Use this Guide to build, solve and report on your first FluidFlow3 model in minutes.

Open FluidFlow3 from the desktop shortcut and then double click on both blue title bars to expand to full screen. Your monitor should look like the image on the right below …

The **Component Palette** is the key to building a model.

Each tab on the Component Palette groups together similar equipment items – pipes, valves, pumps etc. Each tab displays a number of different icons, each icon representing a specific equipment item or component within that group; say different pipe materials or different valve types.

In the image opposite (and above), the Pipes tab is selected showing 14 different pipe materials. Click to open any tab then hover over each icon to display the component description. (Note, if a tool-tip does not display, click on white space on the flowsheet and try again).

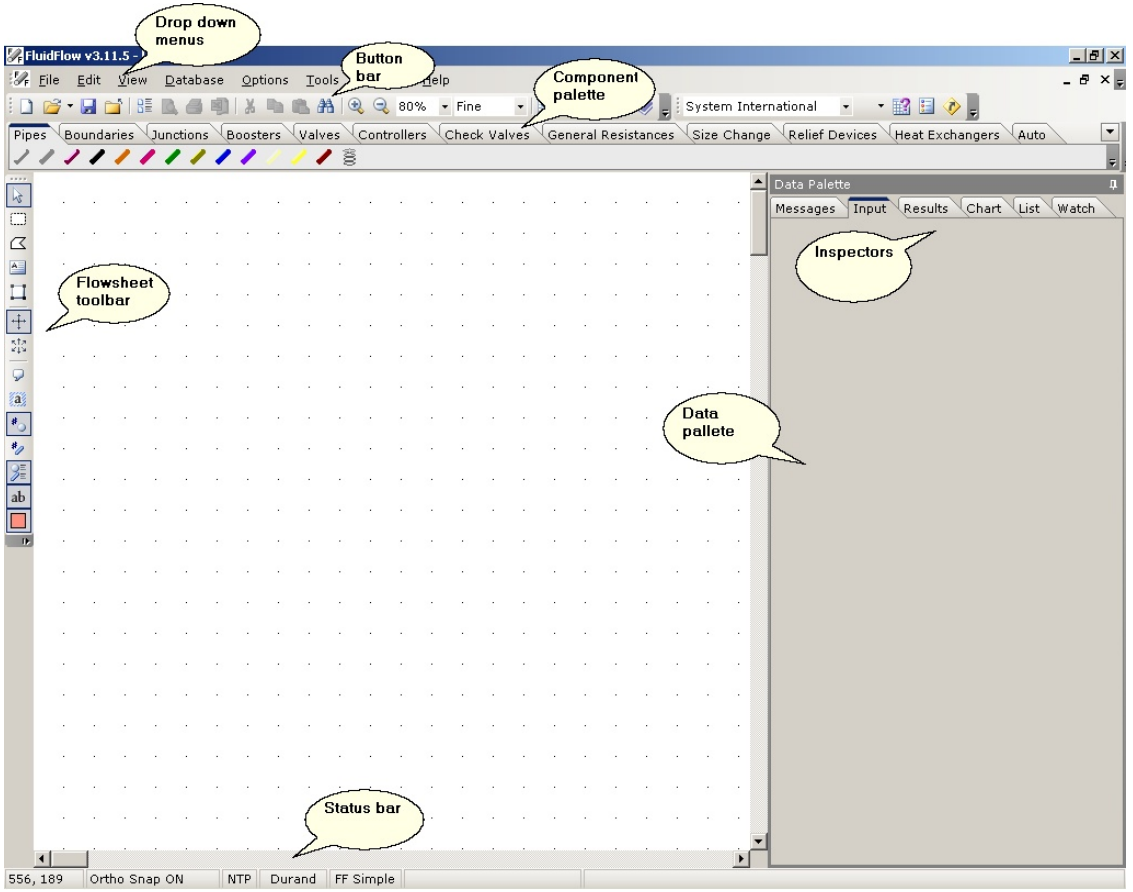
Familiarise yourself with the program layout by doing the following:

- Hover the cursor over the Flowsheet Toolbar buttons (on the left of the screen) and note their actions. Many of them toggle on/off specific actions. We will use these buttons extensively in this Express-Start Guide.
- View the drop down menu options – especially Edit.

Component icons are the building blocks for a schematic layout of a pipe network and are intrinsically linked to the mouse pointer (cursor).

Click to select any icon and then move over the flowsheet. The pointer shape changes to reflect the selected icon or equipment component. Click again to drop the component on to the flowsheet. (For a pipe you click-release-drag-click). Note the pointer remains live so you can place a second component on the flowsheet.

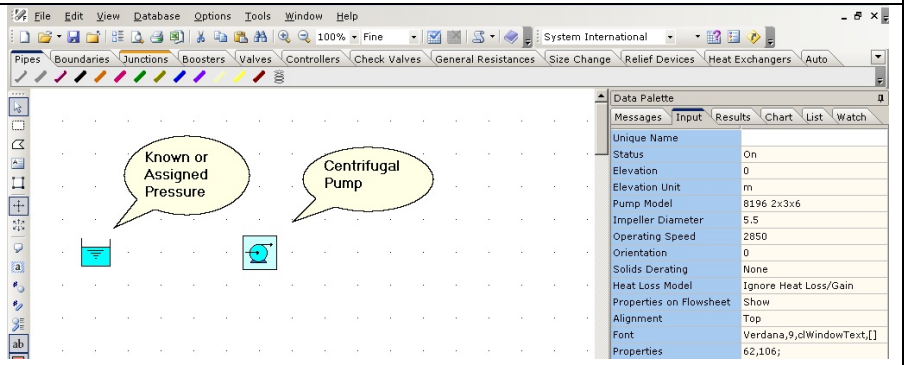
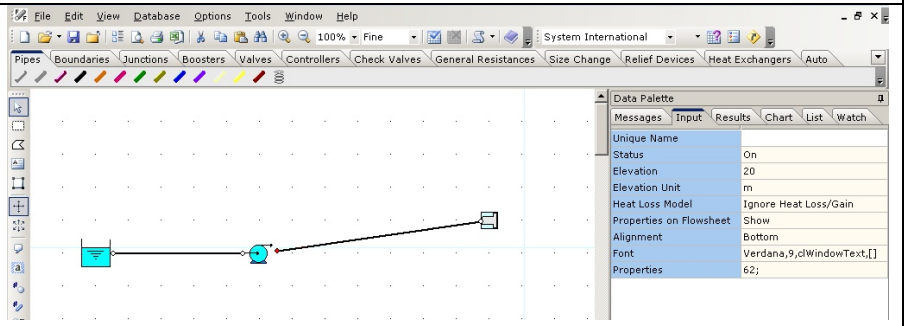
Alternatively you can immediately select any another tab/icon or simply **'deactivate'** the cursor by clicking on the Selector Button (the Arrow on the top of the Flowsheet Toolbar). The pointer returns to a cross.

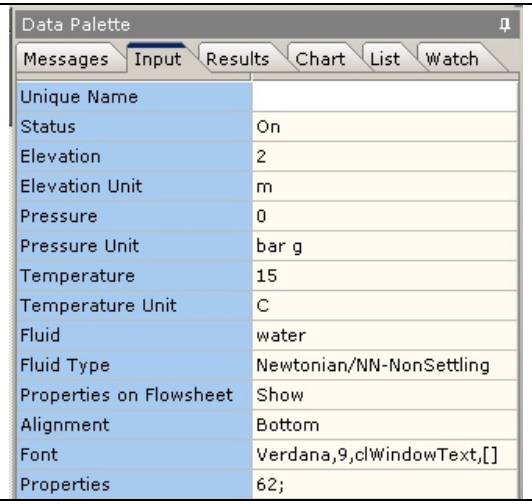
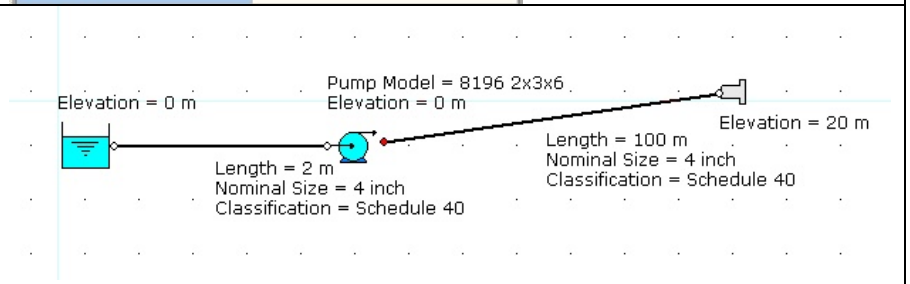


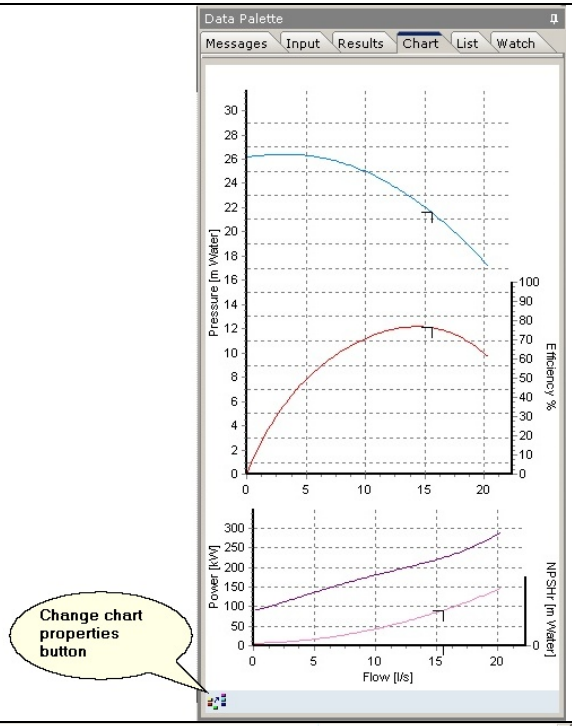
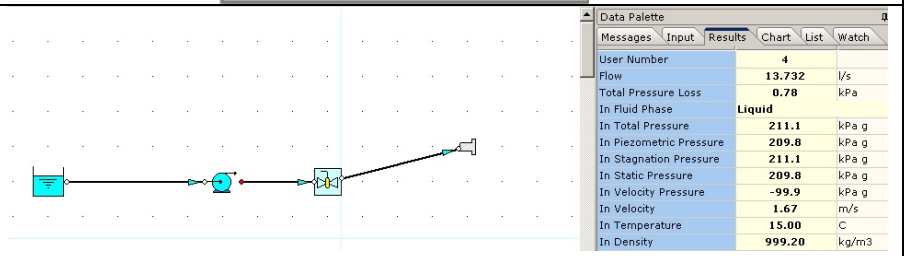
Important:

1. The Data Palette will become live as soon as a component is placed on the flowsheet.
2. Ensure that units are System International by checking the button bar and selecting ***System International*** from the drop down options.

BUILD A SIMPLE PUMP MODEL

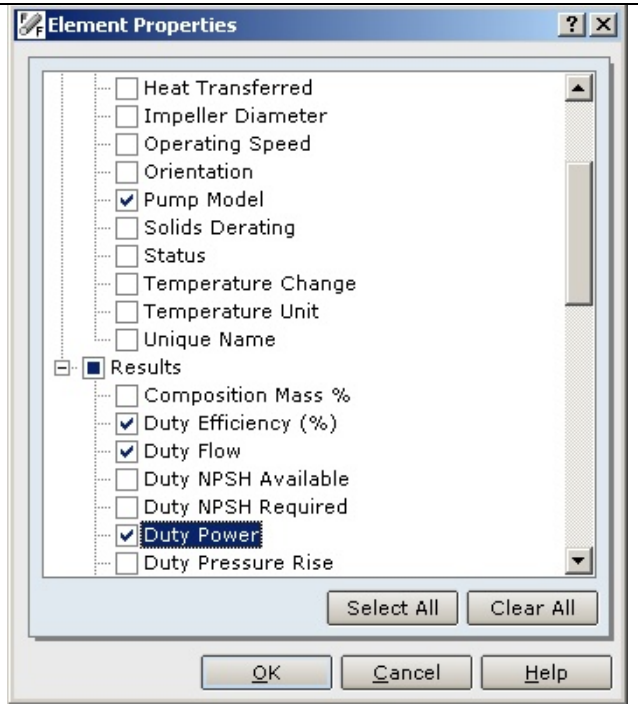
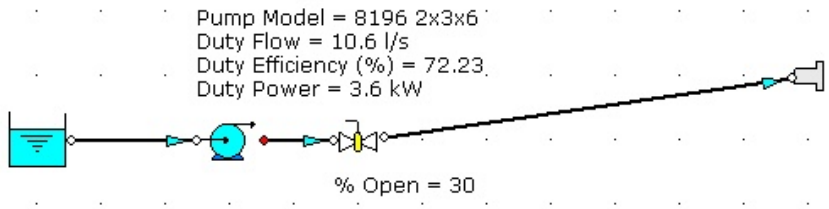
STEP	TASK	ACTIONS 1	ACTIONS 2	NOTES	IMAGE
1	Clear the flowsheet.	Either: Open a new flowsheet. Clear your existing flowsheet.	Ctrl N or the button on the far left of the Button Bar. Edit | Clear Network.	You can have multiple flowsheets open at one time. For a new flowsheet activate orthogonal layout by using the *Orthogonal Cross-Hairs* button on the Flowsheet Toolbar – see image.	
2	Place a ***Known or Assigned Pressure*** icon on the flowsheet followed by a ***Centrifugal Pump*** icon	Click the Boundaries tab then select the *Known or Assigned Pressure.* Drop onto the flowsheet. Click the Booster tab and select the *Centrifugal Pump.* Drop onto the flowsheet.	Having positioned the *Known or Assigned Pressure* icon you can either deactivate the pointer or go direct to the *Centrifugal Pump* icon.	Note the Data Palette has activated showing the **default** Input values for the selected component. When a component is selected it is highlighted blue. The Data Palette is synchronised with the flowsheet at all times.	
3	Connect the pipes.	Drag a steel pipe from the *Known or Assigned Pressure* to the *Centrifugal Pump* and from the pump to a location on the right.	Select the Pipes tab then select the steel pipe icon. For the suction pipe, click on the tank then release-drag-click-release on the pump. For the delivery pipe, click on the pump, drag-click-release.	The pipe ends with an *Open Pipe*. Note – at this point check that you have set the flowsheet to orthogonal by clicking on the *Orthogonal Cross-hairs* button on the Flowsheet toolbar. Click until snap points are displayed. Components should snap home. If not, deactivate the pointer, then select (left click) each component (pointer turns to a **finger-pointer**) and drag into position.	

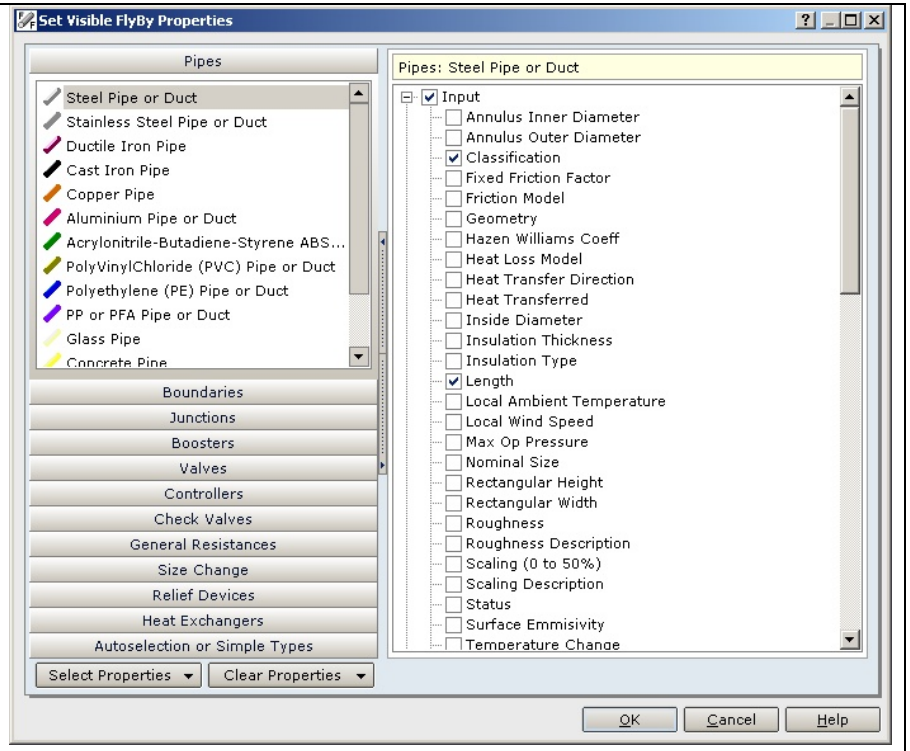
4	Amend data via the **Input Inspector**	Deactivate the pointer then select the *Known or Assigned Pressure …* (finger-point and click)	Now move the pointer over the Data Palette and select the Input Inspector. Click in the *Elevation* field and change the value to 2.0m.	The *Known or Assigned Pressure* component can be simplistically considered as a tank of fluid with a surface elevation of 2.0m above datum.	
5	Repeat for each of the other components	Finger-point and select each component in turn and then move over the Input Inspector and amend the data fields accordingly.	For the pipes amend the lengths as shown. For the pump the default values should not need changing.	**Note – if you are using the default installation of the software the pipe classification and the pump model will be the values as shown – all you need to do is amend lengths and elevations.** **If the defaults are not as shown refer to end of this note for directions on how to change the components.**	
6	Calculate	Use the Tick button on the Button Bar.	Ctrl F8 also initiates a calculation.	View the Status Bar.	

7	View results	Deactivate the pointer. Select the Results Inspector.	Finger-point and select each component in turn. The Results Inspector immediately updates.	View the Chart Inspector for the pump to display the pump curves. **You can change the Results Inspector units by right-clicking on flowsheet white space and using the Pop-up menu or F9** **You can change the display units on the pump chart by clicking on the button at the bottom left hand side of the chart.**	
8	Add additional equipment items.	Select a butterfly valve from the Valves tab	Hover over the discharge pipe. The pointer changes to a pair of flanges. Click to drop the valve onto the pipe. Calculate.	Note the pipe has split into two equal parts (view the Input Inspector). View the flowrate through the valve (Results Inspector).	
9	Amend pipe lengths.	Change the pipe length between the pump and the valve to 0.5m,	Rturn the delivery pipe length to its original 100m.	The model now represents a pumped system with a valve at the outlet from the pump.	
10	Adjust the valve	Finger-point and select the valve.	From the Input Inspector change the % Open field to 30% Calculate.	View the flowrate through the valve.	

VIEWING DATA

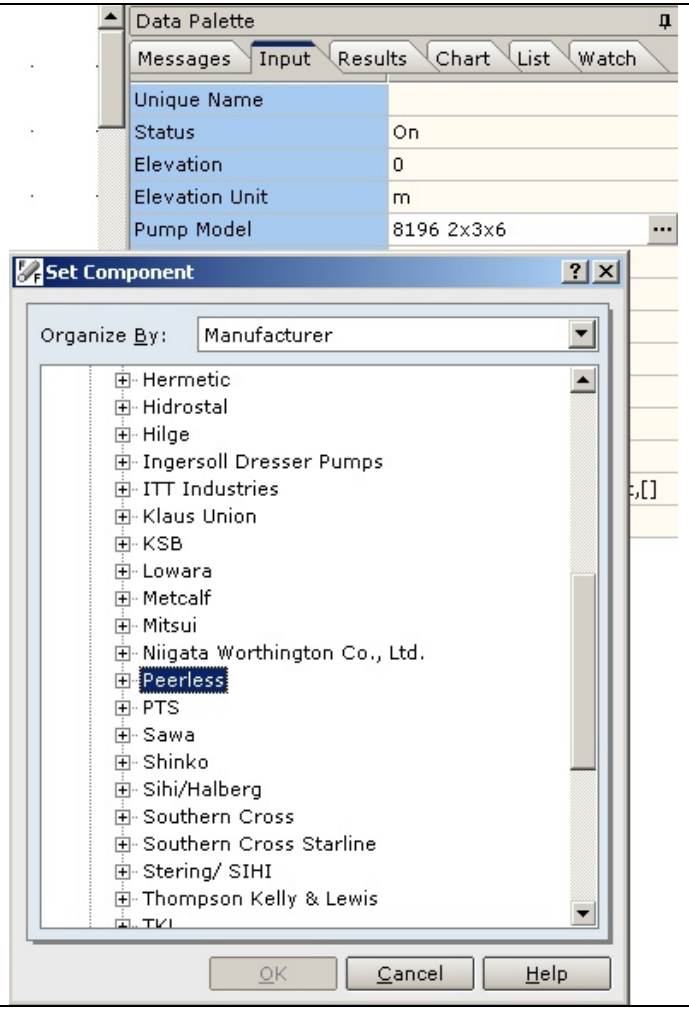
There are several ways of viewing input and results data. We have already used the Results Inspector. Here are some other options:

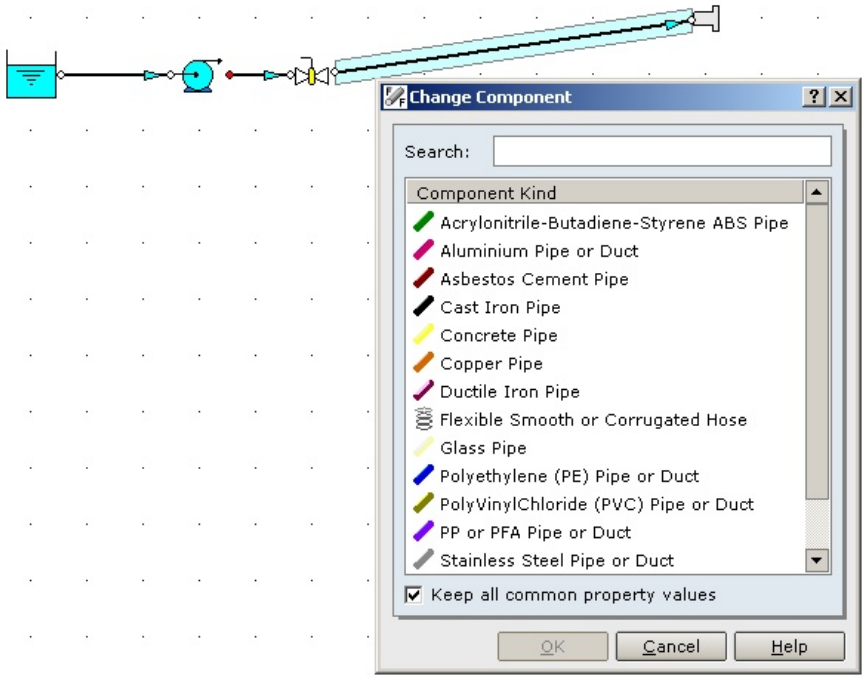
11	**Display visible properties on the flowsheet**	Select any component – say the pump.	Goto the Input Inspector and click in the ***Properties on Flowsheet*** field at the bottom. Toggle the option to **Show** by clicking the down arrow button. Three additional fields will be displayed. Click in the ***Propertie***s field to display the 3-dot button.	Now click on the 3-dot button to display the dialog shown opposite. Expand both the Input and Results lists and select (tick the box) those properties you wish to display – say pump model, duty flow, power and efficiency. Click OK. These properties should display on the flowsheet. **If not, toggle on the display using the *Show or Hide Properties on Flowsheet* button on the Flowsheet Toolbar.** Experiment with the Input Inspector options of *Alignment* and *Font.* Display properties for other components.	
12	Display the valve visible properties.	Select Input - % open and Results – Flow and Total Pressure Loss		Vary the valve opening and for each calculations observer how the visible display updates after each run. (Note how the flowrate does not alter significantly until the vale is well closed – this is typical of this type of valve).	

13	**FlyBys**	FlyBys allow you to hover over any component and display user-selected properties.	Hit **F6**	A similar dialog to the Visible Properties is displayed – but this time it allows you to select any component (or icon). The opening selection is Steel Pipe or Duct. Make a selection of *Steel Pipe or Duct* pipe properties – say Classification, Length, Flow and Total Pressure drop. OK Hover over the pipes and display the FlyBys. **If they do not display toggle on the display using the** ***Show FlyBy* button**  **on the Flowsheet Toolbar.** Hint: ***F3****-Components Tab* allows you to remove the FlyBys transparency, making them easier to see.	

AMENDING DEFAULT VALUES

Each icon has a set of user-defined default properties which are used every time the component is placed on the flowsheet. So, if the next 10 pipes you are going to place on the flowsheet are 4" steel Sch40, 10m long, then you can set the default to this and each time you place a steel pipe on the flowsheet it will reflect these properties. Of course the data can be amended later via the Input Inspector and this is what you need to do if the default settings on your system are different from those used in this Express-Start Guide.

14	Change the pump model	Select the pump and then goto the Input Inspector.	Click in the *Pump Model* field and then click the 3-dot button.	This takes you to the Pumps Database. Organise the database by Manufacturer via the menu option at the top of the dialog. Then expand the Centrifugal Pump list and find and expand the Peerless list. Select the **8196 2x3x6** model and OK. This pump will now be active on the flowsheet.	

15	Change the pipe size and classification.	Select a pipe and then goto the Input Inspector.	Click in the *Classification* field and then click the 3-dot button.	You can now change the pipe to any other size and class **within the current material selection**.	
16	Change the pipe material.	Select a pipe.	Left click to finger-point. Release. Continue to hover over the pipe and then right-click.	Select the *Change Component* option on the Pop-up. Choose Steel Pipe or Duct. OK. Now go to Step 15 to select the desired class and size.	

SETTING DEFAULT VALUES

As an alternative to amending properties via the Input Inspector you can pre-se the defaults. Hit **F6**. A similar dialog to FlyBys appears, but here you set the defaults for each and every icon.