CADprofi HVAC & Piping
Edition of schemes

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Publication
Created by CADprofi – September 2011
Updated – July 2020.

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We are the manufacturer of the following products:

- CADprofi HVAC & Piping
- CADprofi Electrical
- CADprofi Mechanical
- CADprofi Architectural
- CP-Symbols
- CP-Manufacturers/CADprofi OEM (many brands made for our industrial partners)

You can find more information about our products on: www.cadprofi.com.

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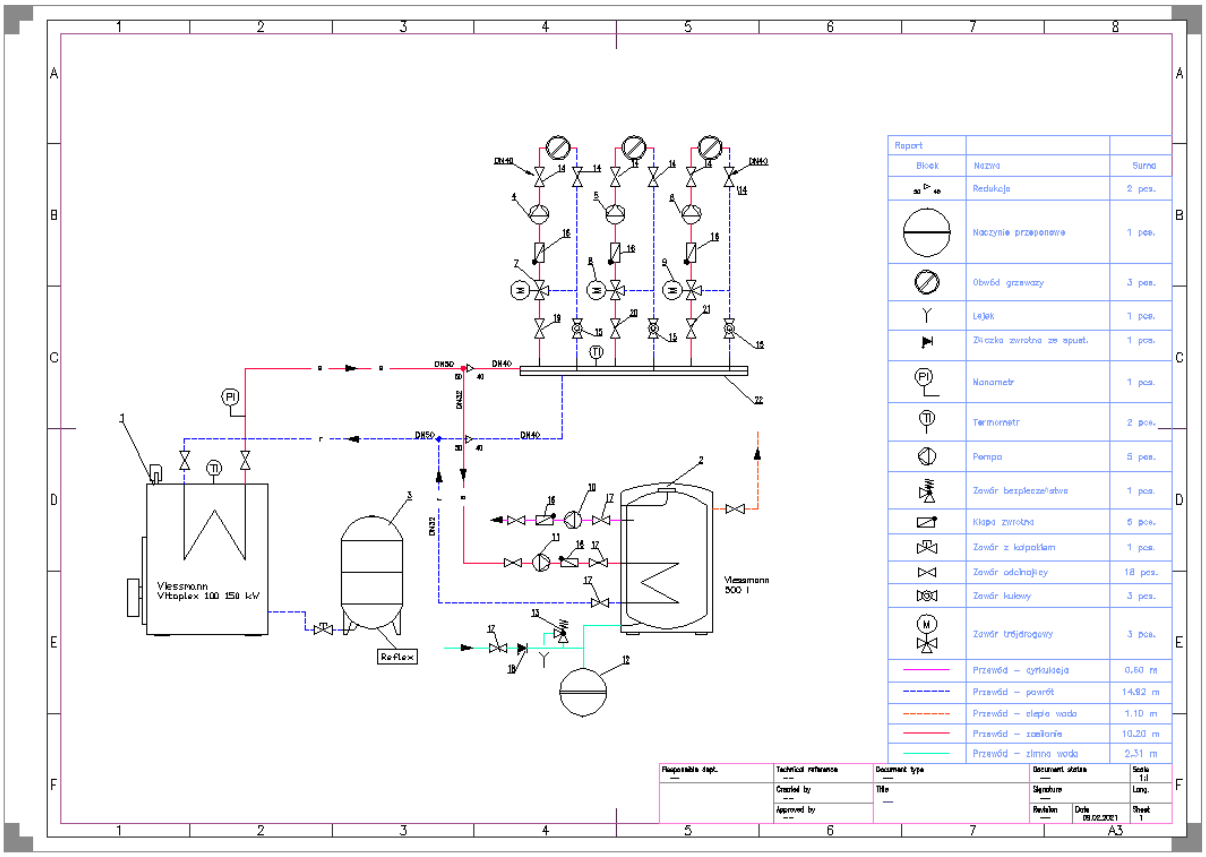
Introduction

The purpose of this tutorial is to learn how to edit schemes and to gain practical skills in order to use main features of CADprofi HVAC & Piping (installation industry).

We will learn program functionality during drawing the scheme of the below boiler:



Requirements

In order to perform all exercises from this tutorial you need to install:

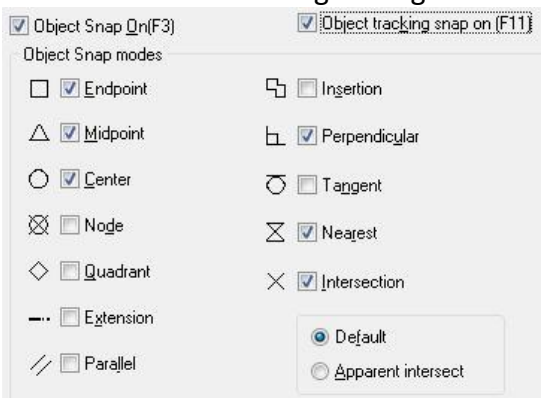
- **CADprofi HVAC & Piping** or **CADprofi Suite**
  (commercial, education or demo version).
- Base CAD program, e.g.: AutoCAD, ARES Commander, BricsCAD, GstarCAD, IntelliCAD, progeCAD, ZWCAD etc.

Settings

Options in base CAD program

Before we start drawing our scheme let us first set up the settings of both base CAD program and CADprofi.

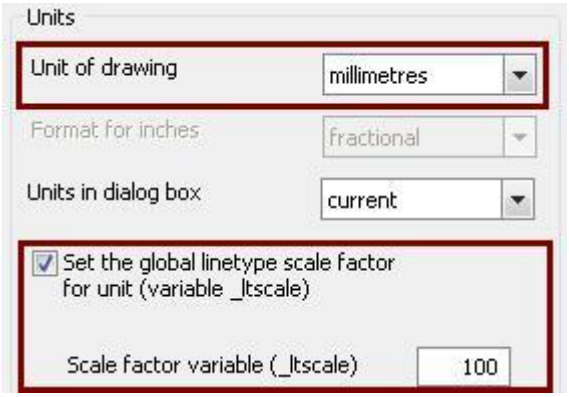
In the base CAD program let us check the following settings:



Options in CADprofi

Lets click the *CADprofi - Options* button that is located on the *CADprofi* toolbar.

In the dialog window lets choose the unit of drawing – *milimetres* and lets set the global linetype scale factor for unit: Variable '*ltscale*' – 100.



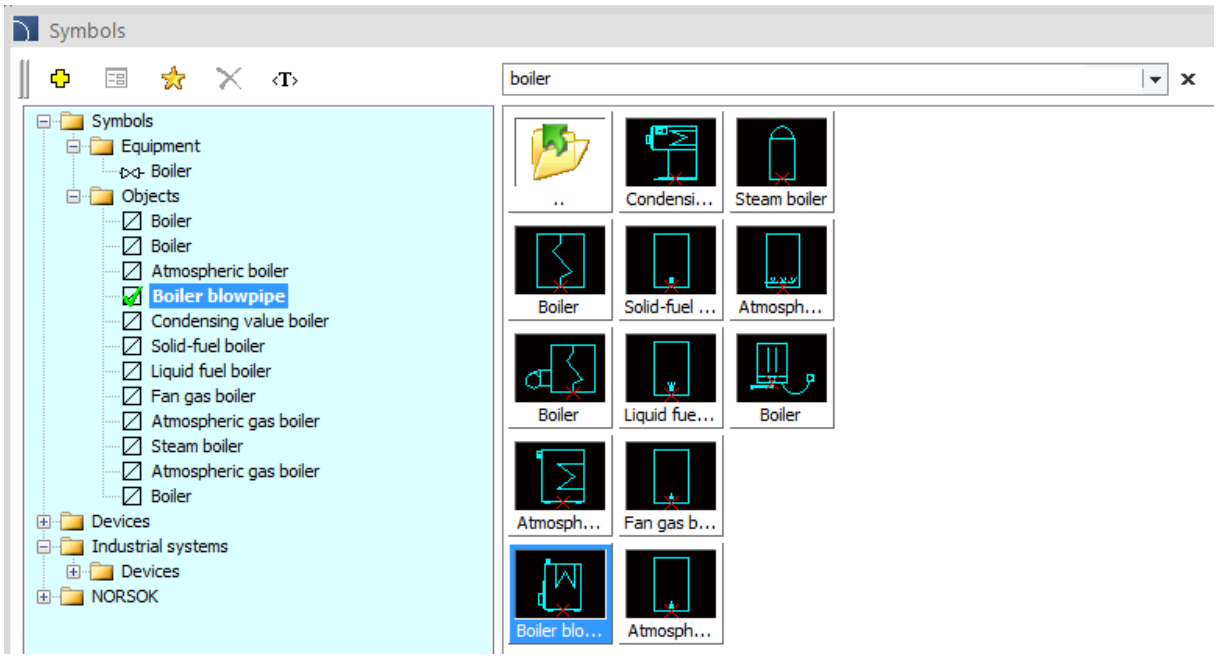
Drawing the boiler's scheme

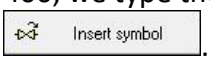
Inserting symbols – command „Symbols"

Lets click the symbols button that is located on the HVAC and Piping toolbar.

After that lets insert the boiler symbol. There are many boilers in the program (category – *Objects*) but the easiest way to find the right one is to use the *Search* option.

In the window we type the name of the object that we would like to find and after that we click . We choose the right boiler (in our case it will be *Boiler blowpipe*) and we click the *OK* button.



When we have chosen the right symbol we can modify it's parameters. We set the scale as 400, we type the article and the manufacturer and we click the *Insert symbol* button 

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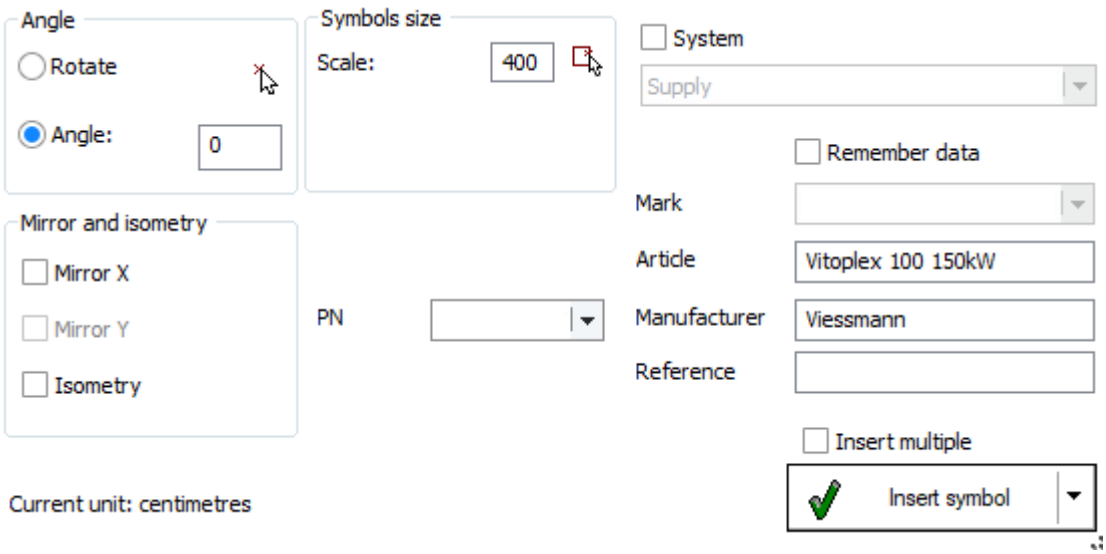
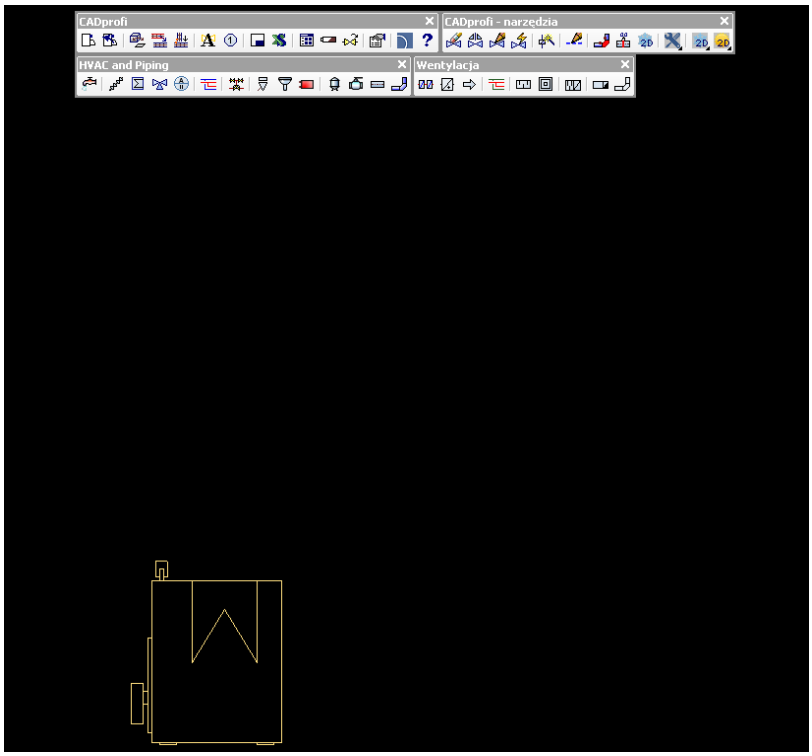


We place the boiler in the chosen place.

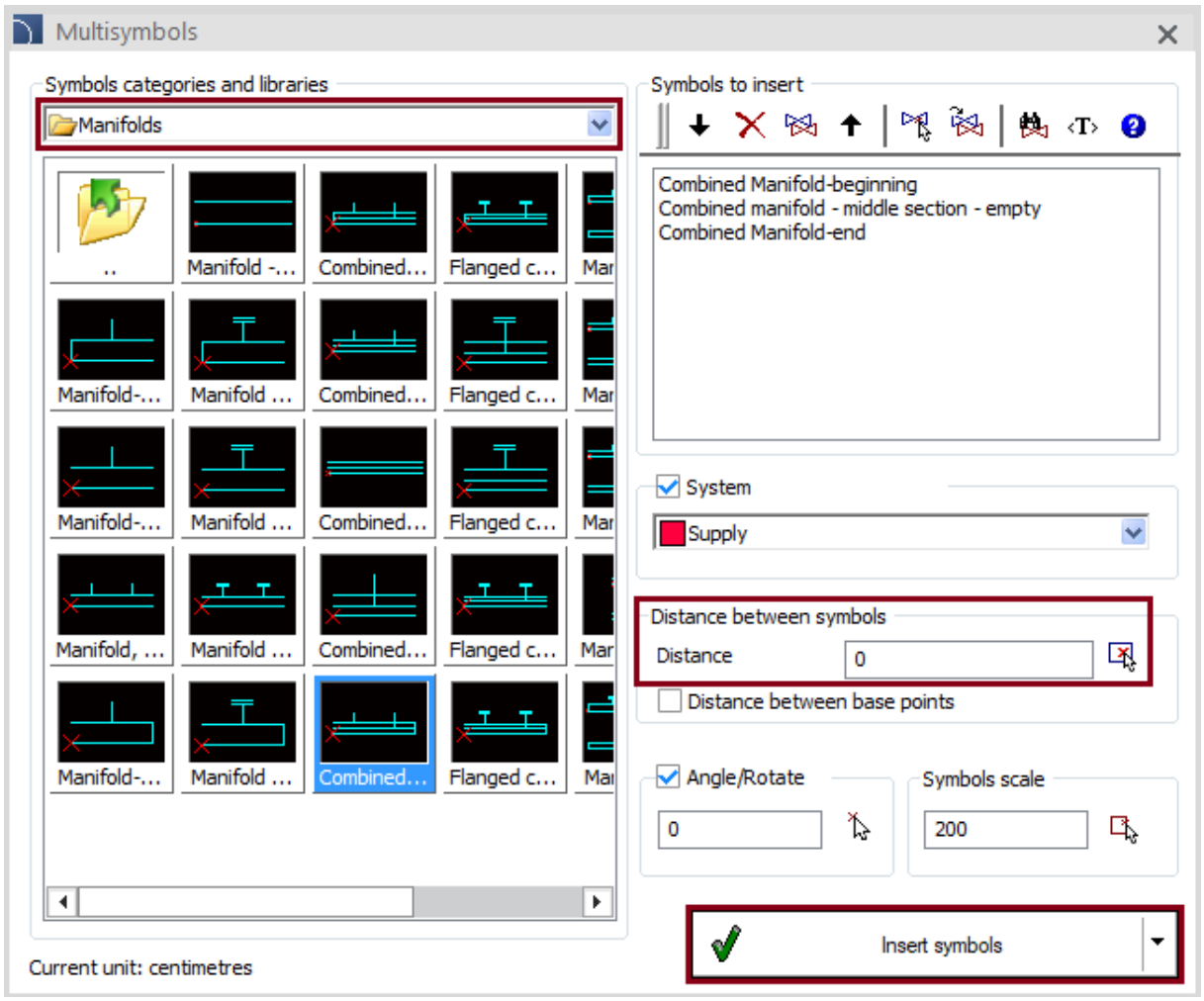


Drawing the distributor – command „Multisymbols”

Our next step will be to insert three distributor’s sections. That’s why we click on the *Multisymbols* button that is located on the *HVAC and Piping* toolbar.

From the drop-down list Symbols categories and libraries we choose the *Manifolds* category. From this category we select *Combined Manifold -beginning*, *Combined Manifold -middle section*, *Combined Manifold-end*. All selected elements will be added to the list of symbols

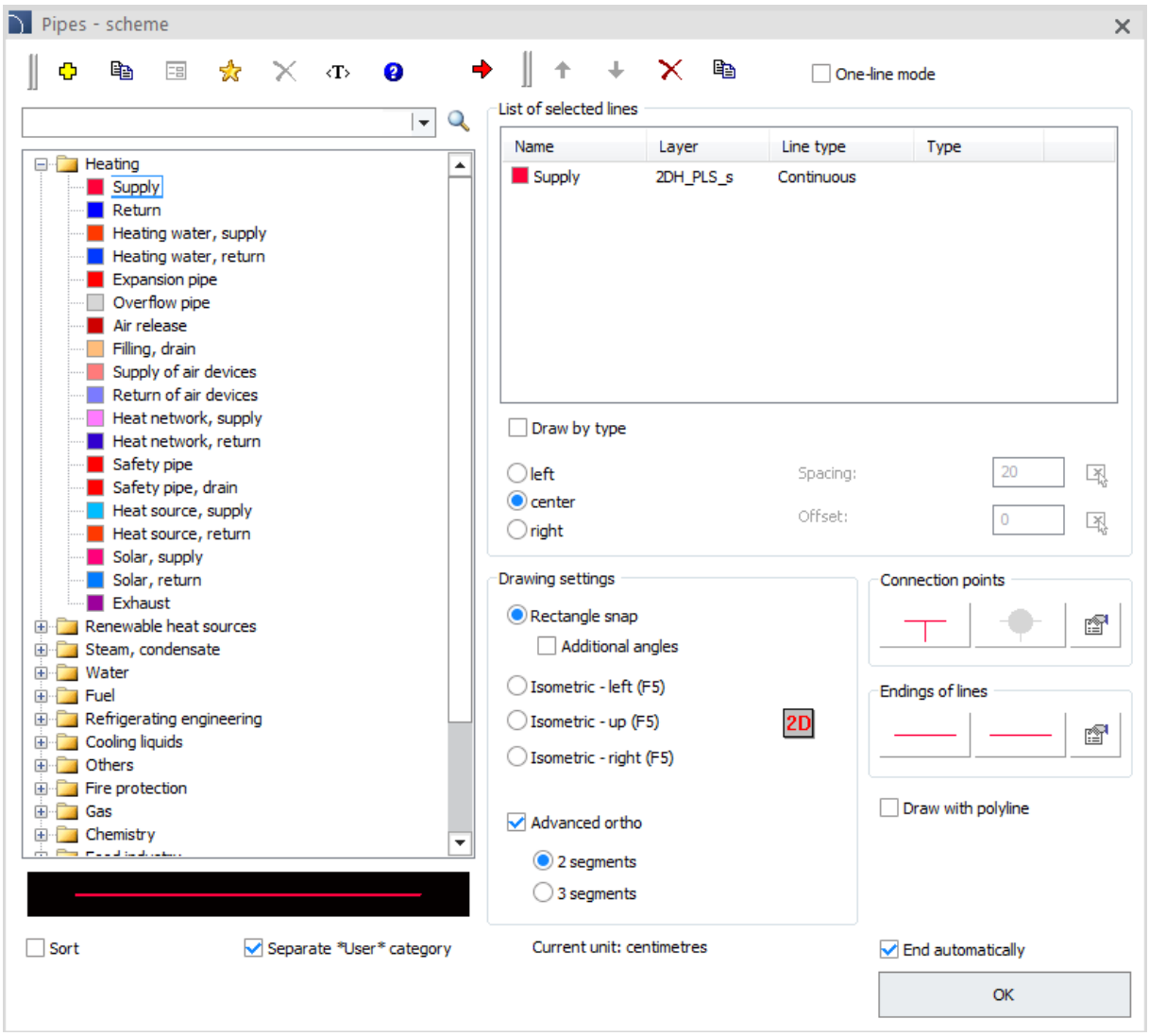
that will be inserted. We set the distance between symbols as 0, because we want to have all those symbols together. After that we click the *Insert symbols* button and we insert them into the drawing.



Drawing lines

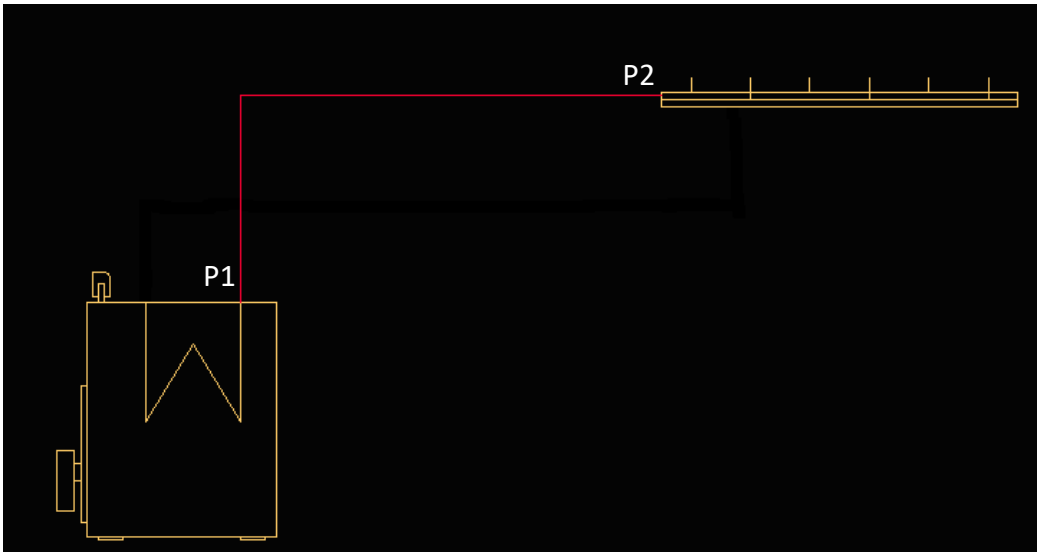
Now we will draw lines that will connect the boiler with the distributor. We click on the *Pipes – scheme* button that is located on the *HVAC and Piping* toolbar.

In the dialog window we choose the Supply line (double click or select the line and click the arrow). If we have AutoCAD, BricsCAD or GstarCAD we can choose the Advanced ortho which will make the drawing of perpendicular lines easier.

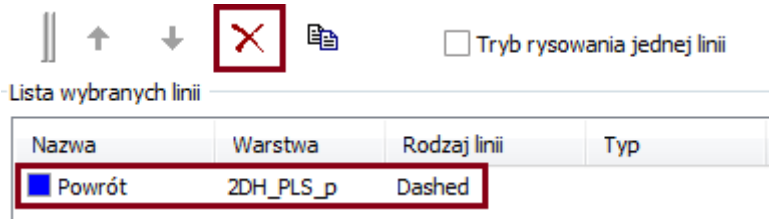


Next we click *OK* and we draw the line in the way that is shown in the picture below.

In the *Advanced ortho* you can choose the option to draw several lines sections simultaneously. In this case it will be convenient to choose an option that enables drawing of several sections simultaneously and next click the boiler exit power point (P1) and the connection point (P2). If the option *End automatically* was active then the command will end when the line is attached to any object.



We choose the command *Pipes – scheme* again. If there are any lines already selected in the list then we can delete them by clicking the button and add new ones. This time we will add the *Return* line (double click or clicking the arrow symbol).



After that we click *OK* and we draw the Return line just like in the picture below.
In the *Advanced ortho* it is easier to choose to draw three lines simultaneously. In this case we need to click the boiler's exit point and next in the command line choose the option *Three* (you just need to type in the command line *T* and click *Enter*).

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Specify next point or [Undo/Mirror/One/Three]: t
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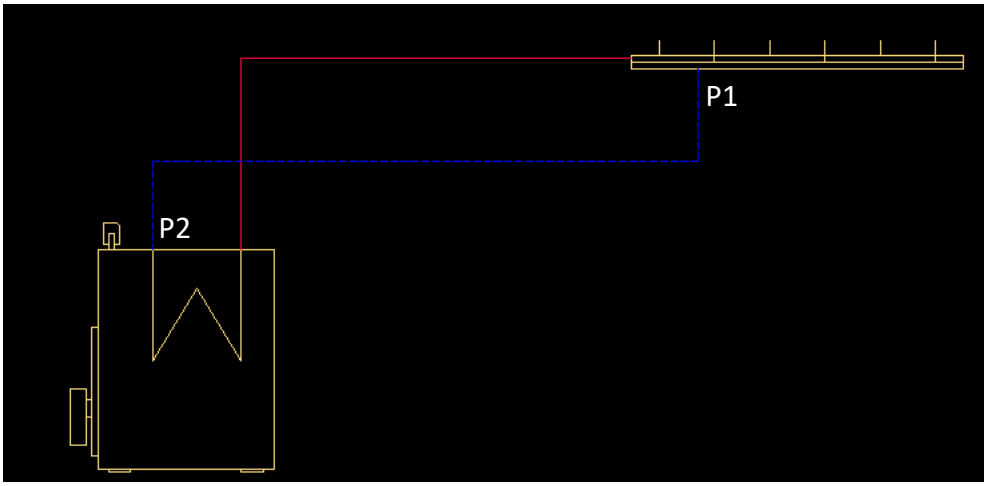
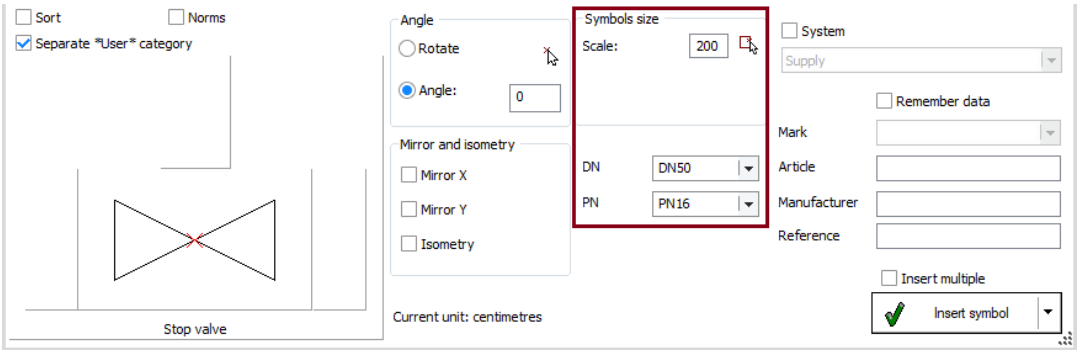
After you have chosen the option all you have to do is to click into the distributor's return connection point (P1) and the boiler's connection (P2).

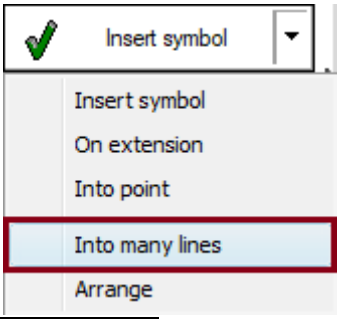


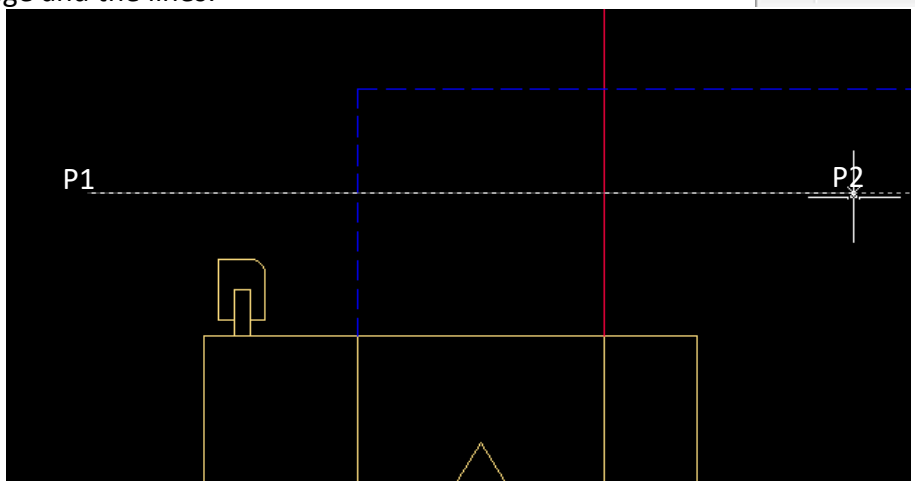
Inserting symbols into many lines

In the next step we will insert armature. That's why we will click again on the *Symbols* button that is located on the *HVAC and Piping* toolbar, and after that we will choose the *Stop valve* that is located in the *Armature* category.

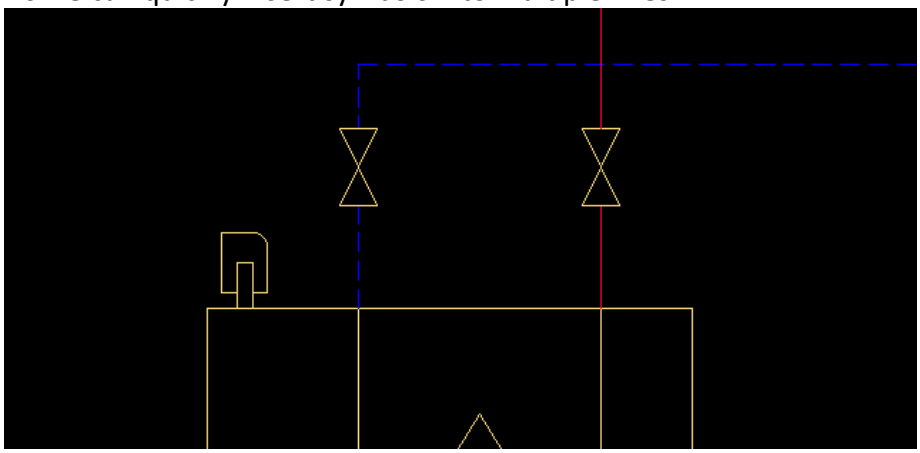


We set the scale into 200, DN into 50 and PN into PN16. We click the arrow that is located next to the *Insert symbol* button and from the drop-down list we choose *Into many lines* thanks to which we will be able to insert our symbol into many lines. Then, we should specify the edge that crosses the lines. That's why we click in the P1 point first and next into P2 point. Symbols will then be inserted in points that are being crossed between our selected edge and the lines.





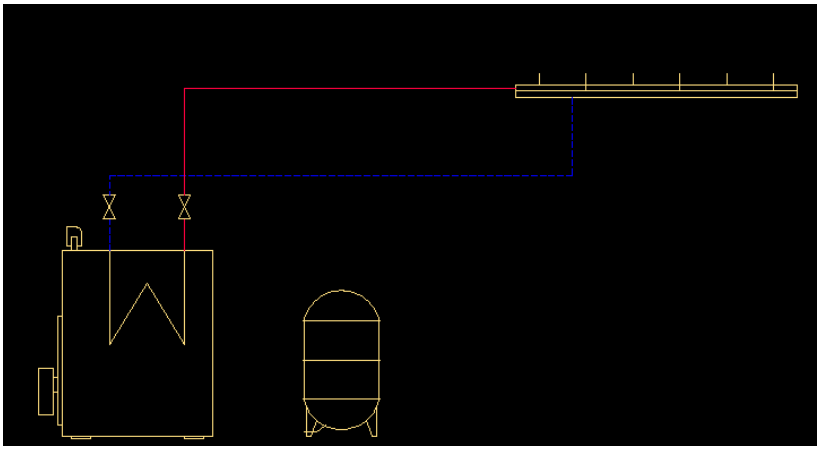
Thanks to this we can quickly insert symbols into multiple lines.



Inserting the Diaphragm extension tank

Diaphragm's extension tank symbol is located in the symbols' library that's why we should click *Symbols* button first and then use the *search* option in order to find the *Diaphragm extension tank*.

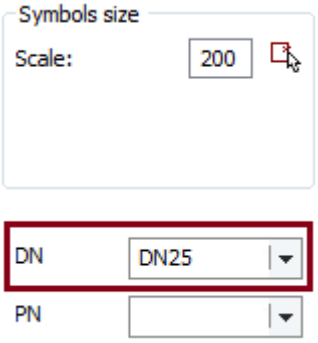
Next we click the *Insert symbol* Insert symbol button and we specify the point where we would like to insert the symbol – near the boiler (it would be the best to insert it at the same level as the boiler).



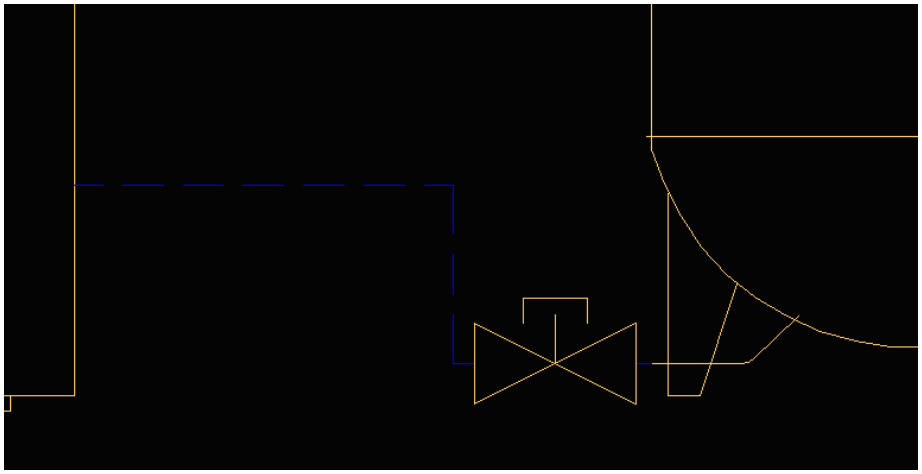
Attaching the Diaphragm extension tank

Our next step will be drawing the return line from the diaphragm extension tank into the boiler. We click the *Pipes - scheme* , button, and we choose the *Return* Return and we draw the line from the diaphragm's extension tank stub into the boiler.

Next we will insert into the return line a *Cap valve*.
We click the *Symbols* button and we search for the *Cap valve.*
In the symbol's parameters we choose the DN25.

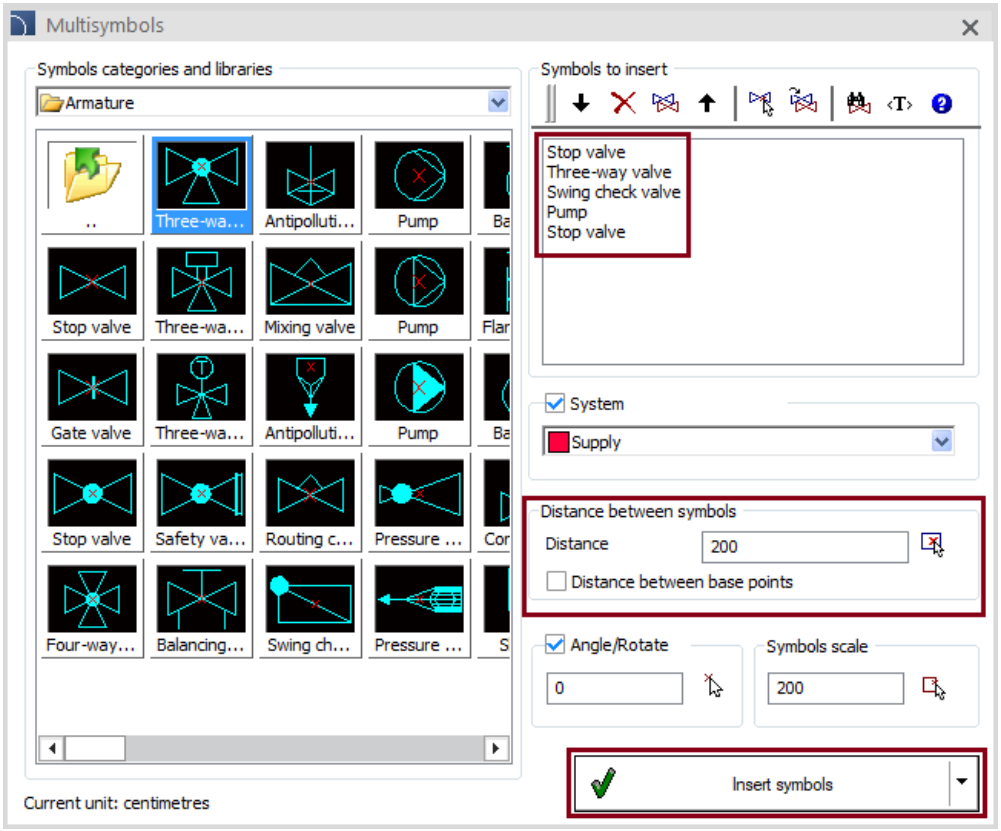


We click the Insert symbol button and we insert our symbol into the drawing. After we clicked the line the symbol will automatically insert.

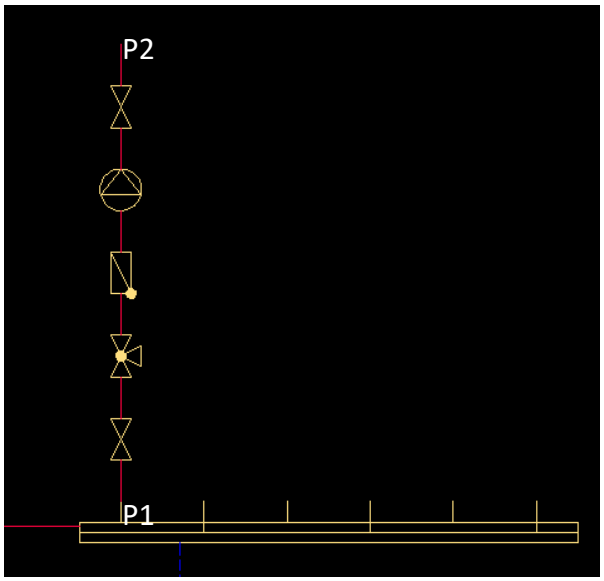


Drawing the mixing system – symbols on the supply

Now we will draw a mixing system on the distributor. We will use the *Multisymbols* command that is located on the *HVAC and Piping* toolbar. From the *Armature* category we choose the symbols that are presented in the dialog window below.



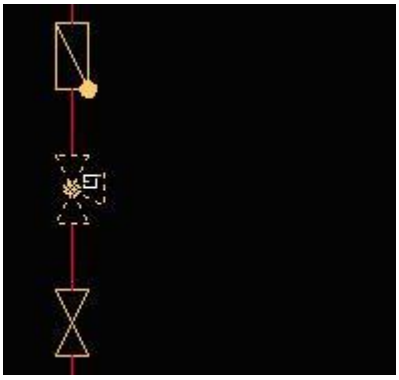
There should be a line between the symbols that's why from the System list we will choose *Supply* and we add the distance between the symbols as 200 in the distance box. After we have clicked the *Insert symbols* button we need to show the distributor's stub first (P1) and next we click the (P2) point in such way that the line with symbols will be drawn upwards.



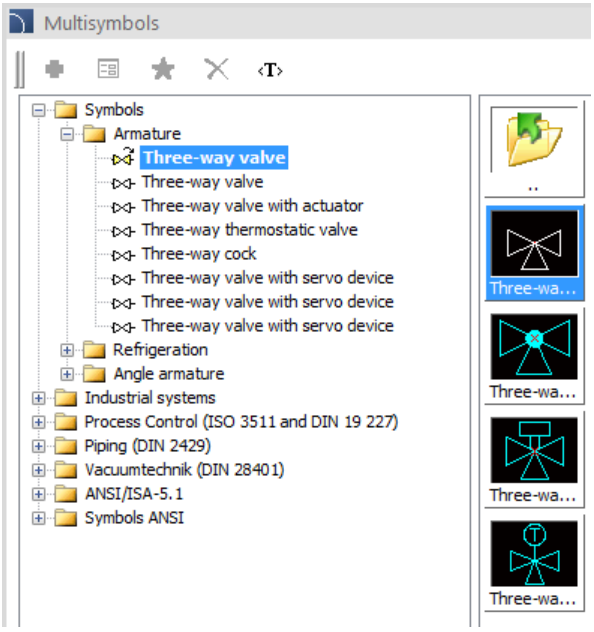
Drawing the mixing system – edition of already inserted symbols

Symbols that were inserted into the drawing can be edited. For example we will change the *Three-way valve* into a symbol with an actuator motor.

We click the *Edit symbols* button that is located on the *CADprofi – Edit* toolbar and next we choose the symbol that we would like to edit.

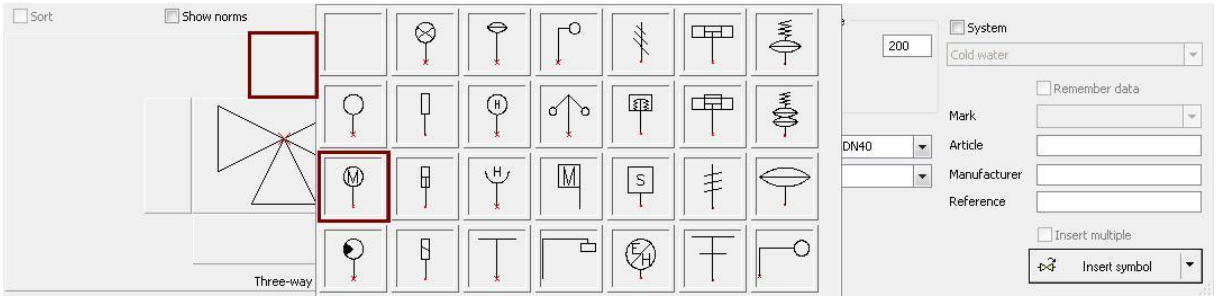


In the dialog window we change the *Three-way valve* into *Three-way valve (multivariant)* – multivariant symbols have got black&white miniatures.



Next we edit the *Three-way valve* choosing the actuator motor. We need to click into the active field that is located above the valve and we choose the right motor.

When editing the symbol we can choose technical parameters (DN, PN, article, reference). For example lets choose DN40 in the DN box.

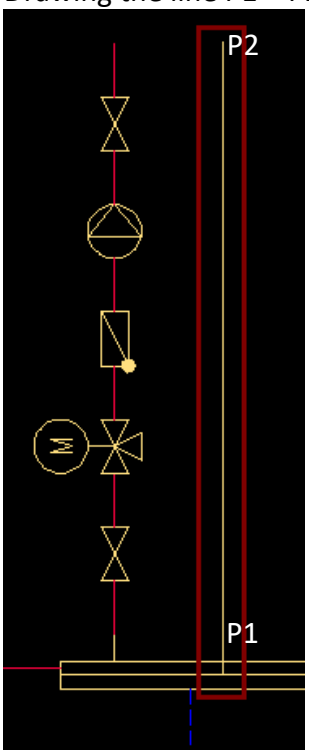


After the clicking the Insert symbols button the symbol will be changed and it will look like to one below:

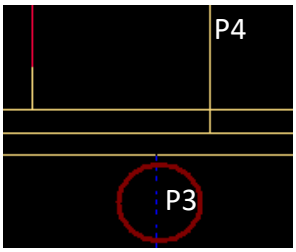
Drawing the mixing system – return line

In our next step we will draw a return line. In CADprofi software lines are just simple lines that are being placed into layers. That's why we can draw lines using the *Line* command and next use the command that matches properties.

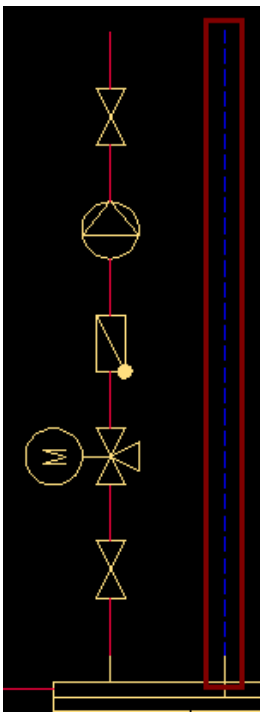
Drawing the line P1 – P2



Next we choose the CAD command match properties (matchprop) and after that we click the return line which is located just below the distributor (P3) and next match the properties for the already drawn line (P4) thanks to which it becomes a *return line.*



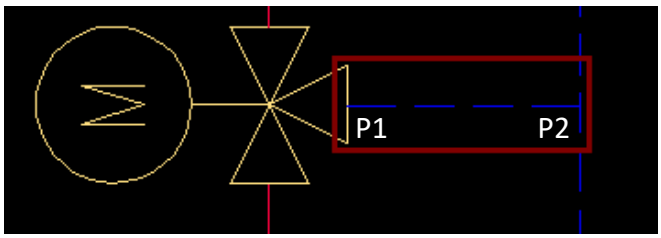
View after the properties are matched



Our next step is to draw the *Return line* from the *Three-way valve.*

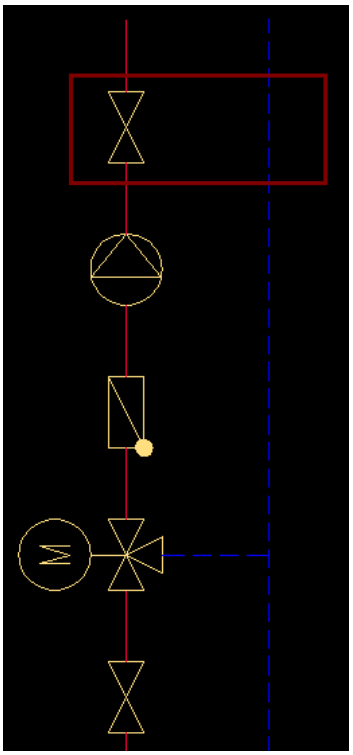
We click on the *Pipes - scheme* button that is located on the *HVAC and Piping* toolbar and we choose the line type as *Return* Return and we add it into our drawing.

In order to easily draw the line it is good to switch on object snap mode:
In point (P1) option *Symmetry* may become handy, while attaching another line to a line that already exists (P2) an option – *Perpendicular* may become (look at page 9).

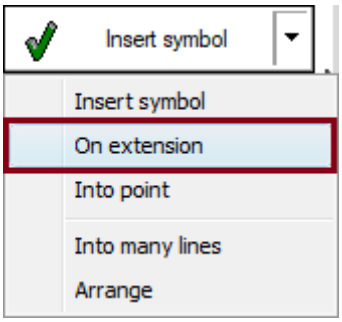


Drawing the mixing system – inserting symbols in extension

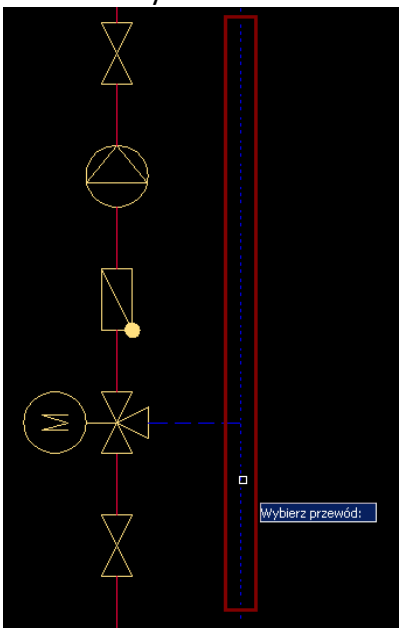
Our next task will be to insert the *Stop valve* in the way that it will be inserted at the same level as the *Stop valve* that is shown at the picture on the right.



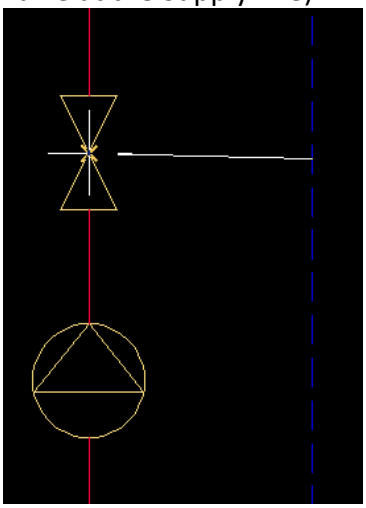
We run the *Symbols* command and we choose the *Stop valve* and next we choose from the drop-down menu of the *Insert symbol* button the *On extension* option.



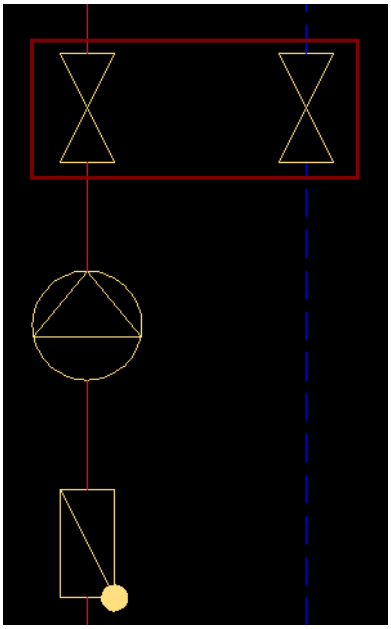
In the first step we show in which line we would like to insert the symbol.



Next we show the reference point on which level we would like to insert new symbol (in our case it will be the middle point at the valve at the Supply line).



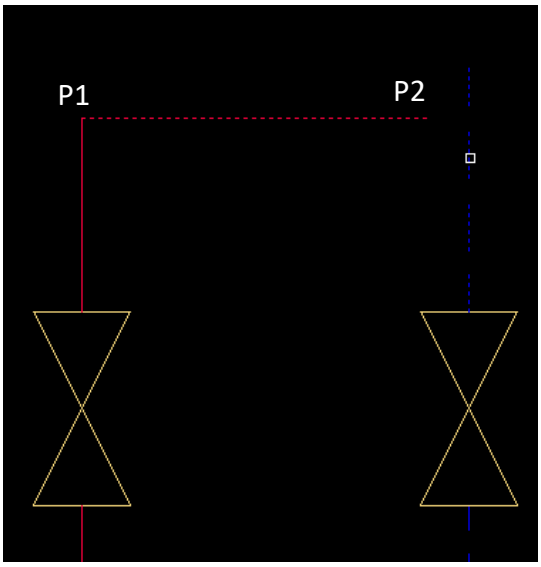
We end the operation with the Enter key. Symbol will be inserted exactly where we wanted it to be.



Drawing the mixing system – heating circuit symbol

Before we will insert the circuit heating symbol we will need to draw a line that will connect both Supply and Return lines. We draw lines thanks to *Pipes – scheme* command. Next thanks to the *Chamfer* command we will link those two lines.

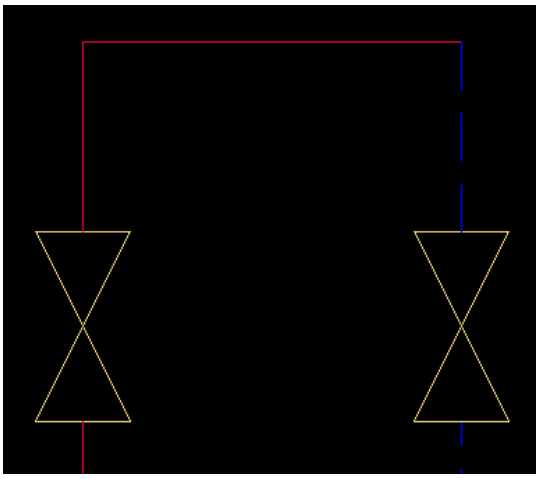
After we have drawn the line P1 – P2 we will need to use the *Chamfer* command (for example we can type chamfer in the command line).



In order to link both lines we will need to specify the chamfer height as 0 (dist1=0 and dist2=0).

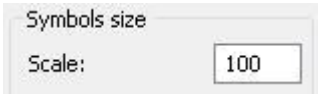
```
Command: CHAMFER
Chamfer (distl=0, dist2=0):
```

First we select the first and later the second line (just like in the picture on the right) and we press the Enter key.

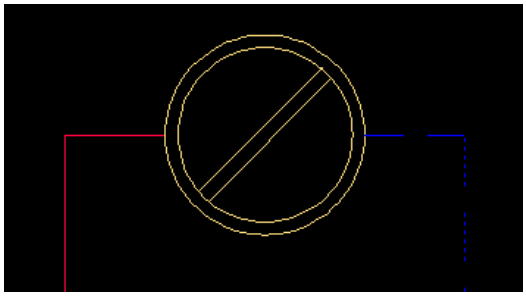


After that both lines will be connected to each other.

In order to insert the *Heating circuit* symbol we click on the *Symbols* button, we search for the Heating circuit and we reduce it's scale to 100.



Next we click the Insert symbol button and we insert the symbol just like in the picture.



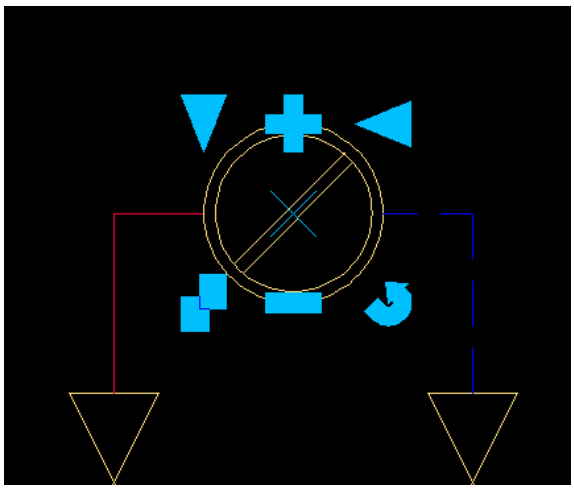
Our last step is to match the properties of the Return line that is behind the Heating circuit symbol (you need to use the *match properties* command of your base CAD program).

Quick edit of symbols

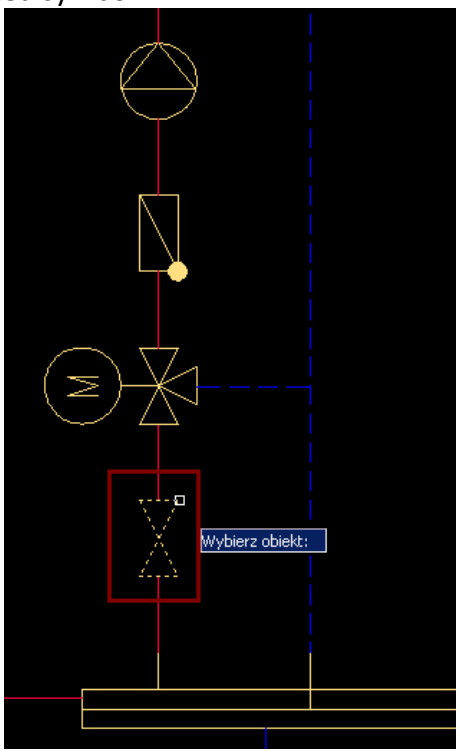
In order to quickly edit the symbols you can use the *Quick edit* command that is located on the CADprofi - Edit.

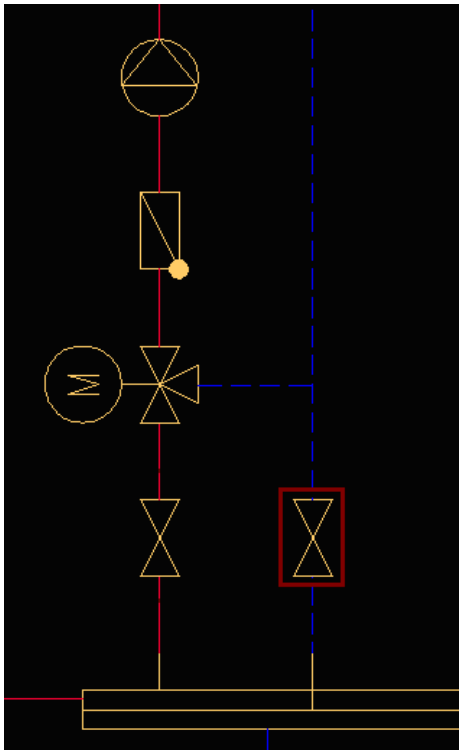
After we have clicked on the Qucik edit button we need to select the symbol that we want to edit. Additional marks will appear:

- symbols' scaling (scale)
- symbols' mirror image (mirror)
- symbols' rotation (rotate)
- copying symbols (copy)



Just to give an example we will copy the *Stop valve* symbol in order to insert its copy into the *Return* line. We will run the *Quick edit* command and next we will choose the *Stop valve*. Clicking on the copying mark we will copy the symbol into a different place. Program is in the copying mode until we press the *ESC* key thanks to this we can insert many copies of our selected symbol.

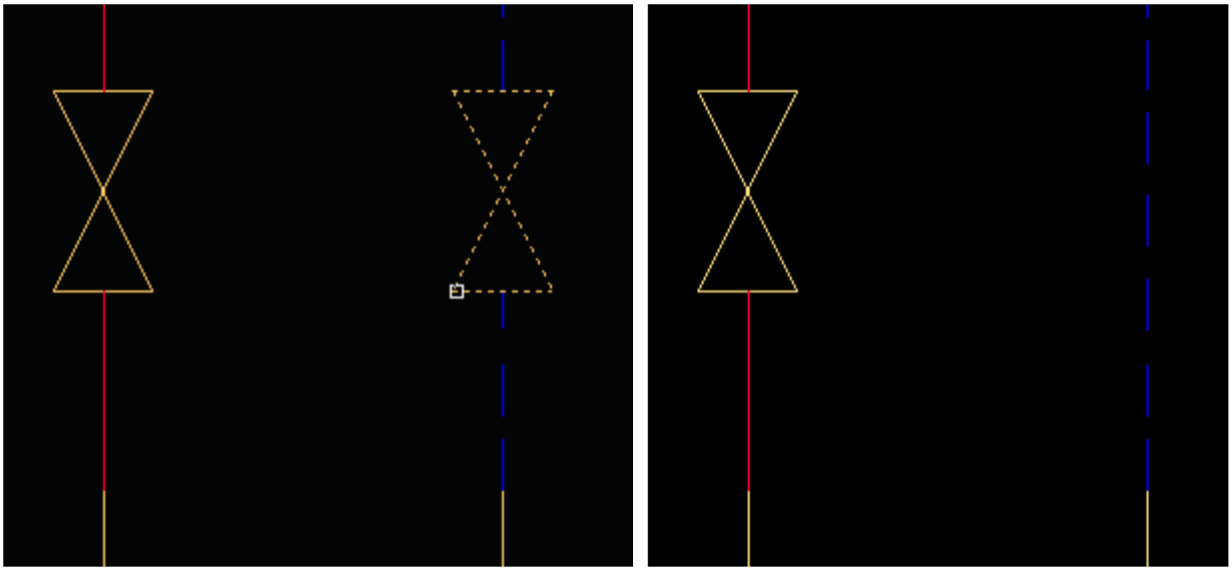




Deleting symbols

In order to delete symbols that were inserted into the lines we will need to use a *Delete symbols* command that is located on the *CADprofi - Edit* toolbar.

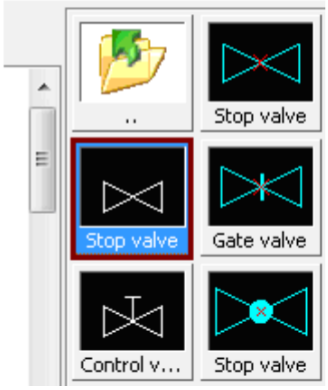
We click on the symbol that we would like to delete for example into the *Stop valve* symbol that we have copied earlier. Symbol will be deleted and the line will be automatically connected.



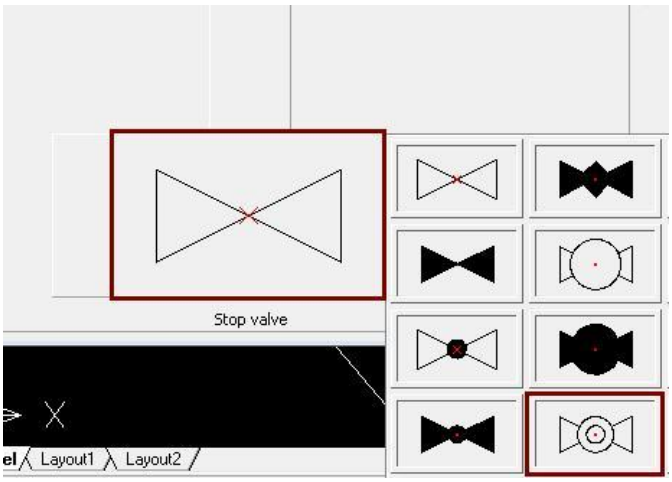
Command „Insert similar object”

When creating projects it is sometimes needed to insert symbols into the drawing from different categories. CADprofi possess a large library of symbols and when we are adding many symbols from different categories a constant search of the right symbol may be sometimes difficult and time consuming. That’s why the *Insert similar* object command instantly opens the right category from the library, which allows to quickly find the right symbol..

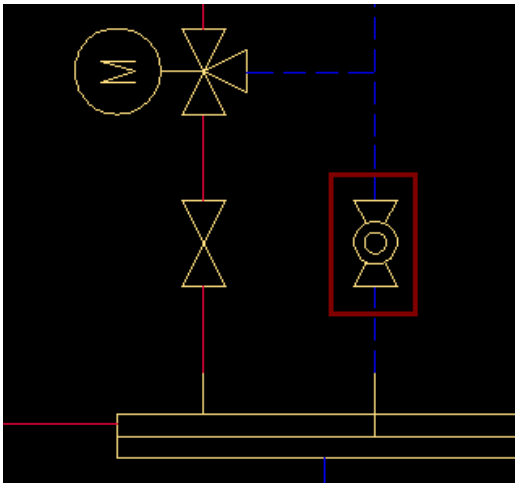
For example lets insert a *Ball valve*. This symbol is similar to the *Stop valve* that’s why we need to click the Insert similar object button and select the *Stop valve* from the drawing. After that a library of symbols will be opened with the same category as the symbol we have chosen and from which we can choose the needed symbol. Lets choose the *Stop valve* from the library (multivariant) from which we will choose the *Ball valve*.



In order to choose the needed valve from the multivariant symbol we need to click into the symbol’s body field and from the drop-down choose the right symbol. In our example it will be a symbol of a *Ball valve.*



After we have chosen the right valve we can insert it into the *Return* line by clicking the *Insert symbol* button. We can use the *On extension* option that will allow us to precisely insert the symbol at the same level as the *Stop valve* symbol.



Copying the scheme

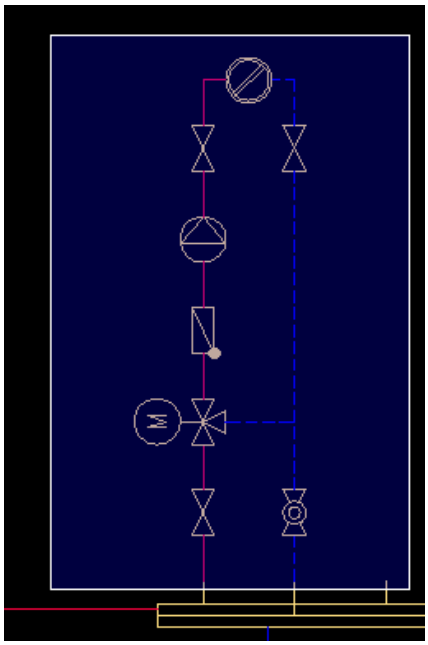
Previously we have copied a symbol using the command from the CADprofi program, which helped when we copied symbols into lines (the edge of the copied symbol automatically stayed the same as well as the line was automatically broken).

We need to remember that all object from CADprofi are compatible with dwg and dxf. That's why those objects can be edited without CADprofi commands. For example it is possible to copy a part of the drawing with the *Copy* command from the base CAD program.

In order to copy the previously drawn scheme we need to run the copy command. We click on the base CAD copy icon or we type in the command line *Copy*.

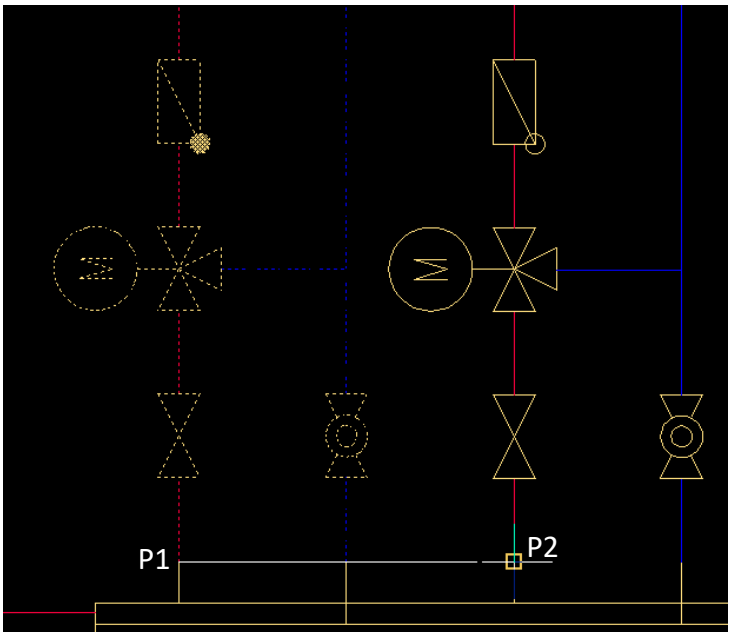
```
Cancel
Command: COPY

Select objects:
```

Afterwards we choose the objects that we would like to copy. After we have chosen them we click the Enter key.



After we have ended choosing the objects that we would like copy we select the base point to copy (P1) and next we click on the P2 point (or next points) in which we would like to put the copy of the selected objects.

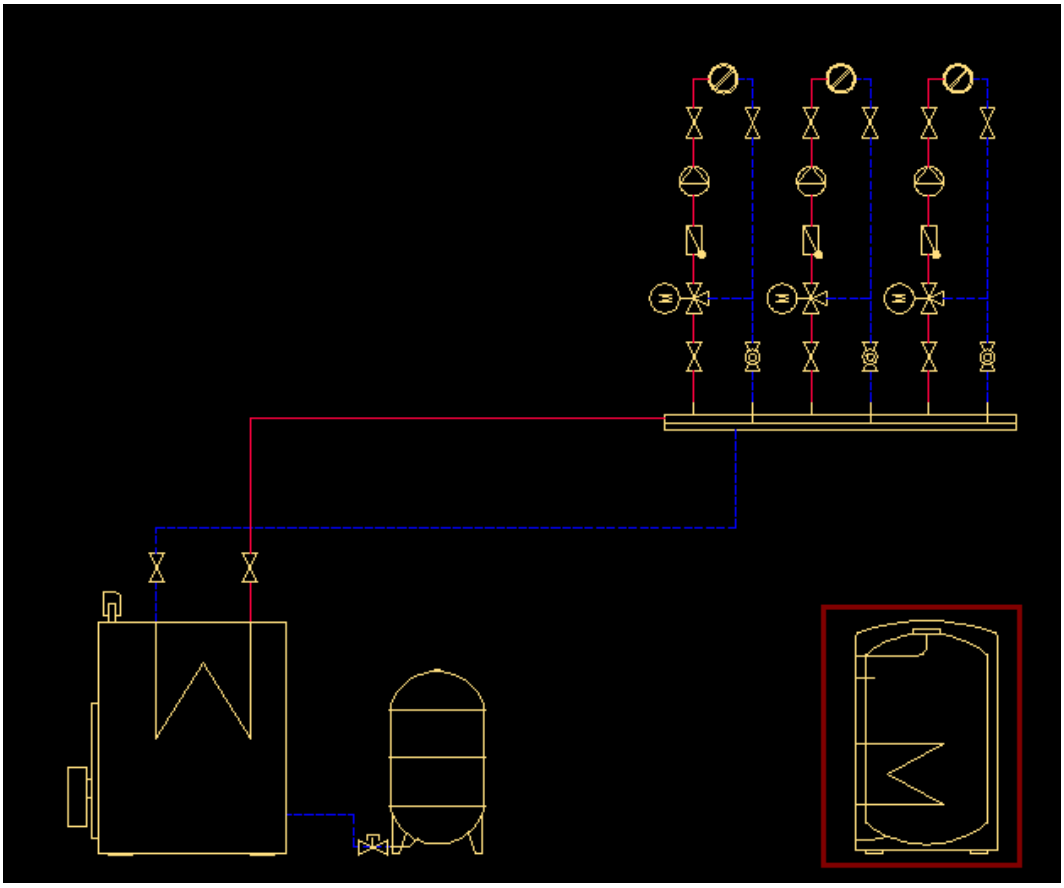
In the example we have got a distributor with three sections, that's why we would like to prepare two copies of the whole scheme that we have drawn before.



Inserting and copying the vertical drinking-water heater

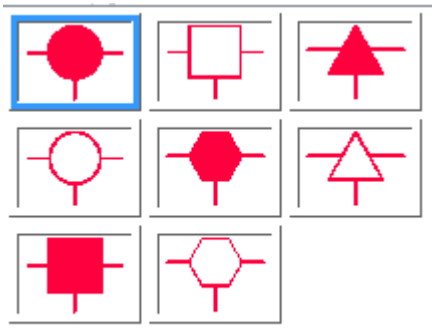
Our next step will be to drawn the warm water system.

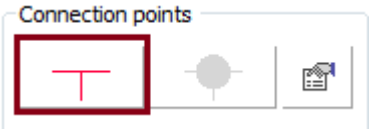
We click the *Symbols* button, we search for the *vertical drinking-water heater* and we set it's scale as 300 and after that we add it into the drawing.



Next we connect the heater with the Supply and Return lines. We run the *Pipes – scheme* command and we choose the *Supply* Supply.

In order to have connection point where we insert lines we need to click the Connection points button and in the new dialog window choose the options that are displayed on the right.

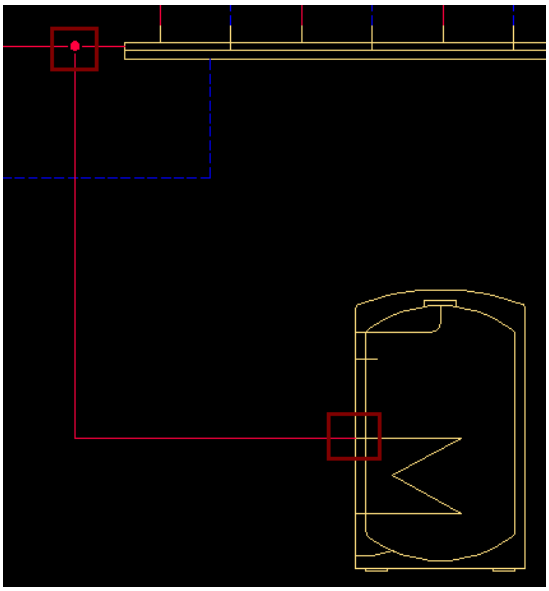




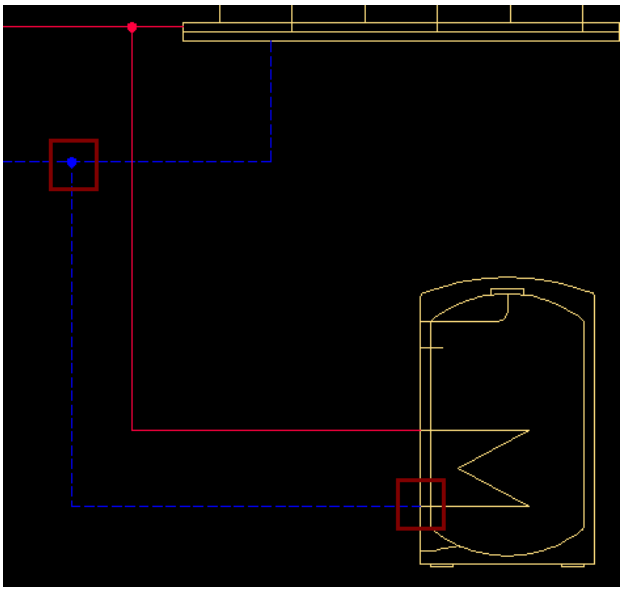
We choose the *type of connection* point as *always*, we set the scale as 50 and next we click ok and we draw the line from the heater to the main *Supply* line.

In the *Advanced ortho* it will be good to choose an option to draw two lines simultaneously.

In the same way we draw the *Return* line.



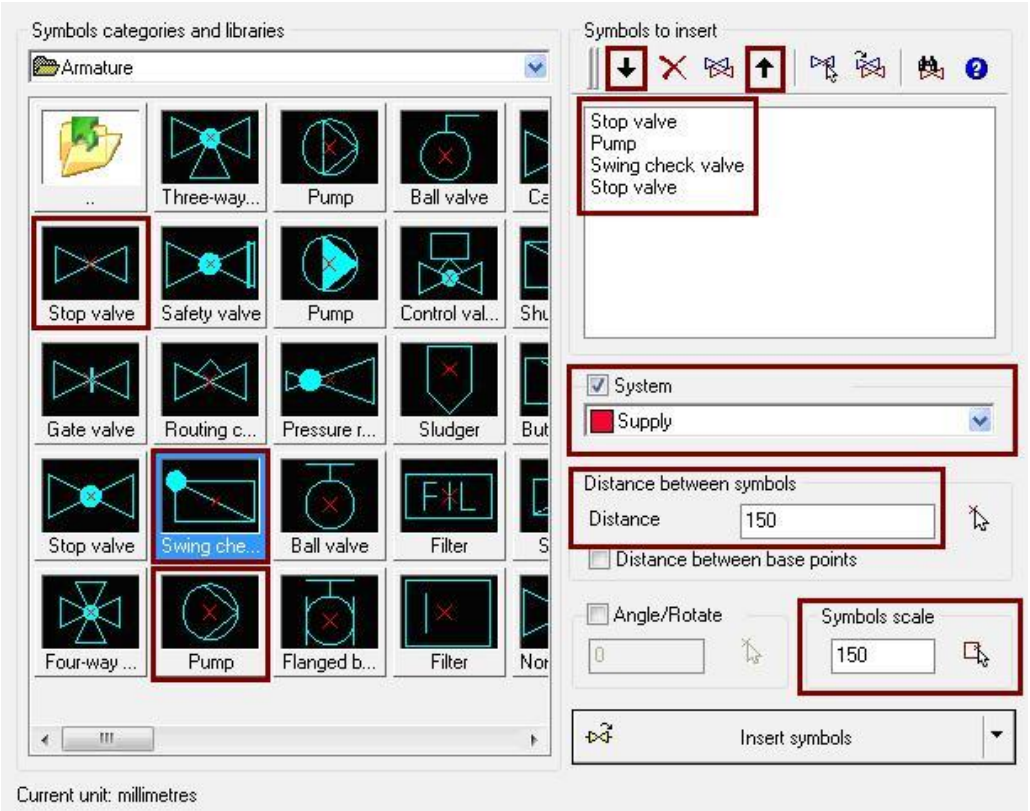
Attaching the Supply line



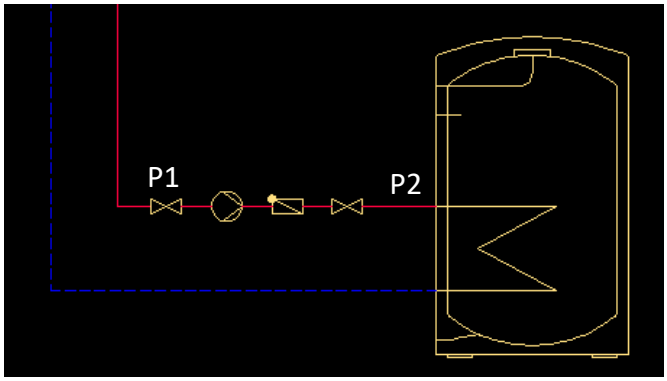
Attaching the Return line

In our next step we will insert a loading pump and armature. We click the *Multisymbols* button and from the *Armature* category we select the following symbols: *Stop valve, Stop valve, Pump, Swing check valve.*

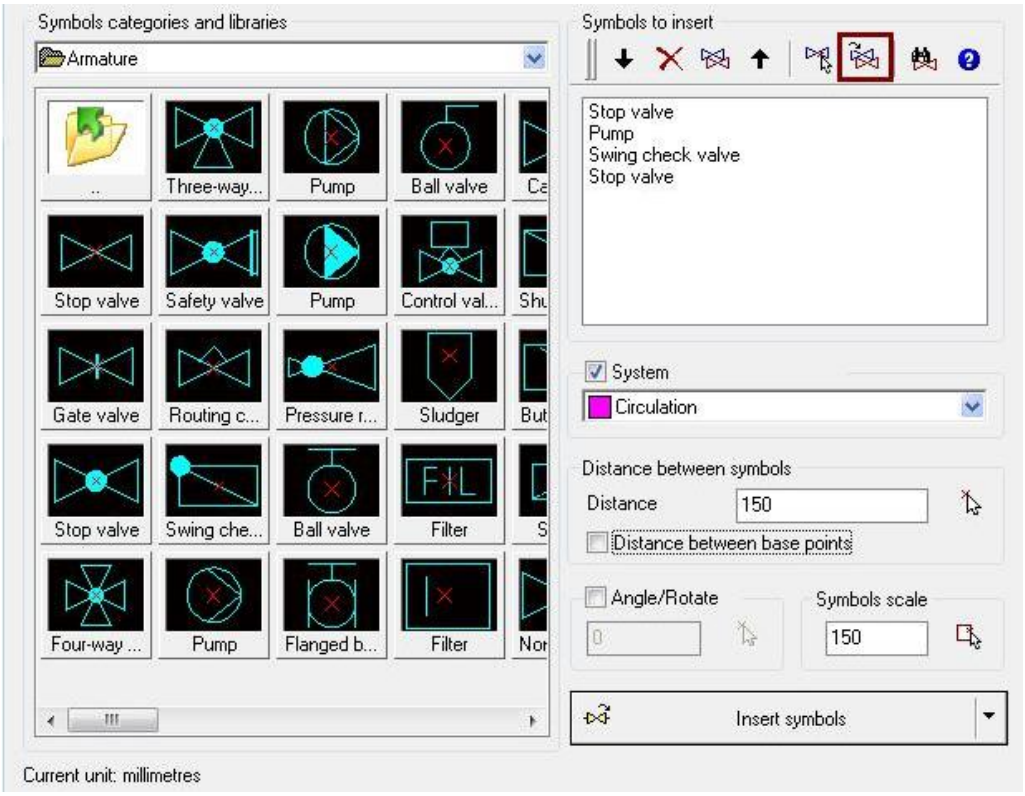
After we have added symbols to our list of symbols that will be added to the drawing there is a possibility to change the symbol's order. We do it with arrows or we can drag the selected symbol into other place on the list. In our example we need to put one of the Stop valves into the end of our list. Next we select the distance as 150 and scale as 150 and we click on the *Inserts symbols* button.



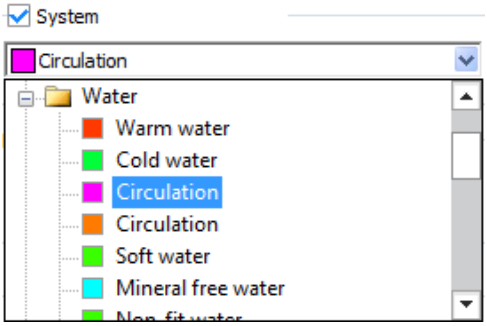
Symbols may be inserted into the already existing line. We indicate the point on the line where the first symbol will appear (P1) and next we choose the direction where we would like to have our multisymbols (P2).



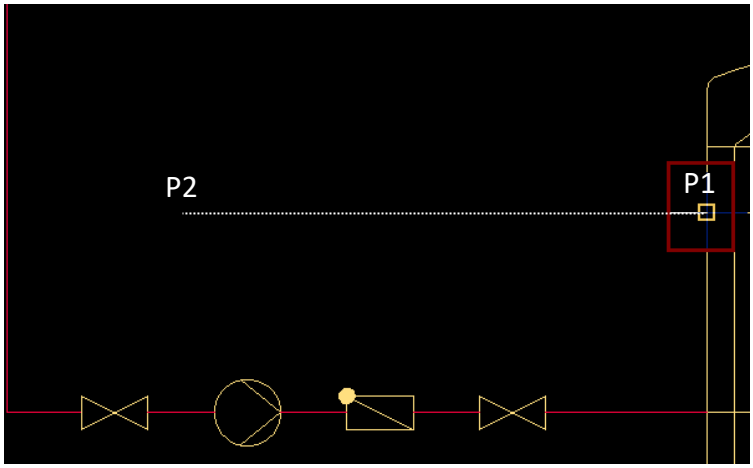
Next thanks to the *Multisymbols* command we will insert the same symbols' set as we have put previously. After we have run the command we click the *Most recently selected* symbols thanks to which the last set of symbols will be added into the list (*Stop valve, Stop valve, Pump, Swing check valve*).



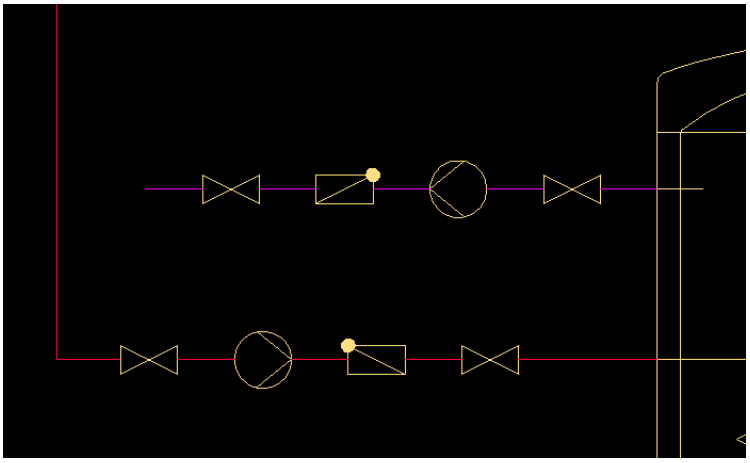
We choose the Circulation Circulation as the system (you can find it in the *Water* category) and we click the *Insert symbols* button.



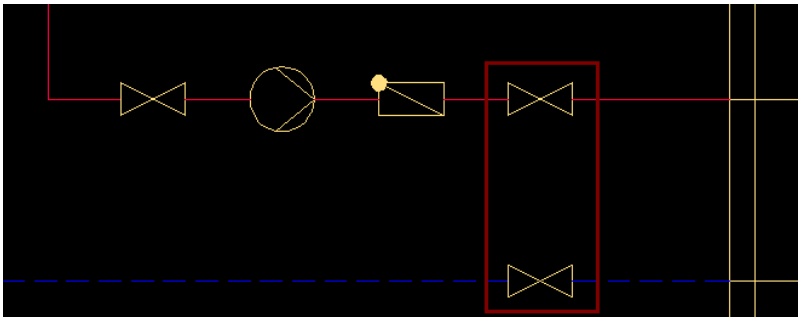
We insert the symbols by indicating the circulation heater stub P1 and next we choose the direction where the symbols will be inserted P2.



Thanks to this we have got the following result:

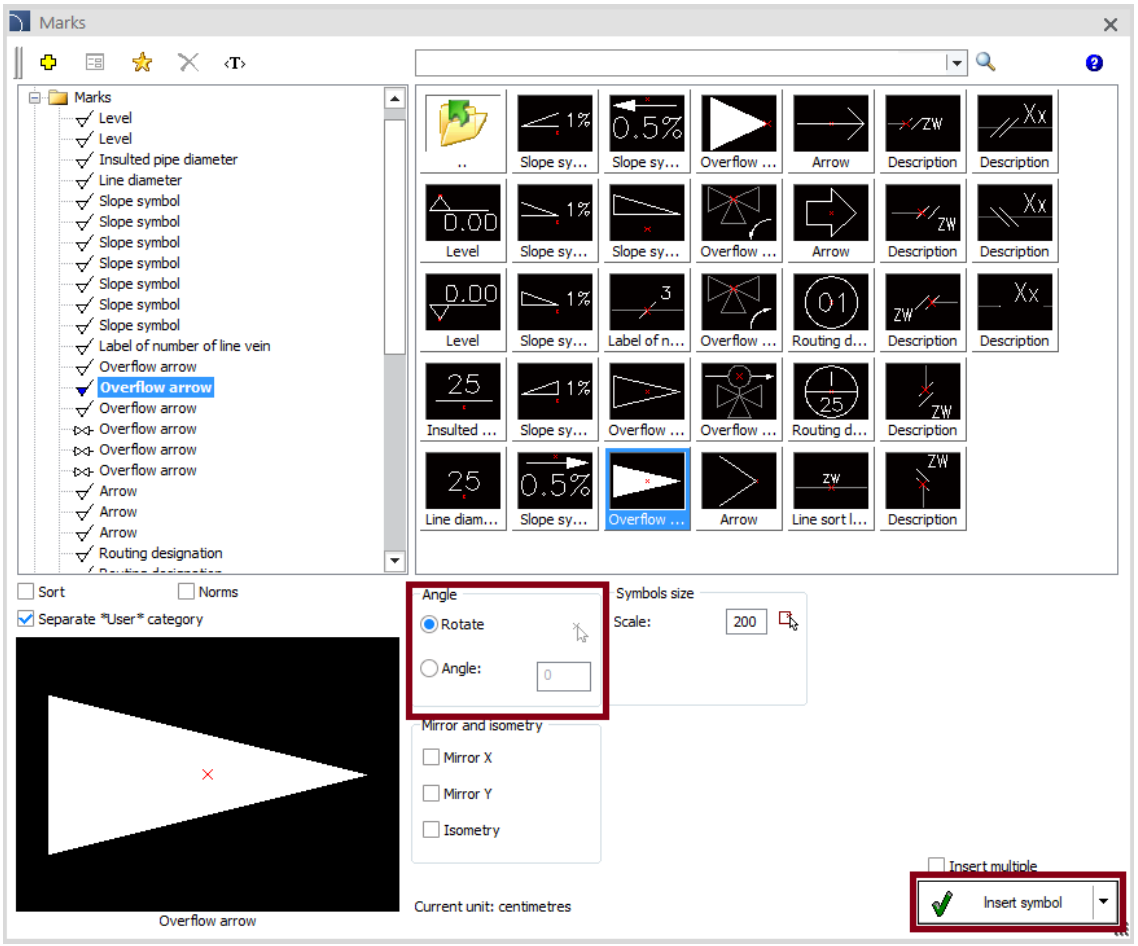


Lets insert one additional *Stop valve* on the *Return* line. We can use the copy option that is located in the *Quick edition* command or we can use one of the following commands: *Symbols* , *Multisymbols* , *Insert similar object* .

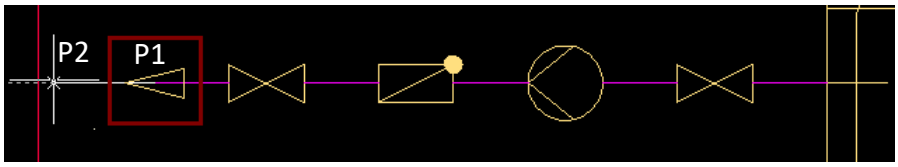


Next we will insert an *Overflow arrow* symbol on the *circulation* line. We click the *Marks* button that is located on the *HVAC and Piping* toolbar.

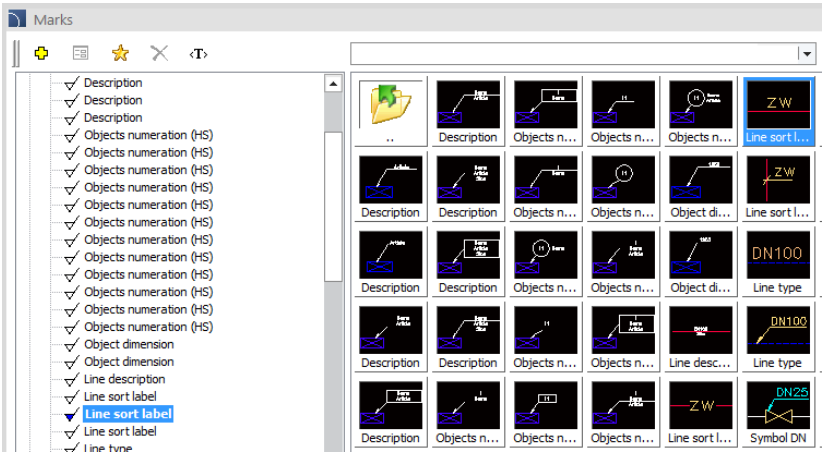
From the *Marks* category we choose the *Overflow* arrow and we check the *Rotation* option. After that we click the *Insert symbol* button.



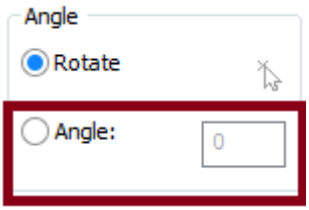
We insert the *Overflow* arrow symbol at the end of the *circulation* line P1. With the selected *Rotation* option we will also need to indicate the P2 point that indicates the edge.

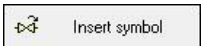


Now we will insert lines' description. We click the *Marks* button and from the category *Automatic marks* we choose the *Line sort label.*

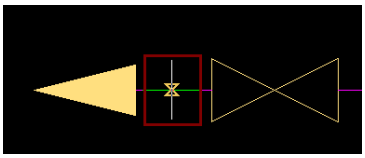


In the parameters we choose the angle as 0.

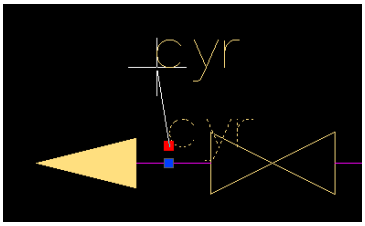


After we have chosen the line mark we click the Insert symbol 

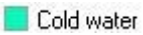
button and we indicate a point on the *circulation* line.



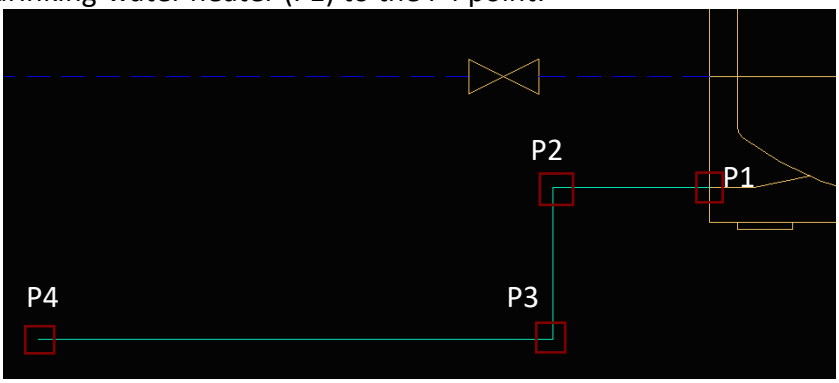
Line description will be inserted in the drawing and after that we will click on it in order to move into another place so it will be better visible.



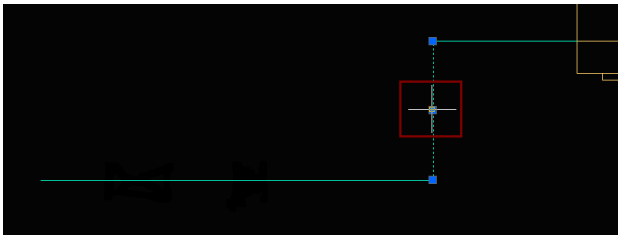
Connecting water lines to the heater

Our next step will be to draw a Cold water line. We click the *Pipes - scheme* button and we choose the line type as *Cold water* 

. We will draw the new line from the drinking-water heater (P1) to the P4 point.

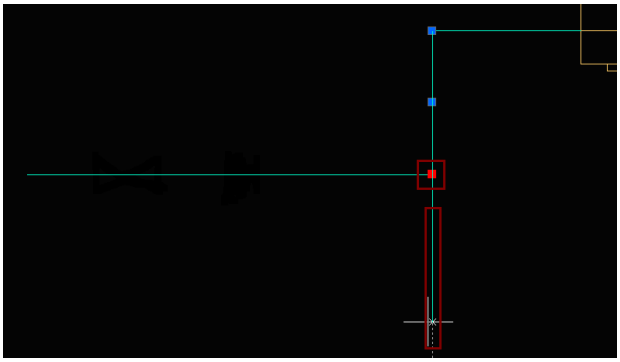


Next we lengthen the vertical line that is shown on the right.



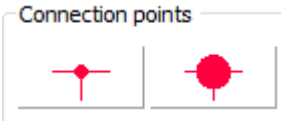
We indicate the line and we hold the handle …

... and we drag it down

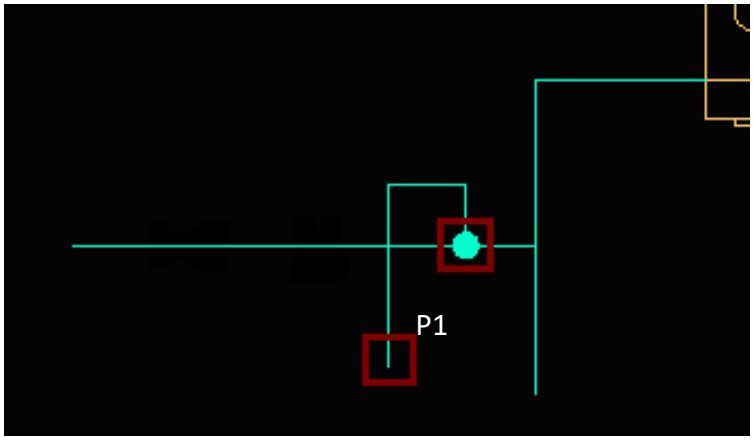


Our next task will be to draw another *Cold water* line.

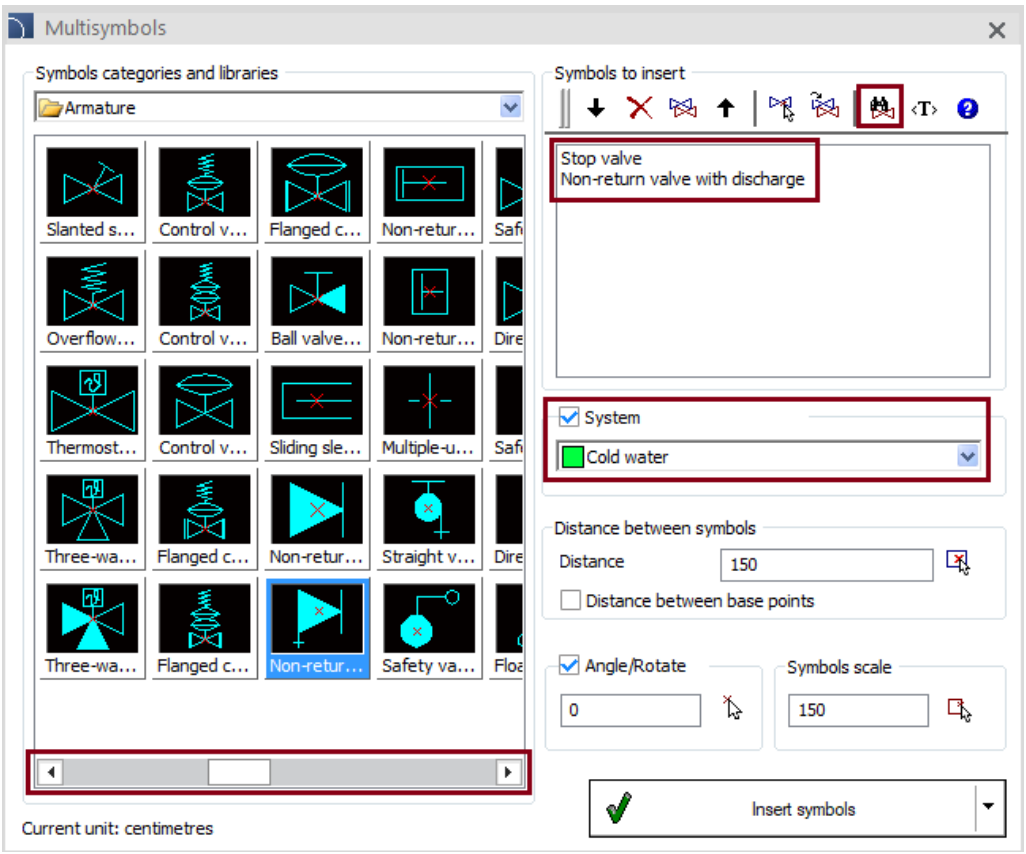
We need to remember that in the command *Pipes - scheme* an automatically *connection point* is needed.



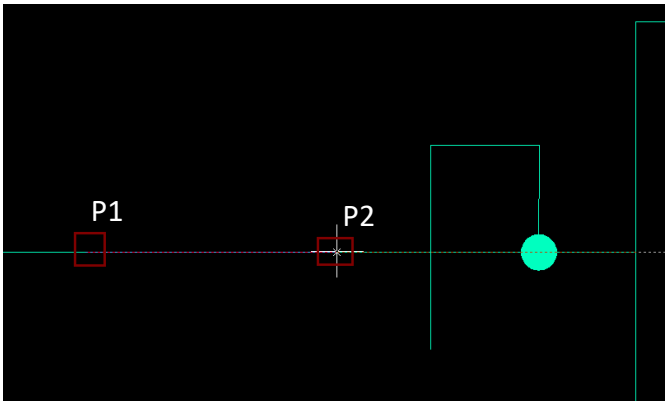
We draw the line starting from the P1 point and we end it at the previously drawn line.



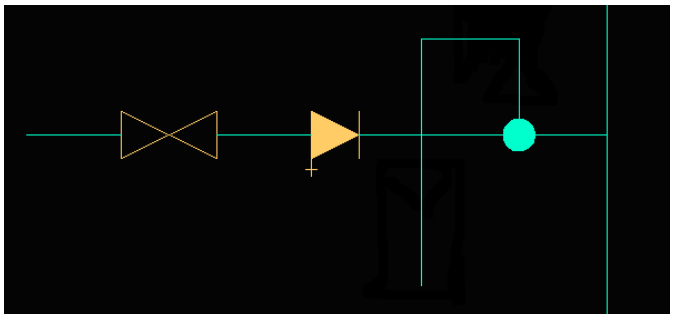
Our next step will be to insert two symbols into the water line. We run *Multisymbols* command. From the Armature category we choose the *Stop valve* and the *Non-return valve* with discharge (we can find it using the *search*). Additionally we set the distance and the scale to 150.



After that we click the *Insert symbols* button and we insert the chosen symbols into the line by clicking first the P1 and next the P2 point (in this way we show the direction where we would like to insert the symbols).

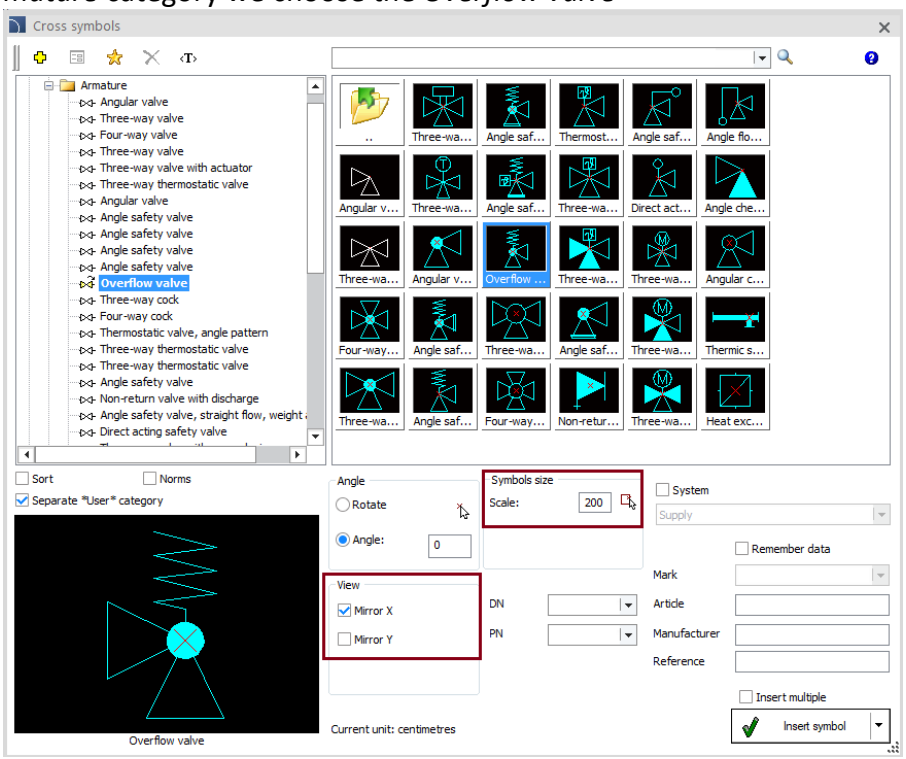


Symbols will be inserted in way shown in the picture on the right:

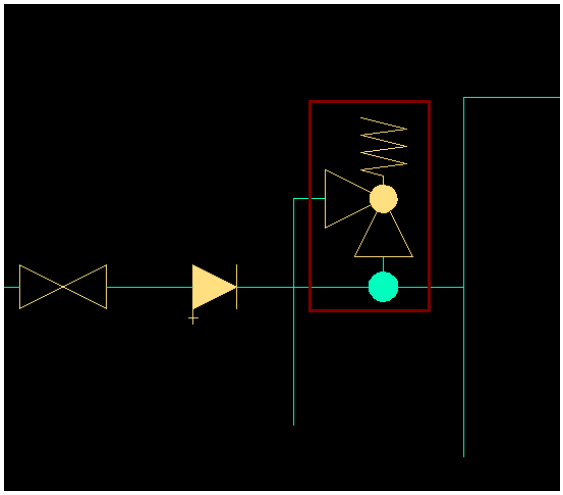


In the next step we will insert an *Overflow valve*. In order to do this we click the *Cross symbols* button that is located on the *HVAC and Piping* toolbar

From the *Armature* category we choose the *Overflow valve*

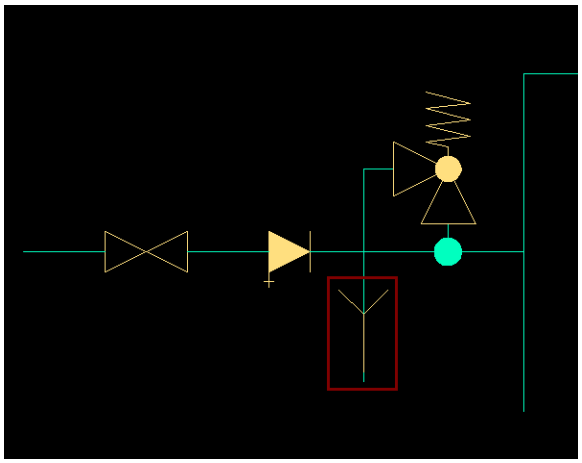


We set the symbol's scale into 200, we check the option *Mirror X* and after that we click the Insert symbol button and we insert the *Overflow valve* in the place that is shown on the right picture.

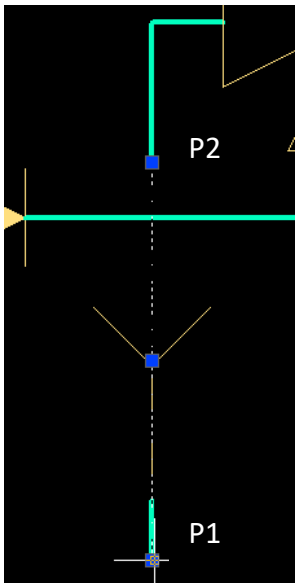


In order to insert the symbol into the place where symbols crosses we need to indicate the intersection point and the direction edge.

Now we will insert a *Funnel*. We run the *Symbols* command and we search for the *Funnel* symbol. We change the scale into 300 and we add it into the drawing.

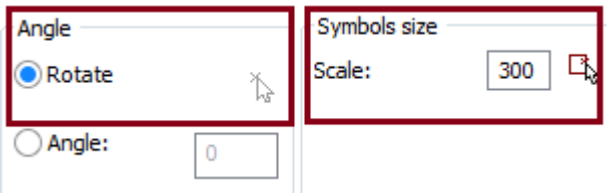


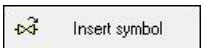
Next we grab the handle of the vertical line and we shorten it.



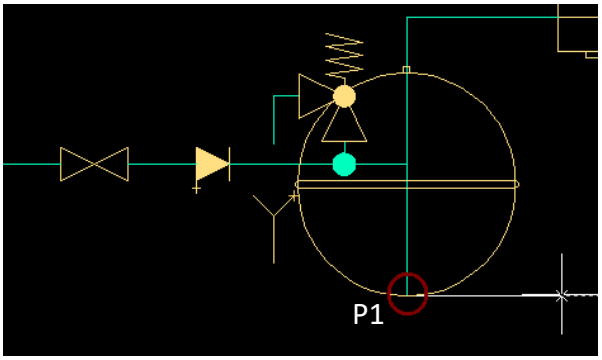
Our next task will be to insert into the drawing a *Diaphragm extension tank*. We click the *Symbols* button and we search for the *Diaphragm extension tank*. In the parameters we

check *Rotation* and we set the scale into 300 (this symbol will be bigger than the previous ones).

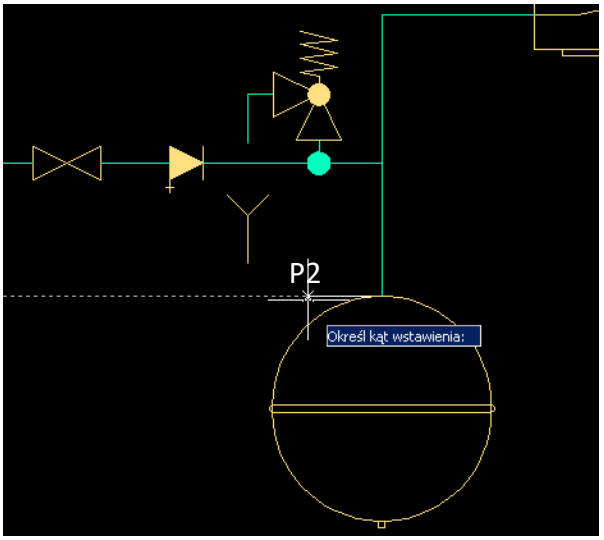


After that we click the 

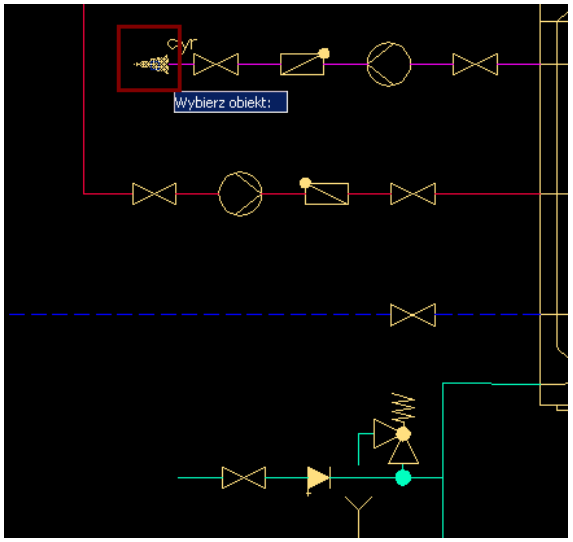
i button and we insert the symbol into the *Cold water* line (P1 point).



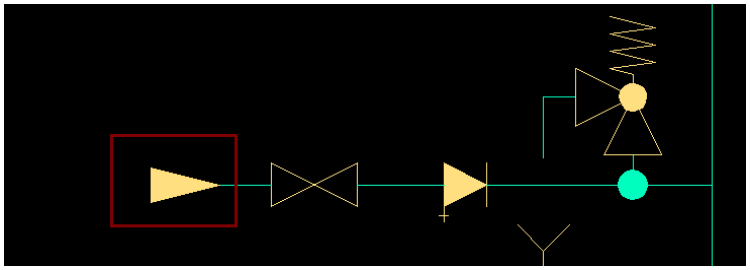
Previously we have chosen the *Rotation* option that's why we need to choose the rotation edge indicating the P2 point.



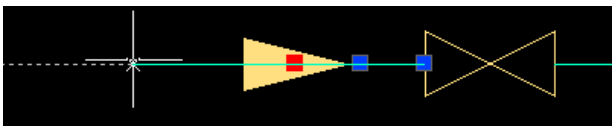
Next we will insert an *Overflow arrow* into the Cold water line. Because we already have this symbol inserted in our drawing we can use the *Insert similar object* command. We click the *Insert similar object* button that is located on the *CADprofi – Edit* toolbar and next we select the *Overflow arrow* that was already inserted in our drawing.



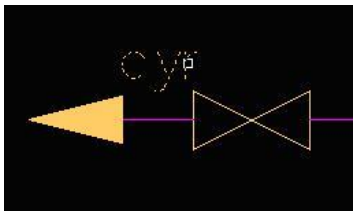
In the dialog window we need to remember to check the *Rotation* option and after that we click the *Insert symbol* button and we insert the symbol into the *Cold* water line in with right edge.

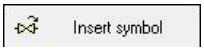


Next thanks to the handles we will lengthen the *Cold water* line.

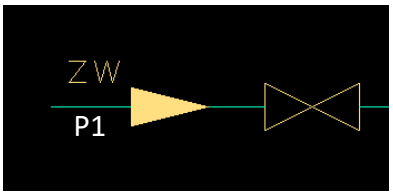


Now we will insert line marks. In order to make it faster we will use the *Insert similar object* command. We run the command and we point the *Circulation line mark*.

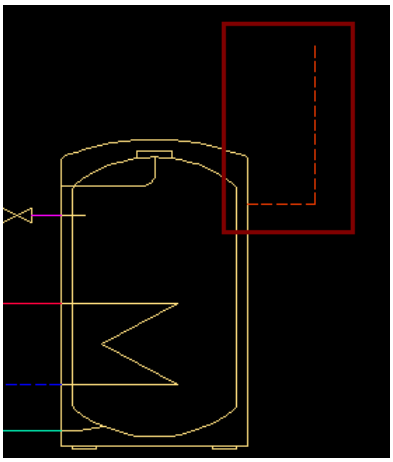


After that we click the Insert symbol 

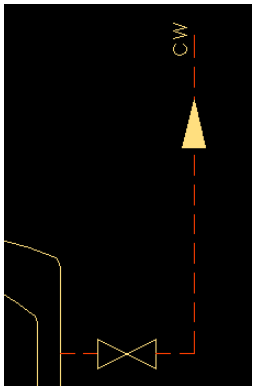
button and we point (P1) at the *Cold water* line.



Next we thanks to the *Pipes – scheme* command we draw the *Warm water* line.



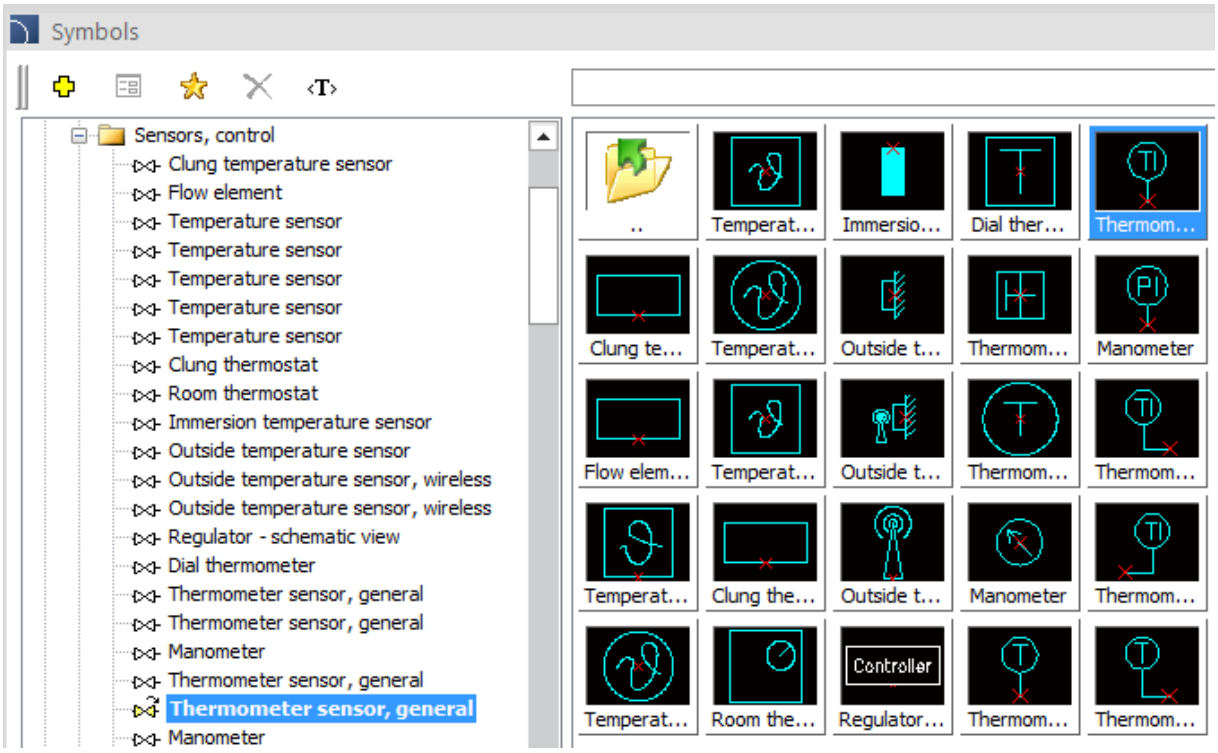
Using the already well-known command Insert similar object we will insert to the Warm water line the following symbols:
- *Stop valve,*
- *Overflow arrow,*
- *Line type mark.*



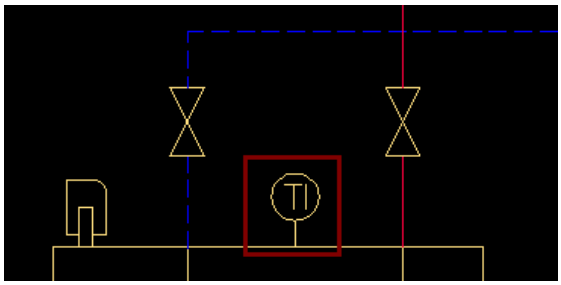
Manometres and Thermometres symbols

Our next step will be to insert Manometres and Thermometres symbols.

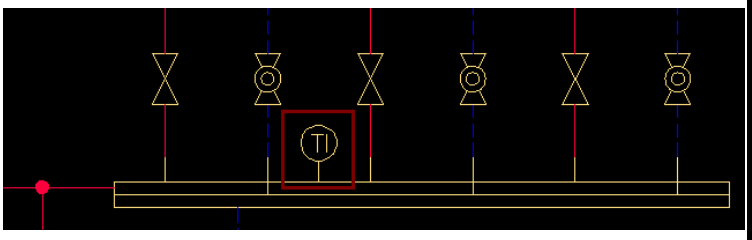
We run the *Symbols* command that is located on the *HVAC and Piping* toolbar. and from the category *Sensors, control* we choose the *Thermometer.*

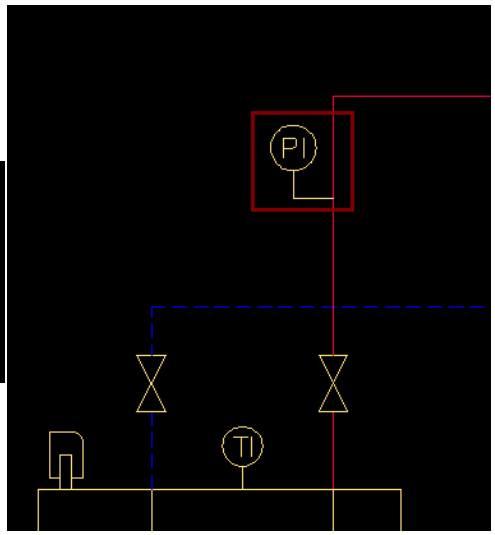


We set the scale as 200 and we insert the *thermometer* symbol into the boiler.



In the same way we will insert a *thermometer* symbol into the distributor and the manometer symbol into the boiler's *Supply* line.



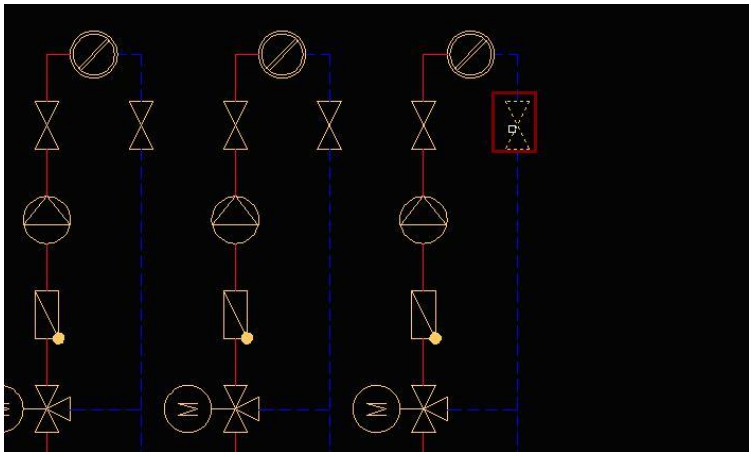


Describing the scheme

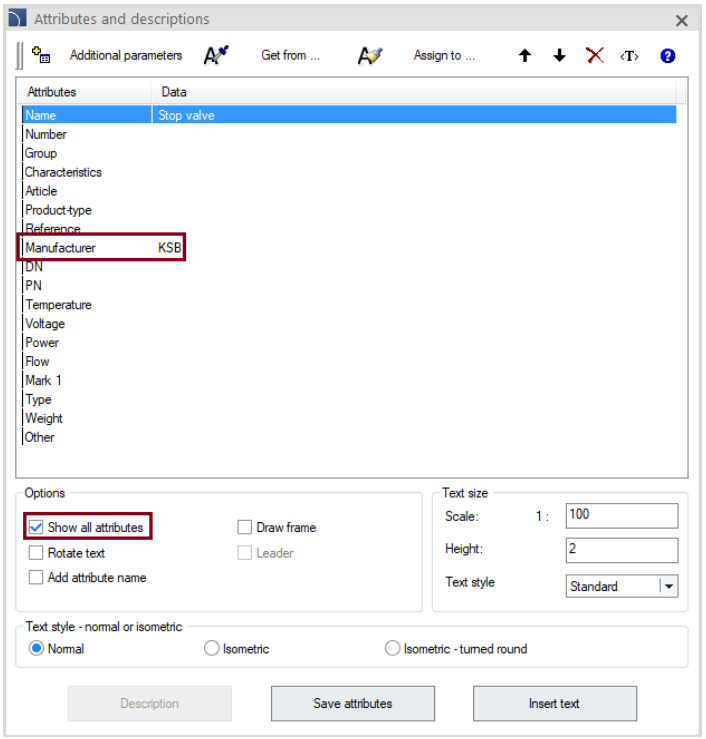
Describing objects

Our next task will be to define the technical parameters of objects that were inserted into the drawing. We will use the *Attributes and descriptions* command from the *CADprofi* toolbar.

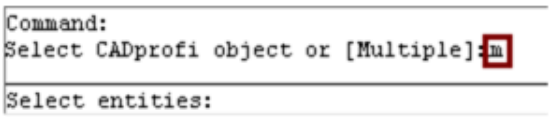
After we run the command we choose the symbol for example the *Stop valve.*



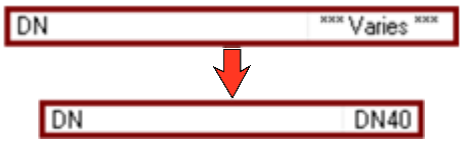
In the newly opened window we will check the *Show all attributes* option and after that we fill the data, for example we type the manufacturer's name as *KSB* and we click on the Save attributes button.



The command *Attributes and descriptions* may be used to many symbols at the same time. After we have run the command we need to type in the command line: *Multiple* and after that choose the desired symbols.
Lets choose all valves' manufacturers as KSB.
After we have run the *Attributes and descriptions* we choose the Multiple option and we choose all the following valves:



If we have selected all the desired symbols we press the Enter key. In the next dialog window we type the manufacturers name and the desired DN diameter:

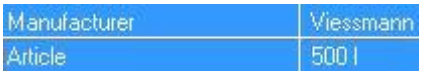


After we have provided all the changes we click the Save attributes button and all symbols that we have chosen previously will have both their manufacturers name and DN diameter changed.

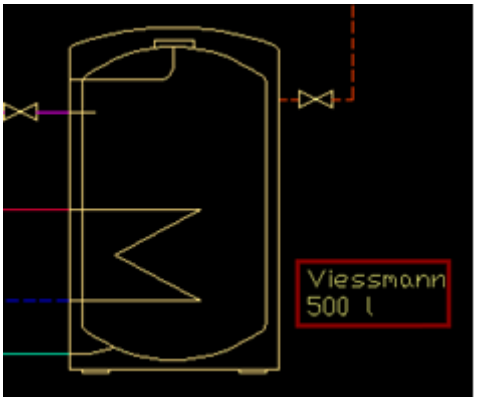
With the *Attributes and descriptions* command we can also insert texts into the drawing.
Lets run the command and select the vertical drinking-water heater and fill its attributes:
- Manufacturer: *Viessmann*
- Article: *500 l*

We set the scale as 1:25 and the text height as 3

We will add selected attributes into the drawing.
In order to select several attributes we need to click them while holding the Ctrl button.

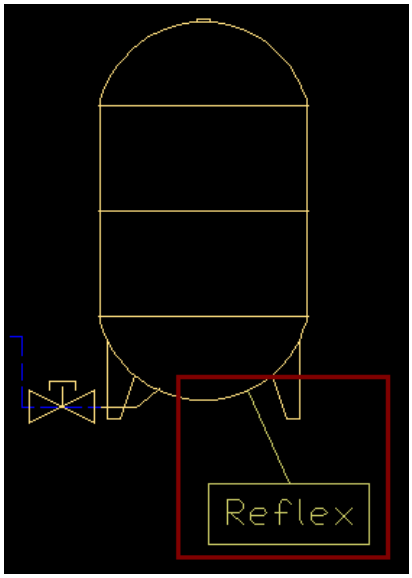


After that we click the *Insert text* button and we isnert the text next to the *vertical drinking-water heater.*

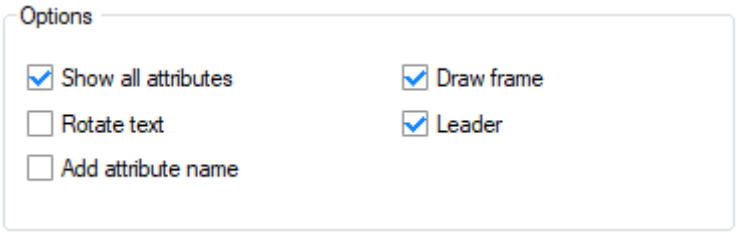


Descriptions may be inserted with a frame and a leader. Lets for example provide the parameters of the Diaphragm extension tank:

Manufacturer	Reflex



In the *Attributes and descriptions* command we check both the *Draw frame* and *Leader* options.

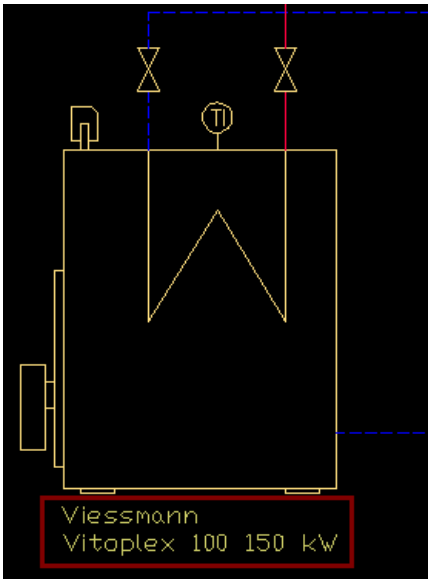


We select the attribute *Manufacturer*:

Manufacturer	Reflex

, and after that we click the *Insert text* button and we insert the text next to the Diaphragm extension tank symbol.

Lets also insert the boiler's description just like on the picture on the right. Lets run the *Attributes and descriptions* command, lets uncheck both the *Draw frame* and *Leader* options (we will insert the description without the frame and without a leader).



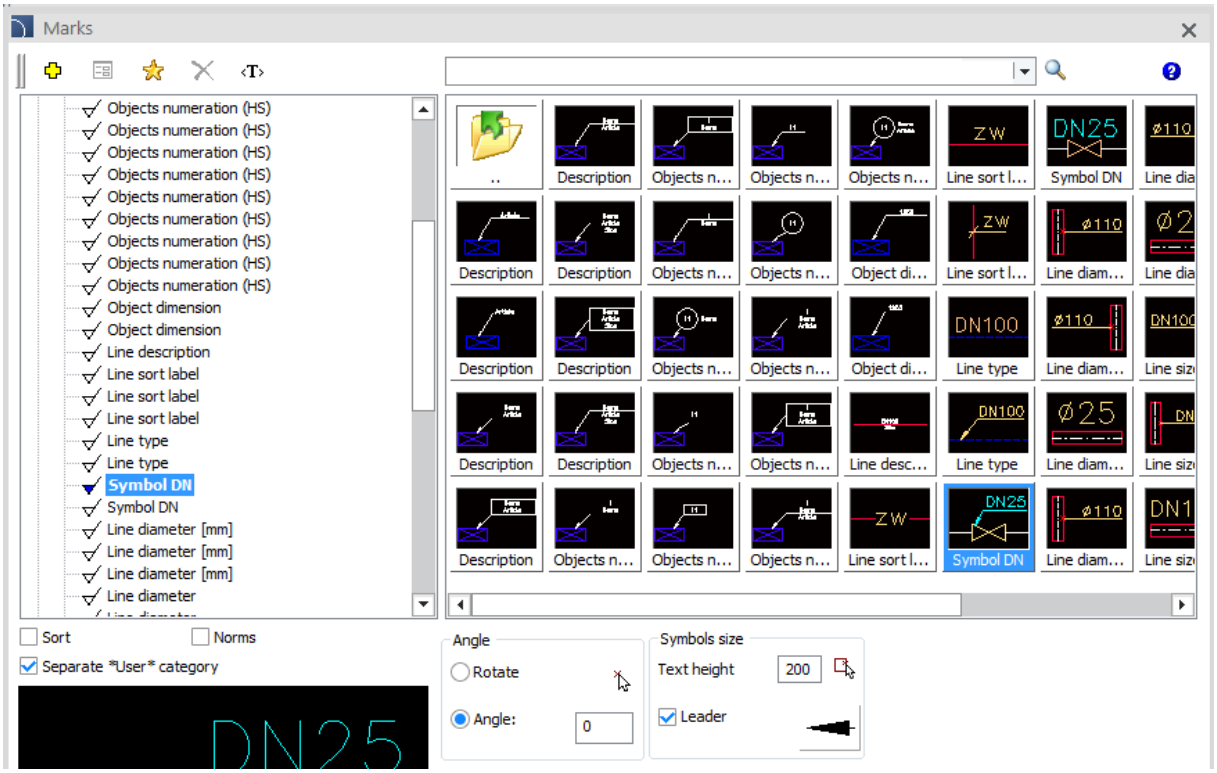
In the dialog window lets fill the attributes:

Manufacturer	Viessmann
Article	Vitoplex 100 150 kW

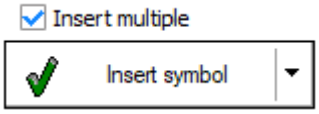
Lets select those two attributes and lets insert our description into the drawing.

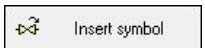
Symbols' marks

In order to describe drawings we have got the *Marks* command that is located on the *HVAC and Piping* toolbar. One of the marks is a symbol that is used to quickly determine the nominal diameter of the selected devices. We run the *Marks* command and from the Automatic marks we choose the *Symbol DN.*

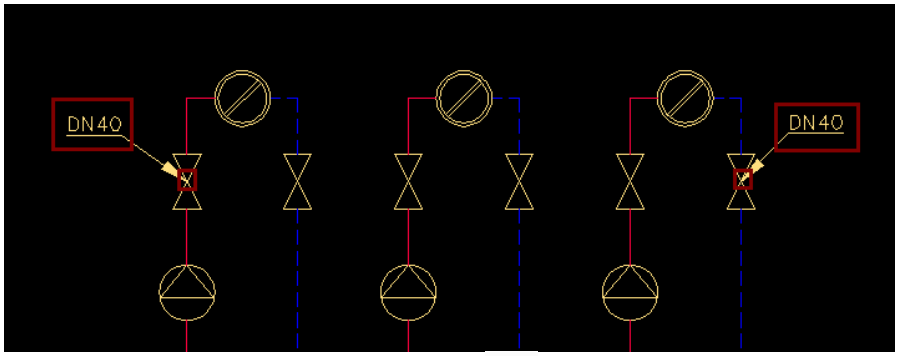


We check the *Leader option*, we set the scale as 200 and we choose the *Insert multiple* option which will allow us to insert several symbols.

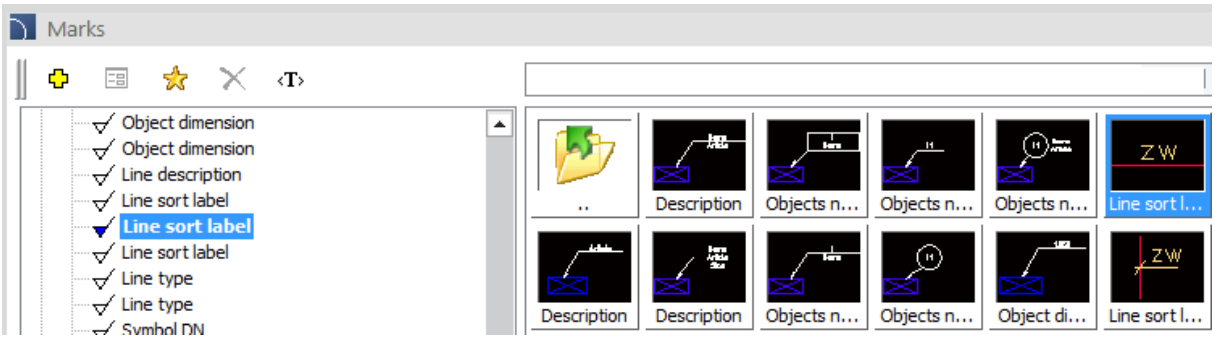


We click the *Insert symbol* 

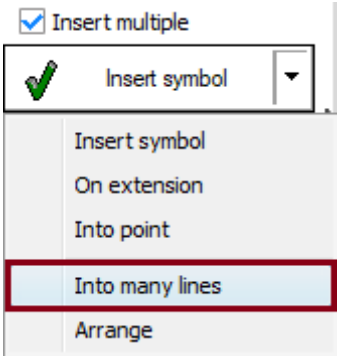
button. We will insert symbol's marks by selecting the right symbols and next by specifying the inserting point.



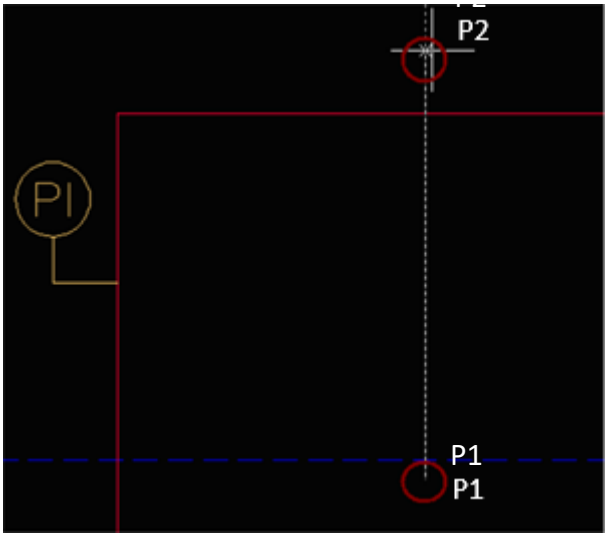
Now we will insert line marks. We run the *Marks* command and in the newly opened window we select the *Line sort label.*

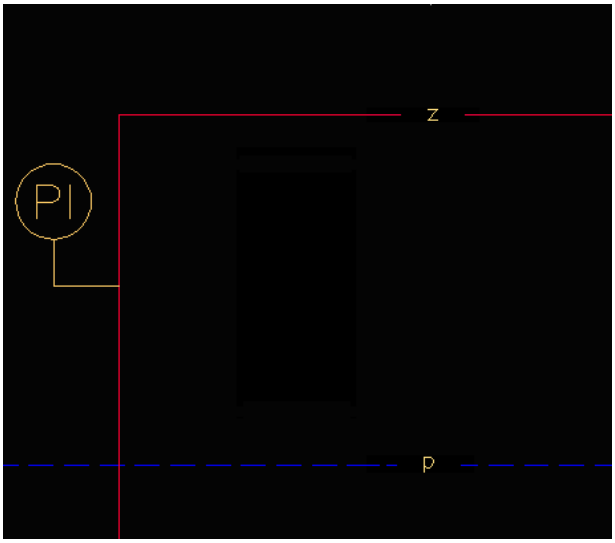


We can add marks at the same time into many lines. In order to do this we need to click the arrow that is located on the *Insert symbol* button and from the drop-down menu choose the *Into many lines* option.

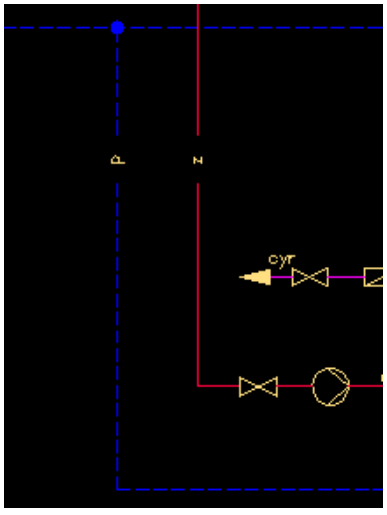


When we want to insert symbols into many lines we need to indicate to which lines we would like to insert them (points P1-P2).





In the same way we insert lines' marks into horizontal lines.

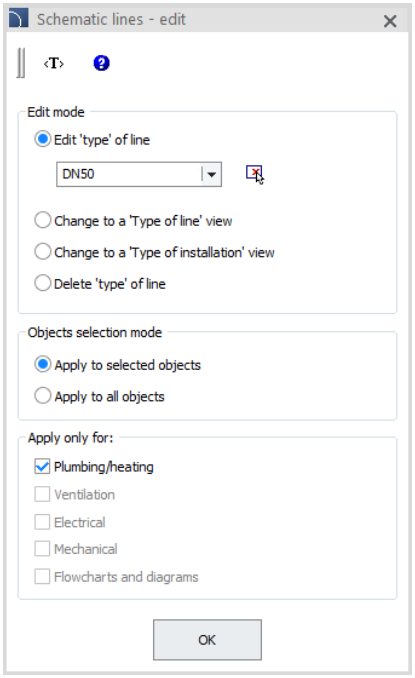


Defining types of lines

All lines that are drawn in the scheme have got a defined line type, that defines installation type or the flow factor for example: supply, return, cold water etc. For all lines we can define their type (diameter, article or DN etc.).

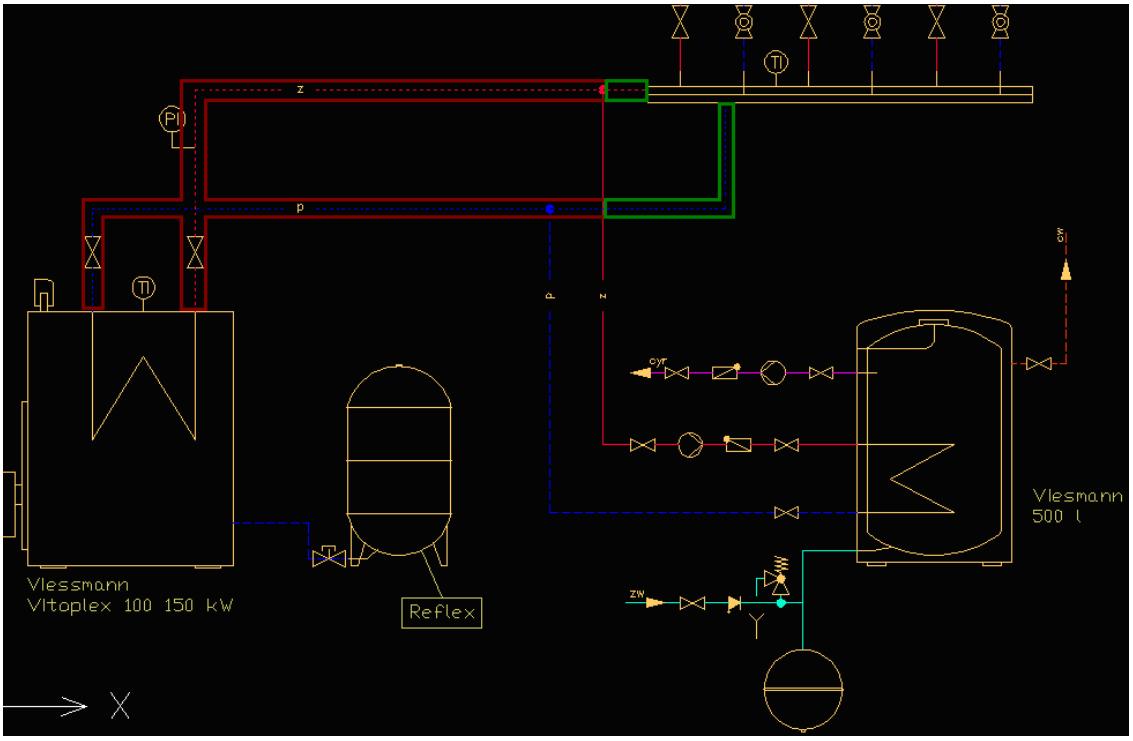
In order to edit lines types we have got the Lines – edit command from the *CADprofi – Edit* toolbar.

After we have run the command we choose the edit mode - edit type of line. As a type of line we type DN50 and we check the *Apply to selected objects* option and we press the *OK* button.



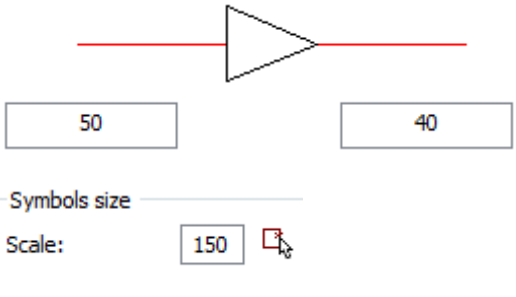
In the drawing we choose the lines that we would like to give the nominal diameter of DN50 (on the picture below those lines are marked with a red frame) and we end the command by pressing the Enter key.

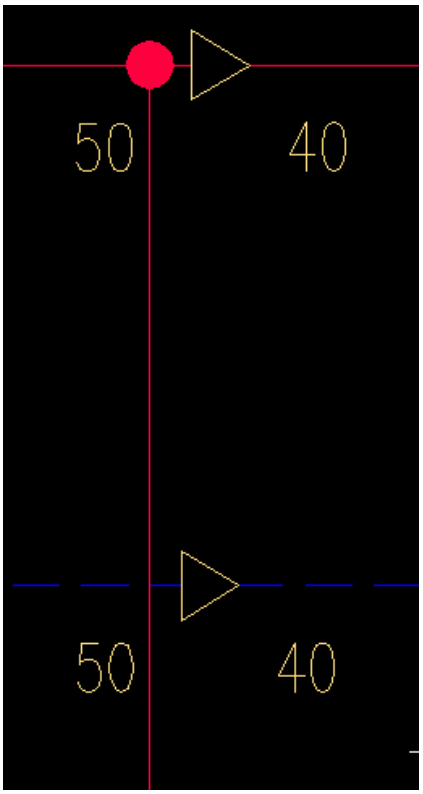
After we have inserted a reducer (description of reducers are on the next page) we give the nominal diameter of DN40 to the lines are marked with a green frame.



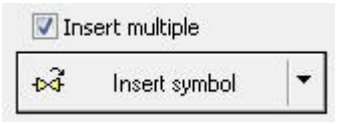
In the next step we will insert *Reducers* symbols. We run the *Symbols* and by using the search function *Search* we search for a *Reducer.*

We choose the reducer symbol and indicate the values before (50) and after (40) applying the reduction. Then we set the scale to 150.





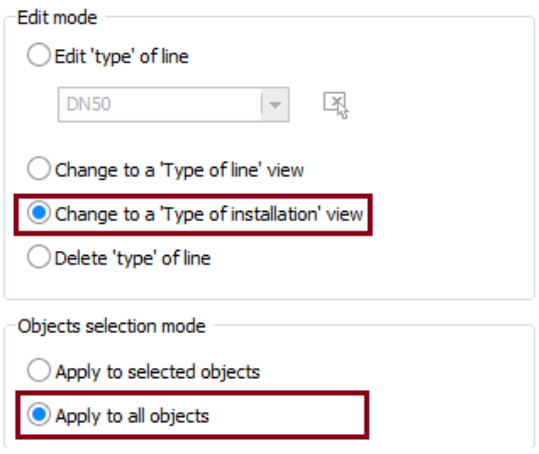
We click the *Insert symbol* and we insert our reducer into a Supply line and a Return line near the distributor.



Displaying schematic lines types

Once the size (type) of the chosen lines have been given, CADprofi will display them in the „type of line" mode. This mode allows to have an easy, visual control over the types of lines, that's why it is used at the stage of adding diameters or lines types.
The second mode is the „type of installation" mode where lines are being displayed in accordance with the standards, that's why this view is being used during printing.
At any time with the help of the *Schematic lines – edit* command we can change the lines display view.

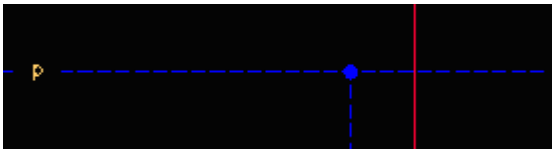
We will turn on the „type of installation" view. In the dialog window we check the change for a view „type of installation" and the Apply to all objects options.



After we clicked the OK button all lines will be changed into the „type of installation" view.

„Type of line” view

„Type of installation” view

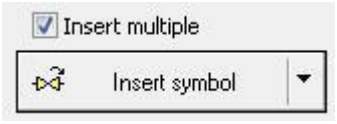


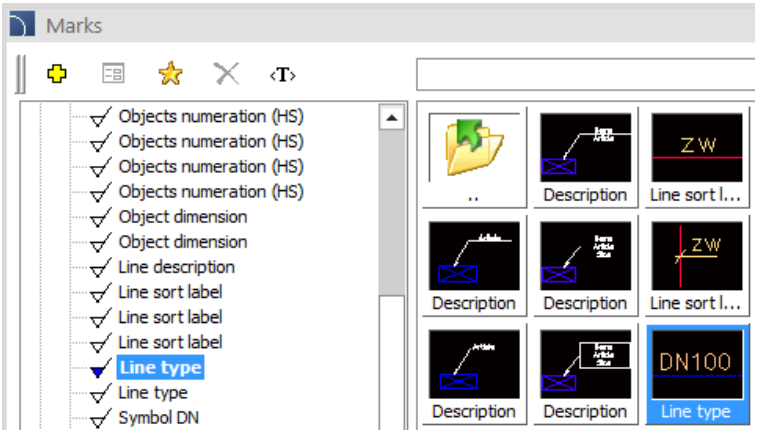
Line types

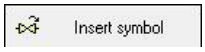
In the *Type of installation* view line types are not visible. That’s why it is necessary to insert marks. We run the *Marks* command and from the category *Automatic marks* we choose the *Line type.*

We set the scale as 150.

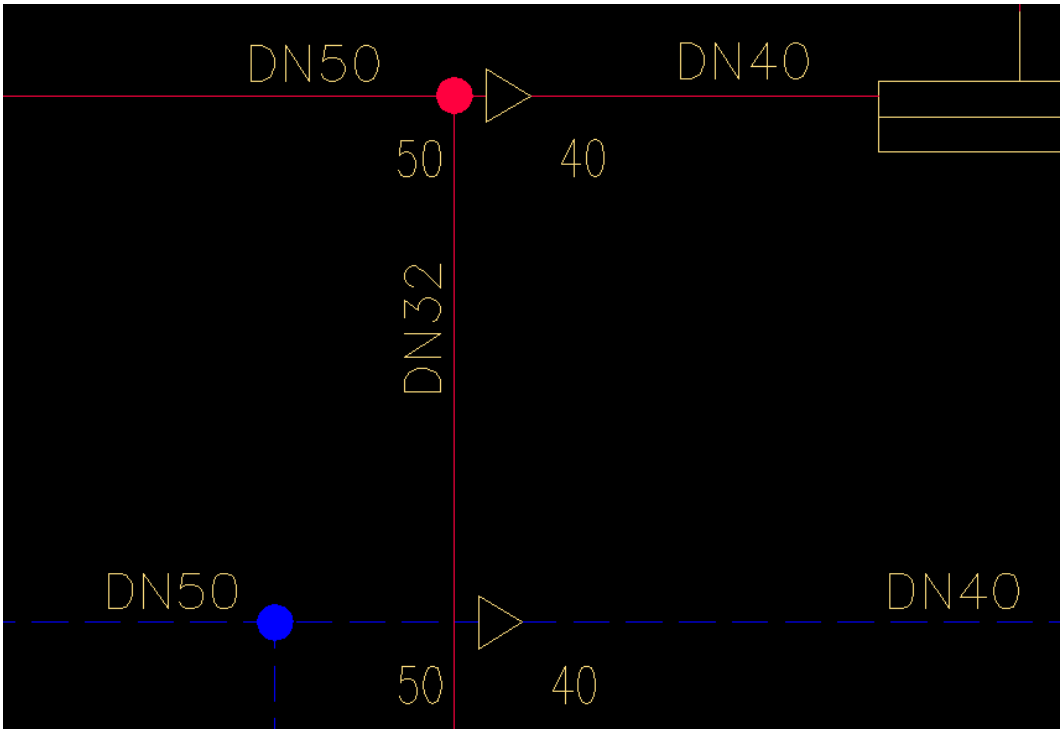
We check the *Insert multiple* option.





We click the 

button and we will insert symbols’ marks. We need to click into each line (before and after reducers).

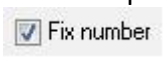


Numbering

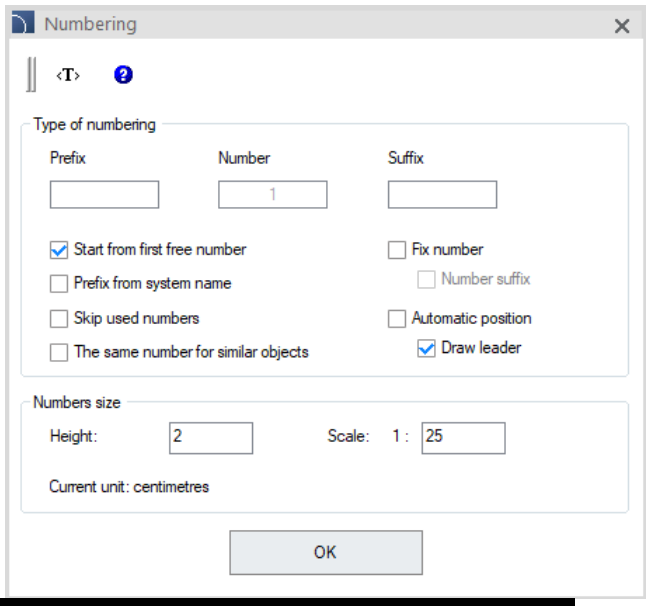
Our next step will be to number objects using the *Numbering* command that is located at the *CADprofi* toolbar

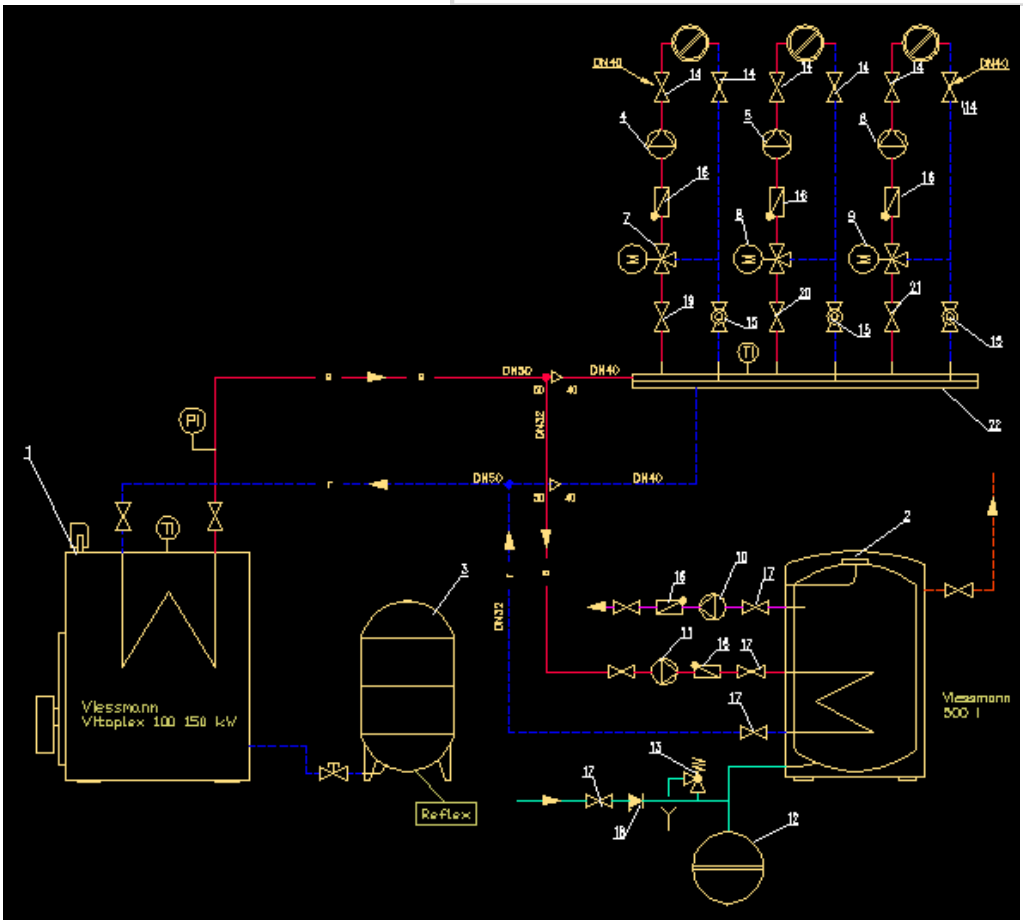
In the dialog window we check the *Start from first free number* option and the *Draw leader option*. We set the text height as 2 and the scale as 1:25.

We will start the numbering process from the main objects: *Boiler, Vertical drinking-water heater and Diaphragm extension tank*. Next we will number the rest of symbols into the desired order. If we have got several devices that are the same (for example the same valves) we can give them the same number. In this case we need to check the *Fix number* option



and choose the symbols that we want to have with the same number.

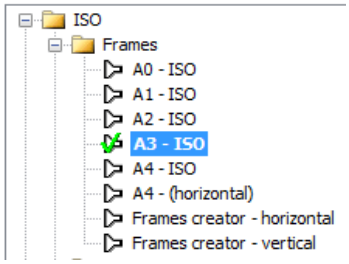


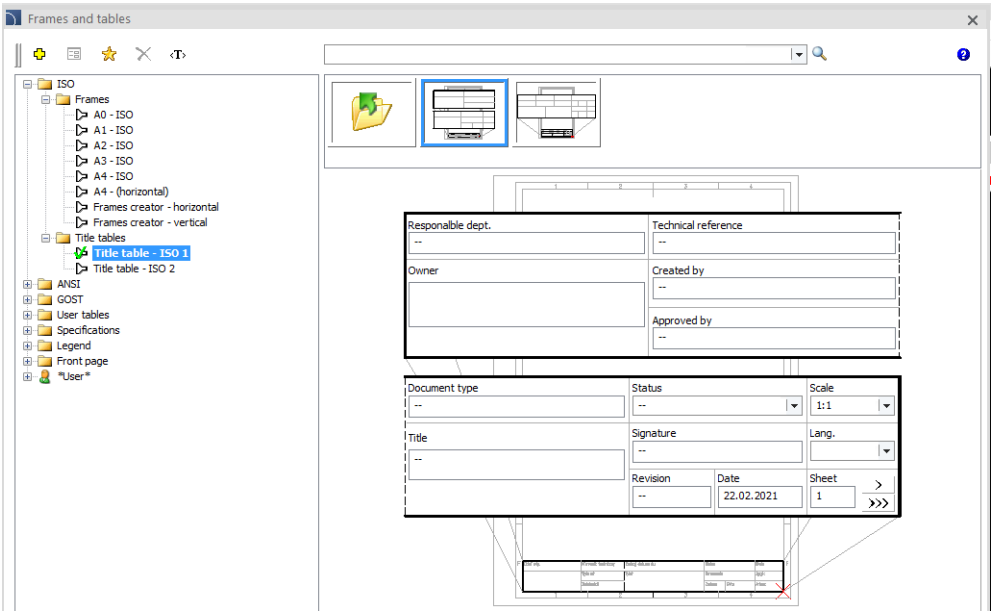


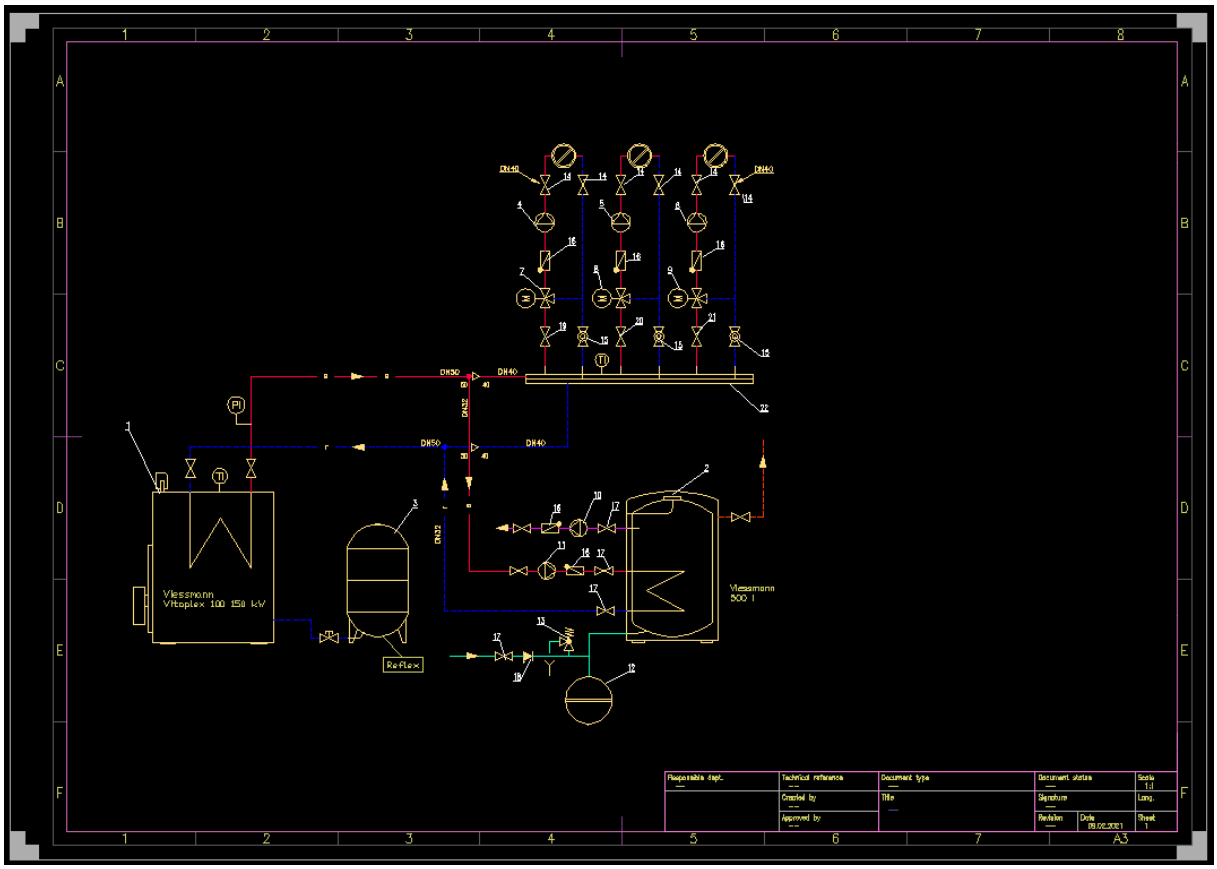
Frames and tables

The *Frames and tables* command allows us to insert frames and tables into the drawing.

We will insert the *A3 ISO frame* with scale set as 30. and *ISO 1 table*



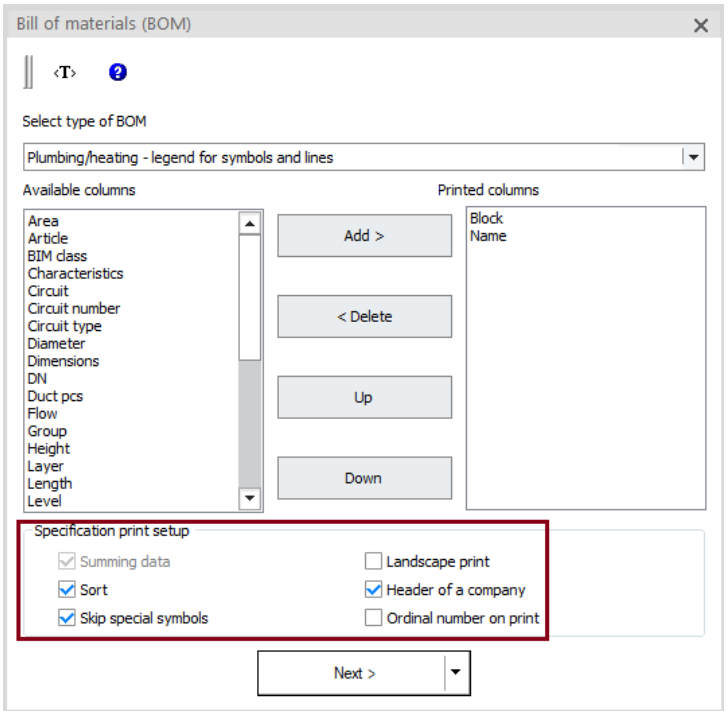




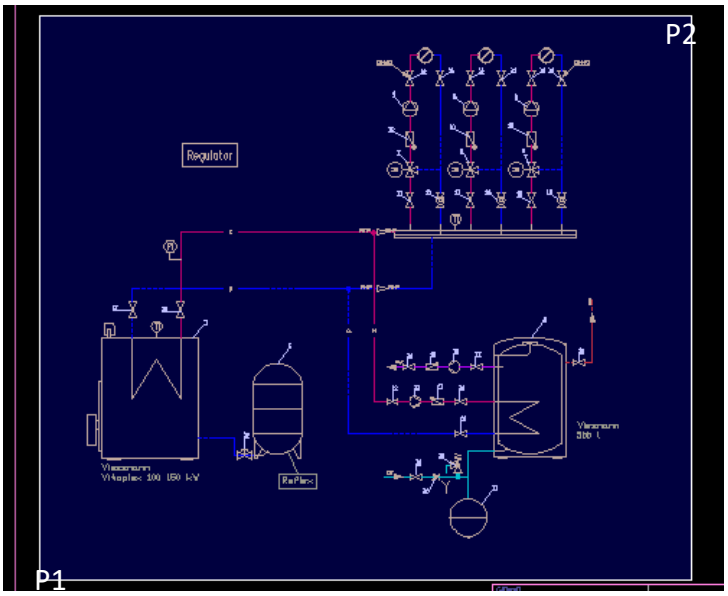
Creating legend

CADprofi software allows us to create many types of legends, specifications and bill of materials etc. One of the specification's type is a graphical legend of symbols used in the project. In order to insert a legend we need to run the *Specification* command that's located at the *CADprofi* toolbar.

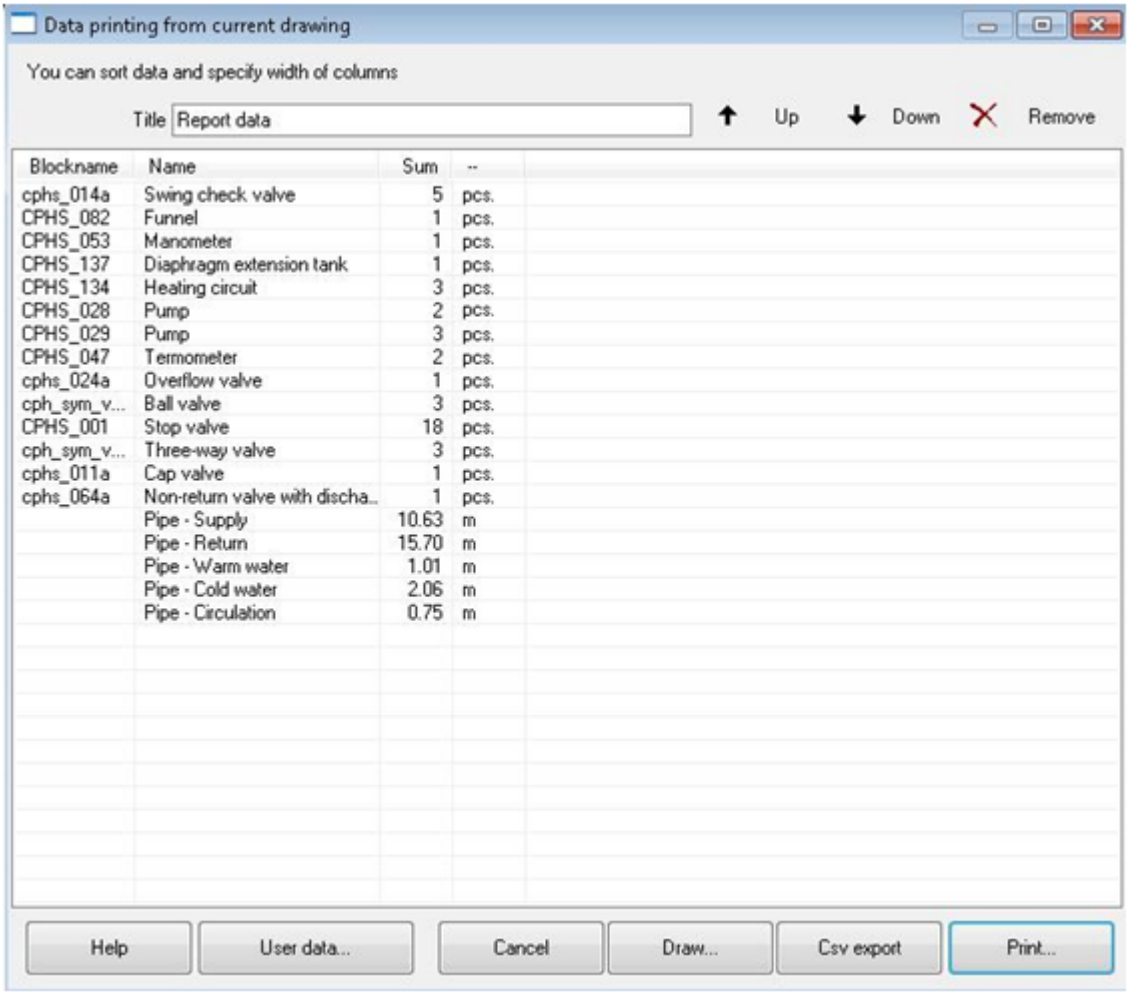
We choose the specification's type: Plumbing/heating – legend for symbols and pipes.



After pressing the *Next* button we choose all objects from our drawing and we press the Enter key.

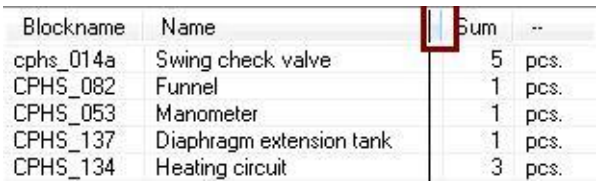


In the next dialog window a list of all objects and symbols will be displayed.
We can delete the symbols that we don't need in our specification as well as we can change symbols' order. For example: *Boiler, Vertical drinking-water heater* and *Diaphragm extension tank* are already described in the drawing that's why we can delete them from the list. (we need to select them and press the Delete key or click the *Remove* button). We will also delete the *Heating circuit* symbol as well as all *Distributor's elements*.
We will also move all lines into the end of the list and we will change their order into: *Supply, Return, Warm water, Cold water, Circulation.*
We need to select all lines with the help of the Shift or Ctrl keys and afterwards thanks to the Up and Down buttons we need to prepare the list onto the correct order:



Blockname	Name	Sum	--
cphs_014a	Swing check valve	5	pcs.
CPHS_082	Funnel	1	pcs.
CPHS_053	Manometer	1	pcs.
CPHS_137	Diaphragm extension tank	1	pcs.
CPHS_134	Heating circuit	3	pcs.
CPHS_028	Pump	2	pcs.
CPHS_029	Pump	3	pcs.
CPHS_047	Termometer	2	pcs.
cphs_024a	Overflow valve	1	pcs.
cph_sym_v...	Ball valve	3	pcs.
CPHS_001	Stop valve	18	pcs.
cph_sym_v...	Three-way valve	3	pcs.
cphs_011a	Cap valve	1	pcs.
cphs_064a	Non-return valve with discha...	1	pcs.
	Pipe - Supply	10.63	m
	Pipe - Return	15.70	m
	Pipe - Warm water	1.01	m
	Pipe - Cold water	2.06	m
	Pipe - Circulation	0.75	m

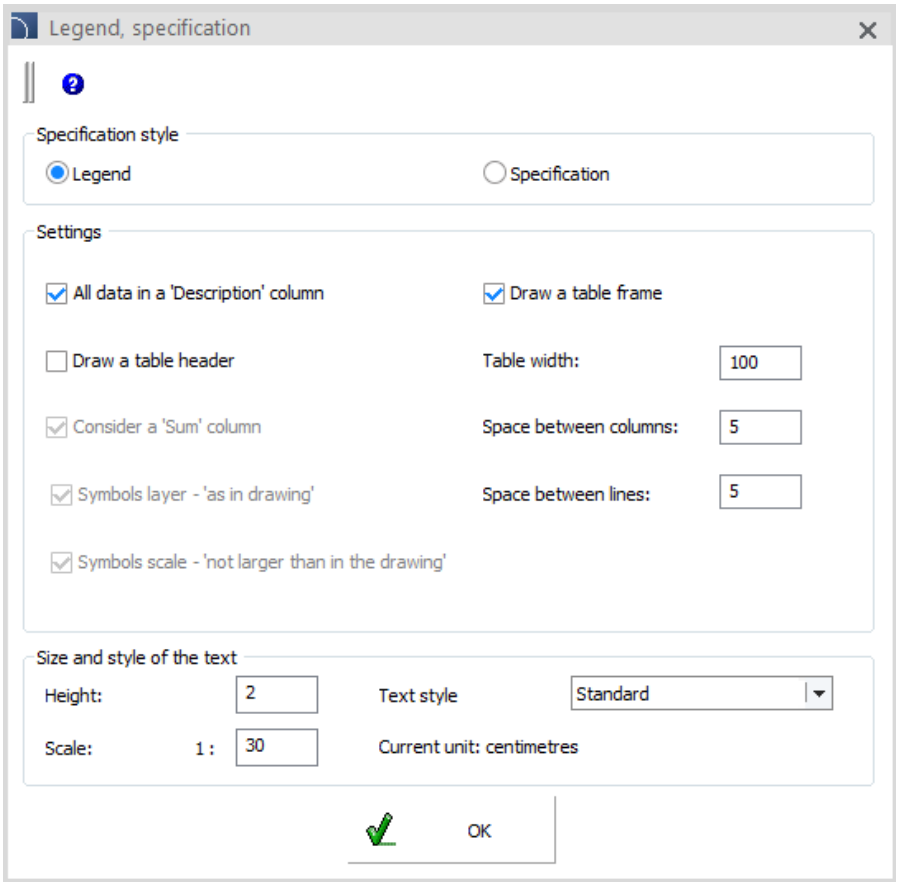
The columns width may be freely modified. If we want to modify it we need to drag the list headings.



Blockname	Name	Sum	--
cphs_014a	Swing check valve	5	pcs.
CPHS_082	Funnel	1	pcs.
CPHS_053	Manometer	1	pcs.
CPHS_137	Diaphragm extension tank	1	pcs.
CPHS_134	Heating circuit	3	pcs.

In order to put the legend into the drawing we need to click the *Draw* button

In the next dialog window we need to specify the legend's parameters.



In order to create a legend that looks exactly the same like the one on the right picture we need to choose the following options:

- Specification style – *Legend*
- *All data in a „Description" column*
- *Draw a table header*
- *Symbols layer – „as in drawing"*
- Table width – 100
- Text height – 2
- Text scale – 1:30

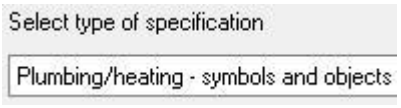
After we had specify the parameters we click the OK button and we insert our legend into the drawing. Legend will be drawn down from the chosen point but we can later move it using the Move command (*_move*) from the base CAD program.

Printing the project

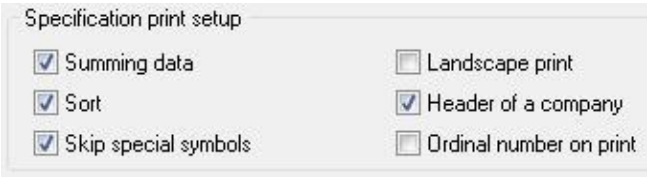
Making and printing specifications

In order to prepare specification with the list of all devices used in the project we need to run the *Specification* command that is located on the *CADprofi* toolbar.

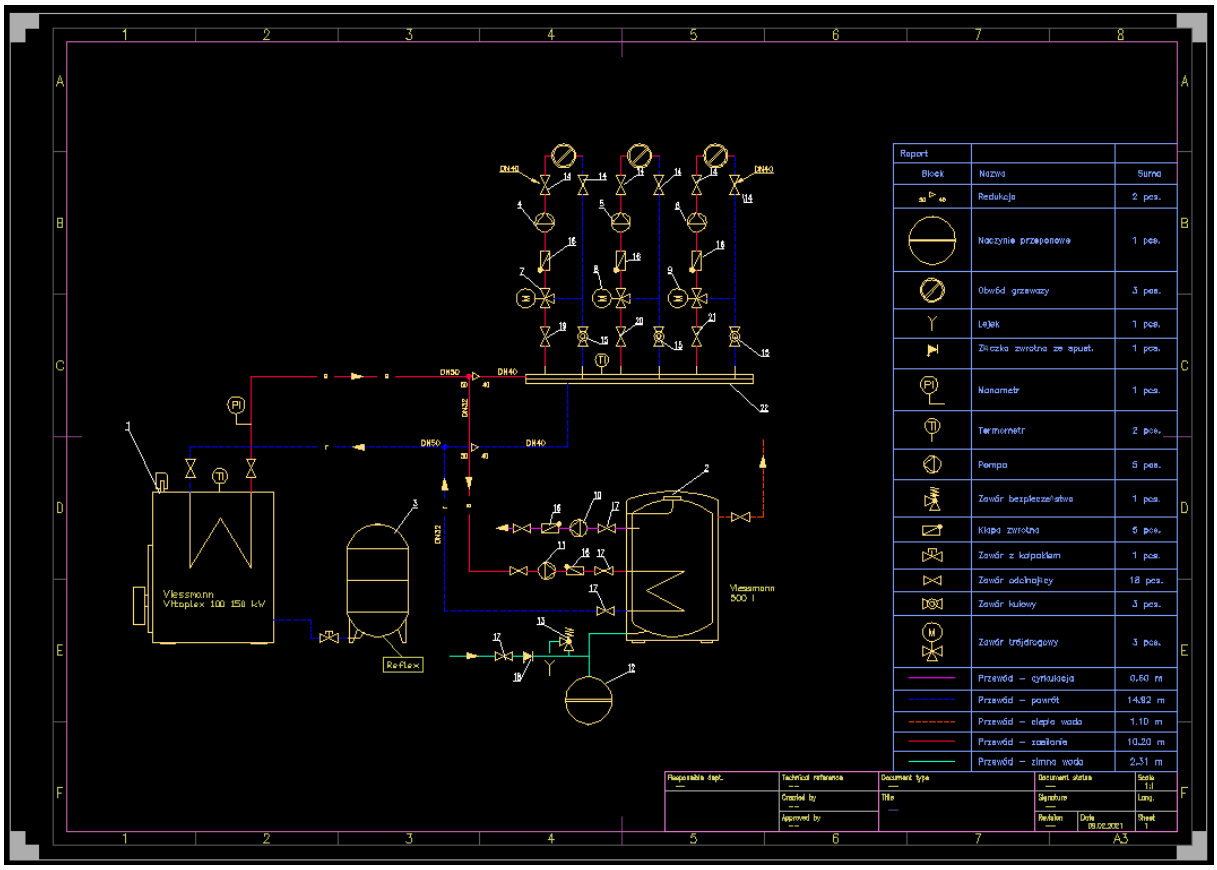
In the dialog window we choose the specification type: *Plumbing/heating – symbols and objects.*



We turn on the following options:

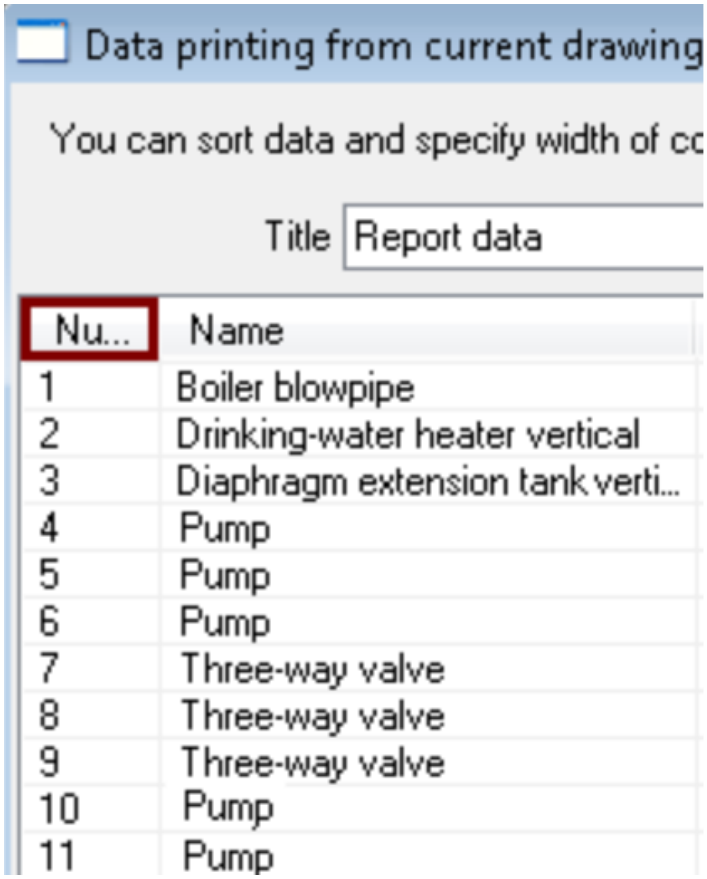


Afterwards we click the *Next* > button and we choose all objects from the drawing.
Lets remember that all graphic elements from our legend are special symbols and that's why they are being omitted in the specifications (we need to turn on the *Skip special symbols*).

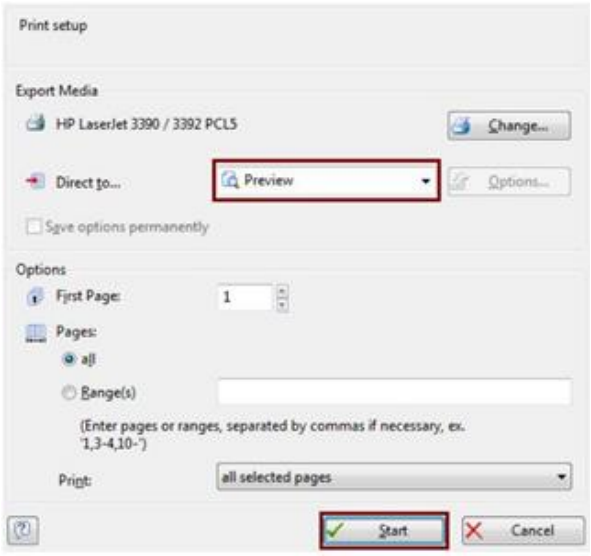


After we have ended choosing our symbols we need to press the Enter key and after that a window will appear with the chosen symbols and objects. The columns width may be freely modified. If we want to modify it we need to drag the list headings. we can also delete them. We can prepare the list in a correct order using the *Up, Down* and *Remove* buttons. After clicking the heading title we can also sort the data.

After clicking the Number column we can sort the list according to numbers.

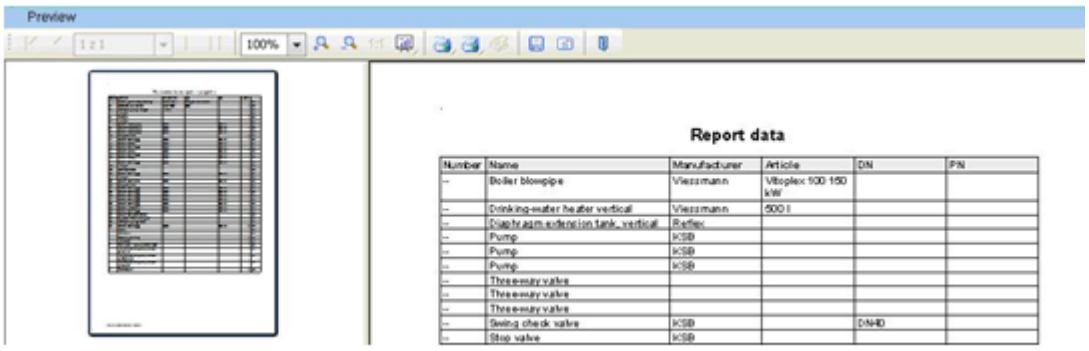


Next we click the *Print* button. In the next dialog window we can print the data or export it into several formats (xls, pdf etc.).



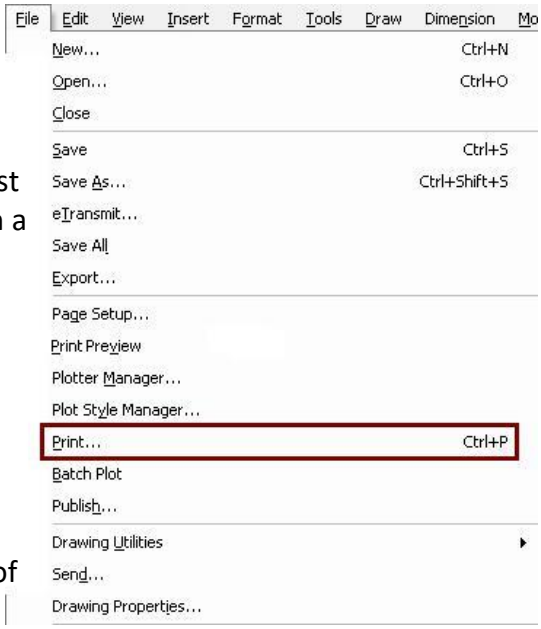
We want to print the data. Before printing it's good to see the result so that's why we choose *Preview*. After that we click the *Start* button in order to see the specification's preview.

In order to print the specification we need to click in the preview window into the printer icon.



Printing the project

All we have to do now is to print our project and change the printing settings.

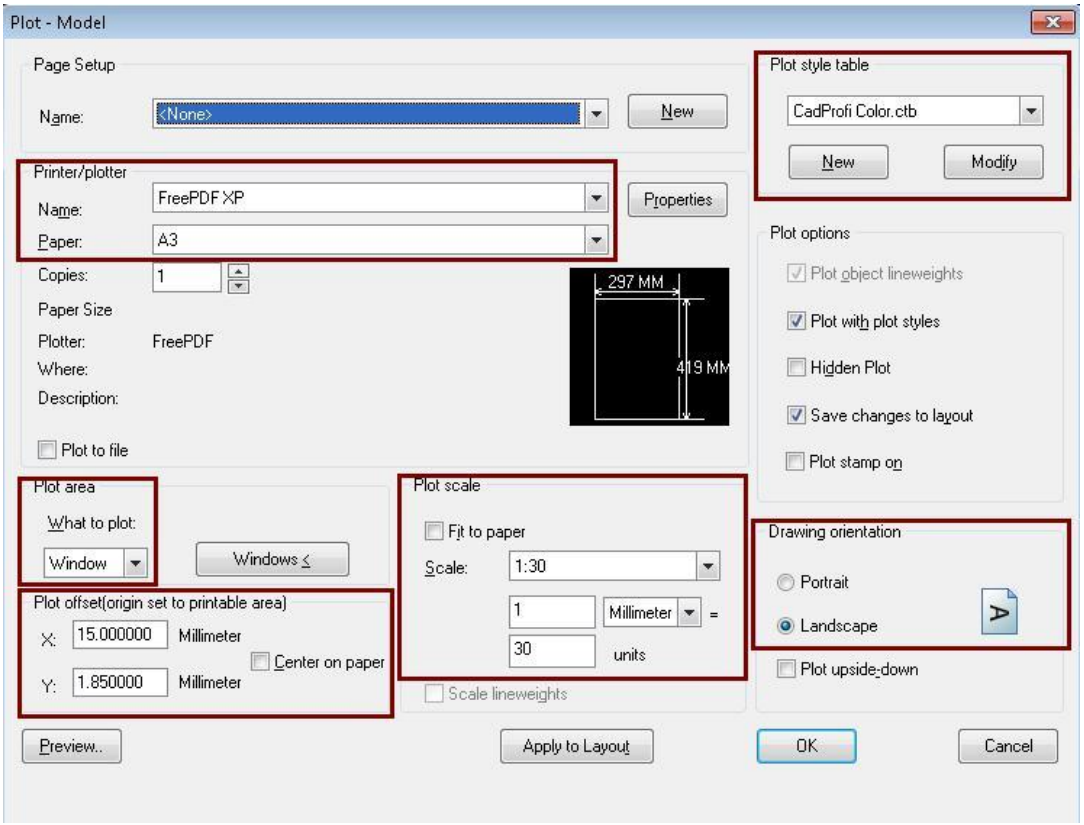


Notice:
In many base CAD programs there can be many printing options. Below we will present only the most important options needed for printing our project in a right way.

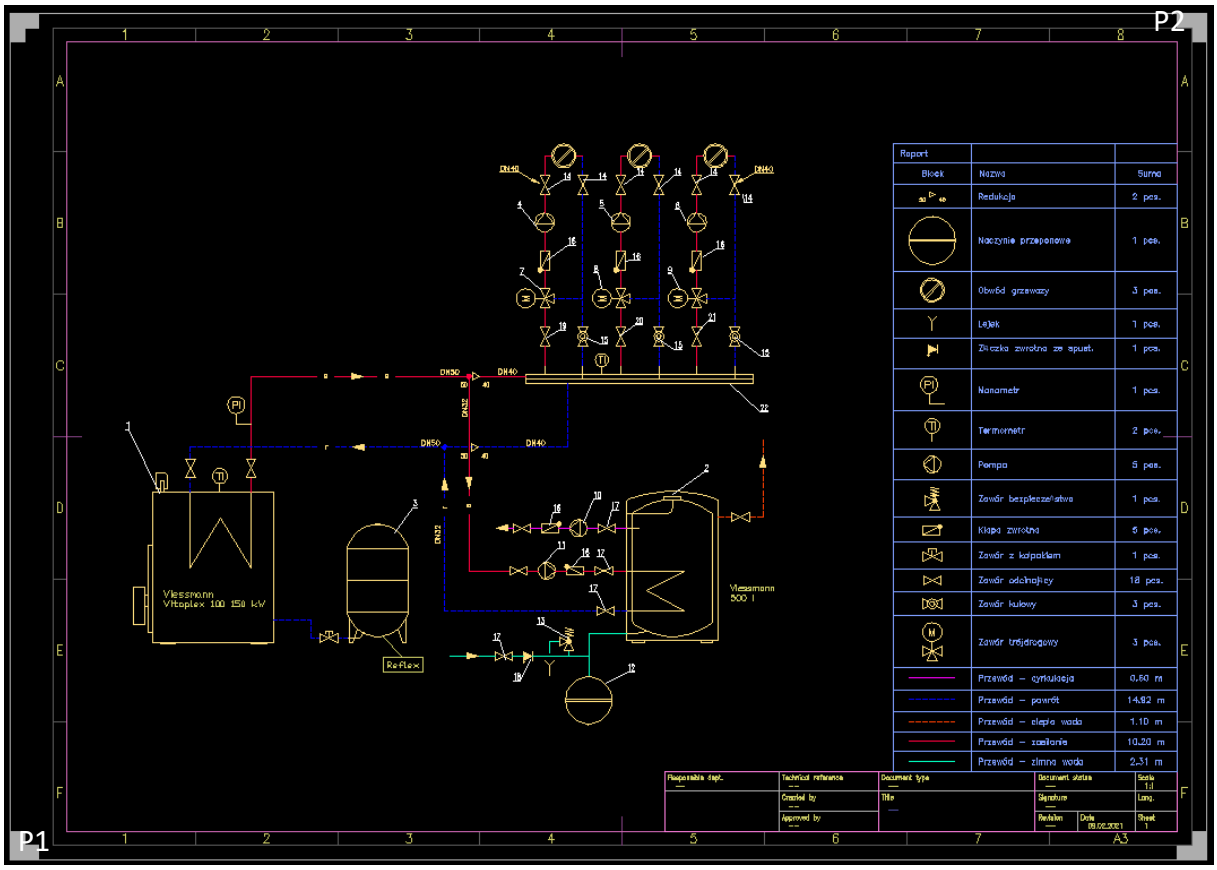
From the File drop-down menu we choose the *Print* command

We select the required printer and A3 paper size in the print properties.
The print orientation is changed to *Landscape*, and the print scale is set to 1:30 (according to the scale of the table frame).

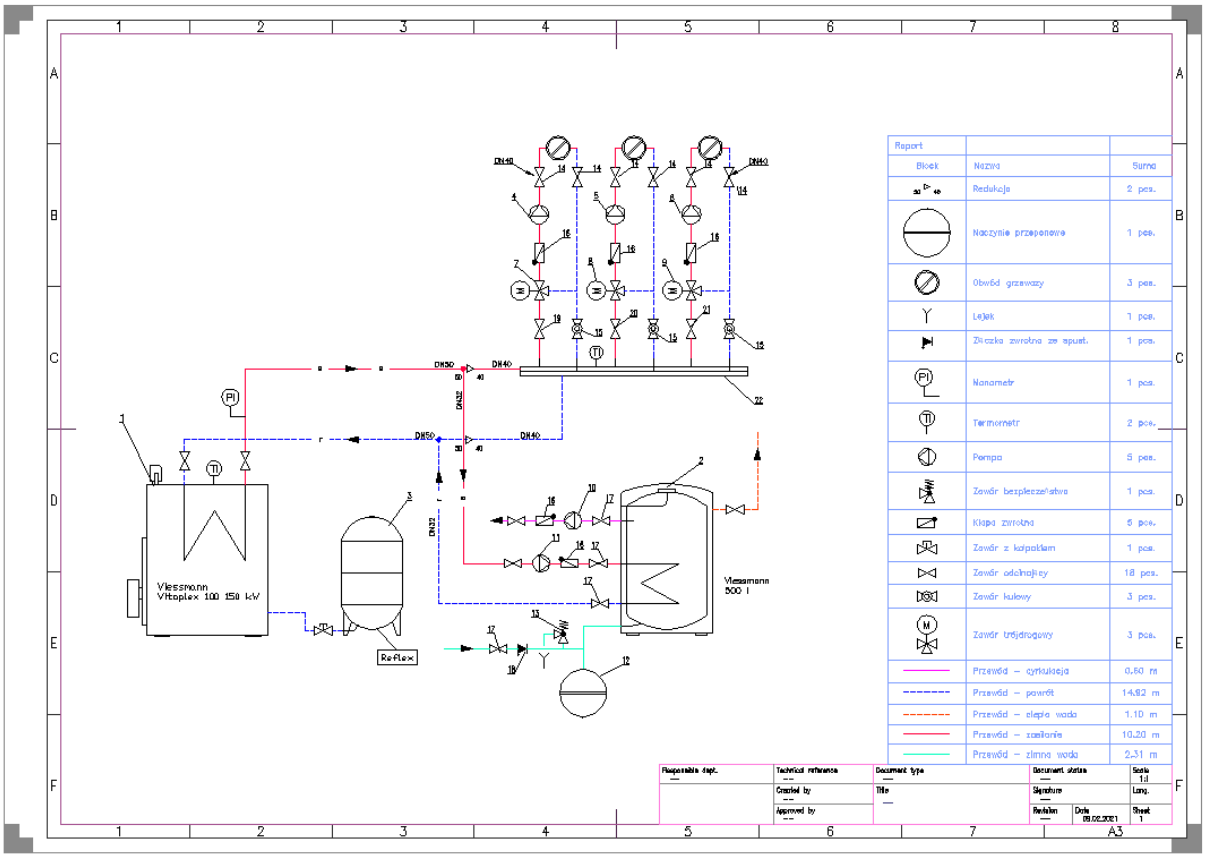
CADprofi software posseses two printing styles: *CADprofi Color.ctb* (this style is for color printing) and *CADprofi Mono.ctb* (this style is for black&white printing).
Choosing one of those two styles is very important, because those styles also change the colors on the screen in order to print them properly. For example when designing at the black screen a yellow color is visible very good. Using both **CADprofi Color.ctb** or **CADprofi Mono.ctb** yellow color will be changed into black.



As the printing area we choose Window and next we click the *Window* button and we point the left-down corner (P1) and the right-upper corner (P2) of the frame.



Preview of how our printing project should look:



CADprofi – All changes are restricted