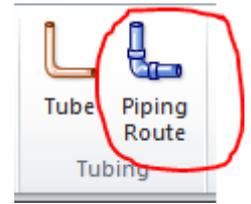# Using PipeClass.txt for Solid Edge piping

This tech tip will look at using the Solid Edge piping tool to help you design the route
and place fittings/components from your library.

The piping tool is to design system of pipes and components used for Industrial processes. Major difference
compared to the tube tool is the pipe diameter and wall thickness used. Piping is used for large diameters and
wall thickness and for bends, T-connections and for the mounting all kinds of appendages.

Configure standard parts

It is recommended to configure the standard parts database first
before start working with piping route. Use the smart installer to add
the piping components you need for your design and select only
those standards that are need. It's a common misunderstanding that
"installing everything" is the best way to setup. Too many parts in the
database will drop performance and makes it very hard to find your
components.

It's possible to setup multiple databases for standard part by using the
database manager in the standard parts administrator. E.g. you can
create a separate database for plastic components or cast iron fittings
only. This will make it easier to manage and work with the tool.

The piping route tool will only use the "working database" for
selecting components.
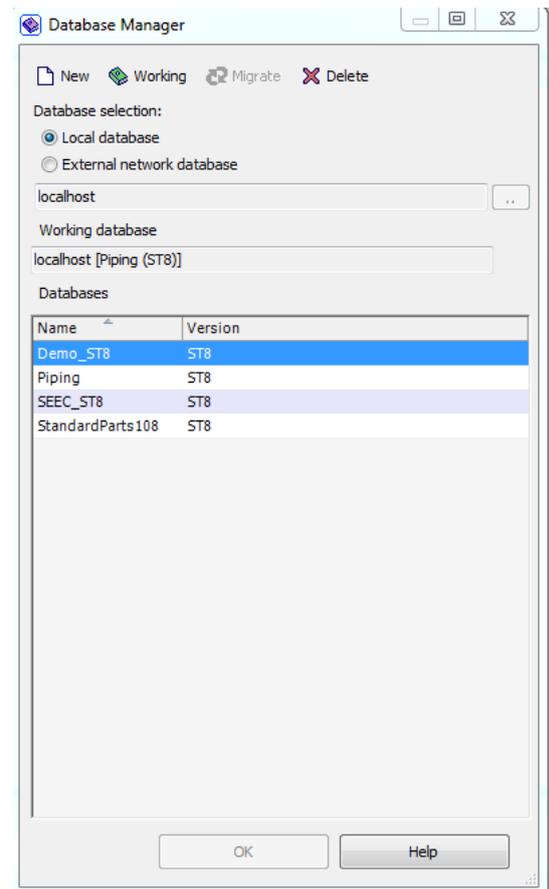
PipeClass.txt

In the Solid Edge preferences folder there is a configuration file PipeClass.txt that is used to select fittings. It's recommended to configure this file and define your company standards in a PipeClass. You can back up the original PipeClass.txt and create an new file with only the classes you need.

Every PipeClass is defined in the same format. Lines that begin with // are not processed.

BeginClass

ClassName

STANDARDS

FITTINGS

EndClass
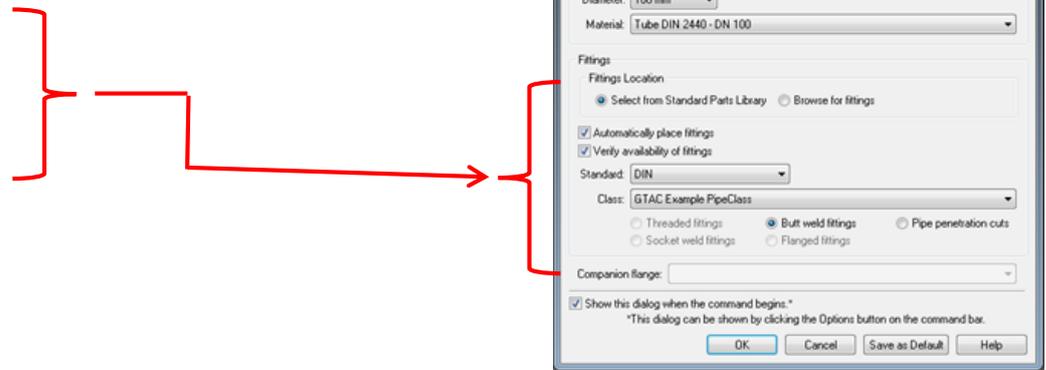
The FITTINGS line has 3 columns:

```
// -------------------------------------------

BeginClass
GTAC Example PipeClass|
STANDARDS        "DIN"
ELBOW                    SIMPLE              "DIN EN 10253-1:1999"       ""
TEE                      SIMPLE              "DIN EN 10253-1:1999"       ""
EndClass
// ------------------------------------------
```

Fitting

Each of the fittings supported for placement by the pipe command is listed in UPPERCASE in the first column.

Search Method

The second column defines the search method used. Currently only SIMPLE is supported which uses the strings in the following columns to search in the pipe fitting database. This field enables support for more sophisticated search methods in the future. Entries in this field must be in UPPERCASE. The quotes ("") at start and end of the string will be removed prior to searching the database.

Search String

The third column is the search strings which are interpreted based on the search method and are appropriately applied to the piping database. You may define multiple strings in quotes and separated by spaces, like – "Class 25" "Malleable". A fitting will be selected which matches all the strings.

Example

For this example I've created a standard parts library with only a selection of pipes and fittings needed for my design.

With the installation of Solid Edge a pre-filled PipeClass.txt is delivered. The file is over complete and must be setup by the customer for his/her company standard. In this document I will use a very simplified class to explain the working.
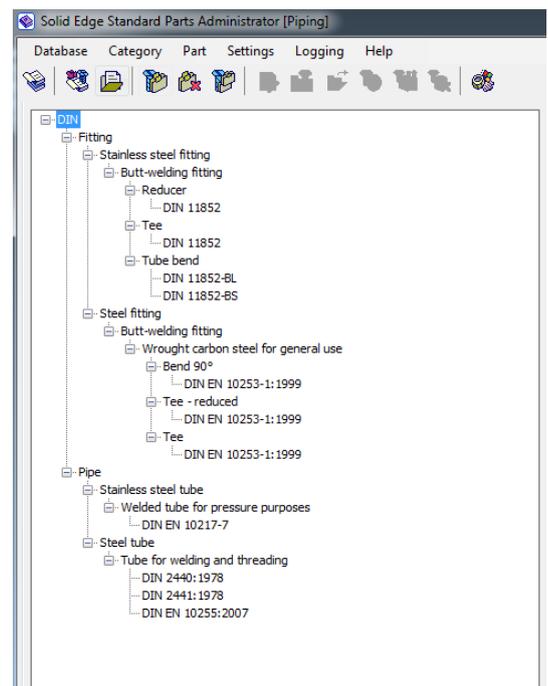

```
// ------------------------------------------

BeginClass

GTAC Example PipeClass

STANDARDS        "DIN"

ELBOW                    SIMPLE              "DIN EN 10253-1:1999"            ""
TEE                      SIMPLE              "DIN EN 10253-1:1999"            ""

EndClass
// ------------------------------------
```
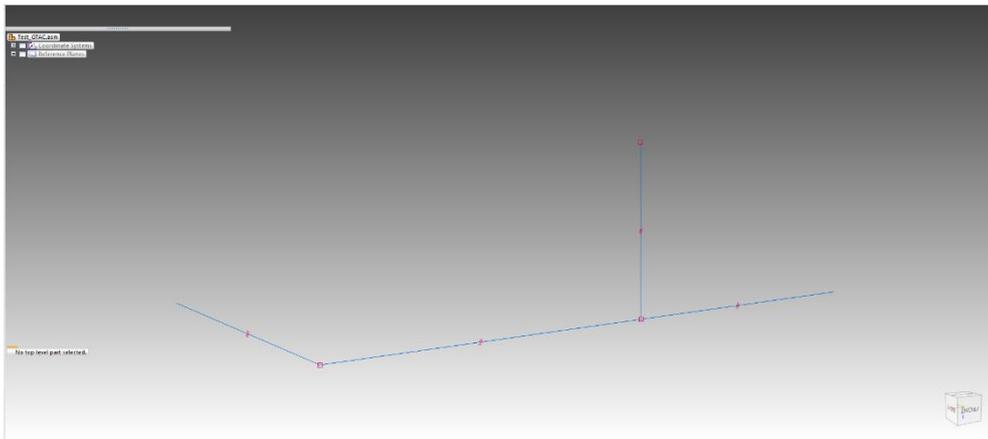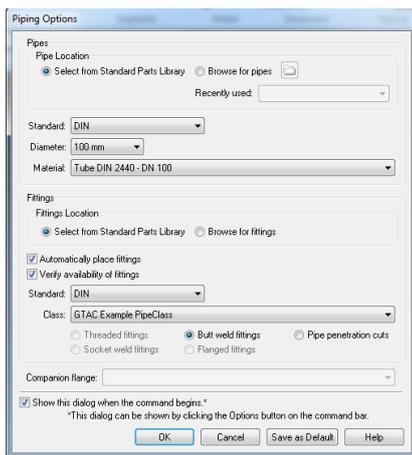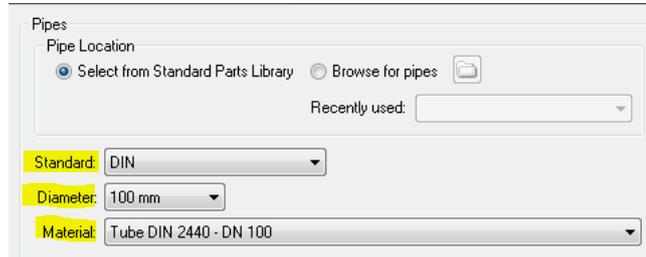
Create a small path in piping route

To design your piping route:

1. *Select "Piping Route"*
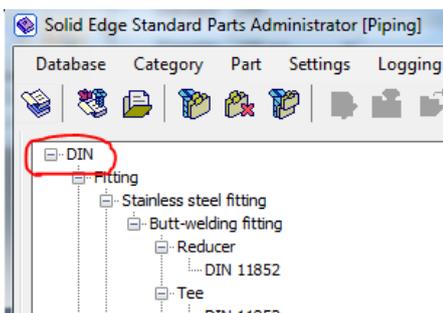2. *The Piping Option Dialog is now shown*

The user has to define the pipe standard, diameter and material first.

Selection in the 3 fields are working top down; e.g. the selection of the diameter will drive available field in the material drop down.
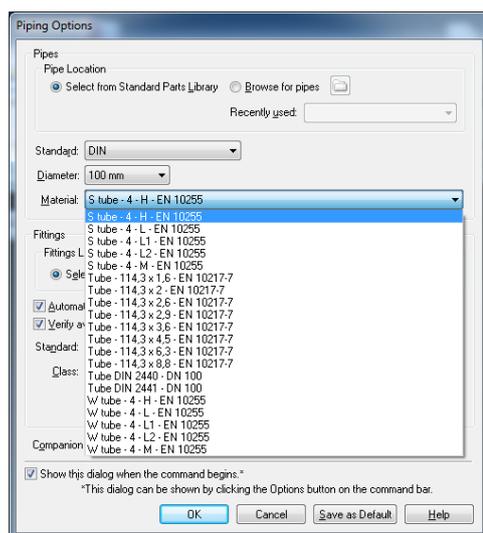
Standard -> "DIN"; this will select the main standard.

Diameter -> "100"; this is the selection of the outside diameter range.

| Nominal size (DN) |
|---|
| 6 |
| 8 |
| 10 |
| 15 |
| 20 |
| 25 |
| 32 |
| 40 |
| 50 |
| 65 |
| 80 |
| 100 |
| 125 |
| 150 |

Material -> based on the selection of the "Diameter" a list of available pipes is in the dropdown list. With the selection will define the diameter and wall thickness for the pipe run.

Part name	Nominal size (DN)	Outside diameter	Wall thickness
Tube DIN 2440 - DN 6	6	10,2	2
Tube DIN 2440 - DN 8	8	13,5	2,35
Tube DIN 2440 - DN 10	10	17,2	2,35
Tube DIN 2440 - DN 15	15	21,3	2,65
Tube DIN 2440 - DN 20	20	26,9	2,65
Tube DIN 2440 - DN 25	25	33,7	3,25
Tube DIN 2440 - DN 32	32	42,4	3,25
Tube DIN 2440 - DN 40	40	48,3	3,25
Tube DIN 2440 - DN 50	50	60,3	3,65
Tube DIN 2440 - DN 65	65	76,1	3,65
Tube DIN 2440 - DN 80	80	88,9	4,05
Tube DIN 2440 - DN 100	100	114,3	4,5
Tube DIN 2440 - DN 125	125	139,7	4,85
Tube DIN 2440 - DN 150	150	165,1	4,85

3. Next step is the fittings selection

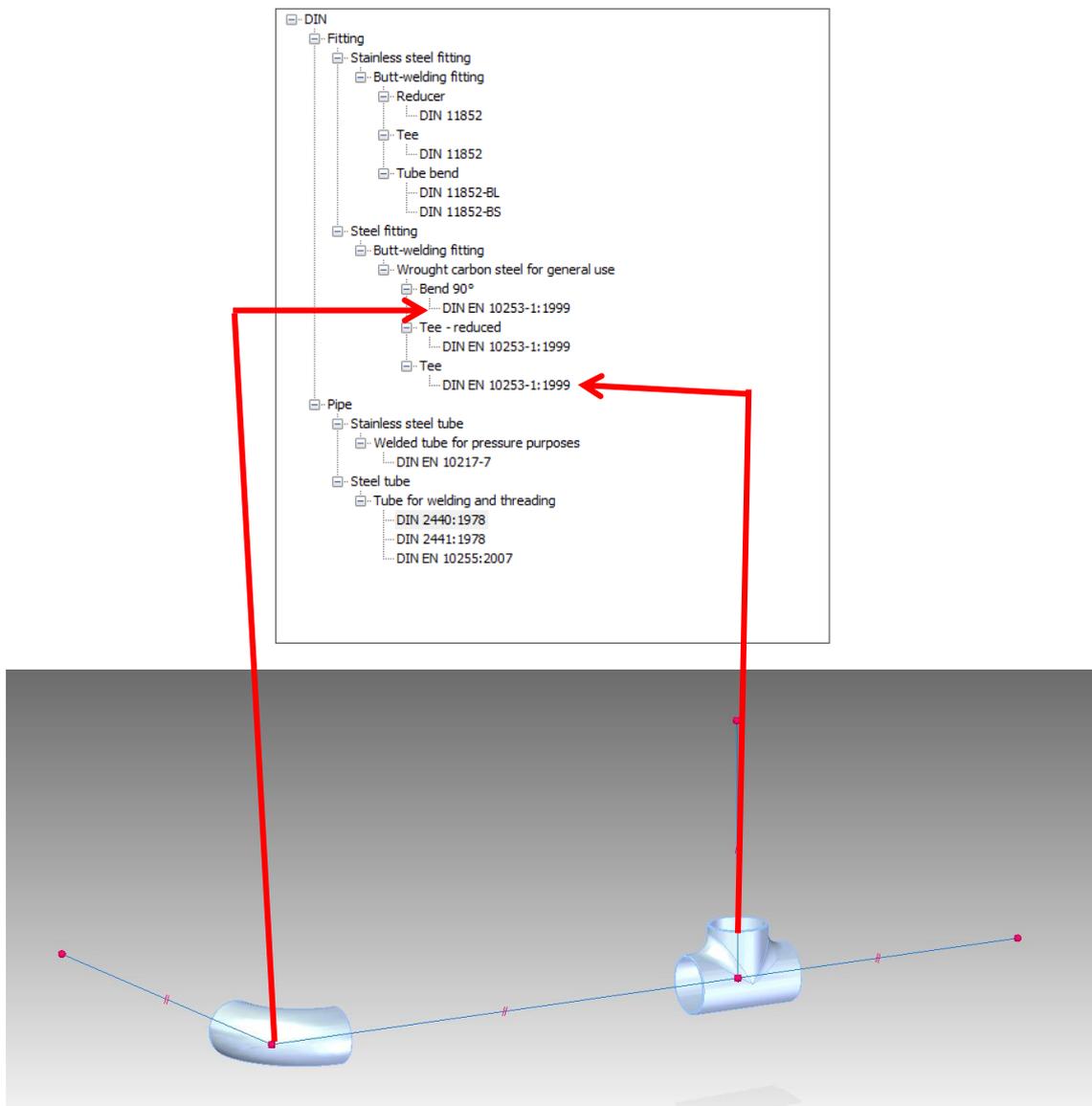*The selected standard will filter the available classes according the STANDARDS in the PipeClass.txt*
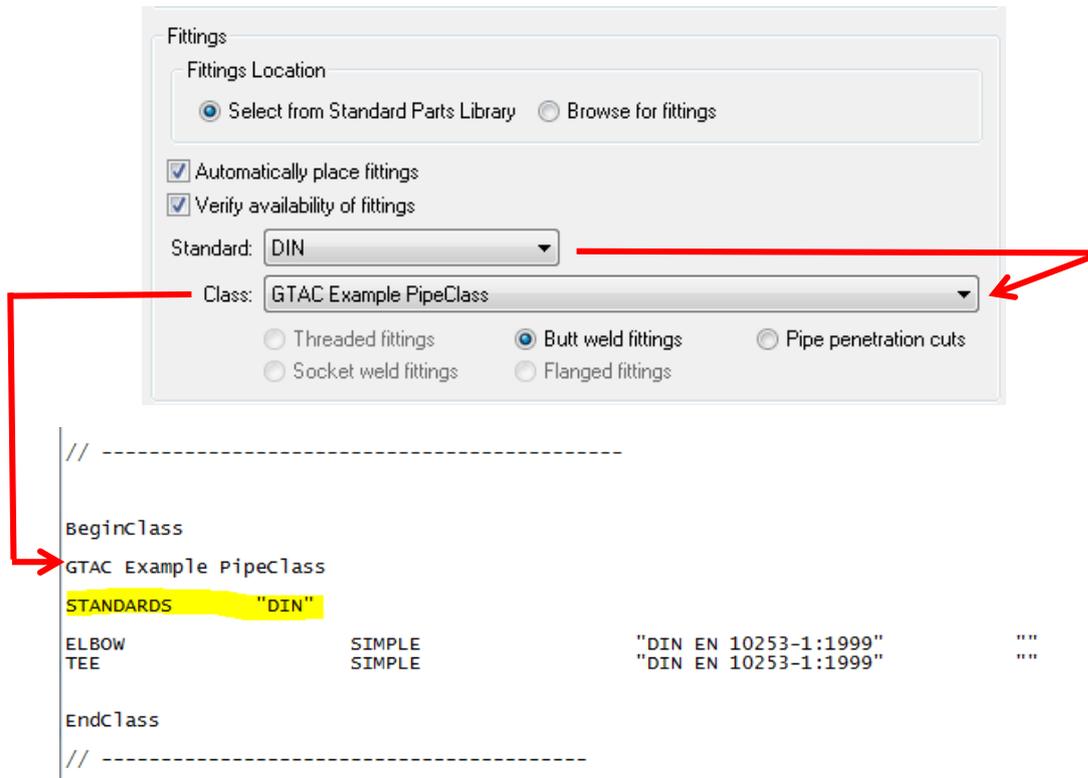
In this class I defined two types of fittings: Elbow and Tee

How search is working:

- It will search the catefories only

- It will search for the string "DIN EN 10253-1:1999"

Because we don't have a filter on wall thickness it will use the first available fitting found in the list:

For the elbow

Part name	Nominal size (DN)	Outside diameter
Elbow - EN 10253-1 type 3D - 90° - 108,0 x 3,6	100	108
Elbow - EN 10253-1 type 3D - 90° - 114,3 x 3,6	100	114,3
Elbow - EN 10253-1 type 2D - 90° - 114,3 x 3,6	100	114,3
Elbow - EN 10253-1 type 5D - 90° - 108,0 x 3,6	100	108
Elbow - EN 10253-1 type 5D - 90° - 114,3 x 3,6	100	114,3
Elbow - EN 10253-1 type 3D - 90° - 139,7 x 4,0	125	139,7
Elbow - EN 10253-1 type 2D - 90° - 139,7 x 4,0	125	139,7

For the tee

| Part name	Nominal size (DN)	Outside diameter	T
Tee - EN 10253-1 - 76,1 x 2,9	65	76,1	P
Tee - EN 10253-1 - 88,9 x 3,2	80	88,9	P
Tee - EN 10253-1 - 101,6 x 3,6	90	101,6	P
Tee - EN 10253-1 - 114,3 x 3,6	100	114,3	P
Tee - EN 10253-1 - 139,7 x 4,0	125	139,7	P
Tee - EN 10253-1 - 168,3 x 4,5	150	168,3	P
Tee - EN 10253-1 - 219,1 x 6,3	200	219,1	P
Tee - EN 10253-1 - 273,0 x 6,3	250	273	P

Tip:

Only add those standard parts in your library that you use, otherwise you have to replace many fittings that are automatically placed!

You can define multiple databases based on the Pipe Class you want to work with. Please note that the PipeClass.txt only search the underline working database.

4. Replace fittings

When you have finished the piping route you might want to replace some fittings because the selected one does not match your design. As yu can see in the screenshot the diameter of the elbow does not match the diameter of the tube.
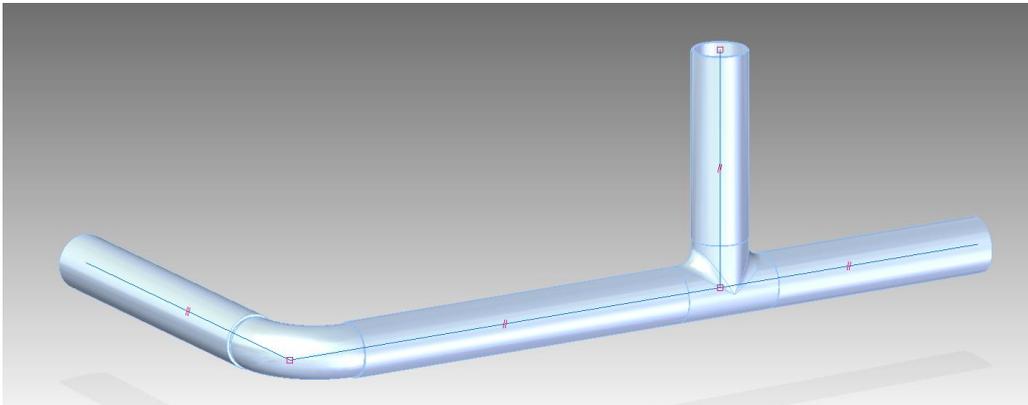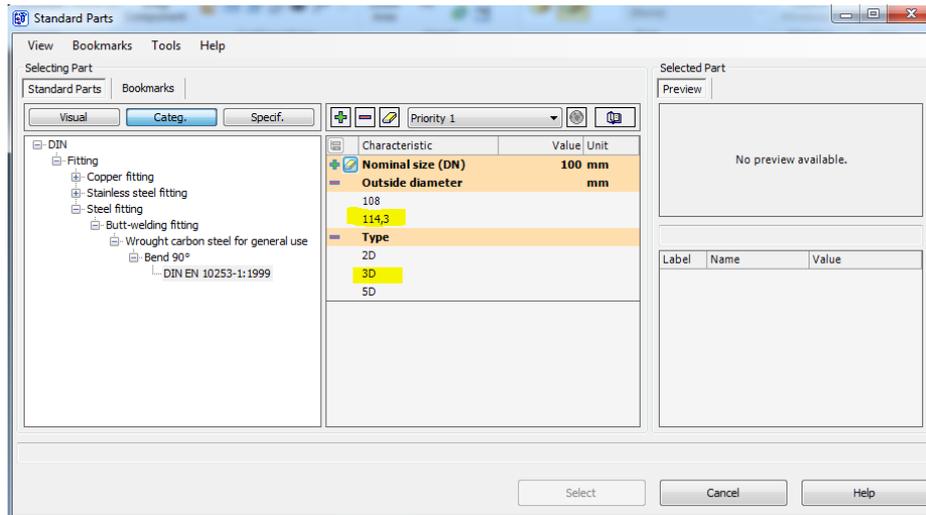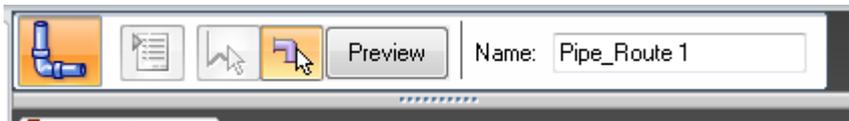

Select the elbow and use 'Edit Fitting'
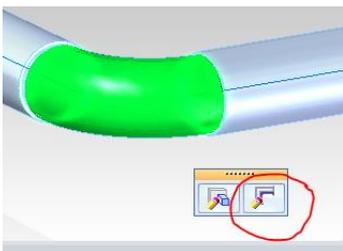
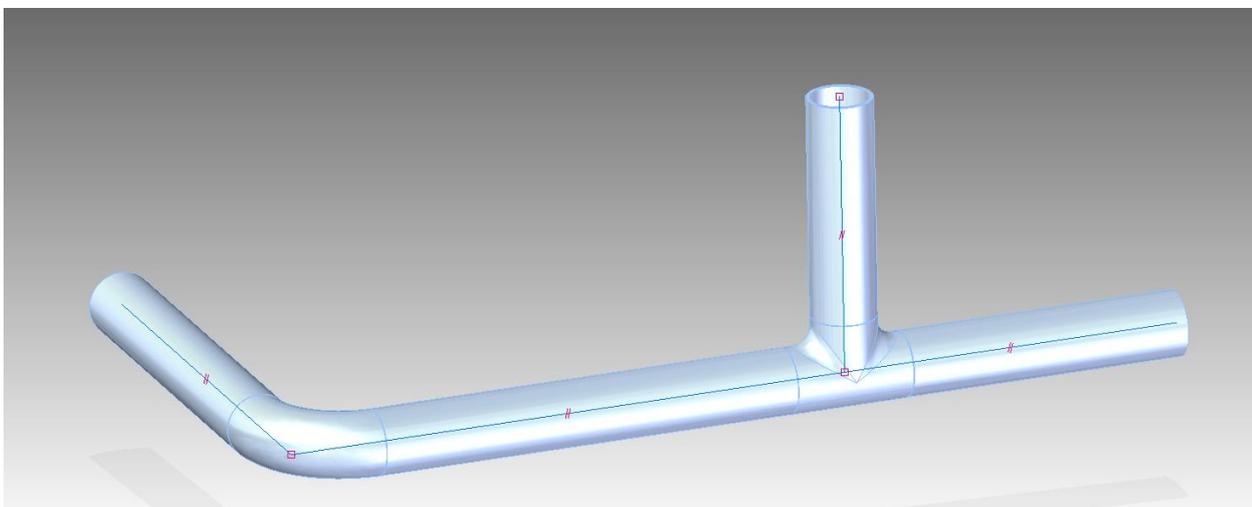*In the toolbar select 'Replace Fitting – select from standard parts library"*

Now select the required fitting in the dialog
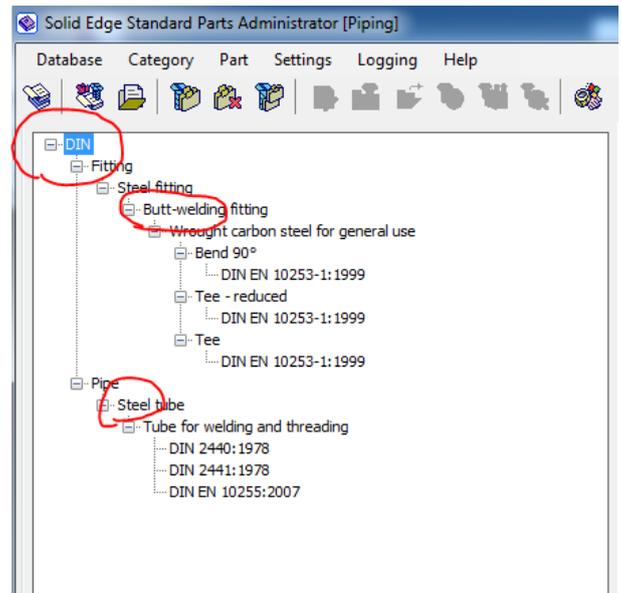

Use 'preview' to apply changes

And finish to complete the change

PipeClass.txt FAQs

PipeClass.txt will search in the category name only

- *Standard (e.g. DIN, ASME, ISO etc..)*
- *Material (e.g. Steel, Plastic etc...)*
- *Assembled (e.g. Butt-welding, Treaded etc...)*
- *No wall thickness, shape or pressure*

The third column in PipeClass.txt is an 'AND' statement

In most cases you don't need this extra string to search. If the search string is not giving any result the class remains empty.
E.g. I used "DIN EN 10253-1:1999" AND "reduced" -> does not work because reduced tees don't have Nominal Diameter (DN) to select

PipeClass.txt will not select:

- *Reduced Tees*
- *Vavles*
- *Y*
- *Returns*
- *...*

Be selective with adding parts to your library. Use the smart installer.

In many case users start with adding all components to the working database. This is not a good practice! It will slow down the standard parts library and you will end with endless search and browse actions to select components. Only install standards you need and select the components that are required for your design only. This need more time during the installation but will make the tool more useful for the end-users.