoom functions available as icons.

+ Zoom

The function **+Zoom** will allow you to zoom into a selected rectangle area.
This zoom area must be defined with the mouse on the active page.
To do this, click on the icon and drag a window around the area you wish to zoom into.

PAN

This function **PAN** will allow you to move the active page **free** in all directions.
For this you must press and hold the left mouse button while dragging the mouse.
The zoom factor is NOT changed with this function.

Zoom to page (Home)

This function **Zoom to page** (Home) will reset the actual view of the active page back to full screen.
Per default, zoom to page will display the page in full screen.
But if the user has defined a different "user specific" home view in menu **View > Set User Home view**, then the view will reset to this stored definition.

Projects and Pages

What is a Project?

What does 'project oriented' mean?

**Smap3D P&ID** is a project-oriented program.
This means that all the information you need regarding a PID project, is gathered in one single file (***.PRO**).
Therefore, you do not need to change program when you e.g. want to generate lists, bill of material, or chapter divider because these are part of the same project file as the diagram drawings.

What does a project consist of?

A project can typically contain a front page, table of content, chapter front pages, pages with diagrams, pages containing different types of lists and a symbol documentation.
All these parts are placed on their individual page/pages in the project.
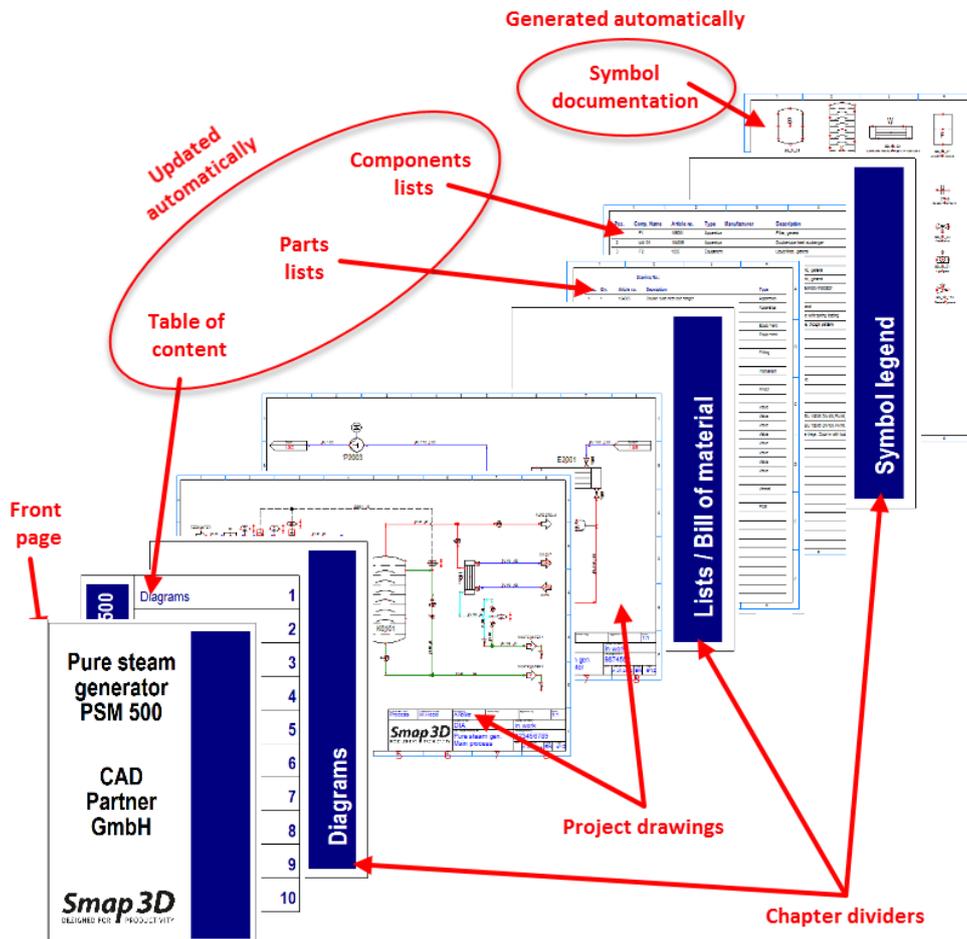
	Sample project
	See a project example in the file ***PureSteamGenerator.PRO*** in the `Smap3D P&ID\PROJECT` folder.
	All explained page types are also included in this project.

The project drawing is the heart of the project

The heart of your project is the project drawings.
Here you draw the diagrams by placing **symbols**, **lines** and **texts** on one or more diagram pages.
Here you also attach **component article data and process information** to the individual symbols in the diagrams.
This article data can be fetched from the component database and can then be transferred automatically to the project lists.

	Symbol documentation
	You can also generate Symbol documentation (symbol legends) automatically in a project.
	— Get further details in the **Smap3D P&ID** Tools manual (menu Help).
	In this manual you can also see how to translate project texts with the **Translator program**, and how to set up the parameters for **DWG/DXF** import and export.

# How to insert new pages?

There are many ways to insert new pages in **Smap3D P&ID**.
Here is one of them:

How to drag a new page into a project?

1. Choose **File > Open** and open the project *PureSteamGenerator.PRO* (placed in folder
    ...\Smap3D P&ID\PROJECT).

2. Click the page tab for page **2** at the bottom of the screen to specify where you want to place
    the new project page:

3. In the **Explorer** window: Click the **SubDrawings** tab and click the **Template** folder.
    – Here you see all the page templates you can drag into the project. The templates are ordered
    in folders according to their function.
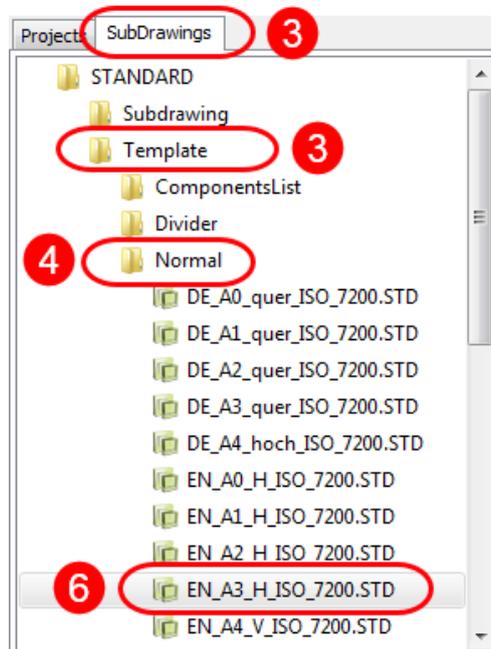
4. To insert a diagram page: Click the **Normal** folder and all templates containing empty diagram
    pages are displayed.

5. Click on the pages to check what they look like. A short description is also displayed.

6. Click on ***EN_A3_H_ISO_7200.STD***, keeping the mouse button pressed down, drag the page into the project and release the mouse button.

7. The page is now inserted into the project. You can also insert a page by pressing the <**Ctrl**>, while clicking the desired page.


Choose the correct page type

If, for instance, you create a list on a diagram (function **NORMAL**), the list will not get data from your drawings automatically.
For lists there are the page types **Parts List** and **Components List**.

How to choose pages and chapters?

— Open the project *...\Smap3D P&ID\PROJECT\PureSteamGenerator.PRO*.
You can change back and forth between the project pages by clicking the tabs on the lower part of the screen.
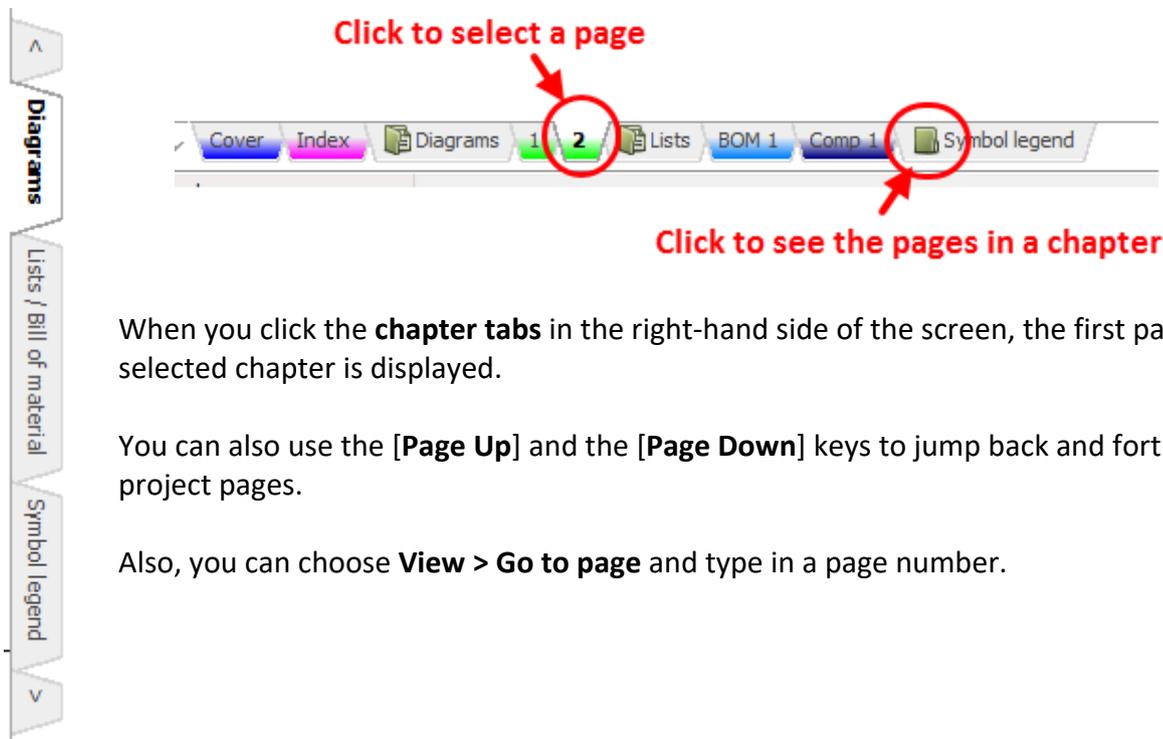
When you click the **chapter tabs** in the right-hand side of the screen, the first page in the selected chapter is displayed.

You can also use the [**Page Up**] and the [**Page Down**] keys to jump back and forth between project pages.
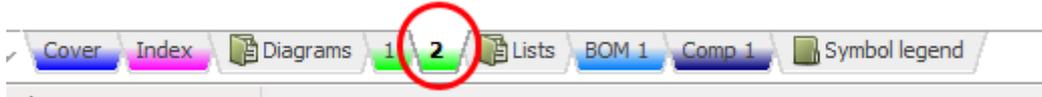
Also, you can choose **View > Go to page** and type in a page number.

How to move, copy and delete pages?

Below is just described one among many ways to **move**, **delete** and **copy** pages.

How to move pages using the page tabs?

1. Select the page: Click the page tab for the page you want to move.

2. Click the page tab again, keep the mouse button pressed down and **drag** the page to the desired position. **Release** the mouse button.

3. Click **OK** to move the page.

4. If you have moved a **chapter divider**, you also are asked whether to move all pages in the chapter.

## Copy pages and chapters using the page tabs

Pages and chapters are copied just like described above; the only difference is that you press the <**Ctrl**> key while doing it.

When you copy pages/chapters, a small **+** is displayed in the cursor.

When you copy pages, you are asked whether/how to rename the symbols on the page — and specify reference designations (if any).

Delete pages via the page tabs

1. Right-click the page tab.

2. Choose **Delete**.
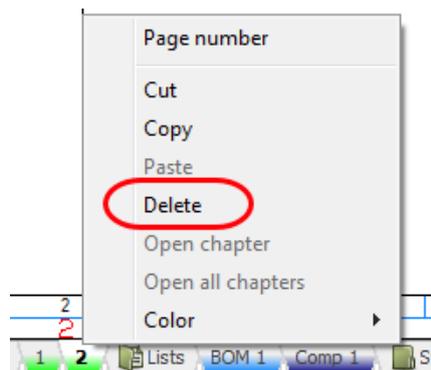
Drawing Diagrams

Drawing objects

What is a drawing object?

In **Smap3D P&ID** there are four different types of drawing objects: **Symbols**, **Texts**, **Lines** and **Circles**.

Any object you place in a drawing, will always be one of these four types of drawing objects. There is also the **Area** command, which makes it possible to work with all objects at the same time - e.g. when copying, deleting, moving or rotating objects.

How to change object type?

When you want to work with a specific type of drawing object, start by **clicking** one of these **buttons** or use the **short-cut keys** in bracket:

Symbols [s]	Texts [t]	Lines [l]	Circles [c]	Areas [o]

When you click one of these buttons, your options change:

— The program toolbar changes
— The options in the program menus change
— You are only allowed to work with objects of the chosen type

Auto command change

If you want **Smap3D P&ID** to change the command for you automatically, click the **Auto command change** button, located on the left-hand side of the Line button.

When this function is enabled (blue button background), **Smap3D P&ID** will automatically switch to the object type of the selected object - e.g. **Lines**.

The function is disabled by clicking the **Auto command change** button again.

How to work with drawing objects?

In **Smap3D P&ID** there are two different modes to work in.

Which mode you work in is determined by the **Draw** 🖉 button - also called the **Pencil**).
You either:

a.   Draw/place **new objects** (enabled/highlighted Pencil), or you work on

b.   **already placed** objects (disabled **Pencil**) - e.g. when moving, copying, deleting, or editing objects.
The objects are selected by clicking them, or by clicking and dragging the mouse over the selected objects.
— See Selecting multiple objects.

Symbols

In **Smap3D P&ID** you use **symbols** when you want to represent a specific procedural component or function in a diagram.

When for instance you want to represent a vessel, you find the symbol for a vessel and place it in the diagram.

Components with multiple functions can have more than one symbols attached – see Components.

The symbols toolbar

When you work with **Symbols**, you have the symbols toolbar on the screen:
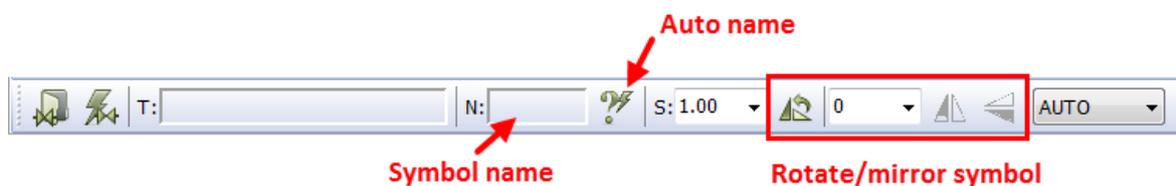
In the **Symbol menu** (F8) you can find the symbols ordered in different folders.

The process symbols are in the folders with the standard names. In the other folders (e.g. EN Metric Drawings) other symbols used in **Smap3D P&ID** are included.

The whole symbol content of such a folder will displayed if you click on it.

Select one available symbol with a double-click to take it in the cross hairs on the active diagram page.

In the **Symbol generator** you can generate rectangular and circular symbols **on the fly** (e.g. for block diagrams).

In this wizard you do **not** have the possibility to **change** the given geometry.

Using the pickmenu

When working with **Smap3D P&ID**, prepared **pickmenus** are displayed on the upper part of the screen.
Here you can place the symbols - and other drawing objects - you use the most (**favorites**).
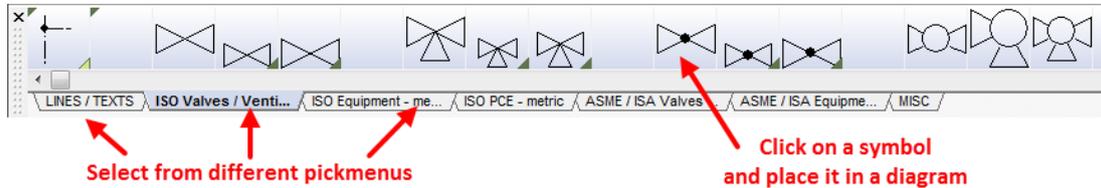
How to place a symbol from the pickmenu?

1.   Click on the desired symbol in the pickmenu (e.g. vessel).

     The program changes automatically to work with **Symbols** and the **Pencil** is enabled.

2.   The symbol is now in the cross hairs: Click on the page where you want to place the symbol.

3.   You now enter the dialogue box **Component data**:
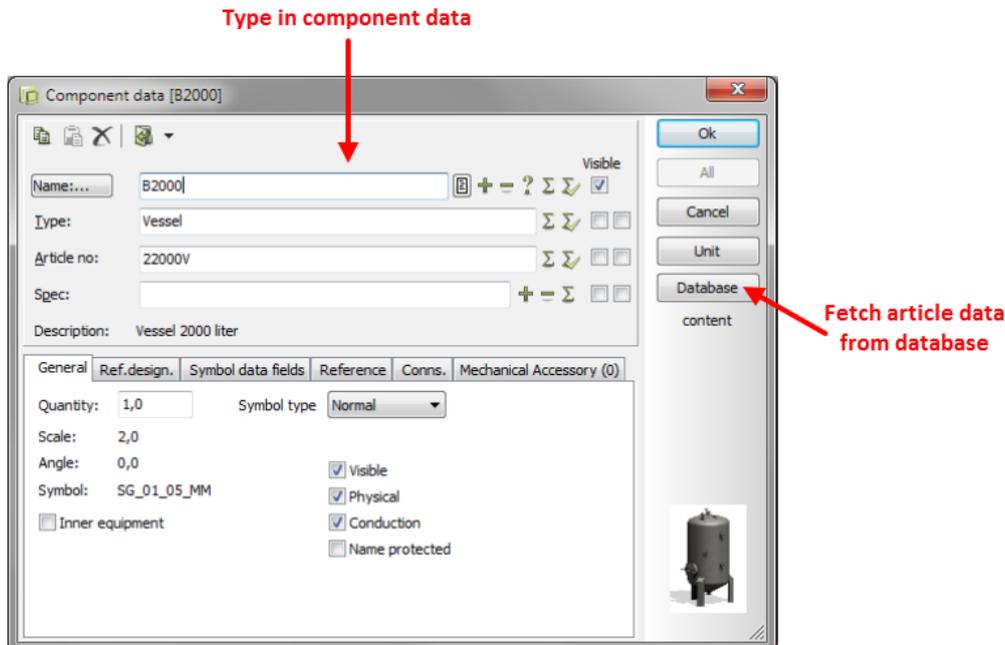
4.   Type in the component name (TAG) manually, type or assign from database the article number and spec description and click **OK**.

5.   The symbol is now placed in the diagram and have attached article data. Press <**Esc**> to remove the symbol from the cross hairs.

Selecting components in the database via the pickmenu

1. Press <**Ctrl**> while clicking on a specific symbol in the pickmenu.

2. You enter the **Database** menu: Here you see all component in the database, that contain this symbol.

3. Click on the desired component (database entry), click **OK** and place the component symbol(s) on the page.

Symbols with graphical states in the pickmenu

The symbols in the pickmenu can include graphical states.

When this is the case, it is important to know:

*   If there is a symbol in the pickmenu, which is displayed with a **dark green edge** in the lower right corner, then more than one graphical state is defined in the symbol.
    If you move your mouse over this symbol (no clicking) and wait a second, then a selection window for the different graphic states is displayed.
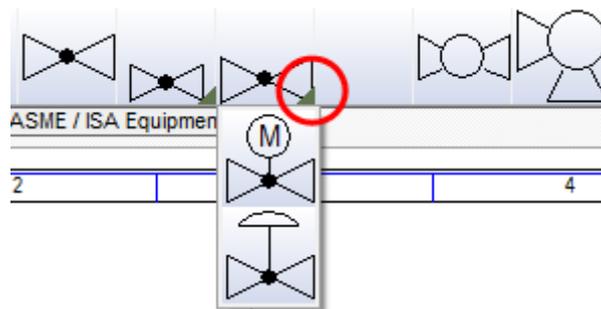
Selecting multiple objects

— Start by opening the project *. . . \Smap3D P&ID\PROJECT\PureSteamGenerator.PRO* and try for yourself how to select objects etc. as described below.
When you work with already placed objects, start by selecting the objects:

1. Click the object type button - e.g. **abc** **Text**.

2. Make sure that the pencil is **disabled**: press **<Esc>**.

3. Click in one corner of the area you want to select (see figure below).

4. Still pressing down the mouse button, drag the mouse to the opposite corner of the area until a rectangle is drawn around the objects you want to select.

5. **Release** the mouse button. The texts in the area are now selected:
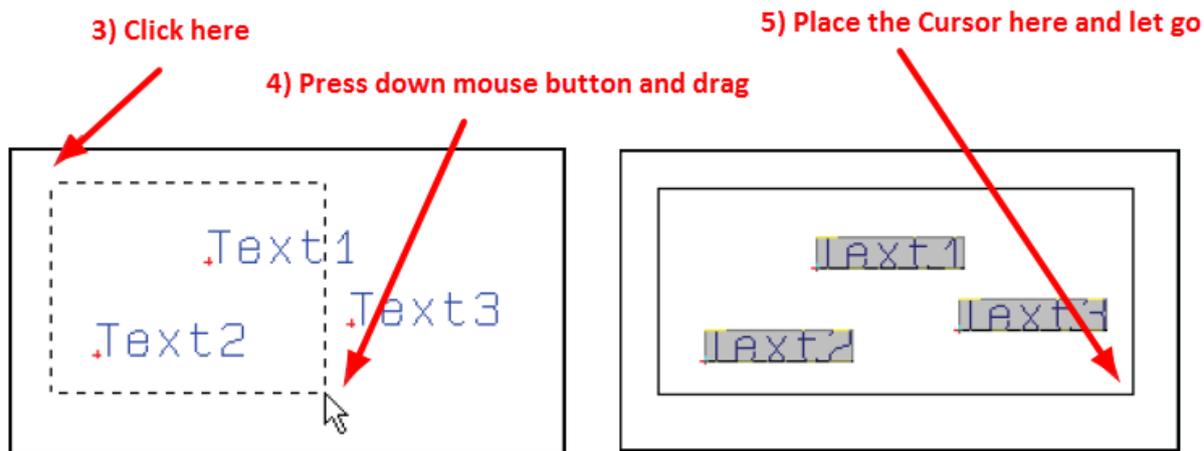
If you want to deselect one or more objects inside the window, press the **<Ctrl>** key and click on the object(s).

If you also want to select objects outside the area, also press the **<Ctrl>** key and click on these objects.

How to move, copy and edit objects?

Having selected the objects, click the **Copy** , **Move** , or **Delete** button.
When you copy symbols, you will be asked whether to rename them when placing the symbols.
Press <**Esc**> to remove the objects from the cross hairs.

You can undo your actions by clicking the **Undo** button and redraw the page by clicking the

Redraw button. — See also How to delete a symbol.

How to select different objects types in one operation

To select multiple object types in a single operation, first click the **Area** button and then continue as described above.

How to delete a symbol?

1. Click the **Symbols** button and press **Esc>** to disable the Pencil.

2. Select the required symbol.

3. Click the **Delete** button and the dialogue box **Delete** is displayed:
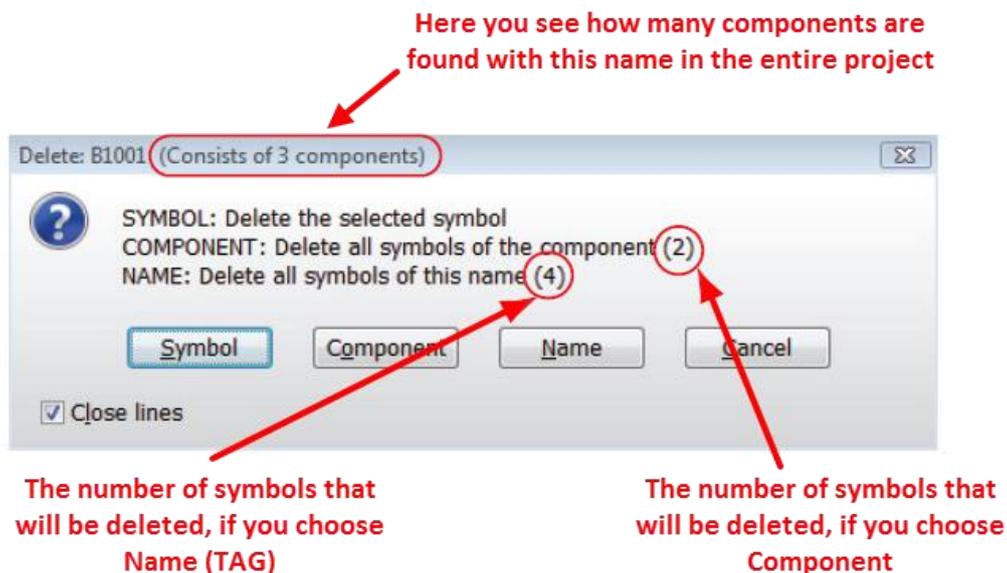

4. You now have the following options:
    - Click on **Symbol**: only the selected symbol is deleted.

    - Click on **Component**: all symbols for the selected component are deleted (in the figure above you can see the component consist of 2 symbols).

    - Click on **Name**: all symbols with this name (same TAG) are deleted (in the figure above you can see there are 4 symbols with this name in the project).

    - Click on **Cancel**: No action is taken.

    — If you select **Close lines**, the lines are closed for all deleted symbols whenever this is possible (logical and geometry check).

    — If you do **not select Close lines**, the lines are not closed (then they parked).

a) Close lines selected

The lines are closed

b) Close lines NOT selected

The lines are NOT closed
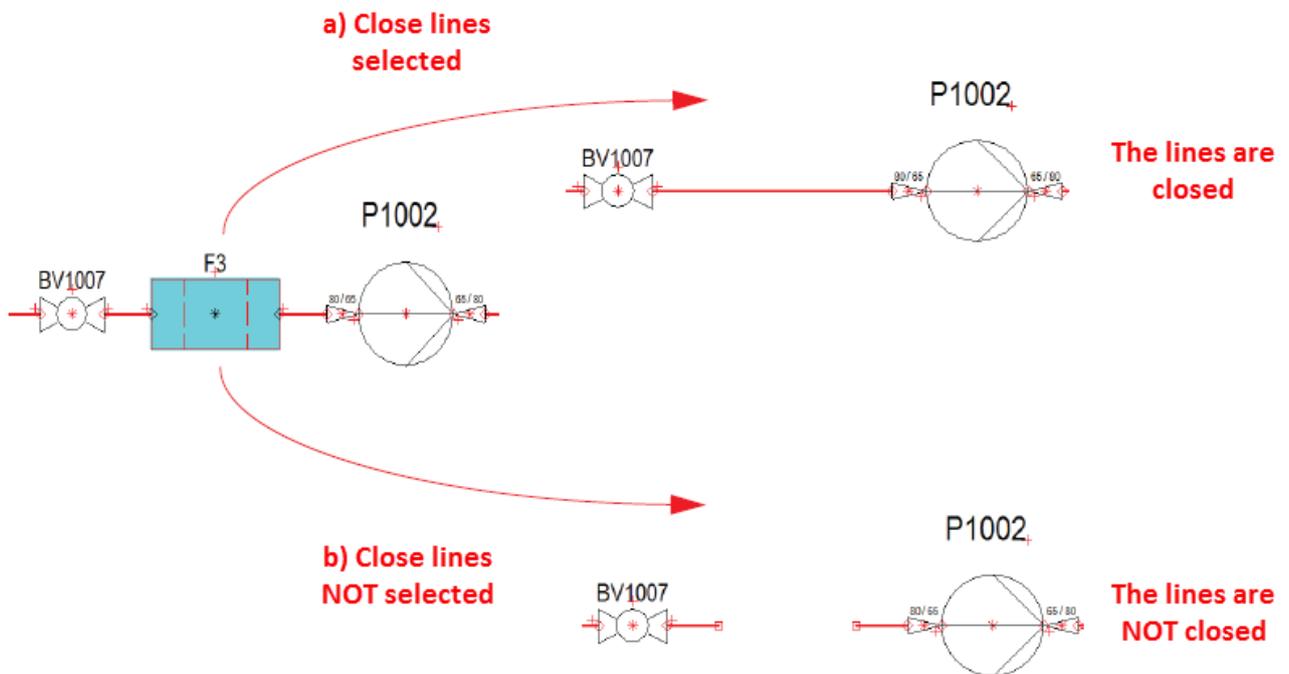
Components

The relationship between symbols and components

1. A **Symbol** represents a component or a procedural function in a diagram.

2. A **Component** is a database entry and is represented by a symbol (sometimes more than one symbol) with a specific **name (TAG)**, **type** and an **article number**.
    If a component has more than one function or should represented by more than one symbol, then more symbols are assigned to the database entry.
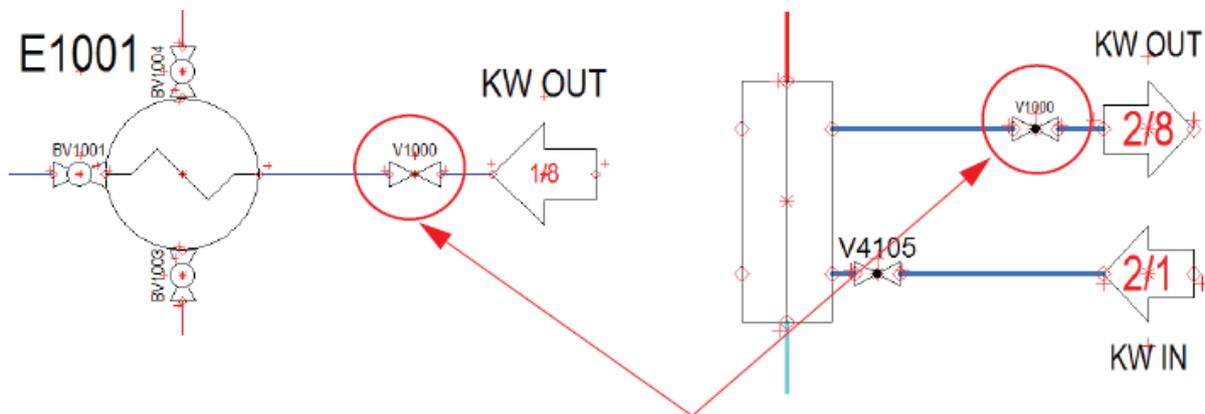
Different symbols for valve V1000 on different diagram pages (two symbols for the same component)

3. When you use the same name (TAG) for different symbols in a project, they are used as one component (Bill of material).

When choosing components via the database

When you choose a component via the **database** [**d**], you automatically get the associated symbol on the screen and you can place it to the diagram.
If there is more than one symbol associated, you get a further selection dialog.
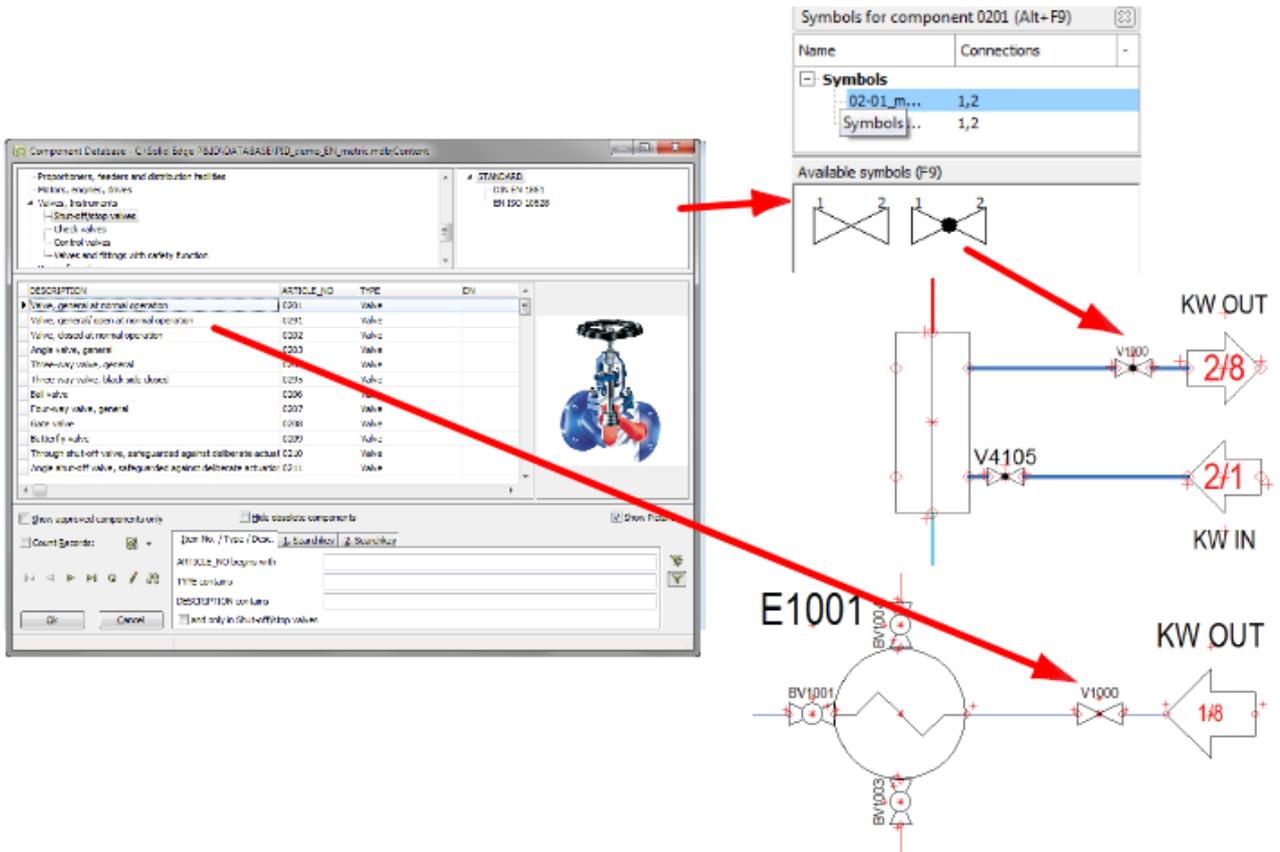
Lines

Conducting and non-conducting lines

There are two different types of lines in **Smap3D P&ID**:

- **Conducting lines** (Pipelines)

- **Non-conducting** / free lines

When **Conducting lines** is enabled/highlighted, the line will be understood as a connected line (pipeline).

When it is **disabled**, the line will **not** be understood as a connected pipeline.

How to draw lines?

1. Click the **Lines** button or press the short-cut key [**l**].

2. The toolbar for lines is displayed:
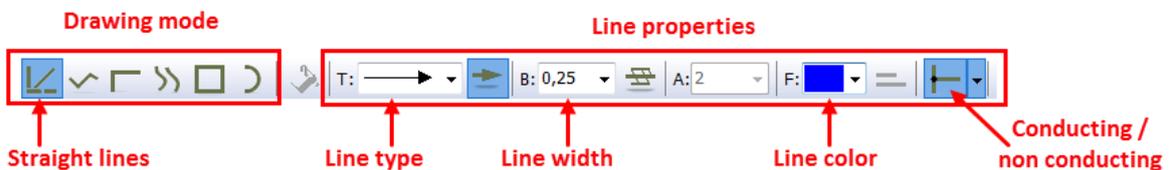
3. To draw lines: click the **Pencil** to enable the line creation.

4. Select the drawing mode - e.g. **Straight lines** .

Click here, to draw the displayed line
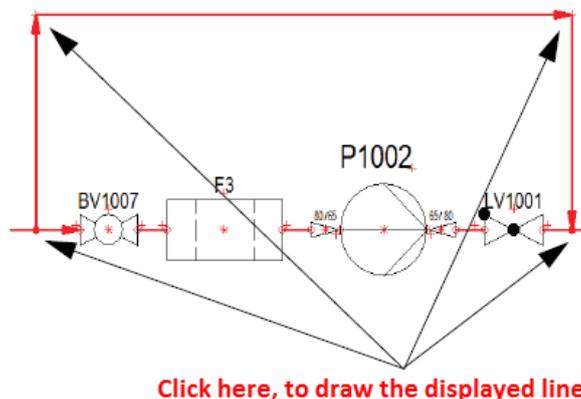
5. Click where you want to start with the line and click once at each position where you want to change the drawing direction of the line.

6. To stop drawing the line press <**Esc**> to **disable the Pencil**.

Now the line is displayed with the appearance you have defined before the line was drawn.

If there are any mistakes and you like to change the line appearance after the creation, then you must follow the next steps.

How to edit the line appearance after it was drawn?

1. Click with pushed <**Shift**> key on the line(s), that you would like to change the appearance of.

2. The toolbar for lines is displayed.

3. If you pushed the <**Shift**> key during clicking the line, it **displays the properties of the selected line(s)**.

4. If you had **NOT** pushed the <**Shift**> key during clicking the line, it **displays further the last used settings for lines.**

   a. To get the actual line properties for the selected line(s) in this toolbar: click the **Copy properties** button.

   b. Now the properties from the actual selected line(s) are displayed in the line toolbar.

5. Change the required line properties (e.g. line type, line width and line color) in the line toolbar.

6. To transfer these settings to the selected line(s): click the **Transfer properties** button.

7. To end this function, press <**Esc**>.

Conducting lines (Pipelines)

If you start or end drawing **Lines** (with active option **Conducting lines**) NOT on a specified connection point of a symbol or an existing line, then the following window **Line link** is displayed.
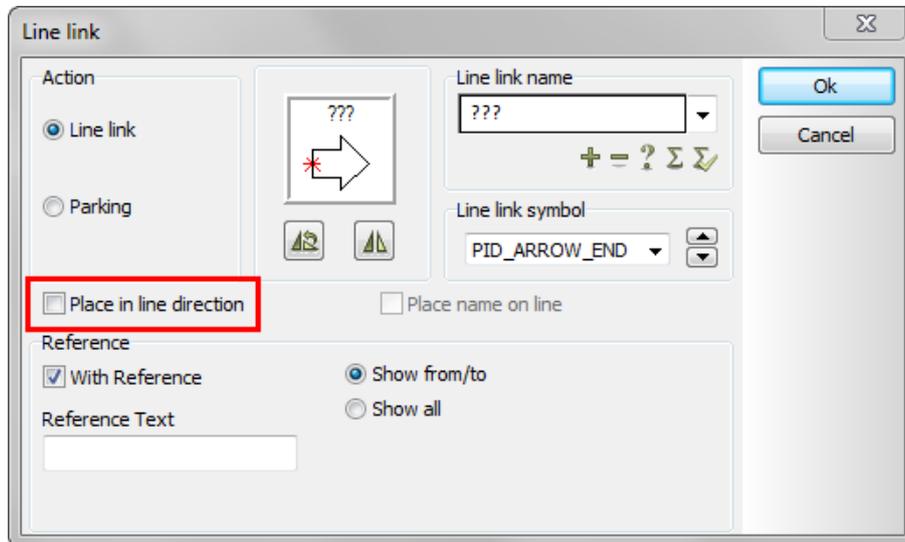
In this window you must specify which line link symbol and line link name the pipeline on the diagram page should start or end with.

In the field **Line link name,** you define the name which should be displayed on the line link symbol.

In the list box **Line link symbol,** you select one of the prepared line link symbols which should be displayed at the beginning (**PID_ARROW_START**) or end (**PID_ARROW_END**) of a pipeline.

Prepared line link symbols

In the general settings of **Smap3D P&ID** these prepared line link symbols can customized.
For more details about this you can read in the main manual (F1).

In the preview you see your actual settings.

With the buttons **rotate** or **mirror** you can modify it to your requirements.

Disable (no check) the option **Place in line direction**.

Click **OK** to draw the line on the diagram page.

To get a correct pipeline, it must start and end on a line link symbol, a connection point of a symbol or somewhere on an existing line.

If you deliberately don't like this, you must change the setting in section **Action** to **Parking**.
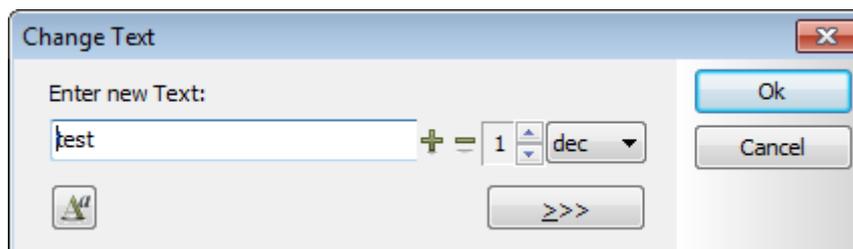
Texts

How to place text?

1. Click the **Texts** abc button - or press short-cut key [**t**].

2. The toolbar for texts in mode **free text** is displayed:

3. Click in the text field, type in the text as displayed above and press **<Enter>**.

4. The text is now in the cross hairs. Click on the page where you want to place it.

How to edit a text

1. Click the **Texts** abc button and disable the **Pencil** by pressing **<Esc>**.

2. Double-click on the text.

3. Edit the text in the displayed window and press **<Enter>** - or click **OK**.

Text types in Smap3D P&ID

There are various types of text in **Smap3D P&ID**:

Text type	Description
Free texts	Texts, that can be used anywhere in the project.
Symbol-texts	Texts, that are attached to each symbol, containing information on the component that is represented by the symbol. (**Name "TAG"**, **Type**, **Article no.** and **Spec**).
Connection point texts	Texts, that are attached to each of a symbols connection points. (**Line number**, **Function**, **Size**, **Line size**).
Data fields	Text fields that are filled out automatically (e.g. title block).
Line-texts	Texts, that are attached to each line, containing information on the pipeline that is represented by the line. (**Name "TAG"**, **Size**, **Article no.** and **Spec**).

Arcs/Circles

The function for arcs or circles is available in the diagram environment as well as at the symbol creation (symbol environment).
But usually arcs and circle function is just used to draw symbol geometry.

How to draw circles and arcs?

1. Click the **Arcs/circles** ⬭ button, or press the short-cut key [**c**].

2. The toolbar for **circles** is displayed. There you have these options:
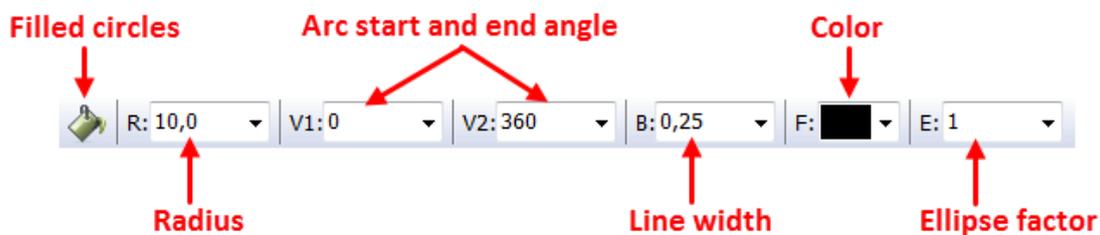
3. To draw an arc or circle: click the **Pencil** ✏ to enable the creation and get it on your cross hairs.

4. Change the parameters for your required geometry - e.g. **Start and end angle for an arc** and so on.

5. Click on the page where you want to place the **center** of the arc/circle.

6. To end this function, press **<Esc>** to **disable the Pencil**.

How to edit the circle/arc geometric and appearance after it was drawn?

1. Click with pushed **<Shift>** key on the **arc(s)/circle(s)** you like to change.

2. The toolbar for circles is displayed.

3. If you pushed the **<Shift>** key during clicking the arc/circle, it **displays the properties of the selected arc/circle.**

4. If you had **NOT** pushed the **<Shift>** key during clicking the arc/circle, it **displays further the last used settings for lines.**

   a. To get the actual arc/circle properties for the selected one in this toolbar: click the **Copy properties** button.

   b. Now the properties from the actual selected arc/circle are displayed in the circle toolbar.
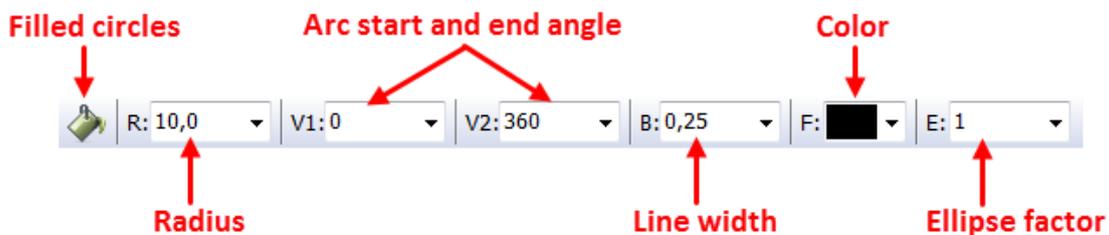
5. Change the required arc/circle properties in this toolbar.

6. To transfer this settings to the selected circles/arcs: click the **Transfer properties** button.

7. To end this function, press **<Esc>**.

Lists

What is a list?

In **Smap3D P&ID** there are different kinds of lists.
Most common in P&ID schematic diagrams are: **Parts lists** and **Components lists**.

To place a list in a project it must exist as a symbol or ideally as a template.

How to place list as page in a project?

1. Choose **File > Open** and open the project **PureSteamGenerator.PRO** (placed in folder
    `...\Smap3D P&ID\PROJECT`).

2. Click the page tab for page **BOM 1** at the bottom of the screen to specify where you want to
    place the new list page:
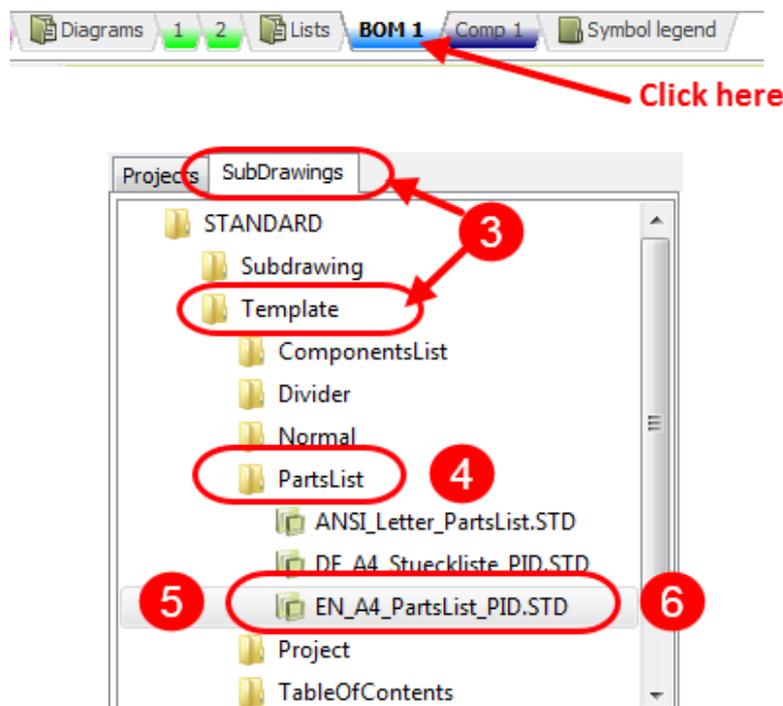
3. In the **Explorer window**: Click the **SubDrawings** tab and click the **Template** folder.
    – Here you see all the delivered page templates you can drag into the project. The templates
    are ordered in folders according to their function.

4. To insert a parts list page: Click the **PartsList** folder; All the available parts list templates are
    displayed.

5. Click on the pages to check what they look like. A short description is also displayed.

6. Click on **EN_A4_PartsList_PID.STD**, keep the mouse button pressed down, drag the page into the project and release the mouse button.

7. The PartsList page is now inserted as an empty page in the project. You can also insert a page by pressing the <**Ctrl**> key while clicking the desired page.

8. To fill the list page automatically with content, it needs to be updated.
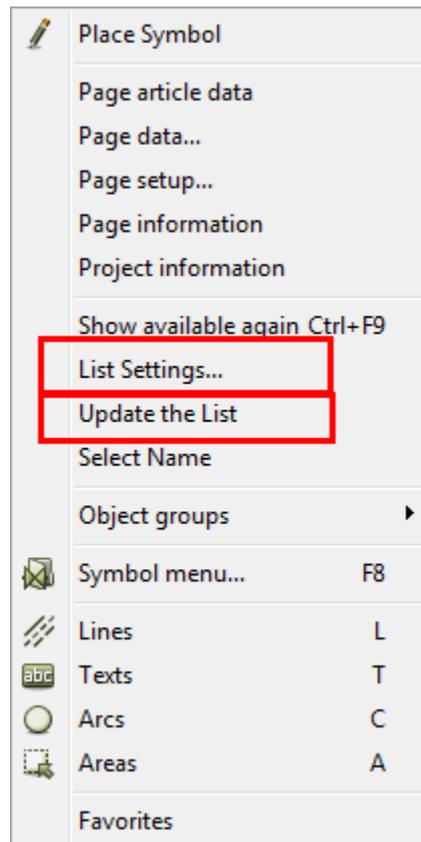
9. Click right mouse button to get the **context menu**. Click the function **Update the List** to update the list with the complete content of all the diagrams in the project.

10. With the function **List Settings,** you can modify the settings and the content for the active list. For example, just evaluate the content of diagram page **2**.

Advanced functions

Edit a diagram drawing

Move components

If you want to move a component to a different position, simply click on it, keep your mouse button hold and drag the component.
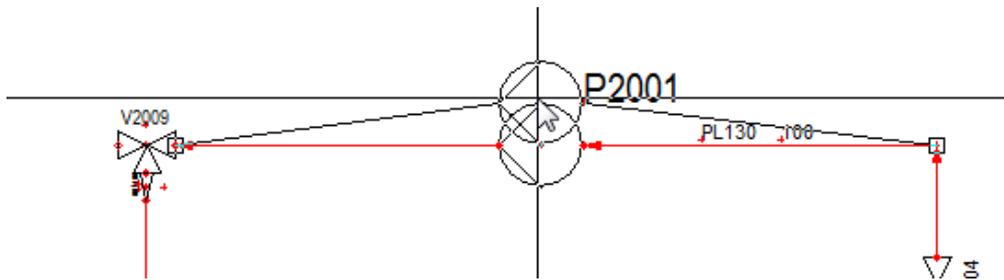
Release the mouse button at your desired position of the symbol.
The connected lines move with the symbol.
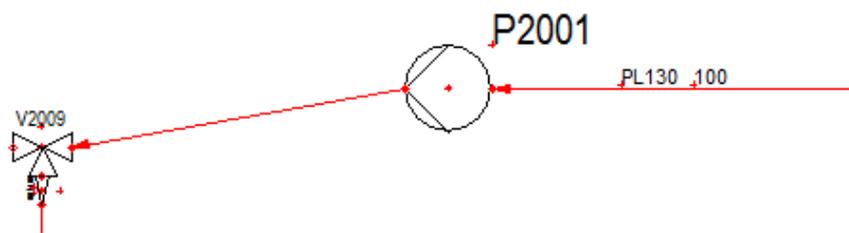
Because symbols do have the same priority in the software, just the selected symbol was moved.
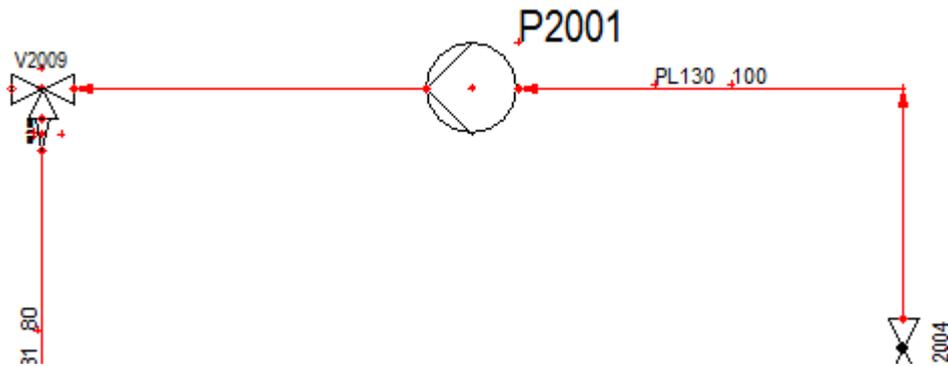If you want to lift the whole upper part up, you need to select all symbols in the row.

Please make sure you select **only symbols**!
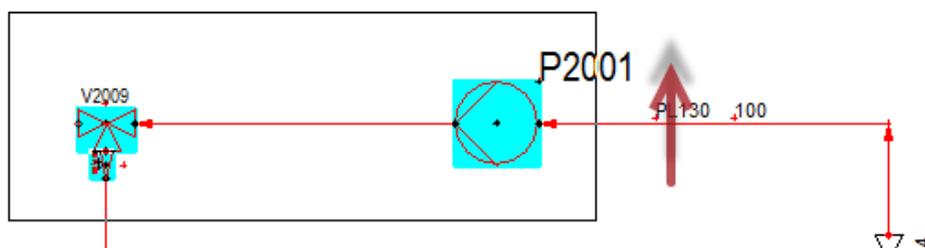
Now drag and drop the components to the right position.
They all move together, as you see.

Because the connected lines do have a lower priority then the symbols, they automatically moved with.

Move lines

For lines you proceed similar like for components/symbols.
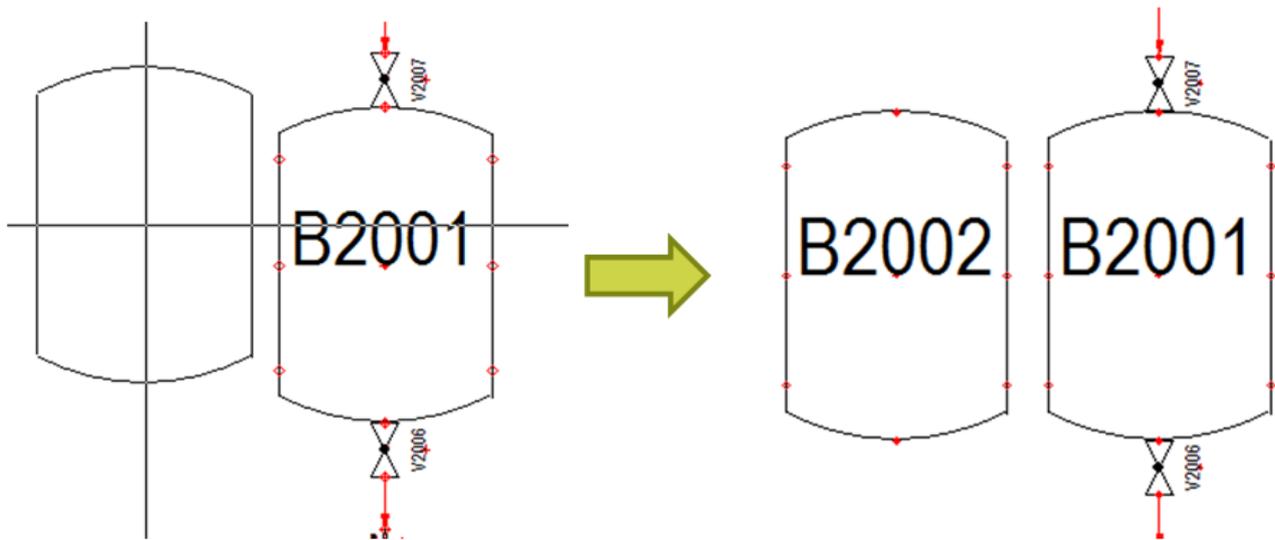Just drag the line into the position you would like to have it.
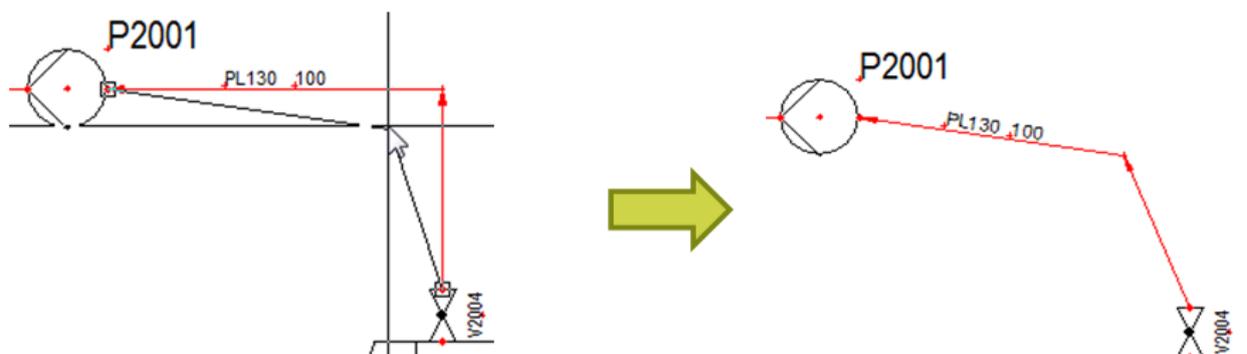
Copy & Paste

It is very easy to copy objects in projects.
Simply select the object you want to duplicate and press **Ctrl+C** for copying and LMB for placing it on the desired spot.

Component Data dialog will pop up like described at Component data.
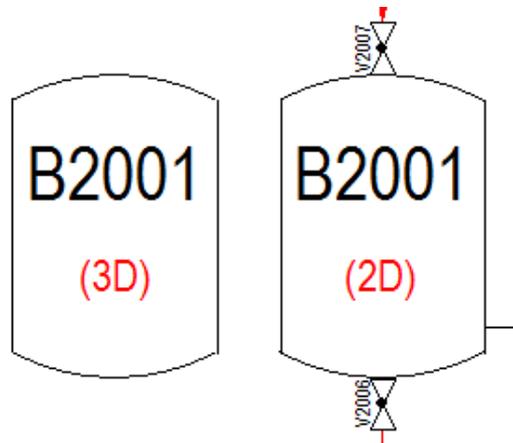

Change the name to **B2002**.
Now you have created an identical component as B2001.

Symbol reference

If you make a copy of a symbol with name (TAG) and you kept the name of the copy as it is (e.g. B2001), you would create only a **symbol reference** of the component B2001.


In the both symbols appear a new information text (in the example **(2D)** and **(3D)**).

This display shows you the **position of the referring symbol in the reference system**.
The letter-number combination displays the **row/sector on the sheet**, in which the symbol is currently positioned in.
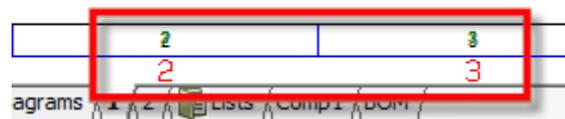
If you double-click on the reference display, your mouse cursor jumps to the referring symbol.
This connection works in the whole project and not only on diagram pages.
So, if you placed symbols with identical TAG number on different pages, it would always refer to the original component.

The style of the **reference display** can be changed in the **Settings > Text/Symbol Defaults**:
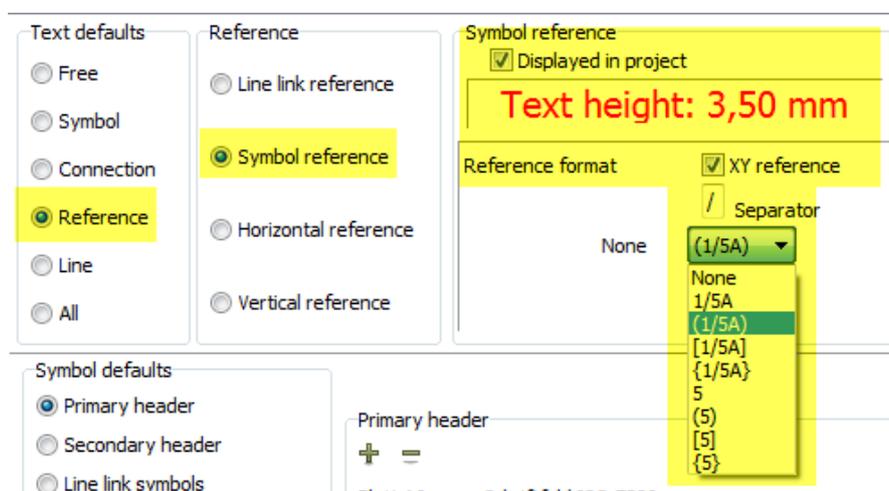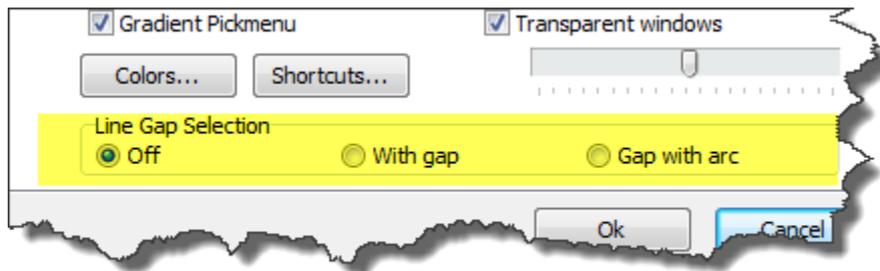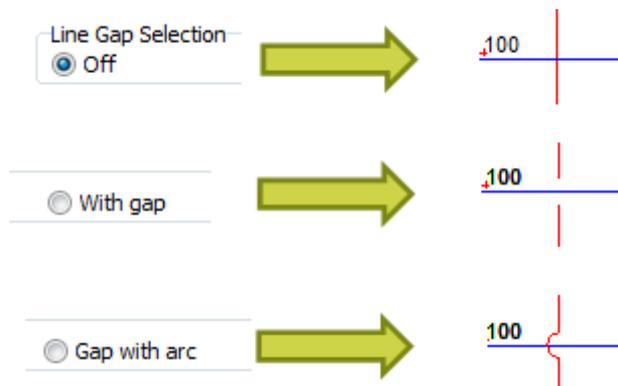
Line gaps

If you don't like the default style of line crossing display, you can change it.

Go to menu **Settings > Pointer/Screen**.

On the bottom of the window you can make the changes at **Line Gap Selection**:

The picture shows the different possible styles of intersections:

This setting is **project related**.
That means, if you open a different project, you might have a different style set in this project.

Insulation

It is also possible to show insulation on the pipelines.
To do this, select an existing line with pushed <**Shift**> key, or without <**Shift**> but then click the

Copy properties ⏉ button.

Next, activate the insulation ⛁ button in the toolbar:

Click the **Transfer properties** ⏷ button to write the changed settings to the line.

The result should look similar like in the picture.
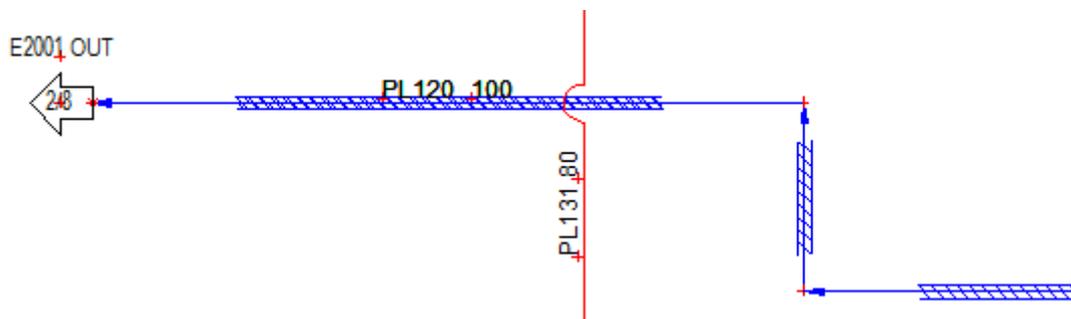
Design check

Smap3D P&ID does have a tool which helps you to avoid and recognize mistakes in your P&ID diagram.

When using the **Design check** function in a project, you are notified about the most obvious drawing errors.

Thus, the design check function can support you, when you wish to check your design.

We recommend applying the design check function from time to time while you are drawing. This way you don't have to bother with too many error messages later.

Performing a design check

Choose menu **Functions > Design Check** or click the **Design Check** button.

In the Design Check dialog box click the **Design Check settings** button, to get the following options:
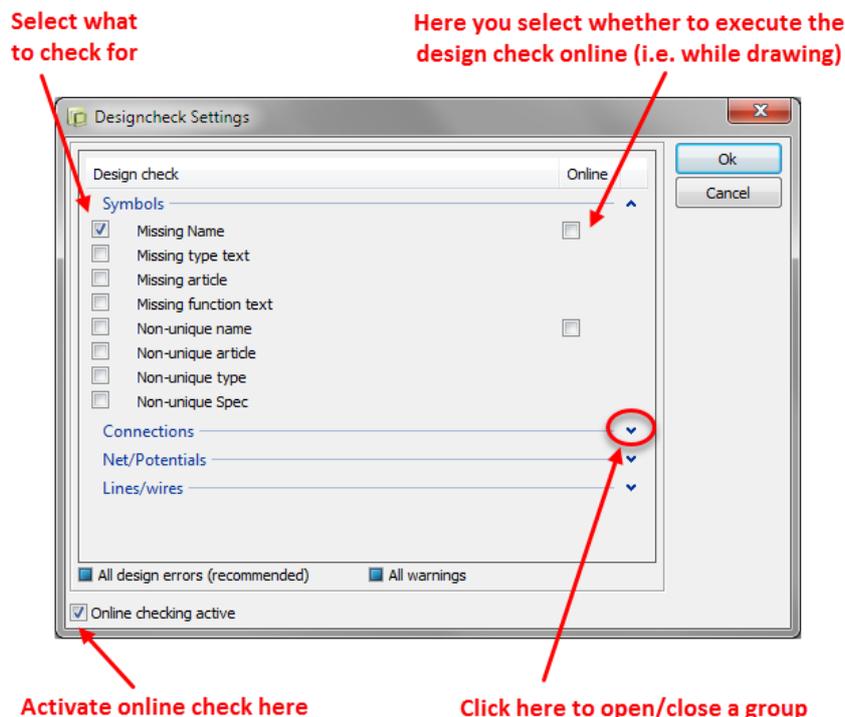

Select which errors you like to check the project for.

To maintain the overview, we recommend checking the project **just for one type of errors at a time**.

We **do not recommend** the following options:

- If you select **All design errors (recommended)** at the bottom of the dialog box, all checks for design errors are selected in the dialog box.

- If you select **All warnings** all checks are selected in the dialog box.
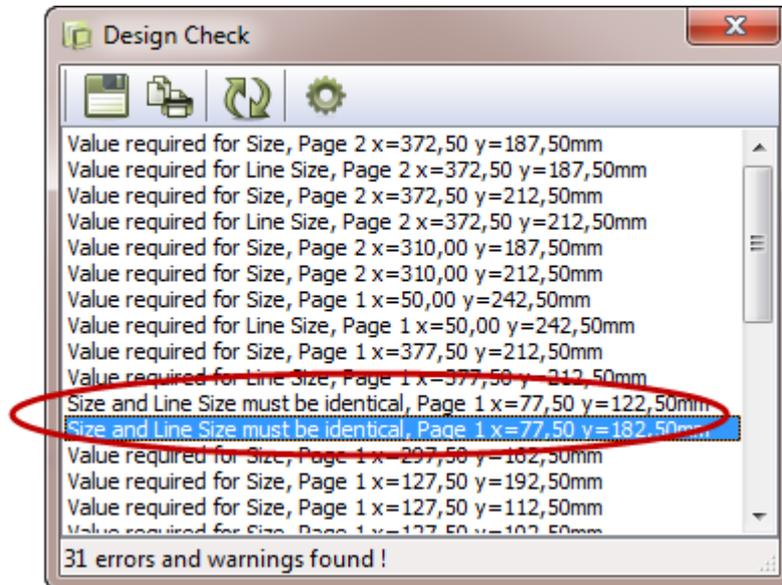
Object Lister

To navigate quickly in your projects, you can use the **Object Lister (F7)** function.
The Object Lister makes it possible for you to locate any given component in a project and/or information about the applied symbols/components.
In the Object Lister table, you can also edit component data, page data and free texts for all the project.

To enter the Object lister you choose menu **Functions > Object Lister,** or press the short-cut key **<F7>**.
You can also click the Object Lister button in the upper part of the Explorer window, when you wish to enter the Object Lister.

With the display of the Object Lister, the symbols tab will be displayed as default.

By choosing another object type (tab) at the top of the Object Lister, you determine whether to show **Symbols**, **Line link**, **Texts**, **Reference frames**, **Pages** or **Lines** (only lines with article data are displayed).
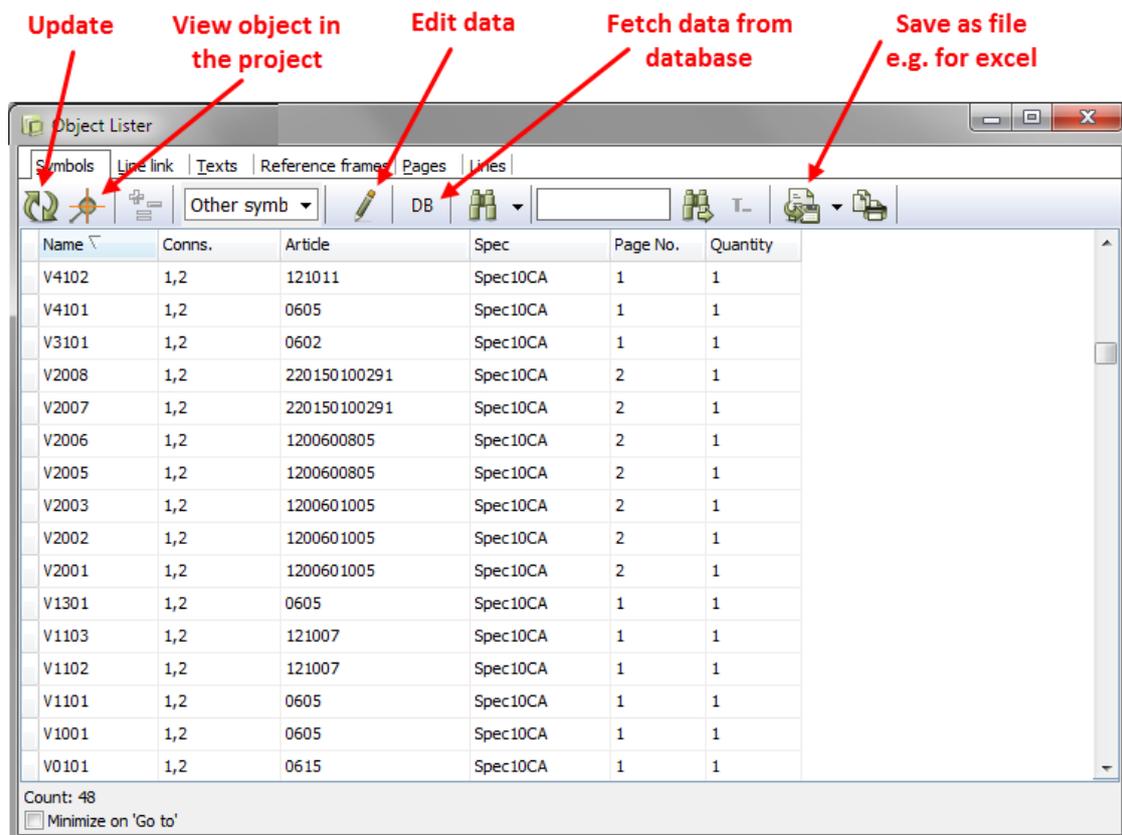
If you, as above, have chosen Symbols, all project symbols will appear in alphabetical order — independently of which page you are working on at present.

Sorting order of data

Initially the objects will be sorted by **symbol name** (page name and text contents respectively), but if you want them sorted by for instance article, click on the column heading **Article**.
When you wish to see the objects in reverse order, click the column header again.

The sorting order is alphabetical/numerical. You can sort all columns in both directions.

Selection of objects

Selecting objects in the Object Lister follows the common Windows guidelines.

Display of information

In every tab you can specify which information/columns to display in the Object Lister for the different types of objects.
With click right mouse button on any column header, you can see the information that are displayed for symbols in the Object Lister.

Viewing the different types of information can be selected/deselected by placing/removing a check mark in front of each type of information.

When a check mark is placed in front of a type of information which is dimmed, this specifies that this information cannot be deselected in the Object Lister.
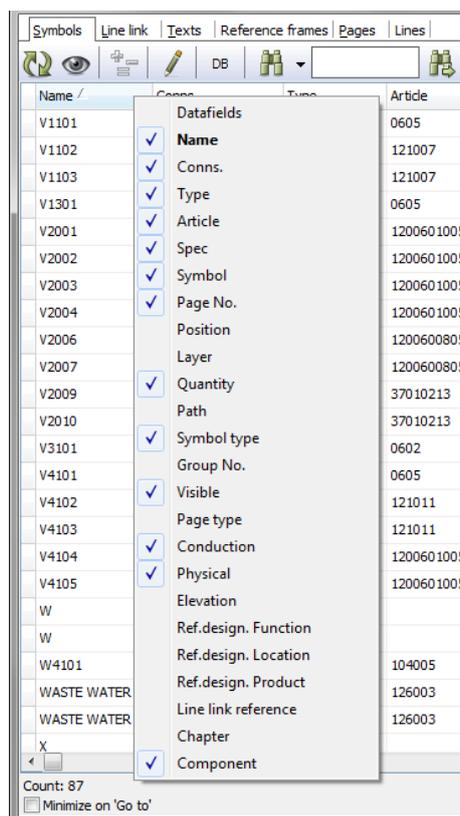
Creating custom symbols

Working with **Smap3D P&ID**, it might happen that the symbol folders do not contain the specific symbols you need.
Therefore, this chapter is a guide on how to create your own symbols.

Creating a new Symbol

In the following described example, you can create a simple butterfly valve symbol.
Furthermore, the symbol will contain a free text as well as two connection points.
The precise meaning of this is follows later.

To create a symbol, you must be working in a project.
If this is not the case, you must open a **new project**:

1. Click on the **New document** button and leave the dialog box **Settings** by pressing <**Esc**> or by clicking on **Cancel**.
    You are now ready to create a new symbol:

2. Click on the **Symbols** button or use the short-cut [**s**]. Then click on the **Symbol menu** button.
   You can also press [**F8**] to enter the **Symbol Menu** directly.

3. In both cases it opens the window **Symbol menu**:
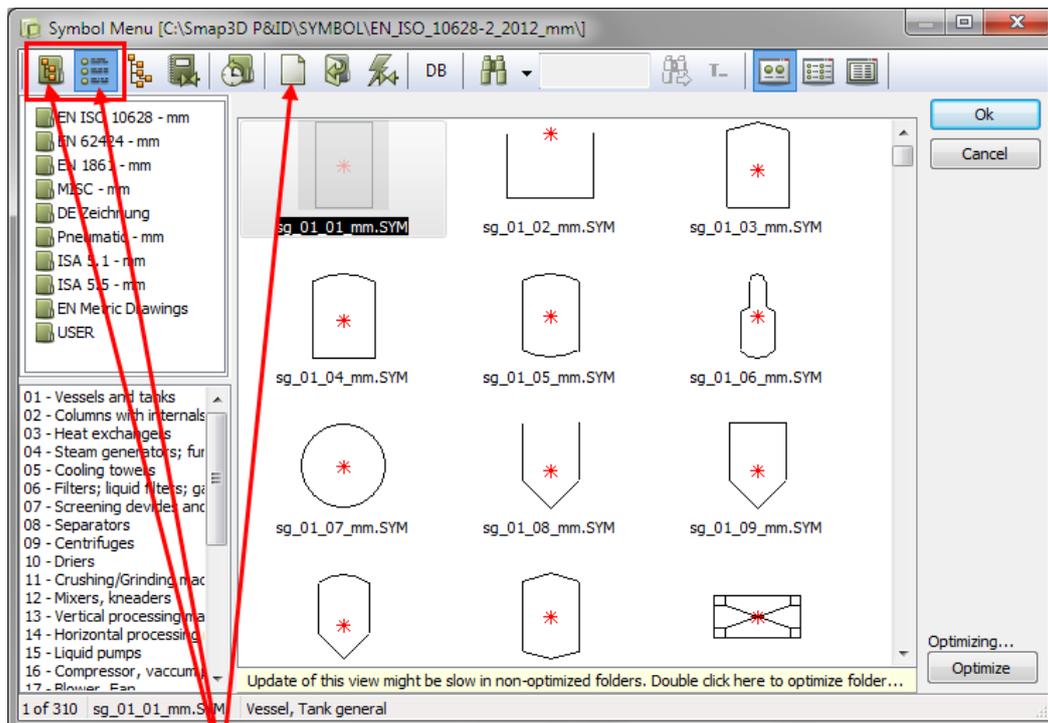
Click here

4. Click on the **Select Library from Folders** button, or on the **Select Library from Alias** button and select the **folder/alias** you wish to save the symbol under — e.g. the folder **USER**.

5. Then click on the **Create new symbol** button, to create a new symbol.

6. You now enter the Edit symbol mode, in which you can see **SYMB** flashing on a *RED BACKGROUND* in the lower part of the left tool bar.

7. Make an appropriate **Zoom** [z] around the red marks in the middle of the screen.

8. On the middle of the screen, you will see the following drawn with **red**:
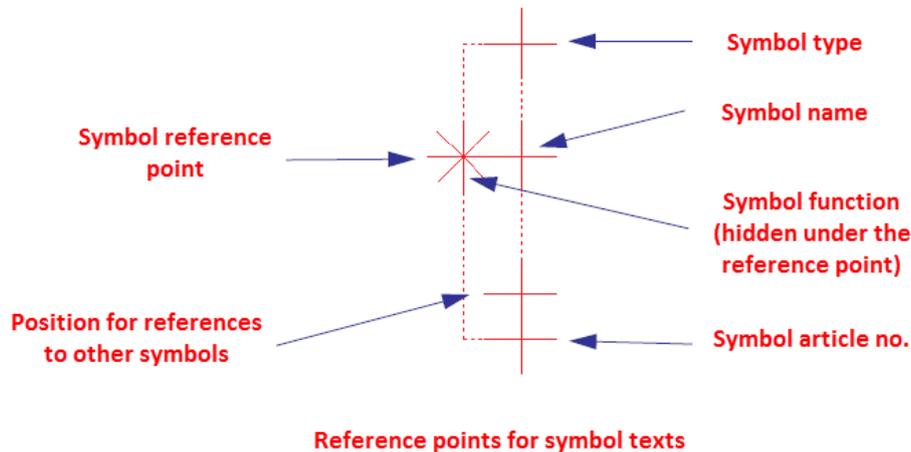
The symbol reference point

The asterisk (*) is the **reference point for the new symbol**.
This reference point is the **inserting point** (hangs on cross hairs) and the **rotation point** you rotate the symbol around, if you rotate it.
A symbol has only got one reference point.

Reference points for symbol texts

The red pluses (+) are the reference points for the symbol texts.

Position for references to other symbols

When creating new symbols, you can furthermore specify the position for references to other symbols.
The position of this reference point is pointed out in the lower-left corner in the figure above.

The red plus for this reference text is always present in the **Edit symbol mode** but does not become active for placed symbols before the symbol reference is activated, — e.g. symbols of the type **Normal** —, the reference is not displayed until you have selected **With reference** on the tab References in the dialog box **Component data**.

Automatic creation of symbols

When you are in the **Edit symbol mode** (where you are now), you can also use the Symbol generator to create a **raw-symbol** (rectangular or circular), which you can then continue working on here.
To do this, choose **Symbols**, click the Symbol menu button and click on the **Symbol generator** button.

Moving the reference point

To make room to draw the symbol itself, you can now move the reference point a bit to the left.

Therefore, click on the **Reference point** button.
Click on the reference point and drag it to a position you want. — In this sample you move it 15mm to the left.
— See the coordinates in the lower-left corner of the screen.

Lines in symbols

Click on the **Lines** button [l] and click on the **Draw** button [Ins] (to make it highlighted).

For special cases you can determine that lines in the symbol must follow the width and the color of the conducting lines, which gets connected to the symbol, when you are using it on a diagram later.

If the **Follow connected** button is not enabled (highlighted), then click on it.

Drawing lines as a rectangle

To draw the rectangle in the symbol, you now click on the **Rectangle** ☐ button.
Point out the lower-left corner of the rectangle by clicking on a point **5mm** below and **10mm** to the left of the reference point.
Then point out the upper-right corner of the rectangle by clicking on a point 5mm above and 10mm to the right of the reference point.

You have now drawn a rectangle of **20x10mm** around the reference point.
Coordinates and distances are displayed in the lower-left corner of the screen.

| x=220,00 y=155,00mm	x=20,00 y=10,00mm

Place connection points

To be able to use the symbol connected, there must be some points on the symbol which conducting lines can be connected to when you place the symbol in a diagram.
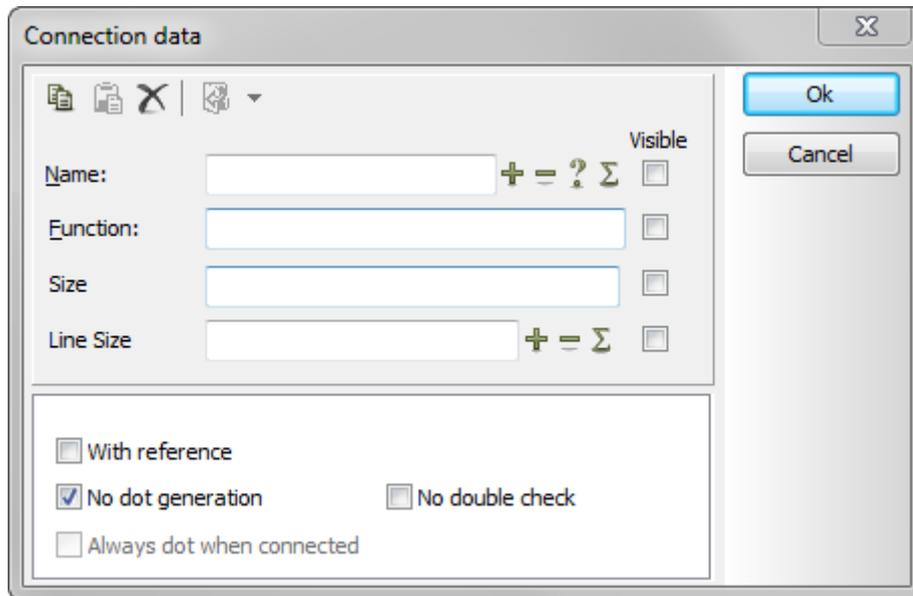
These points are called connection points and you place them by clicking on the **Symbols** ▷◁ , the

Connection point ◇ and the **Draw** ✐ button [Ins].

Then you get a **new** connection point in the cross hairs.
Click where you want the two connection points located — see the picture below.
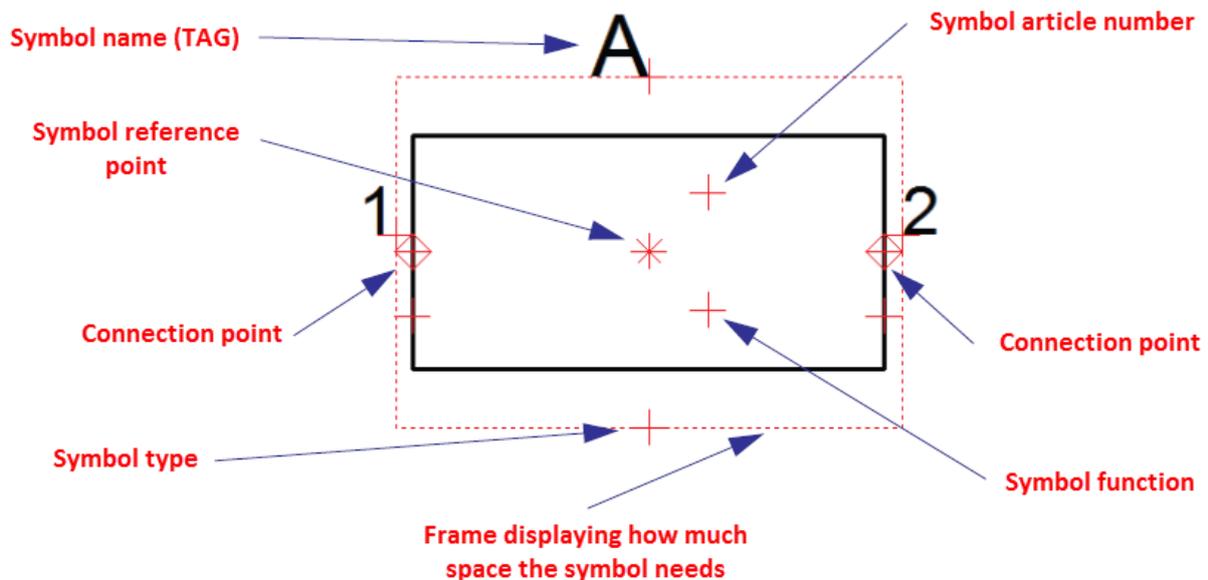
When you place the connection points, you will be asked about their **connection data**.

In this case, you can for instance give them the names **1** and **2** respectively and make the names invisible on diagram pages, by deselecting the **Visible** check box for the **Name** field.

More options in the dialog box Connection data
With reference If you click here, an independent reference text is created for the connection point, which refers to connection points on symbols with the same name and connection name. — **No check** is required.
No dot generation — **Set a check** in the box.
No double check When performing a design check, it is possible to examine whether the project contains symbols, which has more than one connection point with the same name. This is done by selecting Used more than once. — **No check** is required

You have now placed the connection points for the symbol.
Close this dialog with click on **Ok**.

Press <**Esc**> to get rid of the connection point symbol in the cross hairs.

Drawing a slanted line

You draw a slanted line for the butterfly valve by clicking on the **Line** [**l**] and the **Draw** button [Ins].

In the drawing mode you must select **Slanted lines** button.
Now you can draw a line from the upper left to the lower right corner of the rectangle.

Drawing a circle

You draw the circle in the symbol by clicking on the **Circles** [**c**] and the **Draw** button [Ins].
The tool bar for circles/arcs is displayed and you get a circle in the cross hairs.

You may read more about this tool bar in Arcs/Circles.

Enable the **Filled circles** button and set the radius (**R:**) to 1.0.
The other values should be like in the screen shot above.
Place the circle with its center in the symbol reference point.

Typing in a free text

Below the symbol, the free text **Butterfly valve** shall appear. — See Texts for further details.

Therefore, click on the **Texts** button, or press the short-cut key [**t**].
Click in the text field in the texts tool bar and type in the text **Butterfly valve**.
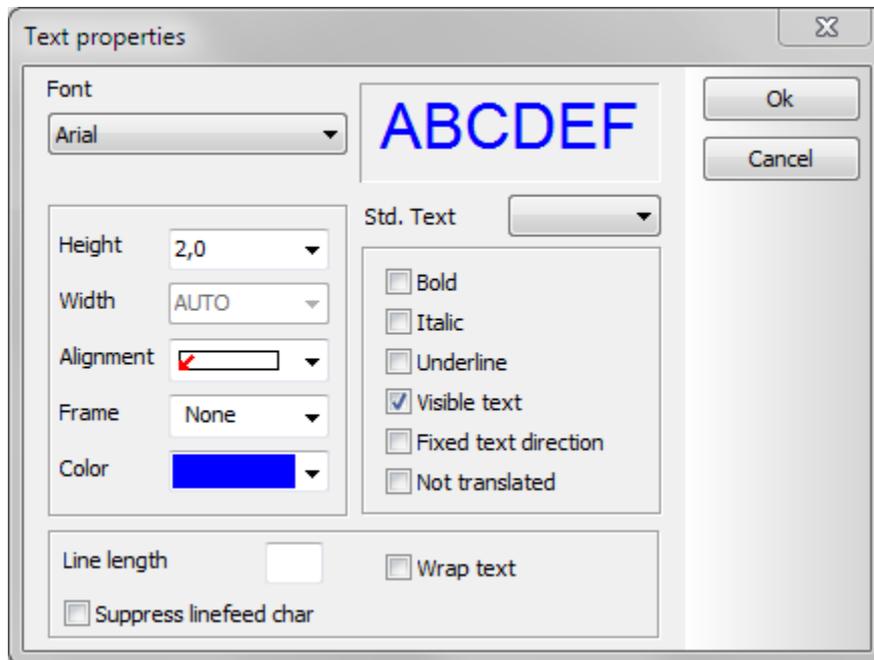Press <**Enter**>.

You now have the text in the cross hairs.

Changing text properties

Click on the **Text properties** button.
Give the text a height of **2.0 mm** and set the alignment to **Centre-Centre**.

Select height and alignment as displayed in the Text properties menu.
Click **OK**.

The text in the cross hairs now has the chosen properties.

Place the text by clicking in the middle below of the symbol.
Press <**Esc**> or click on the Pencil in order not to place more copies of the text.

— *PLEASE NOTE THAT A FREE TEXT IN A SYMBOL DEFINITION CANNOT BE CHANGED WHEN YOU LATER PLACE THE SYMBOL IN A PROJECT.*
*THESE TEXTS CAN ONLY BE CHANGED HERE IN THE PROGRAMS EDIT SYMBOL MODE.*

Texts and text properties for symbol texts

Click on the **Texts** ⬛ button, if not already selected.
Deselect the **Pencil** by pressing <**Esc**>.
Click on the reference point for the text **Symbol name**, to select it.

In the command tool bar, you can see whether you have selected the right text reference point.
Here it should say **S.Name**.
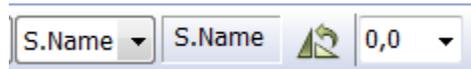
If you fill out this field with the prefix **V**, this letter will be suggested as a symbol name, when you place the symbol in a project.
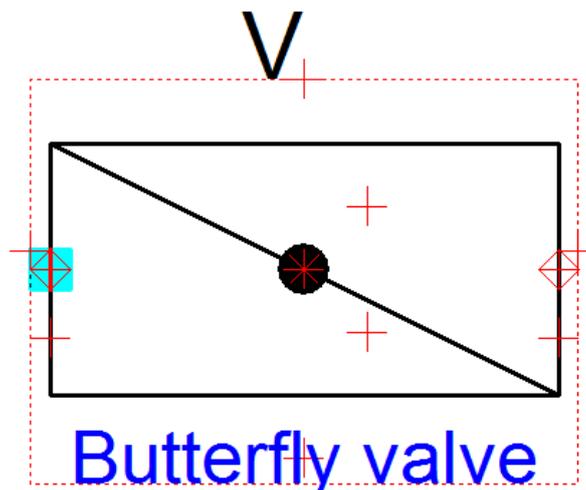Press [**k**], and this dialog box appear:
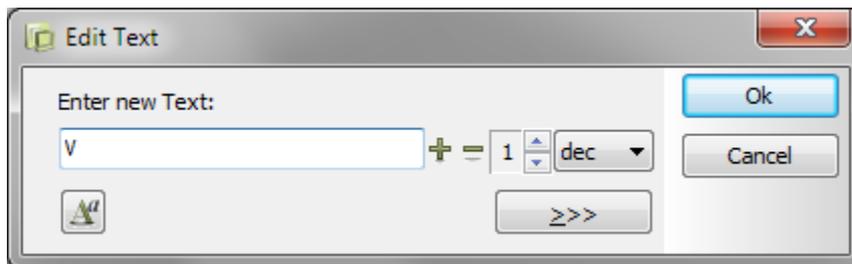
Type in **V** and press <**Enter**>.
— Instead of pressing on [**k**] you can click in the text field in the command tool bar, type in **V** and press <**Enter**>.

When you have selected one of the symbol texts, you can change back and forth between the symbol texts by pressing [**F5**].
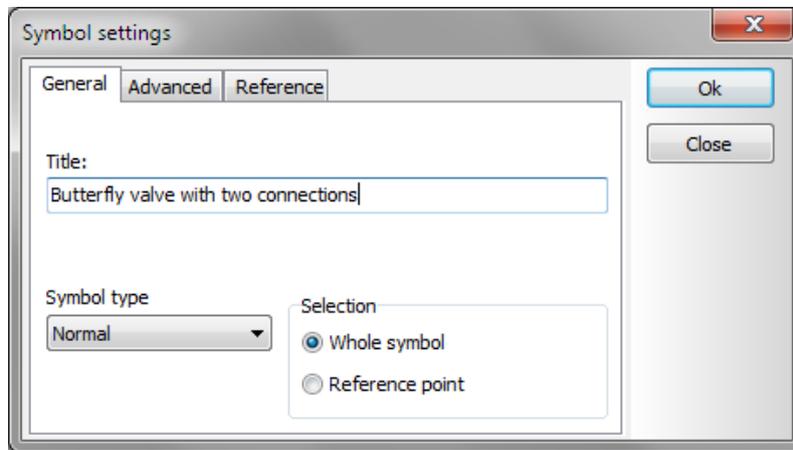
The result should look like this:

Saving the symbol

Click on the **Save** button.
If you have not saved the symbol before, a dialog box for Symbol settings will appear.

Give the symbol a **Title** — this means a description of the use or appearance of the symbol.
This text will be displayed in the upper part of the **Symbol menu** when the symbol is selected there — and you also use it to determine which symbol to pick when you choose symbols in the pickmenu.

Click inside the field and type in for instance **Butterfly valve with two connection points**.

The symbol in this example has no specific directions, so the symbol type is **Normal**.

The Selection shall be set to **Whole symbol**. This means that the symbol will be selected if you click anywhere on the symbol.

Click on **OK**.

The Symbol settings button

You can also enter this dialog box while designing the symbol if you click on the

Symbols and then on the **Symbol settings** button.

First time you save a symbol you enter the **Save as** dialog box.
Here you select the folder you want to save the symbol in, like you normally do in Windows.

Click in the **File name** field and type in the name **Butterfly valve**.
The symbol will automatically get the extension **.sym**.

Click on **Save**. The symbol has now been saved.

Symbol data fields

Symbol data fields are very helpful, if you want to attach additional information (process attributes) to symbols which are not coming from the database directly, but depends on some characteristics of the symbol, e.g. medium.

For example, you might have the same equipment running with different medium rooms, or temperature levels.
You can't take this information from the database, but from the project.

So, symbol data fields are perfect to use them for **project or process-based information**.
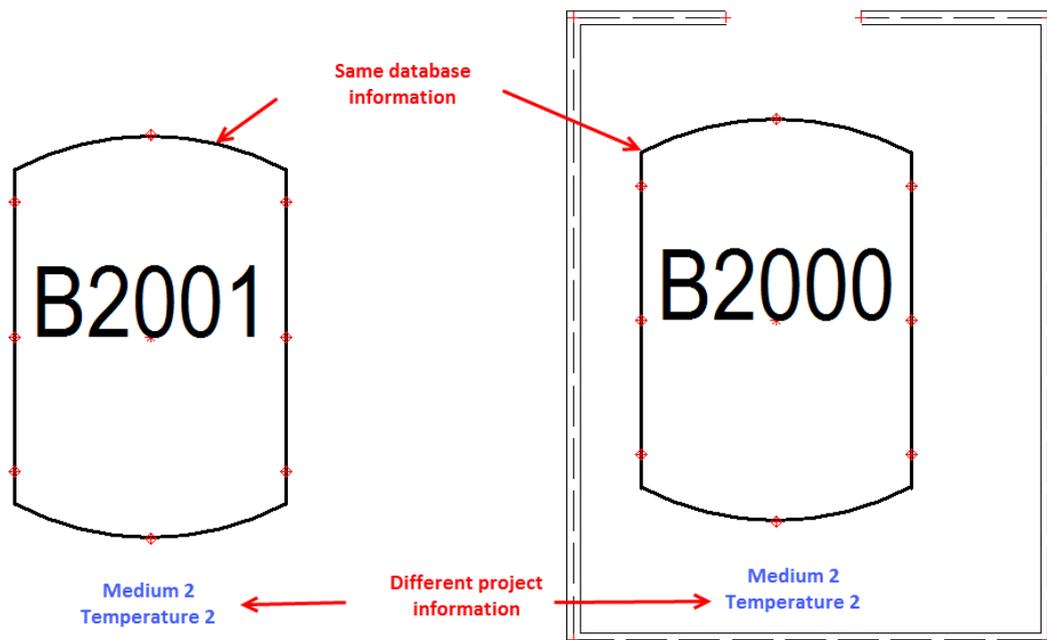
This is how it will look in the project

If you use/place a symbol with prepared symbol data fields, you can enter the required values in tab **Symbol data fields**.

data field with free text field

data field with drop down list of predefined values
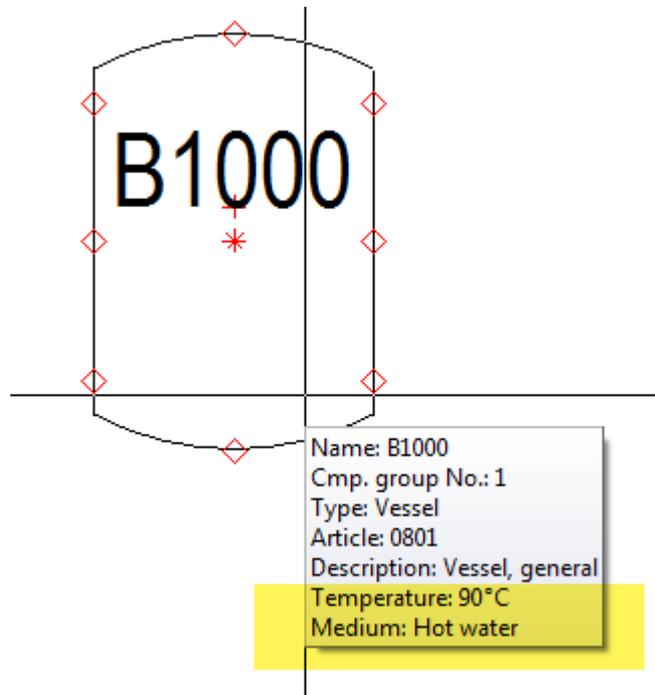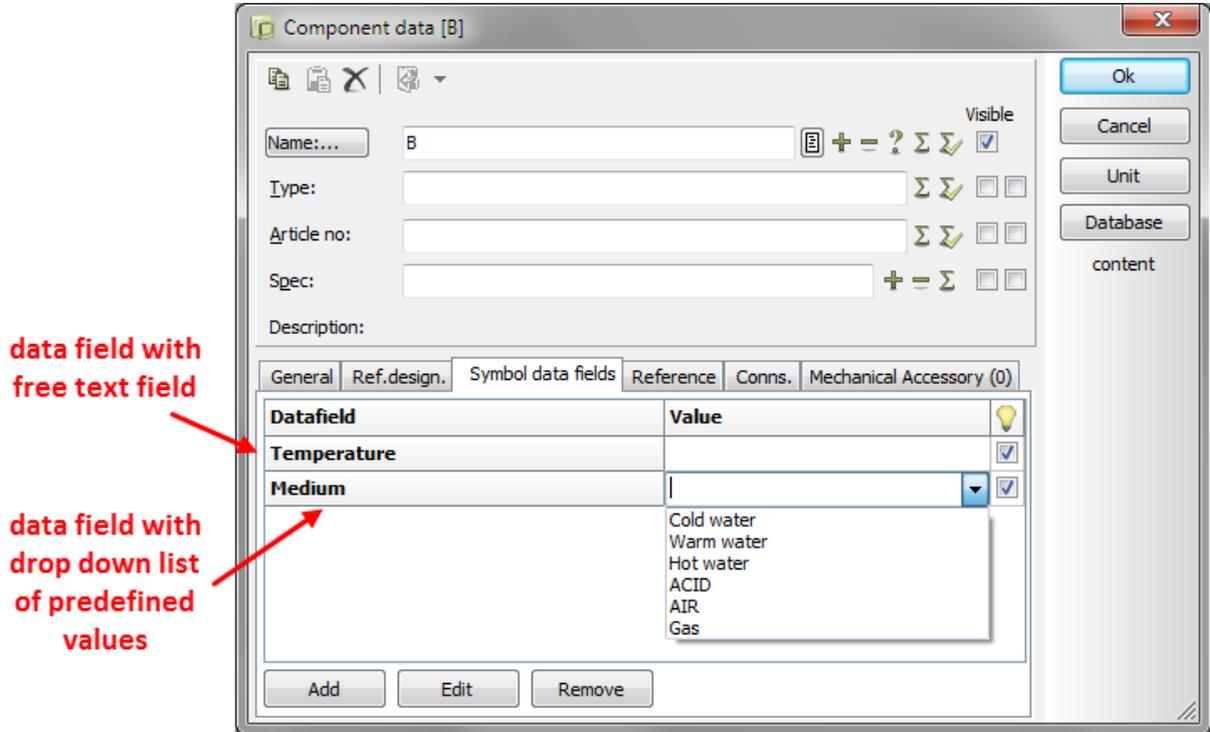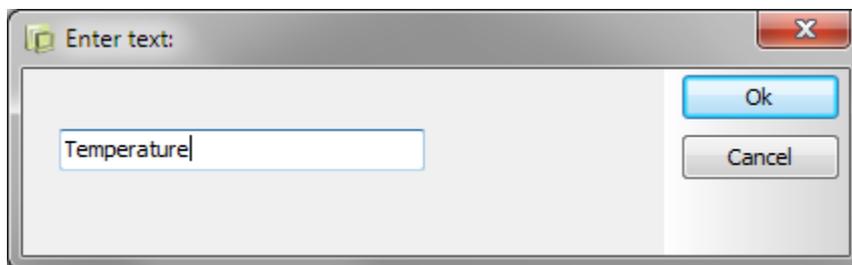
How to create symbol data fields

To add custom data fields in **Smap3D P&ID** you must go to menu **Settings → Text/Symbol defaults...**
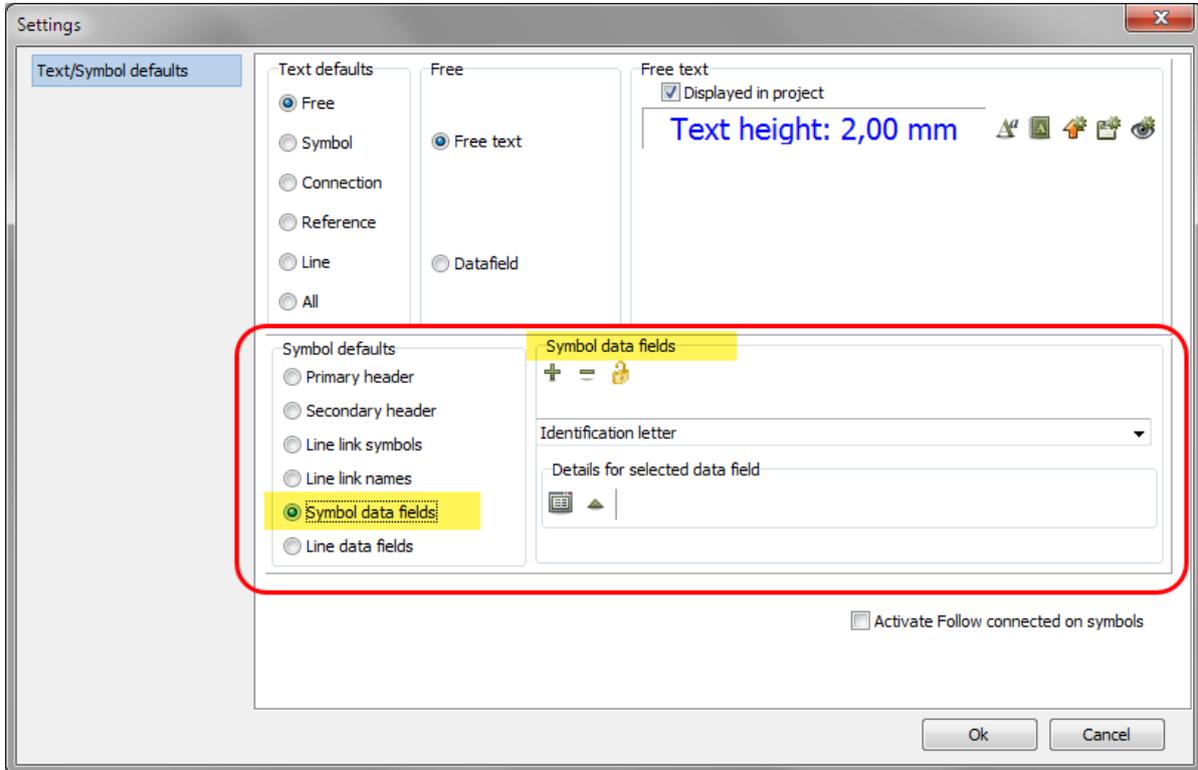
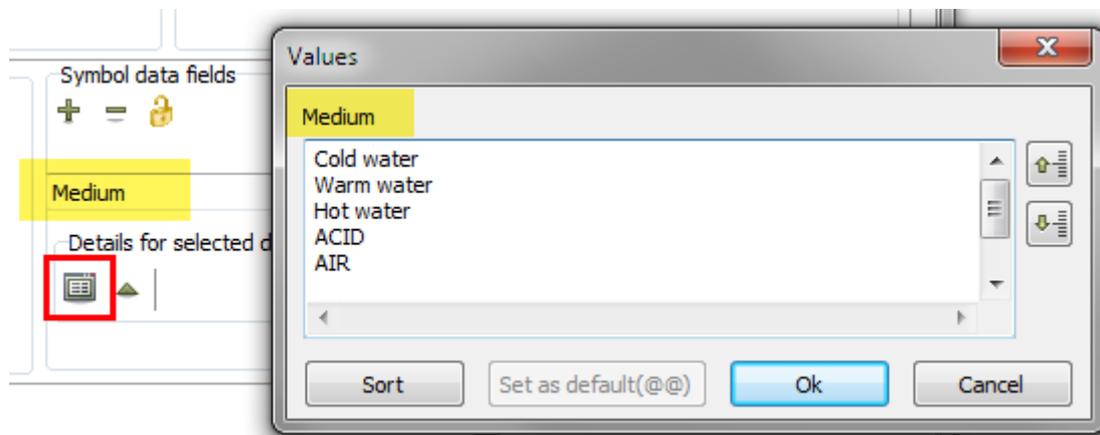Select **Symbol data fields** to see a list of all existing data fields in the drop-down list.

To add a new one, simply click **New** button **(+)**.
You get prompted to name the new field.

Let's add **Temperature** and a second field **Medium.**

Select **Medium** to add them to this data field.

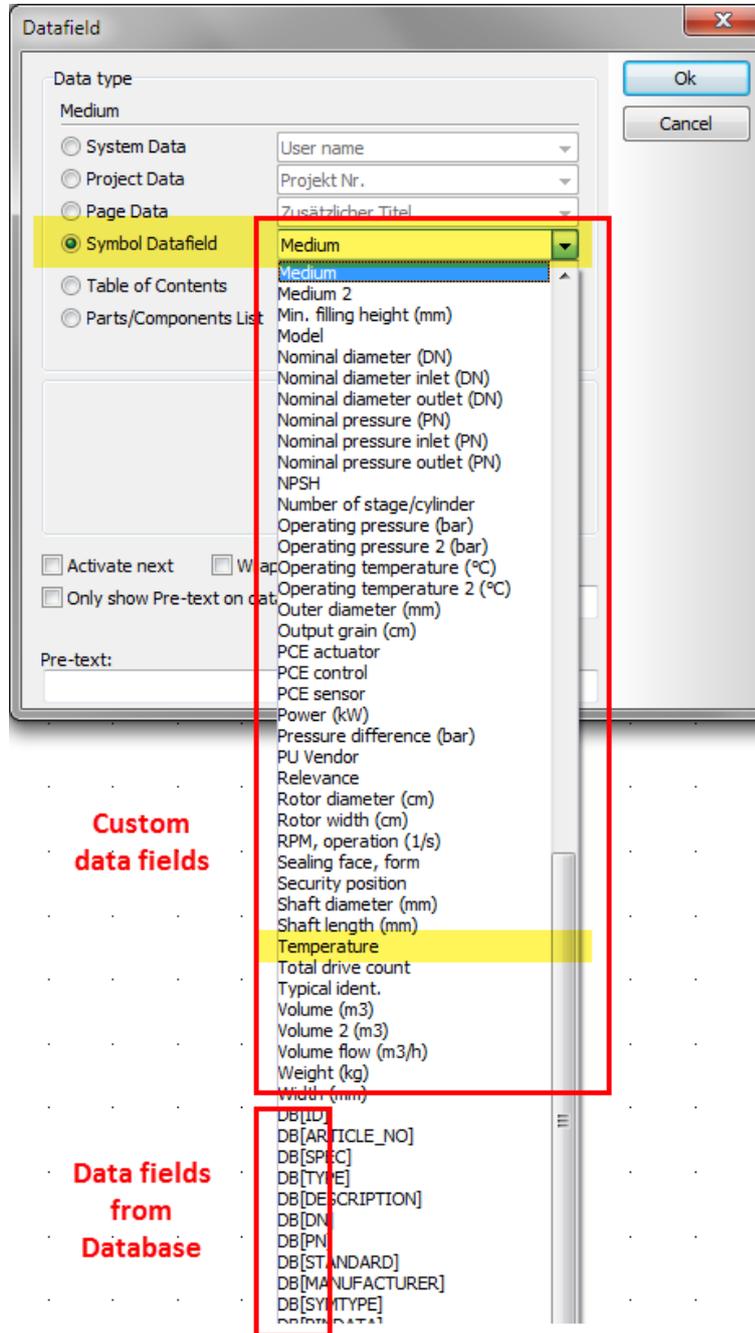By clicking on button **Values,** you can predefine some values for this field.

Type into this window all values you want to see in the **drop-down list** later.

How to add symbol data fields to a symbol

To add symbol data fields to a symbol, you must switch over into the **edit mode of a symbol.**

There you can insert data fields by going to **Insert →Insert Datafield...**

Select option **Symbol Datafield** to get a list of all available data fields.

All fields with naming **DB[...]** are fields which will be linked directly to the database.

Above them you'll find all **custom data fields**.

You should at least see your before created custom data fields **Medium** and **Temperature**.

Place on **OK** to get them into the drawing area of the symbol.
Use the space below the symbol.
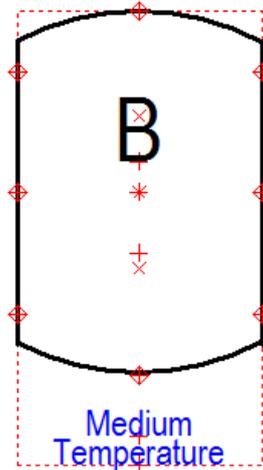
Text, which you fill in the data fields will appear at this position later.
If you don't want to see this information in your diagram all the time, simply hide the text.

Right-click on the marked text and enter the **Text properties** dialog box.
Deactivate (no check) the setting **Visible text**.
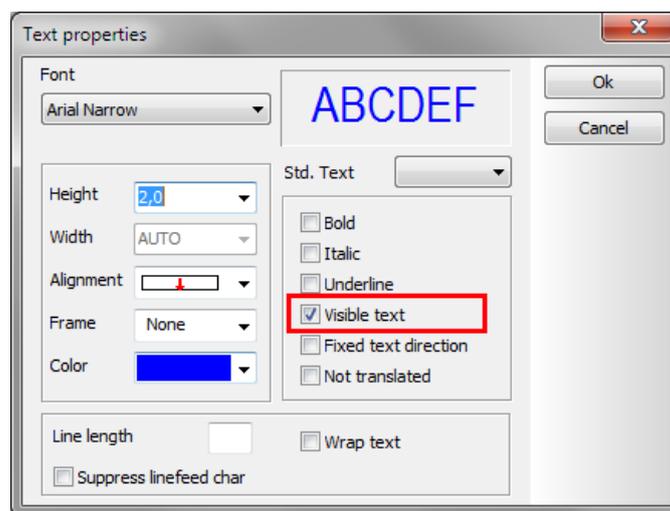
Save the symbol and return to your project.

After you place the edited symbol, you see the applied changes (like here).

<mark>**PLEASE NOTE: CHANGES DON'T APPLY TO SYMBOLS, WHICH ARE PLACED ALREADY IN THE DIAGRAM.**</mark>
To replace the old symbol by the new one, right-click on symbol and click on Replace symbol (F4)!

Exporting PDF files

In **Smap3D P&ID** you can export the active project as an intelligent **PDF** file.
Choose **File > Export to > PDF.**

The dialog box **PDF export** will be displayed:
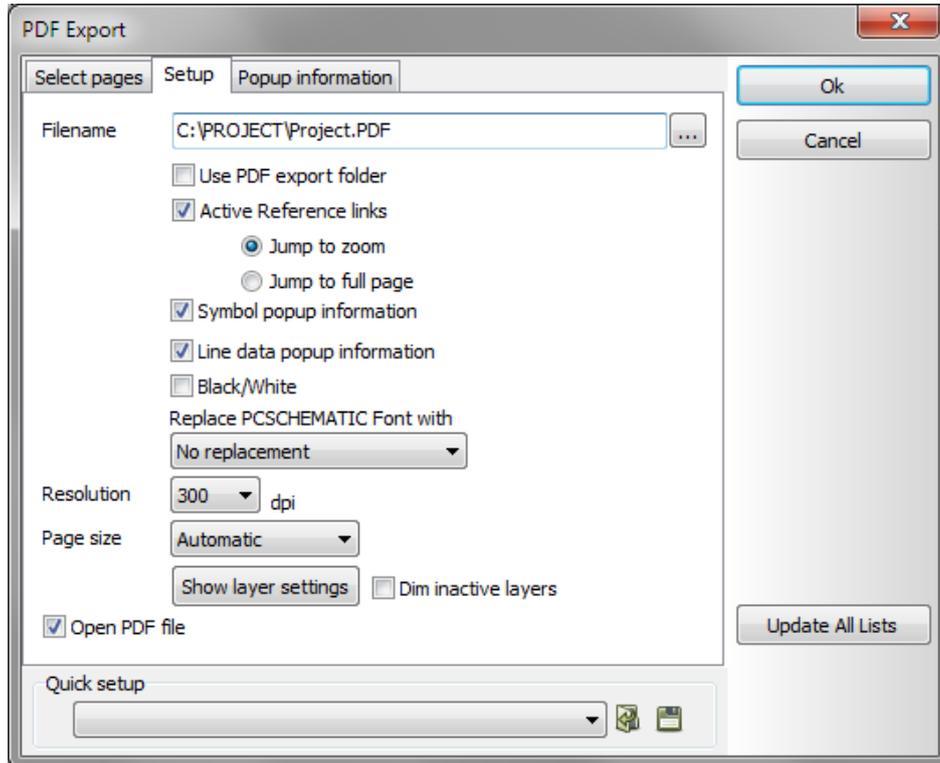
In this dialog box you have the following options:

Use PDF export folder

If this is checked, the PDF file is saved into the specified **Directory for PDF files**.

Active reference links

If this is checked, links are inserted on the following objects in the PDF file:

- Active links between symbols in project pages

- Active links from components in lists to components in the project

- Active links from chapter tables of contents to the mentioned project pages

Symbol popup information

If this is checked, the generated PDF file will contain popup information for the symbols in the project pages.

Line data popup information

If this is checked, the generated PDF file will contain popup information for the lines in the project pages.

Fonts when creating PDF files

When exporting a project as a PDF file, all fonts of type PC|SCHEMATIC will be turned into graphics. Due to the search facilities in the Acrobat program, it is possible to search on texts using Windows fonts in the PDF file.

Short-cut keys

In **Smap3D P&ID** you will find most commands accessible through short-cut keys.
It is also possible to define your own short-cut keys in the program.
To do this, choose **Settings > Pointer/screen > Shortcut**.

Function	Short-cut Key	Function	Short-cut Key
Areas	[a]	**Print**	[Ctrl+p]
Circles / Arcs	[c]	**Redraw**	[Ctrl+g]
Component Grouping	[Ctrl+F7]	**Replace**	[Ctrl+h]
Coordinates	[Ctrl+ i]	**Replace symbol**	[F4]
Copy	[Ctrl+c]	**Rotate 90°**	[spacebar]
Database	[d]	**Save project**	[Ctrl+s]
Delete	<Del>	**Select all**	[Ctrl+a]
Draw on/off	<Insert>	**Show available**	[F9]
Elevation on/off	[F11]	**Show available again**	[Ctrl+F9]
Find	[Ctrl+f]	**Slanted lines**	[Ctrl+k]
Find Article	[n]	**Snap, fine**	<Shift>
Find next	[F3]	**Straight lines**	[Ctrl+r]
Find Type	[v]	**Survey window on/off**	[F12]
Insert Potential	[p]	**Symbol menu**	[F8]
Keyboard entry	[k]	**Symbols**	[s]
Lines	[l]	**Texts**	[t]
Next	[F5]	**Undo**	[Ctrl+z]
Next page	<PageDown>	**View article data**	[Ctrl+F2]
New document	[Ctrl+n]	**View conducting**	[Shift+F2]

Object lister	[F7]	Write text	[k]
On-line Manual	[F1]	Zoom	[z]
Open	[Ctrl+o]	Zoom in	[Ctrl+Home]
Preceding	[F6]	Zoom, move / Pan	<Ctrl>+Arrow keys
Previous page	<PageUp>	Zoom out	[Ctrl+End]
Previous selected page	[F10]	Zoom to page	<Home>

Please note that using lower or upper-case letters effects the short-cut function.
Thus [**Shift+c**] will not enable the circles command.
Whether <**CapsLock**> is enabled makes no difference.

Right-clicking

To get further functions/options when working with the program, use right-click.
For example, you can right-click on a symbol, a line, a text, a circle, the pickmenu, or on the entire page.
Right-clicking in many cases causes a menu to appear, a menu containing functions and/or data dealing with whatever you are clicking on.
When in doubt, you can always try right-clicking.

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